When the boss is blue: Examining the effects of supervisors’ negative emotions on subordinates’ cognitive work engagement and family undermining

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When the boss is blue: Examining the effects of supervisors’ negative emotions on subordinates’ cognitive work engagement and family undermining

Abstract

Purpose – Research has largely shown that supervisors’ negative emotions lead to subordinates’ negative emotions and detrimental work outcomes, but recent studies are showing that supervisor negative emotions may yield both negative and positive subordinate behaviours. Drawing on the work–home resources model, this research sought to unpack the interpersonal, cross-domain effects of supervisor negative emotions on subordinate cognitive work engagement and family undermining through subordinate perceived leader effectiveness and self-efficacy to manage work and life.

Design/methodology/approach – To test the relationships, confirmatory factor analysis and structural equation modelling were conducted on time-lagged dyadic data collected from 372 supervisor–subordinate pairs.

Findings – Results revealed that supervisor negative emotions led to higher levels of subordinate cognitive work engagement and family undermining.

Research implications – Supervisor negative emotions had unintended consequences on subordinates’ work and family outcomes—they enhanced subordinates’ cognitive work engagement (positive work outcome) but also increased subordinates’ family undermining (negative family outcome). Future studies could benefit from a diary study with a within-subject design since emotions are known to fluctuate in a day.

Practical implications – This research provides supervisors with insights about the consequences of their negative emotions on their subordinates, calls upon organisations to provide cognitive regulation training, and encourages subordinates to develop self-efficacy in managing their work and life.
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Originality/value – This study is among the first to incorporate self-efficacy to manage work and life as a personal resource and subordinate family undermining as an outcome of supervisor negative emotions, which enhances understanding of the resource allocation and loss processes between supervisors and subordinates.

Keywords – negative emotions, family undermining, cognitive work engagement, perceived leader effectiveness, self-efficacy to manage work and life, supervisor–subordinate dyads

Paper type – Research paper
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Introduction

Employees’ work outcomes are highly influenced by their relationships in the workplace, particularly relationships with their supervisors (Skakon et al., 2010; Tummers and Bronkhorst, 2014). Research on supervisor–subordinate relationships has predominantly focused on supervisors’ negative behaviours and how they induce stress and negative work attitudes and behaviours among their subordinates (Jawahar and Schreurs, 2018). Recently, studies on supervisor–subordinate relationships have focused on supervisors’ negative emotions as a precursor to subordinates’ negative emotions, attitudes, and behaviours (Game, 2008; Gooty et al., 2010; Johnson and Connelly, 2014). Deviating from such “symmetrical” findings, studies by Chi and Ho (2014), Johnson and Connelly (2014), and Lindebaum and Fielden (2011) have highlighted the limitations associated with the bipolar assumption that supervisors’ positive emotions have positive effects and negative emotions have negative effects on their subordinates. For instance, Lindebaum and Fielden (2011) showed that supervisor anger ensured project progress and success, and Chi and Ho (2014) showed that supervisor negative emotions increased subordinate job performance when subordinates perceived low power distance and high supervisor power. In light of these “symmetrical” and “asymmetrical” findings, this study seeks to investigate more closely how supervisor negative emotions influence subordinate outcomes.

Prior research (e.g., Johnson, 2008; Sy et al., 2005) has largely drawn on emotional contagion (Hatfield et al., 1993), an affect-based mechanism where subordinates unintentionally and automatically “catch” their supervisors’ negative emotions and subsequently experience negative emotions themselves (i.e., “symmetrical” effect). Given the aforementioned “asymmetrical” findings where supervisor negative emotions have led to positive...
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Subordinate outcomes, there may be other mechanisms playing an important role in the relationship between supervisor negative emotions and subordinate outcomes too. Further research incorporating multiple mediators is thus necessary to gain a deeper understanding on how supervisor negative emotions influence subordinate outcomes (Butler et al., 2013; Meier and Cho, 2019). Correspondingly, drawing on ten Brummelhuis and Bakker’s (2012) work–home resources (WH-R) model, this research proposes a resource-based mechanism and argue that supervisor negative emotions are a work demand that requires subordinates’ sustained mental effort to deal with, as subordinates are likely to think that their supervisors’ negative emotions are inconsistent with the expected norms and behaviours of a leader (Lewis, 2000). As a result, subordinates are likely to perceive their supervisors to be less effective. Based on the WH-R model, it is further proposed that the decrease in perceived leader effectiveness will negatively impact subordinates’ self-efficacy to manage work and life, as the contextual work demand depletes subordinates’ personal resources (ten Brummelhuis and Bakker, 2012).

Specifically, subordinates’ self-efficacy to manage work and life will decrease because they would have to expend resources to deal with the uncertainties stemming from a perceived decrease in their supervisors’ ability to lead, manage, and represent them (Kafetsios et al., 2014). In turn, subordinates are likely to experience reduced cognitive work engagement, as they need to exert effort to deal with their supervisors, which distracts them from their work.

Alongside cognitive work engagement, this research also examines subordinates’ family undermining as the other non-work-related outcome. Both work and family are closely intertwined such that what happens at work will have an effect at home, and vice versa (Allen et al., 2014). Ample research has since shown that employees’ work-related experiences shape their interactions with their family members at home (Hoobler and Brass, 2006; Meier and Cho, 2019). Further, consistent with the WH-R model, when subordinates’ self-efficacy to manage work and life decrease (that is, a loss in personal resources), there will also be
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negative work-to-family spillover effects (ten Brummelhuis and Bakker, 2012). Given the prevalence and wider impacts of work-related experiences, it is thus important to understand the underlying mechanisms through which subordinates’ work experiences impact their family domain. Therefore, the present study examines the effect of supervisor negative emotions on both subordinate work (cognitive work engagement) and family (family undermining) outcomes.

----- Insert Figure 1 about here -----

Through testing the hypothesised model (see Figure 1), this study contributes to the work–family interface and supervisor–subordinate literature in three ways. First, it deepens understanding of the cross-domain resource loss and allocation processes underlying the interpersonal effects of supervisor negative emotions on subordinate work and family outcomes. Second, it extends the WH-R model by examining supervisor negative emotions as a contextual work demand that is resource-draining. Finally, it studies emotions (i.e., upset, hostile, ashamed, nervous, and afraid) that are not commonly examined, and shows how felt (as opposed to deliberate) negative emotions influence the observer (in the case, the subordinates) in a non-deliberate work setting where supervisors and subordinates interact naturally and are not engaged in a forced setting such as a negotiation. This study also seeks to provide supervisors with insights about the consequences of their negative emotions and emotional displays on their subordinates’ cognitive work engagement and family undermining, and call upon organisations to include cognitive regulation training in their professional development programs. At the individual level, employees are encouraged to cultivate self-efficacy for resilience-building in the face of negative emotions, challenges, and uncertainties at work.

Theoretical Framework and Hypotheses Development

Work–Home Resources (WH-R) Model
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This paper is based on ten Brummelhuis and Bakker’s (2012) WH-R model. Their model describes negative work–family spillover as a process whereby demands in one domain deplete personal resources (e.g., time, energy, self-efficacy, and emotion regulation strategies) and impede accomplishments in the other domain. Personal resources refer to individuals’ positive self-evaluations such as their sense of ability to control and impact upon their environment successfully (Bakker and Demerouti, 2014). The WH-R model, which was developed based on Hobfoll’s (1989, 2002) conservation of resources (COR) theory, also maintains that stress will occur when individuals’ resources are threatened, lost, or when there is a lack of resource gain from investment (e.g., putting in effort but failing to accomplish a goal). According to the model, subordinates who are confronted with their supervisors’ negative emotions (a contextual work demand) lose personal resources such as cognitive energy, attention, and self-efficacy (ten Brummelhuis and Bakker, 2012). They also dedicate personal resources (e.g., emotional skills and emotional coping abilities) to engage in emotion regulation, which is the process of observing, evaluating, and changing their emotional reactions, as well as their intensity and duration to enhance well-being (Buruck et al., 2016).

Gross (1998) further distinguished between two types of emotion regulation strategies: cognitive reappraisal (reinterpretation of an emotion-eliciting stimulus) and expressive suppression (inhibition of emotionally expressive behaviour). In general, cognitive reappraisal has been found to be relatively effective, while expressive suppression is detrimental to an individual’s mental well-being and subsequent work and non-work behaviour (Buruck et al., 2016). In addition, the quality and efficacy of emotion regulation depends on the personal resources that individuals have at their disposal. That is, a smaller pool of personal resources is likely to lead to impaired functioning in both the work and family domains because subordinates have fewer personal resources (e.g., cognitive flexibility) available to deal effectively with other contextual work (e.g., tight project deadlines) and family...
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(e.g., caring for children and elderly) demands (ten Brummelhuis and Bakker, 2012). **Under stressful situations, individuals are more likely to apply expressive suppression because it does not require as much cognitive resources (Buruck et al., 2016).** The next few sections will show how the WH-R model has informed the hypothesised **serial** mediation model.

Subordinate Work Outcome – Cognitive Work Engagement

In his seminal paper, Kahn (1990) conceptualised work engagement as a psychological state and defined it as “the harnessing of organisation members’ selves to their work roles” (p. 694). In Kahn’s (1990) words, engaged employees **apply** and express themselves physically, cognitively, and emotionally in their work roles. Kahn (1990) added that when employees are fully engaged in their work roles, they experience a sense of meaning (i.e., reward for investing in role performance), psychological safety (i.e., a sense of trust and security at work) and availability (i.e., a sense of having the physical and psychological resources necessary for the job). Indeed, research on work engagement has revealed that employees become more engaged in their work when they feel trusted and valued, and are considered as key resources in organisations (Maden, 2015). Recent studies (e.g., Agarwal, 2014; Maden, 2015; Schmitt et al., 2016) have also shown that work engagement predicts job performance, job crafting, proactive work behaviour, innovative work behaviour, person–job fit, employee well-being, and work–family enrichment. Therefore, enhancing work engagement are key goals for managers and organisations to sustain a competitive advantage (Agarwal, 2014).

The **current study specifically examined the cognitive aspect of work engagement** (i.e., cognitive work engagement) because it seeks to investigate the underlying resource loss processes (cognitive processes) linking supervisor negative emotions to subordinate cognitive work engagement and family undermining. This is important because prior studies (e.g., Game, 2008; Gooty et al., 2010; Johnson and Connelly, 2014) have focused extensively on emotion-based mechanisms, but they do not account for why and how, in
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certain cases, supervisor negative emotions do not elicit the same negative emotions and reactions in their subordinates. The WH-R model which informs the theorised model has its roots in Hobfoll’s (1989, 2002) COR theory, a motivational theory that predicts people’s motivation and behaviour. According to the theory, people are motivated and directed biologically, socially, cognitively, and culturally to shepherd their resources to obtain, retain and protect their resource reservoirs. Therefore, this research will assess the extent to which subordinates employ themselves cognitively in their work. In so doing, it tests the cognitive mechanisms underlying the hypothesised theoretical model.

Subordinate Family Outcome – Family Undermining

Family undermining is a type of social undermining, and refers to “actions that directly undermine and diminish the family member’s or partner’s sense of self-worth” (Hoobler and Brass, 2006, p. 1127). Some examples of family undermining include increased arguing with family members, expression of negative emotions, conveying negative criticisms, and engaging in provocative or conflicting interactions (Hoobler and Brass, 2006). Family undermining has primarily been examined as a consequence of abusive supervision, such that when an employee is being abused, such mistreatment can impact employees’ family lives, resulting in work–family conflict and family dissatisfaction through an affective “spillover” effect from the work to family domain and “crossover” effect from the employee to his or her family members (Barber et al., 2017). Employees may then proceed to display negative emotional reactions and behaviours toward their family members (i.e., family undermining) through displaced aggression, which harms their family members and relationships with them. Family undermining may also arise when employees’ resources are depleted (resource-based mechanism). Supporting this notion, prior research (Danner-Vlaardingerbroek et al., 2013; Meier and Cho, 2019) have indicated that people are less supportive of their spouse and exhibit hostile marital behaviours when their ability and motivation to direct mental resources toward their family is reduced due to work
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stressors. Given that not all stressors lead to negative emotions (Cavanaugh et al., 2000), the current research thus examines the resource-based mechanism linking supervisor emotions to subordinate family undermining, specifically focusing on non-affective mediators (perceived leader effectiveness and self-efficacy to manage work and life).

Supervisor Negative Emotions and Subordinate Cognitive Work Engagement and Family Undermining

Supervisors, like any employees, may experience undesirable thoughts and feelings, and show negative emotional displays on “bad days” at work (Lindebaum and Fielden, 2011). Some may even use negative emotions to deliberately influence their subordinates for better work outcomes (van Kleef, 2017). This research seeks to understand the interpersonal effects of supervisor negative felt emotions on subordinate work and non-work outcomes, from the subordinate’s perspective. Negative emotions tend to arise when events are appraised as incongruent with an individual’s goals (Frijda, 1986). Therefore, supervisors’ negative emotional displays may be perceived as signalling unfavourable situations (Keltner and Haidt, 1999). Through an appraisal process, subordinates (as observers) may infer from their supervisors’ negative emotions that a situation is not going well, an object has negative qualities, or an employee has committed a wrongdoing (van Kleef et al., 2015). Then, subordinates form an attitude about the situation, object, or person in relation to their supervisors’ negative emotions. Based on the WH-R model, subordinates’ cognitive work engagement is likely to suffer as they spend time, attention and effort (personal resources) to make sense of their supervisors’ negative emotions instead of focusing on their job tasks (ten Brummelhuis and Bakker, 2012). Further, supervisors’ negative emotional displays may diminish subordinates’ perceptions of their leadership and credibility, which is resource draining because subordinates feel uncertain about their supervisors’ ability to lead, manage and represent them (Lewis, 2000).
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Subordinates’ uncertainty about their supervisors’ leadership and management ability subsequently promotes their family undermining tendencies, as they bring the negative perceptions home after work that in turn may affect how they interact with their family members (Hoobler and Brass, 2006). According to the WH-R model, this negative work-to-family spillover occurs because the loss in personal resources (i.e., time, attention and effort to deal with supervisors’ negative emotions) induces further resource loss as subordinates have fewer personal resources available to tackle other contextual demands (e.g., family responsibilities or social commitments) or to gain contextual resources (e.g., family support or work promotion) to make up for the resource loss (ten Brummelhuis and Bakker, 2012). Further, subordinates are also less capable of detaching themselves from work as they ruminate on their work uncertainties and find themselves unable to focus on their family responsibilities at home (Demsky et al., 2014). In a study by Ilies et al. (2007), employees were shown to experience work-to-family conflict after encountering job demands at work, which subsequently reduced their engagement in social activities with their family members. Demsky et al. (2014) also found that negative interactions at work led to the inability to psychologically detach from work, causing work-to-family conflict. The present research goes a step further by testing whether subordinates showed negative behaviours towards their family members after experiencing their supervisors’ negative emotions.

First Mediator – Perceived Leader Effectiveness

Perceived leader effectiveness refers to subordinates’ perceptions of their supervisors’ effectiveness in meeting their job-related needs, representing them to higher authorities within the organisation, and meeting organisational requirements (Awamleh and Gardner, 1999). Lewis (2000) found that negative emotional displays by actors (who portrayed as leaders) had a significant and negative main effect on participant assessments of leader effectiveness compared to more neutral affective displays. The supervisor–subordinate dyadic relationship is by nature
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an uneven relationship (Kafetsios et al., 2014). Like parent figures, supervisors lead, guide, and support subordinates in their job tasks, and assist them to navigate the complexities of the organisation. **Supervisors who are effective are usually successful in mobilising and motivating their subordinates for collective goals (Rego et al., 2019).** When confronted with stress and problems at work, subordinates tend to turn to their supervisors for comfort and advice (Kafetsios et al., 2014). Thus, perceived leader effectiveness plays a significant role in stimulating subordinates’ confidence and willingness to exert themselves on the job. When subordinates perceive their supervisors as being effective, subordinates also perceive themselves as having a key interpersonal work resource, and are less susceptible to work-related stress and resource drains or losses in stressful situations (Cooper et al., 2018).

Viewed from another perspective, perceived leader effectiveness can be used as a proxy for leader-related support, similar to how perceived supervisor support and perceived organisational support are often used as a proxy for organisational support (Shanock and Eisenberger, 2006).

This research proposes that supervisors’ negative emotions will diminish subordinates’ perceptions of their supervisors’ effectiveness due to the perceived loss of interpersonal work resources. Lewis (2000) explained that followers tend to associate certain emotions expressed by their leaders as representing desirable or undesirable traits. For example, supervisors expressing negative emotions such as sadness and anger may be perceived as lacking self-confidence and emotional control respectively, both of which are traits associated with effective leaders (Lewis, 2000). Thus, when subordinates observe negative emotions from their supervisors, it is anticipated that they will perceive their supervisors to be less effective as subordinates now view their supervisors as resource-draining. Further, subordinates would have to allocate personal resources (e.g., time, energy, and attention) to engage in sense-making to interpret their supervisors’ negative emotions (van Kleef, 2017). Correspondingly, subordinates are more likely
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to appraise work tasks and problems in a negative light and feel exhausted, uncertain, or irritable, rather than energised, psychologically safe, or optimistic (Folkman and Moskowitz, 2000).

Second Mediator – Self-Efficacy to Manage Work and Life

Defined as the belief that one has in their own ability to succeed in specific situations or accomplish a task, self-efficacy operates in a system of triadic reciprocal causation with other personal, behavioural and environmental factors to regulate thoughts, attitudes, behaviours, and well-being (Bandura, 2008). Self-efficacy effects a range of positive outcomes by assisting individuals to execute behaviours necessary to obtain their goals (Bandura, 2001). Self-efficacy also determines people’s choices and aspirations, the amount of effort they invest in a given activity, the extent of their perseverance in the face of challenges, and the level of stress they experience in a demanding environment (Bandura, 2001). Further, self-efficacious people are better able to understand the consequences of their actions, capitalise on opportunities, avoid social traps that are detrimental, and disentangle themselves from unpleasant or difficult situations (Bandura, 2008). Correspondingly, self-efficacy is considered a key personal resource in the WH-R model because it facilitates efficient and effective coping with contextual demands and accounts for why some individuals are better than others in coping with stressful circumstances and in gaining new resources (ten Brummelhuis and Bakker, 2012). Self-efficacy also determines how people mobilise and utilise their knowledge, resources, and skills to exert control over events in their lives, making it a strong predictor of behaviours (Bandura, 2001).

In line with the WH-R model which contextualises COR theory to the work–family interface (ten Brummelhuis and Bakker, 2012), this research considers self-efficacy in the context of employees’ work and non-work experiences (termed “self-efficacy to manage work and life”). Specifically, this domain-specific self-efficacy is defined as “the belief that one has in one’s own ability to achieve a balance between work and non-work responsibilities, and to persist and cope with challenges posed by work and non-work demands” (Chan et al., 2016, p.
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1758). Self-efficacy to **manage** work and life not only affects how people feel and act, but also how they perceive situational characteristics such as work and family demands and responsibilities (Chan et al., 2017). Individuals who are self-efficacious in **managing** their work and life are better able to manage their work and family roles because they have more personal resources (e.g., strong beliefs in their own capabilities). The decrease in subordinates’ perceived leader effectiveness of their supervisors will negatively impact subordinates’ self-efficacy to **manage** work and life, as subordinates have fewer personal resources stemming from the uncertainty about their supervisors’ ability to lead, manage and represent them. The WH-R model tells us that subordinates’ self-efficacy to **manage** work and life will decrease because with fewer personal resources, their belief in their own abilities to produce desired work outcomes also declines, and they have little incentive to act or persevere in the face of difficulties at work. Therefore, when supervisors are viewed as being less effective, their subordinates’ self-efficacy to **manage** work and life will also decrease as there is a loss of key personal resources.

**Hypothesis 1.** Supervisor negative emotions has a negative indirect relationship on subordinate self-efficacy to manage work and life through subordinate perceived leader effectiveness.

As subordinates’ self-efficacy to **manage** work and life has been negatively affected by their supervisors’ negative emotions, the WH-R model also suggests that subordinates’ **cognitive** work engagement is likely to decline (ten Brummelhuis and Bakker, 2012). As explained earlier, if perceived leader effectiveness is low, subordinates are more likely to be disengaged in their work as they have fewer personal resources (e.g., time, energy and attention) to invest in their work roles due to the distraction from their supervisors’ negative emotions. This is in line with Kahn (1990) and Demerouti and Cropanzano (2010) who recognised that individuals could become disengaged if certain factors (e.g., lack of psychological safety, lack of supervisor support, and fear of negative consequences) were present. In the WH-R model, work and family
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are closely interconnected domains of human life (ten Brummelhuis and Bakker, 2012). Therefore, a diminished self-efficacy at work would also have negative flow-on effects on the family domain, as subordinates grapple with fewer personal resources to invest in and allocate to their family domains, leading to decreased self-efficacy to manage work and life. In turn, lower self-efficacy to manage work and life translates to more challenges at home as employees, beset with self-doubts, tend to avoid problems and are less likely to provide support to and resolve disagreements or issues with their family members (Bandura et al., 2011). It is thus hypothesised that a lower self-efficacy to manage work and life would lead to a higher tendency to engage in family undermining, as subordinates have fewer personal resources to care for and treat their family members well.

Hypothesis 2. Subordinate perceived leader effectiveness has a positive indirect relationship on subordinate cognitive work engagement through subordinate self-efficacy to manage work and life.

Hypothesis 3. Subordinate perceived leader effectiveness has a negative indirect relationship on subordinate family undermining through subordinate self-efficacy to manage work and life.

Integrating Hypotheses 1–3, the current study proposes the following serial mediation effects:

Hypothesis 4. Supervisor negative emotions has a negative serial indirect effect on subordinate cognitive work engagement through subordinate perceived leader effectiveness and self-efficacy to manage work and life.

Hypothesis 5. Supervisor negative emotions has a positive serial indirect effect on subordinate family undermining through subordinate perceived leader effectiveness and self-efficacy to manage work and life.

Method
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Sample and Procedures

Data was collected from a large Singaporean government agency through an online survey. Two sets of online questionnaires were used: a quick pulse survey for their supervisors and a comprehensive survey for subordinates. The questionnaires were administered to the supervisors and subordinates separately. Prior to sending out the link to the online survey using electronic mail, detailed information about the study was provided to the principal Human Resources (HR) manager who subsequently briefed all survey participants. At Time 1 (T1), the online questionnaire was sent to 564 supervisors within the organisation, of which 460 (response rate = 81.6%) completed a quick pulse survey on the negative emotions they experienced. The supervisors then nominated their own subordinates who were sent a comprehensive survey on perceived leader effectiveness, self-efficacy to manage work and life, cognitive work engagement, family undermining and the control variables two weeks later at Time 2 (T2). The two-week time lag was to ensure that any short-term fluctuations in supervisors’ negative emotions will be captured, at the same time allowing for supervisors to interact with their subordinates, and for subordinates to interact with their family members at least a few times during this period (Allen et al., 2018). Of the 460 subordinates, a total of 412 subordinates responded (response rate = 89.6%).

Each supervisor was matched with only one of their subordinates, hence each dyad was independent. Among the 412 dyads, 13 matched pairs were deleted using listwise deletion due to the presence of multiple missing values. There were no univariate outliers, but the test for multivariate outliers using Mahalanobis distance indicated that there were 27 multivariate outliers. Based on the chi-square distribution with 20 items in the hypothesised model and at a critical cut-off point of 0.001, cases with a Mahalanobis distance greater than 45.315 were considered multivariate outliers. The LongString indices test (Johnson, 2005) also revealed that these multivariate outliers had longer than average lengths of uninterrupted string of identical
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responses (e.g., “1 1 1 1…” and “5 5 5 5…”) which greatly undermined the quality of the data. After removing the multivariate outliers, the final sample consisted of 372 supervisor–subordinate dyads. Both supervisors and subordinates met one another about 4.0 days per week (SD = 1.5 days) and have worked together for 4.6 years (SD = 5.0 years). Among the subordinates, 92.4% (n = 344) were between the age of 25.0 to 64.0 years (mean 35.0–39.0 years) and their average organisational tenure was 12.6 years (SD = 12.0 years).

Measures

Supervisor negative emotions (T1). Supervisors’ negative emotions were measured using Thompson’s (2007) International Positive and Negative Affect Schedule (PANAS) Short Form (I-PANAS-SF) scale which has been shown to be suitable for use with competent but not necessarily native-English speakers as the scale minimises problems of item vagueness and ambiguity. The five-item negative emotions component of the I-PANAS-SF scale comprises of “upset”, “hostile”, “ashamed”, “nervous” and “afraid”. Supervisors were asked to evaluate the extent to which they had felt the five negative emotions in the week they had been asked to do the survey. Specifically, a five-point response format ranging from 1 (none at all) to 5 (extremely) was used. As an additional checking mechanism, this study also measured subordinates’ perceptions of their supervisors’ negative emotional displays. Subordinates were asked to evaluate the extent to which they had observed their supervisors showing the five negative emotions in the past two weeks. Both measures were positively and significantly correlated (r = 0.53, p < .001). (α_supervisor = 0.83; α_subordinate = 0.88)

Subordinate perceived leader effectiveness (T2). Perceived leader effectiveness was measured using Awamleh and Gardner’s (1999)’s three-item scale adapted from Bass and Avolio’s (1995) Multifactor Leadership Questionnaire (MLQ-5X/Short Form). The scale assessed subordinates’ perceptions of their supervisors’ effectiveness in meeting their needs and that of the organisation. A sample item is “My supervisor is effective in meeting the job-related
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needs of his/her subordinate(s)”. All items used a seven-point response format ranging from 1 (strongly disagree) to 7 (strongly agree). ($\alpha = 0.95$)

**Subordinate self-efficacy to manage work and life (T2).** Self-efficacy to manage work and life was measured using Chan et al.’s (2016) five-item scale adapted from Bandura’s (2005) “Guide for Constructing Self-Efficacy Scales”. The scale assessed the confidence level of subordinates in managing their work and non-work domains based on the centrality of efficacy beliefs in their lives. A sample item is “How confident are you in achieving your ideal work–life balance?”. All items used a scale ranging from 0 (cannot do at all) to 100 (highly certain can do). ($\alpha = 0.96$)

**Subordinate cognitive work engagement (T2).** Cognitive work engagement was measured using May et al.’s (2004) four-item cognitive work engagement scale developed based on Kahn’s (1990) three-dimensional conceptualisation of work engagement. A sample item is “Performing my job is so absorbing that I forget about everything else”. All items used a seven-point response format ranging from 1 (strongly disagree) to 7 (strongly agree). ($\alpha = 0.76$)

**Subordinate family undermining (T2).** Family undermining was measured using Westman and Vinokur’s (1998) three-item “Engaging in Social Undermining” scale which assessed subordinates’ undermining behaviours toward their family members or spouses. A sample item is “I showed dislike towards my family member/spouse”. All items used a seven-point response format ranging from 1 (strongly disagree) to 7 (strongly agree). ($\alpha = 0.95$)

**Control variables.** Several theoretically relevant control variables were considered to eliminate alternative explanations of the proposed serial mediation model. This research controlled for subordinates’ mood with a simple question “Were you in a good or bad mood while completing this survey?” to rule out the effects of emotional contagion (Hatfield et al., 1993) from supervisors to subordinates. Specifically, subordinates’ mood was assessed using a seven-point response format ranging from 1 (very bad) to 7 (very good). Second, subordinates’
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tenure with their supervisors (number of years) was controlled because it can influence
interpersonal interactions between supervisors and subordinates (Mitchell and Ambrose, 2007).
Subordinates’ frequency of meeting their supervisors (number of days per week) was assessed to
ensure that subordinates got to meet their supervisors at least one day each week. This variable
was also controlled for since the frequency of meeting supervisors can influence the
interpersonal interactions between supervisors and subordinates (Grandey et al., 2007). Lastly,
the present study also controlled for subordinates’ age (1 = 15–19 years, 2 = 20–24 years, 3 =
25–29 years, 4 = 30–34 years, 5 = 35–39 years, 6 = 40–44 years, 7 = 45–49 years, 8 = 50–54
years, 9 = 55–59 years, 10 = 60–64 years, 11 = 65–69 years, 12 = 70–74 years, 13 = 75–79 years,
14 = 80 and over years) and organisational tenure (number of years) since both variables have
been shown to influence subordinates’ work and family outcomes (Matthews et al., 2010).

Results

Analytical Procedures

Data screening was conducted using SPSS (version 22.0). Correlational analyses, confirmatory
factor analysis (CFA) and structural equation modelling (SEM) were carried out using SPSS
AMOS (version 22.0). The current research adopted Anderson and Gerbing’s (1988) two-step
procedure which first estimates the measurement model of the latent variables using CFA, then
tests the hypothesised structural model using SEM.

Correlation Analyses

Correlational analyses (refer to Table 1) provided initial support for the hypotheses. Supervisor
negative emotions were significantly and negatively correlated with subordinate perceived leader
effectiveness $r = -0.39, p = 0.001)$. Similarly, subordinate perceived leader effectiveness was
significantly and positively correlated with subordinate self-efficacy to manage work and life $(r
= 0.11, p = 0.036)$. Additionally, subordinate self-efficacy to manage work and life was
significantly and negatively correlated with subordinate family undermining $(r = -0.31, p =
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0.001). Supervisor negative emotions were significantly and positively correlated with subordinate family undermining ($r = 0.19, p = 0.001$). Contrary to expectations, subordinate self-efficacy to manage work and life was significantly but negatively correlated with subordinate cognitive work engagement ($r = -0.37, p = 0.001$). Also, supervisor negative emotions were significantly and positively correlated with subordinate cognitive work engagement ($r = 0.36, p = 0.001$). Given that the correlations were generally statistically significant and in the expected directions, both subordinate perceived leader effectiveness and self-efficacy to manage work and life are likely to mediate the hypothesised relationships between supervisor negative emotions and subordinate cognitive work engagement and family undermining. All study variables were also checked for multicollinearity using the variance inflation factor (VIF). Given that all VIF values were significantly below 2.0, multicollinearity was not an issue in this study.

----- Insert Table 1 about here -----  

Measurement Model

The standardised parameter estimates were tested for significance, with 95% confidence intervals calculated using the bias-corrected bootstrap method (5,000 re-samples) due to the presence of skewness and kurtosis in the sample (Preacher and Hayes, 2008). To determine the presence of common method variance (CMV), the common latent factor test was conducted using CFA. The test assumes that a single factor will account for all of the covariance among the variables of interest if CMV is present. As shown in Table 2, the fit statistics for the tests of the one-factor, four-factor (A) and (B), and five-factor measurement models revealed that the five-factor model was the best-fitting model, suggesting that the five scales were distinct. The chi-square difference test also revealed that the four-factor (B) measurement model and the five-factor measurement model were significantly different ($\chi^2_{\text{diff}}(4) = 36.9, p = 0.00$), even though their goodness-of-fit indices were quite similar. Also, the common latent factor test demonstrated that CMV had minimal effect on the results. Despite its significant chi-square, the five-factor
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measurement model exhibited the best fit indices ($\chi^2 = 404.82$, d.f. = 160, CFI = 0.96, TLI = 0.95, RMSEA = 0.06) with all the fit indices falling within the recommended threshold levels.

----- Insert Table 2 about here -----  

**Structural Model**

**Control Variables**

As explained above, several theoretically relevant control variables including subordinate age, organisational tenure, tenure with supervisor, frequency of meeting with supervisor, and mood while completing the survey were considered. Examination of the bivariate correlations found in Table 1 indicates that the aforementioned control variables were significantly correlated with the study variables. Therefore, this study controlled for subordinate age, organisational tenure, tenure with supervisor, frequency of meeting with supervisor, and mood while completing the survey given the correlations found in Table 1 and the theoretical rationales presented earlier.

**Hypothesis Testing**

The SEM analysis (see Tables 3 and 4) revealed that although the chi-square statistic was significant, the fit indices were satisfactory, indicating that the structural model was a good fit to the observed data. More specifically, the fit indices ($\chi^2 = 459.02$, d.f. = 166, CFI = 0.95, TLI = 0.94, RMSEA = 0.07) were within the acceptable range specified in the SEM literature.

Additionally, all the predicted paths were statistically significant (see Figure 2). To test for mediation, the current study examined the indirect effects of supervisor negative emotions on subordinate self-efficacy to manage work and life (Hypothesis 1), and subordinate perceived leader effectiveness on subordinate cognitive work engagement (Hypothesis 2) and family undermining (Hypothesis 3). Significance exists if the value of 0 falls outside the range of the confidence intervals (95%). The indirect effects of supervisor negative emotions on subordinate self-efficacy to manage work and life ($\beta = -0.04$, $SE = 0.02$, 95% CI = [–0.09; –0.01]) was significant, confirming that subordinate perceived leader effectiveness did mediate the
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relationship between supervisor negative emotions and subordinate self-efficacy to manage work and life, thus supporting Hypothesis 1. The indirect effects of subordinate perceived leader effectiveness on subordinate cognitive work engagement ($\beta = -0.03, SE = 0.02, 95\% CI = [-0.07; -0.01]$) and family undermining ($\beta = -0.04, SE = 0.02, 95\% CI = [-0.08; -0.01]$) were also significant, confirming that subordinate self-efficacy to manage work and life mediated the relationships between subordinate perceived leader effectiveness and cognitive work engagement, and subordinate perceived leader effectiveness and family undermining. However, the indirect effect of subordinate perceived leader effectiveness on subordinate cognitive work engagement was negative. Therefore, while Hypothesis 3 was supported, Hypothesis 2 was not.

Hypotheses 4 and 5 integrated Hypotheses 1–3 by predicting serial indirect effect of supervisor negative emotions on subordinate cognitive work engagement and family undermining through subordinate perceived leader effectiveness and self-efficacy to manage work and life. Contrary to expectations, the indirect effect of supervisor negative emotions on subordinate cognitive work engagement was significant but positive ($\beta = 0.01, SE = 0.008, 95\% CI = [0.001; 0.03]$), hence Hypothesis 4 was not supported. Consistent with expectations, the indirect effect of supervisor negative emotions on subordinate family undermining was positive and significant ($\beta = 0.02, SE = 0.009, 95\% CI = [0.001; 0.04]$), hence Hypothesis 5 was supported.

Based on the SEM results shown in Table 3, the specific nature of the serial mediation model was further examined. As the relationship between supervisor negative emotions and subordinate family undermining remained significant in the presence of subordinate perceived leader effectiveness and self-efficacy to manage work and life as mediators, a direct path linking supervisor negative emotions to subordinate family
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undermining was added ($\beta = 0.15$, $SE = 0.06$, $p < 0.05$). The fit indices ($\chi^2 = 450.03$, d.f. = 165, CFI = 0.95, TLI = 0.94, RMSEA = 0.07) for the mediation model which includes a direct path linking supervisor negative emotions to subordinate self-efficacy to manage work and life were also within the acceptable range specified in the SEM literature (see Figure 3 and Table 4). Further, results of the chi-square difference test suggested that the mediation model (with one path freed) did substantively improve the fit compared to the original hypothesised mediation model ($\chi^2_{\text{diff}}(1) = 8.99$, $p = 0.01$).

Discussion

The foremost aim of this study was to examine the roles of subordinate perceived leader effectiveness and self-efficacy to manage work and life as the mediating mechanism linking supervisor negative emotions to subordinate cognitive work engagement and family undermining. Test of the hypothesised direct mediation and serial mediation effects revealed that supervisor negative emotions had a positive indirect effect on subordinate cognitive work engagement and family undermining through subordinate perceived leader effectiveness and subordinate self-efficacy to manage work and life. Although the positive indirect effect of supervisor negative emotions on subordinate family undermining was within expectations, the same positive indirect effect of supervisor negative emotions on subordinate cognitive work engagement was not expected. Further, supervisor negative emotions continued to have a significant and positive direct effect on subordinate family undermining. The next section discusses the study’s findings and its theoretical and practical implications.

Theoretical Implications

This study has three important theoretical contributions. First, it examined the cross-domain resource loss and allocation processes linking supervisor negative emotions to subordinate work and family outcomes, diverging from the emotional contagion perspective that
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suggests the subordinates will unintentionally and automatically “catch” their supervisors’ negative emotions. In line with several prior studies (e.g., Chi and Ho, 2014; Lindebaum and Fielden, 2011) that have shown that a supervisor’s negative emotions may not necessarily yield negative emotions or detrimental work outcomes in his or her subordinate, the present study showed that supervisor negative emotions led to increased subordinate cognitive work engagement. Specifically, this study’s serial mediating mechanisms (i.e., supervisor negative emotions \(\rightarrow\) subordinate perceived leadership effectiveness \(\rightarrow\) subordinate self-efficacy to manage work and life \(\rightarrow\) subordinate cognitive work engagement) provided a reason as to why supervisor negative emotions were associated with higher levels of subordinate cognitive work engagement. However, this finding was contrary to Hypothesis 2 and Hypothesis 4, which could imply that the WH-R model may have important boundary conditions not explored in this study. Recent research by Du et al. (2018) has indicated that key personal traits such as emotional stability and openness can alleviate negative work-to-family spillover, hence future studies could look into similar key personal resources as potential boundary conditions to the supervisor negative emotions–subordinate cognitive work engagement relationship. Nevertheless, the subordinates’ reactions in the present study do reinforce the notion that resource loss is indeed more salient than resource gain, which is consistent with the principles and corollaries of Hobfoll’s (1989, 2002) COR theory. Specifically, subordinates re-allocated resources to prevent themselves from losing more resources and to conserve remaining resources. Having lost personal resources to deal with their supervisors’ negative emotions, subordinates in this study scaled back on resource investment in their family domain (leading to increased family undermining) and directed more resources to their work domain (leading to increased cognitive work engagement). As subordinate self-efficacy to manage work and life is one of two mediators in the hypothesised serial mediation model, the findings also emphasise the importance and interdependence of both work and family in employees’ functioning.
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In considering both subordinates’ work and family outcomes, both interpersonal and intrapersonal spillover effects from work to family were also examined. Further, as this study was not conducted in a forced setting such as a supervisor–subordinate negotiation or a team-based performance review, the research findings show that the interpersonal influence of negative emotions is also applicable to non-deliberate work settings. Showing negative emotions was enough to trigger the resource loss and allocation processes within subordinates who encountered their supervisors’ negative emotions through observation or interaction.

Importantly, because the significant direct relationship between supervisor negative emotions and subordinate cognitive work engagement became insignificant after adding the mediators, it suggests that the combined mediating mechanism of subordinate perceived leader effectiveness and self-efficacy to manage work and life is a powerful explanatory resource-based mechanism linking supervisor negative emotions and subordinate cognitive work engagement.

However, as supervisor negative emotions continued to have a significant and positive direct effect on subordinate family undermining even after subordinate perceived leader effectiveness and self-efficacy to manage work and life were added as mediators, this shows that the combined mediating mechanism is one of a few possible mechanisms linking supervisor negative emotions to subordinate family undermining.

Lastly, there were two other unexpected findings which warrant further discussion. First, while the significant indirect effect of supervisor negative emotions on subordinate cognitive work engagement through subordinate perceived leader effectiveness and self-efficacy to manage work and life was positive, the significant direct effect of subordinate self-efficacy to manage work and life on subordinate cognitive work engagement was in fact negative. This can be explained by COR theory which states that resource loss is disproportionately more salient than resource gain, and resource gain increases in salience in the context of resource loss (Hobfoll, 1989, 2002). When subordinates have self-efficacy to manage
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work and life, they are not faced with resource loss, and thus may not see the need to invest resources to gain other resources or to protect against resource loss. Second, subordinate cognitive work engagement and subordinate family undermining were significantly and positively correlated with one another. It is likely that the resources expended for cognitive work engagement depleted subordinates’ personal resources, preventing them from investing resources in the family domain such as spending quality time with their family. This is consistent with Halbesleben et al.’s (2009) study which found that work engagement led to work-to-family conflict as employees invested a large amount of resources at work and consequently experienced difficulty balancing their work and family roles.

Practical Implications

This study’s findings also have implications for employees, supervisors, and organisations. First, they highlight the need for supervisors to acquire a better understanding of the impact of their negative emotions on subordinates’ family outcomes. While supervisor negative emotions elicited more cognitive work engagement among subordinates, it also led to family undermining by the subordinates, which is detrimental to subordinates’ family life and well-being in the long term (ten Brummelhuis and Bakker, 2012). Correspondingly, even though supervisors’ felt negative emotions enhanced subordinate cognitive work engagement, it is not recommended that supervisors should display negative emotions more often to motivate their subordinates, as that may harm their subordinates’ family satisfaction and overall well-being, which in turn may have negative flow-on effects on their work domain. Indeed, toxic leadership behaviours such as deliberately showing negative emotions to influence employees have been shown to cause psychological distress, emotional harm, and physical health problems among employees (Webster et al., 2016). Also, felt and displayed emotions are often different and should be distinguished. For example, subordinates may assume that the emotions they see their supervisors display are similar to what their supervisors actually feel. However, through
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actual interactions in the organisations, certain role demands and situations may force supervisors to exhibit their true emotions, which would then reveal to their subordinates if the supervisors merely displayed or actually felt those emotions.

It is also suggested that supervisors undergo a training program with a focus on cognitive regulation which is more apposite in dealing with felt emotions. Supervisors should not ignore their negative inner experiences, thoughts, and emotions, as doing so might amplify the effects of these negative experiences (Buruck et al., 2016). Rather, supervisors are encouraged to use cognitive regulation, which involves consciously not reacting to the negative thoughts and emotions in order to take the time to process the information and decide how to respond (Szasz et al., 2011). To slow down this process, the following steps are suggested: (1) recognise and be aware of any negative thoughts and emotions, and (2) identify and label them as transient states. In doing so, supervisors adopt a detached attitude towards their negative emotions, and may turn them into positive responses (Szasz et al., 2011).

Subordinates are also encouraged to develop their self-efficacy in managing work and life. Although subordinates may experience and encounter negative attitudes and emotions from their supervisors, which may erode their self-efficacy beliefs in managing work and life, self-efficacy has also been shown to be a state that individuals can acquire and build up (Bandura, 2005). Based on this study, self-efficacy to manage work and life was negatively associated with family undermining. That is, high levels of self-efficacy to manage work and life will reduce subordinates’ tendency to direct their frustrations and uncertainties towards their family members, while low levels of self-efficacy to manage work and life will exacerbate family undermining. One source of self-efficacy is prior performance accomplishments (Bandura, 2008). To enhance self-efficacy to manage work and life, supervisors are encouraged to implement stretch goals, tailored specifically to each subordinate’s ability and work and family
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goals, to assist employees to develop the confidence in managing their work and family demands and responsibilities.

Organisations are also encouraged to incorporate coaching or mentoring into their professional development and family-friendly programs, as positive role models and proper training have been shown to enhance domain-specific self-efficacy (e.g., self-efficacy to manage work and life) through vicarious learning (Bandura, 2008). Organisations can also leverage on verbal persuasion, which refers to actions such as praising for a job well done or providing positive feedback on a specific task performed by an employee. Verbal persuasion can be used at any time (e.g., during meetings or team-building activities, or via weekly team electronic mail updates) and has been shown to make employees feel supported and motivated at work, which has positive flow-on effects on employees’ family lives (Bandura, 2008).

Methodological Strengths and Limitations

This research is not without its limitations. Although there was a time lag of two weeks between the supervisors’ and subordinates’ responses, most of the study variables were based on subordinates’ self-report data at T2, hence this study is limited in its ability to make causal conclusions. The study could also benefit from a daily diary study with a within-subject design since emotions are known to fluctuate within each day. Nevertheless, while the serial mediation analysis was only conducted across two time points, this study collected dyadic data from matched supervisor–subordinate pairs in a large organisation. Both the temporal delay and dyadic data help to minimise CMV and enhance the robustness of the results (Podsakoff et al., 2012). Additionally, the measures used in this study were established scales with questions that were simple and straightforward. This reduces ambiguity in participants’ responses, and correspondingly, also minimises CMV (Podsakoff et al., 2012).

Second, the study had a relatively small sample size, which means that the findings may have limited generalisability. Thus, future studies should include more diverse and larger
samples to assess the generalisability of this research. Third, future studies could also explore potential group-level or organisation-level moderators such as organisational culture and supervisor emotions as perceived by the team (both of which are considered macro resources in the WH-R model) since group norms and the nature of an organisation may influence individuals’ perceptions, attitudes, and behaviours (ten Brummelhuis and Bakker, 2012). As discussed earlier, this study’s counterintuitive findings also point to potential boundary conditions to the serial mediating mechanisms underpinning the supervisor negative emotions–subordinate cognitive work engagement relationship. Correspondingly, future studies may look into certain key personal resources (e.g., personality traits) that may change the nature of the hypothesised relationships. As supervisor negative emotions continued to have a direct positive effect on subordinate family undermining, future studies are also encouraged to examine other possible mediating mechanisms alongside the cognitive and affective mechanisms examined and controlled for in this study. Lastly, it is also recommended that future studies assess subordinates’ cognitive work engagement and family undermining through their supervisors, co-workers, and family members, as data from more sources would further reduce CMV.

Conclusion

To conclude, this study’s findings highlight the significance of subordinate perceived leader effectiveness and self-efficacy to manage work and life as the explanatory mechanism linking supervisor negative emotions to subordinate cognitive work engagement and family undermining. More specifically, it contributes to the WH-R model by unpacking the interpersonal and intrapersonal resource loss and allocation processes linking supervisor negative emotions to subordinate work and family outcomes. Through this study, supervisors can gain insights about the potential consequences of their negative emotions on subordinates’ work and family outcomes. Further, subordinates may also have a better understanding of their own
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agency and self-efficacy beliefs which will assist them to remain resilient in the face of negative emotions, challenges, and uncertainties from their supervisors.
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Table 1

Means, standard deviations, and correlations of study and control variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
<th>9</th>
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<td>2. Organisational tenure</td>
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<td>.66**</td>
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<td>.39**</td>
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<td></td>
<td></td>
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<td>5. Mood</td>
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<td>.17**</td>
<td>.27**</td>
<td>.11*</td>
<td>.16**</td>
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<td>6. Supervisor negative emotions</td>
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<td>.09</td>
<td>.17**</td>
<td>-.13*</td>
<td>-.08</td>
<td>.83</td>
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<td>-.03</td>
<td>.17**</td>
<td>.26***</td>
<td>-.39**</td>
<td>.95</td>
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<td>19.56</td>
<td>.15**</td>
<td>.12*</td>
<td>.09</td>
<td>.14*</td>
<td>.31***</td>
<td>-.05</td>
<td>.11*</td>
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<td>-.23**</td>
<td>-.12</td>
<td>-.08</td>
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<td>.36***</td>
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<td>-.37***</td>
<td>(.76)</td>
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<td>-.14*</td>
<td>-.18***</td>
<td>-.34***</td>
<td>.19***</td>
<td>-.08</td>
<td>-.31***</td>
<td>.61***</td>
<td>(.95)</td>
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</table>

Notes. N = 372. * p < 0.05; ** p < 0.01; *** p < 0.001. All variables, except supervisor negative emotions, were measured from the subordinate’s perspective.
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Table 2

Results of CFA model fits

<table>
<thead>
<tr>
<th>Model</th>
<th>χ²</th>
<th>d.f.</th>
<th>p-value</th>
<th>χ²/ d.f.</th>
<th>GFI</th>
<th>TLI</th>
<th>CFI</th>
<th>IFI</th>
<th>RMSEA</th>
</tr>
</thead>
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<td>One-factor</td>
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<td>0.00</td>
<td>18.97</td>
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<td>0.35</td>
<td>0.42</td>
<td>0.42</td>
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<tr>
<td>Four-factor (A)</td>
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<td>164</td>
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<td>9.79</td>
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<td>0.96</td>
<td>0.96</td>
<td>0.06</td>
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Notes. N = 372. d.f. = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker-Lewis index; CFI = comparative fit index; IFI = incremental fit index; RMSEA = root mean square error of approximation. The one-factor model has all study variables combined. The four-factor model (A) has subordinate perceived leader effectiveness and self-efficacy to manage work and life combined. The four-factor model (B) has subordinate family undermining and cognitive work engagement combined. The five-factor model has all study variables as distinct scales.
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Table 3

Structural equation modelling results

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Perceived leader effectiveness</th>
<th>Self-efficacy to manage work and life</th>
<th>Cognitive work engagement</th>
<th>Family undermining</th>
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<td></td>
<td>B</td>
<td>SE</td>
<td>B</td>
<td>SE</td>
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<td>Controls</td>
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<td>0.14*</td>
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<td>0.03</td>
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<td>Mood</td>
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<td>Antecedents</td>
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<tr>
<td>Supervisor negative emotions</td>
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<td>Perceived leader effectiveness</td>
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<td>Self-efficacy to manage work and life</td>
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Notes. N = 372. Path coefficients are standardised. * p < 0.05; ** p < 0.01; *** p < 0.001.
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Table 4

Results of theoretical model fits

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<tr>
<th>Model</th>
<th>χ²</th>
<th>d.f.</th>
<th>p-value</th>
<th>χ²/ d.f.</th>
<th>GFI</th>
<th>TLI</th>
<th>CFI</th>
<th>IFI</th>
<th>RMSEA</th>
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<tbody>
<tr>
<td>Hypothesised Mediation Model</td>
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<td>0.00</td>
<td>2.77</td>
<td>0.89</td>
<td>0.94</td>
<td>0.95</td>
<td>0.95</td>
<td>0.07</td>
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<tr>
<td>Mediation Model (with one path freed)</td>
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<td>0.00</td>
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<td>0.89</td>
<td>0.94</td>
<td>0.95</td>
<td>0.95</td>
<td>0.07</td>
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</table>

Notes. N = 372. d.f. = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker-Lewis index; CFI = comparative fit index; IFI = incremental fit index; RMSEA = root mean square error of approximation.
SUPERVISOR NEGATIVE EMOTIONS AND SUBORDINATE OUTCOMES

Figure 1. Hypothesised serial mediation model linking supervisor negative emotions to subordinate cognitive work engagement and family undermining.

Cognitive work engagement (T2) +

Self-efficacy to manage work and life (T2) +

Family undermining (T2) −

Perceived leader effectiveness (T2) +

Supervisor negative emotions (T1) −
SUPERVISOR NEGATIVE EMOTIONS AND SUBORDINATE OUTCOMES

Figure 2. Hypothesised mediation model.

Notes. N = 372. Path coefficients are standardised. * p < 0.05; ** p < 0.01; *** p < 0.001.
SUPERVISOR NEGATIVE EMOTIONS AND SUBORDINATE OUTCOMES

![Diagram showing the mediation model](image)

Figure 3. Mediation model (with one path freed).

Notes. \( N = 372 \). **Path coefficients are standardised.** * \( p < 0.05 \); ** \( p < 0.01 \); *** \( p < 0.001 \).