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HUMAN RESOURCE MOTIVATIONAL PRACTICES, EMPLOYEES' MENTAL HEALTH, AND THEIR WORK-RELATED BEHAVIORS: EVIDENCE FROM EUROPE AND THE US

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Dedications

This dissertation is dedicated to my parents, Mr. Mohammad Reza Abedini and Mrs. Vensi Moradi; without whose support and love throughout my lifetime, I would not have been the person I am now.

Abstract (English)

Nowadays, one of the most critical concerns of both organizations and researchers, particularly in job design and human resource (H.R.) domains, is how to gain maximum benefits in a healthy environment that provides organizations with an active resource of humans and keeps their positions in the market stable. Accordingly, it is beneficial to determine how motivational practices as key performance accelerators of H.R. policies affect employees' mental health, leading to different work-related behaviors.

Despite the valuable studies on the relevance of intrinsic job characteristics and extrinsic contingent pay schemes for employee outcomes such as performance, their effects on employees' mental health are still under-researched. More importantly, little existing evidence shows mixed results, particularly on extrinsic contingent pay schemes, which involve pay uncertainty leading to financial worry. We, however, have very little insight into the theoretical mechanisms explaining the relationships between financial worry and employees' work-related behaviors.

To fill the previous studies' gaps, this study aimed at contributing to the literature by first taking the idea of Self-Determination Theory (SDT) to assess the mental effects of both intrinsic job characteristics (i.e., autonomy, feedback, and skill variety) and extrinsic contingent pay schemes (i.e., individual and collective Performance-Related Pay (PRP) schemes, alone and in combination) among European employees and hence compare the strength effect of these motivational practices. Second, applying the person-environment fit theory to investigate whether European cultural beliefs (i.e., individualism/collectivism, strong/weak power distance, and strong/weak uncertainty avoidance) moderate the relationships mentioned above. Third, drawing on cognitive load theory and SDT, this study integrated cognitive and motivational mechanisms into the employees' work-related behaviors (i.e., counterproductive work behavior and proactive

skill development) in response to their financial worries.

With the final samples of 19,360 and 12,305 employees, the sixth European working conditions survey was analyzed with STATA in the first and second studies. For the third study, time lag data collected from 180 American employees and analyzed using AMOS.

Hierarchical and relative importance analysis, in the first study, revealed that intrinsic job characteristics enormously enhance employees' mental health, compared with PRP schemes in which oppose to their interaction, their single schemes decrease it. In the second study, multilevel analyses showed that while cultural beliefs moderated the positive effects of intrinsic job characteristics, they did not moderate the adverse effects of PRP schemes. More precisely, the positive impact of skill variety in weak power distance and uncertainty avoidance, autonomy in individualism, feedback in collectivism, strong power distance, and uncertainty avoidance countries are substantial. The third study indicated that financial worry is positively related to counterproductive work behavior through lower levels of need satisfaction. Also, financial worry is positively associated with cognitive problems, which were positively for older and negatively for younger employees related to proactive skill development.

These findings provide a novel pathway for H.R. personnel and other third parties to understand the most aligned motivational policies with employees' values to enhance their mental wellbeing. Consequently, managers will be able to design interventions that could effectively counteract the adverse mental health effects of motivational policies to reduce the associated stress and negative work-related behaviors.

Keywords Wellbeing. Employee mental health. Performance-related pay. Job characteristics. Autonomy. Feedback. Skill variety. Culture. Individualism. Collectivism. Power distance.

Uncertainty avoidance. Financial worry. Need satisfaction. Cognitive problems. Counterproductive work behavior. Proactive skill development

Abstract (Italian)

In questa fase uno degli aspetti cruciali di ricerca organizzativa e di gestione delle risorse umane è rappresentato dalla costruzione di un ambiente di lavoro salutare e confortevole che si traduca in modelli di gestione delle risorse umane volti a rafforzare la performance e la posizione competitiva dell'impresa.

In particolare molta attenzione è dedicata ai processi motivazionale e alle pratiche di gestione delle persone che possano impattare positivamente sulla salute mentale dei lavoratori e sui loro modelli comportamentali.

Nonostante i numerosi studi esistenti sulla rilevanza delle componenti intrinsiche (caratteristiche del lavoro e autonomia) ed estrinsiche (retribuzioni monetarie e progressione di carriera) in funzione della performance, i loro effetti sulla salute mentale dei lavoratori è stato trascurato. La scarsa evidenza empirica disponibile, infatti, mostra risultati confusi e contradditori soprattutto con riferimento alle modalità della retribuzione di risultato che accrescerebbe l'incertezza finanziaria dei lavoratori coinvolti. In questa direzione, quindi, si richiede un approfondimento teorico in grado di spiegare la relazione tra incertezza/preoccupazione finanziaria e comportamenti lavorativi.

Per coprire almeno in parte tale carenza questo lavoro si propone innanzitutto di utilizzare la *Self-Determination Theory (STD)* per valutare gli effetti sul piano mentale sia delle ricompense intrinseche (autonomia e varietà) che estrinseche (premi di risultato individuali e collettivi) - considerate sia separatamente che congiuntamente – relativamente agli occupati delle imprese europee. In secondo luogo, applicando la *Person-Environment Fit Theory*, per indagare l'effetto moderativo dei diversi sistemi culturali europei (livello di individualismo/collettivismo, distanza dal potere gerarchico, atteggiamento nei confronti dell'incertezza) sulla relazione di cui sopra.

Infine, sulla base della *Cognitive Load Theory* e della *STD*, lo studio si propone una integrazione dei meccanismi cognitivi e motivazionali con i comportamenti lavorativi degli occupati (comportamenti conflittuali piuttosto che proattivi e di sviluppo) in relazione alla incertezza finanziaria percepita.

La sesta europea *Working Condition Survey* con un campione finale di 19.360 e 12.305 occupati è stata analizzata con STATA nella prima e nella seconda parte del lavoro. Nella terza parte la base empirica è rappresentata dai dati raccolti presso 180 occupati statunitensi analizzati tramite AMOS.

I risultati della prima analisi evidenziano come le caratteristiche intrinsiche del lavoro (il contenuto del lavoro in sé) rafforzino fortemente la salute mentale dei lavoratori, diversamente dal negativo effetto degli schemi di retribuzione estrinseca legati al risultato. Nel passaggio successivo emerge come i fattori culturali moderano efficacemente l'effetto positivo dei sistemi di compensazione intrinsici ma non moderano i negativi effetti degli schemi di *Performance Related Pay (PRP)*.

Il terzo approfondimento indica che la preoccupazione finanziaria (derivante prevalentemente dagli schemi di PRP) ha un effetto positivo sui comportamenti conflittuali e non produttivi dovuti alla insoddisfazione dei lavoratori. L'incertezza finanziaria sarebbe anche associabile ai problemi cognitivi soprattutto dei lavoratori avanti nell'età. L'effetto risulterebbe invece negativo per i lavoratori più giovani.

Questi risultati offrono interessanti spunti di riflessione per gli H.R. manager volte ad una selezione più accurata delle pratiche motivazionali per migliorare il benessere mentale di collaboratori. Di conseguenza i manager potrebbero essere in grado di progettare e implementare interventi più efficaci per ridurre lo stress da lavoro correlato e migliorare la performance.

Parole chiave: Benessere organizzativo, salute mentale, premio di risultato, caratteristiche del lavoro, autonomia, varietà, individualismo, collettivismo, distanza gerarchica, incertezza finanziaria, soddisfazione dei bisogni, problemi cognitivi, sviluppo competenze e prestazioni.

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List of Abbreviations

Abbreviation	Description
CP	Cognitive Problems
CFA	Confirmatory Factor Analysis
CLF	Common Latent Factor
CMB	Common Method Bias
CWB	Counterproductive Work Behavior
FW	Financial Worry
GDP	Gross Domestic Product
HR	Human Resource
JCM	Job Characteristics Model
NS	Need Satisfaction
SDG	Sustainable Development Goals
SDT	Self-Determination Theory
P-EF	Person-Environment Fit
PRP	Performance-Related Pay
PSD	Proactive Skill Development

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Chapter 1

General Introduction

Introduction

Nowadays, there is a growing competitive environment among organizations to remain in the business market. In this regard, managers will increasingly need to pay attention to enhancing the organization's financial aspects and improving social and human criteria. Thus, one of the most critical concerns of the organizations and researchers is how to gain maximum benefits in a healthy and happy environment that is beneficial to the employees and provides employers with an active human resource, leading to more productivity and profitability. Accordingly, it is helpful to find out how Human Resource (H.R.) practices can affect employees' health, leading to more productivity. Hence, the particular focus of this research is to look at the effectiveness of the most critical H.R. practices on employees' mental health and, thus, their work-related behaviors. The results can indeed guide employers in applying the most valuable strategies that can help them balance the organizational costs to remain in the market and the benefits they achieve in terms of having healthy and productive employees. This chapter indeed provides a general overview of the present study, including a broad background of the study, research aims, research objectives, and questions, methodology, and expected contributions, coupled with the structure of the whole thesis.

Background

Organizations, policymakers, and governments all over the world attempt to fulfill the U.N.'s sustainable development goals (SDG) for humanity and the planet by 2030. One of the

critical objectives is to “Ensure healthy lives and promote wellbeing for all at all ages“(U.N., 2015, Goal 3). Further, the social determinants of health though not spelled as such but are addressed through 13 out of the 17 goals (e.g., no poverty, zero hunger, etc.). Hence, individuals’ health and wellbeing are fundamental to improve social and human criteria as they are at the forefront of the 2030 agenda for SDG. Another important goal of the SDG is to “promote […] full and productive employment and decent work for all” (U.N., 2015, Goal 8), suggesting the importance of the employment situation as well. These objectives, together, underline the importance of both individuals’ wellbeing and work-related issues. Specifically, employees’ mental health has been received growing attention from researchers (e.g., Allan et al., 2018; Dahl & Pierce, 2020; Peltokorpi & Ramaswami, 2019; Zheng et al., 2016), as it is an important leverage for creating a win-win environment for both employees and employers (Grawitch & Ballard, 2016). On the one hand, it makes employees healthier and happier (e.g., Johari et al., 2019). On the other hand, it enhances financial benefits for the organizations (e.g., Follmer & Jones, 2018; Nielsen et al., 2017) through higher levels of both individual and workplace performance (e.g., Daniel & Harris, 2000) and reduced costs (e.g., Guest, 2017). Taken together, leading to improve the relationships between and within employees and employers (e.g., M. Kim et al., 2016) and hence high levels of trust and sense of fairness (e.g., Guest, 2017).

However, apart from the above-mentioned valuable studies in the field, first, the antecedents of employees’ mental health are still under research. Accordingly, as we will detail next, the present study investigates the less discussed antecedents of employees’ mental health by conceptualizing and developing motivational H.R. practices in terms of intrinsic job characteristics and extrinsic contingent pay schemes. Second, few studies beyond the mentioned consequences of employees’ mental health have been studied. Arguably, other consequences such as employees’

work-related issues, namely employees' work-related behaviors, may be possible as well. Hence, we investigate the consequences of the work-related behavior of employees' mental health in the guise of financial worry.

Antecedents of Employees' Mental Health - Gaps

So far, literature on employees' health generally suggests three broad sets of antecedents (Danna & Griffin, 1999). First is the work setting itself, including health hazards, safety hazards, and other hazards that can create dangerous work settings. The absence of these perils may positively affect employees' health and wellbeing (e.g., Danna & Griffin, 1999). Second, personality traits, which in general and in a given organizational setting, play a role in affecting individuals' health and wellbeing (e.g., Danna & Griffin, 1999). Finally, and the most dynamic one is occupational stress which is subtly distinct yet related to the others (e.g., Danna & Griffin, 1999). Occupational stress, which is associated with mental health (Sawhney et al., 2018), is not just a consequence of one single phenomenon. Instead, it is presumed to result from a complex set of events (Karasek & Theorell, 1990), such as factors intrinsic to the job, role in the organization, relationships at work, career development, home/work interface, and organizational structure and climate (Cooper & Marshall, 1978).

Accordingly, adopting H.R. practices can be associated with either higher employee wellbeing (Guest, 2017) through creating a sense of 'mattering' to motivate employees (Fitzsimmons & Stamper, 2014; Zheng et al., 2016) or less employee wellbeing through work intensification (e.g., Ogbonnaya et al., 2017), for instance. Van de Voorde et al. (2012) and Peccei et al. (2013), as two examples, in their reviews found that despite the positive association between HRM and performance, job satisfaction, and organizational commitment, the effect of HRM on

health-related wellbeing is less clear, with some indication that HRM can be associated with higher stress. Accordingly, H.R. policies as managerial interventions that shape employees' performance and their motivation can affect employees' health and wellbeing through a variety of factors such as providing autonomy, feedback and creating opportunities for skill use and variety at work (e.g., Guest, 2017) or punishment/rewarding them (Curran & Walsworth, 2014; Green & Heywood, 2008; Kuvaas et al., 2017; Ryan & Deci, 2000 b). As such, since the nature of the H.R. practices in affecting employees' mental health is still unclear, we investigate how motivational H.R. policies, including intrinsic job characteristics (i.e., autonomy, feedback, and skill variety) and extrinsic contingent pay schemes (i.e., individual and collective Performance-Related Pay (PRP), alone and in combination) may affect European employees' health and wellbeing.

The present study focused on PRP, as the recent COVID-19 pandemic has further exacerbated employee's financial concerns. For instance, according to an OECD report, "42% of the 125,787 adults polled reported worrying about meeting everyday expenses; 40% were concerned about their financial situation; and 37% reported they were just getting by" (OECD/INFE, 2020, p. 35). These results indicate that financial concerns are a real and pressing issue for working adults. Further, following the study proposed by Lucifora and Origo (2015), a well-designed PRP can improve employees' performance by linking exerted effort to financial rewards (Lucifora & Origo, 2015). However, the effect of different forms of PRP on work-related health problems (Bryson et al., 2016; Dahl & Pierce, 2020; Devaro & Heywood, 2017) is still under research. Given that financial concern could impact individuals, in the present study, we focussed on financial-related aspects of the extrinsic motivational factor which is PRP. By investigating the mental consequences of PRP as an H.R. practice, organizations can adopt proper H.R. policies that can better fulfill employee needs. Subsequently, the company can

financially benefit from employees' more productivity, health, and positive work-related behaviors and mitigate the risk of high economic and social costs of mental health.

This study focused on skill variety, autonomy, and feedback as among the various proxies of intrinsic motivation, they are the frequently studied job characteristic factors (Hackman & Oldham, 1976) which could be described by self-determination theory. More importantly, as we will describe in detail, employees' perception of PRP might overlap with the mental consequences of employees' perception of their job characteristics (e.g., feedback, autonomy, and skill variety) (e.g., Bucklin et al., 2003; McCausland et al., 2005; Muraven et al., 2007). This, indeed, leads us to be more confident about the unique contribution of both PRPs and intrinsic job characteristics on employees' mental health and control for the possible endogeneity problems.

The present research seeks to reach this goal by addressing at least three main weaknesses in the previous research, such as first, not comparing or/and not accounting for the mental effects of both extrinsic contingent pay schemes and intrinsic job characteristics; second, studying PRP types in isolation, as well as not accounting for the PRPs in combination; and third, not focusing on Europe as a whole as well as not accounting for cultural differences in European countries.

Not Comparing or/and not Accounting for the Mental Consequences of both Extrinsic Contingent Pay Schemes and Intrinsic Job Characteristics. So far, literature is settled on the idea that employees' perceptions of autonomy, positive feedback, and skill variety, i.e., the most frequently studied factors of Job Characteristics Model (JCM) in the job design literature (Hackman & Oldham, 1976) as proxies of intrinsic motivation, may improve employees' mental health (e.g., Johari et al., 2019; Van den Broeck et al., 2016). However, although intrinsic motivation is noticeably a fundamental type of motivation, most of the activities employees do, are not intrinsically motivated (Inigo & Raufaste, 2019). This highlights the role of complementary

proxies of extrinsic motivation, which externally or socially create a reason to act (e.g., Van den Broeck et al., 2016). Consequently, actual/perceived punishments, obligations, or extrinsic rewards such as contingent pay, variously called incentive pay (Green & Heywood, 2008) and variable pay (Curran & Walsworth, 2014), has become increasingly essential resources of employees' extrinsic motivation to perform productively at work (e.g., Benedetti et al., 2015; Pendleton et al., 2009). In such a context, an interesting debate on management practices has emerged to uncover the relationship between intrinsic and extrinsic motivational factors as two of the vital H.R. practices and employee wellbeing dimensions (Inigo & Raufaste, 2019; Kuvaas et al., 2017; Suttikun et al., 2018).

Despite the valuable research on the effectiveness of motivational factors on employees' satisfaction and performance that has been deeply embedded in many concepts of modern management ideas (e.g., Allan et al., 2019; Benedetti et al., 2015; Dahl et al., 2020; Kuvaas et al., 2017; Van der Kolk et al., 2019), the different roles of intrinsic and extrinsic motivation and the related HRM policies in shaping employees' wellbeing are still under-researched (e.g., Van den Broeck et al., 2019). There have been remarkably few studies investigating which proxies of intrinsic (i.e., autonomy, feedback, and skill variety) or extrinsic (i.e., different forms of PRP) motivation are stronger to enhance employees' mental health when operating in combination.

Previous research has shown that the effect of intrinsic job characteristics is not necessarily stronger than extrinsic job characteristics on job satisfaction (e.g., Dunnette et al., 1967; Wernimont, 1966). However, most of the studies have been measured the motivational factors or employees' motivation in aggregation rather than measuring them and investigating their effects through their components (e.g., Benedetti et al., 2015, Kuvaas et al., 2017). Benedetti et al. (2015), for instance, found that the effects of intrinsic and extrinsic sources of motivation on wellbeing are

different and also depend on the time of day. Kuvaas et al. (2017) also found opposite consequences of intrinsic motivation and external incentives. More importantly, employees' wellbeing increases with having more of every single component of job characteristics, but at a certain level. That is, any additional increase in every single element of job characteristics will not have any further increase in employees' wellbeing (Sonnentag & Frese, 2003). Hence, aggregation measures of job characteristics may change the certain level of every component of job characteristics and contribute to different results. Also, the consequences of contingent pay schemes are different, and hence their effects on employees' mental health may be dominated by using aggregation measures. Therefore, the classification into only intrinsic and extrinsic elements is not suitable for comparing their effect. This, in part, reflects the limited body of research on the association between intrinsic and extrinsic motivational HRM factors and employees' wellbeing. The impact of every single element making up the dimensions may be different.

As employees' might perceive PRP as positive feedback or a sign of their competence, it might overlap with the mental consequences of employees' perception of their job characteristics (e.g., feedback, autonomy, and skill variety) (e.g., Bucklin et al., 2003; McCausland et al., 2005; Muraven et al., 2007). Additionally, employees' financial situation created by receiving PRP might affect employees' mental health (Dahl & Pierce, 2020). This kind of overlapping, except for the financial situation (e.g., Bender & Theodossiou, 2014; Davis, 2016; Green & Heywood, 2008), as far as we know, was not mentioned in the previous literature.

Hence, we seek to address these omissions not only by controlling for both motivational proxies (i.e., intrinsic and extrinsic) and the employees' net monthly earning but also by comparing the strength effects of motivational factors (i.e., intrinsic job characteristics and extrinsic contingent pay schemes) by their components. This, indeed, leads us to be more confident about

the unique contribution of both PRPs and intrinsic job characteristics on employees' mental health and control for the possible endogeneity problems.

Studying PRP Types in Isolation as Well as not Accounting for PRP Types in Combination. For extrinsic contingent pay schemes, existing studies argue that a well-designed PRP can improve employees' performance by linking exerted effort to financial rewards (Lucifora & Origo, 2015). To date, literature has distinguished the effectiveness of individual PRP (e.g., Gerhart & Fang, 2014; Maltarich et al., 2017; Nyberg et al., 2016; Thurkow et al., 2000) and collective PRP (e.g., Blasi et al., 2016; M. D. Johnson & Dang, 2012; Lucifora & Origo, 2015; Nyberg et al., 2018; Thurkow et al., 2000) to improve individual/firm performance or productivity, but very few studies to our knowledge, examining the effect of different forms of PRP on work-related health problems (Bryson et al., 2016; Dahl & Pierce, 2020; Devaro & Heywood, 2017). This is particularly important because PRP adoption might have different effects on employees from the employees' health and safety standpoint. For instance, Eisenberger et al. (1999) found that pay for performance systems as proxies of extrinsic motivation can yield positive wellbeing outcomes, including task enjoyment and cheerful mood. By contrast, some authors found that extrinsic motivational factors have been associated with lower wellbeing (Sheldon & Elliot, 1999) and job satisfaction (Vansteenkiste et al., 2007) through pay uncertainty (e.g., Cadsby et al., 2007; Dohmen & Falk, 2011), multitasking problems (Holmstrom & Milgrom, 1991), motivational crowding out (Frey & Jegen, 2001; Ryan & Deci, 2000a) and social comparison or envy through pay disparity (Edelman & Larkin, 2014; Gartenberg & Wulf, 2017; Nickerson & Zenger, 2008).

This is in line with Adam Smith first observation in the Wealth of Nations, which states that 'Workmen ... when they are liberally paid by the piece, are very apt to overwork themselves and to ruin their health and constitution in a few years' (Smith, 1776, p. 83). Under those

circumstances, adopting PRP to stimulate extrinsic motivation has been shown to contribute to either higher or lower levels of employee mental health and occupational health problems (e.g., Dahl & Pierce, 2020; Devaro & Heywood, 2017; Nyberg et al., 2018; Oah et al., 2019) as the fatigue, stress, anxiety and greater risk-taking associated with performance pay can undermine the health and safety of employees and increases the likelihood of on-the-job injuries and illness. There are two possible explanations for the different consequences of adopting PRP. First, PRP types (i.e., individual PRP, collective PRP, and their combination) can be distinguished based on the extent to which payment is targeted toward improving individual, organizational, or both performance (e.g., Maltarich et al., 2017). Consequently, despite the extrinsic nature of both, some are seen as supportive, others are seen as more controlling. To date, with few exceptions (e.g., Green & Heywood, 2008; Guerci et al., 2019; Oah et al., 2019; Ogbonnaya et al., 2017), studies have investigated the effect of one type of PRP, not accounting for the impact of other kinds or even in combination as the PRP has been investigated mainly in conjunction with performance and hence has less concern for employee wellbeing.

Second, due to the limitations of single payment scheme and increasing task ranges in organizations, firms may adopt multiple forms of PRP schemes (e.g., individual and collective) (Gerhart et al., 2009; Park, 2018), which may not be covered by other plans (Gerhart et al., 2009) leading to different mental consequences. Yet, despite a growing body of literature investigating the interaction effects of different types of incentives on performance, productivity, and innovative work behaviors (e.g., Barnes et al., 2011; Blazovich, 2013; De Spiegelaere et al., 2018; J. H. Han et al., 2015; Kato & Kauhanen, 2018; Nyberg et al., 2018; S. Park & Sturman, 2016; Pendleton & Robinson, 2017), existing evidence is mixed, and to our knowledge, no study has examined the effect of multiple incentives on employees' mental health. Hence, despite the established

association, from employees' mental health perspective, the results of either type of PRP alone and in combination are yet far from well understood (e.g., Neyberg et al., 2018).

Investigating PRP in isolation from other types and not accounting for their combination leads to overestimating/underestimating the effects of every kind of PRP on health due to not controlling for the possible consequences of the other types, which may reinforce or weaken the impact of others and hence leads to misinterpretation the results. Therefore, the simultaneous study of the effects of these incentive policies allows us to obtain the net effect of each type along with the combined effects of the two types.

Not Focusing on Europe as a Whole as Well as not Accounting for Cultural Differences. Considering Europe as a region that includes a variety of cultures, including individualism (vs. collectivism), strong (vs. week) power distance, and strong (vs. week) uncertainty avoidance, on the one hand, provides a general idea of the employees' mental consequences of both intrinsic job characteristics and extrinsic contingent pay schemes. On the other hand, it highlights different values associated with every type of intrinsic job characteristics and extrinsic contingent pay schemes in diverse cultures and – hence – relate differently to employees' mental health. However, in the cross-cultural, (e.g., X. Huang & Van de Vliert, 2003; Steel et al., 2018) and particularly compensation studies, as far as we know, the relationships between different PRP types and employees' mental health has not been empirically tested in all European countries, as these few studies have very narrowly focused on particular country or region such as Britain (e.g., Devaro & Heywood, 2017; Ogbonnaya et al., 2017), Vietnam (Davis, 2016), South Korea (Oah et al., 2019) or Denmark (Dahl & Pierce, 2020). Also, although there are interesting attempts to investigate the moderating role of national culture (i.e., individualism and power distance) in the relationship between intrinsic and/or extrinsic job characteristics with job satisfaction (e.g., Hauff

et al., 2015; X. Huang & Van de Vliert, 2003, 2004; Naseer et al., 2020; Oishi et al., 2009; Spector et al., 2001; Steel et al., 2018), still little is known about whether national culture changes the effect of separate extrinsic contingent pay schemes (e.g., individual and collective PRP schemes) and intrinsic job characteristics items (e.g., autonomy, feedback and skill variety) on employees' mental wellbeing. Further, comparing the mental consequences of intrinsic job characteristics and extrinsic contingent pay schemes (i.e., PRPs) has not yet been empirically tested in Europe.

This is particularly important, as not only the wellbeing varies across nations (Steel et al., 2018), but also the influence of different H.R. policies to motivate employees and values on job satisfaction and wellbeing may differ across countries with special cultural beliefs (e.g., Hauff et al., 2015). Consequently, the results guide employers about the most aligned H.R. policies with the employees' values to enhance their mental wellbeing and hence their productivity because while some H.R. policies are universal in affecting employees' mental health, the effect of others may change based on the different cultural values.

Antecedents of Employees' Mental Health – Theoretical Approach

To solve the weaknesses mentioned above regarding the antecedents of employees' mental health, we conducted two studies (i.e., Chapter 2 and Chapter 3) using secondary data. These gaps are critical since understanding the negative/positive implications of adopting every PRP (alone and in combination) and intrinsic job characteristics in Europe as a whole coupled with the different roles of cultural beliefs is beneficial for the organizations and society in at least two ways. First, it is vital to mitigate the risk of high economic and social costs of mental health, including medical expenses, presentism, absenteeism, suicide, and spillover effects to friends and family (e.g., Dahl & Pierce, 2020; Greenberg et al., 2015). Second, it guides the development of a more

comprehensive model of employee response to intrinsic job characteristics and extrinsic contingent pay policies in different European countries with particular cultural beliefs.

H.R. Motivational Practices and Employees' Mental Health. Accordingly, we first brought the idea mainly from Self-Determination Theory (SDT) as a grand theory of human motivation (Deci & Ryan, 2000) in the present set of studies to show whether and how different H.R. motivational practices, namely different types of extrinsic contingent pay schemes and intrinsic job characteristics, affect employees' mental health in diverse sectors and across European countries and thus compare the strength effect of these two motivational factors. Second, we investigate the extent to which different PRP systems, including individual and collective PRP, alone and in combination converge in terms of their wellbeing effects, and thus, ascertain whether any differences in their use are essential for employees' mental health. In the compensation literature, there is still a lack of a comprehensive theoretical model to describe the mental health consequences of adopting different PRP schemes in the organization (e.g., Nyberg et al., 2018).

Among the theories (e.g., equity, agency, expectancy) demonstrating PRP effects, very few of them (e.g., prospect theory) can describe the mental consequences of PRP (Dahl & Pierce, 2020). As a part of prospect theory, Kahneman and Tversky (1979) explained that "The aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount" (p. 279). This argument, however, can not separately explain the mental consequences of different types of PRP schemes (alone and in combination). As was explained before, the mental effects of PRP schemes (alone and in combination), autonomy, feedback, and skill variety might have overlapping, hence in the present study, adding to the literature we attempted to apply a unique theory that can explain all these consequences.

Recently, researchers have attempted to investigate and describe the consequences of intrinsic and extrinsic motivational factors by relying on SDT (Deci & Ryan, 2000; Gagné & Deci, 2005). This theory argues that employees can be intrinsically or extrinsically motivated for their jobs and that extrinsic motivation can take various forms with different yield implications. First, external extrinsic motivation prevails when employees feel compelled to engage in their jobs to obtain rewards or avoid negative implications (e.g., being fired, critique). Second, introjection emerges when employees engage in their job because they want to feel good about themselves (e.g., experience pride) or try to avoid negative feelings such as guilt or shame. Introjected employees, thus, reward and punish themselves for engaging in a particular way. In the case of external motivation and introjection, employees feel pressured, either by others or by themselves. Therefore, these two motivational factors are considered controlled typ of motivation (Dagenais-Desmarais et al., 2018; Gagné et al., 2015). The third type of extrinsic motivation, identification, is different in nature. In case of identification, employees consider their jobs important, valuable or meaningful because it fits their personal values and identity. Employees identifying with work don't feel pressured to do their job but instead willingly engage in it, just like they would do when they would be intrinsically motivated. Therefore, identification and intrinsic motivation are considered autonomous types of motivation (Dagenais-Desmarais et al., 2018; Gagné et al., 2015).

Accordingly, in terms of positive feelings, SDT suggests that extrinsic motivation can be either positive or negative, in the degree to which it is autonomous versus controlled (e.g., Gagné & Deci 2005; Van den Broeck et al., 2016). Extrinsic reward including individual and collective PRP is one of the most significant and less discussed proxies of extrinsic motivation (e.g., Ogbonnaya, Daniels, & Nielsen, 2017) that can be either positively or negatively associated with employee wellbeing (e.g., Nyberg, Maltarich, Abdulsalam, Essman, Cragun, 2018; Dahl and

Pierce, 2019). According to SDT, employees become more autonomously motivated when they have their psychological basic needs for autonomy (i.e., volitional functioning), competence (i.e., being effective), and relatedness (i.e. being truly connected with others) satisfied. Autonomous types of motivation, in turn, are expected to lead to more beneficial results than controlled motivation. Empirical evidence seems to support this claim. A recent meta-analysis showed that the satisfaction of the basic needs indeed associates with higher autonomous motivation (Van den Broeck et al., 2016). For example, Gagné et al., 2015, found a positive relationship between autonomous types of motivation and satisfaction of the psychological needs for autonomy, competence, and relatedness. More importantly, SDT considers each of these three needs as essential needs for satisfaction, and hence, none of them are thought to be relatively more important than the others (van den Broeck et al., 2016). By contrast, the extrinsically motivated behaviors that are least autonomous which are performed to satisfy an external demand or reward contingency (e.g., PRP) are typically experienced by employees as controlled or alienated (Ryan & Deci, 2000b) which we expect to lead to less mental health compare with autonomous intrinsic motivation.

Gagné et al. (2015), for instance, found a non-significant relationship between controlled motivation types and need satisfaction and autonomy support. However, these controlled motivation types were related to other types of more or less supportive and controlling leadership behaviors (Gagné et al., 2015). Moreover, they found that autonomous motivation positively relates to some positive outcomes such as vitality, affective commitment, self-reported job effort, and self-reported performance and negatively relates to turnover intentions and emotional exhaustion. However, the association between controlled motivation and positive and negative outcomes was mixed. The controlled motivation was non-significantly related to vitality and

turnover intentions, for instance, while was positively related to affective commitment (Gagné et al., 2015). Dagenais-Desmarais et al., 2018, also, have found that among these types of motivation, only identified regulation has a positive effect on psychological well-being and a negative effect on and burnout. Thus, following SDT, the present study attempts to investigate the different roles of the individual PRP, collective PRP, and intrinsic job characteristics in affecting employees' mental health, based on how they might be perceived among employees as autonomous or controlled. If based on the literature, each motivational factor can make all three needs satisfied, we will classify it as an autonomous motivation. Otherwise, if at least one of the psychological needs cannot be satisfied, we will classify it as a controlled motivation (Figure 1).

Insert Figure 1 about here

Moderating Role of European Cultural Beliefs. Third, in order to solve the weaknesses mentioned before, the present study investigates the moderating role of different European cultural beliefs in the previous associations between H.R. motivational practices and employees' mental health. That is, to advance the previous research and its related insights, we investigate the influence of individualistic (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance cultural beliefs on employees' mental reaction to both intrinsic job characteristics and extrinsic contingent pay schemes. Although adding to the literature, the idea of SDT as the main theory is used to support the hypothesis, it could not fully explain the moderating role of cultural beliefs. SDT argues that satisfaction of three basic psychological needs, including autonomy, competence, and relatedness, are universally essential for human thriving and their psychological well-being (e.g., Deci & Ryan 2000; B. Chen et al., 2015; Ryan & Deci 2000b). The

present study confirms the mentioned argument. However, in order to advance the SDT, we attempted to apply a theory that can describe the levels of importance associated with antecedents of mental health in different European cultural beliefs.

Person-Environment Fit (P-EF) literature assumes that people will thrive and feel well when the environment provides what they value or need (Oh et al., 2014; Van Vianen, 2018). The person is defined by "one's individual knowledge, skills, abilities, and other traits such as personality, values, and interests" (Oh et al., 2014, p. 103), such as cultural beliefs in the present study. The environment concerns those characteristics external to the individual, such as the organization (e.g., pay structure and job characteristics) (Oh et al., 2014). Thus, employees are more satisfied if their cultural expectations are fulfilled in the workplace (Locke et al., 1976). Hence, cultural dimensions can influence how the work environment affects employees' well-being (e.g., Su et al., 2015). Taken together with the literature, the P-EF explores the extent to which PRP schemes and intrinsic job characteristics on employees' mental health are contingent on national culture, leading to different importance attached to every extrinsic contingent pay scheme and intrinsic job characteristics. In this regard, we applied the P-EF theory to identify whether and how some categories of intrinsic job characteristics (e.g., autonomy, feedback, and skill variety) and extrinsic contingent pay schemes (e.g., individual and collective PRP) are likely to be more salient in certain cultural beliefs than in others in terms of mental health.

Hence, in the first two studies, the idea from SDT as the main theory will be used to develop the hypothesis. Consequently, the present study advances SDT by applying its idea to explain the mental health consequences of PRP schemes (alone and in combination) coupled with intrinsic job characteristics. Additionally, applying the P-EF theory in the present study (chapter 3)

complements SDT by mainly developing the moderating hypotheses. Further, to account for the possible overlapping issues and advance the previous literature in the field, we controlled for a variety of variables. The control variables include employees' net income, number of financial dependence, ability to make their ends meet, type of contract, and demographic information at the individual level. For the multilevel analysis, control variables include poverty rate and Gross Domestic Product (GDP) per capita at the country level.

Consequences of Employees' Mental Health

We further advanced the previous studies on the consequences of employees' mental health by investigating the employees' work-related behaviors of their financial worries. We mainly focused on the employees' financial worries as an indicator of their mental health for two crucial reasons. First, as was described before, employees' perceptions of autonomy, feedback, and skill variety in their job are expected to increase their mental health. At the same time, extrinsic contingent pay schemes might threaten their mental health. Financial-related issues are indeed the fundamental aspect of employment that tends to threaten their mental health. Mainly, the most crucial criticism against applying PRP policies is that these policies involve pay uncertainty (e.g., Cadsby et al., 2007; Dohmen & Falk, 2011), leading to financial worry (e.g., De Bruijn & Antonides, 2020; Meuris & Leana, 2018). In support, Cadsby et al. (2007) found that more risk-averse persons dislike PRP compared to fixed-wage payment, and hence they were less responsive to the incentives of the variable pays. Second, mental health deterioration is characterized by a wide range of disturbances, including abnormal levels of worry and anxiety (Mashio & Kawaguchi, 2020). In support, literature is settled on the idea that financial concerns, including financial stress, financial strain, economic stress, and financial worry, negatively affect

individuals' wellbeing (e.g., Benson et al., 2003) as it creates severe psychological distress (American Psychological Association [APA], 2015; Weissman et al., 2020), higher anxiety levels (e.g., Meuris & Leana, 2015) and affects employees' emotion (e.g., Meuris & Leana, 2018). Financial worry is also a matter of concern in the U.S., where our study was conducted. Accordingly, employees' financial worry is stated to continue to be the number one cause of stress in America (APA, 2015). Particularly during the pandemic of Covid-19 that according to the APA report (2020, May), the proportion of Americans saying the economy or work is a significant source of stress in their life has significantly increased from 46 percent and 64 percent, respectively, in 2019 to 70 percent for both in 2020. This high level of financial-related stress may impact not only people's health but also their behavior beyond their private life: "We are facing a national mental health crisis that could yield serious health and social consequences for years to come" (APA, 2020, p. 1).

Accordingly, employees' financial worry is receiving significant consideration among employers and in academic research as well all over the world. Additionally, it negatively affects employees' task performance and organizational productivity and hence leads to financial costs for the organizations (e.g., Meuris & Leana, 2018). However, despite the valuable research in the field, there are two significant gaps in the literature that this study seeks to address. First, the nomological net of financial worry is still limited, and that important outcomes have not been considered until now. It is surprising how little research has directly or indirectly examined the influence of financial worry on employees' positive and negative work-related behaviors (i.e., proactive skill development and counterproductive work behavior). It is a significant gap as employees' both positive and negative work-related behaviors, may affect not only employees' wellbeing but also the productivity of the organization as well as the work environment (e.g.,

Costantini et al., 2019; Hackman & Oldham, 1976; Nei et al., 2018; Osterman & Shulman, 2011; Tziner et al., 2020; Van den Broeck et al., 2016). Among the positive work-related behaviors, the focus of the present study is on proactive skill development mainly because so far, the extant literature suggests that financial worry tends to push people into a state of tunneling (e.g., scarcity trap) and focus primarily on the scarcity of a resource and hence neglect for everything else outside the tunnel, including those that may be beneficial for their future economic wellbeing (Mullainathan & Shafir, 2013; Shah et al., 2012; Vohs, 2013) such as proactive skill development (e.g., Kooij et al., 2017). In the present study, we would like to investigate how two mechanisms (ie., motivational through SDT and cognitive through cognitive load theory) can describe the mentioned association between financial worry and proactive skill development.

Further, among the negative work-related behaviors, the focus of the present study is on counterproductive work behavior. One of the possible explanations could be the fact that counterproductive work behavior can be a relevant outcome of financial worry. Literature on the antecedents of counterproductive work behavior settled on the idea of organizational justice perceptions, job satisfaction, upset feelings, perception of overqualification, job demands, emotional exhaustion, job anxiety, and boredom (e.g., Ceschi et al., 2016; Y. Chen et al., 2017; Schreurs et al., 2020; Sulea et al., 2013). This is mainly because counterproductive work behavior reflects employees' attempts to regulate negative affect by enacting revenge against the party responsible for causing the stressor (Bies & Tripp, 1996; Folger & Skarlicki, 2005). Since some employees might perceive the environmental factors (e.g., colleagues, employers, etc.) as a cause of their own financial problems, this explanation offers the possible relationship between employees' financial worry and their counterproductive work behavior. Consequently, understanding how financial worry is linked to both proactive skill development and

counterproductive work behavior coupled with the mechanisms describing these linkages enables organizations to implement proper work design programs aim at cost reduction and preventing adverse outcomes. However, still, less is known about these relationships.

The second gap in the literature is that few studies have investigated the explanatory mechanisms underlying the relationship between financial worry and work-related outcomes so far. As an exception, Meuris and Leana (2018) showed that cognitive problems carried the effect of financial worry on task performance. However, they used driving performance and not various tasks that the present study seeks to address by considering all employees without any limitation on their job. Further, the previous studies focused more on the employees' ability to learn or develop their skills rather than their proactive skill development. More importantly, no other explanations beyond cognitive difficulties have been studied. Arguably, other mechanisms may play a role as well. In this study, we investigate the possibility that motivation, in the guise of need satisfaction, plays an explanatory role as well. Previous literature has shown that employees with higher levels of financial worry think more about their own immediate needs and interests than about others (Taylor & Taylor, 2015), leading to less satisfaction of their basic psychological needs, including autonomy, competence, and relatedness (Ripoll & Breaugh, 2019).

Consequently, the frustration of these basic psychological needs positively relates to employees' counterproductive work behavior toward the organization (Van Den Broeck et al., 2014). Suggesting the potential mediating role of the need satisfaction in the relationship between employees' financial worry and their counterproductive work behavior has not been studied yet. As such, little is known about the relationships between financial worry and both counterproductive work behavior and proactive skill development.

These gaps are significant because employees' work-related behaviors, including proactive skill development and counterproductive work behavior, may affect not only employees' wellbeing but also the productivity of the organization as well as the work environment (e.g., Costantini et al., 2019; Hackman & Oldham, 1976; Nei et al., 2018; Osterman & Shulman, 2011; Tziner et al., 2020; Van den Broeck et al., 2016). Consequently, understanding how financial worry is linked to both proactive skill development and counterproductive work behavior coupled with the mechanisms describing these linkages enables organizations to implement proper work design programs aim at cost reduction and preventing adverse outcomes.

To contribute to solving the problems mentioned above, we brought the two streams of research (i.e., SDT and cognitive load theory) together in the present set of studies to show that the price of financial worry, which is affected by financial uncertainty, is borne by employers and employees alike through employees' cognitive ability and need satisfaction as well as their work-related behaviors (i.e., proactive skill development and counterproductive work behavior). Also, from a methodological standpoint, we developed and designed a time lag model and controlled for the endogeneity problems. Notably, previous studies did not empirically consider the endogeneity problems, which this study seeks to address by assessing employees' financial uncertainty as an instrumental variable that affects employees' financial worries. We also controlled various variables such as employees' traits (e.g., Sackett & DeVore, 2002), namely neuroticism, extraversion, and conscientiousness. Further, although both subjective and objective indicators of financial situation exist, we examine the consequences of subjective financial situation, in the guise of financial worry, and control for the effect of objective financial situation by controlling for employees' household income and the number of dependents (Meuris & Leana, 2018). We empirically investigated how employees' financial worry affects both counterproductive work

behavior and proactive skill development. Then, we test whether cognitive problems and need satisfaction mediate these relationships. Also, knowledge of the consequences of financial worry through different mechanisms will enable organizations to design the job so that employees' financial worry does not lead to counterproductive work behavior, instead leading to positive performance-related behaviors such as proactive skill development.

Research Aim

The present study aims to investigate employees' mental and work-related responses to H.R. motivational practices. For this purpose, the present study includes three pieces of research to reach the main aims as follows:

The primary aim is to examine whether and how different H.R. motivational practices, namely different types of intrinsic job characteristics and extrinsic contingent pay schemes, affect employees' subjective mental health in diverse sectors and across European countries and thus compare the strength effect of these two motivational factors.

The second main aim of the present study is to extend the understanding of the relations between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health through the analysis of their importance in different European cultures (i.e., individualism (vs. collectivism), strong (vs. weak) power distance and strong (vs. weak) uncertainty avoidance) and the extent to which these relationships change in every culture.

The third aim of the present study is to investigate how employees' financial worry (created by financial uncertainty as one of the main criticisms against PRP schemes) affects their work-related behaviors, including proactive skill development and counterproductive work behaviors

through two different mechanisms (i.e., cognitive and motivational) and hence advance the previous chapters.

Research Objectives and Questions

This research aims at achieving three main objectives:

1) To investigate whether and how intrinsic job characteristics and extrinsic contingent pay schemes contribute to employees' mental health in diverse sectors, and European countries, through secondary data analysis.

2) To investigate whether and how cultural differences moderate the association between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health, in diverse sectors and across different European countries, through secondary data analysis.

3) To investigate whether and how employees' financial worry affects their work-related behaviors (i.e., proactive skill development and counterproductive work behavior) through cognitive and motivational mechanisms, in the USA and through primary data analysis.

The above objectives will be achieved by answering two main research questions:

Do different motivational H.R. policies contribute differently to employees' mental health in Europe as a whole and various European countries with a variety of cultural beliefs?

Does employees' financial worry affect their work-related behaviors through two different cognitive and motivational mechanisms?

The methodological framework is then specifically set up to answer a set of sub-questions in three studies:

First Study

Rq1) How do different motivational H.R. policies, including various types of intrinsic job characteristics and extrinsic contingent pay schemes, affect employees' mental health? (Quantitative analysis)

Rq2) Compared to intrinsic job characteristics, how strong is the effect of extrinsic contingent pay schemes on employees' mental health? (Quantitative analysis)

Rq3) How do the interactions of extrinsic contingent pay schemes influence employees' mental health? (Quantitative analysis)

Second study

Rq4) How cultural beliefs, including individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance in Europe, change the effects of different types of extrinsic contingent pay schemes and intrinsic job characteristics on employees' mental health? (Quantitative analysis)

Third study

Rq5) How employees' financial worry, which is affected by financial uncertainty, leads to proactive skill development and counterproductive work behaviors through need satisfaction and cognitive problems in the USA? (Quantitative analysis)

Methodology

Given the diverse range of quantitative analyses in the present study, a series of methodological analyses were adopted using two distinct databases. The first dataset aims at investigating whether and how different motivational H.R. policies adopted in various European cultures play a role in employees' mental health. To achieve this goal, the sixth European Working Conditions Survey (EWCS, 2015) was used for the first two pieces of research of the present study,

which was carried out by the European Foundation for the improvement of living and working conditions (EUROFOUND). Data were gathered via face-to-face interviews based on a questionnaire in 35 countries. Face-to-face interviews were performed in the respondents' households. The survey initially included 43,850 workers. For the first study (i.e., Chapter 2), the sample was restricted to people who worked as employees, i.e., 19,360 employees, 9,106 (47 percent) men, and 10,254 (53 percent) women. For the second study (i.e., Chapter 3), after removing the missing data of cultural values, information of employees in 22 countries consisted of 12,305 observations, of which 5,804 (47 percent) men and 6,501 (53 percent) women were used. Furthermore, intrinsic job characteristics and employees' mental health are quantified by using a combination of different proxies through the use of factor analysis. Various analyses such as hierarchical regression and multilevel analysis of the previous theoretical and empirical work are performed using Stata 15 M.P. (College Station, TX: Stata Corp LP) to find valuable and solid results.

The second dataset investigates the mediation role of cognitive problems and need satisfaction in relationships between employees' financial worry and their counterproductive work behavior and proactive skill development. A time-lagged design with three data waves (Taris, 2000) was conducted. Participants were recruited from Amazon's Mechanical Turk (MTurk), an online platform where individuals are paid to complete online surveys. Individuals residing in the U.S. with an approval rating ≥ 90% for previously completed MTurk activities (minimum 100) were eligible to take the survey. Participants were provided with a link to a questionnaire hosted by Qualtrics, an online questionnaire software company. Data were collected in three phases, separated by a two-week time lag (Podsakoff et al., 2003).

In phase 1, we administered survey 1 and measured demographic variables, financial worry, and instrumental and control variables (see below). Survey 1 was distributed to and returned by 400 respondents, of whom 72 respondents were removed because they failed at least one of three attention checks (valid response rate = 82%). In phase 2, we administered survey 2 to measure need satisfaction and cognitive problems. Of the 328 surveys distributed, we received 249 completed surveys, of whom 16 respondents were removed because of failed attention checks (valid response rate = 71%). In phase 3, we administered survey 3 to measure counterproductive work behavior and proactive skill development. Of the 233 surveys distributed, we received 190 completed surveys, of which 10 respondents were removed because of failed attention checks (valid response rate = 77%). Complete data were available for 180 respondents (total valid response rate = 45%). We conducted a non-response analysis to compare to what extent the final sample differed from the original sample (detailed results available in Chapter 4). All effect sizes were below 0.30, and following Cohen (1988), unit nonresponse bias is not a serious concern.

All variables are quantified by using a combination of different proxies through the use of factor analysis. Furthermore, we applied an instrumental variable estimation technique to control method bias and hence the potential endogeneity problem (Sajons, 2020). Finally, we conducted bootstrapping analyses to test the hypotheses using structural equation modeling in AMOS (Version 24).

Expected Contributions of the Study

This research will contribute to the extant body of knowledge in seven significant ways.

First, we expect to contribute to the literature by widening the understanding of the SDT in clarifying different effects and comparing the strength effects of proxies of intrinsic and extrinsic

motivation on employees' mental health and by looking at the European employees. By utilizing the SDT, we also expect to contribute to a little conceptual clarity in distinguishing between the mental effects of individual and collective PRP alone and in combination. These will be accomplished by exploring the association between autonomy, feedback, skill variety, individual PRP, collective PRP, the combination of individual PRP and collective PRP, and European employees' mental health.

Second, we expect to contribute significantly towards research on both SDT and P-EF theories by extending understanding of motivational antecedents (i.e., intrinsic job characteristics and PRPs) of employees' mental health in European countries with different levels of individualism (vs. collectivism), strong (vs. weak) power distance and strong (vs. weak) uncertainty avoidance believe. It will be accomplished by exploring the moderating role of individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance cultural beliefs in the association between autonomy, feedback, skill variety, individual PRP, collective PRP, PRP schemes compare with a fixed payment and European employees' mental health.

Third, our study will contribute to the financial stress and work design literature by investigating the possible consequences of financial worry beyond the well-known health-related and performance-related outcomes in terms of employees' work-related behaviors, including counterproductive work behavior and proactive skill development.

Fourth, by applying cognitive load theory and SDT, we jointly examine the cognitive and motivational-based pathways to employees' counterproductive work behavior and their proactive skill development. Consequently, it will add to the literature on financial worry, which would also,

in part, contribute to the theoretical development of financial stress coupled with motivation studies in the guise of SDT.

Fifth, we also expect to contribute to methodology through utilizing both primary and secondary data, accounting for the possible endogeneity problems (e.g., CH 4), applying a variety of regression models, including multilevel analysis for moderation effects (i.e., CH 3) and structural equation model for a time lag mediation effects (i.e., CH4) based on the hypothesis and the data. Our data also covers Europe as a multicultural region and the U.S as a region that is more uniform in terms of cultural beliefs.

Sixth, this study expects to contribute to the company's strategies by first clarifying, in terms of mental health, how employees respond to intrinsic job characteristics and extrinsic contingent pay policies in Europe as a whole, as well as in different European countries with particular cultural beliefs. Second, this study attempts to get insight into how employees perceive their financial situation and, hence, react to this. Then, organizations can adopt H.R. policies that can better fulfill employee needs. Subsequently, the company can financially benefit from employees' more productivity, health, and positive work-related behaviors and mitigate the risk of high economic and social costs of mental health, including medical expenses, presentism, absenteeism, suicide, and spillover effects to friends and family.

Finally, our results collectively are expected to suggest the importance of H.R. policies across different European countries that might explain the different levels of employees' mental health. Hence, we expect to provide commentary related to different intrinsic and extrinsic motivational factors in which further research can drive the theoretical and practical understanding of mental consequences associated with different H.R. policies in different European countries.

Structure of the Thesis

This dissertation consists of five chapters. The introduction has presented the rationale and background of the research and outlines the research aim, research questions, methodology, and possible contribution to knowledge.

After the introduction, Chapter 2 compares the strength effect of extrinsic and intrinsic motivational factors on employees' mental health through investigating how every single PRP scheme as proxies of extrinsic motivation and intrinsic job characteristics as proxies of intrinsic motivation can differently lead to employees' mental health. Then, to advance the understanding of the effects of extrinsic contingent pay schemes on employees' mental health, it investigates the association between PRP schemes in combination and employees' mental health.

Chapter 3 investigates how cultural differences, including individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance, change the association between extrinsic contingent pay schemes, intrinsic job characteristics, and employees' mental health. Chapter 4 investigates the association between financial worry and proactive skill development, and counterproductive work behaviors through cognitive problems and need satisfaction. Chapter 5 presents implications, limitations, some future recommendations, and general conclusions. Reference is provided after Chapter 5. Appendices are at the end of the dissertation. Appendix A, Appendix B, and Appendix C include Tables and Graphs of chapter 2, chapter 3, and chapter 4, respectively. Prof. Sergio Albertini, my supervisor, and Prof. Bert Schreurs, my co-supervisor, will be served as professors and advised on the entire process, from designing the research to completing the dissertation.

Chapter 2

Extrinsic Contingent Pay Schemes, Intrinsic Job Characteristics and Employees' Mental Health in Europe

Abstract

Despite a growing interest in the empirical relevance of intrinsic job characteristics (i.e., autonomy, feedback, and skill variety) and extrinsic contingent pay schemes (i.e., individual or collective Performance-Related Pay (PRP)) for employee outcomes (i.e., productivity and performance), their effects on employees' mental health are still under-researched. Few existing evidence, particularly on PRP schemes, shows mixed results. To fill this gap, we attempt first to assess and disentangle the complementary (or substitution) relationship between two domains of extrinsic contingent pay schemes (individual and collective PRP) as well as their single effects in influencing European employees' mental health when intrinsic job characteristics (i.e., autonomy, feedback and skill variety) are controlled. Second, this study investigates whether intrinsic job characteristics are more robust in affecting employees' mental health than PRP schemes or not. This study took the idea of the Self-Determination Theory (SDT) and Job Characteristics Model (JCM) to analyze the interplay of PRP schemes as well as comparing the effectiveness of PRP schemes with intrinsic job characteristics on employee mental health.

Microdata from the sixth European Working Conditions Survey (EWCS), with the final sample of 19,360 employees from all establishments in Europe, was used to test the hypotheses. After controlling for employees' net income, the number of financial dependents, ability to meet their ends, type of contract, and a range of demographic characteristics, hierarchical regression analyses suggest that while individual and collective PRP alone negatively affect European

employees' mental health, their interaction is positively associated to their mental health. It shows the complementarity between individual-based incentive pay and collective-based incentive pay policies. The results of relative importance analysis revealed that intrinsic job characteristics (i.e., autonomy, feedback, and skill variety) robustly enhance European employees' mental health. Simultaneously, the effect of PRP schemes is mixed and weaker in improving European employees' mental health.

These findings contribute to the advancement of debate on the relationship between PRP and employee wellbeing, suggesting that such a relationship may be fostered or hampered depending on the characteristics and contingencies of the compensation system adopted by the company. Further, this study advances job design studies by confirming that intrinsic job characteristics are more effective than extrinsic contingent pay schemes in terms of European employees' mental health. The study concludes by discussing the main implications of the research for researchers and practitioners.

Keywords Employee wellbeing. Mental health. Compensation policy. Performance-related pay. Job characteristics. Motivation

Introduction

In today's competitive environment, organizations have a growing need to have a satisfied and healthy workforce as employee wellbeing is related to performance, organizational commitment, and lower absenteeism (e.g., Guest, 2017; Johari et al., 2019). Investigating how employees react to different H.R. practices in terms of their mental health may be critical to improving employees' wellbeing. According to Self-Determination Theory (SDT), employees are optimally motivated and experience wellbeing when they are intrinsically motivated (i.e., they perform the task for its own sake). Extrinsic motivation (i.e., performing a task to obtain something else), in contrast, and more specifically conditional rewards, may conflict with intrinsic motivational factors and hence, differently impact employees' mental health (Gagné et al., 2015). In such a context, an interesting debate on management practices has emerged to uncover how H.R. policies that intrinsically and/or extrinsically motivate employees contribute differently to employee wellbeing (e.g., Inigo & Raufaste, 2019; Van den Broeck et al., 2016). This poses the question of whether and how H.R. practices can improve employees' mental health by motivating them intrinsically through their job characteristics while also rewarding them correctly financially and consequently discovering which policy is more robust in affecting employees' mental health. However, based on the lower quality of extrinsic motivational factors (lower work self-determination) than intrinsic motivation, they have differential predictive power concerning key work outcomes such as employee health (Gerhart & fang, 2014). Therefore, compare to proxies of intrinsic motivation, the consequences of proxies of extrinsic motivation are more dynamic. Hence, given how different types of proxies of motivation are defined and measured, the strength of their association with employee mental health differs.

Financial or incentive rewards, including individual and collective Performance-Related Pay (PRP), are the most widely used H.R. practices by firms to externally motivate employees (e.g., Nyberg et al., 2018) and hence to improve individual/firm performance or productivity (e.g., Blasi et al., 2016; Conroy & Gupta, 2016; Maltarich et al., 2017). Simultaneously, various types of PRP may be perceived differently by employees and have different motivational implications. That is, two main types of PRP (i.e., individual PRP and collective PRP) can be distinguished based on the extent to which payment is targeted toward improving individual, group, or organizational performance (e.g., Maltarich et al., 2017). Although both are extrinsic, following the SDT, some are seen as supportive, others are seen as more controlling. In the compensation literature, there is still a lack of a comprehensive theoretical model to describe the mental health consequences of adopting different PRP schemes in the organization (e.g., Nyberg et al., 2018).

Additionally, applying these incentives in combination might either strengthen or weakens each other positive/negative consequences (e.g., Barnes et al., 2011; Ilgen, 2006; Kozlowski & Nyberg et al., 2018). With few exceptions (e.g., Green & Heywood, 2008; Guerci et al., 2019; Oah et al., 2019; Ogbonnaya et al., 2017), studies have investigated the effect of one type of PRP, not accounting for the impact of other kinds, and also their combination. Yet, despite a growing body of literature investigating the interaction effects of different types of incentives on performance, productivity, and innovative work behaviors (e.g., Barnes et al., 2011; Blazovich, 2013; De Spiegelaere et al., 2018; J. H. Han et al., 2015; Kato & Kauhanen, 2018; Nyberg et al., 2018; S. Park & Sturman, 2016; Pendleton & Robinson, 2017), existing evidence is mixed, and to our knowledge, no study has examined the effect of multiple incentives on employees' mental health.

These omissions are particularly noteworthy since firms may adopt both single or multiple forms of PRP which may not be covered by other plans, due to the limitations of single payment

scheme and increasing task ranges in organizations (Gerhart et al., 2009), as each type of performance pay would be unlikely to offer the variety of incentives required to stimulate high levels of goal attainment (Pendleton et al., 2009). Furthermore, investigating PRP in isolation from other types may lead to overestimating/underestimating the effects of one kind of PRP on health due to not controlling for the possible consequences of the other types, which may reinforce or weaken the impact of others and hence leads to misinterpretation the results. Therefore, the simultaneous study of the effects of these incentive policies allows us to obtain the net result of each type, along with the combined effects of the two types.

Turning to proxies of intrinsic motivation, a vast majority of literature is settled on the idea that employees' perceptions of autonomy, positive feedback, and skill variety, i.e., the most frequently studied factors in the job design literature (Hackman & Oldham, 1976), may enhance intrinsic motivation, which then improves employee mental health and their happiness (e.g., Johari et al., 2019, Oerlemans & Bakker, 2018; Van den Broeck et al., 2016). However, despite the growing research on the effectiveness of motivational factors on employees' satisfaction and performance, there have been remarkably few studies investigating which proxies of intrinsic (i.e., autonomy, feedback, and skill variety) or extrinsic (i.e., different forms of PRP) motivation are stronger to enhance employees' mental health when operating in combination. Compared to proxies of intrinsic motivation, proxies of extrinsic motivation are expected to tend employees to negative psychological states associated with their work (Kuvaas et al., 2017; Lemyre et al., 2007) which in turn crowd out the potential positive effect of motivation on employees' mental wellbeing. Understanding different implications of intrinsic job characteristics and extrinsic contingent pay schemes are vital to mitigate the risk of high economic and social costs of mental

health and develop a more comprehensive model of employee response to H.R. policy changes in European nations.

Further, employees' perception of PRP might overlap with the mental consequences of employees' perception of their job characteristics (e.g., feedback, autonomy, and skill variety) (e.g., Bucklin et al., 2003; McCausland et al., 2005; Muraven et al., 2007). Also, income changes created by PRP adoption might affect employees' mental health (Dahl & Pierce, 2020). Expect for the financial situation (e.g., Bender & Theodossiou, 2014; Davis, 2016; Green & Heywood, 2008), as far as we know, this kind of overlapping was not mentioned in the previous literature, which leads us to be more confident about the unique contribution of both PRPs and job characteristics on employees' mental health. Hence, we seek to address these omissions by comparing the strength effects of motivational factors (e.g., intrinsic job characteristics and extrinsic contingent pay schemes) and controlling for both motivational proxies and the employees' net monthly earning.

Finally, considering Europe as a region that includes a variety of cultures provides a general idea of the employees' mental health. However, on the one hand, despite the crucial studies in the cross-cultural (e.g., X. Huang & Van de Vliert, 2003; Steel et al., 2018) and compensation studies, as far as we know, the relationships between different PRP types and employees' mental health has not been empirically tested in all European countries, as these few studies have very narrowly focused on particular country or region such as Britain (e.g., Devaro & Heywood, 2017; Ogbonnaya et al., 2017), Vietnam (Davis, 2016), South Korea (Oah et al., 2019) or Denmark (Dahl & Pierce, 2020). On the other hand, among the valuable cross-cultural (e.g., X. Huang & Van de Vliert, 2003; Steel et al., 2018) and H.R. studies, comparing the mental consequences of intrinsic job characteristics and extrinsic contingent pay schemes (e.g., PRPs) has not yet empirically tested in Europe.

Accordingly, the three main aims of the present study to extend the current literature and fill the mentioned gaps are as follows: First, investigating the extent to which different PRP systems applied in European organizations, separately and in combination vs. only fixed payment, converge in terms of the mental wellbeing of those who received the reward(s). In order to investigate the different roles of the individual PRP, collective PRP, and intrinsic job characteristics in affecting employees' mental health, the present study attempts to get the idea of SDT and describe how they might be perceived among employees as autonomous or controlled.

Second, comparing the strong effects of intrinsic job characteristics with extrinsic contingent pay schemes on employees' mental health. Additionally, to ascertain whether any differences in using PRP types are essential for employees' mental health, we control employees' net income, type of contract, intrinsic job characteristics, and demographic information. To this end, we build on the work of earlier scholars (e.g., Dahl & Pierce, 2020; Davis, 2016; Devaro & Heywood, 2017; Guerci et al., 2019; Nyberg et al., 2016, 2018; Oah et al., 2019) by recognizing different mental consequences of every PRP policy.

Our findings offer at least two significant contributions to the literature. First, this study contributes to the literature by providing further empirical evidence by extending the current debate on the relationship between PRP policies and employee wellbeing by disentangling the effects of multiple forms of PRP on employee health. This is particularly relevant for the existing literature calling for investigating counterproductive outcomes that may result from PRP adoption (Nyberg et al., 2018) and advancing the discussion on the growing use of multiple incentives by firms (Pendleton & Robinson, 2017). Second, to advance the findings of previous empirical research, we got ideas from the SDT and compared various effects of intrinsic job characteristics and extrinsic contingent pay schemes on employee mental health. We argue that they likely are

appraised differently, i.e., as either autonomous or controlling, and hence have different associations on employee well-being. We then test for their relative effects.

The rest of the study proceeds as follows: First, we review some of the critical literature relating to the PRP-mental health linkage and job characteristics-mental health linkage. We also compare intrinsic job characteristics with extrinsic contingent pay schemes to support the research model hypotheses. Then, we present the research methods and describe the variable of our study and the analytical procedure. After reporting the results, we offer a discussion on our findings. Finally, we conclude by discussing the broader theoretical and managerial implications of this study to compare the strength effect of PRP schemes with intrinsic job characteristics and understand the coexistence of multiple forms of performance pay schemes.

Theory and Hypotheses Development

Recently, researchers have attempted to investigate and describe the consequences of intrinsic and extrinsic motivational factors by relying on SDT (Deci & Ryan, 2000; Gagné & Deci, 2005). This theory argues that employees can be intrinsically or extrinsically motivated for their jobs and that extrinsic motivation can take various forms with different yield implications. According to SDT, employees become more autonomously motivated (vs. extrinsically motivated) when they have their basic psychological needs for autonomy (i.e., voluntary functioning), competence (i.e., being effective), and relatedness (i.e., being truly connected with others) satisfied. Autonomous types of motivation, in turn, are expected to lead to more beneficial results than controlled motivation. Empirical evidence seems to support this claim as Chen et al. (2015), for instance, found that satisfaction of the basic psychological needs contributed uniquely to vitality and life satisfaction, while the frustration of those needs contributed uniquely to

depression. A recent meta-analysis also showed the satisfaction of the basic needs associated with higher autonomous motivation (Van den Broeck et al., 2016). In support, Gagné et al. (2015) found a positive relationship between autonomous types of motivation and satisfaction of the psychological needs for autonomy, competence, and relatedness, which in turn positively related to some positive outcomes such as vitality, affective commitment, self-reported job effort, and self-reported performance and negatively relates to turnover intentions and emotional exhaustion. However, the association between controlled motivation and positive and negative outcomes was mixed. They found that controlled motivation was non-significantly related to vitality and turnover intentions, for instance, while positively related to affective commitment (Gagné et al., 2015). Dagenais-Desmarais et al. (2018) also found that among all types of motivation, only identified regulation has a positive and negative effect on psychological well-being and burnout, respectively. Having this explanation in mind, in the following, adding to the empirical researches we utilize the idea of SDT to better describe whether intrinsic job characteristics and extrinsic contingent pay schemes can be considered as autonomous (basic psychological needs are expected to be satisfied) or controlled (basic psychological needs are not expected to be fully satisfied) motivational factors affecting employees' mental health.

Association between Intrinsic Job Characteristics and Employees' Mental Health

Among the various factors supposed to influence job performance and employee wellbeing, Hackman and Oldham (1976) proposed that skill variety, task identity, task significance, autonomy, and feedback as five key cores of JCM (Hackman & Oldham, 1976; Johari et al., 2019; Suttikun et al., 2018; Zhao et al., 2016) are positively related to employees' well-being. Additionally, SDT argues that employees experience well-being if they are intrinsically

motivated by satisfying the three primary psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2000b). Accordingly, as the literature proposes, individuals' perceptions of autonomy, positive feedback, and skill variety generate psychological states, affective and behavioral responses. Hence, considering two theories (i.e., JCM and SDT), the present study attempts to explain the mental effects of autonomy, feedback and skill variety (elements of the JCM) by focusing on the SDT and as proxies of intrinsic motivation. That is, among the various proxies of intrinsic motivation, skill variety, autonomy, and feedback, as the frequently studied job characteristic factors are supposed to generate mental health through meaningful work, responsibility for outcomes, and knowledge of the work and results, respectively.

Consistent with the SDT, employees' perception of having autonomy in the workplace makes employees' psychological needs for autonomy, competence, and relatedness satisfied (Gagné et al., 2015) through creating opportunities to apply their potential in the workplace (Tummers et al., 2018) as well as managing stressful environments related to failure at work (R. Park & Jang, 2017). Indeed, since the satisfaction of three basic psychological needs enhances employees' wellbeing (e.g., B. Chen et al., 2015), following SDT, it is expected that employees' perception of having autonomy enhances their mental wellbeing.

Also, empirically, autonomy perception leads to higher levels of employees' mental health by reducing the negative impact of depression and lower stress (e.g., Tummers et al., 2018), and enhancing the perception of supervisor support among employees (e.g., R. Park & Jang, 2017). Further, it can also fulfill the need for responsibility for outcomes, hence developing a feeling of competence and creating psychological empowerment (Schreurs et al., 2015). However, in some particular conditions, which are not in concern of the present study, job autonomy may have

adverse effects (Jong, 2016). For instance, when there is a low need for autonomy, job autonomy is positively related to emotional exhaustion and negatively associated with employees' well-being (e.g., Zhang et al., 2017). By contrast, in the presence of a high need for autonomy, the relationship between autonomy and emotional exhaustion could be curvilinear (representing an inverted U-shape) (De Jonge & Schaufeli, 1998; Matilu & Obonyo, 2018). Therefore, some factors such as the need for autonomy (Matilu & Obonyo, 2018), age (Zaniboni et al., 2013), and the level of demand (Wheatley, 2017) can change this relationship. However, in general, autonomy perception makes employees satisfied with their psychological needs.

Consistent with SDT, positive or helpful feedback also promote feelings of competence, control over the task (i.e., autonomy), and meaningfulness of work (Jong, 2016). From this view, when employees receive positive feedback (vs. negative feedback), they will exhibit positive feelings such as happiness (Azmat & Iriberri, 2016) and organizational citizenship behavior (Oldham & Fried, 2016), which leads to higher levels of relatedness. These contribute to increased intrinsic motivation and wellbeing (e.g., Ryan & Deci, 2000a; Jong, 2016) as employees' psychological needs are satisfied. In support, positive feedback mitigates job-related stressors (e.g., Jong, 2016), undermining exhaustion (e.g., Oldham & Fried, 2016), depression, and job anxiety (Sparr & Sonnentag, 2008).

Finally, compared to other proxies, skill variety has received relatively more minor attention in job design research (Zaniboni et al., 2013), making employees' need for competence satisfied (Van den Broeck et al., 2016) as it induces a sense of mastery over the environment. SDT defines the need for competence as the need to develop new skills (Van den Broeck et al., 2016), which, allows employees to find their job to be of enormous personal meaning (Johari et al., 2019). Further, willing to develop their skills, employees' are more related to co-workers, feel connected

to others, and hence see themselves as a member of a group and willing to knowledge sharing, experience a sense of communion, and develop close relationships which lead to higher levels of relatedness perception (Van den Broeck et al., 2016). Additionally, employees' perception of skill variety signals them to be qualified enough to have autonomy. Consequently, skill variety perception among employees makes their psychological needs satisfied. It thus is significantly associated with employees' positive attitudes, behavioral outcomes (e.g., Johari et al., 2019), and well-being through allowing experienced employees to draw on their accumulated skills (Zaniboni et al., 2013).

In support, Zhao et al. (2016) found that feedback increased job satisfaction and autonomy decreased job stress, while skill variety has an opposite effect on both job satisfaction and stress. Recently, Johari et al. (2019) found that only feedback positively affects employee wellbeing (Johari et al., 2019). Besides, Suttikun et al. (2018) identified a remarkable part of the differences in worker outcomes: job satisfaction, performance, turnover, and internal motivation as depending on job characteristics (Suttikun et al., 2018). Building on these arguments and applying the idea of SDT (e.g., Ryan & Deci, 2000b), we argue that skill variety, autonomy, and feedback, as the frequently studied of job characteristic factors, also generate mental health through (depicted in Figure A1) and propose the following hypotheses:

> ***Hypothesis a:*** Aautonomy, positive feedback, and skill variety positively relate to employee mental health.

Association between Extrinsic Contingent Pay Schemes and Employees' Mental Health

Extrinsic contingent pay (Ogbonnaya et al., 2017), which is variously called incentive pays (Green & Heywood, 2008), extrinsic reward (e.g., Bryson et al., 2017), or variable pays (Curran

& Walsworth, 2014), including individual and collective PRP are one of the most significant contributors of extrinsic motivation in the workplace (e.g., Ogbonnaya et al., 2017). Literature suggests that PRP might have two broad sets of incentive and counteracting effects (Nyberg et al., 2018; Ogbonnaya et al., 2017). Incentive effects represented the effects of pay on employees' motivation and attitudes and exerted efforts (Nyberg et al., 2018; Pendleton & Robinson, 2017), which might foster employee mental health. The counteracting effects (Ogbonnaya et al., 2017; Wood et al., 2012) suggest that H.R. practices such as incentive pay that motivate workforces and induce more significant efforts might result in more experiences of work-related stress and anxiety. Further, following SDT, the various types of PRP may either elicit autonomously (i.e., when people willingly engage in their work) or controlled (i.e., when people feel compelled to do work) motivation which has implications for their effect on employee mental health (e.g., Deci & Ryan, 2000; Gerhart & Fang, 2015). Similarly, existing evidence shows that PRP policies can either positively or negatively associate with employee mental health and well-being (e.g., Dahl & Pierce, 2020; Devaro & Heywood, 2017; Nyberg et al., 2018; Oah et al., 2019). Therefore, the mental consequences of PRP types remain unclear as the PRP has been investigated mainly in conjunction with performance and hence has less concern for employee well-being. Accordingly, the present study investigates the different roles of individual and collective PRP alone and in combination affecting employees' mental health, based on whether they are likely to elicit controlled or autonomous types of motivation and by controlling for intrinsic job characteristics and a sort of control variables.

Association between Individual PRP and Employees' Mental Health. Individual PRP is defined as the extent to which pay is linked to individual performance (e.g., Maltarich et al., 2017). It can be permanent through merit payment or temporary through bonus or piece rate

payment. In the present study, individual PRP is measured by both piece rate and individual performance.

Regarding this definition, receiving individual PRP may conflict with two of the three basic psychological needs and crowd out PRP's motivational effects in terms of employees' mental well-being. First, the priority of self over group interests creates unfavorable social comparison (e.g., Gartenberg & Wulf, 2017; Gerhart & Fang, 2014; Larkin et al., 2012) and can therefore lead to lower knowledge sharing (e.g., Bender et al., 2012) that in turn creates employee relation problems and conflict among co-workers (Dahl & Pierce, 2020; Gartenberg & Wulf, 2017; Gerhart & Fang, 2014). Thereby, these envy behaviors not only directly affect employees' mental health (e.g., Gartenberg & Wulf, 2017) but also decrease the chances of having one's need for relatedness satisfied.

Second, although the nature of individual PRP is equity (Adams, 1965), pay comparison created by individual PRP adoption can enhance unequal pay perception among employees, particularly when their performance is unobservable or challenging to measure (Gartenberg & Wulf, 2017). Hence employees may anticipate managers to assess their performance according to personal preferences rather than ability. Accordingly, although incentive pay schemes are used as a reward for past good performance (Wayne et al., 1997), which can be translated to being competent by employees, employees might feel less competence when comparing the payments and hence perceive unequal pay, for instance. Also, since individual PRP is directly linked to an appraisal or control system, it can signal to employees that they are under the supervisor's control (e.g., Gerhart & Fang, 2015; Ryan et al., 1983), which is in sharp contrast to needs for autonomy (Ryan & Deci, 2000b). Hence, from the perspective of SDT, individual PRP is unlikely to fulfill

three basic psychosocial needs for satisfaction and – consequently – associate with controlled motivation.

In another scenario, which supports our previous argument, the mental costs of losing the possible extra earnings from PRP will outweigh the gains of having it (Dahl & Pierce, 2020). That is, if individual PRP generates a mean-preserving income spread, the mental costs to those who lose income will outweigh the gains of those who gain it (Dahl & Pierce, 2020). In this view, low performers suffer from a reduction in income through evoking the disutility of loss aversion, less affordability of basic and entertainment needs that cause their stress and anxiety compared to those who only receive fixed payment. Consequently, income changes, as well as pay uncertainty (e.g., Bender & Theodossiou, 2014) following the individual PRP adoption, can strongly affect employees' mental health (Dahl & Pierce, 2020), especially for the employees with more financial problems (Sweet et al., 2013; World Health Organization, 2014).

Further, applying individual PRP in organizations persuades employees to shift hours to work and away from health-promoting activities, including medical visits (Davis, 2016), exercising, sleep, or leisure (Allan et al., 2017) and hence leads to work intensification (Ogbonnaya et al., 2017). Despite few studies which have found a positive impact of adopting individual PRP on employees' health (e.g., Oah et al., 2019; Ogbonnaya et al., 2017), it is, therefore, more likely to decrease employees' satisfaction and mental wellbeing (e.g., Dahl & Pierce, 2020; Devaro & Heywood, 2017). Particularly in our study, the focus is on applying individual PRP in organizations and not individually.

There are several studies consistent with this backdrop. For instance, a systematic literature review by Johansson et al. (2010) suggest that the piece rates adoption could increase employees' mental health problems by increasing stress and fatigue, unintentional wrong actions, ignoring

warning signals from the body, and conflicting with safe work demands that in turn could result in injuries and ill health. Similarly, a recent longitudinal study by Devaro and Heywood (2017) nominates occupational health deterioration as a hidden cost of individual PRP because employees focus too much on one thing (e.g., more performance and financial benefits) while neglecting another safety. However, less is known about the mental consequences of individual PRP adoption in Europe as a whole and in combination with other incentive pays (e.g., collective PRP). This study is unique also because we investigate mental consequences of individual PRP by controlling the effects of intrinsic job characteristic (e.g., feedback, autonomy, and skill variety) since first, PRP might overlap with the mental consequences of employees' perception of their job characteristics (e.g., Bucklin et al., 2003; McCausland et al., 2005; Muraven et al., 2007) and second, as was suggested by Pendleton and Robinson, (2017), the nature of the work environment (e.g., autonomy and task variety) changes the effectiveness of incentives.

Drawing on this premise, we expect the negative effect of individual PRP on employee mental health (depicted in Figure A1), and thus predict that:

Hypothesis 1b: Individual PRP negatively related to employees' mental health.

Association between Collective PRP and Employees' Mental Health. Collective PRP in the present study means both group and organizational PRP which are applied in the organization contingent on the group or organization's aggregate output or performance (e.g., Nyberg et al., 2018) that can be equally or differentially distributed among team members (e.g., Conroy & Gupta, 2016). Compensation literature classifies group PRP as two main types of equal group PRP and unequal group PRP (Oah et al., 2019) and organizational PRP as four types of profit-related pay, gainsharing, employee share/stock-ownership, and broad-based stock (Nyberg et al., 2018; Ogbonnaya et al., 2017) which have their own features in affecting employees'

behaviors. Using the theoretical lens of SDT, we posit that collective PRP, referring to incentive schemes taking into account bigger groups, might be more autonomous motivation but yet including financial uncertainty.

One of the most apparent features of the collective PRP (vs. individual PRP) is the higher levels of reward interdependence (Conroy & Gupta, 2016; Oah et al., 2019). It promotes a feeling of relatedness through creating coordination (Nyberg et al., 2018), cooperation in the group (e.g., De Spiegelaere et al., 2018), knowledge transfer among co-workers (Nyberg et al., 2018), positive communication (M. D. Johnson & Dang, 2012; Rack et al., 2011), a sense of psychological ownership (e.g., Nyberg et al., 2018), organizational citizenship behaviors (Chiu & Tsai, 2007; Nyberg et al., 2018), positive workplace culture (Blasi et al., 2016), long-term commitment and job security (Caramelli & Briole, 2007; Curran & Walsworth, 2014). These positive consequences of collective PRP adoption complement the argument that "people are more likely to adopt activities that relevant social groups value when they feel efficacious with respect to those activities" (Ryan & Deci, 2000b, p. 73) and suggest that collective PRP can potentially fulfill employees need for relatedness.

However, against this backdrop, collective PRP might either exacerbate employee health by creating self-interested behaviors such as free-riding behaviors, social loafing, and competition (De Spiegelaere et al., 2018; Gomez-Mejia & Franco-Santos, 2015; Nyberg et al., 2018). In such a scenario, the reward for an individual depends on the collective outcomes (De Spiegelaere et al., 2018). This means higher levels of pay uncertainty, greater work responsibility, and work intensification (Ogbonnaya et al., 2017), especially for risk-averse employees that want to mitigate pay uncertainty that in turn impairs their satisfaction and health. Consequently, employees can gain from the increased effort of others (Long & Fang, 2012). However, top performers might

decrease their performance when they see their incomes reduced by lower performers (Dierks & McNally, 1987). This argument supports the idea that collective PRP might lead to mutual monitoring (Lucifora & Origo, 2015) among employees. Accordingly, these self-interested behaviors create conflict (Nyberg et al., 2018) and suspicion (De Spiegelaere et al., 2018; Green & Heywood, 2010) among toxic employees co-workers. Hence, despite the cooperative nature of collective PRP, it cannot fully make employees' need for relatedness satisfied.

Further, collective PRP practices can create both higher levels of peer pressure (M. D. Johnson & Dang, 2012) and feelings of being under co-workers' control (e.g., M. D. Johnson & Dang, 2012). Thus, applying collective PRP plans is more likely to be interpreted by employees as being under co-workers' control and not directly being individually controlled by their supervisors. Consequently, employees' need for autonomy is not expected to be fully satisfied. However, since collective PRP encourages employees to participate more in decisions (Blasi et al., 2016) and enhances knowledge transfer among co-workers (Nyberg et al., 2018), it may support the feeling of competence.

In this study consistent with the SDT, we expect that the adoption of collective PRP outweighs the incentive side effects and creates an uncertain environment. Also, these employees feel financial uncertainty as their payment depends on their co-workers' performance. Further, they might perceive that the way their performance is evaluated is not fair or is overly subjective (Green & Heywood, 2008; Heywood & Wei, 2006). Similarly, Oah et al. (2019) found that when employees receive equal group incentives, they perceive less fairness than when they receive individual PRP. This, in turn, may promote feelings of not being adequately appreciated (Ogbonnaya et al., 2017). As Brown (2001) stated, employees who believe in fairness in their payment methods report higher satisfaction with their pay. Thus, regardless of the influence on

cooperation and total surplus, collective PRP leads to poor satisfaction and weakens mental health. Taken together, from the lens of SDT, collective PRP is supposed not to satisfy employees' three psychological needs. They are, therefore, more likely to elicit the controlled types of extrinsic motivation (i.e., external and introjection) rather than autonomous types (i.e., identification). Hence, we expect that the adoption of collective PRP outweighs the positive side effects and creates mental health problems compared to fixed payment (depicted in Figure A1).

Hypothesis 2b: Collective PRP is negatively related to employees' mental health.

Association between Interaction of Individual and Collective PRP and Employees' Mental Health. Organizations are often more likely to use mixed incentives (e.g., individual/group) (Gerhart et al., 2009; S. Park, 2018) due to the increasing task ranges in the organizations (Gerhart et al., 2009). Also, given the limitations of every single payment scheme, these PRP schemes would be unlikely to offer the variety of incentives required to stimulate high levels of goal attainment (Pendleton et al., 2009). However, combining individual PRP at the micro-level and collective PRP at the macro-level leads to a more challenging compensation mechanism that is currently most neglected in the studies (Conroy et al., 2015). One challenge is that the consequences of combined mechanisms cannot be simply described, as their effects are not independent, and there are different levels of valences across plans (S. Park & Sturman, 2016). Further, a short-term and relatively narrow incentive (e.g., individual PRP) needs to be balanced with a longer-term and broader dimensions incentive (e.g., organizational PRP) (S. Park & Sturman, 2016; Pendleton, 2006). Adopting the lens of SDT, we posit that the interaction of individual and collective PRP may, in contrast, be far less detrimental for employees' mental health, as "extrinsic motivation is no longer always bad" (Gerhart & Fang 2015, p. 501). Hence,

one may expect a “best of both worlds” (e.g., Kozlowski & Ilgen, 2006) of individual and collective PRP on employees’ mental health.

Several explanations acknowledge whether the combined incentives can be considered autonomous or controlled motivation by making employees’ psychological needs for autonomy, relatedness, and competence satisfied. First, when organizations apply incentives, particularly when they are paid in combination, employees’ perceptions of competence increase because employees perceive that their personal behaviors and activities contribute to higher levels of organizational performance (Artz, 2008; Guerci et al., 2019). Consistently, as has also been argued by the literature, the coexistence of multiple forms of PRP increases the situational strength of the reward system (Sanders et al., 2018), which can lead employees to perceive the overall incentives as a reward on their competence.

Second, a mix of individual and collective PRP could result in higher cooperative behaviors than only one PRP scheme. In this view, on the one hand, individual PRP, which is known as a competitive reward (Chan et al., 2014; Conroy & Gupta, 2016) is crowding out when firms adopt group PRP known as a cooperative reward (Conroy & Gupta, 2016) or organizational PRP which promotes a supportive approach and collaborative culture among employees (e.g., Della Torre et al., 2020). On the other hand, the free-riding behaviors created by receiving collective PRP could overcome when mixed rewards contribute to higher individual responsibility and cooperation among co-workers leading to vanishing social dilemmas (D .W. Johnson & R.T. Johnson, 2009). That is, a mixture of individual-based and collective-based PRP enhances individual responsibility through individual and collective accountability (D .W. Johnson & R.T. Johnson, 2009). Consistently, as suggested by Pendleton and Robinson (2017), the combination of the individual with the group schemes may counteract free-riding and help to “develop an appreciation of the

“line of sight” between individual and collective results by encouraging individuals to focus on linkages between their own performance and collective outcomes” (p. 592). Also, the cooperative behavior engendered by collective PRP counter-balances the self-interested focus of individual incentives (Pendleton, 2006), thereby enhancing the chances of having one’s need for relatedness satisfied that in turn contributes to employees’ mental health and satisfaction. This prediction is consistent with Pendleton’s (2006) discussion that collective organizational PRP (e.g., employee stock ownership plans) may mitigate the dysfunctional effects of individual PRP by encouraging cooperation and trust and broadening the time frame of desired performance outcomes.

Third and compared to a single individual or collective PRP scheme, adopting both policies can enhance employees’ perception of autonomy. The rationale for this prediction is that, on the one hand, the direct supervisor control perception created by receiving individual PRP (e.g., Gerhart & Fang, 2015; Ryan et al., 1983) reduces when collective PRP is combined with individual PRP. In this view, collective incentives alone are based on the aggregate performance of group members and external influences, which are not controllable directly by supervisors, suggesting higher autonomy perception among team members. Furthermore, the study discussed that providing company-wide incentives signals that the company will share the benefits of good performance with employees, thus countering the controlling effects of individual incentives based on performance targets. Likewise, Han et al. (2015) argued that it might be beneficial to combine individual PRP with profit-sharing as a means to better communicate an organization’s intent behind individual PRP, thereby inducing positive belief and attitude through signaling support among employees. On the other hand, erosion of link between individual effort and individual outcome by receiving collective PRP, which leads to social loafing and peer pressure (e.g., Barnes et al., 2011), can be controlled by a strong link between individual effort and individual outcome

when applying individual PRP, leading to less perception of being under co-workers' control. Hence, a combination of both individual and collective PRP can modify the supervisor control and co-worker control perceptions created by individual and collective PRP alone, respectively, which leads to more autonomy perception compared to single policies.

Consequently, and from the lens of SDT, compared to only individual and collective PRP, a mixture of individual-based and collective-based PRP schemes is more likely to satisfy employees' psychological needs and elicit as more likely be autonomous types of motivation.

In another scenario, adopting the lens of incentive effects, one may expect a positive interaction effect of individual and collective PRP on employees' mental health through several managerial explanations. First, in comparison to only individual-based PRP schemes, mixed individual/group PRP schemes lead team members to perform slower, and hence dispensability of effort would trade-off (Pearsall et al., 2010). Johnson et al. (2006) suggested that compared to individual PRP, group PRP contributes to a lower speed of work (Johnson et al., 2006), as the cooperation in group PRP adoption is increased at the cost of time (Nyberg et al., 2018). In contrast, an individual reward may cause employees to work too fast, which in turn leads to more exhaustion, fatigue, and mental health problems (Devaro & Heywood, 2017). Consistent with this line of reasoning, mixed individual and collective PRP schemes result in a balanced work speed that induces less stress and better mental health.

Second, rewarding employees' performance in multiple ways could also reduce the risk of pay uncertainty (J. H. Han et al., 2015). Additionally, it might send the message that the organization does not expect opportunistic behaviors and communicate trust in employees (Kuvaas, 2006). In this view, collective incentives alone are based on the aggregate performance of group members and external influences, which are not controllable by the employee per se

(Pendleton et al., 2009), suggesting higher pay uncertainty among team members. However, when firms adopt both individual and collective PRP, the proportion of incentive contingent on aggregate performance is less, so it reduces pay uncertainty and stress compared to only collective PRP (Pendleton et al., 2009) turn could be beneficial for employees' mental health.

Building on these arguments, a mixture of individual and collective PRP works as a guarantor for the negative consequences of each other to be neutralized. It can positively influence the relationship between the combination of individual and collective PRP and employee mental health (depicted in Figure A1), thus generating an incentive effect. Hence, we formally predict that:

> ***Hypothesis 3b:*** The coexistence of individual and collective PRP positively relates to employees' mental health.

Comparing Extrinsic Contingent Pay Schemes with Intrinsic Job Characteristics in Affecting Employees' Mental Health

Despite the growing research on the effectiveness of motivational factors on employees' satisfaction and performance, there have been remarkably few studies investigating whether proxy of intrinsic (i.e., autonomy, feedback, and skill variety) or extrinsic (i.e., different forms of PRP) motivation is stronger to enhance employees' mental health. Recently, researchers have attempted to investigate and describe the consequences of SDT by providing the concepts and measures of autonomous and controlled motivation (Kuvaas et al., 2017; Van den Broeck et al., 2016). Compared to intrinsically motivated employees, "extrinsically motivated employees act to avoid undesired outcomes and to procure desirable outcomes" (Kuvaas et al., 2017, p. 248). Consequently, "extrinsically motivated employees are more likely to experience negative

psychological states associated with their work" (Kuvaas et al., 2017, p. 248), which crowd out the potential positive effect of motivation on employees' mental wellbeing. Further, when employees receive financial rewards, they may interpret it as either being under control or receiving positive feedback from supervisors (e.g., Bucklin et al., 2003; Muraven et al., 2007).

These are in line with Van den Broeck et al. (2016), which clarified that extrinsic motivation depends on external or internal pressure, therefore, can be controlled. In contrast, intrinsic motivation is autonomous because it implies the endorsement of the reasons behind one's behavior. Hence, as described in the previous hypothesis of the present study, job characteristics can be considered autonomous enhancing motivational proxies. Whereas individual PRP and collective PRP are more likely to be controlled type of motivation and a combination of individual and collective PRP, however, is more likely to be an autonomous type of motivation than controlled. Indeed, from the lens of SDT, oppose to the strong positive effect of intrinsic job characteristics, the impact of PRP schemes on employees' mental health is mixed and hence is less effective in enhancing employees' mental health.

Evidence generally supports this argument. Kuvaas et al. (2017), for instance, have shown that intrinsic motivation is positively linked to positive outcomes and attitude (e.g., organizational commitment) while negatively associated with adverse outcomes (e.g., burnout and work-family conflict). In contrast, extrinsic motivation is positively related to negative outcomes and negatively or nonsignificantly associated with positive outcomes. Further, Gagne et al. (2015) found that the three psychological needs were positively related to intrinsic motivation, whereas the needs were almost always unrelated to extrinsic motivation. Together, these results suggest that employees may experience a higher level of well-being if they pursue and successfully attain goals that fulfill the three basic psychological needs, such as intrinsic job characteristics. Hence, we posit that job

characteristics will enormously enhance employees' mental health, while incentive pays can either enhance employees' mental health or not (see Figure A1).

Hypothesis c: Compare with extrinsic contingent pay schemes, intrinsic job characteristics' effect on employees' mental health is positively more robust.

Insert Figure A1 about here

Methods

Sample

The sample data are derived from the sixth European Working Conditions Survey (EWCS) conducted in 2015 and administered by Eurofound (Eurofound, 2015a). The survey's targeted respondents were employees of European companies of all sizes in industry and service sectors, aged 15 or older, and in employment at the survey time. The survey collected data for a total number of 43,850 individuals from 35 countries on a range of work-related issues such as exposure to physical and psychosocial risks, work organization, work-life balance, health, and wellbeing. In the survey, a multi-stage stratified and random sampling of the working population was used in each country (Eurofound, 2015; for a description of the dataset, see also: Bambra et al., 2014; Cottini & Lucifora, 2013; Garcia et al., 2017; Parent-Thirion et al., 2017; Van der Wel et al., 2015). After excluding the missing data, the final information regarding employees consisted of 19,360 observations, of which 9,106 (47 percent) were men and 10,254 (53 percent) were women.

Variables and Measurement

Employee mental health. Employee mental health index was measured by the grand mean

of five items asking employees about how they felt in the last two weeks (Van der Wel et al., 2015). In the literature, various subjective or objective approaches have been proposed to measure employees' mental health (e.g., Pang & Ruch, 2019). This study followed the recommendations in the literature (e.g., Pang & Ruch, 2019; van der Wel et al., 2015) and adopted the World Health Organization's Well-Being (WHO-5) index based on the availability of the data as a subjective psychological, mental wellbeing measure. Items were answered on a 6-point Likert response scale from 1 = *All of the time* to 6 = *At no time*. A sample item is "I have felt cheerful and in good spirits." Factor analysis confirms the five items (questions) do create one construct; reliability is confirmed with an ordinal Cronbach's alpha of 0.9 (Gadermann et al., 2012). These items were reverse coded so that higher summed scores (which could range from 5 to 30) indicated more mental health (see Table A1).

Performance-related pay (PRP). PRP schemes are measured by the presence of *individual PRP* and *collective PRP* plans in the organization as dummy variables. The variables represent if employees' earnings from the main job include individual PRP or collective PRP. Several studies measured individual PRP by using the presence of "payment by results, that is, piece rates, provisions, brokerages, or commissions" (Artz & Heywood, 2015; Davis, 2016; Della Torre et al., 2020; Gerhart & Fang, 2014; Johansson et al., 2010; Maltarich et al., 2017; Oah et al., 2019) or other individual performance indicators (e.g., Bryson et al., 2017; De Spiegelaere et al., 2018; Devaro & Heywood, 2017). In the present study, individual PRP was measured by asking employees whether their earnings from their main job include piece rate or productivity payments or is based on their individual performance (e.g., Oah et al., 2019) (0 = *No*, 1 = *Yes*). Collective PRP is measured by asking employees if their earnings from the main job are based on their performance of their team, working group, or department, the overall performance of the company,

or earning from shares in the company (e.g., Bryson et al., 2017; De Spiegelaere et al., 2018) (see Table A1) (0 = *No*, 1 = *Yes*). The use of dummy variables to capture the presence of different forms of PRP is common in compensation literature (e.g., Curran & Walsworth, 2014; De Spiegelaere et al., 2018; Della Torre et al., 2020).

Self-reported job autonomy. Following Wu et al. (2015), autonomy is measured by the grand mean of three items that allows respondents to indicate the extent to which the item refers to them (e.g., "Generally, does your main paid job involve your methods of work?" (0 = *No*, 1 = *Yes*) (see Table A1). A principal components analysis showed that the three items represented a single component, and the ordinal Cronbach's alpha was 0.9.

Self-reported positive feedback. Based on the availability of the data and following the recommendations in the literature (e.g., Morgeson & Humphrey, 2006), feedback is measured by the grand mean of two items related to feedback from supervisors that allows respondents to indicate the extent to which the item refers to them. Response choices are presented on a 5-point Likert scale, with 1 = *Always* to 5 = *Never*, which are all reverse-coded (e.g., "Your immediate boss, provides useful feedback on your work" (see Table A1). Factor analysis confirms the two items (questions) do create a one construct, and the correlation was 0.88.

Skill variety. Skill variety is measured by one item. This study, to some extent, followed Matilu and Obonyo's (2018) recommendations and, through a binary question, identifies whether the task is monotonous (0 = *Yes*, 1 = *No*) (see Table A1).

Control variables. In order to mitigate the risk of variable bias in our estimation, control variables include educational level (0 = *Less than bachelor education*, 1= *Completed bachelor or higher levels of education*) (De Spiegelaere et al., 2018), gender (0 = *Female*, 1 = *Male*) (Bryson et al., 2017) and ability to make ends meet (1 = *If they are able to meet their ends*, 0 = *Otherwise*)

(Meuris & Leana, 2018; Prawitz et al., 2013). Moreover, we controlled for employees' net monthly income (Davis, 2016; Green & Heywood, 2008; Meuris & Leana, 2018) since employees' income might affect the association between PRP adoption and employee mental health (Dahl & Pierce, 2020). Following previous compensation studies, we control for employees' type of contract (1 = *If the contract is unlimited*, 0 = *Otherwise*) (Guerci et al., 2019), which can affect both employees' wellbeing and their perception of relatedness with co-workers (Grant et al., 2007). Further, since there are differences in employees reaction to the incentive pays, for instance, in public and private ownerships (Bryson et al., 2017), we also control for these ownership category (1 = *If it is public*, 0 = *Otherwise*) (e.g., Della Torre et al., 2020). Employees' age (Meuris & Leana, 2018), as well as the number of dependence (Meuris & Leana, 2018), were added as control variables. Hence, we can be more confident about the unique contribution of extrinsic contingent pay schemes and intrinsic job characteristics on employees' subjective mental health by controlling for these variables (see Table A1).

Insert Table A1 about here

Analytical Procedure

We used Stata (Version 15 MP) to conduct a Confirmatory Factor Analysis (CFA) and to assess the distinctiveness of the key variables (employees' mental health, autonomy, and feedback). Table A2 shows standardized loadings ranging from 0.75 to 0.83, which are greater than the acceptable threshold of 0.5, so convergent validity is confirmed (Bagozzi & Yi, 1988). As is shown in Table A3, the square roots of the Average Variance Extracted (AVE) for each latent construct and estimates exceeded the correlation between the factors comprising each pair. Also,

we established the ordinal Cronbach's alpha (Table A3) because Cronbach's α assumes that all indicators are continuous, and it is sensitive to the ordinal binary and/or ordinal items and generally tends to underestimate the reliability (e.g., Gadermann et al., 2012). All ordinal Cronbach's alpha was above 0.70, suggesting that the reliability was acceptable (Gadermann et al., 2012).

Consequently, we included the mean of all constructs in our hypothesis tests. The descriptive statistics and correlations between study variables are also reported in Table A3 (more details in the result part). Taken together, the result of the AVEs and reliability indicated sufficient convergent validity of the variables, and hence, the measurement models had been assessed for their discriminant validity. We further applied Fornell and Larcker's (1981) method to check for discriminant validity.

Insert Table A2 and Table A3 about here

As shown in Table A4, the proposed three-factor model showed a good overall measurement fit, χ^2 (28, N = 19360) = 304.044, $p < 0.001$, comparative fit index (CFI) = 0.996, Tucker–Lewis index (TLI) = 0.994, root-mean-square error of approximation (RMSEA) = 0.023, standardized root-mean-square residual (SRMR) = 0.014. All factor loadings were significant, indicating convergent validity. Comparing the proposed three-factor model with several alternative CFA models in Table A4, revealed that the hypothesized model fit the data considerably better than did any of the alternative models, confirming discriminant validity.

Lastly, as that the data were collected from a single respondent (employees) at a single point in time, our results could be potentially subject to a Common Method Bias (CMB), which is a bias that results due to measurement method (Podsakoff et al., 2003). In order to check for the CMB to ensure the results were not affected by a single source of data, we applied a zero-constraint

approach which compares the proposed three-factor model with a Common Latent Factor (CLF) model in which all items loaded on the three expected factors, whereas additionally also loaded on the CLF. The result illustrates a significant improvement in the model fit by adding CLF (Table A4). However, the model with CLF revealed an explained variance of 31%, well below the threshold of 50% proposed by Podsakoff et al. (2003), which suggests that common method variance should not pose a serious threat that biased our results.

Insert Table A4 about here

Consequently, to test the hypotheses and validate our model, we applied a hierarchical linear regression model as follows:

$$EMH_i = B_0 + B_1 Autonomy_i + B_2 Feedback_i + B_3 Skill\ variety_i + B_4 IPRP_i + B_5 CPRP_i + B_6 (IPRP * CPRP)_i + controls_i + \varepsilon_i;\ \varepsilon_i \sim N(0, \sigma^2)$$

Where EMH as the dependent variable indicates employees' mental health for individuals indicated by i. Autonomy, feedback, skill variety, individual and collective PRP, and their two-way interactions as independent variables are also included in the model. Further, a set of 3 main control variables including employee demographic information (e.g., gender, education, and age), organizational characteristics (e.g., ownership), and employees' objective financial situation (e.g., number of dependences, net income, and the ability to make ends meet) were added to the model. To do so, control variables were added in Model 1, followed by the integration of independent variables of autonomy, feedback, skill variety (Model 2), and individual and collective PRP (Model 3) to estimate the main effects on employees' mental health. In Model 4, a two-way interaction term was entered to control the coexistence effects of multiple PRP schemes on employees' mental health. Moreover, to address multicollinearity issues and obtain unbiased

estimates of the hypothesized relationships, expect for binary variables, mean-centred for autonomy, and feedback variables were undertaken (e.g., Enders & Tofighi 2007). Hence, no critical multi-collinearity level between the variables was identified: all variance inflation factors (VIF) were below the recommended threshold of 5, such as 1.07 (autonomy), 1.04 (feedback), 1.06 (skill variety), 1.37 (individual PRP), 2.03 (collective PRP), 2.46 (interaction of IPRP and CPRP) and less than 1.50 for all interaction terms (Menard, 1995).

Moreover, after running each model, we conducted a correlation test between residuals and the explanatory variables because of the possibility of endogeneity problems. The nonsignificant correlations between explanatory variables and error terms suggest that the endogeneity problem is not an issue in our study. Additionally, since the distribution of the dependent variable is not normal, the robust maximum likelihood estimator was used to assess the statistical significance of the models, which is robust to violations of the normality assumption (McIntosh, 2007).

Results

Tables A3 and Table A5 present an overview of descriptive statistics, correlations, and compare mean tests. The correlations illustrate that employees' autonomy perception, positive feedback perception, net income, and the number of dependences are all positively correlated with employees' mental health. However, employees' age is negatively correlated with employees' mental health. Additionally, the compare means results illustrate that employees who perceive higher levels of skill variety benefit from significantly more mental health compared to those who do not have the perception of having skill variety. Further, while there are no means differences in employees' mental health between those who receive individual or collective PRP and who do not receive these incentives, those who receive a combination of both individual and collective PRP

have significantly higher mental health (but marginal) than those who do not receive it. Also, male, educated and employees who can make their needs satisfied have higher mental health than the female, not educated, and employees who cannot make their ends meet. Further, regarding their coverage, individual and collective incentives are used by 18.47 percent and 10.45 percent of the workforce, respectively. In comparison, multiple schemes are used in 5.49 percent of cases, suggesting multiple schemes cover relatively few employees.

Insert Table A5 about here

Hypothesis testing

Table A6 reports the results of regression models. Model 1 shows the effects of control variables on employees' mental health. Interestingly, the results shed light on the impact of age, acknowledging that older employees have more mental health problems than younger employees. Furthermore, being male, having more dependence, and making ends meet has a positive effect on employees' mental health compared to females, having less dependence and disability to make ends meet. Turning to Model 2 and Model 3, in terms of main effects, a positive and significant relationship between autonomy (*Standardβ* = 0.031; $p < 0.001$), feedback (*Standardβ* = 0.283, $p < 0.001$) and skill variety (*Standardβ* = 0.063; $p < 0.001$) and employees' mental health can be observed; hence, *Hypothesis a* was supported by our analysis. Interestingly, we found negative effect for both individual PRP (*Standardβ* = -0.020; $p < 0.01$) and collective (*Standardβ* = -0.018; $p < 0.01$) PRP. However, when we entered interaction terms in Model 4, we found a positive effect for interaction between individual and collective PRP (*Standardβ* = 0.022; $p < 0.05$). Thus, *Hypothesis 1b*, *Hypothesis 2b,* and *Hypothesis 3b* were supported.

Concerning the interaction terms, to better interpret how this relationship works, we plotted the interaction pattern in Figure A2. We found that when employees do not receive collective PRP, by receiving individual PRP, their mental health decreases compare to when they do not receive individual PRP, showing that individual PRP alone decreases employees' mental health. However, when employees receive collective PRP, their mental health increases by receiving individual PRP, compare to when they do not receive individual PRP, showing that employees' mental health increases by receiving a mixture of individual and collective PRP.

With regard to the comparison between the proxy of intrinsic motivation and the proxy of extrinsic motivation, we applied relative importance analysis. The standardized coefficients in Table A6 show that employees' perception of positive feedback (*Standardβ* = 0.283, $p < 0.001$) has the standardized coefficient with the largest absolute value, followed by skill variety (*Standardβ* = 0.063, $p < 0.001$), autonomy (*Standardβ* = 0.031, $p < 0.001$), collective PRP (*Standardβ* = -0.031, $p < 0.001$), individual PRP (*Standardβ* = -0.027, $p < 0.001$) and interaction between individual and collective PRP (*Standardβ* = 0.022, $p < 0.05$). Further, individual PRP and collective PRP are negatively related to employees' mental health, which confirms that compared with extrinsic motivation proxies, intrinsic job characteristics' effect on employees' mental health is positively stronger. Hence, the results support *Hypothesis c*.

Insert Figure A2 and Table A6 about here

Discussion

The goal of the current research was to expand past work design and compensation research by examining the degree to which particular proxies of intrinsic and extrinsic motivation affect

employees' mental health in Europe as a whole. For this purpose, the present study is broken into the following three sub-goals. First, investigates the employees' mental consequences of proxies of intrinsic motivation such as autonomy, feedback, and skill variety, which might have potential overlap with employees' perception of PRP schemes (e.g., Bucklin et al., 2003; McCausland et al., 2005; Muraven et al., 2007; Nyberg et al., 2016) and hence controls for PRP schemes. Second, it investigates the mental consequences of individual PRP, collective PRP, and their interaction as proxies of extrinsic motivation by controlling intrinsic job characteristics. The organizations apply these incentive policies to motivate employees hence financially benefit from their more performance extrinsically. Finally, the present study compares the strength effect of intrinsic job characteristics and extrinsic contingent pay schemes in enhancing employees' mental health, as they have different contexts and hence different mental consequences. If employees' mental health decreases, the organizations will fail to have healthy employees and achieve their financial benefits.

Using the microdata from the sixth European Working Conditions Survey (EWCS, 2015) and after controlling for the contract type grouped by unlimited contract type, employees' net income and their ability to meet their ends as well as the number of the financial dependence, our findings demonstrate general support for our hypotheses suggesting that individual PRP (with a controlling nature) and collective PRP (with a cooperative nature) negatively affect employees mental health, while their interaction is positively associated to employee mental health. All three intrinsic job characteristics positively affect employees' mental health, which confirms that job characteristics is more vital to enhance employees' mental health than incentive pays.

In particular, the current research showed that intrinsic job characteristics enhance employees' mental health. This finding is consistent with previous research, which determined

similar effects of autonomy, feedback, and skill variety on employees' mental health (e.g., Azmat & Iriberri, 2016; Tummers et al., 2018), satisfaction (e.g., Deci & Ryan, 2000), emotions and happiness (e.g., Oerlemans & Bakker, 2018). However, the present study added to the previous literature by controlling extrinsic contingent pay schemes and employees' financial situations, which might influence the mental effects of intrinsic job characteristics. Consequently, even by controlling different variables, employees' perceptions of autonomy, positive feedback, and skill variety still significantly enhance employees' mental health. The result appears to be consistent with Van den Broeck et al.'s (2016) supposition that by controlling for job stressors, the more autonomy, positive feedback, and skill variety perception employees have, their basic need for autonomy, relatedness, and competence are satisfied, leading to enhanced wellbeing.

Further, the results illustrate that employees' perception of positive feedback is more strongly related to employees' mental health than autonomy and skill variety. One possible explanation could be the fact that "many employees indicate their supervisors as being among the primary sources of their stress at work, which is detrimental for several dimensions, such as absenteeism, job satisfaction, productivity, and most importantly health" (Velez & Neves, 2016, p. 324). Hence, positive feedback, which is more related to supervisors than to the employees' perceptions or the organizational context, compare to autonomy perception and skill variety, is more likely to be strongly associated with employees' mental health than the other two intrinsic job characteristics. Although employees experience higher levels of mental health by receiving intrinsic job characteristics, more focus is needed on providing them with positive feedback that motivates them and makes them mentally healthier.

Second, the results indicated comparable mental health levels under the single individual PRP, collective PRP, and their combination. While a single scheme of every individual and

collective PRP is negatively related to employees' mental health, their interaction marginally enhances employees' mental health.

Regarding the negative effect of individual PRP on employees' mental health in Europe as a whole, to some extent, our finding is in line with Davis's (2016) research finding. They found that in Vietnam between 2010 and 2014, compared to the employees who are paid by the hour, those who are paid by the piece or subject to a production quota combined with the hourly pay report worse physical (e.g., fatigue and headache) and emotional (e.g., sad, hopeless and fearful) health. It is worth mentioning that in the present study as well, the driving force behind the individual PRP is not a full individual PRP policy; instead, it is those that pay some combination of the individual PRP (i.e., individual and piece rate) and fixed payment including fixed salary, additional hour, dangerous work and Sunday work.

Further, our finding supports previous literature, which states that pay and economic uncertainty, and work intensification (Ogbonnaya et al., 2017) resulted from individual PRP is driving this negative relationship. Also, as stated by Artz and Heywood (2015), employees who receive piece rates and bonuses in response to incentive pay systems increase their speed and hence take more significant risks, leading to a higher probability of injuries on the job. As a result, these employees think of time as money (Pfeffer & Carney, 2017) and hence work fast, ignore warning signals from the body, and conflict with safe work demands leading to shirk on health-promoting activities such as work breaks and medical visits that would otherwise reduce their health problems (e.g., Davis, 2016). Hence, individual PRP increases risk, exhaustion, fatigue, injury, and illness (e.g., Devaro & Heywood, 2017; Johansson et al., 2010), higher levels of psychological and physiological stress (e.g., Ganster et al., 2011), particularly among more risk-averse employees (e.g., Cadsby et al., 2016). This is consistent with Pencavel's (2015) conjecture that employees

who are mainly paid on a piece-rate basis "may experience fatigue or stress that not only reduces their productivity but also increases the probability of errors, accidents, and sickness" (p. 2073).

Similarly, a recent study by Guerci et al. (2019) found that individual PRP negatively affects health wellbeing among German employees. Additionally, a recent study by Dahl and Pierce (2020) attempted to explain that if individual PRP generates a mean-preserving income spread, the mental costs to those who lose income will outweigh the gains of those who gain it. They discussed that while income change will negatively affect mental health problems, the net outcome, on average, from increased pay variance, might be worse mental health. Finally, although contingent rewards might boost feelings of competence, at the same time, they may increase feelings of pressure and anxiety (e.g., Ganster et al., 2011), particularly individual PRP can threaten employees' mental health.

Regarding the effect of collective PRP on employees' mental health in Europe as a whole, as hypothesized, we found a negative relationship between the collective PRP and employees' mental health despite the supportive nature of collective PRP. Our finding is in line with Wood et al.'s (2012) counteracting effects model. The counteracting effects (Ogbonnaya et al., 2017; Wood et al., 2012) suggest that H.R. practices such as incentive pay that motivate workforces and induce more significant efforts might result in greater experiences of work-related stress and anxiety because of its positive association with work intensification. In such a scenario, the reward for an individual employee is dependent on collective outcomes (De Spiegelaere et al., 2018), and the employee can gain from the increased effort of others (Long & Fang, 2012). This can lead to higher levels of pay uncertainty, greater work responsibility and work intensification (Ogbonnaya et al., 2017), higher levels of being under co-worker's control (M. D. Johnson & Dang, 2012), and creating suspicion (De Spiegelaere et al., 2018; Green & Heywood, 2010) that detracts from its

positive impact on job satisfaction and cooperation (e.g., Conroy & Gupta, 2016; De Spiegelaere et al., 2018). This is consistent with the literature, which states that based on competition rather than cooperation, incentive pay policies can foster relations among organization members, mainly among peers (e.g., Bloom, 1999; Gardner, 1999). Indeed, collective PRP practices dampen employees' mental health. Similarly, a recent study by Guerci et al. (2019) found that group PRP including payment based on group and/or company performance positively relates to employees' mental health problems. Similar to the present study, they used EWCS (2015). However, they limited their analysis to the German employees in the private manufacturing or service sectors and a different measure for employees' mental health.

Regarding the mental consequences of both individual and collective incentives, we found interesting results stating that while individual and collective PRP negatively affect employees' mental health, their interaction enhances employees' mental health. Here, one can claim that coexistence of individual and collective PRP is much beneficial for employees' mental health than sole individual and collective PRP. This finding confirms our prediction that collective PRP promotes a supportive approach and cooperative culture among employees who receive individual PRP. As a result, it can outweigh the negative controlling nature of individual incentives and extends our understanding of the complementary effect between individual and collective PRP concerning employees' mental health (concerning firm innovation see: Della Torre et al., 2020). This result is in line with the previous recommendations that equity-based incentive systems (e.g., individual PRP) and equality-based incentive systems (collective PRP) can be combined to offset their respective weaknesses and hence the "best of both worlds" on the consequence of combining individual and collective PRP (e.g., Kozlowski & Ilgen, 2006). The main reason is that, although both schemes alone have some weaknesses, their combination can complement each other.

Compared to only one scheme, for instance, applying both schemes, employees are more satisfied with their need for autonomy. First, compare with only individual PRP, employees feel less direct control by supervisors as their performance is evaluated in a group. Second, compared to the collective PRP, employees' feeling of being under co-worker's control and free-riding behaviors reduces as employees cannot gain from the increased effort of others. Instead, every group member has his or her own responsibility, which motivates everybody to have more effort. This is in line with the argument by Stoneman and Dickinson (1989), which states that when employees realize that "decreases in their own performance would lead to further reductions in earnings" (p. 147), they keep working and might even work more. Consequently, when employees receive both collective and individual PRP, the importance of individual performance created by adopting individual PRP, which creates goal-striving behaviors among individuals (Pearsall et al., 2010) can relieve free-riding (e.g., Pearsall et al., 2010) and mutual monitoring (Lucifora & Origo, 2015) among employees.

Additionally, applying both schemes, employees benefit from the highest levels of cooperation associated with collective PRP (e.g., Barnes et al., 2011). That is, when employees receive both individual and collective PRP, the priority of self over group interests (e.g., Gartenberg & Wulf, 2017; Gerhart & Fang, 2014; Larkin et al., 2012), gets weaker. Also, despite their negative consequences, both schemes enhance the feeling of competence among employees (e.g., Ganster et al., 2011; Guerci et al., 2019). As was mentioned earlier, there is no previous study, to the best of our knowledge, examining the mental consequences of both individual and collective PRP in combination in Europe as a whole. This is one of the uniqueness of the present study. We return to this issue in our implications.

Finally, regarding the comparison between intrinsic job characteristics and extrinsic contingent pay schemes in enhancing employees' mental health, the current research showed that intrinsic job characteristics is positively stronger than extrinsic contingent pay schemes in enhancing employees' mental health, such that the relationships of individual PRP, collective PRP and their interaction with employees' mental health were weaker, compare with autonomy, feedback and skill variety. We additionally computed a -2log likelihood ratio between a model with only control variables (M1), a model with autonomy, feedback, and skill variety variables added to control variables (M2), a model with PRP variables added to model 2 (M3) and the full model (M4). Multiplying the log-likelihood value by "-2" yielded a value labeled deviance in Table A6 and indicated a significant difference in improving the model by adding both independent variables (i.e., intrinsic job characteristics and extrinsic contingent pay schemes) in the model. Although both improve the model, applying relative importance analysis confirms that employees' perceptions of positive feedback, skill variety, and autonomy have a stronger effect than PRP schemes in enhancing employees' mental health. Their standardized coefficient has the largest absolute value.

This finding is consistent with the previous research by Wang et al.'s (2012), which determined that public sector employees in Taiwan were more satisfied with the intrinsic aspects of their job but less with the extrinsic dimensions of the job. Further, Kuvaas et al. (2017) found that intrinsic motivation is positively linked to positive outcomes and attitude (e.g., organizational commitment) while negatively associated with adverse outcomes (e.g., work-family conflict). In contrast, extrinsic motivation is positively associated with negative outcomes and negatively or nonsignificantly associated with positive outcomes. However, despite the valuable studies in investigating the strength effects of intrinsic and extrinsic motivation in enhancing performance

(e.g., Kuvaas et al., 2017), there is no study, if any, investigating the strength effect of intrinsic job characteristics and PRP schemes in enhancing European employees' mental health. This is one of the uniqueness of the present study.

Summary and Conclusion

This study was an effort to understand how contingencies in the autonomous or controlled nature of the proxies of intrinsic motivation and the proxies of extrinsic motivation plans affect European employees' mental health. We found a strong association between intrinsic job characteristics and employees' mental health, as autonomy, feedback, and skill variety strongly enhance employees' mental health. Extrinsic contingent pay schemes, by contrast, are weakly associated with employees' mental health, where the single policy of individual and collective PRP negatively related to employees' mental health, while their combination enhanced it.

Apart from the unique contributions of the present study, one of the key strengths of our study relates to its large sample size. The large sample size enabled a more reliable analysis of our study population, which, coupled with various control variables, helped us achieve meaningful estimates for our hypothesized relationships. The present study is novel as it simultaneously assesses the relationships between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health in Europe. It is also novel in allowing interactions between individual PRP and collective PRP to affect employees' mental health. Finally, there are several theoretical and managerial contributions and implications emerging from the results of our study.

Theoretical Contributions

Our results provide empirical support for recent theories on the job design, motivation,

incentive, and counteracting effects of job characteristics and compensation policies in several ways. First, our findings confirm the universal wellbeing contributions of JCM in Europe, where the extrinsic contingent pay schemes and employees' income are controlled. Second, the negative relationship between individual and collective PRP and employees' mental health is consistent with counteracting the effect of single PRP policies on employees' mental well-being found in the existing literature (e.g., Johansson et al., 2010; Pencavel, 2015; Oah et al., 2019; Ogbonnaya et al., 2017). Third, our finding confirms SDT arguments in identifying single individual and collective PRP as controlled types of motivation. These practices are perceived as controlling by both employees and employers result in greater experiences of work-related stress and anxiety, and mental health problems.

Practical Implications

Our results also have important practical implications for managers in European establishments. First, our analysis suggests that intrinsic job characteristics always contribute to employees' mental health. Hence, top managers should recognize the importance of this H.R. plan, as positive feedback, skill variety, and autonomy perception among employees will result in higher levels of employee's mental health, respectively. Second, managers should not rely on only individual results-oriented PRP schemes or collective results-oriented PRP schemes if they want a healthy workforce affecting their firm performance. Indeed, compensation policies that are based on only individual performance or collective performance are not a quick win for the management. Rather they are increasing the feelings of external control among employees, anxiety, and dissatisfaction that in turn impairing employees' mental health. These negative effects, however, are offset when managers adopt multiple schemes of individual and collective PRP, giving a hint

to the managers about the complementary effects of the two plans. Third, our results provide evidence to support our arguments that employers who invest more in policies to intrinsically motivate employees through intrinsic job characteristics can benefit more from having healthy employees than those who invest more in policies to extrinsically motivate employees through PRP.

As a result, this study strongly suggests managers to create a health behavior climate. Such a climate refers to employees' perceptions of organizational policies, practices, and procedures for employee health behavior, including autonomy, positive feedback, skill variety and rewards that stimulate employees behaviors aiming at health promotion. That is, managers need to first focus on the H.R. plans which are clear for employees and can increase employees' perception of autonomy, positive feedback, and skill variety. In this regard, managers could use idiosyncratic deals which refer to personalized work arrangements that are negotiated between individual employees and their organizations (Rousseau, & Greenberg, 2006). Most of the I-deals are aimed at creating flexible work arrangement through either flexibility in work schedule or opportunity development (e.g., training) (Hornung et al., 2008). Consequently, these I-deals may enable employees to design their work schedule and hence feel more autonomy. Whereas opportunity development may help them to feel competence and meet their skill variety demands. Second, as managers need to apply financial rewards to increase employees' performance, they should be aware of the potential negative effects of these policies on employees' mental health. By including health behavior in the strategy and vision, managers can benefit from more productivity and healthier employees. Following the results of the present study, we believe that applying only individual results-oriented PRP schemes or collective results-oriented PRP schemes can have negative effect on employees' mental health unless some health-related training or H.R. plans (e.g.,

entertainment opportunity) are organized in the organization. In case of applying collective PRP, for instance, employers can organize some specific H.R. policies to reduce the free riding behaviour among the team members. Depending on the task, one possible solution might be to select a rotating leadership for the group. Leaders can be changed based on the time or based on the projects. Another possible solution would be to clearly divide the responsibilities among the group members and hence include a kind of individual PRP to the collective PRP. After each task or after a specific time, group members can report on their own responsibility. Consequently, employees will be responsible for their own specific task while working in a group. Hence, coupled with decreasing free riding behaviors, employees' feeling of being under co-workers' control and peer pressure will decrease. In case of applying individual PRP, employers can reduce pay comparison and social comparison behavior among employees by making the PRP policies clear and ensure employees of the organizational fairness. They can communicate that they take care of employees and make their employees aware of the purpose behind PRP schemes. Employers need to make it clear for the employees that PRP is not a tool to measure the employees' competence, instead it is a reward to appreciate their higher productivity. Hence, not receiving PRP does not mean that they are not competent. In this way, by applying individual PRP, employees can be ensuring that their organization is fair and they are not in high risk of losing their job even if they do not receive PRP.

Limitations and Future Research

The main limitation of this study might be the cross-sectional data that prohibits making causality assertions. However, this is a common gap in most of the HRM research (e.g., Della Torre et al., 2020; H. Kim & Gong, 2009) that reverse causality might be an issue. Further, since

the main focus of the present study is on the mental consequences of applying PRP schemes in the organization and employees' general perception of intrinsic job characteristics (i.e., not at a specific time), hence applying cross-sectional data does not create a serious concern. Future studies, however, could further explore our model using longitudinal data and control for the potential endogeneity problem. Further, despite a general hypothesis development, we also applied the SDT to build our hypothesis, but we could not check for the SDT mechanism because of the lack of required information in the data and the cross-sectional data. Therefore, it could be worth testing the SDT in future studies. Next, we only look at the presence of PRP schemes rather than the amount of PRP incentives received by employees that could have different effects on their personal mental health. Additionally, as literature states that under group PRP, smaller groups lead to different performance consequences compare with larger groups (Esteban & Ray, 2001; Friebel et al., 2017), employees' mental consequences might also be affected by the size of the group in receiving collective PRP. Future studies, indeed, could target the amount (Bryson et al., 2016; Ogbonnaya et al., 2017) and percentage of the salary dedicated to PRP for each employee to evaluate the impact of PRP on employees' mental health as well as investigating the role of the size of the group in affecting employees' mental health. Moreover, the interest of the present study was to investigate the mental consequences of adopting individual or collective PRP in general. Future studies can focus more on the details and separate PRP schemes from fixed payment and investigate the PRP behaviors alone and added to a fixed payment. Consequently, it is another potentially fruitful avenue for future research to investigate the association between PRP schemes alone and those added to fixed payments and employees' mental health.

Interestingly, since the universal mental consequences of basic psychological needs (Ryan & Deci, 2000b; B. Chen et al., 2015) has been challenged (e.g., Schwartz, 2000; Markus &

Kitayama, 1991), future studies can investigate the role of different cultural beliefs in these relationships as possible moderators. In the present study, the focus was to investigate these relationships in Europe as a whole. Additionally, since high performers might suffer from more pressure and mental health problems, particularly when receiving collective PRP (e.g., Oah et al., 2019), future studies can consider the role of the employees' performance level in these associations. We simply do not have access to this information in our data. Lastly, our analysis is based on subjective self-reported mental health data and not clinical assessments (Garcia et al., 2017). Future studies could collect data by means of industrial and clinical psychologists to ensure that potential biases are identified.

Chapter 3

How European Cultures Moderate the Effect of Extrinsic Contingent Pay Schemes and Intrinsic Job Characteristics on Employees' Mental Health

Abstract

Employees' mental health is a vital contributor to employees' performance and productivity. It has been one of the main concerns for both organizations and researchers, particularly in job design and Human Resource (HR) domains, for decades. Existing evidence on the mental health implications of intrinsic job characteristics and extrinsic contingent pay schemes shows mixed results, plausibly because their mental consequences may differ across cultures. In the present study, to shed light on the relevance of autonomy, feedback, skill variety, and Performance-Related Pay (PRP) for employee mental health across Europe, the moderating roles of cultural beliefs are investigated. The present study investigated whether individualist (vs. collectivist), strong (vs. weak) power distance and strong (vs. weak) uncertainty avoidance cultural beliefs moderate the relationships between intrinsic job characteristics (autonomy, feedback, and skill variety), extrinsic contingent pay schemes (i.e., only PRP, only individual PRP added to fixed payment or only collective PRP added to fixed payment vs. fixed payment) and European employees' mental health. This study took the idea of the Person-Environment Fit Theory (P-EF) to investigate if intrinsic job characteristics and extrinsic contingent pay schemes are likely to be more salient in certain cultural beliefs than in others in terms of mental health.

Microdata from the sixth European Working Conditions Survey (EWCS), with the final sample of 12,305 employees from all establishments in Europe, was used to test the hypotheses. After controlling for individual-level and country-level variables, multilevel regression analyses

suggest that fixed payment is better for employees' mental health than are extrinsic contingent pay schemes and that this result generalizes across cultures. These findings indicate that although the features of some types of PRP schemes are aligned with cultural values, their negative effect on employees' mental wellbeing is universal. Also, although autonomy, feedback, and skill variety have a universally positive association with employees' mental health, these relationships are stronger for autonomy in individualism (vs. collectivism) countries, for feedback in strong (vs. weak) power distance and uncertainty avoidance countries, while are weaker for feedback in individualism (vs. collectivism) countries and skill variety in strong (vs. weak) power distance and uncertainty avoidance countries.

These findings contribute to the advancement of debate on the relationship between PRP, intrinsic job characteristics, and European employees' mental health, suggesting that such relationships may be fostered or hampered depending on social-cultural values. Further, this study advances the job design studies by confirming that in terms of employees' mental health, positive consequences of intrinsic job characteristics and negative consequences of PRP are universal in Europe. The paper concludes by discussing the main implications of the study for researchers and practitioners.

Keywords Employee mental health. Individualism. Collectivism. Power distance. Uncertainty avoidance. Performance-related pay. Job characteristics

Introduction

All over the world, organizations, policymakers, and governments attempt to "Ensure healthy lives and promote well-being for all ages" as an objective of sustainable development goals for humanity and the planet by 2030. This underlines the importance of employee well-being and employees' mental health in particular. Employee mental health has received growing attention from researchers (e.g., Zheng et al., 2016), as it makes employees healthier and happier (e.g., Johari et al., 2019), enhances financial benefits for organizations (e.g., Nielsen et al., 2017) and improves the relationships between and within employees and employers. Importantly, cultural differences in terms of values, assumptions, and beliefs shared by individuals within a country are always a potentially crucial contextual factor in compensation, motivation, and wellbeing studies (e.g., Hauff et al., 2015) which can make differences in both performance-related and health-related results achieved by applying different types of H.R. policies.

Accordingly, not only the well-being varies across nations (Steel et al., 2018), but also the influence of various H.R. policies and values on job satisfaction and wellbeing may differ across countries (e.g., Hauff et al., 2015). Indeed, from the lens of Person-Environment Fit Theory (P-EF), some categories of intrinsic job characteristics (e.g., autonomy, feedback, and skill variety) and extrinsic contingent pay schemes (e.g., individual or collective Performance-Related Pay (PRP) schemes added to fixed payment or only PRP schemes vs. fixed payment) are likely to be more salient in certain cultural beliefs than in others in terms of mental health. In countries with high, relative to low on individualism culture, as an example, there is a stronger association between satisfaction and higher levels of autonomy (Oishi et al., 2009), while individuals in an exceedingly more collectivistic-oriented context would take pleasure in being involved in group activities (e.g., Hofstede, 2011). Hence, it can be suggested that intrinsic job characteristics and/or

extrinsic contingent pay schemes may be valued differently and – hence – relate differently to employees' mental health in diverse cultures.

This suggests the potential moderating role of cultural dimensions in the association between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health. Accordingly, considering Europe as a region that includes a variety of cultures provides a general idea of employees' mental health in different countries. Mainly from a mental health standpoint, there is little, if any, systematic research exploring the role of national culture in influencing how people react to different aspects of motivational factors, including both intrinsic job characteristics and extrinsic contingent pay schemes. Although there are important studies on cultural values (e.g., Hauff et al., 2015; X. Huang & Van de Vliert, 2003, 2004; Steel et al., 2018), as far as we know, the relationships between both extrinsic contingent pay schemes, intrinsic job characteristics and employees' mental health have not been empirically tested in all European countries, as most of the previous researches in the field stopped at within-country comparisons such as Britain (e.g., Devaro & Heywood, 2017; Ogbonnaya et al., 2017), Vietnam (Davis, 2016), South Korea (Oah et al., 2019) or Denmark (Dahl & Pierce, 2020). Further, although there are interesting attempts to investigate the moderating role of national culture (i.e., individualism and power distance) in the relationship between intrinsic and/or extrinsic job characteristics with job satisfaction (e.g., Hauff et al., 2015; X. Huang & Van de Vliert, 2003, 2004; Naseer et al., 2020; Oishi et al., 2009; Spector et al., 2001), still little is known about whether national culture changes the effect of separate extrinsic contingent pay schemes (e.g., individual and collective PRP schemes alone and added to fixed payment vs. fixed payment) and intrinsic job characteristics items (e.g., autonomy, feedback and skill variety) on employees' mental health. This is particularly important as every H.R. practice to motivate employees might have different mental consequences

in countries with particular cultural beliefs. Consequently, the results guide employers about the most aligned H.R. policies with the employees' values to enhance their mental well-being and hence their productivity.

Hence, in order to advance the previous research and its related insights, we investigate the influence of individualistic (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance cultural beliefs on employees' mental reaction to intrinsic job characteristics and extrinsic contingent pay schemes. The explanation of focusing on these cultural beliefs is, first, the empirical evidence shows that the rise of individualism is becoming a global phenomenon (e.g., Santos et al., 2017) which can affect employees' reaction to the rewards they receive as well as their perception of intrinsic job characteristic. Second, given that one of the main features of PRP schemes is paying uncertainty, a weak (vs. strong) uncertainty avoidance culture could make a difference in their effectiveness on employees' mental health. Third, since both intrinsic job characteristics and extrinsic contingent pay schemes have a kind of hierarchical relationship between a supervisor and a subordinate, power distance belief could make a difference in their effectiveness on employee well-being. Fourth, empirically, there is a strong correlation between individualism (vs. collectivism) and strong (vs. weak) power distance (Hofstede, 2001) that is difficult to distinguish between their effects. Accordingly, the present study controls for other cultural dimensions while investigating the impact of one cultural dimension. Also, both dimensions (i.e., individualism/ collectivism and strong/weak power distance) are correlated with wealth (Hofstede, 2011) and hence can affect the consequences of applying PRP schemes. Hence, this study can distinguish between the cultural effects by studying the moderating roles of individualism (vs. collectivism), strong (vs. weak) power distance and strong (vs. weak) uncertainty avoidance on the association between PRP, job characteristics and employees' mental

health. Further, as Hofstede's cultural dimensions, have been applied for many years to explain cultural differences among various countries (Hofstede, 1980, 1991), it has been suggested as a best starting point to study cultural dimensions (Shi & Wang, 2011; Vollero et al., 2020). Finally, we answer the call from Yang et al. (2019) to "explore the role of individual PRP in low power distance countries" (p. 19) as they focused on a high power distance country.

Accordingly, the main aim of the present study to extend the current literature is to investigate whether cultural differences such as individualist (vs. collectivist), strong (vs. weak) power distance and strong (vs. weak) uncertainty avoidance in Europe moderate the relationships between separate PRP policies (individual or collective PRP schemes added to fixed payment and only individual and/or collective PRP vs. fixed payment), intrinsic job characteristics (i.e., autonomy, feedback and skill variety) and employees' mental health. To this end, by utilizing multilevel analysis, we first investigate the relationship between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health. Notably, regarding the extrinsic contingent pay schemes, we focus more on the details, investigate the PRP behaviors alone, and add a fixed payment. We separate PRP schemes from fixed payment mainly because, in this way, the level of uncertainty created by PRP schemes is more evident as adding fixed payment is expected to reduce the level of uncertainty. Hence, we can better discover the effectiveness of cultural values, particularly uncertainty avoidance, in the H.R. policies- employees' mental health linkage. Second, to investigate the moderating roles of cultural dimensions, adding to the individual-level control variables, we also controlled for country-level variables. Individual-level control variables include employees' net income, the number of financial dependents, employees' ability to meet their ends, their contract if it is limited or not, and the sort of demographic information; while, country-level control variables include the welfare structure of every country,

risk of the poverty rate[1] and Gross Domestic Product (GDP[2]) at market prices as are all affective factors in employees' mental health (e.g., Dahl & Pierce, 2020; Hauff et al., 2015; Meuris & Leana, 2018; Prawitz et al., 2013). One of the main reasons to control for the mentioned variables is that although we do not study the other country classifications (e.g., Variety of Capitalism classification), but we try to control for their possible effects in the present study.

Finally, our study contributes to the literature by providing further empirical evidence on the mental costs of both intrinsic job characteristics and PRP policies. This study also extends the existing debate on the relationship between H.R. policies and employee well-being by cross-cultural investigation of intrinsic job characteristics and PRP on health, as well as disentangling the effects of multiple forms of PRP separately and in combination. Understanding these different implications of H.R. practices coupled with the role played by cultural dimensions influencing these implications is vital to mitigate the risk of high economic and social costs of mental health, including medical costs, presentism, absenteeism, and spillover effects to friends and family (e.g., Dahl & Pierce, 2020). It also helps develop a more comprehensive employee response model to compensation and HRM policy changes in different European nations.

This study proceeds as follows: First, we review some of the key literature and highlight the differences and similarities between cultural values (e.g., individualism/collectivism, strong/weak power distance, and strong/weak uncertainty avoidance) and provide an overview of their interconnection with employees' mental health consequences of intrinsic job characteristics and PRP policies to support the research model hypotheses. Then, we present the research methods

[1] At risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers).

[2] Chain linked volumes, percentage change on previous period, per capita.

and describe the variables of our study and the analytical procedure. After reporting the results, we discuss the effects. Finally, we conclude by discussing the broader theoretical and managerial implications of this study for the role of cultural dimensions influencing the association between intrinsic job characteristics, PRP schemes, and employees' mental health.

Theory and Hypotheses Development

Employees across countries not only report different levels of well-being (Hofstede, 2011; Nielsen et al., 2017) but also respond differently to various HRM policies (e.g., Hauff et al., 2015), altering the relationship between PRP schemes, intrinsic job characteristics, and employee wellbeing (Hauff et al., 2015; X. Huang & Van de Vliert, 2003). Literature usually explains these international differences in two ways: different institutional contexts (e.g., welfare, regulations in the labor markets, etc.) and cultural differences (e.g., X. Huang & Van de Vliert, 2003). Culture is defined as "the collective programming of the mind which distinguishes the members of one category of people from another" (Hofstede, 1984, p. 51). Further, cultural differences related to the values, assumptions, and beliefs shared by individuals within a country (Ollier-Malaterre & Foucreault, 2017) are always a potentially important contextual factor in compensation and motivation studies (Gagné et al., 2015; Milkovich et al., 2014). Hence, the present study primarily focused on whether culture can partly explain these differences while controlling the different welfare structures.

Person-Environment Fit (P-EF) literature assumes that people will thrive and feel well when the environment provides what they value or need (Oh et al., 2014; Van Vianen, 2018). The person is defined by "one's individual knowledge, skills, abilities, and other traits such as personality, values, and interests" (Oh et al., 2014, p. 103), such as cultural beliefs in the present

study. The environment concerns those characteristics external to the individual, such as the organization (e.g., pay structure and job characteristics) (Oh et al., 2014). Thus, employees are more satisfied if their cultural expectations are fulfilled in the workplace (Locke et al., 1976). Hence, cultural dimensions can influence how the work environment affects employees' well-being (e.g., Su et al., 2015). Taken together with the importance of employees' mental health, it is valuable to explore the extent to which PRP schemes and intrinsic job characteristics on employees' mental health are contingent on national culture, leading to different importance attached to every extrinsic contingent pay scheme and intrinsic job characteristics.

Different levels of importance associated with antecedents of mental health can be described separately by every cultural dimension. Despite the similarities in cultures and countries shown in several cross-cultural research (e.g., Spector et al., 2007), Hofstede (1980, 1991) has found the most significant differences between cultures. He suggested four different dimensions of national cultures: individualism vs. collectivism, strong vs. weak power distance, masculinity vs. femininity, and strong vs. weak uncertainty avoidance (Hofstede, 1980). Later, two other dimensions were added: long-term versus short-term orientation and indulgence versus restraint (Hofstede, 2011). Hofstede's cultural dimensions are widely cited (e.g., Brewer & Chen, 2007; Hauff et al., 2015) and viewed as the dominant cultural values typology in the organizational behavior context (Erez & Gati, 2004). Accordingly, the literature suggests that popular cultural values in a nation can predispose how its members value different work characteristics, which in turn should influence their effects on employees' mental health (e.g., Hauff et al., 2015; X. Huang & Van de Vliert, 2003, 2004). As a result, cultural dimensions can affect employees' behavior, satisfaction, and well-being (e.g., Oh et al., 2014; Su et al., 2015; Van Vianen, 2018). Thus, the effects of extrinsic contingent pay schemes and intrinsic job characteristics on employees' mental

health should be moderated by work values and goals, leading to different importance attached to autonomy, feedback, and skill variety (e.g., Hauff et al., 2015) as well as the extrinsic contingent pay schemes (i.e., e.g., individual or collective PRP schemes added to fixed payment or only PRP schemes vs. fixed payment).

Similarly, Huang and Van de Vliert (2003) investigated the moderating role of cultural differences on the relationship between employees' perception of skill variety and feedback as intrinsic job characteristics and employees' perception of the payment, the physical condition of the job and the workplace atmosphere as extrinsic job characteristics and their job satisfaction. Hauff et al. (2015) found that national culture moderates the effect of some situational job characteristics (i.e., interesting job and job security) on employees' job satisfaction. In this regard, Katic and Ingram (2018) called for future research to examine how cultural dimensions (particularly power distance and individualism) may modify the relationship between income inequality and subjective well-being. At the organizational level, contingent pay schemes can be perceived as an unequal reward, and hence the consequences may be similar to income inequality at the social level. In the present study, we try to fill the previous gaps by adopting the P-EF theory to investigate how individualism, power distance, and uncertainty avoidance moderate the association between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health. However, following the previous chapter, we first briefly make hypotheses on the effects of extrinsic contingent pay schemes and intrinsic job characteristics on employees' mental health.

Association between Extrinsic Contingent Pay Schemes, Intrinsic Job Characteristics, and Employees' Mental Health

Following the previous chapter, we argue that although both PRP types are extrinsic motivational H.R. practices, some are seen as more supportive by the organization while controlling by co-workers (e.g., collective PRP), others are seen as more controlling by the organization and more minor by co-workers (e.g., individual PRP). Yet, both involve pay uncertainty in different levels and the perception of being under control that in turn impairs employees' mental health (e.g., Ganster et al., 2011) compared with an only fixed payment. Likewise, PRP, either it is added to the fixed payment or not, can lead to employees' think of time as money (Pfeffer & Carney, 2017) and creates the feeling that the rewards have control over them that in turn exacerbates their mental health problems (Ganster et al., 2011) (depicted in Figure B4). However, the mental consequences of applying PRP schemes in combination, which is not a concern of the present study, can be different as they might eliminate each other weaknesses. Consequently, we hypothesis that:

> ***Hypothesis 1a:*** Individual PRP added to fixed payment (vs. fixed payment), collective PRP added to fixed payment (vs. fixed payment), and the only incentive pays (i.e., individual and/or collective PRP) negatively relate to employee mental health.

Regarding the mental consequences of employees' perception of intrinsic job characteristics, as was described in details in the previous chapter, which was also supported by the present data, we posit the same hypothesis:

> ***Hypothesis 2a:*** Autonomy, positive feedback, and skill variety positively relate to employee mental health.

Moderating role of Individualism Culture in the Association between Extrinsic Contingent Pay Schemes, Intrinsic Job Characteristics, and Employees' Mental Health

Individualism versus collectivism cultural beliefs, which is a societal and not an individual concept, is "the degree to which people in a society are integrated into groups" (Hofstede, 2011, p. 11). In an employment context, individualistic societies are likely to struggle with personal problems independently (D. Sinha & Tripathi, 1994), and then their health will not depend on others' behaviors. Further, people having individualistic cultures focus on their own needs and health. Comparing them with collectivistic societies, they spend more time making their needs satisfied, enhancing their well-being (Reykowski, 1994). Consistently literature found a positive effect of individualism on subjective well-being (Diener et al., 1995; Wu et al., 2015) and satisfaction (Huang & Van de Vilert, 2004). Also, Steele and Lynch (2013) found that while both individualist and collectivist factors predict subjective well-being in China, oppose to collectivism, individualist factors have become more critical over time.

Collectivistic culture, on the other hand, positively relates to positive outcomes such as organizational commitment (e.g., Felfe et al., 2008), organizational citizenship behavior (e.g., Cohen, 2007); well-being (Brougham & Haar, 2013), and satisfaction with co-workers, job and pay (e.g., Brougham & Haar, 2013; Diener et al., 2003; Robert & Wasti, 2002). They also psychologically benefit from social support from extended family, friends, and workgroups (J. B. P. Sinha & Verma, 1994; Spector et al., 2001). In support, Brougham and Haar (2013) confirmed that in a population of Maori employees in New Zealand, those with higher levels of collectivism had a greater level of mental health through lower anxiety and depression (see also, Ghorbani et al., 2003). Further, there is a negative association between individualism orientation and subjective well-being through a fewer number of close friends (Ogihara & Uchida, 2014), higher introversion

(Migliore, 2011; Steel et al., 2018), creating tension and belongingness (Steel et al., 2018) among employees.

Based on such a notion that individualistic (vs. collectivist) culture has different effects on mental health, we investigate the moderating role of individualism (vs. collectivist) believes in the association between an individual or collective PRP schemes added to fixed payment or only PRP schemes vs. fixed payment, autonomy, feedback, skill variety, and employees' mental health. In making the arguments, we recognized that since every cultural context offers its own resources for need satisfaction, from the P-EF theory perspective (e.g., Su et al., 2015), job characteristic factors can be aligned with the values stressed in an individualist environment. Instead, the individualist (vs. collectivist) values conflict with the main features of collective PRP while aligning with individual PRP features. Similarly, in their study of employees from 49 countries, Huang and Van de Vliert (2003) found that the workers of individualistic countries value intrinsic job characteristics more than the workers in collectivistic countries from the satisfaction standpoint. On the contrary, they argued that extrinsic job characteristic related to higher income is more valuable in collectivism countries than in individualism; however, it was not significant.

Moderating role of Individualism Culture in the Association between Extrinsic Contingent Pay Schemes and Employees' Mental Health. When it comes to the association between PRP and employees' mental health in countries with individualism (vs. collectivist) believes, employees may perceive more equity by receiving individual PRP aligning with their interest in personal values (Gagné et al., 2015), self-fulfillment (e.g., Wu et al., 2015) and their individual goals (e.g., Hofstede, 2011). One possible explanation could be that in individualistic countries, people focus on the ''I'' and being independent (Spector et al., 2007). In these societies, employees need to have higher autonomy (e.g., Steel et al., 2018), be personally qualified, and

struggle with personal problems on their own (e.g., Spector et al., 2001). Also, individualistic values are related positively to equitable reward systems and merit-based promotions (Ramamoorthy et al., 2007) because individual PRP makes them accountable, which is seen as fair in individualistic countries. Particularly that employees from individualistic (vs. collectivistic) countries react more strongly to (un)fairness behaviors (Shao et al., 2013). Such societies also exhibit higher love of money (vs. collectivism) and thus high income (Elias, 2013). Hence, receiving individual PRP added to their fixed payment can make employees in these societies happier and more satisfied as it signals to them that employers appreciate their values and interests. This is consistent with the previous research, which states that employees value PRP policies more in an individualist culture than in collectivist cultures. This study found PRP as a motivator in an individualistic culture (Black, 1999).

By contrast, in collectivistic countries, social goals and teamwork are ranked higher than individual goals (e.g., Hofstede, 2011; X. Huang & Van de Vliert, 2003). In such an environment that relationship prevails over task (Hofstede, 2011), people emphasize cooperation (e.g., Brougham & Haar, 2013), and hence good relationships with co-workers to be more important (Hauff et al., 2015). Consistent with this view and following the P-EF theory, relational fit such as person–group and person–supervisor fit created by adopting collective PRP are align with collectivism values and are more acceptable than rational fit (Oh et al., 2014). However, individualistic self-interest values can dominate the cooperative and supportive nature of collective PRP. Similarly, prior studies stated that collectivist cultural values tended to be aligned with equality-based rewards (e.g., Ramamoorthy et al., 2005, 2007) and hence work-related social networks are valued, making the workplace more satisfying (e.g., Oyserman et al., 2002). However, in the individualistic countries (vs. collectivistic) individual PRP is aligned with

employees' values for earning more money and equitable reward (e.g., Ramamoorthy et al., 2005, 2007), and hence work itself becomes self-defining to make the workplace more satisfying for the employees (e.g., Oyserman et al., 2002). Therefore, we posit that: (see Figure B1 and Figure B4)

> ***Hypothesis 1b:*** Cultures with individualistic (vs. collectivistic) beliefs weaken the negative effect of individual PRP (vs. fixed payment) on employee mental health, while it exacerbates the negative effect of collective PRP (vs. fixed payment) on employee mental health.

Moderating role of Individualism Culture in the Association between Intrinsic Job Characteristics and Employees' Mental Health. When it comes to autonomy, feedback, and skill variety, the "task prevails over relationship" feature in the individualistic culture (Hofstede, 2011) is entirely in play. That is, in an employment context, individualisms who are likely to struggle with personal problems on their own (Spector et al., 2001) value having the freedom to adopt their own approach to a job (Hofstede et al., 2010). Thereby, in such societies that pursue personal achievement and being independent (Spector et al., 2007), employees need to have higher autonomy (e.g., Steel et al., 2018) and be personally qualified. Further, these employees prefer direct communication (Oyserman et al., 2002) as rational fits such as person–job and person-organization fit are more valuable than relational fit in individualism culture (Oh et al., 2014). As such, hiring and promotion decisions are supposed to be based on only skills and rules (Hofstede et al., 2010) that in turn makes feedback more valuable and align with employees' need for personal growth in their job in cultures with individualism (vs. collectivism) believes (Sarkar, 2009). Moreover, highly individualistic culture values a challenging (Hofstede et al., 2010) and interesting work (e.g., Sarkar, 2009). Coupled with the fact that using multiple skills is often challenging (Morgeson & Humphrey, 2006), implying the importance of various skills in the

individualism culture. Hence, positive feedback, autonomy, and a variety of skills can be aligned with employees' need for personal growth (Sarkar, 2009) in an individualistic culture.

However, people in the collectivist societies are integrated into strong, cohesive in-groups and often extended families that protect and support them as oppose to other in-groups (Hofstede, 2011; Brougham & Haar, 2013). In such an environment, in-group members may control employees by forcing them to behave in specific ways regardless of their values or interests, which weaken the need for autonomy (Chirkov et al., 2003) and reduce the importance of a variety of skills and feedback. Hence, collectivism can be an expression of heteronomy which is opposite to the need for autonomy (Chirkov et al., 2003). Through this process and consistent with P-EF theory, higher levels of autonomy, feedback, and skill variety better fit individualistic culture's values, which are argued to stimulate the positive effect of intrinsic job characteristics on employees' mental health in an individualistic culture. Mainly compares to the collectivist culture, people having individualism culture value the attainment of one's personal goals as an important source of well-being (e.g., Markus & Kitayama, 1991; Oyserman et al., 2002), which highlights the importance of intrinsic job characteristics for employees in countries with individualism believes.

In support, Huang and Van de Vliert (2003) found a positive association between positive feedback and job satisfaction in individualist countries. The cross-cultural comparative research has also invariably demonstrated that interaction between job autonomy and individualism enhances employees' mental health and satisfaction (e.g., Oishi et al., 2009; Spector et al., 2001). Further, Huang and Van de Vliert (2004) found that employees who have opportunities to use their skills and abilities feel more satisfied in individualist countries. Moreover, Hauff et al. (2015) confirmed that an interesting job significantly promotes employees' satisfaction in individualist

cultures. However, to our knowledge, very few studies have examined the effect of skill variety and feedback on employees' mental well-being in different cultural contexts. This is an important omission since every different cultural value has its own implications. In any case, building on the arguments, we expect that the positive effect of job characteristics, including feedback, autonomy, and skill variety, on employee mental health, is stronger in countries with higher levels of individualistic culture and thus formally predict that: (see Figure B1 and Figure B4)

> ***Hypothesis 2b:*** Cultures with individualistic (vs. collectivistic) believes positively stimulates the positive effect of job characteristics, including feedback, autonomy and skill variety on employee mental health.

Moderating role of Power Distance Culture in the Association between Extrinsic Contingent Pay Schemes, Intrinsic Job Characteristics, and Employees' Mental Health

Power distance is usually defined as "the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally" (Hofstede, 2011, p. 9). Small power distance culture is indeed characterized by less power asymmetry (Naseer et al., 2020). Regarding the effect of power distance on employees' mental health, following Oishi et al. (2011), two possible mechanisms, namely general trust and fairness, describe the inverse linkage between income inequality and happiness, lowering subjective wellbeing. Consequently, the feeling of injustice and envy behaviors, and social comparisons (e.g., Festinger, 1954) increases among employees that are both toxic for employees' mental health. In another scenario, the gap between superiors and employees in a high power distance culture (Hofstede, 2011) can erode trust and belongingness and hence reduces individuals' satisfaction (e.g., Baumeister & Leary, 1995) as there is a negative relationship between trust and

national happiness (Steel & Ones, 2002). In support, the literature states that having an unequal distribution of power discourages knowledge sharing among employees (e.g., Ajmal et al., 2010; Hofstede, 2001).

Further, weak employee relationships with management decrease job satisfaction (Rutherford et al., 2009). Consistently, in their two-sample study, Lin et al. (2013) showed that the relationship between abusive supervision and employees' job satisfaction and psychological health is moderated by power distance orientation, as employees with strong (vs. weak) power distance cultural beliefs are more likely to perceive their supervisors as less abusive (Peltokorpi & Ramaswami, 2019). Harrison (1995) also found high power distance negatively relates to job satisfaction. Also, Huang and Van de Vliert (2003) found that among the national characteristics (i.e., cultural individualism, national wealth, social security, and cultural power distance), only power distance negatively and significantly predict job satisfaction. More recently, Steel et al. (2018) found that high power distance is strongly connected with low subjective well-being, directly and indirectly through governance and GDP per capita. Also, as Oruh and Dibia (2020) argued, in countries with a strong power distance culture, employees cannot challenge employers on issues relating to stressors such as work overload, which in turn leads to reinforcing the level of stress and hence negatively affects their mental health. However, Yetim and Yetim (2006) found a positive relationship, and Kirkman and Shapiro (2001) found no significant relationship between high power distance and employees' job satisfaction. Hence, in terms of employees' subjective well-being and particularly their mental health, Hauff et al. (2015) reported that power distance yields mixed results. Consequently, as employees' satisfaction in societies with strong power distance beliefs depends on their cultural norms rather than their own needs (Gul et al., 2018), it makes sense that this cultural value can moderate the effects of H.R. practices on employees'

mental health.

Based on such a notion that countries with strong (vs. weak) power distance cultures have different effects on employees' satisfaction, as we detail next, we investigate the moderating role of power distance believes in the association between PRP, job characteristics, and employees' mental health. For PRP, we test individual or collective PRP schemes added to fixed payments or only PRP schemes vs. fixed payments. For job characteristics, we test autonomy, feedback, skill variety, and employees' mental health. From the P-EF theory (e.g., Su et al., 2015) perspective and since every cultural context offers its own resources for need satisfaction, we recognized that job characteristic factors could be alien with the values stressed in strong (vs. weak) power distance cultural beliefs. The power distance values conflict with the main features of collective PRP while aligning with individual PRP features.

Similarly, Huang and Van de Vliert (2003) found that intrinsic job characteristics are negatively associated with job satisfaction in countries with strong power distance. Further, Naseer et al. (2020) found a positive relationship between the aggregation of core job characteristics and a hindrance stressor when power distance was strong. In contrast, it was insignificant when the power distance was weak. However, among previous studies on the moderating role of power distance (e.g., X. Huang & Van de Vliert, 2003; Naseer et al., 2020; Oruh & Dibia, 2020), none of them, to the best of our knowledge, examined the moderated effects of power distance on the relationship between both intrinsic job characteristics (i.e., autonomy, feedback and skill variety) and extrinsic contingent pay schemes (i.e., individual or collective PRP schemes added to fixed payment or only PRP schemes vs. fixed payment) and employees' mental health.

Moderating role of Power Distance Culture in the Association between Extrinsic Contingent Pay Schemes and Employees' Mental Health. Oppose to the cultures with strong

power distance believes, in societies with weak power distance believes, employees resist power distance (Naseer et al., 2020). In societies with weak power distance believes, subordinates who usually have less power than their supervisors are willing to enhance their connections with others and share power between supervisors and themselves (Naseer et al., 2020). Having more connections can make these employees able to compensate for their less power and the restriction to their access to resources caused by their position (e.g., D. Han et al., 2017). By contrast, employees in societies with higher power distance beliefs are likely to perceive limited access to resources and accept it because they may not have enough power to overturn existing hierarchies (D. Han et al., 2017).

Additionally, income inequality at the country level is positively associated with power distance (Hofstede, 1980), as in high power distance societies, uneven income distribution is acceptable (Hofstede, 2011). Hence, high income (Hauff et al., 2015) and self-focusing (D. Han et al., 2017) are more valuable in high power distance countries. This perception of economic distance leads individuals to distance themselves socially from others (Sánchez-rodríguez et al., 2019). Further, since autonomy in societies with stronger power distance belief is understood as financial independence (Van Gelderen et al., 2019), receiving individual PRP may not signal to employees that they are under supervisors' control. Instead, as subordinates in countries with strong power distance beliefs expect to be told what to do (Hofstede, 2011), they appreciate receiving individual PRP, which might not lead to social comparison and envy behaviors as much as in societies with less power distance believes. In support, Yang et al. (2019) argued that individual PRP might be a more prevalent phenomenon among employees in high power distance orientation. Hence, from the lens of P-EF theory, individual PRP, which is more self-focused and financially independent from co-workers' performance, better fits the values in strong power distance

countries. At the same time, the values of cultures with strong (vs. weak) power distance beliefs are alien with the cooperation context, and task interdependence of collective PRP. Because employees in these societies are less dependent on others (e.g., X. Huang & Van de Vliert, 2003) and have less knowledge sharing in construction projects, for instance. In these cultures, good relationships with management are less critical; instead, high income and advancement opportunities are more important for job satisfaction (Hauff et al., 2015).

To sum up, from a theoretical point of view, the individual PRP scheme is aligned with strong power distance cultures' values. However, collective PRP is expected to be more aligned with less power distance cultural values (depicted in Figure B2 and Figure B4). Under these circumstances, we hypothesis as follow.

Hypothesis 1c: Cultures with strong (vs. weak) power distance weaken the negative effect of individual PRP added to the fixed payment (vs. fixed payment) on employee mental health, while it exacerbates the negative effect of collective PRP added to the fixed payment (vs. fixed payment) on employee mental health.

Moderating role of Power Distance Culture in the Association between Intrinsic Job Characteristics and Employees' Mental Health. Talking about intrinsic job characteristics, employees in lower power distance have greater value and aspiration to autonomy (e.g., Hofstede, 1991), feedback (X. Huang & Van de Vliert, 2003), and various skills. In these societies, subordinates expect to be consulted, feel more able to negotiate in the organization (e.g., Hofstede, 2011), and are pleased when the organizations fulfill their preferences (Lee & Antonakis, 2012). They have lower perceptions of control over various outcomes (e.g., D. Han et al., 2017) and experienced a lack of autonomy (Lammers et al., 2016). By contrast, in high power distance culture, decision-makings are centralized. There are rigid hierarchical structures (Hofstede, 1984);

compared with less power distance societies, employees are more willing to accept the decisions made by authorities. They are less likely to attempt to influence the decision-making of employers (e.g., Hofstede, 2011). In these societies, subordinates accept that they are inferior to their elite supervisor in status (e.g., Yang et al., 2019) and anticipate power to be unequally distributed (Hofstede, 2011; Naseer et al., 2020). They also find themselves depending on their supervisors (X. Huang & Van de Vliert, 2003) and expect to be told what to do (Hofstede, 2011). They perceive the supervisor's feedback as authoritative expectations and take it for granted (e.g., Steel et al., 2018). Consequently, these employees may not see any chance to have more power (e.g., D. Han et al., 2017), even if they are qualified through having a variety of skills and receiving positive feedback. Hence, despite enhancing employees' mental health by receiving positive feedback and having a variety of skills, employees in more power distance countries interpret feedback (e.g., X. Huang & Van de Vliert, 2003) and skill variety as an undesirable and an unnecessary factor. Also, despite different perceptions of autonomy, employees tend to be resistant to autonomy (Hofstede, 2011), accept limitations to their autonomy and their status (Van Gelderen et al., 2019), and be somewhat comfortable with following rules and hence low autonomy (Hofstede, 2011, Naseer et al., 2020). This explanation complements our argument that autonomy, feedback, and skill variety desire more in lower power distance countries than in high power distance cultures.

In support, Papalexandris and Panayotopoulou (2004) found that high (vs. low) power distance countries tend to utilize status and connections rather than knowledge, skills, and abilities. Also, consistent with Hui et al.'s (2004) finding, high autonomy leads to less job satisfaction among employees having higher power distance orientation. Huang and Van de Vliert's (2003) result confirmed that intrinsic job characteristics, including feedback, tend to lower job satisfaction in higher power distance countries than in less power distance countries. Recently, in their time-

lagged study, Naseer et al. (2020) found that having a culture with high power distance believes, core job characteristics including autonomy, feedback, and skill variety lead to higher levels of hindrance stressors.

Altogether, and consistent with P-EF theory, rational fits such as person–job and person-organization fit are more valuable than relational fit in less power distance culture (Oh et al., 2014). Hence, from the lens of P-EF theory, autonomy, positive feedback, and various skills are more aligned with values of less power distance culture (vs. high). However, in both high and low power distance cultures, feeling autonomous, relatedness, and competence are essential needs for employees' satisfaction, feeling power (e.g., Lammers et al., 2016), and mental health. Thus, we posit that: (see Figure B2 and Figure B4)

> ***Hypothesis 2c:*** Cultures with strong (vs. weak) power distance negatively weakens positive effects of intrinsic job characteristics, including feedback, autonomy, and skill variety on employee mental health.

Moderating role of Uncertainty Avoidance Culture in the Association between Extrinsic Contingent Pay Schemes, Intrinsic Job Characteristics, and Employees' Mental Health

Uncertainty avoidance, which is different from risk avoidance, indicates "to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations" (Hofstede, 2011, p. 10). Culture with a relatively high level of uncertainty avoidance, indeed, tries to minimize the possibility of such unstructured situations which are "novel, unknown, surprising, and different from usual" (Hofstede, 2011, p. 10). More specially, societies with strong uncertainty avoidance believe "what is different, is dangerous" while having weak uncertainty avoidance believes "what is different, is curious" (Hofstede, 1991, p. 119).

Consequently, uncertainty avoidance is correlated with one dimension of mental health in Lynn and Hampson's (1975) study. Employees in societies with high uncertainty avoidance cultural beliefs stay in their jobs even if they dislike them (Hofstede, 2011). Consistently literature argued that high uncertainty avoidance is positively related to hindrance stressors (Naseer et al., 2020), stress, anxiety, and neuroticism and is negatively related to subjective health and well-being (e.g., Hofstede, 2011).

Based on such a notion that strong uncertainty avoidance (vs. weak) has different effects on mental health, as we detail next, we investigate the moderating role of uncertainty avoidance believes in the association between an individual or collective PRP schemes added to fixed payment or only PRP schemes vs. fixed payment, autonomy, feedback, skill variety, and employees' mental health. Given that every cultural context offers its own resources for need satisfaction, and from the P-EF theory perspective (e.g., Su et al., 2015), we recognized that job characteristic factors, including feedback and skill variety, can be aligned with the values stressed in strong (vs. weak) uncertainty avoidance, while autonomy can be alien with these values. However, the uncertainty avoidance values are in conflict with the main features of all contingent rewards (i.e., pay uncertainty), including both individual and collective PRP. However, as was mentioned before, the level of uncertainty created by every contingent pay is expected to be different.

Moderating role of Uncertainty Avoidance Culture in the Association between Extrinsic Contingent Pay Schemes and Employees' Mental Health. As mentioned before, compared to individual PRP, adopting collective PRP creates higher levels of pay uncertainty, yet both involve uncertainty compared to the only fixed payment (e.g., Ganster et al., 2011). Adopting extrinsic contingent pay schemes to motivate employees might be more harmful to employees'

mental health in cultures with strong (vs. weak) uncertainty avoidance beliefs. In these societies, people inherently feel uncertainty in their life and have higher levels of stress, anxiety, and neuroticism and lower scores on subjective health and well-being (Hofstede, 2011). One possible explanation could be the fact that employees in countries high (vs. low) on uncertainty avoidance dislike the uncertainty (e.g., Shao et al., 2013) and hence their unexpected or unpredictable earning caused by PRP adoption. In such societies that people are more risk-averse than other societies, employees experience more stress to reduce financial uncertainty created by incentive rewards, which causes more anxiety, pressure, and depression (Davis, 2016; Cadsby et al., 2016). More significantly, collective PRP is based on the aggregate performance of group members and external influences, which are not controllable by the employee itself (Pendleton et al., 2009), suggesting higher pay uncertainty among team members. Thus, in countries with strong (vs. weak) uncertainty-avoiding cultures, when firms adopt incentive rewards such as collective PRP, the level of pay uncertainty increases. Hence, we posit that: (see Figure B3 and Figure B4)

> ***Hypothesis 1d:*** Cultures with strong (vs. weak) uncertainty avoidance exacerbate the negative effects of all incentive rewards, including single individual and collective PRP added to the fixed payment (vs. fixed payment) and only PRP schemes (vs. fixed payment) on employee mental health.

Moderating role of Uncertainty Avoidance Culture in the Association between Intrinsic Job Characteristics and Employees' Mental Health. Moving to intrinsic job characteristics, we argue that autonomy does not align with the values of high (vs. less) uncertainty avoidance believes. In contrast, both feedback and skill variety is supposed to align with the values of cultures with high (vs. less) uncertainty avoidance beliefs. The rationale for this prediction is rooted in the three main differences between societies with weak and strong uncertainty avoidance

beliefs. Accordingly, cultures with strong uncertainty avoidance beliefs include a "need for clarity and structure," "emotional need for rules – even if not obeyed," and "teachers supposed to have all the answers." By contrast, societies with weak uncertainty avoidance culture are "comfortable with ambiguity and chaos," "dislike rules - written or unwritten," and "teachers may say 'I don't know" (Hofstede, 2011, p. 10).

Having in mind the features mentioned above, in societies with strong uncertainty avoidance beliefs, which is highly associated with formalization (Shackleton & Ali, 1990), employees fear failure and feel threatened by the failures, which in turn seeks them to fear taking responsibility (e.g., Chew & Putti, 1995; Clugston et al., 2000; Hofstede, 1980). This, in turn, translates into the need for an environment dominated by rules, procedures, explanations, and testimonials by experts (De Mooij, 2010) and hence a distributed control system (Blomkvist, 2012; Hofstede, 2001; Wilkesmann et al., 2009). As a result, although having autonomy at work is one of the main job characteristics in promoting employees' mental health (e.g., R. Park & Jang, 2017), in societies with strong uncertainty avoidance believes, it can make employees feel anxious, worried, and detached (e.g., Wang, 2020). Consistently, to describe the negative relation between autonomy and mental health, Matilu and Obonyo (2018) stated that autonomy implies uncertainty. Thus, enhanced autonomy is less likely to promote employees' mental health in societies with strong (vs. weak) uncertainty avoidance believes as it is alien to their cultural values.

Another possible explanation for employees' fear in the societies with strong (vs. weak) uncertainty avoidance believes is that they need approval from their supervisors and guaranteed success (e.g., Wang, 2020) which could be reached by receiving positive feedback from the supervisors. Also, the fact that performance feedback may reduce uncertainty directly (Jang et al., 2018) complement our argument that positive feedback in societies with strong (vs. weak)

uncertainty avoidance believes increases employees' mental health as it is aligned with the cultural values. Further, on the one hand, individuals high in uncertainty avoidance seek greater career stability, avoid risk, and search for ultimate, absolute truths and values (Hofstede, 2001). On the other hand, employees' skill variety induces a sense of mastery over the environment (Van den Broeck et al., 2016). Taken together, employees' feeling of skill variety in societies with strong (vs. weak) uncertainty avoidance is aligned with the cultural values of having a stable and secure working situation. Thus, we posit that: (see Figure B3 and Figure B4)

> ***Hypothesis 2d:*** Cultures with strong (vs. weak) uncertainty avoidance negatively weaken positive effects of autonomy on employee mental health, while positively strength positive effects of both feedback and skill variety on employees' mental health.

Methods

Sample

The data was drawn from the sixth European Working Conditions Survey (EWCS) conducted in 2015 and administered by Eurofound (Eurofound, 2015a). Data were gathered via face-to-face interviews based on a questionnaire in 35 countries on a range of work-related issues such as work organization, health, and well-being. In each country, a multi-stage stratified random sampling was used (more information is available at Eurofound, 2015b, 2015c). The survey's targeted respondents were employees of European companies aged 15 or older and in employment at the survey time. After excluding the missing data, self-employed people, and other cultural scales out of 43,850 individuals, the final information regarding employees consisted of 12,305 observations, of which 5,804 (47 percent) were men and 6,501 (53 percent) were women.

Variables and Measurement

Employee mental health. Employee mental health index is measured by the grand mean of five items asking employees about how they felt in the last two weeks (Van der Wel et al., 2015). The World Health Organization's Well- being (WHO-5) index as a subjective mental health measure was adopted. Items were answered on a 6-point Likert response scale from 1 = *All of the time* to 6 = *At no time*. A sample item is "I woke up feeling fresh and rested." Factor analysis confirms the five items (questions) do create one construct; reliability is confirmed with an ordinal Cronbach's alpha of 0.9 (Gadermann et al., 2012). These items were reverse coded so that higher summed scores (which could range from 5 to 30) indicated more mental health (see Table B1).

Individual PRP, collective PRP and individual and/or collective PRP. Individual PRP, collective PRP, and individual and/or collective PRP (vs. fixed payment) as dummy variables represent if employees' earnings from the main job include both *fixed salary and only individual PRP*, both *fixed salary and only collective PRP*, and *individual and/or collective PRP* or not, respectively. Fixed salary is measured by asking employees if their earnings from the main job include basic fixed salary, extra payments for additional hours of work, compensating for Sunday work, or dangerous working conditions. Individual PRP is measured by asking employees if their earnings from the main job include piece rate or productivity payments or are based on their individual performance (e.g., Oah et al., 2019) (0 = *No*, 1 = *Yes*). Finally, collective PRP is measured by asking employees if their earnings from the main job are based on the performance of their team, working group, or department, the overall performance of the company, or earning from shares in the company (e.g., Bryson et al., 2017; De Spiegelaere et al., 2018) (0 = *No*, 1 = *Yes*). Hence, only individual PRP added to fixed salary represents employees who receive both fixed payment and only individual PRP, and only collective PRP added to fixed salary represents

employees who receive both fixed payment and only collective payment (0 = *No*, 1 = *Yes*). However, individual and/or collective PRP represents employees who only receive PRP (individual and/or collective PRP) without fixed payment (0 = *No*, 1 = *Yes*) (see Table B1).

Autonomy, feedback, and skill variety. In order to avoid the potential overlap with the feeling of being under control and obliged to do work by employees when they are financially rewarded (e.g., Muraven et al., 2007), employee's perception of their autonomy is included in the analysis. Following Wu et al. (2015), self-reported job *autonomy* is measured by the grand mean of three items that allows respondents to indicate the extent to which the item refers to them (e.g., "Generally, does your main paid job involve your speed or rate of work?" (0 = *No*, 1 = *Yes*). A principal components analysis showed that the three items represented a single component, and the ordinal Cronbach's α = .90. We also included *positive feedback*, given that it enhances the effects of the incentive pays (Bucklin et al., 2003). Based on the availability of the data and following recommendations in the literature (e.g., Morgeson & Humphrey, 2006), feedback is measured by the grand mean of two items related to feedback from supervisors that allows respondents to indicate the extent to which the item refers to them. Response choices are presented on a 5-point Likert scale, with 1 = *Always* to 5 = *Never*, which are all reverse-coded (e.g., "Your immediate boss gives you praise and recognition when you do a good job." Factor analysis confirms the two items (questions) do create a one construct, and the Spearman correlation was .79. *Skill variety* as a dummy variable measure whether the task is monotonous or needs a variety of skills (Matilu & Obonyo, 2018) (0 = *Yes*, 1 = *No*).

Culture. Individualism, uncertainty avoidance, and power distance cultural beliefs are measured using national cultural scores provided by Taras et al. (2012). They followed the measurement logic proposed by Hofstede and provided different national cultural score sets from

the 1980s to the 2000s, showing that the validity of Hofstede's scores diminishes over a long time. The present study uses scores for the 2000s, and the missing data for the 2000s are replaced by the 1990s, ranging from -2 (*collectivism/less uncertainty avoidance and less power distance*) to +2 (*individualism/high uncertainty avoidance and high power distance*) (see Table B2).

Individual-level control variables. Individual-level control variables are measured as follows. Following previous compensation studies, we controlled for employees' net monthly income (Davis, 2016; Green & Heywood, 2008). Employees' income might affect the association between PRP adoptions, job characteristics, and employees' satisfaction, as well as their mental health (e.g., Dahl & Pierce, 2020; Hauff et al., 2015). Also, several dummy-variables such as educational level (0 = *Less than bachelor education*, 1 = *Completed bachelor or higher levels of education*) (De Spiegelaere et al., 2018; Hauff et al., 2015), gender (0 = *Female*, 1 = *Male*) (Bryson et al., 2017; Hauff et al., 2015), employees' ability to make ends meet (1 = *If they are able to meet their ends*, 0 = *Otherwise*) (Meuris & Leana, 2018; Prawitz et al., 2013), type of contract (1 = *If the contract is unlimited*, 0 = *Otherwise*) (Grant et al., 2007; Guerci et al., 2019; Hauff et al., 2015) and ownership (1 = *If it is public*, 0 = *Otherwise*) (e.g., Della Torre et al., 2020), since there are differences in employees reaction to the H.R. policies, for instance, in public and private ownerships (Bryson et al., 2017; Hauff et al., 2015) were added in control variables (see Table B1). Employees' age (Hauff et al., 2015; Meuris & Leana, 2018) and the number of dependence (Meuris & Leana, 2018) were also added as control variables. Hence, we can be more confident about the unique contribution of the mental effects of PRP policies and intrinsic job characteristics and the moderating role of cultural values on employees' subjective mental health by controlling these variables (see Table B1).

Country-level control variables. As country-level control variables, we included GDP growth rate per capita (Dittmar et al. 2014) as well as at risk of poverty rate with a *cut-off point at 60% of median* equivalised income after social transfers, both for the year in which the survey was conducted (i.e., Eurostat, 2015a&b). One of the main reasons to control these variables is the high correlation between cultural dimensions and financial situations, such as the correlations between power distance and economic development (Adelman & Morris, 1967) and individualism and power distance with national wealth (Hofstede, 2011). Hence, controlling for wealth-related factors such as both poverty rate and GDP can lead to the pure results of the moderators. Besides, different institutional contexts (e.g., welfare, etc.) and cultural differences (e.g., X. Huang & Van de Vliert, 2003) are two possible explanations for the international differences. With this in mind, and because the present study is especially interested in whether culture can at least partially explain these differences, welfare structures such as collaborative, fragmented-rigid, and fragmented-flexible are also controlled (e.g., Allen et al., 2016). For this purpose, three dummy variables were created (1 = *If the country has a fragmented-rigid, fragmented-flexible, or collaborative welfare structure*, 0 = *Otherwise*) (see Table B1).

Insert Table B1 and Table B2 about here

Analytical Procedure

We used Stata (Version 15 MP) to conduct a Confirmatory Factor Analysis (CFA) and to assess the distinctiveness of the key variables (employees' mental health, autonomy, and feedback). Table B3 shows the means and standard deviations of both individual-level and country-level variables, as well as their bivariate correlations (more details in the result part).

Particularly, it represents the square roots of the Average Variance Extracted (AVE) for each latent construct (at the individual- level) which exceeded the correlation between the factors comprising each pair. Also, the ordinal Cronbach's alpha is reported in Table B3 because Cronbach's alpha assumes that all indicators are continuous. It is sensitive to the ordinal binary and/or ordinal items and generally tends to underestimate the reliability (e.g., Gadermann et al., 2012). All ordinal Cronbach's alpha was above 0.75, suggesting that the reliability was acceptable (Gadermann et al., 2012).

Consequently, we included the mean of all constructs in our hypothesis tests. The descriptive statistics and correlations between both individual-level and country-level study variables are also reported in Table B3 (more details in the result part). Taken together, the result of the AVEs and reliability indicated sufficient convergent validity of the variables, and hence, the measurement models had been assessed for their discriminant validity. We further applied Fornell and Larcker's (1981) method to check for discriminant validity.

Insert Table B3 about here

As shown in Table B4, the proposed three-factor model showed a good overall measurement fit, χ^2 (28, N = 12305) = 217.412, $p < 0.001$, comparative fit index (CFI) = 0.996, Tucker–Lewis index (TLI) = 0.994, root-mean-square error of approximation (RMSEA) = 0.023, standardized root-mean-square residual (SRMR) = 0.016. All factor loadings were significant, indicating convergent validity. Comparing the proposed three-factor model with several alternative CFA models in Table B4, revealed that the hypothesized model fit the data considerably better than did any of the alternative models, confirming discriminant validity.

Lastly, as that the data were collected from a single respondent (employees) at a single

point in time, our results could be potentially subject to a Common Method Bias (CMB), which is a bias that results due to measurement method (Podsakoff et al., 2003). To check for CMB to ensure the results were not affected by a single source of data, we applied a zero-constraint approach. This approach compares the proposed three-factor model with a Common Latent Factor (CLF) model in which all items are loaded on the three expected factors, whereas additionally also loaded on the CLF. The result illustrates a significant improvement in the model fit by adding CLF (Table B4). However, the model with CLF revealed an explained variance of 30%, well below the threshold of 50% proposed by Podsakoff et al. (2003), which suggests that common method variance should not pose a serious threat that biased our results.

Insert Table B4 about here

Consequently, given the hierarchical structure of the data (employees at individual-level are nested in nations at country-level) and our hypotheses on the moderating role of cultural differences in the relations between extrinsic contingent pay schemes, intrinsic job characteristics, and employees' mental health, hierarchical regression models and multilevel analysis (Heck et al., 2010) are applied. In our two-level models, PRP policies, job characteristics, and employees' mental health are level 1 variables, and moderating variables (i.e., uncertainty avoidance, individualism, and power distance) are level 2 variables. Moreover, to address multicollinearity issues and obtain unbiased estimates of the hypothesized relationships, expect for binary variables, country mean-centered for level 1 variables, and grand mean-centered for level 2 variables were undertaken (e.g., Enders & Tofighi, 2007). Hence, no critical multicollinearity level between the variables was identified: all variance inflation factors (VIF) were below the recommended threshold of 5 (Menard, 1995).

In model 1, only the intercept was included to estimate the unconditional means model. After defining the random intercept null model and compare it with the non-random intercept model through the likelihood ratio test (*Chi2* (01) = 350.36, p = 0.000), multilevel analysis was justifiable. Also, despite the small amount of *ICC* (1) = 0.02, which represents the proportion of total variance that can be explained by country (Bliese, 2000), the country has a significant effect on employees' mental health, as the one-way ANOVA test shows (F(21,12283) = 20.77, p = 0.000). A multilevel model is therefore warranted. Thus, random intercepts were specified in the following models. In model 2, a set of individual-level predictors were integrated in order to test Hypothesis a (1&2). Randomly varying slopes for both PRP policies and job characteristics were rejected using the likelihood ratio test and comparing every random slope model with the only random intercept model. Indeed, only a random intercept model is applied for the following analysis. Model 3 integrated the level 2 variables into the equation. Finally, in models 4, 5, and 6, to test whether cultural differences can stimulate or diminish the job characteristics and PRP policies effects, cross-level interaction terms were formed between each independent and cultural factor (i.e., individualism, power distance, and uncertainty avoidance).

Moreover, after running each model, we conducted a correlation test between residuals and the explanatory variables because of the possibility of endogeneity problems. The nonsignificant correlations between explanatory variables and error terms suggest that the endogeneity problem is not an issue in our study. Additionally, since the distribution of the dependent variable is not normal, the robust maximum likelihood estimator was used to assess the statistical significance of the models, which is robust to violations of the normality assumption (McIntosh, 2007).

Results

Table B3 presents an overview of descriptive statistics and the correlations at both individual and country-level among the continuous main variables as well as control variables. Table B5 presents mean difference tests in employees' mental health for binary variables. The results of both Table B3 and Table B5 illustrate that employees' mental health is negatively correlated with employees' age at the individual level. However, it is positively correlated with employees' autonomy, positive feedback, net income, and the number of dependences. Also, employees' mental health is significantly less among employees who receive only individual PRP added to fixed payment and among employees who receive individual and/or collective PRP than those who do not receive these incentives. However, employees who are male, able to make their needs meet and perceive skill variety are mentally healthier than women, those who are not able to make their needs met, and those who do not have skill variety perception. At the country level, individualism is negatively correlated with both uncertainty avoidance and power distance. However, uncertainty avoidance and power distance are positively correlated. Also, the risk of the poverty rate is positively correlated with both uncertainty avoidance and power distance.

Insert Table B5 about here

Hypothesis testing

Table B6 reports the results of regression models. Results from model 2, show that among the individual-level control variables being male (β = 0.14, SE = 0.02, p < 0.001), number of independence (β = 0.02, SE = 0.01, p < 0.01) and the ability to make ends meet (β = 0.29, SE = 0.02, p < 0.001) have positive effect on employees' mental health, while education (β = -0.06, SE=

0.02, $p < 0.01$) and age (β = -0.00, SE = 0.00, $p < 0.001$) are negatively affecting employees' mental health and the rest of variables are not effective. Turning to the hypothesis, we found that among the main effects of individual-level predictors individual PRP added to fixed payment (β = -0.11, SE = 0.03, $p < 0.001$) and collective PRP added to fixed payment (β = -0.12, SE = 0.04, $p < 0.01$) negatively relate to employees' mental health whereas, as expected, autonomy (β = 0.03, SE = 0.01, $p < 0.001$), positive feedback (β = 0.13, SE = 0.00, $p < 0.001$) and skill variety (β = 0.15, SE = 0.02, $p < 0.001$) positively relate to employees' mental health. Consequently, although only PRP policies including individual and/or collective PRP compare with fixed payment is not significant (β = -0.11, SE = 0.07, $p > 0.10$), Hypothesis 1a partially and Hypothesis 2a completely are supported. Hence, compare with only fixed payment, applying PRP schemes added to fixed payment are harmful for employees' mental health, however, job characteristics are always beneficial for employees' mental health. (see Table B6).

The results in model 3 indicate that among the country-level predictors fragmented rigid (β = 0.31, SE = 0.10, $p < 0.01$), GDP (β = 0.01, SE = 0.000, $p < 0.1$) and uncertainty avoidance (β = 0.12, SE = 0.06, $p < 0.1$) are positively and only power distance (β = -0.20, SE = 0.10, $p < 0.05$) is negatively related to employees' mental health, while others are not significant. Concerning the interaction terms in models 4, 5, and 6, the results show that the negative effects of PRP schemes (both alone and added to fixed payment) on employees' mental health are universal in European countries. Hence, culture does not significantly change these relationships. Consequently, Hypothesis 1b, 1c, and 1d are not supported. However, culture significantly affects the relationships between intrinsic job characteristics and employees' mental health. Individualistic cultural values, as hypothesized, strengthen the positive effect of autonomy on mental health (β = 0.03, SE = 0.01, $p < 0.01$). At the same time, opposed to our hypothesis, it weakens the positive

effect of feedback on employees' mental health (β = -0.04, SE = 0.01, p < 0.001) (model 4). To better interpret the interaction results, we plotted the pattern of the significant interactions in Figure B5 and Figure B6.

Figure B5 shows that the perception of autonomy increases employees' mental health; however, the slope is steeper in countries with individualism than collectivist cultural beliefs. Figure B6 shows that although employees' mental health increases when they receive positive feedback in countries with both individualism and collectivist values, as positive feedback increases, employees working in collectivist countries benefit from better mental health than individualistic countries. Further, model 5 shows that strong (vs. weak) power distance, oppose to our hypothesis, strength positive effect of feedback (β = 0.06, SE = 0.01, p < 0.001), while as hypothesized, weakens positive effect of skill variety (β = -0.13, SE = 0.04, p < 0.01) on employees' mental health. Figure B7 shows that in countries with both strong and weak power distance, employees' mental health increases as they receive positive feedback. However, employees in strong power distance cultures benefit more from increasing positive feedback. It is clear from Figure B8 that employees' mental health increases when employees perceive skill variety in their job. However, employees' mental health increases steeper in countries with weak power distance cultural beliefs. Moreover, strong (vs. weak) uncertainty avoidance, as hypothesized, strength positive of feedback (β = 0.02, SE = 0.00, p < 0.001), while oppose to the hypothesis, weakens positive effect of skill variety (β = -0.08, SE = 0.03, p < 0.01) on employees' mental health (model 6). Figure B9 also shows that employees' mental health increases steeper in counties with strong uncertainty avoidance cultural beliefs. Following Figure B10, when employees perceive skill variety in their job, they mentally benefit more in countries with weak

uncertainty avoidance cultural beliefs. Consequently, Hypothesis 2b, 2c, and 2d are partially supported.

Insert Table B6, Figure B5, Figure B6, Figure B7, Figure B8, Figure B9, and Figure B10 about here
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Discussion

The goal of the current research was to expand past work design and compensation research by examining the degree to which cultural differences in terms of individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance believes can change the association between particular proxies of intrinsic (i.e., autonomy, feedback and skill variety) and extrinsic (i.e., individual PRP added to fixed payment, collective PRP added to fixed payment and only individual and/or collective PRP) motivation with employees' mental health in Europe. For this purpose, the present study was broken into the following two subtypes of research. First, it investigated whether cultural beliefs, including individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance, moderates the association between PRP policies and employees' mental health. Second, it investigated whether cultural beliefs, including individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance, can at least partly explain the employees' mental health consequences from autonomy, feedback, and skill variety. Using the sixth European Working Conditions Survey (EWCS, 2015), different analysis and controlling for both individual-level as well as country-level variables, our results confirmed that individual-level negative effect of applying both individual PRP added to fixed payment and collective PRP added to a fixed payment on employees' mental health are universal in Europe. In contrast, the intensity between intrinsic

job characteristics and employees' mental health varies significantly from country to country.

Both individual PRP added to fixed payment and collective PRP added to fixed payment negatively affect employees' mental health (see Table B5). However, the interaction of PRP schemes (either they are added to fixed payment or not) with every cultural dimension was not significantly effective on employees' mental health. This finding is consistent with the previous research by Huang and Van de Vliert (2003). They did not find support for the hypothesis that individualism (vs. collectivism) and strong (vs. weak) power distance cultural beliefs moderate the relationship between extrinsic job characteristics, including employees' income and job satisfaction. However, opposed to our result, they found a positive effect of extrinsic job characteristics on job satisfaction in all countries. This different result might be first because they measured extrinsic job characteristics differently that are not exactly PRP; instead, they are about the value of money. Second, our focus is on European countries, while their study covers 49 countries, including some European countries, coupled with the other countries. However, the main similarity is that they also found that the effect of extrinsic job characteristics, including employees' income, is universal.

Our finding that cultural dimensions do not make significant differences between the effects of PRP schemes on employees' mental health is also consistent with the previous research, which determined similar effects of every PRP type on employees' mental health in different countries. In their review paper, Ganster et al. (2011) found that PRP, especially piece-rate, put all of the employees' pay at risk and hence reduces their well-being in various countries such as Israel, Taiwan, and Canada. Also, Artz and Heywood (2015) found an increased risk of injury when employees are paid by piece rates and bonuses in the US. Similarly, Davis (2016) found a negative effect of individual PRP on employees' mental health in Vietnam. Guerci et al. (2019) further

showed that collective PRP (i.e., group PRP) and individual PRP positively relate to employees' mental health problems in Germany. Similarly, a recent study by Dahl & Pierce (2020) stated that PRP adoption is positively related to employees' usage of anti-depressant and anti-anxiety medication in Denmark, which confirms the negative mental consequence of PRP adoption. Additionally, following the literature, in the countries with strong (vs. weak) uncertainty avoidance believes, for instance, the fairness-related information from authorities provides a means for employees to cope with uncertainty (Tangirala & Algae, 2006), implying that the mental effect of individual PRP might not be different in strong uncertainty avoidance countries from countries with weak uncertainty avoidance countries.

To sum up, the previous literature coupled with our results confirm that PRP adoptions (e.g., individual PRP and collective PRP) are harmful to employees' mental health. However, their negative consequences are not significantly different among three cultural dimensions (i.e., individualism/collectivism, strong/weak power distance, and strong/weak uncertainty avoidance). Although, the mental health consequences of PRP adoptions might be affected by employees' individual culture. We return to this issue in our limitations of the study and recommendations for future research.

Regarding the mental health consequence of intrinsic job characteristics (i.e., autonomy, feedback, and skill variety), we found two interesting results. First, the mental health consequences of intrinsic job characteristics are universal (Deci & Ryan 2000; Ryan & Deci 2000b) in Europe, as autonomy, feedback, and skill variety lead to increased employees' mental health in every cultural dimension (Table B5). Second, our results highlight that although autonomy, feedback, and skill variety are essential for employees' mental health, their values are different in every culture. Hence, some factors are stronger in some countries with particular cultural dimensions in

enhancing employees' mental health. Our first finding on the universal mental consequence of autonomy, feedback, and skill variety in Europe is consistent with the argument that satisfaction of three basic psychological needs, including autonomy, competence, and relatedness, is said to be universally essential for human thriving and their psychological well-being (e.g., Deci & Ryan 2000; B. Chen et al., 2015; Ryan & Deci 2000b).

Similarly, Huang and Van de Vliert (2003) found that intrinsic job characteristics are positively associated with job satisfaction in 49 countries. However, this positive association is stronger in countries with individualism and weaker power distance cultural beliefs (X. Huang & Van de Vliert, 2003). They measured intrinsic job characteristics by two items; however, the present study adds to the previous research by investigating the mental consequences of autonomy, feedback, and skill variety separately in every cultural dimension.

Further, although employees' mental health is higher in countries with collectivist cultural beliefs, following our hypothesis, perceiving higher levels of autonomy is more valuable in countries with individualistic cultural beliefs. We found that the relationship between autonomy and employees' mental health is stronger in individualistic countries (Figure B6). This finding is consistent with the study by Oishi et al. (2009) that found in countries with high (vs. low) individualism believes the association between one's autonomy was significantly stronger with life satisfaction. Also, recently Wu et al. (2015) argued that in individualistic cultures, job autonomy not only positively relates to subjective well-being at work but also mitigates the negative impact of overqualification on subjective well-being at work. This argument supports our results that autonomy perception is more valuable in countries with individualistic cultural beliefs. However, opposed to our hypothesis, we found that in countries with collectivist cultural beliefs, receiving positive feedback is more valuable, and hence the positive linkage between positive

feedback and employees' mental health is stronger in societies with collectivist cultural beliefs compare to individualistic cultures (Figure B5). One possible explanation for this finding could be the fact that opposed to the individualistic cultures, employees from collectivistic cultures are more motivated to change themselves to fit the environment rather than alter the situation to fit their needs (Rothbaum et al., 1982; Weisz et al., 1984, Wu et al., 2015). Having this in mind, receiving positive feedback signals to the employees a good match with the environment. Further, individuals in societies with collectivist cultural beliefs desire to build harmonious relationships and hence are less motivated to change their jobs (Wu et al., 2015). In this environment, when employees receive positive feedback, which also promotes the feelings of competence and meaningfulness of work (Jong, 2016), they may perceive a great opportunity for career development, leading them to regulate their well-being and mental health, exhibit positive feelings such as happiness (Azmat & Iriberri, 2016) and organizational citizenship behavior (Oldham & Fried, 2016).

We also found that in societies with strong (vs. weak) power distance cultural beliefs, oppose to our hypothesis, employees who receive more positive feedback benefit more from mental health (Figure B7), while the positive effect of skill variety on employees' mental health is weaker in these societies, which supports our hypothesis (Figure B8). The positive moderation effect of strong (vs. weak) power distance in the feedback-employees mental health linkage could be explained by the previous research on the impact of leadership in these societies. The influence of authentic leadership, for instance, is stronger when employees have higher power distance cultural beliefs (e.g., Qian et al., 2012), which states the importance of the supervisors and hence their feedback in these countries. Further, Qian and Li (2016) found that the positive relationship between supervisor mentoring and subordinate feedback-seeking from the supervisor is stronger

for employees having a strong (vs. weak) power distance culture. That is, in these societies, employees value receiving positive feedback from their supervisors as employees in countries with strong (vs. weak) power distance cultural beliefs tend to believe that their supervisors are superior and elite and hence they need to fulfil supervisors' expectations (e.g., Hofstede, 2011; Qian & Li, 2016). Therefore, these employees value on supervisor's feedback (Qian et al., 2012) as by receiving positive feedback, they feel they can gain more benefits while responding to their supervisors (Qian & Li, 2016). Although the previous literature mainly focused on the individual cultural beliefs, the results are still applicable to describe the finding of the present study, as following the argument "Culture is the mother; institutions are the children" (Etounga-Manguelle, 2000, p. 75), social-cultural beliefs, organizational culture, and individual culture are related to each other.

Additionally, in societies with strong (vs. weak) uncertainty avoidance cultural beliefs, following our hypothesis, we found that employees who receive more positive feedback benefit more from mental health (Figure B9). However, opposed to our hypothesis, the positive effect of skill variety on employees' mental health is weaker in these societies (Figure B10), which the results from the previous studies could explain. Following the literature, on the one hand, the fairness-related information from authorities provides a means for employees to cope with uncertainty (Tangirala & Algae 2006). On the other hand, when uncertainty is coupled with unfair treatment, employees will respond negatively to the organization (Van den Bos & Miedema 2000; Wang et al., 2012). Mainly that employees' reaction to (un)fairness behaviors is stronger among employees from strong (vs. weak) uncertainty avoidance countries (Shao et al., 2013). Thus, employees' perception of high levels of skill variety which could be translated by employees who feel overqualified into unfair treatment (e.g., Schreurs et al., 2020), is likely to be alien with strong

(vs. weak) uncertainty avoidance cultural values. An alternative explanation is consistent with the finding that the positive association between core job characteristics, including skill variety and employees' creativity, is stronger for employees with low uncertainty avoidance orientation than those with high uncertainty avoidance orientation (Wang, 2020). However, this study is focusing on an individual's cultural orientation, we can use it to explain that skill development is more important and effective for employees in societies with weak (vs. strong) uncertainty avoidance believes, as using multiple skills is often challenging (Morgeson & Humphrey, 2006) and jobs regarded as challenging may make employees with strong (vs. weak) uncertainty avoidance beliefs feel anxious, and worried (Wang, 2020). Further, Kaasa (2011) states that uncertainty avoidance is negatively related to the value of interesting work, implying the less importance of a variety of skills in these societies. To sum up, our findings support the argument that "More than ever, understanding employee action requires knowledge of how an action is related to the environment in which it is embedded'' (Gibson & McDaniel, 2010, p. 459).

Summary and Conclusion

This study was an effort to understand how cultural dimensions including individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance moderates the proxies of intrinsic and proxies of extrinsic motivation-European employees' mental health linkages. Applying the P-EF theory and using the EWCS (2015), we found interesting results regarding evaluating different proxies of motivation as predictors of mental health and investigating the moderation role of cultural dimensions. Firstly, we found universal effects of both intrinsic job characteristics and extrinsic contingent pay schemes on employees' mental health in Europe. That is, individual PRP added to fixed payment, and collective PRP added to

fixed payment are universally harmful to employees' mental health in Europe, while autonomy, feedback, and skill variety are always beneficial for European employees' mental health. Secondly, we noticed that although cultural dimensions do not moderate the associations between PRP schemes and employees' mental health, they partially moderate the association between intrinsic job characteristics and employees' mental health, such that the employees' mental health consequences of autonomy are positively moderated by individualism (vs. collectivism) cultural beliefs, feedback is negatively moderated by individualism (vs. collectivism) cultural beliefs while is positively moderated by both strong (vs. weak) power distance, and uncertainty avoidance cultural beliefs and skill variety is negatively moderated by both strong (vs. weak) power distance and uncertainty avoidance cultural beliefs.

Apart from the unique contributions of the present study, one of the key strengths of our study relates to its large sample size covering the information of 22 European countries. The large sample size enabled a more reliable analysis of our study population, which, coupled with the variety of control variables, helped us achieve meaningful estimates for our hypothesized relationships. The present study is novel as it assesses the moderating roles of three cultural dimensions (i.e., individualism/collectivism, strong/weak power distance, and strong/weak uncertainty avoidance) in the relationships between intrinsic job characteristics, extrinsic contingent pay schemes, and employees' mental health in Europe. This study is also valuable as it gives evidence that the positive mental consequences of intrinsic job characteristics associated with the JCM, as well as the negative mental consequences of PRP schemes associated with the SDT, are universal in Europe. Finally, there are several theoretical and managerial contributions and implications emerging from the results of our study.

Theoretical Contributions

Our results provide empirical support for the job design, incentive, and cultural theories in several ways. First, our finding confirms that SDT (Ryan & Deci, 2000 a, b; Van den Broeck et al., 2016) arguments are universally applicable in identifying single individual and collective PRP as controlled types of motivation in Europe, which result in greater experiences of mental health problems, by controlling for intrinsic job characteristics, employees' objective financial situation and country-level factors including cultural dimensions, GDP and poverty rate. Second, these results empirically confirm universal mental consequences of intrinsic job characteristics and hence the universal wellbeing contributions of JCM (e.g., Deci & Ryan, 2008) in Europe where the extrinsic contingent pay schemes, employees' objective financial situation, and country-level factors are controlled. Third, we provide empirical support for the P-EF theory (Kristof-Brown, 1996; Kristof-Brown et al., 2005), stating that any type of values raised from intrinsic job characteristics and extrinsic contingent pay schemes can yield potential benefits to employee's mental health, depending on whether the values of autonomy, feedback, skill variety, individual PRP and collective PRP aligned with the employees' social-cultural values, by controlling for both individual-level and country-level variable.

Practical Implications

From a practical perspective, our results have implications for managers and organizations in Europe, guiding them to design the job more effectively across countries with different cultures, as "More than ever, understanding employee action requires knowledge of how an action is related to the environment in which it is embedded'' (Gibson & McDaniel 2010, p. 459). First, although autonomy, feedback, and skill variety are beneficial for employees' mental health in all European

countries, based on their social culture, organizations can use different approaches to improve employees' mental health. In other words, rather than focusing on autonomy, feedback, and skill variety equally in job design, which might not be equally valued in different cultures, we believe that employees' mental health consequences from these strategies might be different in every cultural dimension. Unlike collectivist countries, managers in individualistic countries can improve employees' mental health by offering employees more job autonomy than providing them positive feedback. In strong power distance and uncertainty avoidance countries, as opposed to weak power distance and uncertainty avoidance countries, managers can benefit from employees' mental health by providing them more positive feedback rather than offering them jobs requiring skill variety. Second, we found that the negative effects of individual PRP and collective PRP on employees' mental health in Europe are universal and are not moderated by cultural dimensions; however, this study still can contribute to manager awareness of the potential different mental consequences of applying PRP in variety of cultures. Hence, managers and organizations in every European country with different cultural beliefs should not only rely on individual PRP schemes or collective PRP schemes if they want to have healthy employees affecting the firm productivity. Indeed, even if they are added to the fixed payments, compensation policies are not a quick win for the management in Europe, but rather they might be more beneficial by following the cultural values.

Limitations and Future Research

The present study has three potential limitations. First, although this is a common gap in most HRM research (e.g., H. Kim & Gong, 2009), the EWCS is cross-sectional, which therefore prohibits making causality assertions to gain more interesting results. However, it doesn't change

the importance of our results, which could be more interesting if the data were longitudinal. Hence, it is highly recommended to use longitudinal data for future research if available. Second, the EWCS was collected from multinational companies. Thus, the measured cultural values (e.g., individualism/collectivism, strong/weak power distance, and strong/weak uncertainty avoidance) may conflict with individual cultural orientation, contributing to different results. Future studies, indeed, could further explore our model controlling for individual cultural orientation or investigating its consequences as well. However, the present study results are strong enough as social culture can affect organizations and hence employees' beliefs and their culture (e.g., Etounga-Manguelle, 2000; Steel et al., 2018), and the future study might complement our research. One of the rational explanations could be the fact that functional theory claims in the perspective of culture, institutions create a special atmosphere adopting a particular set of values and norms (Steel et al., 2018). Hence, following neo-institutional theory, institutions can arise from the desires and values of those with influence culture (Steel et al., 2018), which supports "Culture is the mother; institutions are the children" about Africa (Etounga-Manguelle, 2000, p. 75). Third, since we used the binary variables for PRP schemes but to understand the pure effect of the variable, it is advisable to measure the amount of PRP if possible. However, measuring PRP might be complicated by privacy matters and the limited information available in this regard. Finally, the present study suggests to also focus on other country classification such as Variety of Capitalism classification, which would be very useful particularly for PRP studies.

Chapter 4

Financial Worry Hurts You and Your Organization! A Test of Two Mediational Mechanisms to Explain the Relationship between Financial Worry and Skill Development and Counterproductive Work Behavior

Abstract

In contrast to psychological consequences, research has not thoroughly investigated the organizational consequences of employees' financial concerns, even as millions of employees face financial worries on a daily basis. We draw on cognitive load theory and self-determination theory to develop a research model that delineates two mediational mechanisms to explain the relationship between financial worry and proactive skill development that could potentially alleviate financial worry and counterproductive work behavior that could exacerbate financial worry. Using a three-time-lag research design and with data collected from 180 employees, we tested for these indirect effects while also examining endogeneity issues. Results support a mediational role for need satisfaction in the relationship between financial worry and counterproductive work behavior and a mediational role for cognitive problems in the relationship between financial worry and proactive skill development, such that the relationship between cognitive problems and skill development was positive for older workers and negative for younger workers. We discuss the implications of the results for theory, research, and practice.

Keywords Financial worry. Counterproductive work behavior. Proactive skill development. Cognitive problems. Need satisfaction. Endogeneity.

Introduction

Financial worry is a real concern for many working adults (Meuris & Leana, 2018). The recent COVID-19 pandemic has further exacerbated this concern, as evidenced by the results of recent reports. For instance, according to an OECD report, "42% of the 125,787 adults polled reported worrying about meeting everyday expenses; 40% were concerned about their financial situation; and 37% reported they were just getting by" (OECD/INFE, 2020, p. 35). Similarly, a survey conducted by American Psychological Association (2020) found that the percentage of people reporting that the economy and finances were a significant source of stress increased from 46 percent to 70 percent between 2019 and 2020. These results indicate that financial concerns are a real and pressing issue for working adults.

Given that financial worry could impact individuals, many researchers have investigated its negative consequences. For instance, research has documented that financial worry increases psychological distress (e.g., Weissman et al., 2020) and anxiety (e.g., Meuris & Leana, 2015) and decreases well-being (e.g., Benson et al., 2003). While the emotional and psychological consequences of financial worry are well documented (Meuris & Leana, 2018), the organizational consequences have not been sufficiently explored. In fact, with one exception (Meuris & Leana, 2018), we are not aware of any published research that has examined the impact of financial worry on employees' attitudes, work behaviors, or outcomes. Thus, it is important to fill this gap in our understanding of the impacts of financial worry on important and valued work behaviors.

In the present study, we investigate the impact of financial worry on proactive skill development, a positive behavior, and counterproductive work behavior, a negative behavior. Proactive skill development is a specific form of proactive career behavior which is becoming increasingly important given the vital role of continuous learning and personal development for

one's career (Warner, 2011; Wei et al., 2010). Counterproductive work behavior involves behaviors that are viewed by the organization as contrary to its legitimate interests, violating significant organizational norms, and threatening the well-being of the organization or its members (e.g., Bennett & Robinson, 2000; Berry et al., 2012; Sackett & DeVore, 2002).

We argue that financial worry is likely to impede self-regulatory capabilities and therefore has the potential to influence employees' work behaviors. Specifically, from a cognitive perspective, financial worry, a cognitive load (Paas & van Merrienboer, 2020) by disrupting self-regulatory capabilities will increase cognitive problems (Meuris & Leana, 2018). These cognitive problems will result in fewer investments in personal skill development and, at the same time, contribute to counterproductive work behavior because of an inability to foresee the consequences of such behavior. Based on these insights, we propose a mediational role for cognitive problems in the relationship between financial worry and proactive skill development and counterproductive work behavior. From a motivational perspective, drawing on Self-Determination Theory (SDT) (Deci & Ryan, 2000), we argue that financial worry will lower need satisfaction, and previous research shows need satisfaction to be negatively related to counterproductive work behavior. It is also possible that low need satisfaction will result in lower motivation to make investments in personal skill development. Thus, we posit a mediating role for need satisfaction in the relationship between financial worry and proactive skill development and counterproductive work behavior.

This study makes several contributions to the nascent literature on the consequences of financial worry. First, we address the organizational implications of a real concern faced by a growing number of individuals, namely financial worry. Second, we propose and test two mediating mechanisms of the proposed relationships between financial worry and proactive skill development, and counterproductive work behavior in a single study. Third, our study also makes

methodological contributions as we collected data utilizing a time-lagged design while also controlling for endogeneity. Finally, from a practical standpoint, knowledge of the consequences of financial worry and the mechanisms through which it affects work-related behaviors can enable organizations to design interventions to encourage positive behaviors, such as proactive skill development, while discouraging negative behaviors, such as counterproductive work behavior.

Theoretical Background and Hypotheses Development

Financial worry is described as feeling anxious or worried about one's financial situation (Archuleta et al., 2013), informed by an appraisal that current and future economic resources are insufficient to afford the "basic necessities of life" (Lim & Sng, 2006). Whereas financial worry refers to the fear of not being able to meet financial needs, financial security, a related but distinct construct, is a subjective assessment of the stability and adequacy of personal financial resources (Munyon et al., 2020). Financial security refers to the perceived likelihood of running into money problems, financial worry, to the affective experience thereof. Because of its subjective nature, financial worry is a more proximal determinant and, therefore, a better predictor of relevant outcomes than is one's objective financial condition, such as household income (e.g., Gasiorowska, 2014). Hence, in the present study, we controlled for the effect of objective financial conditions by including employees' household incomes and the number of dependents as control variables (Meuris & Leana, 2018).

Previous research has documented that financial worry decreases well-being (e.g., Benson et al., 2003), increases psychological distress (e.g., Weissman et al., 2020), and anxiety (e.g., Meuris & Leana, 2015). In contrast, only one study has investigated the organizational consequences of financial worry. In their pioneering study on the effects of financial precarity,

Meuris and Leana (2018) found that financial worries drained people's cognitive resources to the extent that individuals started experiencing cognitive problems, hindering their task performance.

In the current study, we investigate if financial worry leads to cognitive problems, which, in turn diminishes investments in proactive skill development and enhances counterproductive work behavior. In addition to this cognitive explanation, we also test a motivational explanation wherein financial worry lowers basic need satisfaction, which, in turn diminishes investments in proactive skill development and increases counterproductive work behavior. Thus, we test a cognitive and a motivational explanation for the proposed relationship between financial worry and proactive skill development and counterproductive work behavior.

Cognitive Load Theory - Cognitive Problems

From a cognitive standpoint, people concerned about their financial situation tend to ruminate about it, and this exclusive focus on finances leaves fewer cognitive resources available to devote to other pursuits (Mani et al., 2013; Staw et al., 1981). For instance, cognitive load theory, an instructional theory based on knowledge of human cognition, states that short-term or working memory has a limited capacity (e.g., Sweller, 2011; Sweller et al., 2011). Ideally, the working memory resources required for new skill development do not exceed the available resources, and all available resources can be allocated to activities that contribute to the learning process. When learning new knowledge or skills, the working memory or cognitive capacity is affected by intrinsic and extraneous cognitive load. Intrinsic cognitive load results from the difficulty of the new material, whereas extraneous load is the result of factors unrelated to the task that detract from learning the task (Sweller et al., 2019). Examples of extraneous cognitive load include the fear of failure and plausibly also financial worry. Thus, financial worry, an extraneous cognitive load, will

have the effect of reducing working memory, leading to cognitive problems or challenges, such as confusion, inability to focus on tasks, undertake new ones, or anticipate consequences of one's actions (Simms et al., 2011).

The Mediating Role of Cognitive Problems. We assert that financial worry, an extraneous cognitive load, will diminish cognitive capacity, thereby affecting proactive skill development. Proactive skill development, a positive work behavior, is a specific form of proactive career behavior. It is highly valued, given the vital role of continuous learning and personal development in one's career (Warner, 2011; Wei et al., 2010). Proactive skill development refers to deliberate and self-started actions aimed at elevating one's skills (Antonacopoulou, 2000; Boyce et al., 2010) and enhancing competencies (Parker & Liao, 2016) to ensure continued employment and employability. Research shows that proactive skill development increases employee commitment and reduces turnover (Van Dick et al., 2004), enhances employees' ability to implement new procedures or technologies (Osterman & Shulman, 2011), and leads to improvements in service quality (Meuris & Leana, 2015). Even though proactive skill development is likely to be beneficial for future economic well-being (Mullainathan & Shafir, 2013; Shah et al., 2012; Vohs, 2013) and performance (Kooij et al., 2017), employees concerned about their financial situation may not be able to engage in proactive skill development because of preoccupation with their financial situation.

Typically, more cognitive resources or working memory capacity are needed for proactive skill development than for performing a routine task, such as driving a truck for a professional truck driver, as was studied by Meuris and Leana (2018). Based on these arguments and empirical evidence (Meuris & Leana, 2018), it is reasonable to expect employees experiencing cognitive problems, leading to reduced cognitive capacity, and hence, will be less likely to engage in

proactive skill development. Therefore, financial worry affects proactive skill development through cognitive problems (see Figure C1).

Hypothesis 1a: Financial worry negatively relates to proactive skill development through higher cognitive problems.

However, against this backdrop, we expect that cognitive problems will positively affect proactive skill development among older employees (vs. younger employees). As was mentioned before, regarding the cognitive standpoint, people's exclusive focus on finances leaves fewer cognitive resources available to devote to other pursuits (Mani et al., 2013; Staw et al., 1981). Older employees, however, may benefit from age-specific HR practices which help them to maintain or recover to, high levels of ability and motivation to continue working in their late careers (Kooij et al., 2020). The mentioned HR policies might include reducing workload, changing job design, and providing special safety protection for older workers (Kooij et al., 2020), which from the cognitive standpoint, leaves more cognitive resources available for older employees. As a result, they may perceive to be able to fulfill their job demands (e.g., cognitive problems) and hence will be more motivated to proactively engage in self-regulation behaviors (Kooij et al., 2020).

At the same time, older employees are not only self-regulated, but also better organized, more self-disciplined, goal-oriented, and work harder in order to compensate for their cognitive problems and other age-related losses leading to proactive behaviors that in turn can facilitate their performance (Bakker & Hakanen, 2019). Put differently; as individuals get older, they are likely to experience age-related cognitive problems which may yield low but realistic self-efficacy judgments that can place heavy demands on working memory, abstract reasoning, attention, and processing of novel information (Kanfer & Ackerman, 2004; Kegan, 1982). Therefore, they may

be motivated to compensate for this loss by investing in skill development or gaining new knowledge by using self-regulatory strategies (Baltes & Baltes, 1990; Bakker & Hakanen, 2019; Kanfer & Ackerman, 2004). In support, Warr (1997, 2001) indicated that age is likely to be positively associated with more preferences for opportunities for skill utilization. Hence, in addition to age-specific HR practices, more experience and realistic self-efficacy judgments help older employees to better cope with their cognitive problems.

As such, we expect that the association between cognitive problems and proactive skill development is conditioned on age, such that cognitive problems positively relates to proactive skill development among older employees (vs. younger employees). Accordingly, financial worry would be indirectly related to proactive skill development through higher cognitive problems and conditioned on age, such that financial worry would lead to more cognitive problems and hence more proactive skill development among older employees, but less proactive skill development among younger employees. Hence, we hypothesis that

> ***Hypothesis 1b:*** Age positively moderates the negative effect of cognitive problems on proactive skill development and hence the negative indirect effect of financial worry on proactive skill development.

As previously argued, financial worry introduces extraneous cognitive load, thereby limiting cognitive memory resulting in cognitive problems. Cognitive problems include confusion, inability to concentrate on tasks, and, more importantly, an inability to foresee the consequences of one's actions (Simms et al., 2011). Such limited foresight makes it difficult for some individuals to grasp the implications of engaging in deviant behaviors and thus display poor decision-making (Jensen, 1998). The negative relationship reported between cognitive ability and counterproductive work behavior (e.g., Dilchert et al., 2007; McHenry et al., 1990; Oppler et al.,

2001) offers indirect support for the assertion that cognitive problems are positively related to counterproductive work behavior. Based on these insights, we propose a mediational role for cognitive problems in the relationship between financial worry and counterproductive work behavior (see Figure C1).

Hypothesis 2: Financial worry positively relates to counterproductive work behavior through higher cognitive problems.

Self-Determination Theory – Psychological Need Satisfaction

SDT is a grand theory of human motivation (Deci & Ryan, 2000), positing that environments that satisfy individuals' basic psychological needs add to the optimal functioning of those individuals. In contrast, environments frustrating these basic needs likely elicit unwanted outcomes. The theory's proposition that humans are intrinsically motivated and display well-being to the extent that they experience need satisfaction has been generally supported across different contexts. For example, in work-related contexts, research has shown that need satisfaction is positively related to work-related and general well-being (e.g., work engagement, life satisfaction) and negatively associated with employees' health, such as emotional exhaustion and psychosocial complaints (Van den Broeck et al., 2010).

According to the SDT, employees are optimally motivated when the innate psychological needs for autonomy, competence, and relatedness are satisfied (Ryan & Deci, 2000, a, b). The need for autonomy is defined as the inherent desire of individuals to have a choice and the freedom to act. Financial worry implies less autonomy to pursue activities and interests that one desires; instead, one is forced to work more to survive economically (Ripoll & Breaugh, 2019).

Consequently, individuals are likely to feel controlled by financial problems and hence perceive lower autonomy levels (Ripoll & Breaugh, 2019).

The need for competence includes the desire of an individual to have an impact upon the environment and accomplish desired outcomes. Employees with higher levels of financial worry might attribute their financial worry to the jobs they hold, which most often translates to one's knowledge, skills, and capabilities. In other words, if they were capable, they could have a better job that pays more alleviating their financial worry. Therefore, financial worry will lower one's sense of perceived competence (Ripoll & Breaugh, 2019).

The need for belongingness or relatedness refers to the inherent propensity to feel loved and cared for and to return this love and care to others. Perceiving financial worry increases employees' self-interest concerns as they think more about their own needs, interest, and financial achievement and ignore the needs of others (Ripoll & Breaugh, 2019; Taylor & Taylor, 2015). This implies that financial worry might lead to more competition with peers because of the need to work for economic survival and hence decrease employees' satisfaction of relatedness (Ripoll & Breaugh, 2019). In support, Ripoll and Breaugh (2019) found that financial stress is negatively associated with employees' motivation that is dependent on the satisfaction of the three basic psychological needs. For these reasons, we posit that financial worry will lead to reduced satisfaction with basic psychological needs.

The Mediating Role of Psychological Need Satisfaction. As suggested by Parker et al. (2010), proactive career behavior, which includes proactive skill development, is motivated, conscious, and goal-directed action. Proactive skill development not only requires employees to utilize their cognition fully but also needs them to be motivated to engage in career-related behaviors, mainly through strengthening one's personal psychosocial resources, including the

perception of autonomy, competence, and relatedness (e.g., Guan et al., 2015; Rudolph et al., 2017). SDT (Ryan & Deci, 2000 b) suggests that the fulfillment of the basic psychological need for autonomy, competence, and relatedness can increase employees' intrinsic motivation, which, in turn, is likely to encourage proactive behaviors (Parker et al., 2010).

First, employees who are satisfied with the need for autonomy are motivated to be proactive in their work (e.g., Parker et al., 2006) since they experience enjoyment in their job (Parker et al., 2010) and feel more responsible for work-related problems (e.g., Parker, 2000). Thus, they are inspired to set clear career goals and initiate behaviors that go beyond formal job requirements, which enables them to use a broader set of skills and abilities (Sonnentag & Spychala, 2012) and hence proactively develop their skills (Chughtai, 2019; Spurk et al., 2020). Second, employees with low efficacy levels might see proactive career behaviors, including proactive skill development, to be risky (Den Hartog & Belschake, 2012). Consequently, employees who have a lower level of the need for competence might not engage in proactive skill development behaviors. However, the satisfaction of the need for competence is a determinant of engagement in proactive behavior (Fay & Sonnentag, 2012). Having higher levels of efficacy enhances employees' willingness to take action (e.g., Stajkovic & Luthans, 1998), leading these employees to be proactive (e.g., Speier & Frese, 1997). Further, employees might perceive proactive behavior as a means to experience more competence (Fay & Sonnentag, 2012) as the "need for competence instigates and activates behavior that is oriented toward competence" (Elliot & Dweck, 2005, p. 6).

Finally, when the need for relatedness is thwarted, individuals are likely to withdraw and may not desire to expend additional resources needed to engage in skill development. For these reasons, we expect psychological need satisfaction to be related to proactive skill development. As

argued earlier, financial worry lowers perceived need satisfaction, and need satisfaction is likely to influence how much or how little an individual invests in proactive skill development. Thus, we propose that financial worry will affect proactive skill development through perceived need satisfaction (see Figure C1).

Hypothesis 3: Financial worry negatively relates to proactive skill development through less psychological need satisfaction.

A number of theoretical models have been proposed to explain the consistent relationship between work stressors and counterproductive work behavior, such as the stressor-strain model (Penney & Spector, 2005), the transactional theory of stress and coping (Lazarus & Folkman, 1987), and the frustration-aggression model (Fox & Spector, 1999). We propose SDT as yet another mechanism to explain the positive relationship between financial worry and counterproductive work behavior.

Employees may engage in counterproductive work behavior not only as immediate behavioral and emotional responses (i.e., reactive counterproductive work behavior) to their financial worry, for instance, but also through deliberate thinking (i.e., instrumental counterproductive work behavior). The rationale is that individuals internalize and respect the organizational values and norms depending on their satisfaction with the three basic psychological needs for autonomy, competence, and relatedness (Gagné & Deci, 2005). Considering the instrumental role of counterproductive work behavior, the frustration of the need for competence, for instance, can lead to counterproductive work behavior as an alternative behavior in which one can feel effective (Krischer et al., 2010). The frustration of the need for autonomy may also encourage employees to regain control over the work through counterproductive work behavior (Bennett & Robinson, 2003). Finally, when employees' need for relatedness is frustrated, they may

engage in counterproductive work behavior to restore equity in their relationship with the organization (Jones, 2009; Reisel et al., 2010).

We propose that financial worry will lower the satisfaction of basic psychological needs. Consequently, low levels of psychological needs will lead to counterproductive work behavior. In fact, research shows that employees who have higher levels of financial worry are preoccupied with their own immediate needs and interests (Taylor & Taylor, 2015), leading them to experience less satisfaction with their basic psychological needs of autonomy, competence, and relatedness (Ripoll & Breaugh, 2019). And previous research has reported that need satisfaction relates negatively to counterproductive work behavior, such as organizational deviance (Lian et al., 2012; Van den Broeck et al., 2014). Based on these arguments, we offer the following hypothesis (see Figure C1).

> ***Hypothesis 4:*** Financial worry positively relates to counterproductive work behavior through less psychological need satisfaction.

Insert Figure C1 about here

Methods

Procedure and Participants

Participants were recruited from Amazon's Mechanical Turk (MTurk), an online platform where individuals are paid to complete online surveys. Individuals residing in the US with an approval rating ≥ 90% for previously completed MTurk activities (minimum 100) were eligible to take the survey. Participants were provided with a link to a questionnaire hosted by Qualtrics, an online questionnaire software company.

Additionally, we attempted to control for Common Method Bias (CMB) with both procedural and statistical approaches (Podsakoff et al., 2003). Regarding the procedural approach, we attached a cover letter specifying the purpose of the research, guaranteed confidentiality and anonymity of the participants, and sought voluntary participation. Participants were also informed that there were no right or wrong answers and were encouraged to respond as honestly and as objectively as they possibly could.

Regarding the statistical approach, data were collected in three phases separated by a two-week time lag (Podsakoff et al., 2003), from June 2020 to August 2020. However, since the data were collected from a self-reported measure of a single respondent (employees), we still checked for the CMB to ensure the results (Podsakoff et al., 2003) (discussed in the *Analytical Procedure* part). We chose time lags of two weeks following the recommendations of Dormann and Griffin (2015). They advocated using shorter time intervals than those often applied in industrial and organizational psychology, because oftentimes the impact of the independent variable can already be observed after a short period, such as two weeks. To avoid multiple survey completions by the same MTurk participant, Qualtrics restrictions allowing one response per IP address and one response per MTurk ID were enabled. IP addresses were used to link the responses across the different measurement moments.

In phase 1, we administered survey 1 and measured demographic variables, financial worry, and instrumental and control variables (described below). Survey 1 was published on June 22nd, 2020 and returned by 400 respondents. Responses for 72 respondents were removed because they failed at least one of three attention checks, yielding a valid response rate of 82 percent. After a two weeks lag in phase 2, we administrated survey 2 on July 6th to measure need satisfaction and cognitive problems. Of the 328 surveys distributed, we received 249 completed surveys. 16

surveys were removed as respondents of those surveys failed attention checks, yielding a valid response rate of 71 percent. In phase 3 and on July 27th, we administered survey 3 to measure counterproductive work behavior and proactive skill development. Of the 233 surveys distributed, we received 190 completed surveys. 10 surveys were removed as these respondents failed attention checks, yielding a valid response rate of 77 percent. Complete data were available for 180 respondents (total valid response rate = 45%). Although this percentage is not very unusual in the panel non-response literature (Hagenaars, 1990), we still conducted a non-response analysis to analyze the extent to which the final sample differed from the original sample (Table C1 and Table C2). A non-response analysis revealed several significant differences between respondents and non-respondents: non-respondents were more likely to be men, have a higher educational level, have more dependents, and have lower-income levels. All effect sizes were below 0.30, and following Cohen (1988), unit nonresponse bias is not a serious concern.

Insert Table C1 and Table C2 about here

Eighty-eight of the respondents in the final sample self-identified as male, 92 as female. The respondents' average age was 39.32 years (SD = 11.86). Seventy-nine percent had less than ten years of tenure with their current employer; 17 percent had more than 10 and less than 20 years of organizational tenure, and 4 percent had more than 20 years of organizational tenure. Six percent of the respondents had a high school diploma or less, 17 percent had some college or associate's degree, 53 percent had a bachelor's degree, 21 percent had a graduate degree, and 3 percent had a doctoral degree. The average household income of all respondents in 2019 was between $50,000 and $59,999, placing them below the median income in 2019 ($68,703) in the United States (U.S. Census Bureau, 2019).

Variables and Measurement

Financial worry. Financial worry was measured at Time 1 with the 4-item scale developed by Meuris and Leana (2018). Sample items include "How often have you been worried about your financial situation?" and "How often have you felt overwhelmed by your financial obligations?" Participants were asked to indicate the frequency with which they experience the mentioned situations on a 5-point Likert scale (1 = *Never* to 5 = *Always*) (see Table C3). Applying ordinal Cronbach's alpha, the scale showed a good internal consistency of 0.75.

Need satisfaction. Need satisfaction was measured at Time 2 with the Work-related Basic Need Satisfaction scale (W-BNS; Van den Broeck et al., 2010), which includes three subscales: autonomy satisfaction, competence satisfaction, and relatedness satisfaction. We used subscales to measure the need satisfaction since each represents an independent construct (Van den Broeck et al., 2016), yet they load on a single factor (Van den Broeck et al., 2008). Accordingly, in the analysis, we used general need satisfaction by summing and averaging all need satisfaction items. *Autonomy satisfaction* was measured by the grand mean of six items, including "I feel like I can be myself at my job," *competence satisfaction* was measured by the grand mean of four items, such as "I really master my tasks at my job," and r*elatedness satisfaction* was measured by the grand mean of six items as well, including "At work, I feel part of a group." The items were measured on a 5-point Likert scale (1 = *Totally disagree* to 5 = *Totally agree*) (see Table C3). Ordinal Cronbach's alphas were 0.73 (autonomy satisfaction), 0.87 (competence satisfaction), 0.83 (relatedness satisfaction) and 0.80 (general need satisfaction).

Cognitive problems. Cognitive problems was measured at Time 2, using the eight-item subscale *cognitive problems* of the Computerized Adaptive Test-Personality Disorder (CAT-PD; Simms et al. 2011). Sample items include "I often space out and lose track of what's going on" and

"I frequently get things mixed up in my head." The items were measured on a 5-point Likert scale (1 = *Very untrue of me* to 5 = *Very true of me*) (see Table C3). A Confirmatory Factor Analysis (CFA) showed that two of the reverse-scored items had low factor loadings (<.40). Removing these items improved the model fit and resulted in an ordinal Cronbach's alpha of 0.92.

Counterproductive work behavior. Counterproductive work behavior was measured at Time 3 with the 10-item short version of the Counterproductive Work Behavior Checklist (CWB-C; Spector et al., 2010). Respondents were asked to indicate how often they had engaged in each of the mentioned activities on their present job. Sample items include "Complained about insignificant things at work" and "Started an argument with someone at work." The items were measured on a 5-point Likert scale (1 = *Never* to 5 = *Every day*) (see Table C3). The ordinal Cronbach's alpha for the scale was 0.98.

Proactive skill development. Proactive skill development was measured at Time 3 with the 3-item subscale of the same name from the Proactive Career Behavior Scale developed by Strauss et al. (2012). Sample items include "I develop skills which may not be needed so much now, but in future positions" and "I gain experience in a variety of areas to increase my knowledge and skills." The items were measured on a 5-point Likert scale (1 = *Totally disagree* to 5 = *Totally agree*) (see Table C3). Cronbach's alpha for the scale was 0.79.

Financial uncertainty. We attempted to minimize the potential endogeneity issues due to omitted variables by selecting employees' financial uncertainty as an instrumental variable that affects employees' financial worries. Previous longitudinal or time lag studies did not account for this problem. Although, in management studies, measuring data at different times is utilized as a possible solution for endogeneity problems, it still keeps the embers of endogeneity alight (Sajons, 2020). Financial uncertainty was measured at Time 1 using the 5-item scale developed by Munyon

et al. (2020). A sample item reads, “How certain are you that in the near future you will have adequate income?”. The items were measured on a 7-point Likert scale (1 = *Strongly certain* to 7= *Strongly uncertain*) (see Table C3). The ordinal Cronbach’s alpha for the scale was 0.94.

Control variables. All control variables were measured at Time 1. We controlled for the demographic variables age, organizational tenure, gender (0 = *Female*, 1 = *Male*) and educational level (1 = *Less than high school*, 2 = *High school*, 3 = *Some college/associate's degree*, 4 = *Bachelor's degree*, 5 = *Graduate degree*, 6 = *Doctoral degree*) because of their potential relationship with anxiety (e.g., Feingold, 1994), counterproductive work behavior (e.g., Ng et al., 2016), and proactivity (e.g., Thomas et al., 2010). We also controlled for employees’ yearly household income (1 = *Less than $10,000*, 2 = *$10,000 - $19,999*, …, 11 = *$100,000 - $149,999*, 12 = *More than $150,000*) (Sinclair & Cheung, 2016), and the number of dependents in the household, as these variables could impact financial worry and have downstream consequences. Besides, we controlled for personality traits of neuroticism, extraversion, and conscientiousness as they may be associated with counterproductive work behavior (e.g., Hershcovis et al., 2007; Zhang & Deng, 2016) and proactive behaviors (e.g., Huang & Hsieh, 2015) (see Table C3).

Insert Table C3 about here

Analytical Procedure

We used AMOS (Version 24) to conduct a CFA and assess the key variables' distinctiveness (financial worry, need satisfaction, cognitive problems, counterproductive work behavior, and proactive skill development). Items were used as indicators of the latent variables, except for need satisfaction, for which we used the scale scores of autonomy satisfaction,

competence satisfaction, and relatedness satisfaction. Latent variables were allowed to correlate. We applied Fornell and Larcker's (1981) method to check for convergent and discriminant validity. As shown in Table C4, the Average Variance Extracted (AVE) square roots for each latent construct and estimates exceeded the correlation between the factors comprising each pair. Taken together, the result of the AVEs and reliability coefficients indicated sufficient convergent validity of the variables, and hence, the measurement models had been assessed for their discriminant validity. Consequently, we included all constructs in our hypothesis tests. The descriptive statistics and correlations between study variables are reported in Table C4.

Insert Table C4 about here

Further, as shown in Table C5, the proposed five-factor model showed a good overall measurement fit, χ^2 (281, N = 180) = 471.362, $p < 0.001$, comparative fit index (CFI) = 0.95, Tucker–Lewis index (TLI) = 0.94, root-mean-square error of approximation (RMSEA) = 0.062, standardized root-mean-square residual (SRMR) = 0.076. All models' specifications show satisfactory fit with the data since relative chi-square is less than 3, CFI and TLI are more than 0.95, SRMR is less than 0.08, and RMSEA is less than 0.07 (e.g., Hu & Bentler, 1999; Marsh et al., 2004; Steiger, 2007). All factor loadings were significant, indicating convergent validity. Comparing the proposed five-factor model with several alternative CFA models in Table C5, including the one-factor model, revealed that the hypothesized model fit the data considerably better than did any of the alternative models, confirming discriminant validity. Further, applying a zero-constraint approach, the Common Latent Factor (CLF) model[3] revealed an explained

[3] This model includes the proposed five-factor model as well as a CLF in which all items loaded on the five expected latent factors, whereas additionally also loaded on the CLF.

variance of 37%, which is well below the threshold of 50% proposed by Podsakoff et al. (2003). This suggests that despite a significant improvement in the model fit of the CLF model, common method variance should not pose a serious threat that biased our results. Nevertheless, we applied an instrumental variable estimation technique to control for the potential common-methods variance problem and related endogeneity issues (Sajons, 2020). Empirically, more researchers point to these issues as possible limitations of their work, and very few of them tackle them.

Insert Table C5 about here

Consequently, we employed a two-stage least squares (2SLS) regression where financial uncertainty served as an instrument for financial worry. Financial uncertainty is qualified to serve as an instrumental variable since it arguably fulfills the three required conditions: (1) it significantly correlates with the potential endogenous variable (i.e., relevance); (2) it is not correlated with omitted variables (i.e., randomly); and (3) it only affects the outcome variables through the endogenous variable and not directly or via other channels (i.e., exclusion restriction) (Sajons, 2020). First, in the first-stage regression, where financial worry is regressed on financial uncertainty, the F-statistic, $F(1,167) = 39.78$, $p = 0.000$, exceeded the critical value of 16.38 derived by Stock and Yogo (2005). This result indicates that estimates obtained by financial uncertainty have less than a 5% bias relative to OLS. The second condition is not statistically testable. However, it should be fulfilled because our data were randomly collected. We also found that financial uncertainty was not significantly correlated with income, $t(168) = -0.49$, $p = 0.624$, gender, $t(168) = -1.42$, $p = 0.157$, organizational tenure, $t(168) = -1.59$, $p = 0.114$, and educational level, $t(168) = -1.96$, $p = 0.052$, for instance. These findings support our premise that financial uncertainty is not correlated with any omitted variables (Sajons, 2020). The third condition is not

testable in just-identified models, which include only one instrumental variable. However, we believe that financial uncertainty can affect both counterproductive work behavior and proactive skill development only through financial worry and not directly or via other channels. Further, a significant Durbin-Wu-Hausman test (Davidson & MacKinnon, 1993) for both counterproductive work behavior ($p = 0.003$) and proactive skill development ($p = 0.000$) confirmed the endogeneity and that it is necessary to use instrumental variable estimation.

In the next step, we applied the 2SLS estimation via augmented regression (Davidson & MacKinnon, 1993). That is, we regressed both counterproductive work behavior and proactive skill development on financial worry, cognitive problems, and need satisfaction along with the residuals derived from the first-stage regression and, simultaneously, regressed cognitive problems and need satisfaction on financial worry.

Results

Table C4 presents an overview of descriptive statistics and correlations. The correlations illustrate that financial worry is positively correlated with counterproductive work behavior, while it is not correlated with proactive skill development. Further, financial worry is positively correlated with cognitive problems, and cognitive problems is positively correlated with counterproductive work behavior, suggesting the possibility to support Hypothesis 2. Additionally, financial worry is negatively correlated with need satisfaction, and need satisfaction is positively correlated with proactive skill development and negatively correlated with counterproductive work behavior, which provides grounds to support Hypothesis 3 and Hypothesis 4. Moreover, cognitive problems is negatively correlated with need satisfaction, and financial uncertainty is positively correlated with financial worry.

Hypothesis testing

We conducted a bootstrap analysis using AMOS (Version 24) with 5,000 replications. The hypothesized mediation model (i.e., augmented model) was tested using structural equation modeling. Following Hayes (2018), mediation hypotheses were tested statistically by estimating and conducting inference about the indirect effect, as it quantifies the difference in response variables attributable to a one-unit change in financial worry through the effect of financial worry on mediators which in turn affects the response variables. Hypotheses 1a and 2 predicted that financial worry would associate with proactive skill development, and counterproductive work behavior through cognitive problems. Hypothesis 3 and 4 predicted that financial worry would associate with proactive skill development, and counterproductive work behavior, through need satisfaction.

Hypothesis 1b predicted that cognitive problems will lead older employees to more proactive skill development and hence, the indirect effect of financial worry on proactive skill development through the cognitive problems is conditioned on employees' age. Therefore, regarding the conditional indirect effects, we conducted further bootstrapping analyses to test the extent to which age moderates the relationship between cognitive problems and proactive skill development, as well as the indirect effect of financial worry on proactive skill development through cognitive problems.

Table C6 lists the unstandardized estimates of the Stage 1 effects (independent variable [IV] → mediator [Me]), Stage 2 effects (Me → dependent variable [DV]), and indirect effects (IV → Me → DV). We computed a mean-centered interaction variable that was included in our structural equational model. Table C6 also lists the unstandardized estimates of the Stage 2 effects (mediator [M]*moderator [m]→ dependent variable [DV]) in the augmented model in order to test

the second-stage moderated mediation.

The effect of financial worry on cognitive problems (*B* = 0.166, 95% CI_{boot} [0.024, 0.319]) was significant. The effect of cognitive problems on proactive skill development (*B* = 0.262, 95% CI_{boot} [0.043, 0.519]) was also significant. While cognitive problems mediated the relationship of financial worry with proactive skill development (*indirect effect* = 0.043, 95% CI_{boot} [0.004, 0.127]), Hypothesis 1a was not supported because, contrary to expectations, cognitive problems was positively related to proactive skill development. Further results on moderated mediation analysis indicated that the effect of cognitive problems on proactive skill development was conditioned on age (*B* = 0.134, 95% CI_{boot} [0.026, 0.275]). Table C7 contains the conditional effects for employee groups with low, medium, and high age and their effect comparison. The effect of cognitive problems on proactive skill development (*difference* = 3.178, 95% CI_{boot} [0.626, 6.516]) differed significantly from the two age groups in that older employees reported more proactive skill development when they felt more cognitive problems (*B* = 1.775, 95% CI_{boot} [0.572, 3.386]). Younger employees, however, reported less proactive skill development when they felt more cognitive problems (*B* = -1.403, 95% CI_{boot} [-3.199, -0.010]). Consequently, the indirect effect of financial worry through cognitive problems on proactive skill development was moderated by age (*difference* = 0.531, 95% CI_{boot} [0.079, 1.648]). Figure C2 presents the interaction plot, which shows that the relationship between cognitive problems on proactive skill development is positive for older employees. Hence, Hypothesis 1b was supported and to some extend could explain the reason for the unexpected result of Hypothesis 1a.

The effect of cognitive problems on counterproductive work behavior (*B* = 0.120, 95% CI_{boot} [-0.146, 0.385]) was not significant. Hence, financial worry did not affect counterproductive work behavior through cognitive problems (*B* = 0.02, 95% CI_{boot} [-0.017, 0.091]), and Hypothesis

2 was not supported.

The effect of financial worry on need satisfaction (*B* = -0.173, 95% CI_{boot} [-0.310, -0.061]) was significant. The effect of need satisfaction on proactive skill development (*B* = 0.142, 95% CI_{boot} [-0.391, 0.789]) was not significant. Financial worry did not affect proactive skill development through need satisfaction (*indirect effect* = -0.025, 95% CI_{boot} [-0.191, 0.061]), Hypothesis 3 was not supported. The effect of need satisfaction on counterproductive work behavior (*B* = -1.054, 95% CI_{boot} [-2.044, -0.033]) was significant. Financial worry positively affects counterproductive work behavior through need satisfaction (*indirect effect* = 0.183, 95% CI_{boot} [0.029, 0.450]). This result supports Hypothesis 4.

Insert Table C6 and Table C7 and Figure C2 about here

Discussion

The primary goal of this study was to examine two potential mediating mechanisms, cognitive and motivational, of the relationships between financial worry and proactive skill development and between financial worry and counterproductive work behavior. Then, we studied how age moderates the indirect effect of financial worry on proactive skill development through higher levels of cognitive problems. We hypothesized that financial worry would decrease employees' proactive skill development and increase counterproductive work behavior through higher levels of cognitive problems and reduced satisfaction with basic psychological needs. We also hypothesized that age would positively moderate the negative effect of cognitive problems on proactive skill development and hence the indirect effect of financial worry on proactive skill development through higher cognitive problems. As predicted, financial worry was positively

related to counterproductive work behavior through less psychological need satisfaction. Unexpectedly, cognitive problems carried the effect from financial worry to proactive skill development, such that finance-induced cognitive problems were positively associated with higher levels of proactive skill development. A moderated mediation analysis showed that the positive relationship between cognitive problems and proactive skill development was only applied to older employees.

Theoretical and Research Implications

Our primary contribution is that we extended the literature by integrating cognitive load and self-determination theories to identify cognitive problems and psychological need satisfaction as two explanatory mechanisms in the relationship between financial worry and work-related behaviors. In a previous study, Meuris & Leana (2018) identified cognitive problems as the pivotal mechanism responsible for the negative performance effects of financial worry. We show that besides a cognitive mechanism, a motivational mechanism also underlies the performance-related effects of financial worry. Another contribution is that we broadened the criterion domain by including proactive skill development and counterproductive work behavior as performance indicators. Meuris and Leana (2018) were primarily interested in investigating decrements in task performance (i.e., accident rate [Study 1], driving performance [Study 2]) resulting from financial worry. We chose proactive skill development as a criterion because investing in skill development could potentially lead to career progression, alleviating financial worry. In contrast to the positive proactive skill development behavior, we also included a negative behavior, counterproductive work behavior, which could result in disciplinary actions, such as suspension, further exacerbating financial worry. The double-edged sword findings on financial worry, that they can trigger

counterproductive work behavior but also proactive skill development, can add to ongoing scholarly debates on "bright" and "dark" sides of organizational behavior.

Our results attest to the importance of SDT and cognitive load theory in explaining the effects of financial worry. Consistent with SDT (Deci & Ryan, 2000), the results support the idea that financial worry thwarts psychological need satisfaction and that concerns about one's financial situation cause people to feel restricted in their freedom, to show less interest in their social relationships, and to doubt their own abilities (Ripoll & Breaugh, 2019). The finding that thwarted psychological needs, in turn, provoke counterproductive work behavior is consistent with previous research (Lian et al., 2012; Van den Broeck et al., 2014) and supports the idea that counterproductive work behavior can serve as an alternative route to satisfying psychological needs. Contrary to our prediction, psychological need satisfaction was unrelated to proactive skill development. Although there are strong theoretical reasons to expect a positive association, as we did, there are also arguments in favor of a negative relationship. For example, employees may engage in proactive behaviors, such as skill development, to compensate for low levels of competence satisfaction (Fay & Sonnentag, 2012) or because skill development, given that it takes place in a social setting, restores the thwarted need for relatedness. Possibly the positive and negative effects may have neutralized each other resulting in our failure to find support for the relationship between need satisfaction and proactive skill development.

Consistent with cognitive load theory (e.g., Sweller, 2011; Sweller et al., 2011) and previous research (Meuris & Leana, 2018), financial worry is positively associated with cognitive problems. Contrary to our expectations, cognitive problems were also positively associated with proactive skill development. While unexpected, this finding is not implausible in hindsight. Individuals are known to selectively strengthen their skills whenever a given set of means is no

longer available (Baltes, 1997; Hobfoll et al., 2018). When resources are limited or threatened (i.e., cognitive problems), individuals make choices regarding the investment of other resources (Molina & O'Shea, 2020). Hence, when experiencing cognitive problems, employees might be motivated to develop their skills and devote more effort to prevent further financial decline and secure their economic status. Since cognitive problems increases with age, we investigated the extent to which age serves as a moderator in the relationship between cognitive problems and proactive skill development. Our findings suggest that cognitive problems are acted upon differently by young and older workers. In younger employees, cognitive problems have an inhibiting effect on skill development. The opposite holds true for older employees: they exhibit a greater willingness to further develop their skills, presumably because they are more affected by cognitive decline and attach greater value to maintaining cognitive functioning (Baltes & Baltes, 1990).

Practical Implications

From a practical standpoint, knowledge of the consequences of financial worry and the mechanisms through which it affects work-related behaviors can enable organizations to design interventions to encourage positive behaviors, such as proactive skill development, while discouraging negative behaviors, such as counterproductive work behavior. Organizations can help alleviate employees' financial worries by providing targeted financial advice and by organizing budgeting and debt management workshops. Reducing financial worries and building financial resilience will eventually lead to a healthier and better-performing workplace.

Our results indicate that financial worry may lead to cognitive problems, which then may keep employees, especially younger employees, from investing in skill development. Lack of

investment in skill development will limit career opportunities, perpetuating further financial worry. Organizations should break such a vicious cycle by educating employees about the value of the benefits of investing in skill development, including possibilities for career progression, which could alleviate financial concerns.

Limitations and Future Research

The results of our study should be interpreted in the context of its limitations. Although we used a rigorous design by measuring financial worry at time 1, psychological need satisfaction and cognitive problems at time 2, and counterproductive work behavior and proactive skill development at time 3, our design is not truly longitudinal. Yet, because we used an instrumental variable estimation technique, we feel confident in the causal direction of the observed relationships. Second, we used a time lag of two weeks between each phase of data collection. When replicating our study, future research should vary the time lag between data collection phases. Third, all variables were measured via self-report, adding to the possibility of same-source bias. Future research may consider using other reports or objective indicators to measure counterproductive work behavior (e.g., days absent from work) and proactive skill development (e.g., number of training days). Fourth, we found age moderates the relationship between cognitive problems and proactive skill development, suggesting that financial worry affects employees in different ways and for different reasons. Future research should examine other potential moderators. These may be dispositional factors, such as work or life values, or contextual factors, such as work climate, family support, or social network strength.

In the current study, we examined two mediating mechanisms, one cognitive and the other motivational, but clearly, there may be other theoretical mechanisms as well. For example,

employees experiencing financial worry may feel deprived of what they may think they are entitled to (i.e., a humane income) and consequently engage in counterproductive work behavior to get even with their employer. Thus, relative deprivation may be one mechanism linking financial worry to counterproductive work behavior. Future time perspective may be another explanation: Financial worry may prompt employees to focus on the "here and now," thus foregoing making investments in their skill development that will benefit them in the future. Further research is needed to test if these explanations add to the prediction of work-related outcomes.

Conclusion

Integrating two disparate theories, cognitive load theory, and SDT, we developed a research model and tested two mediational mechanisms, one cognitive and one motivational. As expected, financial worry positively influenced counterproductive work behavior through less need satisfaction. And, financial worry negatively influenced proactive skill development through higher cognitive problems, such that the relationship between cognitive problems and proactive skill development was positive for older employees but negative for younger employees. Employees experiencing financial worry suffer cognitive problems and lowered need satisfaction. Employers suffer from reduced investments in skill development and increased counterproductive work behaviors. Given that financial worry negatively affects both employees and their employing organizations, we hope our research will inspire others to study the organizational consequences of financial concerns faced by millions of employees worldwide.

Chapter 5

General Discussion

Introduction

The overall goal of this study was to investigate how Human Resource (HR) motivational practices might affect European employees' mental health and their work-related behaviors. To reach this goal, we first hypothesized that intrinsic job characteristics (i.e., autonomy, feedback, and skill variety) might strongly increase employees' mental health, compare with extrinsic contingent pay schemes in which individual PRP and collective PRP might decrease employees' mental health while their combination might increase it. Our findings suggest that European employees enormously benefit from autonomy, feedback, and skill variety regarding their mental health. However, their mental health is negatively influenced by separately receiving individual and collective PRP and positively influenced by receiving both individual and collective PRP. These results formed the basis of the next research in which we hypothesized that European cultural differences (i.e., individualism, power distance, and uncertainty avoidance) might moderate the relations mentioned above. Our findings confirmed the universal effects of both intrinsic job characteristics and extrinsic contingent pay schemes on employees' mental health in Europe, such that individual PRP added to fixed payment and collective PRP added to fixed payment are universally harmful to employees' mental health in Europe, while autonomy, feedback and skill variety are always beneficial for European employees' mental health.

Interestingly, the findings revealed that individualism (vs. collectivist) cultural beliefs positively moderate the association between autonomy and employees' mental health and negatively moderate the association between feedback and employees' mental health. That is, by

receiving autonomy, employees working in counties with individualistic cultural beliefs experience more mental health than those who live in counties with collectivist cultural beliefs. However, by receiving positive feedback, employees working in counties with collectivist cultural beliefs experience more mental health than those who live in counties with individualistic cultural beliefs. Also, similar to strong (vs. weak) power distance, strong (vs. weak) uncertainty avoidance beliefs positively moderate the association between feedback and employees' mental health and negatively moderates the association between skill variety and employees' mental health. That is, in terms of mental health and compared with weak power distance and weak uncertainty avoidance cultural beliefs, employees working in countries with strong power distance and strong uncertainty avoidance cultural beliefs benefit more from receiving positive feedback and less from skill variety.

Taken together, the results from our first two studies suggest that the consequences of adopting extrinsic contingent pay schemes are more dynamic compare with intrinsic job characteristics. More importantly, these schemes are harmful to employees' mental health unless they are applied in combination. Hence, since the main criticism against using PRP policies is that these policies involve pay uncertainty which leads to financial worry (e.g., De Bruijn & Antonides, 2020), we studied the consequences of employees' financial worries in the last study. We attempted to examine two known mediating mechanisms, cognitive and motivational, of the relationships between employees' financial worry and their work-related behaviors (i.e., proactive skill development and counterproductive work behavior). We hypothesized that financial worry decreases employees' proactive skill development and increases their counterproductive work behavior through higher levels of cognitive problems and less satisfaction with their basic psychological needs. Our findings, however, suggest that the motivational mechanism is stronger

than the cognitive mechanism in describing the relations mentioned above since, as predicted, psychological need satisfaction mediates the positive relationship between financial worry and counterproductive work behavior. However, oppose to our hypothesis, cognitive problems positively mediate the negative relationship between financial worry and proactive skill development. Interestingly, a supplementary analysis showed that while age negatively relates to proactive skill development, older employees are more willing to engage in proactive skill development when perceiving high levels of cognitive problems than younger employees. This study is novel since several important theoretical, practical, and methodological implications and contributions emerge from the findings of our study.

Theoretical and Research Contributions

Our primary contribution is that we extended the literature by widening our understanding of the SDT in clarifying different effects as well as comparing the strength effects of proxies of intrinsic (i.e., autonomy, feedback, and skill variety) and extrinsic (i.e., individual PRP, collective PRP, and their combination) motivation on employees' mental health by looking at the European employees. In particular, since extrinsic contingent pay schemes as well as employees' financial situation might overlap with the mental consequences of intrinsic job characteristics (e.g., Muraven et al., 2007; Nyberg et al., 2016), on the one hand, the present study added to the previous literature on the positive effects of autonomy, feedback and skill variety on employees' mental health (e.g., Azmat & Iriberri, 2016; Tummers et al., 2018) by controlling for the mental effects of extrinsic contingent pay schemes. On the other hand, the current study added to the previous literature on the impacts of contingent pay schemes on employees' wellbeing (e.g., Davis, 2016; Pencavel, 2015) by controlling for the intrinsic job characteristics and investigating the mental consequences

of individual PRP, collective PRP, and their interaction. This kind of overlapping, except for the financial situation (e.g., Bender & Theodossiou, 2014; Davis, 2016; Green & Heywood, 2008), as far as we know, was not mentioned in the previous literature. We found that intrinsic job characteristics strongly enhance employees' mental health compare with extrinsic contingent pay schemes. That is, oppose to the positive effect of autonomy, feedback, and skill variety on European employees' mental health, individual PRP and collective PRP had a negative effect; however, their combination had a positive impact on European employees' mental health. These findings are important because, to the best of our knowledge, until now, there have been remarkably few studies investigating which proxies of intrinsic (i.e., autonomy, feedback, and skill variety) or extrinsic (i.e., different forms of PRP) motivation are stronger to enhance European employees' mental health when operating in combination which is still under-researched (e.g., Van den Broeck et al., 2019). As such, this study enhances our understanding of the pure results of the intrinsic and extrinsic motivational and the related HRM policies in shaping employees' wellbeing and extends previous research that has mainly focused on the performance and productivity consequences of the policies mentioned above (e.g., Dahl et al., 2020; Kuvaas et al., 2017; Van der Kolk et al., 2019).

Our second main contribution is to utilize the SDT theory as a support to our hypothesis. Recently, researchers have attempted to apply SDT to describe how different intrinsic and extrinsic motivational factors are related to employees' outcomes (e.g., Kuvaas et al., 2017; Van den Broeck et al., 2016). Although, employees' mental health as a consequence of both intrinsic job characteristics and extrinsic contingent pay schemes (individual PRP, collective PRP, and their interaction) is rarely investigated. In the compensation literature particularly, there is still a lack of a comprehensive theoretical model to describe the mental health consequences of adopting

different PRP schemes in the organization (e.g., Nyberg et al., 2018). This, in part, reflects the limited body of research on the association between both intrinsic and extrinsic motivational HRM factors and employees' well-being, as the effect of every single element making up the factors may be different. It is one of the most important gaps in the literature that this research seeks to fill. Thus, following SDT, the present study attempts to investigate the different roles of the individual PRP, collective PRP, and intrinsic job characteristics in affecting employees' mental health, based on how they might be perceived among employees as autonomous or controlled. If we have done our job well, our hypothesis development and theoretical framework should invite future research about where research on the SDT and compensation theories should proceed.

By utilizing the SDT to achieve conceptual clarity in distinguishing between the mental effects of individuals and collective PRP alone and in combination, this study makes the third significant contribution to the job design field. It hence expands knowledge about the potentially complex relationship between extrinsic contingent pay schemes and European employees' mental health. This is an important contribution as opposed to the monotone effects of the intrinsic job characteristics, which is strongly beneficial for employees' mental health as well as their performance and productivity (e.g., Matilu & Obonyo, 2018), the effects of extrinsic contingent pay schemes on employees' mental health are mixed and still under research. These mixed effects are particularly important as every single contingent pay plan has its own advantages and disadvantages, and combining these schemes may fill the gaps of each other to enhance employees' mental health (e.g., Gerhart et al., 2009; Conroy & Gupta, 2016). Consequently, applying them in combination might either stimulate their positive effects or weaken their negative effects. Also, organizations often use a combination of extrinsic contingent pay schemes as they focus on different objectives, which may not be covered by other plans (Gerhart et al., 2009). Although

recently the vast majority of studies investigated the interaction effects of different types of incentives on performance and productivity (Barnes et al., 2011; Blazovich, 2013; Pendleton & Robinson., 2017; Kato and Kauhanen., 2018; Nyberg et al., 2018), yet to our knowledge, very few studies, if any, have examined the effect of hybrid incentives on employees' mental health. In short, we know a lot about whether the incidence of both incentives matters for enterprise productivity, yet we know relatively little about whether it matters for employees' mental health and well-being as their effects are mixed. It is one of the most important gaps in the literature that this research seeks to fill. We found that receiving only one type of PRP scheme, whether individual or collective, is harmful to European employees' mental health, while their combination is beneficial.

The present study makes the fourth and another significant contribution to the job design field and research on P-EF theories. It employs a cultural lens to determine whether a high score on the intrinsic job characteristics and extrinsic contingent pay schemes can be harmful or beneficial (or at least not unhealthy) for European employees' mental health. The particular cultural beliefs include individualism (vs. collectivism), strong (vs. weak) power distance, and strong (vs. weak) uncertainty avoidance believes. Thus far, a vast majority of studies have addressed the importance of both intrinsic and extrinsic motivation in different cultures (e.g., X. Huang & Van de Vliert, 2003; Hauff et al., 2015). However, there is still a need to investigate how cultural differences change the relationships between motivational factors and employees' well-being (e.g., Katic & Ingram, 2018). The finding guides managers to invest less in a motivational factor that is alien to the values of a particular culture that leads to less wellbeing.

Further, most of the previous motivational research focused on the motivation itself rather than motivational factors. The present study focuses on investigating how the relationships

between intrinsic and extrinsic motivational factors and employees' mental health change in different cultures. Our first finding confirms that SDT, which is receiving cross-cultural support (Gagné et al., 2015), is universal as opposed to the harmful effects of individual and collective PRP, autonomy, feedback, and skill variety are beneficial for employees' mental health in all European countries. Our second finding suggests that in countries with higher levels of individualism believes, employees benefit from more autonomy, compare with the employees working in countries with higher levels of collectivist believes who benefit from more feedback. Also, in countries with strong uncertainty avoidance and power distance beliefs, employees benefit from more feedback than the employees working in countries with weak uncertainty avoidance and power distance believes who benefit from more skill variety. These findings complement the work by Chen et al. (2015), who found that the benefits associated with need satisfaction are universal, while cultural dimensions can influence the paths taken to reach satisfaction.

Our fifth contribution is that we extended the literature by integrating cognitive load and self-determination theories to identify cognitive problems and psychological need satisfaction as two explanatory mechanisms in the relationship between financial worry, proactive skill development, and counterproductive work behavior. Meuris & Leana (2018) found that financial worry undermines employees' cognitive ability, which subsequently spills over into their performance. Whereas prior literature studied the cognitive mechanism (e.g., Meuris & Leana, 2018), our findings show that employees' financial worry can affect employees' behavior also through their psychological need satisfaction even stronger than their cognitive problems. This finding is important because, to the best of our knowledge, until now, no study has investigated the counterproductive work behavior and proactive skill development consequences of financial worry through two different mechanisms. As such, this study enhances our understanding of the

mechanisms underlying these relationships and extends previous research that has mainly focused on the emotional, psychological, cognitive, and performance consequences of financial worry (e.g., Meuris & Leana, 2018).

Consistent with SDT (Deci & Ryan, 2000), the results first support the idea that financial worry may increase employees' counterproductive work behavior by decreasing employees' satisfaction with their psychological needs. Employees who are less satisfied with their psychological needs may engage in counterproductive work behavior also as an instrument against the party responsible for causing financial worry among them. This finding complements Van den Broeck et al. (2014), who found that less satisfaction of the basic psychological needs resulted from job insecurity is associated with employees' counterproductive work behavior. Our result showed that financial worry reduces employees' need satisfaction, and it would be possible that providing employees with more autonomy and feeling of relatedness and competence could make them more satisfied with psychological needs that can prevent counterproductive work behavior. Hence our study invites future research and conversation about whether if intrinsic job characteristics can moderate the effect of financial worry on employees' psychological needs satisfaction and consequently their counterproductive work behavior. Second, our results did not support the prediction that lower levels of need satisfaction will lead to less proactive skill development. One possible explanation could be the fact that, as suggested by Fay and Sonnentag (2012), employees might engage in proactive behaviors (e.g., proactive skill development) to compensate their feeling of low levels of competence, for instance (e.g., Elliot & Dweck, 2005; Ryan & Deci, 2000 b). Further, in terms of higher levels of autonomy perception, employees might translate it as being qualified and skilled enough to convince their supervisors about their abilities to fulfill their tasks (Sonnentag & Spychala, 2012). Hence, they might not feel the desire

to engage in proactive skill development.

Consistent with cognitive load theory (e.g., Sweller, 2011; Sweller et al., 2011), we found that financial worry increases cognitive problems. However, contrary to our expectations, cognitive problems increase employees' proactive skill development. While unexpected, this finding is not implausible in hindsight. We offer two explanations as to why cognitive problems can lead employees to engage in proactive skill development. First, since people tend to feel economically dependent on their jobs for their survival (Brief et al., 1997), they might strengthen their skills to replace their cognitive abilities, which is threatened by financial worry to save their job. In another view, according to the conservation of resource theory, when resources are limited, or some are threatened (i.e., cognitive problems), individuals make choices with regard to the investment of other resources (Molina & O'Shea, 2020). Hence, having cognitive problems, people might be motivated to develop their skills and devote more effort to prevent further financial decline and also secure their economic status. Second, experienced employees who are more self-discipline might try to cope with their cognitive problems and the age-related losses by age-related gains, particularly in knowledge and skills (Bakker & Hakanen, 2019). Hence, as another theoretical contribution of this study, we investigated how employees' age can moderate the effect of cognitive problems on proactive skill development. Interestingly, we found that financial worry leads younger employees to less proactive skill development while leading older employees to more proactive skill development through higher levels of cognitive problems.

Practical Implications

The primary practical implication of the present study is to make managers, human resources personnel, and other third parties aware of the employees' mental response to different

HRM policies in Europe as a whole, as well as in different European countries with particular cultural beliefs. This is particularly important as organizations are unwilling to invest time and money in the HRM policies to enhance productivity by motivating employees at the expense of their mental health, as it can indirectly and negatively affect organizational profitability.

We reached this implication through three main approaches. First, we compared the effects of intrinsic and extrinsic motivational factors via their components, namely, employees' perception of autonomy, feedback, and skill variety as intrinsic job characteristics and individual and collective PRP as extrinsic contingent pay schemes. Consequently, the results contribute to the organizations developing proper protocols that are more beneficial economically and mentally for both organizations and employees as they will have additional guidelines to determine which route to proceed in. This will also provide organizations with the knowledge necessary to determine whether or not the HRM policies that they are currently applying to motivate employees are, in fact, proven to be successful in research in terms of employees' mental health. The results of this study, highly recommends to managers to focus more on intrinsic motivational factors rather than extrinsic motivational factors. That is, following our results, employees that are intrinsically motivated are expected to be mentally healthier than those who are extrinsically motivated. Managers can design some H.R. policies to increase intrinsic motivational factors such as providing regular feedback on employees' performance. They can try to highlight some positive aspects of employees' performance even if they are low performer. In this way, employees can be intrinsically motivated and hence, leading to more productivity and employees' mental health. Another suggestion would be to use idiosyncratic deals which refer to personalized work arrangements that are negotiated between individual employees and their organizations (Rousseau, & Greenberg, 2006). Most of the I-deals are aimed at creating flexible work arrangement through

either flexibility in work schedule or opportunity development (e.g., training) (Hornung et al., 2008). Consequently, these I-deals may enable employees to design their work schedule and hence feel more autonomy. Whereas opportunity development may help them to feel competence and meet their skill variety demands.

Further, managers should be careful in applying extrinsic motivational factors. It can directly increase employees' productivity. However, it might indirectly leads to less profitability through employees' mental health problems. Following the results of the present study, we believe that applying only individual results-oriented PRP schemes or collective results-oriented PRP schemes can have negative effect on employees' mental health unless some health-related training or H.R. plans (e.g., entertainment opportunity) are organized in the organization. In case of applying collective PRP, for instance, employers can organize some specific H.R. policies to reduce the free riding behaviour among the team members. Depending on the task, one possible solution might be to select a rotating leadership for the group. Leaders can be changed based on the time or based on the projects. Another possible solution would be to clearly divide the responsibilities among the group members and hence include a kind of individual PRP to the collective PRP. After each task or after a specific time, group members can report on their own responsibility. Consequently, employees will be responsible for their own specific task while working in a group. Hence, coupled with decreasing free riding behaviors, employees' feeling of being under co-workers' control and peer pressure will decrease. In case of applying individual PRP, employers can reduce pay comparison and social comparison behavior among employees by making the PRP policies clear and ensure employees of the organizational fairness. They can communicate that they take care of employees and make their employees aware of the purpose behind PRP schemes. Employers need to make it clear for the employees that PRP is not a tool to

measure the employees' competence, instead it is a reward to appreciate their higher productivity. Hence, not receiving PRP does not mean that they are not competent. In this way, by applying individual PRP, employees can be ensuring that their organization is fair and they are not in high risk of losing their job even if they do not receive PRP.

Second, since recently organizations are more likely to use mixed incentives rather than a single reward scheme (e.g., S. Park, 2018), it is valuable to provide them with the potential wellbeing consequences of applying mixed PRP policies. As a result, organizations can decide to adopt whether a single or a combination of PRP policies and can, therefore, pay more attention to the healthiest schemes, which lead employees to minor mental health problems. Consequently, managers can balance the benefits achieved from more productivity by adopting extrinsic contingent pay schemes to motivate employees and the organizational costs of adopting these schemes, and the potential employees' mental health costs. Our results suggest to managers to prioritize mixed rewards than single schemes in case of using financial rewards.

Third, our findings provide important insights into the relationships between two motivational factors (i.e., intrinsic job characteristics and extrinsic contingent pay schemes) and employees' subjective mental health in different European cultures. Accordingly, organizations can invest more in the policies to motivate employees, leading to higher levels of employee's mental health or at least does not lead to employees' mental health problems. This allows organizations to develop proper protocols aligned with their cultural values for dealing with mental health issues within their organizations, as they will have additional guidelines to determine which route to proceed in. Consequently, organizations in individualistic countries can benefit more by providing employees with more autonomy, while organizations in collectivist countries can benefit more by providing employees with more positive feedback. Also, organizations in countries with

higher levels of power distance or uncertainty avoidance can benefit more from providing employees with more positive feedback. In contrast, organizations in countries with lower power distance or uncertainty avoidance levels can benefit more from employees' skill variety.

In summary, our results strongly suggests managers to create a health behavior climate based on the employees' cultural believes. Such a climate refers to employees' perceptions of organizational policies, practices, and procedures for employee health behavior, including autonomy, positive feedback, skill variety and rewards that stimulate employees behaviors aiming at health promotion. That is, managers need to first focus on the H.R. plans which are clear for employees and can increase employees' perception of autonomy, positive feedback, and skill variety. Second, as managers need to apply financial rewards to increase employees' performance, they should be aware of the potential negative effects of these policies on employees' mental health. By including health behavior in the strategy and vision, managers can benefit from more productivity and healthier employees.

In our study, we found that adopting PRP can negatively affect employees' mental health. Since PRP has been criticized for being associated with financial uncertainty/worry, the second main practical implication of the present study is to make managers aware of the consequences of financial worry and the mechanisms through which it affects employees' work-related behaviors. The double-edged sword findings on financial worry, that they can trigger counterproductive work behavior but also proactive skill development, can make mamangers aware of the "bright" and "dark" sides of organizational behavior. Our findings can enable organizations to design interventions to encourage positive behaviors, such as proactive skill development, while discouraging negative behaviors, such as counterproductive work behavior. More interestingly, by considering the mental results of intrinsic job characteristics and extrinsic contingent pay schemes

derived from our first two studies, organizations could take advantage of relevant motivational factors as a kind of HRM intervention to mitigate the adverse effects of financial worries. Financial worry, for instance, reduces employees' need satisfaction, and it would be possible that providing employees with more autonomy and feeling of relatedness and competence could make them more satisfied with psychological needs that can prevent counterproductive work behavior. Also, our results indicate that financial worry may turn into cognitive problems, which then may lead older employees to proactive skill development, while it may lead younger employees to less proactive skill development. Hence, these findings suggest that the detrimental outcomes of financial worry, particularly for younger employees, could be mitigated by intervening in the mediating mechanism. For example, organizations could implement financial or psychological-related training, which could effectively guide employees to manage their financial crisis better and also to reduce the associated stress and negative behaviors. Such interventions are warranted based on our findings and extant theories on cognitive load and self-determination. However, it is suggested to monitor and research for their effectiveness carefully.

To sum up, it would be valuable for the company and employers to get insight into how employees react to the motivational H.R. policies and, more importantly, how they perceive their financial situation and hence react to this. Then managers can adopt the H.R. policies, which can better fulfill employees' needs. Subsequently, the company can financially benefit from employees' more productivity, health, satisfaction, and positive behaviors.

Methodological Contributions

The present study is valuable as it makes several methodological contributions by utilizing both primary and secondary data, accounting for the possible endogeneity problems and applying

a variety of regression models, including multilevel analysis for moderating effects and structural equation model for a time lag mediation effect based on the hypothesis and the data. Further, the robust maximum likelihood estimator was used since the distribution of the dependent variables was not normal. Also, to assess the statistical significance of the mediation effects and the moderated mediation effects, bootstrapping analyses were used. Additionally, based on the hypothesis, our data covers Europe as a multicultural region and the U.S as a region that is more uniform in terms of cultural beliefs.

Limitation and Future Research

Although this study provides important findings, it still contains several limitations, which should be addressed in future research. Consequently, our study's recommendations are based on the limits of our study, and our findings as follows. However, some of them were already discussed in the previous chapters. First, although this is a common gap in most HRM research (e.g., Della Torre et al., 2020; H. Kim & Gong, 2009), the first dataset we utilized is cross-sectional prohibits making causality assertions to gain more interesting results. However, since the main focus of the present study is on the mental consequences of applying PRP schemes in the organization and employees' general perception of intrinsic job characteristics (i.e., not at a specific time), utilizing cross-sectional data doesn't change the importance of our results. Nevertheless, it could be worth using longitudinal data in future research, if available, leading to other interesting results.

Second, both datasets that we used were collected from a single source (i.e., employees) and also included self-reported information, which could raise the concerns of Common Method Bias (CMB). However, in the present study, we attempted to reduce its effect by applying both procedural and statistical approaches. Regarding the procedural approach, before collecting the

data, confidentiality and anonymity of the participants were guaranteed, coupled with informing the respondents about the purpose of the data collection. Statistically, we utilized an instrumental variable estimation technique and a time-lag design for the last study, for instance. We also applied a zero-constraint approach in all studies to ensure that the results were not affected by a single source of data. Still, future research is recommended to include other reported measures of some of the study variables to reduce the chance of CMB. For example, it could be worth measuring employees' counterproductive work behavior or cognitive problems by also asking from supervisors or co-workers. Another example is collecting mental health-related or psychological-related data employing industrial and clinical psychologists to ensure that potential biases are identified.

Third, as was mentioned earlier, to make the hypothesis of our first study, we also got the idea of SDT, but we could not check for the SDT mechanism because of the lack of required information in the data and the cross-sectional data. Therefore, it is recommended to test the SDT in future studies. We, however, in later studies addressed this issue by using time-lagged data, for instance.

Fourth, in the present study, we used the binary variables to show whether employees receive any types of PRP schemes or not, rather than the amount of PRP schemes received by employees. Future studies could target the amount (Bryson et al., 2016; Ogbonnaya et al., 2017) and/or percentage of the salary dedicated to PRP for each employee, if applicable, which offers several fruitful avenues for future research. First, previous literature states that under group PRP, smaller groups lead to different performance consequences compare with larger groups (Esteban & Ray, 2001; Friebel et al., 2017). Accordingly, future research can investigate the linkage between the size of the groups and the amount of PRP that every group member receives and find

how employees' mental health might be affected by the size of the group and the PRP amount associated with the groups' size. Second, since high performers might suffer from more pressure and mental health problems, particularly when receiving collective PRP (e.g., Oah et al., 2019), future studies could evaluate the moderating role of the employees' performance level in the association between the amount of PRP they receive and their mental health. We simply do not have access to this information in our data. Third, employees' wellbeing increases with having more of every single component of job characteristics, but at a certain level. That is, any additional increase in every single factor of job characteristics will not have any further rise in employees' well-being at a certain level (Sonnentag & Frese, 2003). This feature may also be applicable in describing the association between the amount of PRP schemes and employees' mental health. Accordingly, we suggest that receiving PRP schemes might have the potential to increase employees' mental health, but at an optimal level, it might then start decreasing employees' mental health. Hence, future studies are highly recommended to check for the possible nonlinear relationships between the amount of PRP schemes, intrinsic job characteristics, and employees' mental health and hence to find the optimal point for any motivational factor.

The fifth recommendation is rooted in the results derived from our first two studies. Based on the mental consequences of intrinsic job characteristics and extrinsic contingent pay schemes, organizations and researchers could take the advantages of appropriate motivational factors as a kind of HRM intervention to mitigate the negative effects of financial worries. We already know that intrinsic job characteristics are stronger compare with extrinsic contingent pay schemes in enhancing employees' mental health. However, it might be possible that extrinsic contingent pay schemes also be beneficial for employees' mental health when employees have financial worries. Hence, future studies are highly recommended to investigate the moderating roles of intrinsic job

characteristics and/or extrinsic contingent pay schemes in the relationship between financial worry and employees' work-related behaviors.

The sixth recommendation is to investigate the mediating role of employees' mental health or their financial worries in the association between extrinsic contingent pay schemes and employees' work-related behaviors. From the first two studies, we found that the mental effects of extrinsic contingent pay schemes are dynamic. Hence, for the last study, we focused on the consequences of the work-related behaviors of employees' mental health in the guise of financial worry. Future studies could investigate whether and how employees' mental health mediates the association between extrinsic contingent pay schemes and employees' work-related behaviors.

Seventh, this study is the first effort intended to investigate both motivational and cognitive explanatory mechanisms in the relationship between financial worry and employees' work-related behaviors. We also found that the association between cognitive problems and proactive skill development was moderated by age. Future research should test or compare other mediating mechanisms by utilizing different mediation variables and based on other theories. One step forward, future research could investigate other moderators or even mediators which can change the effects of the mentioned mediators, and perhaps our study can contribute to novel research ideas in this area.

Conclusion

We contribute to the HRM, job design, motivational, financial worry, and stress literature by investigating employees' mental health response to the H.R. motivational practices and hence their work-related behaviors as a consequence of their mental health problems in the guise of financial worry. We first found that among the different H.R. motivational practices, factors of

intrinsic job characteristics, namely autonomy, positive feedback, and skill variety, strongly and universally enhance European employees' mental health. In contrast, the mental effects of extrinsic contingent pay schemes are mixed. That is individual PRP and collective PRP negatively affect European employees' mental health. However, their interaction positively affects European employees' mental health.

Our second interesting findings state that the mental health consequences of both intrinsic job characteristics and extrinsic contingent pay schemes are universal in European countries. Accordingly, individual PRP added to fixed payment and collective PRP added to fixed payment are universally harmful to European employees' mental health. At the same time, autonomy, feedback, and skill variety are always beneficial for them. However, European individualism (vs. collectivist) cultural beliefs positively moderate the association between autonomy and employees' mental health and negatively moderate the association between feedback and employees' mental health. Also, similar to strong (vs. weak) power distance, strong (vs. weak) uncertainty avoidance believes positively moderate the association between feedback and employees' mental health and negatively moderate the association between skill variety and employees' mental health. These results formed the basis of the subsequent research since the main criticism against applying PRP policies is that these policies involve pay uncertainty, leading to financial worry.

Our last findings contribute to the financial worry and stress literature as we brought the two streams of research (i.e., cognitive and motivational) together in the current set of study to show that the price of financial worry is borne by employees and employers alike through employees' cognitive problems and less satisfaction of psychological needs as well as their work behaviors (i.e., counterproductive work behavior and proactive skill development). Specifically,

we found that the motivational mechanism is stronger in mediating the relations mentioned above than is the cognitive mechanism. Further, having cognitive problems, older employees are more willing, whereas younger employees are less willing to engage in proactive skill development. From this, we conclude that intervening in the mediating mechanisms may be beneficial for companies when their employees are worried about their financial situation. Additionally, managers can adopt or develop proper H.R. policies align with the cultural values, which can, in turn, better fulfill employees' needs. Subsequently, the company can financially benefit from employees' more productivity, health, satisfaction, and positive behaviors. Given that financial worry negatively affects both employees and their employing organizations, we hope our research will inspire others to study organizational consequences of the financial-related aspects of H.R. policies worldwide.

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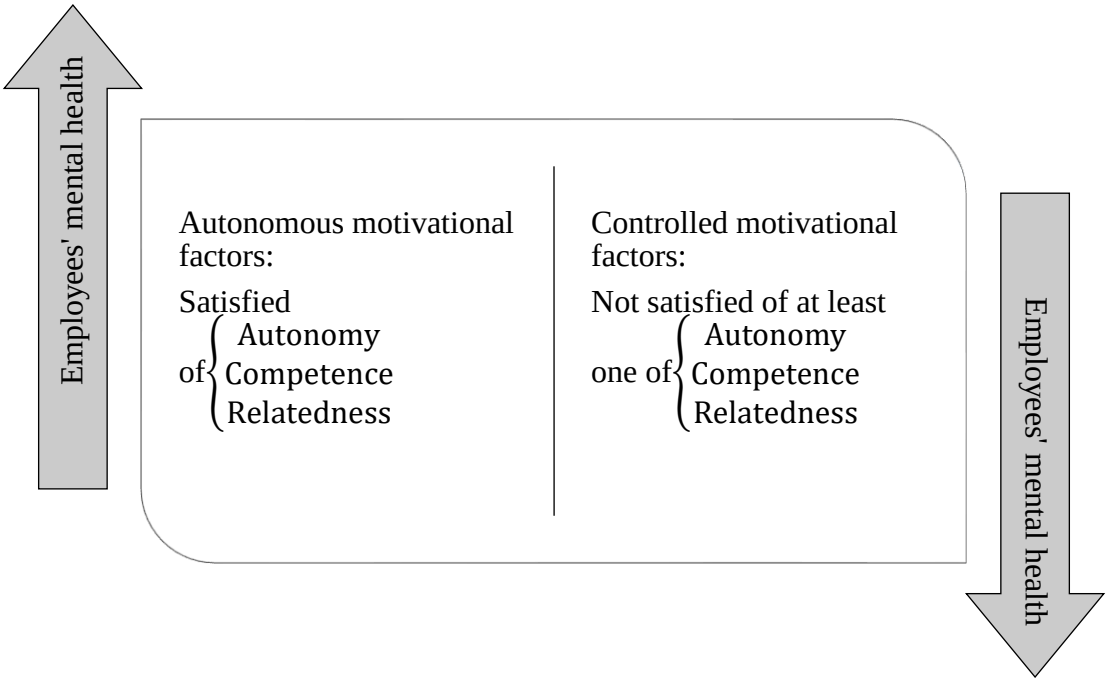
Appendix

Figure 3

Classification of Autonomous and Controlled Motivational Factors and Their Expected Associations with Employees' Mental Health, Following the SDT



Abbreviation. PRP, performance-related pay.

Appendix A

Table A2

Variables Description

Variables	Description
Dependent variable:	
Employees' mental health	Which is the closest to how you have been feeling over the last two weeks: Y1*: I have felt cheerful and in good spirits. Y2*: I have felt calm and relaxed. Y3*: I have felt active and vigorous. Y4*: I woke up feeling fresh and rested. Y5*: My daily life has been filled with things that interest me.
Independent variables:	
Individual PRP	Thinking about your earnings from your main job, what do they include? Payments are based on piece rate or productivity. Payments are based on your individual performance.
Collective PRP	Thinking about your earnings from your main job, what do they include? Payments are based on the performance of the team. Payments are based on the overall performance of the company (profit-sharing scheme) where you work. Income from shares in the company you work for.
Autonomy	Generally, does your main paid job involve… A1: Your order of tasks. A2: Your speed or rate of work. A3: Your methods of work.
Feedback	Your immediate boss… F1*: Provides useful feedback on your work. F2*: Gives you praise and recognition when you do a good job.

Skill Variety	Generally, does your main paid job involve monotonous tasks?
Control variables:	
Education	What is the highest level of education or training that you have successfully completed?
Gender	What is your gender?
Age	Starting with yourself, how old are you?
Income	Please can you tell us how much are your NET monthly earnings from your main paid job? Please refer to your average earnings in recent months. If you don't know the exact figure, please give an estimate.
Dependence	Including yourself, can you please tell me how many people live in this household?
Ability to make ends meet	Thinking of your household's total monthly income, is your household able to make ends meet..?
Ownership	Are you working in…? [private sector; public sector; joint private-public; not-for-profit sector; other (please specify)]
Contract type	What kind of employment contract do you have in your main paid job?

Note. *, reverse code.

Abbreviation. PRP, performance-related pay.

Table A2

Results of Factor Analysis and Reliability

Variables	Items	Loading	Ordinal Cronbach alpha
Employees' mental health	Y1	0.83	0.91
	Y2	0.81	
	Y3	0.83	
	Y4	0.79	
	Y5	0.74	

Autonomy	A1	0.80	0.90
	A2	0.77	
	A3	0.81	
Feedback	F1	0.77	0.78*
	F2	0.76	

Note. *, Spearman correlation.

Table A3

Correlations, Means, Standard Deviations, and Average Variance Extracted

		M	SD	1	2	3	4	5	AVE
1	Mental health	4.41	1.01	-	-	-	-	-	0.79
2	Autonomy	1.89	1.19	0.08***	-	-	-	-	0.73
3	Feedback	7.71	2.11	0.32***	0.13***	-	-	-	0.80
4	Age	41.76	12.14	-0.05***	0.06***	-0.05***	-	-	-
5	Net income	1223.89	2479.03	0.07***	0.17***	0.02*	0.09***	-	-
6	Dependence	2.90	1.36	0.02*	-0.01	0.04***	-0.15***	-0.11***	-

Notes. Correlations for size 19360; all tests were two-tailed. The square root of the average variance extracted (AVE) is based on the factor loadings and the error variance of each construct obtained from the explanatory factor analysis results.

Abbreviations. M, mean; SD, standard deviation.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table A4

Fit Indicates of the CFAs

Model	χ^2(df)	χ^2/df	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf
Three-factor model [a]_M1	304.044 (28)	10.859	0.99	0.99	0.023	0.014			
Two-factor model [b]_M2	11632.042 (30)	387.735	0.85	0.78	0.141	0.123	|M2-M1|***	11327.10	2
One-factor model [c]_M3	24103.409 (31)	777.529	0.69	0.55	0.200	0.154	|M3-M1|***	23799.36	3
CLF model [d]_M4	99.262 (18)	5.515	0.99	0.99	0.015	0.005	|M4-M1|***	204.78	10

Notes. CLF, common latent factor. CFI, comparative fit index. TLI, Tucker-Lewis index. RMR, root mean square residual. RMSEA, root-mean-square error of approximation.

[a] This model includes three factors (i.e., employees' mental health, autonomy and feedback);

[b] This model combines, from the three-factor model, autonomy and feedback to form an explanatory factor.

[c] We combined all measurement items into one grand factor.

[d] This model includes the measurement model as well as a CLF in which all items loaded on the five expected latent factors, whereas additionally also loaded on the CLF.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table A5

Compare Mean Differences in Employees' Mental Health for Binary Variables

		Frequency		Mean differences
		0 (percentage)	1 (percentage)	Mental Health (1-0)
1	IPRP	15785 (81.53)	3575 (18.47)	-0.018
2	CPRP	17337 (89.55)	2023 (10.45)	0.013
3	IPRP*CPRP	18297 (94.51)	1063 (5.49)	0.050*
4	Skill variety	9605 (49.61)	9755 (50.39)	0.221***
5	Male	10254 (52.96)	9106 (47.04)	0.104***
6	Educated	14989 (77.42)	4371 (22.58)	0.075***
7	Make ends meet	9018 (46.58)	10342 (53.42)	0.360***
8	Public	13737 (70.95)	5623 (29.04)	-0.014
9	Unlimited contract	4752 (24.54)	14577 (75.29)	0.029*

Notes. t-tests for 19360; all tests were two-tailed.

Abbreviations. IPRP, individual performance-related pay. CPRP, collective performance-related pay.

*, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

Table A6

Hierarchical Regression Analysis

	Employees' mental health							
	Model1 (M1)		Model2 (M2)		Model3		Model4 (M4)	
	Std. β	Robust SE	Std. β	Robust SE	Std. β	Robust SE	Std. β	Robust SE
Controls								
Ownership	.006	.016	-.001	.016	-.005	.016	-.005	.016

Education	.001	.018	-.019***	.017	-.018**	.016	-.018***	.017
Gender	.050***	.014	.056***	.014	.059***	.014	.059***	.014
Contract type	.001	.014	-.000	.013	.001	.013	.000	.013
Age	-.043***	.001	-.036***	.000	-.035***	.000	-.035***	.000
Net income	.002	.000	-.000	.000	.000	.000	.000	.000
Number of dependence	.022***	.005	.012*	.005	.012*	.005	.012**	.005
Meet ends	.179***	.015	.134***	.014	.136***	.014	.136***	.014
Independent variables								
Autonomy			.030***	.006	.031***	.006	.031***	.006
Feedback			.282***	.003	.283***	.003	.283***	.004
Skill variety			.064***	.014	.063***	.014	.063***	.014
Individual PRP					-.020***	.018	-.027***	.020
Collective PRP					-.018***	.023	-.031***	.032
Interactions								
Individual PRP*collective PRP							.022**	.046
Number of OBS	19,360		19,360		19,360		19,360	
R-squared	.037		.124		.125		.125	
Likelihood-ratio test			M1-M2		M2-M3		M3-M4	
ΔLR			1842.40***		20.00***		4.33**	

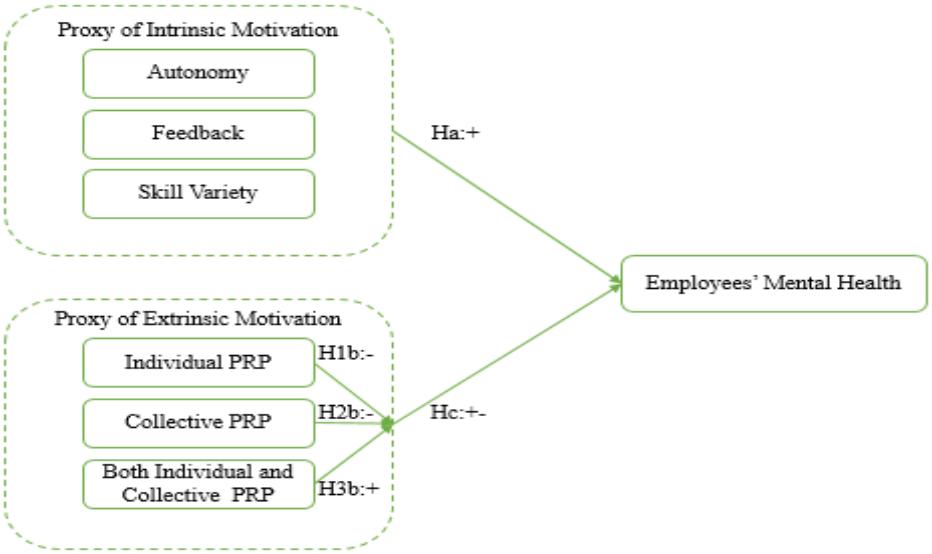
Notes. Standardized β coefficients were reported; the listwise deletion method was employed to deal with missing data in hierarchical multiple regression analysis, which reduced the sample size from 43,850 to size 19,360; all tests were two-tailed.

Abbreviations. PRP, performance-related pay. LR, likelihood ratio.

*, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

Figure A4

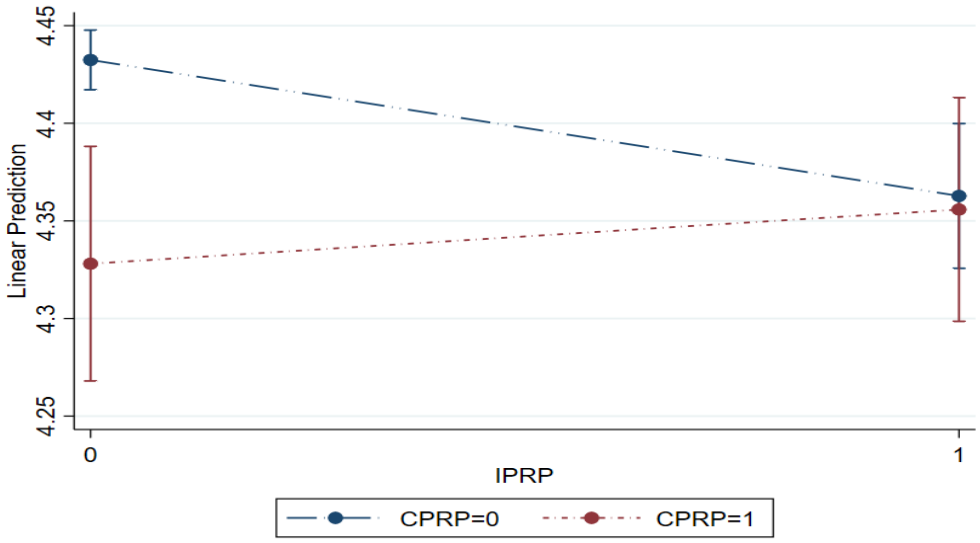
Conceptual Model



Abbreviation. PRP, performance-related pay.

Figure A2

Interaction between Individual PRP and Collective PRP on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Abbreviations. IPRP, individual performance-related pay. CPRP, collective performance-related

pay.

Appendix B

Table B3

Variables Description

Variables	Description
Dependent variable:	
Employees' mental health	Which is the closest to how you have been feeling over the last two weeks: * I have felt cheerful and in good spirits. * I have felt calm and relaxed. * I have felt active and vigorous. * I woke up feeling fresh and rested. * My daily life has been filled with things that interest me.
Independent variables:	
Individual PRP	Thinking about your earnings from your main job, what do they include? Payments are based on piece rate or productivity. Payments are based on your individual performance.
Collective PRP	Thinking about your earnings from your main job, what do they include? Payments are based on the performance of the team. Payments are based on the overall performance of the company (profit-sharing scheme) where you work. Income from shares in the company you work for.
Fixed payment	Thinking about your earnings from your main job, what do they include? Basic fixed salary/wage. Extra payments for additional hours of work/overtime. Extra payments compensating for bad or dangerous working conditions. Extra payments compensating for Sunday work.
Autonomy	Generally, does your main paid job involve… Your order of tasks. Your speed or rate of work.

	Your methods of work.
Feedback	Your immediate boss… * Provides useful feedback on your work. * Gives you praise and recognition when you do a good job.
Skill Variety	Generally, does your main paid job involve monotonous tasks?
Individual-level control variables:	
Education	What is the highest level of education or training that you have successfully completed?
Gender	What is your gender?
Age	Starting with yourself, how old are you?
Income	Please can you tell us how much are your NET monthly earnings from your main paid job? Please refer to your average earnings in recent months. If you don't know the exact figure, please give an estimate.
Dependence	Including yourself, can you please tell me how many people live in this household?
Ability to make ends meet	Thinking of your household's total monthly income, is your household able to make ends meet..?
Contract type	What kind of employment contract do you have in your main paid job?
Ownership	Are you working in…? [private sector; public sector; joint private-public; not-for-profit sector; other (please specify)]
Country-level control variables:	
GDP	Chain linked volumes, percentage change on the previous period, per capita.
At the risk of poverty rate	At the risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers).
Welfare structure	Three categories: collaborative (Austria, Belgium, France, Germany, Ireland, Netherlands, and Sweden), fragmented-rigid (Greece, Italy, Portugal, and Spain), and fragmented-flexible (Bulgaria, Czech Republic, Poland, and Romania) vs other countries (Denmark, Finland, United

Kingdom, Turkey, Norway, and Switzerland).

Note. *, reverse code.

Abbreviation. PRP, performance-related pay.

Table B2

Cultural Dimensions Scores

Country	Individualism/ collectivism	Power distance	Uncertainty avoidance
Austria	-0.07	-1.29	-0.03
Belgium	-0.67	-0.4	0.67
Bulgaria	0.13	-0.37	0.46
Czech Republic	0.39	-0.34	0.31
Denmark	0.77	-0.81	-0.58
Finland	-0.04	-0.8	-0.03
France	0.6	-0.7	0.76
Germany	0.4	-0.77	-0.32
Greece	-0.08	0.36	0.7
Hungary	-0.06	0.03	0.69
Ireland	0.42	-0.49	0.14
Italy	0.32	-0.15	-0.1
Netherlands	1.07	-1.33	-0.83
Poland	-0.24	-0.17	0.48
Portugal	-0.22	-0.14	0.32
Romania	-0.44	-0.58	0.34
Spain	0.83	-0.67	1.12
Sweden	1.79	-1.14	-1.13
UK	0.33	-0.81	-0.22
Turkey	-0.45	-0.06	0.11
Norway	0.95	-1.38	-1.49
Switzerland	0.93	-0.48	0.33

Notes. The scores provided by Taras et al. (2012) for the 2000s follow the measurement logic proposed by Hofstede. For the countries missing in the 2000s, data from the 1990s were replaced. Ranging from -2 (collectivism, weak power distance, and weak uncertainty avoidance) to +2 (individualism, strong power distance, and strong uncertainty avoidance).

Table B3

Correlations, Means, Standard Deviations, Reliabilities, and Average Variance Extracted

		M	SD	1	2	3	4	5	8	9	10	11	12	AVE
Individual-level variables														
1	Mental health	4.46	1.00	(0.90)	-	-	-	-	-	-	-	-	-	0.78
2	Autonomy	1.90	1.20	0.01***	(0.90)	-	-	-	-	-	-	-	-	0.74
3	Feedback	7.73	2.14	0.30***	0.12***	(0.79)	-	-	-	-	-	-	-	0.81
4	Age	41.83	12.20	-0.03***	0.07***	-0.05***	-	-	-	-	-	-	-	-
5	Net income	1440.73	3000.4	0.03***	0.07***	0.00	0.05***	-	-	-	-	-	-	-
6	Dependence	2.79	1.31	0.02*	0.01	0.04***	-0.14***	-0.01	-	-	-	-	-	-
Country-level variables														
7	Individualism	0.30	0.59	-	-	-	-	-	-0.56**	-0.58**	0.02	-0.37	-0.11	-
8	Uncertainty avoidance	0.08	0.64	-	-	-	-	-	-	0.69***	0.04	0.42*	0.20	-
9	Power distance	-0.57	0.46	-	-	-	-	-	-	-	0.09	0.49*	0.09	-
10	GDP	3.33	4.93	-	-	-	-	-	-	-	-	0.07	0.23	-
11	Risk of poverty rate	16.68	4.20	-	-	-	-	-	-	-	-	-	-0.18	-
12	Mental health	4.44	0.16	-	-	-	-	-	-	-	-	-	-	-

Notes. Numbers below the diagonal represent individual-level correlations for size 12305; all tests were two-tailed. Ordinal Alpha Cronbachs are presented in parentheses. Numbers above the diagonal represent country-level correlations for size 22.

Abbreviations. AVE, the square root of average variance extracted, based on the factor loadings and the error variance of each construct,

was obtained from the explanatory factor analysis results. GDP, growth domestic product.

* p < .05, ** p < .01, *** p < .001.

Table B4

Fit Indicates of the CFAs

Model	χ^2(df)	χ^2/df	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf
Three-factor model [a]_M1	217.412 (28)	7.765	0.99	0.99	0.023	0.016			
Two-factor model [b]_M2	7867.655 (30)	262.256	0.84	0.76	0.146	0.123	|M2-M1|***	7650.24	2
One-factor model [c]_M3	16354.988 (31)	527.580	0.67	0.52	0.207	0.148	|M3-M1|***	16137.58	3
CLF model [d]_M4	99.262 (18)	5.515	0.99	0.99	0.015	0.005	|M4-M1|***	118.15	10

Notes. CLF, common latent factor. CFI, comparative fit index. TLI, Tucker-Lewis index. RMR, root mean square residual. RMSEA, root-mean-square error of approximation.

[a] This model includes three factors (i.e., employees' mental health, autonomy and feedback).

[b] This model combines, from the three-factor model, autonomy and feedback to form an explanatory factor.

[c] We combined all measurement items into one grand factor.

[d] This model includes the measurement model as well as a CLF in which all items loaded on the five expected latent factors, whereas additionally also loaded on the CLF.

* p < .05, ** p < .01, *** p < .001.

Table B5

Compare Mean Differences in Employees' Mental Health for Categorical Variables

		Frequency		Mean differences
		0 (percentage)	1 (percentage)	Mental Health (1-0)
Individual-level variables				
1	Only IPRP + fixed payment	10971 (89.16)	1334 (10.84)	-0.060**
2	Only CPRP + fixed payment	11680 (94.92)	625 (5.08)	-0.043
3	IPRP and/or CPRP	12129 (98.57)	176 (1.43)	-0.167**
4	Skill variety	6134 (49.85)	6171 (50.15)	0.221***
5	Male	6501 (52.83)	5804 (47.17)	0.105***
6	Educated	9734 (79.11)	2571 (20.89)	0.021
7	Make ends meet	5153 (41.88)	7152 (58.12)	0.337***
8	Public	8944 (72.69)	3361 (27.31)	-0.012
9	Unlimited contract	3028 (24.61)	9277 (75.39)	0.021
Country-level variables				
10	Collaborative	15 (68.2)	7 (31.8)	0.03
11	Fragmented-rigid	18 (81.8)	4 (18.2)	-0.05
12	Fragmented-flexible	17 (77.3)	5 (22.7)	-0.06

Notes. t-tests for 12305 at the individual level and for 22 at the country level; all tests were two-tailed.

Abbreviations. IPRP, individual performance-related pay. CPRP, collective performance-related pay.

*, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

Table B6

Hierarchical Regression analysis in Predicting Employees' Mental Health Using Individualism (vs. Collectivism), Strong (vs. Weak) Power Distance and Strong (vs. Weak) Uncertainty Avoidance Cultural Values

Employees' Mental Health										
	Model2		Model3		Model4		Model5		Model6	
	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.	β	Std. Err.
Intercept	3.17***	.06	4.11***	.06	4.11***	.06	4.11***	.06	4.10***	.06
Individual-level predictors										
Ownership	-.01	.02	-.01	.02	-.01	.02	-.01	.02	-.01	.02
Education	-.06***	.02	-.06***	.02	-.07***	.02	-.07***	.02	-.07***	.02
Gender	.14***	.02	.14***	.02	.14***	.02	.14***	.02	.14***	.02
Contract type	0.02	.02	-.02	.02	-.02	.02	-.02	.02	-.02	.02
Age	-.00***	.00	-.00***	.00	-.00***	.00	-.00***	.00	-.00***	.00
Net income	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Number of dependence	.02***	.01	.02***	.01	.02***	.01	.02***	.01	.02***	.01
Meet ends	.29***	.02	.29***	.02	.29***	.02	.29***	.02	.29***	.02
Autonomy	.03***	.01	.04***	.01	.04***	.01	.03***	.01	.04***	.01
Feedback	.13***	.00	.13***	.00	.13***	.00	.13***	.00	.13***	.00
Skill variety	.15***	.02	.15***	.02	.15***	.02	.16***	.02	.15***	.02
Only IPRP+ fixed pay	-.11***	.027	-.11***	.03	-.11***	.03	-.11***	.03	-.11***	.03
Only CPRP+ fixed pay	-.12***	.04	-.11***	.04	-.13***	.04	-11***	.04	-.12***	.04
Only PRP (IPRP and/or CPRP)	-.11	.07	-.10	.07	-.11	.07	-.11	.07	-.11	.07
Country-level predictors										
Fragmented rigid			.31***	.10	.30***	.10	.30***	.10	.29***	.10
Fragmented flex			.11	.08	.10	.08	.10	.08	.10	.08
Collaborative			-.01	.07	-.01	.07	-.02	.07	-.01	.07
GDP growth per capita			.01*	.00	.01*	.00	.01*	.00	.01*	.00
At the risk of poverty rate			-.01	.01	-.01*	.01	-.01*	.01	-.01*	.01
IND			-.00	.06	-.03	.06	-.00	.06	-.01	.06
PD			-.20**	.10	-.21**	.10	-.14	.01	-.19*	.10
UNA			.12*	.06	.13**	.06	.13**	.06	.16***	.06
Cross-level interactions										

IND*(IPRP+ fixed pay)					-.03	.05				
IND*(CPRP+ fixed pay)					.06	.07				
IND*Autonomy					.03***	.01				
IND*Feedback					-.04***	.01				
IND*Skill variety					.04	.03				
PD*(IPRP+ fixed pay)							.00	.07		
PD*(CPRP+ fixed pay)							.03	.10		
PD*Autonomy							-.01	.02		
PD*Feedback							.06***	.01		
PD*Skill variety							-.13***	.04		
UNA*(IPRP+ fixed pay)									-.05	.04
UNA*(CPRP+ fixed pay)									-.05	.06
UNA*(IPRP and/or CPRP)									.00	.12
UNA*Autonomy									-.01	.01
UNA*Feedback									.02***	.00
UNA*Skill variety									-.08***	.03
Random parameters										
Level 2										
Var. intercept (between country)	.02		.01		.01		.01		.01	
Level 1										
Var. intercept (within country)	.84		.84		.84		.84		.84	
ICC	.03		.01		.01		.01		.01	
LR test vs. Linear model:	432.87***		133.73***		133.30***		127.49***		123.43***	
LR test vs. Random intercept model:	1681.39***		1694.01***		1730.06***		1733.22***		1714.20***	

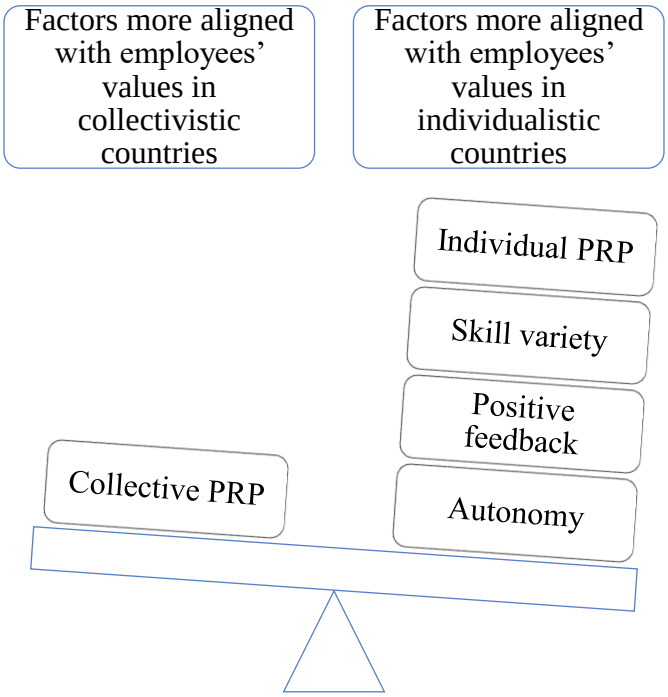
Notes. Unstandardized β coefficients were reported; hierarchical multiple regression analysis was employed, which reduced the sample size from 43,850 to 12,305.

Abbreviations. IPRP, individual performance-related pay. CPRP, collective performance-related pay. IND, individualism culture. PD, power distance culture. UNA, uncertainty avoidance culture. GDP, growth domestic product.

*, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

Figure B1

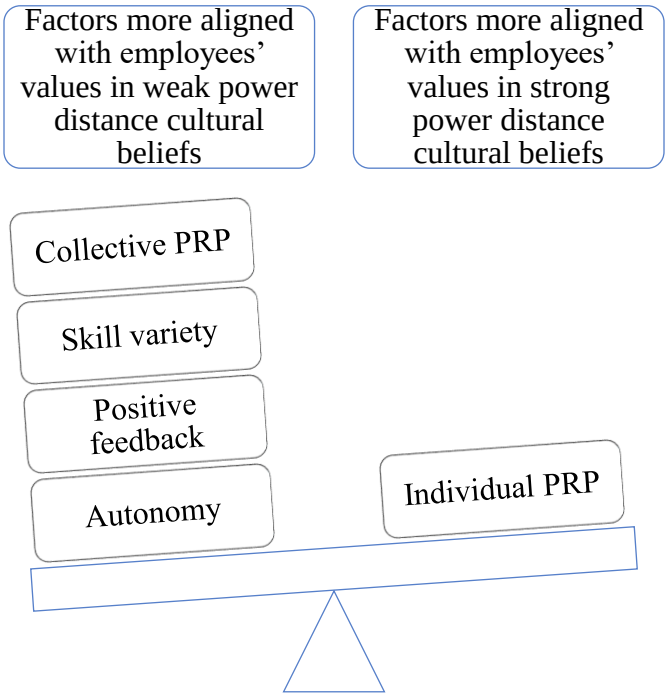
Individualism versus Collectivism Cultural Beliefs, Expected Aligned Factors, Following P-EF Theory



Abbreviation. PRP, performance-related pay.

Figure B2

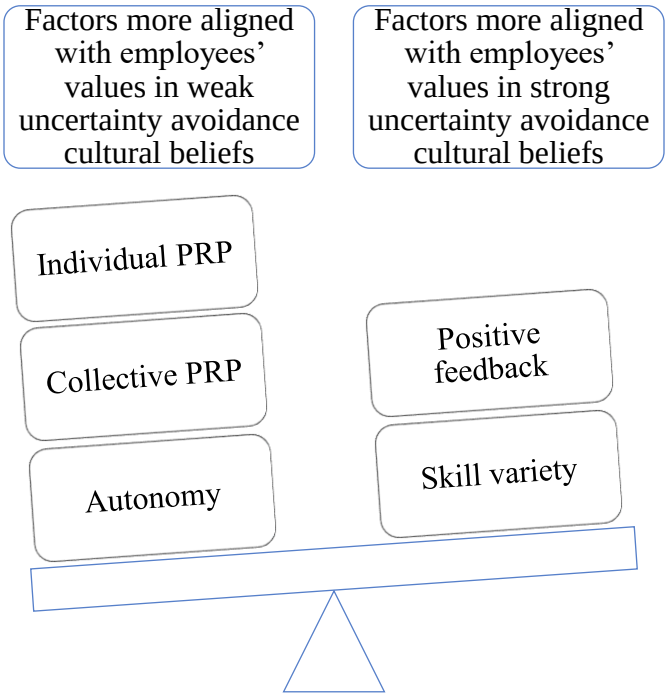
Strong versus Weak Power Distance Cultural Beliefs, Expected Aligned Factors, Following P-EF Theory



Abbreviation. PRP, performance-related pay.

Figure B3

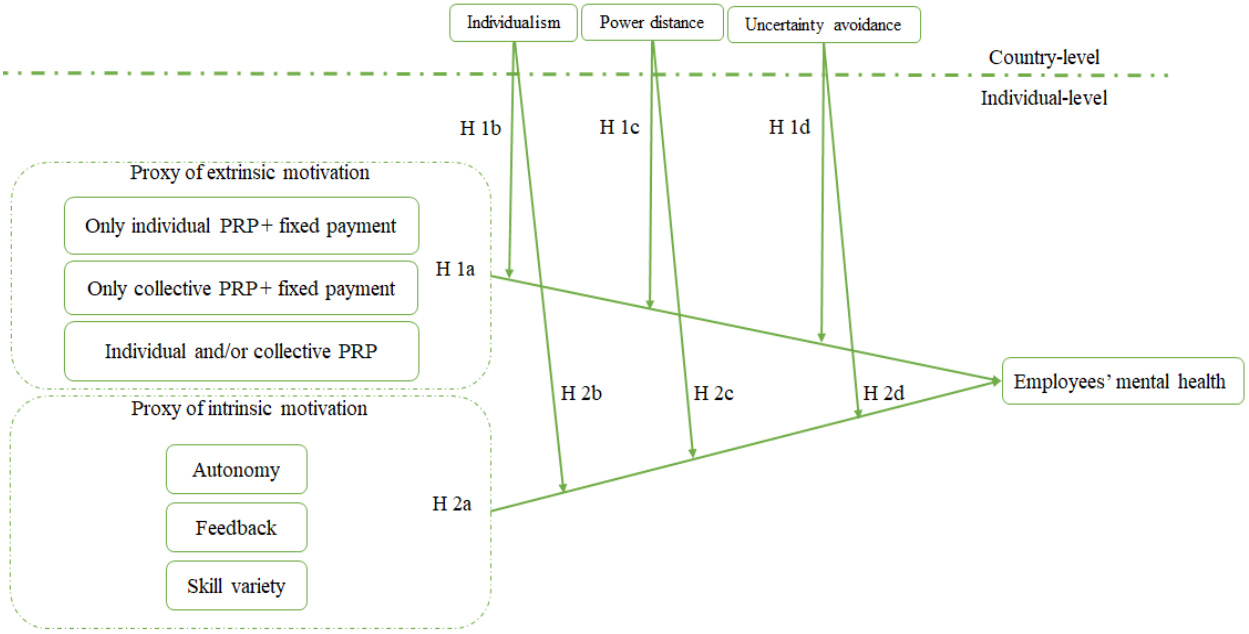
Strong versus Weak Uncertainty Avoidance Cultural Beliefs, Expected Aligned Factors, Following P-EF Theory



Abbreviation. PRP, performance-related pay.

Figure B4

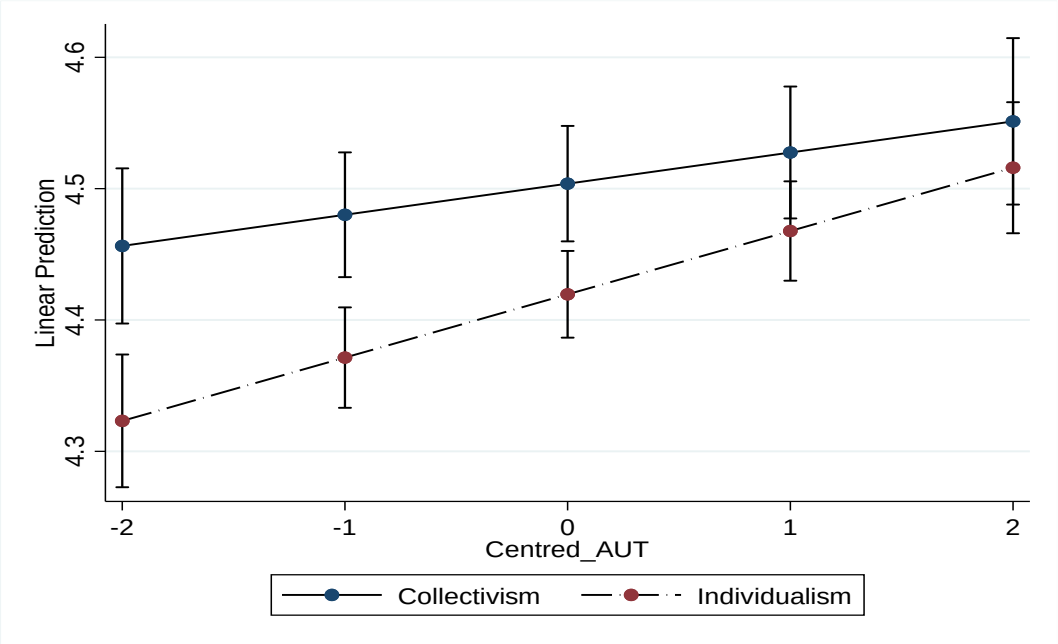
Conceptual Model



Abbreviation. PRP, performance-related pay.

Figure B5

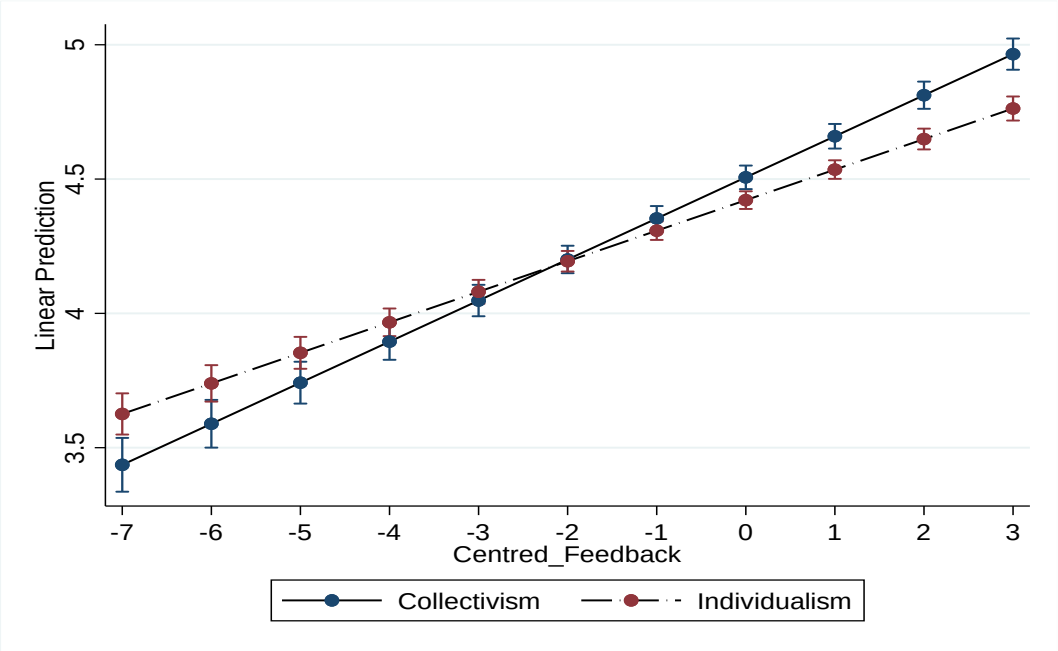
Interaction between Autonomy and Individualism/Collectivism Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Figure B6

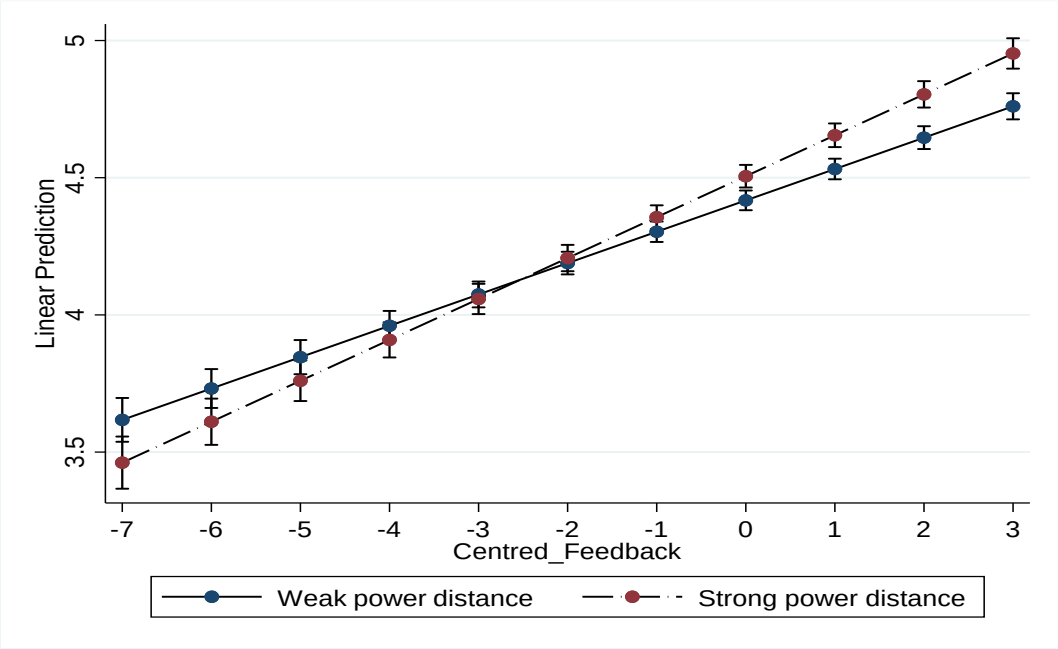
Interaction between Positive Feedback and Individualism/Collectivism Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Figure B7

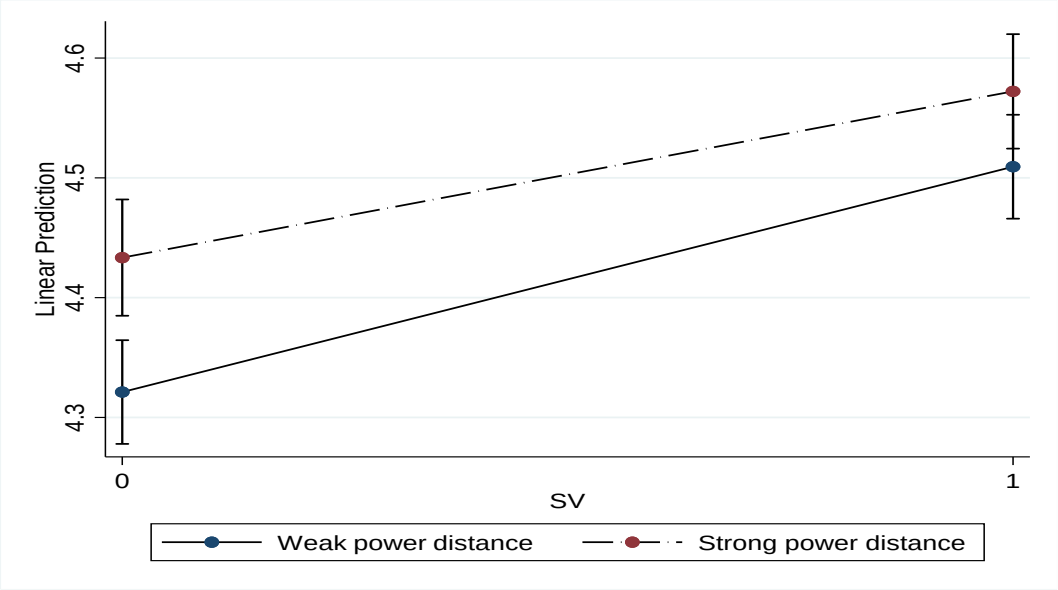
Interaction between Positive Feedback and Strong (vs. Weak) Power Distance Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Figure B8

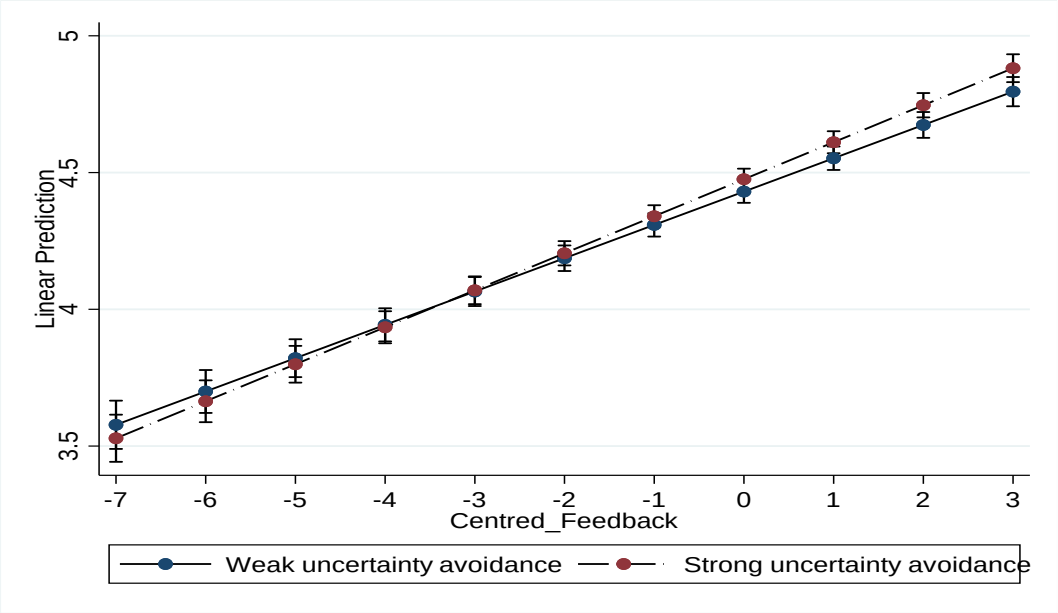
Interaction between Skill Variety and Strong (vs. Weak) Power Distance Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Figure B9

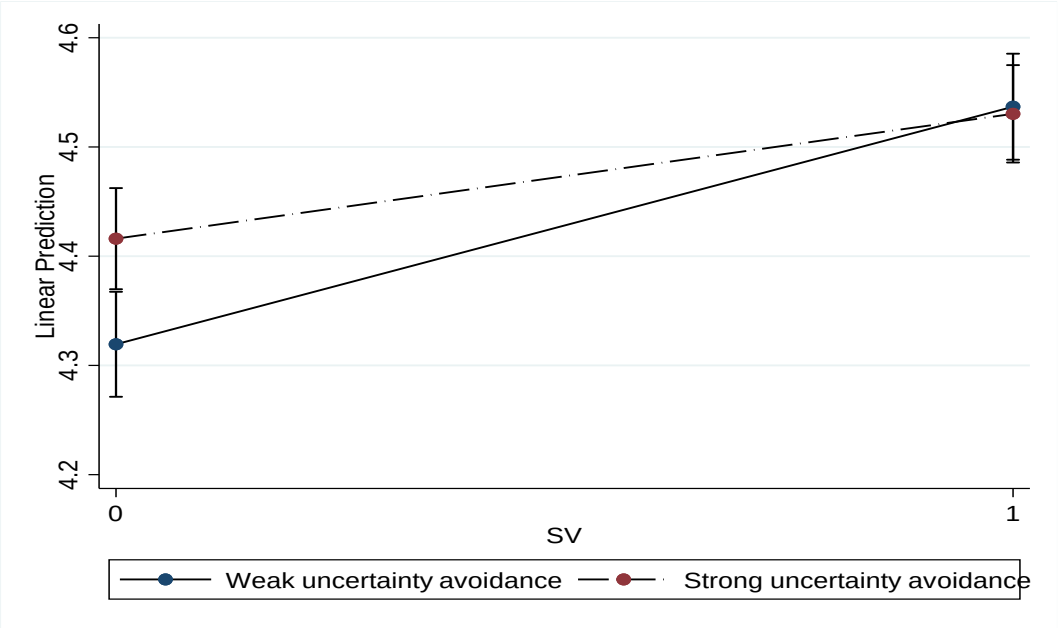
Interaction between Positive Feedback and Strong (vs. Weak) Uncertainty Avoidance Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Figure B10

Interaction between Skill Variety and Strong (vs. Weak) Uncertainty Avoidance Cultural Values on Employee Mental Health



Note. Predictive margins plot with 95% confidence intervals.

Appendix C

Table C1

Unit Response Rates and Bias Estimates for Categorical Auxiliary Variables

Auxiliary Variables	Response rate (%)	Respondent sample mean (%)	Full sample mean (%)	Bias	Relative bias	Chi-square p-value	Effect size
Gender							
Female	57.9	51.1	40.1	11	27.4	0.00	0.22
Male	37.0	48.9	59.9	-11	18.4		
Education							
Less than high school	0.0	0.0	0.0	0.0	0.0	0.01	0.21
High school	52.4	6.1	5.3	0.8	0.1		
Some college/associate's degree	65.2	16.7	11.6	5.1	0.4		
Bachelor's degree	41.6	53.3	58.3	-5	-0.1		
Graduate degree	40.7	20.6	23.0	-2.4	-0.1		
Doctoral degree	85.7	3.3	1.8	1.5	0.8		
Income							
Less than $10,000	38.5	2.8	3.3	-0.5	-0.1	0.00	0.29
$10,000 - $19,999	27.3	3.3	5.6	-2.3	-0.4		
$20,000 - $29,999	37.5	10.0	12.1	-2.1	-0.2		
$30,000 - $39,999	40.0	8.9	10.1	-1.2	-0.1		

$40,000 - $49,999	42.9	16.7	17.7	-1	-0.1
$50,000 - $59,999	37.5	15.0	18.2	-3.2	-0.2
$60,000 - $69,999	40.0	5.6	6.3	-0.7	-0.1
$70,000 - $79,999	57.6	10.6	8.3	2.3	0.3
$80,000 - $89,999	45.5	2.8	2.8	0.0	0.0
$90,000 - $99,999	61.1	6.1	4.5	1.6	0.4
$100,000 - $149,999	80.0	13.3	7.6	5.7	0.7
More than $150,000	64.3	5.0	3.5	1.5	0.4

Table C2

Bias Estimates for Continuous Auxiliary Variables

Auxiliary Variables	Responding Sample Mean	Full Sample Mean	Bias	Relative Bias	t-Test p-Value	Effect Size
Age	39.32	38.10	-1.22	0.03	0.06	0.11
Experience	7.52	7.79	0.27	0.03	0.50	0.00
Dependence	2.73	5.81	3.08	0.53	0.00	0.22

Table C3

Variables Description

Variables	Description
Dependent variables:	
CWB	How often have you done each of the following things on your present job during the last two weeks? CWB1- Purposely wasted your employer's materials/supplies. CWB2- Complained about insignificant things at work. CWB3- Told people outside the job what a lousy place you work for. CWB4- Came to work late without permission. CWB5- Stayed home from work and said you were sick when you weren't. CWB6- Insulted someone about their job performance. CWB7- Made fun of someone's personal life. CWB8- Ignored someone at work. CWB9- Started an argument with someone at work. CWB10- Insulted or made fun of someone at work.
PSD	Please rate your agreement to each of the following statements using the scale provided below. PSD1- I develop skills which may not be needed so much now, but in future positions. PSD2- I gain experience in a variety of areas to increase my knowledge and skills. PSD3 - I develop knowledge and skill in tasks critical to my future work life.
Mediators:	
NS	The following statements aim to tap your personal experiences at work. Would you please indicate to which degree you agree with these statements? RE1- I don't really feel connected with other people at my job. RE2*- At work, I feel part of a group. RE3- I don't really mix with other people at my job. RE4*- At work, I can talk with people about things that really matter to me. RE5- I often feel alone when I am with my colleagues. RE6*- Some people I work with are close friends of mine.
	COM1*- I really master my tasks at my job.

	COM2*- I feel competent at my job.
	COM3- I doubt whether I am able to execute my job properly.
	COM4*- I am good at the things I do in my job.
	AUT1*- I feel like I can be myself at my job.
	AUT2- At work, I often feel like I have to follow other people's commands.
	AUT3- If I could choose, I would do things at work differently.
	AUT4*- The tasks I have to do at work are in line with what I really want to do.
	AUT5*- I feel free to do my job the way I think it could best be done.
	AUT6- In my job, I feel forced to do things I do not want to do.
CP	Please indicate to which extent the following statements apply to you.
	CP1* - I frequently get things mixed up in my head.
	CP2* - I often feel like my thoughts make no sense.
	CP3* - I often space out and lose track of what's going on.
	CP4* - I often have disorganized thoughts.
	CP5* - I am easily disoriented.
	CP6* - I easily lose my train of thought.
Instrumental variable:	
FU	Please indicate to which extent you agree with the following statements.
	FU1- How certain are you that in the near future you will have adequate income.
	FU2- How certain are you that in the near future you will have adequate credit.
	FU3- How certain are you that in the near future you will have financial stability.
	FU4- How certain are you that in the near future you will have enough savings for an emergency.
	FU5- How certain are you that in the near future you will have enough assets.
Independent variable:	
FW	Please rate the frequency with which you experience the following situations using the scale below.
	FW1- How often have you been worried about your financial situation?
	FW2*- How often have you felt satisfied with your financial situation?
	FW3- How often have you felt overwhelmed by your financial obligations?
	FW4- How often do you feel that you do not have enough money?
Control variables:	

Household income	How much was your total yearly household income from all sources in the past year?
Dependents	Thinking about your household income, how many people (e.g., you, children, partner, etc.) depend on it?
Gender	What is your gender?
Age	How old are you?
Education	What is the highest educational level that you have attained?
Tenure	How many years have you worked for your present employer?
Traits	How well do the following statements describe your personality? I see myself as someone who...
	N1*-… is relaxed, handles stress well.
	N2 -… gets nervous easily.
	How well do the following statements describe your personality? I see myself as someone who...
	E1*-… is reserved
	E2 -… is outgoing, sociable
	How well do the following statements describe your personality? I see myself as someone who...
	C1*-… tends to be lazy
	C2-… does a thorough job

Note. *, reverse code.

Abbreviations. CWB, counterproductive work behaviors. PSD, proactive skill development. NS, need satisfaction. RE, relatedness. COM, competence. AUT, autonomy. CP, cognitive problems. FW, financial worry. FU, financial uncertainty. N, neuroticism. E, extraversion. C, conscientiousness.

Table C4

Correlations, Means, Standard Deviations, Reliabilities, and Average Variance Extracted (N = 180)

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	Square root AVE
1. AGE (Time 1)	39.32	11.86	-							-
2. FU (Time 1)	2.92	1.34	0.06	(0.94)						(0.85)
3. FW (Time 1)	2.93	0.90	-0.02	0.35***	(0.75)					(0.69)
4. NS (Time 2)	3.77	0.63	0.17*	-0.22**	-0.63***	(0.80)				(0.75)
5. CP (Time 2)	2.37	0.94	-0.06	0.10	0.49***	-0.58***	(0.92)			(0.75)
6. CWB (Time 3)	1.96	1.23	-0.03	-0.16	0.39***	-0.62***	0.42***	(0.98)		(0.90)
7. PSD (Time 3)	3.87	0.85	-0.14	-0.36*	-0.07	0.21**	0.02	0.09	(0.79)	(0.74)

Notes. Cronbach's alpha on the diagonal. Normal Cronbach's alpha for need satisfaction. The square root of average variance extracted (AVE) is based on the factor loadings and the error variance of each construct, obtained from the explanatory factor analysis results.
Abbreviations. FU, financial uncertainty. FW, financial worry. NS, need satisfaction. CWB, counterproductive work behavior. PSD, proactive skill development. CP, cognitive problems.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table C5

Fit Indicates of the Structural Equation Analysis

Model	χ^2(df)	χ^2/df	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf
Five-factor model [a]_M1	471.36 (281)	1.68	0.95	0.94	0.062	0.076			
Four-factor model2 [b]_M2	641.30 (285)	2.25	0.91	0.90	0.084	0.094	|M2-M1|***	169.934	4
Four-factor model1 [c]_M3	621.01 (285)	2.18	0.91	0.90	0.081	0.099	|M3-M1|***	149.646	4
Three-factor model [d]_M4	779.57 (288)	2.71	0.87	0.86	0.098	0.113	|M4-M1|***	308.204	7
One-factor model [e]_M5	1250.29 (291)	4.30	0.75	0.73	0.136	0.143	|M5-M1|***	778.925	10
CLF model [f]_M6	365.99 (255)	1.43	0.97	0.96	0.049	0.032	|M6-M1|***	105.366	26

Notes. CLF, common latent factor. CFI, comparative fit index. TLI, Tucker-Lewis index. RMR, root mean square residual. RMSEA, root-mean-square error of approximation.

[a] This model includes five-factors (i.e., financial worry, need satisfaction, cognitive problems, counterproductive work behavior, and proactive skill development).

[b] This model combines, from the five-factor model, counterproductive work behavior and proactive skill development to form a T3 factor.

[c] This model combines, from the five-factor model, need satisfaction and cognitive problems to form a T2 factor.

[d] This model combines, from the five-factor model, need satisfaction and cognitive problems to form a T2 factor, and counterproductive work behavior and proactive skill development to form a T3 factor.

[e] We combined all measurement items into one grand factor.

[f] This model includes the measurement model as well as a CLF in which all items loaded on the five expected latent factors, whereas additionally also loaded on the CLF.

* p < .05, ** p < .01, *** p < .001.

Table C6

Indirect Effects of Financial Worry on Proactive Skill Development and Counterproductive Work Behavior in the Augmented Model

Indirect path					Stage 1 effect	Stage 2 effect	Indirect effect	Stage 2 effect
FW	→	NS	→	CWB	-.173** [-.310, -.061]	-1.054* [-2.044, -.033]	.183* [.029, .450]	
FW	→	NS	→	PSD		.142 [-.391, .789]	-.025 [-.191, .061]	
FW	→	CP	→	CWB	.166* [.024, .319]	.120 [-.146, .385]	.020 [-.017, .091]	
FW	→	CP	→	PSD		.262* [.043, .519]	.043* [.004, .127]	.186 [-.059, .427]
		AGE	→	PSD				-.014* [-.027, -.002]
		CP*AGE	→	PSD				.134* [.026, .275]

Notes. *N* = 180. 5000 bootstraps. Statistics reported are unstandardized coefficients. The square brackets contain 95% bias-corrected bootstrap confidence intervals.

Abbreviations. FW, financial worry. NS, need satisfaction. CWB, counterproductive work behavior. PSD, proactive skill development. CP, cognitive problems.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table C7

Moderating Role of Age

Variable	Low AGE (-11.86)	Medium AGE (0.00)	High AGE (11.86)	Difference
Simple path				
CP → PSD	-1.403*[-3.199,-.010]	.186[-.059, .427]	1.775 **[.572, 3.386]	3.178*[.626, 6.516]
Indirect effect				
FW → CP → PSD	-.234*[-.795, -.013]	.031[-.004, .105]	.297**[.058, .853]	.531*[.079, 1.648]

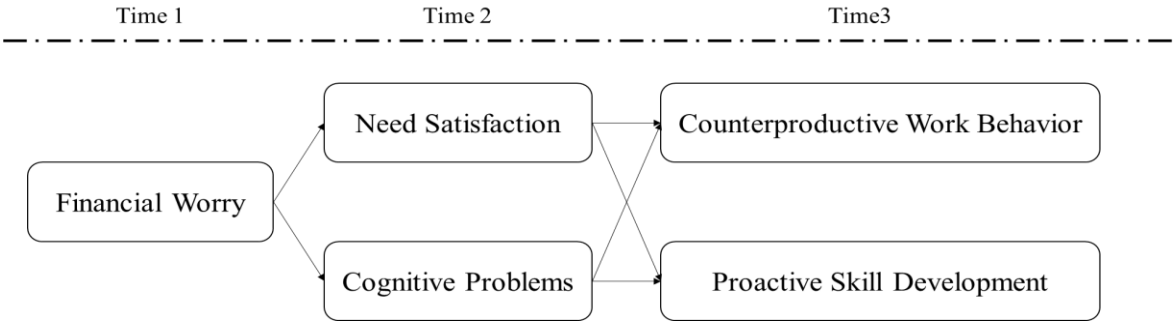
Notes. N = 180. 5000 bootstraps.

Abbreviations. FW, financial worry. PSD, proactive skill development. CP, cognitive problems. The square brackets contain 95% confidence intervals.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Figure C5

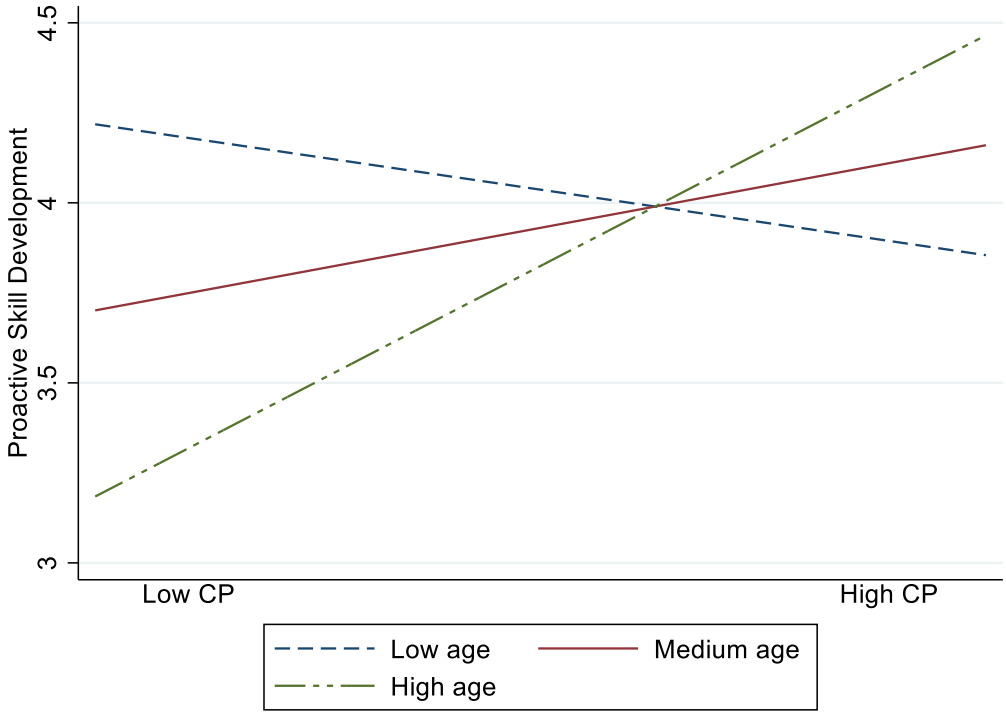
Conceptual Model



Note. A time-lagged mediation model whereby financial worry affects counterproductive work behavior and skill development through need satisfaction and cognitive problems.

Figure C2

Moderating effect of Age on Cognitive Problems Impact's on Proactive Skill Development



Abbreviation. CP, cognitive problems.