



Self-efficacy and work engagement: Test of a chain model

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Abstract

Purpose – This study investigates the mediating roles of work and family demands and work–life balance on the relationship between self-efficacy (to regulate work and life) and work engagement. Specifically, it seeks to explain how self-efficacy influences employees’ thought patterns and emotional reactions, which in turn enable them to cope with work and family demands, and ultimately achieve work–life balance and work engagement.

Design/methodology/approach – Structural equation modelling (SEM) of survey data obtained from a heterogeneous sample of 1,010 Australian employees is used to test the hypothesised chain mediation model.

Findings – The SEM results support the hypothesised model. Self-efficacy was significantly and negatively related to work and family demands, which in turn were negatively associated with work–life balance. Work–life balance, in turn, enabled employees to be engaged in their work.

Research limitations/implications – The findings support the key tenets of social cognitive theory and conservation of resources (COR) theory and demonstrate how self-efficacy can lead to work–life balance and engagement despite the presence of role demands. Study limitations (e.g., cross-sectional research design) and future research directions are discussed.

Originality/value – This study incorporates COR theory with social cognitive theory to improve understanding of how self-efficacy enhances work–life balance and work engagement through a self-fulfilling cycle in which employees achieve what they believe they can accomplish, and in the process, build other skills and personal resources to manage work and family challenges.

Keywords – Self-efficacy, Role demands, Work–life balance, Work engagement

Paper type – Research paper

1. Introduction

The current research is built on concepts of positive psychology in the workplace to investigate factors that enable employees to flourish at work. Specifically, it focuses on work engagement, which has been associated with various workplace indicators such as job satisfaction, involvement, reduced burnout (Bakker *et al.*, 2008) and job performance (Xanthopoulou *et al.*, 2009). Defined as ‘a positive, fulfilling, work-related state of mind’ (Schaufeli *et al.*, 2002, p. 74), work engagement has also emerged as an influential variable in determining organisational success—not only does it influence employee satisfaction, loyalty and productivity, it also predicts customer satisfaction, firm reputation and overall stakeholder value (Demerouti and Cropanzano, 2010). However, research on work engagement remains nascent. While numerous scholars have examined the construct along with work-related antecedents and outcomes (e.g., Christian *et al.*, 2011), few have investigated the relationships among work engagement, work–family constructs and psychosocial resources. Thus, the purpose of the current research is to provide greater understanding of the relationships among self-efficacy (psychosocial resource), work and family demands and work–life balance (work–family constructs), and work engagement.

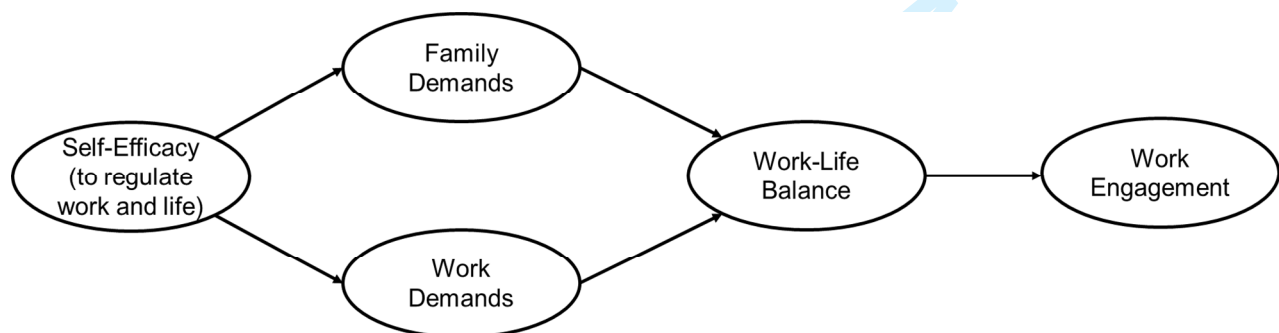


Figure 1. Hypothesised chain mediation model

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3 Work engagement is important to work–family research because it is a psychological
4 process that assesses the quality of participation in role activities (Macey *et al.*, 2009). Scholars
5 have proposed that the underlying work–family linkage mechanisms can lead to stress and
6 pressure, especially when demands in both roles are incompatible (Greenhaus and Beutell, 1985).
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8 However, other scholars (e.g., Greenhaus and Powell, 2006) have argued that participation in
9 work and family roles may also bring about advantages, as one role may provide resources from
10 which the other role benefits. In this study, the positive aspect of work–life balance is considered
11 to acknowledge that multiple life roles may also enhance health, wellbeing and performance
12 across various life domains (Greenhaus and Powell, 2006), thereby contributing to improved
13 work engagement.
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27 Work–life balance and work engagement are examined along with two antecedents: self-
28 efficacy and role demands. Role demands are well-documented sources of pressure experienced
29 by employees when they seek to maintain a balance between their work and non-work
30 responsibilities (Voydanoff, 2004). While studies such as that by Greenhaus and Beutell (1985)
31 have previously assumed that demand is a negative experience highly predictive of work–family
32 conflict, individuals may also perceive demand as a neutral or positive experience. Boyar *et al.*
33 (2007) suggested that individuals may be indifferent towards, or receptive of, role demands
34 because they perceive them to be part of their work and family roles. Although demands in one
35 domain may prevent employees from meeting the demands of the other—resulting in work–
36 family conflict—the work–family interface does not exist until one domain begins to affect the
37 other (Edwards and Rothbard, 2005). That is, role demands do not always lead to work–family
38 conflict.
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3 Drawing on Bandura's (1986) social cognitive theory and Hobfoll's (1989) conservation
4 of resources (COR) theory, it is proposed that building psychosocial resources (e.g., self-efficacy)
5 creates a resource reserve that influences employees' perceptions and interpretations of their
6 work and family demands, which in turn assist them to cope with their role demands. Employees
7 often have to cope with multiple demands arising from their careers, social relationships, marital
8 partnerships and parenthood; a strong sense of self-efficacy can contribute to the attainment of
9 balance among various demands. Moreover, self-efficacy is indicative of a person's motivation
10 and willingness to expend effort consistent with their ability (Bandura, 1986). However, while
11 scholars have established that self-efficacy induces a range of positive outcomes (e.g., increased
12 job performance, goal orientation and work engagement), limited research has focused on the
13 psycho-cognitive mechanisms underpinning these relationships. Hence, the current study
14 investigates a chain mediation model to understand how self-efficacy leads to work-life balance
15 and work engagement despite the existence of role demands (see Figure 1).
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34 The present study has both theoretical and practical importance. Social cognitive theory
35 is used to explain how self-efficacy influences employees' thought patterns and emotional
36 reactions when they are dealing with work and family demands. In addition, COR theory is
37 incorporated to show how self-efficacy enhances work-life balance and work engagement,
38 through a self-fulfilling cycle in which employees achieve what they believe they can
39 accomplish, and in the process, build other skills and personal resources to manage their work
40 and family challenges. The resulting positive emotions (e.g., pride, contentment and interest) and
41 experiences (e.g., job promotion, increased job performance and positive relationships) have
42 long-term benefits because they assist individuals to build other physical, intellectual, social and
43 psychological resources, which ultimately increase their overall wellbeing. Finally, role demands
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3 and work–life balance are examined from a more subjective and perceptual lens. In doing so,
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5 cultural differences and perceptions of work–life balance are acknowledged, as individuals tend
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8 to view work and family differently based on their cultural traditions, family structures and
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10 societal institutions (Hassan *et al.*, 2010). A better understanding of how self-efficacy enhances
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12 employees’ work–life balance and work engagement is also provided, thereby bridging the
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14 discrepancy between practitioners’ interest in work engagement and academic research on the
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16 same topic.
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22 **2. Theoretical foundations and development of hypotheses**

23 *2.1 Conservation of resources (COR) theory*

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25 Resources refer to objects, states, conditions, personal characteristics, energies and other things
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27 that are valued by individuals or act as a means for them to obtain valued objectives (Hobfoll,
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29 1989). The value placed on resources differs among individuals and is highly influenced by their
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31 personal experiences and circumstances (Hobfoll, 2001). Based on the assumption that
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33 employees have limited time, energy and other resources, COR theory proposes that individuals:
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35 (1) generally seek to accumulate and protect resources to cope with challenges and prevent
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37 themselves from facing negative consequences; and (2) invest the resources they have to build
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39 further resources (Hobfoll, 2001). Specifically, individuals tend to invest their extra resources in
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41 positive endeavours, which enhance overall wellbeing, and ultimately result in resource
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43 accumulation (Hobfoll, 2001).
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50 *2.2 Self-efficacy and work–life balance*

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3 COR theory emphasises the roles of psychological resources (e.g., self-efficacy) and resources
4 related to survival (e.g., health) as being crucial to overall resource management and
5 maintenance, and suggests that individuals tend to acquire such primary resources instinctively
6 (Hobfoll, 2001). Employees who are self-efficacious are better positioned to gain resources,
7 while those with low self-efficacy are more likely to experience resource losses (Hobfoll, 2001).
8 Self-efficacy can facilitate the building of other resources, and the lack thereof can deplete the
9 existing pool of resources as individuals dwell on their personal failures and deficiencies. This is
10 consistent with the findings of a number of studies (e.g., Demerouti *et al.*, 2004; Xanthopoulou *et*
11 *al.*, 2009) that initial resource gains tend to lead to future resource gains, while initial resource
12 losses tend to lead to future resource losses.

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27 The current research considers self-efficacy in the context of employees' work and non-
28 work experiences (self-efficacy to regulate work and life), and defines the construct as 'the belief
29 that one has in one's own ability to achieve a balance between work and non-work
30 responsibilities, and to persist and cope with challenges posed by work and non-work demands'
31 (Chan *et al.*, 2015, p. 4). Work-life balance is defined as 'the individual perception that work
32 and non-work activities are compatible and promote growth in accordance with an individual's
33 current life priorities' (Kalliath and Brough, 2008, p. 326). This definition emphasises the
34 management of expectations and subjective perceptions of balance, and recognises that these
35 perceptions may evolve over time in response to changing life priorities. Self-efficacy (to
36 regulate work and life) is examined as an antecedent of work-life balance because the construct
37 not only affects how people feel and act, but also how they perceive situational characteristics
38 such as work and family demands (Bandura, 1986). Coupled with past successful experiences,
39 the psychosocial resource has been found to nurture other important personal resources such as
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3 self-confidence, self-esteem and self-control (Bandura, 1986). Correspondingly, self-efficacious
4 employees are able to exercise personal control over their own functioning and persevere
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6 through obstacles to achieve work–life balance, yielding hypothesis 1:
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10 *H1.* Self-efficacy (to regulate work and life) will be positively related to work–life
11 balance.
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14 15 16 17 18 *2.3 Mediating roles of work and family demands*

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20 Employees' feelings and attitudes towards both their work and family demands are crucial in
21 determining their life outcomes. Demand is defined as a perception of the level and intensity of
22 responsibilities within the work and family domains (Boyar *et al.*, 2007). Specifically, work
23 demand refers to the perception of demand levels in the work domain, and family demand refers
24 to the perception of demand levels in the family domain (Boyar *et al.*, 2007). Work demand has
25 been found to be crucial to men's wellbeing, while family demand is considered to be a primary
26 determinant of women's wellbeing (Michel *et al.*, 2011). However, recent scholarship suggests
27 the converging roles of men and women, which means that stressors that influence their
28 wellbeing are overlapping, and their respective role demands are becoming more similar (Michel
29 *et al.*, 2011). Consequently, it is proposed that both work and family demands affect the
30 wellbeing of men and women to the same extent. This is in line with a shift from gender-based
31 role differentiation to gender equality in modern society.
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48 There is emerging consensus that job demands effect a mix of positive and negative
49 outcomes (Boyar *et al.*, 2007). In particular, Van den Broeck *et al.* (2010) distinguished between
50 two types of job demands—job challenges and hindrances. They argued that when confronted
51 with certain job demands, employees may feel a lack of control and experience negative
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3 emotions, both of which interfere with employees' overall wellbeing and hinder their job
4 performance (Nahrgang *et al.*, 2011). These job demands are referred to as job hindrances. On
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8 the other hand, job challenges are demands that may deplete resources, but have the potential to
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10 enable individuals to secure more rewards and gains at the same time. Gains subsequently enable
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12 individuals to replenish depleted resources, buffering the negative effects of potentially
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14 demanding roles or tasks, and providing individuals with opportunities for personal growth
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17 (Nahrgang *et al.*, 2011). Job challenges are considered positive motivational forces that tend to
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19 elicit problem-focused coping and involvement, while job hindrances tend to trigger avoidance
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21 and job withdrawal (Van den Broeck *et al.*, 2010). Job challenges can lead to job satisfaction
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23 which has the potential to spill over to employees' other life domains, while job hindrances
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25 disturb employees' work–life balance by eliciting negative emotions (Van den Broeck *et al.*,
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27 2010). As self-efficacious employees tend to view role demands as neutral or positive
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29 experiences, they are better positioned to achieve work–life balance. Hence, hypothesis 2 is
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31 proposed:
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37 *H2.* The relationship between self-efficacy (to regulate work and life) and work–life
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39 balance will be mediated by work and family demands.
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43 *2.4 Work demand, family demand, and work engagement*

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46 Work engagement is characterised by vigour, dedication and absorption (Schaufeli *et al.*, 2002, p.
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48 74). Vigour refers to high levels of energy and mental resilience while working, willingness to
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50 invest effort in one's work and persistence in the face of difficulties; dedication refers to being
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52 highly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration,
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54 pride and challenge; and absorption refers to fully concentrating and being happily engrossed in
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3 one's work, such that time passes quickly and one has difficulty detaching oneself from work
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5 (Schaufeli *et al.*, 2002). Research on the consequences of work engagement has shown that it has
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7 several positive work outcomes including high job satisfaction, organisational commitment and
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9 job performance, and low absenteeism and turnover (Bakker *et al.*, 2008). Xanthopoulou *et al.*
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11 (2009) also found that engaged employees tend to score higher on extra-role performance and are
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13 more willing to help others, exhibiting higher levels of pro-social work behaviour.
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15 Understanding the antecedents and implications of work engagement is thus important for
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17 organisations because a disengaged workforce can be costly.
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23 Despite the centrality of work in people's lives, both work and non-work factors have
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25 been found to have an impact on work engagement. Several empirical studies (e.g., Schaufeli *et*
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27 *al.*, 2009) have shown that work demand predicts work engagement. However, the specific
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29 nature of the association between work demand and work engagement is not clear. Depending on
30
31 the nature of the demands (i.e., challenges or hindrances), work demand can be positively or
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33 negatively associated with work engagement both concurrently and over time. Some studies (e.g.,
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35 Bakker *et al.*, 2008) concluded that work demand has no effect on work engagement, while
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37 others (e.g., Schaufeli *et al.*, 2009) found a linear relationship between work demand and work
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39 engagement. In another study (Sawang, 2012), a quadratic relationship between work demand
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41 and work engagement was found. This implied that work must be demanding enough, but not
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43 excessive, to engage employees, otherwise they will become bored, disengaged or exhausted (see
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45 also Timms *et al.*, 2012).
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51 Family demand is also included as an antecedent to work engagement because employees
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53 tend to bring their 'whole selves' to work, such that what happens after work is just as important
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55 as what happens in the workplace (Michel *et al.*, 2011). Although it is generally assumed that
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3 married employees are likely to have more family demands than single employees, research has
4 also found that a spouse can be a source of support for the employee. Many studies have
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8 conceptualised demands using objective measures such as number of hours worked, number of
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10 dependents and marital status (Brough and Kelling, 2002). However, perceptions have been
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12 found to mediate the effects of objective measures on outcomes (Edwards and Rothbard, 2005);
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14 hence the current research focuses on perceptions rather than objective measures of demands.
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18 As a proximal determinant of human motivation, affect and behaviour that operates
19 through the exercise of personal agency, self-efficacy has a range of positive outcomes by
20 assisting individuals to obtain their goals (Bandura, 1986). Importantly, self-efficacious
21 employees are able to take advantage of opportunities at work and overcome challenges because
22 they are driven by tenacity, determination and a belief in future success (Bresó *et al.*, 2011).
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24 Recent research on self-efficacy has also suggested that self-efficacy predicts anticipated work–
25 family conflict (Michel *et al.*, 2011). This notion is supported by Bandura (1986), who posited
26 that an individual’s level of self-efficacy can mitigate strain by reducing perceptions of and
27 reactions to stressors. Depending on their own preferences and sense of self-efficacy, some
28 employees may view the demands stemming from their work and family domains as integral to
29 their personal identity (Boyar *et al.*, 2007). Both work and family demands are also capable of
30 contributing to work engagement through mastery (successful response to challenges), which is
31 central to the development of self-efficacy (Bandura, 1986). Further, based on COR theory, self-
32 efficacious employees are less vulnerable to resource losses and more capable of gaining
33 resources. Therefore, when employees are confronted with role demands, it is hypothesised that
34 some are able to overcome them to achieve work engagement, yielding hypotheses 3a and 3b:
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H3a. Depending on how the employee views work demand (i.e., challenge or hindrance), work demand will be positively or negatively related to work engagement.

H3b. Depending on how the employee views family demand (i.e., challenge or hindrance), family demand will be positively or negatively related to work engagement.

2.5 Mediating role of work–life balance

The relationship between work–life balance and work outcomes has rarely been subjected to rigorous theory development or testing (Eby *et al.*, 2005). The current theoretical model is based on the argument that whether work and non-work demands are positive (challenges) or negative (hindrances) for employees' work–life balance, an employee is capable of achieving work–life balance through self-efficacy beliefs. Self-efficacy can also buffer the negative effects of stressors on individuals, as self-efficacious individuals have been shown to perceive demands as opportunities for further skills development and challenges to overcome (Grau *et al.*, 2001). In choosing to examine work–life balance as one of two mediators linking self-efficacy to work engagement, the current research draws attention to a much broader concept involving not just married employees, employees with children, or working mothers, but working individuals in general, whether or not they are married or have familial obligations. Correspondingly, a chain of 'gains' from self-efficacy to work engagement through work and family demands and work–life balance is proposed, yielding hypothesis 4:

H4. The relationship between work and family demands and work engagement will be mediated by work–life balance.

3. Method

3.1 Participants and procedure

Self-reported data were collected using an online survey sent to employees from a university, two public sector organisations and one private sector organisation in Australia. Respondents had a diverse range of occupations in areas such as education, health, policy, finance, accounting and administrative support; from entry-level to experienced employees, which enhanced the ability of this study to be representative of the general workforce. The link to the survey was provided using electronic mail to the human resources (HR) leads in each organisation, who subsequently distributed the link to all employees via electronic mail. To reduce non-response bias, electronic mail was sent twice to the HR leads to remind participants to complete the questionnaire. Reminder electronic mails were also sent one week before the survey closing date.

Two organisations had particularly low response rates (11.3% and 13.5%) as they were undergoing structural changes. The exact response rates for the remaining two organisations could not be determined as the HR leads only provided rough estimates (25.0% and 45.0%) without indicating the number of employees who were invited to participate in the survey. The final sample ($n = 1,010$) consisted of 36.1% males ($n = 365$) and 62.9% females ($n = 635$). Their ages ranged from 17 to 71 years, and showed a slight negative skew, with an average age of 41.1 years ($SD = 11.1$ years). The majority (70.9%, $n = 716$) of respondents were married or cohabiting, while 19.6% ($n = 198$) were single or had never married, and the remaining 8.2% ($n = 83$) were divorced, separated or widowed. The average tenure at current company was 8.1 years ($SD = 7.9$ years), and approximately 66.6% ($n = 673$) of respondents had either a university or postgraduate qualification. The respondents spent an average of 39.2 hours ($SD = 10.6$ hours) working per week.

[Insert Table I]

3.2 Measures

Self-efficacy to regulate work and life. Self-efficacy to regulate work and life was measured using a newly validated five-item scale (Chan *et al.*, 2015). The scale sought to assess the confidence level of respondents in regulating 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?’ Each item had a scale ranging from 0 = cannot do at all to 100 = highly certain can do, and higher scores meant that employees were more likely to believe in their own ability to cope with work–life challenges. Cronbach’s alpha for this scale was 0.96.

Work demand. Work demand was measured using Boyar *et al.*’s (2007) five-item measure of job demands. A sample item is ‘My work demands a lot from me’. Respondents indicated their agreement with each item on a five-point scale ranging from 1 = strongly disagree to 5 = strongly agree, with higher scores representing higher levels of work demand. Cronbach’s alpha for this scale was 0.91.

Family demand. Family demand was measured using Boyar *et al.*’s (2007) four-item measure of family demands. A sample item is ‘I have to work hard on family-related activities’. Respondents indicated their agreement with each item on a five-point scale ranging from 1 = strongly disagree to 5 = strongly agree, with higher scores representing higher levels of family demands. Cronbach’s alpha for this scale was 0.86.

Work–life balance. Work–life balance was measured using Brough *et al.*’s (2014) four-item scale. Employees were asked to respond to the items by reflecting on their work and non-work activities. Their responses were indicated on a five-point scale ranging from 1 = strongly disagree to 5 = strongly agree, with higher scores representing better perceptions of work–life

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3 balance. A sample item is 'I currently have a good balance between the time I spend at work and
4 the time I have available for non-work activities'. Cronbach's alpha for this scale was 0.94.
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8 *Work engagement.* Work engagement was measured using the shortened nine-item
9 Utrecht Work Engagement Scale developed by Schaufeli *et al.* (2006), which has proven to be
10 relatively stable across time, internally consistent and cross-nationally valid in multiple studies.
11 The scale was developed based on three aspects of work engagement: vigour, dedication and
12 absorption. Ratings were completed on a seven-point scale ranging from 0 = never to 6 = always.
13 A sample item from the 'vigour' subscale is 'At my work, I feel bursting with energy'. A sample
14 item from the 'dedication' subscale is 'My job inspires me'. Lastly, a sample item from the
15 'absorption' subscale is 'I am immersed in my work'. Cronbach's alpha for this scale was 0.92.
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27 *Control variables.* Researchers have consistently defined and conceptualised both work
28 and family demands to include variables such as number of hours worked, schedule, marital
29 status, family work hours, number of children at home and number of dependents at home.
30 Therefore, to limit the risk of spurious effects on the study variables, we controlled for gender (0
31 = male, 1 = female), marital status (0 = single or never married, 1 = divorced or separated, 2 =
32 married or cohabiting), age, number of hours worked per week, tenure at current company and
33 education level (1 = secondary level, 2 = vocational education and training or diploma level, 3 =
34 college or university level, 4 = postgraduate level).
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48 *3.3 Data screening*

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50 Data screening was conducted using SPSS (version 22.0). A missing completely at random
51 (MCAR) test resulted in a chi-square value of 544.98 (df = 501; $p < 0.09$), which indicated that
52 the data were indeed MCAR. Of the 1,134 responses gathered, 53 cases (4.7% of the sample)
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3 were deleted using list-wise deletion because of the presence of multiple missing values. The
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5 data were subsequently screened for univariate and multivariate outliers. There were 12
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7 univariate outliers, and the test for multivariate outliers using Mahalanobis distance indicated
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9 that there were 59 multivariate outliers. Hence, 71 cases were excluded because they were found
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11 to significantly reduce the multivariate normality and overall fit of the hypothesised model. This
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13 yielded a final sample size of 1,010 survey participants.
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20 *3.4 Analyses*

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22 Sample group analysis, confirmatory factor analysis (CFA), correlation analysis and structural
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24 equation modelling (SEM) were conducted using SPSS (version 22.0) and AMOS (version 22.0).
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26 SEM was performed to determine whether the hypothesised mediation model was consistent
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28 with the data collected. The consistency was evaluated through model-data fit, which indicated
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30 the extent to which the hypothesised relationships among the constructs were plausible. Along
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32 with the chi-square statistic, the following fit indices are reported: standardised root mean square
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34 residual (SRMR), goodness-of-fit index (GFI), Tucker–Lewis index (TLI), comparative fit index
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36 (CFI), parsimony comparative fit index (PCFI) and root mean square error of approximation
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38 (RMSEA). Values for the GFI, TLI, CFI and PCFI are between 0 and 1, with values closer to 1
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40 representing a better-fitting model. A value of 0.05 or less for SRMR and a value of 0.08 or less
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42 for RMSEA are also indicative of a good-fitting model.
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50 **4. Results**

51 *4.1 Sample group analysis*

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3 The four samples were tested for differences via the mean scores of the research variables. One-
4 way ANOVA was conducted with organisation as the independent variable and the five
5 constructs (self-efficacy, work demand, family demand, work–life balance and work engagement)
6 as dependent variables. The one-way ANOVA F-test statistic was significant for self-efficacy (p
7 < 0.04), but was not significant for work demand ($p < 0.18$), family demand ($p < 0.14$), work–life
8 balance ($p < 0.13$) or work engagement ($p < 0.29$). These results indicate that the mean scores for
9 the criterion variables of the chain mediation model did not differ significantly across the four
10 organisations. Thus, the four samples were combined to form a single, heterogeneous, diverse
11 sample.
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27 *4.2 Measurement model*

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29 Based on the two-step procedure proposed by Anderson and Gerbing (1988), a measurement
30 model of the latent variables was first estimated using CFA, followed by a test of the
31 hypothesised structural model using SEM. The standardised parameter estimates were tested for
32 significance, with 95% confidence intervals calculated using the bias-corrected bootstrap method
33 (5,000 re-samples) due to the presence of skewness and kurtosis in the sample. To determine the
34 presence of common method variance (CMV), the common latent factor test was conducted
35 using CFA. The test assumes that a single factor will account for all of the covariance among the
36 variables of interest if CMV is present (Podsakoff and Organ, 1986). As shown in Table II, the
37 fit statistics for the tests of the one-, four- and five-factor measurement models revealed that the
38 five-factor model was the best-fitting model, suggesting that the five scales were distinct. Also,
39 the common latent factor test demonstrated that CMV had minimal effect on the results.
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55 [Insert Table II]
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4.3 Correlational analyses

The correlational analyses (see Table III) provided initial support for all hypotheses except *H3b*. Self-efficacy was positively and significantly correlated with work–life balance ($r = 0.65, p < 0.001$), and work demand was positively and significantly correlated with work engagement ($r = .11, p < 0.01$). Family demand, however, was not significantly correlated with work engagement ($r = -0.06, p > 0.05$). Additionally, self-efficacy to regulate work and life was significantly and negatively correlated with both work demand ($r = -0.34, p < 0.001$) and family demand ($r = -0.17, p < 0.001$). Similarly, both work demand ($r = -0.45, p < 0.001$) and family demand ($r = -0.17, p < 0.001$) were significantly and negatively correlated with work–life balance. Work–life balance, in turn, was significantly and positively correlated with work engagement ($r = 0.23, p < 0.001$). The correlations among the constructs indicated that work demand and work–life balance are likely to fully mediate the hypothesised relationship between self-efficacy and work engagement.

[Insert Table III]

Several significant relationships were observed between the control variables and the predictor and outcome variables of self-efficacy and work engagement. Specifically, age, tenure, education level and the number of hours worked per week were found to be significantly correlated with the two variables. To minimise and control for the spurious effects of the control variables on the study variables, all four control variables were included in the test of the hypothesised structural model but were shown to have no significant effect on any of the study variables.

4.4 Structural model

After evaluating the measurement models, the second stage involved testing the relationships among the latent factors. The SEM analysis revealed that the chi-square statistic was significant and the fit indices were satisfactory, indicating that the structural model was a good fit to the observed data. Moreover, the fit indices all fell within the acceptable range as specified in the SEM literature. Additionally, all predicted paths were statistically significant (see Table IV and Figure 2). A closer look at the path estimates of the full mediation model revealed that work and family demands fully mediated the relationship between self-efficacy and work–life balance. Work–life balance also fully mediated the relationship between work and family demands and work engagement. These results provide strong support for the hypotheses presented earlier.

[Insert Table IV]

4.5 Full mediation and partial mediation models

The specific nature of the hypothesised chain mediation model was further examined. Specifically, the significant direct effects of self-efficacy on work engagement became non-significant after including both work and family demands and work–life balance as mediators. This finding lent more support to the full mediation model. However, the direct effect of family demand on work–life balance also became non-significant ($r = -0.05$, $p > 0.05$) after a direct path was included between self-efficacy and work–life balance, thereby yielding a partial mediation model (see Figure 3). As shown in Table IV, the fit indices of the partial mediation model were also slightly better than those for the full mediation model.

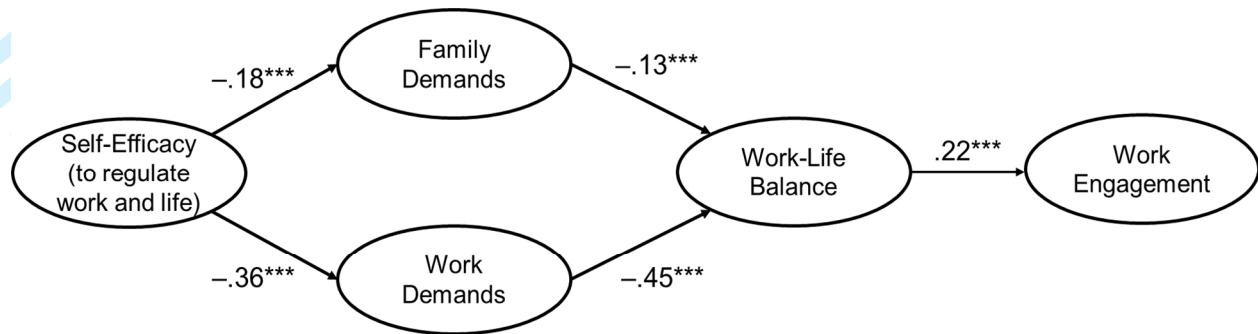


Figure 2. Structural model (Full mediation)

Note: Values represent standardised regression weights; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

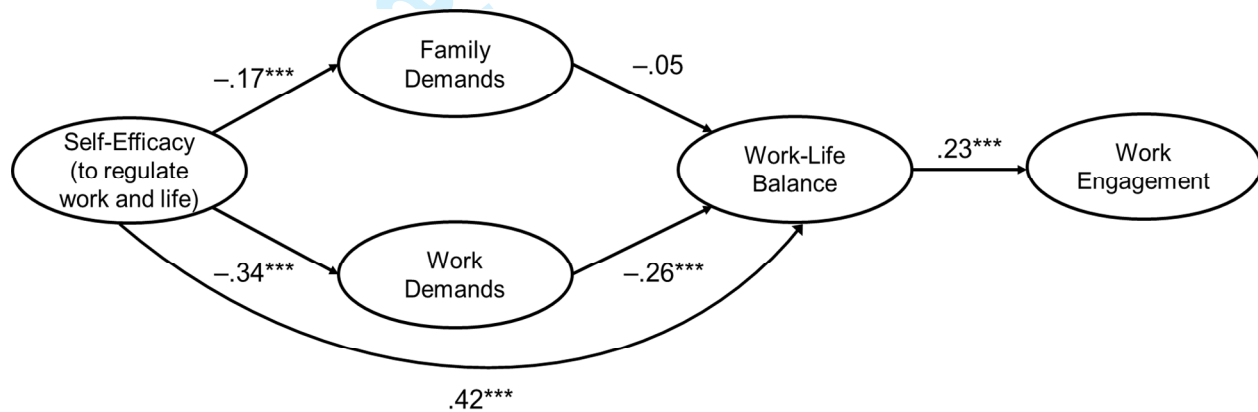


Figure 3. Structural model (Partial mediation)

Note: Values represent standardised regression weights; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Discussion

The primary aim of this research was to investigate the roles of self-efficacy and work-life balance in assisting employees to overcome work and family demands, to achieve work engagement. The hypothesised chain mediation model was based on social cognitive theory and COR theory. However, while full mediation was supported, the relationship between family demand and work engagement became insignificant when a path linking self-efficacy to work-

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3 life balance was included. The findings indicate two possibilities: (1) work and family demands
4 account for some, but not all, of the relationship between self-efficacy and work–life balance; or
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8 (2) as explained in a number of prior studies (e.g., Kossek *et al.*, 2011), work remains central in
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10 people’s lives such that family demand has a comparatively weaker influence on work–life
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12 balance than work demand. In prioritising work responsibilities, employees may sacrifice their
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14 family and personal roles in the process (Kossek *et al.*, 2011). The findings could also indicate
15
16 that employees are less likely to be affected by demands stemming from the family domain,
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18 which further emphasises the need to look beyond objective measures of work–life balance, as
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20 employees are unlikely to view both domains equally in the first place.
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27 *5.1 Theoretical implications*

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29 The current research findings are consistent with those of previous research and empirical studies
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31 based on social cognitive theory and COR theory in showing that self-efficacious employees
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33 seek to obtain, retain and protect resources in order to manage their role demands and attain
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35 wellbeing. In this study, psychosocial and cognitive wellbeing was operationalised through
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37 work–life balance and work engagement. Self-efficacious employees are able to obtain their
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39 goals, as previous successful experiences have increased their resource pools, enabling them to
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41 acquire other resources (Hobfoll, 2001). This generates gain spirals, as the positive emotions,
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43 energy, experiences and other outcomes associated with the enlarged resource pool in turn
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45 provide other resources that increase future levels of self-efficacy (Schaufeli *et al.*, 2009). A
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47 potential area for further investigation is the feedback path linking work engagement or work–
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49 life balance to self-efficacy; experiencing work engagement or achieving a sense of balance may
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51 become another resource into which employees can tap to build further resources.
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The current study also emphasised the importance of self-efficacy as a vital personal resource for employees seeking to manage work and family demands to achieve a sense of work–life balance and, consequently, work engagement. Self-efficacy equips employees with the ability and confidence to ‘affect, shape, curtail, expand, and temper what happens in their lives’ (Grant and Ashford, 2008, p. 3). Importantly, the present study found that self-efficacy serves as a powerful resource that influences employees’ perceptions and interpretations of work and family demands. Self-efficacy is founded on Bandura’s (1986) triadic reciprocal determinism model, which suggests an interplay of environmental, personal and cognitive factors in affecting outcomes. Hence, it is proposed that future research should examine other relevant social and environmental factors (e.g., organisational culture and family-friendly policies) that have the potential to influence individuals’ perceptions of work and family demands, work–life balance, and work engagement. Incorporating these constructs and other outcomes (e.g., family functioning) could increase the robustness of the chain mediation model and enrich the literature on self-efficacy, role demands, balance and engagement.

Work–life balance was also examined in a conceptual framework that specifies its relationships with antecedents (self-efficacy and role demands) and outcomes (work engagement), thereby contributing to the further expansion of the construct’s nomological network. Although researchers have studied concepts such as work–family conflict and work–family enrichment extensively, few studies have specifically examined work–life balance as a distinct construct (Kalliath and Brough, 2008). In contrast to previous studies that primarily drew on role strain theory to conceptualise work–life balance, COR theory was used to highlight the fact that each employee has a finite amount of resources with which to manage their role

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3 demands, and any subsequent gain or depletion of resources will have a direct impact on work–
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5 life balance.
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8 Building on Christian *et al.*'s (2011) seminal work on engagement, the relationships
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10 between work engagement and work–life balance, role demands and self-efficacy were explored,
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12 thereby contributing to the ongoing incremental refinements to existing models and measures of
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14 work engagement. Although Schaufeli *et al.*'s (2002) definition and measure of work
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16 engagement remain widely used and accepted in academia, Albrecht (2012) pointed out that
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18 there may be other dimensions of engagement that have been left out by Schaufeli *et al.*'s (2002)
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20 conceptualisation. For instance, Macey *et al.* (2009) argued in support of a definition of
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22 engagement that encompasses organisational goal alignment. Another broader issue is the divide
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24 between academia and practice. Macey *et al.* (2009) indicated that research on and the practice
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26 of engagement are progressing along different paths due to the lack of psychometric evidence of
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28 engagement measures in academia, and the lack of peer-reviewed analysis of engagement
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30 measures in the practitioner domain. Evidently, these are future areas of research to be explored
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32 when advancing the discourse on work engagement.
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39 Finally, although only partial support was demonstrated for the mediating effects of
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41 family demand on the efficacy–balance relationship, there are many compelling reasons to
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43 believe that family demand is as important as work demand when studying the work–family
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45 interface and work outcomes. Family-related constructs and concepts remain neglected in the
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47 work–family literature, and recent studies (e.g., O'Neill *et al.*, 2009) have shown that employees'
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49 and leaders' workplace behaviours are influenced by family matters and organisational factors,
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51 as well as individual traits and competencies.
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5.2 Practical implications

These findings have potential implications for practice, particularly for HR management in organisations. Macey *et al.* (2009) remarked that ‘rarely has a term resonated as strongly with business executives as employee engagement has in recent years’ (p. xv). Indeed, work engagement remains a hot topic within both the academic and practitioner domains (Albrecht, 2012). This has led to the development of interventions that seek to enhance employees’ self-efficacy and work engagement. Despite the benefits of such interventions, Ouweneel *et al.* (2013) indicated that they are only implemented when organisations encounter problems. Following Ouweneel *et al.*’s (2013) recommendations, managers and HR practitioners could implement positive psychology interventions that seek to enhance employees’ self-efficacy on a regular basis. In fact, Ouweneel *et al.* (2013) developed a web-based training program with goal-setting and resource-building tools that seek to foster positive emotions, self-efficacy and coping abilities in employees, which together, further enhance employees’ work engagement over time.

Employees who experience positive emotions and work engagement have also been found to view their employers as being more supportive of work–family integration (Dunn and O’Brien, 2013). Importantly, having work–life balance and healthy family relationships can assist employees in fulfilling their work roles and responsibilities. Organisations could thus seek to strengthen employees’ competency in managing multiple role demands by implementing stress management programs and family-friendly policies, to make work and family demands more compatible. Stress management programs teach employees about the nature and sources of stress, the effects of stress on health, and personal resources and skills to cope with and reduce stress. Family-friendly workplace policies ensure that employees can opt for flexible arrangements around their work and families when fulfilling their role responsibilities. In

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3 addition to organisation-level interventions, managers and HR practitioners could provide
4 training to supervisors to help them manage their teams, as they are the ones dealing with
5 employees directly.
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10 Nevertheless, positive psychology interventions will only be beneficial to organisations if
11 their employees are willing to embrace the implemented changes (Christian *et al.*, 2011). To
12 enhance both work–life balance and work engagement, managers could design jobs that include
13 motivational characteristics and, if necessary, be open to implementing job crafting
14 (Wrzesniewski and Dutton, 2001). With job crafting, employees are able to adjust their work
15 environments, job affiliations, nature of work duties and variety of tasks performed to suit their
16 needs. Consequently, managers and HR practitioners can enhance engagement in the workplace,
17 as employees are more likely to perceive their work as being meaningful and thereby derive
18 satisfaction from it.
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34 *5.3 Methodological strengths and limitations*

36 This study had several notable strengths and limitations. Because cross-sectional studies assess
37 putative causes and effects simultaneously, they may not accurately reflect longitudinal
38 mediation effects, so temporal causal relations cannot be established. Although the mediation
39 analysis was conducted at one time point, the large sample of employees from a range of
40 organisations in different industries and the use of CFA and SEM statistical techniques lent
41 confidence and robustness to the results. Coupled with the use of theoretical knowledge to
42 explain the underlying mediation mechanisms, as well as the superior CFA and SEM fit indices,
43 causal inferences can potentially be made from the results.
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Nevertheless, future studies should conduct similar or related studies to further investigate the reciprocal causality between work engagement and work–life balance with self-efficacy. The low approximated response rates across all four organisations could also imply the results are not fully representative of the participating organisations. Finally, Christian *et al.* (2011) also noted that research on work engagement could benefit from time-lagged designs, as the construct is conceptualised as a relatively stable state, at least within the timeframe of one year (Schaufeli *et al.*, 2006).

6. Conclusion

This research was conducted to explore the underlying relationship linking self-efficacy to work–life balance and ultimately work engagement. Specifically, the hypothesised chain model was grounded in social cognitive theory and COR theory, both of which demonstrated that self-efficacious employees are capable of achieving work–life balance and experiencing work engagement despite the presence of work and family demands. The findings emphasised the importance of self-efficacy as a personal resource that positively affects the way employees perceive role demands. Such positive perceptions, in turn, give rise to causal chain-like synergistic effects, which ultimately contribute to employees' work–life balance and work engagement.

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Table I. Demographic characteristics of research sample ($n = 1,010$)

Variable	Sample
Gender	Male: 36.1% (365) Female: 62.9% (635) Did not disclose: 1.0% (10)
Age	Range: 17–71 years Mean: 41.1 years SD: 11.1 years
Marital status	Single/Never Married: 19.6% (198) Divorced/Separated/Widow(er): 8.2% (83) Married/Co-habiting: 70.9% (716) Did not disclose: 1.3% (13)
Number of hours worked per week	Range: 1.0–100.0 hours Mean: 39.2 hours SD: 10.6 hours
Tenure at current company	Range: 0.0–42.0 years Mean: 8.1 years SD: 7.9 years
Education level	Secondary: 15.9% (161) TAFE/Diploma: 17.2% (174) University/College: 31.6% (319) Postgraduate: 35.0% (354) Did not disclose: 0.2% (2)

Table II. Results of confirmatory factor analysis (CFA) ($n = 1,010$)

Model	χ^2	df	p -value	χ^2/df	SRMR	GFI	TLI	CFI	PCFI	RMSEA
1-factor	12,641.87	321	0.00	39.38	0.20	0.41	0.42	0.47	0.43	0.20
4-factor	3,153.25	315	0.00	10.01	0.10	0.80	0.86	0.88	0.79	0.09
5-factor	1,266.28	311	0.00	4.07	0.07	0.91	0.95	0.96	0.85	0.06

Note: df = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker–Lewis index; CFI = comparative fit index; PCFI = parsimony comparative fit index; SRMR = standardised root mean square residual; RMSEA = root mean square error of approximation.

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Table III. Descriptive statistics, bivariate correlations, and coefficient alpha reliabilities ($n = 1,010$)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	0.63	0.48	–										
2. Age	41.12	11.15	–0.14***	–									
3. Marital status	1.53	0.81	–0.06	0.28***	–								
4. Education	2.86	1.07	–0.07*	0.02	0.05	–							
5. Tenure	8.10	7.92	–0.11***	0.52***	0.06	–0.09**	–						
6. Hours worked per week	39.22	10.63	–0.20***	0.12***	–0.00	0.12***	0.09**	–					
7. Self-efficacy	60.28	24.42	0.07*	–0.13***	–0.04	0.04	–0.18***	–0.17***	(0.96)				
8. Work demands	3.53	1.05	–0.09**	0.12***	0.06	0.14***	0.15***	0.35***	–0.34***	(0.91)			
9. Family demands	2.85	1.14	0.03	0.07*	0.27***	–0.01	0.07*	–0.12***	–0.17***	0.12***	(0.86)		
10. Work–life balance	3.64	1.15	0.03	–0.09**	–0.04	–0.03	–0.13***	–0.28***	0.65***	–0.45***	–0.17***	(0.94)	
11. Work engagement	3.15	1.10	0.02	0.14***	0.11***	0.17***	–0.01	0.18***	0.32***	0.11**	–0.06	0.23***	(0.92)

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table IV. Results of structural equation modelling (SEM) ($n = 1,010$)

Model	χ^2	df	p -value	χ^2/df	SRMR	GFI	TLI	CFI	PCFI	RMSEA
Full Mediation	1,737.48	316	0.00	5.50	0.14	0.89	0.93	0.94	0.85	0.07
Partial Mediation	1,377.42	315	0.00	4.37	0.09	0.91	0.95	0.95	0.86	0.06

Note: df = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker–Lewis index; CFI = comparative fit index; PCFI = parsimony comparative fit index; SRMR = standardised root mean square residual; RMSEA = root mean square error of approximation.

Self-efficacy and work engagement: Test of a chain model

Abstract

Purpose – This study investigates the mediating roles of work and family demands and work–life balance on the relationship between self-efficacy (to regulate work and life) and work engagement. Specifically, it seeks to explain how self-efficacy influences employees’ thought patterns and emotional reactions, which in turn enable them to cope with work and family demands, and ultimately achieve work–life balance and work engagement.

Design/methodology/approach – Structural equation modelling (SEM) of survey data obtained from a heterogeneous sample of 1,010 Australian employees is used to test the hypothesised chain mediation model.

Findings – The SEM results support the hypothesised model. Self-efficacy was significantly and negatively related to work and family demands, which in turn were negatively associated with work–life balance. Work–life balance, in turn, enabled employees to be engaged in their work.

Research limitations/implications – The findings support the key tenets of social cognitive theory and conservation of resources (COR) theory and demonstrate how self-efficacy can lead to work–life balance and engagement despite the presence of role demands. Study limitations (e.g., cross-sectional research design) and future research directions are discussed.

Originality/value – This study incorporates COR theory with social cognitive theory to improve understanding of how self-efficacy enhances work–life balance and work engagement through a self-fulfilling cycle in which employees achieve what they believe they can accomplish, and in the process, build other skills and personal resources to manage work and family challenges.

Keywords – Self-efficacy, Role demands, Work–life balance, Work engagement

Paper type – Research paper

1. Introduction

The current research is built on concepts of positive psychology in the workplace to investigate factors that enable employees to flourish at work. Specifically, it focuses on work engagement, which has been associated with various workplace indicators such as job satisfaction, involvement, reduced burnout (Bakker *et al.*, 2008) and job performance (Xanthopoulou *et al.*, 2009). Defined as ‘a positive, fulfilling, work-related state of mind’ (Schaufeli *et al.*, 2002, p. 74), work engagement has also emerged as an influential variable in determining organisational success—not only does it influence employee satisfaction, loyalty and productivity, it also predicts customer satisfaction, firm reputation and overall stakeholder value (Demerouti and Cropanzano, 2010). However, research on work engagement remains nascent. While numerous scholars have examined the construct along with work-related antecedents and outcomes (e.g., Christian *et al.*, 2011), few have investigated the relationships among work engagement, work–family constructs and psychosocial resources. Thus, the purpose of the current research is to provide greater understanding of the relationships among self-efficacy (psychosocial resource), work and family demands and work–life balance (work–family constructs), and work engagement.

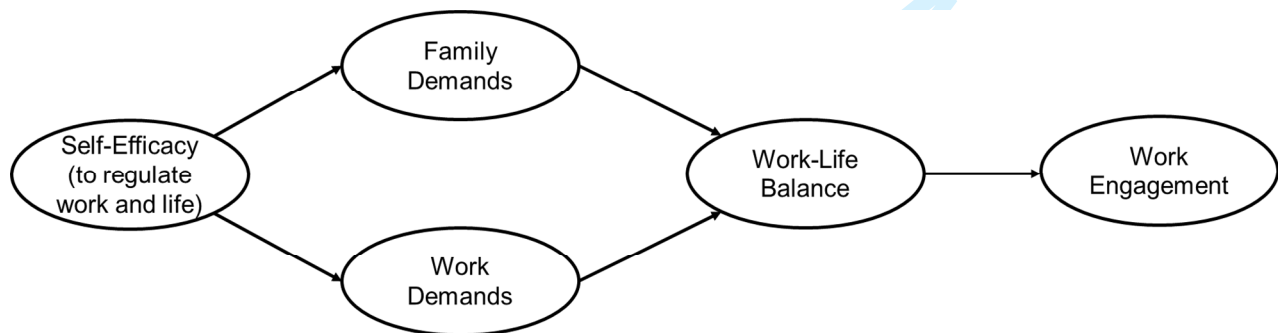


Figure 1. Hypothesised chain mediation model

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3 Work engagement is important to work–family research because it is a psychological
4 process that assesses the quality of participation in role activities (Macey *et al.*, 2009). Scholars
5 have proposed that the underlying work–family linkage mechanisms can lead to stress and
6 pressure, especially when demands in both roles are incompatible (Greenhaus and Beutell, 1985).
7 However, other scholars (e.g., Greenhaus and Powell, 2006) have argued that participation in
8 work and family roles may also bring about advantages, as one role may provide resources from
9 which the other role benefits. In this study, the positive aspect of work–life balance is considered
10 to acknowledge that multiple life roles may also enhance health, wellbeing and performance
11 across various life domains (Greenhaus and Powell, 2006), thereby contributing to improved
12 work engagement.
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27 Work–life balance and work engagement are examined along with two antecedents: self-
28 efficacy and role demands. Role demands are well-documented sources of pressure experienced
29 by employees when they seek to maintain a balance between their work and non-work
30 responsibilities (Voydanoff, 2004). While studies such as that by Greenhaus and Beutell (1985)
31 have previously assumed that demand is a negative experience highly predictive of work–family
32 conflict, individuals may also perceive demand as a neutral or positive experience. Boyar *et al.*
33 (2007) suggested that individuals may be indifferent towards, or receptive of, role demands
34 because they perceive them to be part of their work and family roles. Although demands in one
35 domain may prevent employees from meeting the demands of the other—resulting in work–
36 family conflict—the work–family interface does not exist until one domain begins to affect the
37 other (Edwards and Rothbard, 2005). That is, role demands do not always lead to work–family
38 conflict.
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4 Drawing on Bandura's (1986) social cognitive theory and Hobfoll's (1989) conservation
5 of resources (COR) theory, it is proposed that building psychosocial resources (e.g., self-efficacy)
6 creates a resource reserve that influences employees' perceptions and interpretations of their
7 work and family demands, which in turn assist them to cope with their role demands. Employees
8 often have to cope with multiple demands arising from their careers, social relationships, marital
9 partnerships and parenthood; a strong sense of self-efficacy can contribute to the attainment of
10 balance among various demands. Moreover, self-efficacy is indicative of a person's motivation
11 and willingness to expend effort consistent with their ability (Bandura, 1986). However, while
12 scholars have established that self-efficacy induces a range of positive outcomes (e.g., increased
13 job performance, goal orientation and work engagement), limited research has focused on the
14 psycho-cognitive mechanisms underpinning these relationships. Hence, the current study
15 investigates a chain mediation model to understand how self-efficacy leads to work-life balance
16 and work engagement despite the existence of role demands (see Figure 1).
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34 The present study has both theoretical and practical importance. Social cognitive theory
35 is used to explain how self-efficacy influences employees' thought patterns and emotional
36 reactions when they are dealing with work and family demands. In addition, COR theory is
37 incorporated to show how self-efficacy enhances work-life balance and work engagement,
38 through a self-fulfilling cycle in which employees achieve what they believe they can
39 accomplish, and in the process, build other skills and personal resources to manage their work
40 and family challenges. The resulting positive emotions (e.g., pride, contentment and interest) and
41 experiences (e.g., job promotion, increased job performance and positive relationships) have
42 long-term benefits because they assist individuals to build other physical, intellectual, social and
43 psychological resources, which ultimately increase their overall wellbeing. Finally, role demands
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3 and work–life balance are examined from a more subjective and perceptual lens. In doing so,
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5 cultural differences and perceptions of work–life balance are acknowledged, as individuals tend
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8 to view work and family differently based on their cultural traditions, family structures and
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10 societal institutions (Hassan *et al.*, 2010). A better understanding of how self-efficacy enhances
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12 employees’ work–life balance and work engagement is also provided, thereby bridging the
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14 discrepancy between practitioners’ interest in work engagement and academic research on the
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16 same topic.
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22 **2. Theoretical foundations and development of hypotheses**

23 *2.1 Conservation of resources (COR) theory*

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25 Resources refer to objects, states, conditions, personal characteristics, energies and other things
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27 that are valued by individuals or act as a means for them to obtain valued objectives (Hobfoll,
28
29 1989). The value placed on resources differs among individuals and is highly influenced by their
30
31 personal experiences and circumstances (Hobfoll, 2001). Based on the assumption that
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33 employees have limited time, energy and other resources, COR theory proposes that individuals:
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35 (1) generally seek to accumulate and protect resources to cope with challenges and prevent
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37 themselves from facing negative consequences; and (2) invest the resources they have to build
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39 further resources (Hobfoll, 2001). Specifically, individuals tend to invest their extra resources in
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41 positive endeavours, which enhance overall wellbeing, and ultimately result in resource
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43 accumulation (Hobfoll, 2001).
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50 *2.2 Self-efficacy and work–life balance*

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3 COR theory emphasises the roles of psychological resources (e.g., self-efficacy) and resources
4 related to survival (e.g., health) as being crucial to overall resource management and
5 maintenance, and suggests that individuals tend to acquire such primary resources instinctively
6 (Hobfoll, 2001). Employees who are self-efficacious are better positioned to gain resources,
7 while those with low self-efficacy are more likely to experience resource losses (Hobfoll, 2001).
8 Self-efficacy can facilitate the building of other resources, and the lack thereof can deplete the
9 existing pool of resources as individuals dwell on their personal failures and deficiencies. This is
10 consistent with the findings of a number of studies (e.g., Demerouti *et al.*, 2004; Xanthopoulou *et*
11 *al.*, 2009) that initial resource gains tend to lead to future resource gains, while initial resource
12 losses tend to lead to future resource losses.

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27 The current research considers self-efficacy in the context of employees' work and non-
28 work experiences (self-efficacy to regulate work and life), and defines the construct as 'the belief
29 that one has in one's own ability to achieve a balance between work and non-work
30 responsibilities, and to persist and cope with challenges posed by work and non-work demands'
31 (Chan *et al.*, 2015, p. 4). Work-life balance is defined as 'the individual perception that work
32 and non-work activities are compatible and promote growth in accordance with an individual's
33 current life priorities' (Kalliath and Brough, 2008, p. 326). This definition emphasises the
34 management of expectations and subjective perceptions of balance, and recognises that these
35 perceptions may evolve over time in response to changing life priorities. Self-efficacy (to
36 regulate work and life) is examined as an antecedent of work-life balance because the construct
37 not only affects how people feel and act, but also how they perceive situational characteristics
38 such as work and family demands (Bandura, 1986). Coupled with past successful experiences,
39 the psychosocial resource has been found to nurture other important personal resources such as
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3 self-confidence, self-esteem and self-control (Bandura, 1986). Correspondingly, self-efficacious
4 employees are able to exercise personal control over their own functioning and persevere
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6 through obstacles to achieve work–life balance, yielding hypothesis 1:
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10 *H1.* Self-efficacy (to regulate work and life) will be positively related to work–life
11 balance.
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14 15 16 17 18 *2.3 Mediating roles of work and family demands*

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20 Employees' feelings and attitudes towards both their work and family demands are crucial in
21 determining their life outcomes. Demand is defined as a perception of the level and intensity of
22 responsibilities within the work and family domains (Boyar *et al.*, 2007). Specifically, work
23 demand refers to the perception of demand levels in the work domain, and family demand refers
24 to the perception of demand levels in the family domain (Boyar *et al.*, 2007). Work demand has
25 been found to be crucial to men's wellbeing, while family demand is considered to be a primary
26 determinant of women's wellbeing (Michel *et al.*, 2011). However, recent scholarship suggests
27 the converging roles of men and women, which means that stressors that influence their
28 wellbeing are overlapping, and their respective role demands are becoming more similar (Michel
29 *et al.*, 2011). Consequently, it is proposed that both work and family demands affect the
30 wellbeing of men and women to the same extent. This is in line with a shift from gender-based
31 role differentiation to gender equality in modern society.
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48 There is emerging consensus that job demands effect a mix of positive and negative
49 outcomes (Boyar *et al.*, 2007). In particular, Van den Broeck *et al.* (2010) distinguished between
50 two types of job demands—job challenges and hindrances. They argued that when confronted
51 with certain job demands, employees may feel a lack of control and experience negative
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3 emotions, both of which interfere with employees' overall wellbeing and hinder their job
4 performance (Nahrgang *et al.*, 2011). These job demands are referred to as job hindrances. On
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8 the other hand, job challenges are demands that may deplete resources, but have the potential to
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10 enable individuals to secure more rewards and gains at the same time. Gains subsequently enable
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12 individuals to replenish depleted resources, buffering the negative effects of potentially
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14 demanding roles or tasks, and providing individuals with opportunities for personal growth
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17 (Nahrgang *et al.*, 2011). Job challenges are considered positive motivational forces that tend to
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19 elicit problem-focused coping and involvement, while job hindrances tend to trigger avoidance
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21 and job withdrawal (Van den Broeck *et al.*, 2010). Job challenges can lead to job satisfaction
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23 which has the potential to spill over to employees' other life domains, while job hindrances
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25 disturb employees' work–life balance by eliciting negative emotions (Van den Broeck *et al.*,
26
27 2010). As self-efficacious employees tend to view role demands as neutral or positive
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29 experiences, they are better positioned to achieve work–life balance. Hence, hypothesis 2 is
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31 proposed:
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36 *H2.* The relationship between self-efficacy (to regulate work and life) and work–life
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38 balance will be mediated by work and family demands.
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43 *2.4 Work demand, family demand, and work engagement*

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45 Work engagement is characterised by vigour, dedication and absorption (Schaufeli *et al.*, 2002, p.
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47 74). Vigour refers to high levels of energy and mental resilience while working, willingness to
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49 invest effort in one's work and persistence in the face of difficulties; dedication refers to being
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51 highly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration,
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53 pride and challenge; and absorption refers to fully concentrating and being happily engrossed in
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3 one's work, such that time passes quickly and one has difficulty detaching oneself from work
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5 (Schaufeli *et al.*, 2002). Research on the consequences of work engagement has shown that it has
6
7 several positive work outcomes including high job satisfaction, organisational commitment and
8
9 job performance, and low absenteeism and turnover (Bakker *et al.*, 2008). Xanthopoulou *et al.*
10
11 (2009) also found that engaged employees tend to score higher on extra-role performance and are
12
13 more willing to help others, exhibiting higher levels of pro-social work behaviour.
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15 Understanding the antecedents and implications of work engagement is thus important for
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17 organisations because a disengaged workforce can be costly.
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23 Despite the centrality of work in people's lives, both work and non-work factors have
24
25 been found to have an impact on work engagement. Several empirical studies (e.g., Schaufeli *et*
26
27 *al.*, 2009) have shown that work demand predicts work engagement. However, the specific
28
29 nature of the association between work demand and work engagement is not clear. Depending on
30
31 the nature of the demands (i.e., challenges or hindrances), work demand can be positively or
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33 negatively associated with work engagement both concurrently and over time. Some studies (e.g.,
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35 Bakker *et al.*, 2008) concluded that work demand has no effect on work engagement, while
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37 others (e.g., Schaufeli *et al.*, 2009) found a linear relationship between work demand and work
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39 engagement. In another study (Sawang, 2012), a quadratic relationship between work demand
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41 and work engagement was found. This implied that work must be demanding enough, but not
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43 excessive, to engage employees, otherwise they will become bored, disengaged or exhausted (see
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45 also Timms *et al.*, 2012).
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51 Family demand is also included as an antecedent to work engagement because employees
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53 tend to bring their 'whole selves' to work, such that what happens after work is just as important
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55 as what happens in the workplace (Michel *et al.*, 2011). Although it is generally assumed that
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3 married employees are likely to have more family demands than single employees, research has
4 also found that a spouse can be a source of support for the employee. Many studies have
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8 conceptualised demands using objective measures such as number of hours worked, number of
9
10 dependents and marital status (Brough and Kelling, 2002). However, perceptions have been
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12 found to mediate the effects of objective measures on outcomes (Edwards and Rothbard, 2005);
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14 hence the current research focuses on perceptions rather than objective measures of demands.
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18 As a proximal determinant of human motivation, affect and behaviour that operates
19 through the exercise of personal agency, self-efficacy has a range of positive outcomes by
20 assisting individuals to obtain their goals (Bandura, 1986). Importantly, self-efficacious
21 employees are able to take advantage of opportunities at work and overcome challenges because
22 they are driven by tenacity, determination and a belief in future success (Bresó *et al.*, 2011).
23
24 Recent research on self-efficacy has also suggested that self-efficacy predicts anticipated work–
25 family conflict (Michel *et al.*, 2011). This notion is supported by Bandura (1986), who posited
26 that an individual’s level of self-efficacy can mitigate strain by reducing perceptions of and
27 reactions to stressors. Depending on their own preferences and sense of self-efficacy, some
28 employees may view the demands stemming from their work and family domains as integral to
29 their personal identity (Boyar *et al.*, 2007). Both work and family demands are also capable of
30 contributing to work engagement through mastery (successful response to challenges), which is
31 central to the development of self-efficacy (Bandura, 1986). Further, based on COR theory, self-
32 efficacious employees are less vulnerable to resource losses and more capable of gaining
33 resources. Therefore, when employees are confronted with role demands, it is hypothesised that
34 some are able to overcome them to achieve work engagement, yielding hypotheses 3a and 3b:
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3 *H3a.* Depending on how the employee views work demand (i.e., challenge or hindrance),
4 work demand will be positively or negatively related to work engagement.
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8 *H3b.* Depending on how the employee views family demand (i.e., challenge or
9 hindrance), family demand will be positively or negatively related to work engagement.
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13 14 15 *2.5 Mediating role of work–life balance*

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17 The relationship between work–life balance and work outcomes has rarely been subjected to
18 rigorous theory development or testing (Eby *et al.*, 2005). The current theoretical model is based
19 on the argument that whether work and non-work demands are positive (challenges) or negative
20 (hindrances) for employees' work–life balance, an employee is capable of achieving work–life
21 balance through self-efficacy beliefs. Self-efficacy can also buffer the negative effects of
22 stressors on individuals, as self-efficacious individuals have been shown to perceive demands as
23 opportunities for further skills development and challenges to overcome (Grau *et al.*, 2001). In
24 choosing to examine work–life balance as one of two mediators linking self-efficacy to work
25 engagement, the current research draws attention to a much broader concept involving not just
26 married employees, employees with children, or working mothers, but working individuals in
27 general, whether or not they are married or have familial obligations. Correspondingly, a chain
28 of 'gains' from self-efficacy to work engagement through work and family demands and work–
29 life balance is proposed, yielding hypothesis 4:
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48 *H4.* The relationship between work and family demands and work engagement will be
49 mediated by work–life balance.
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53 54 55 **3. Method**

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3.1 Participants and procedure

Self-reported data were collected using an online questionnaire survey sent to employees within four organisations (one from a university, two public sector organisations and one private sector organisation) in Australia. Respondents had a diverse range of occupations spanning in areas such as education, health, policy, finance, accounting and administrative support; from entry-level to experienced employees, which enhanced the ability of this study to be representative of the general workforce. The link to the survey was provided using electronic mail to the human resources (HR) leads in each of the four organisations, who. ~~The HR leads~~ subsequently distributed the link to all employees via electronic mail. To reduce non-response bias, electronic mail was sent twice to the HR leads to remind participants to complete the questionnaire. Reminder electronic mails were also sent one week before the survey closing date.

~~The response rates ranged from 11.3% to 45.0% across the four organisations. Two of the four~~ organisations had particularly low response rates (11.3% and 13.5%) as they were undergoing structural changes. The exact response rates for the remaining two organisations could not be determined as the HR leads only provided rough estimates (25.0% and 45.0%) without indicating the number of employees who were invited to participate in the survey. ~~An initial technical problem with the survey link also contributed to the low response rates. The exact response rates for the remaining two organisations could not be determined as the HR leads only provided rough estimates (25.0% and 45.0%) without indicating the number of employees who were invited to participate in the survey.~~ The final sample ($n = 1,010$) consisted of 36.1% males ($n = 365$) and 62.9% females ($n = 635$). Their ages ranged from 17 to 71 years, and showed a slight negative skew, with an average age of 41.1 years ($SD = 11.1$ years). The majority (70.9%, $n = 716$) of respondents were married or cohabiting, while 19.6% ($n = 198$)

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3 were single or had never married, and the remaining 8.2% ($n = 83$) were divorced, separated or
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5 widowed. The average tenure at current company was 8.1 years ($SD = 7.9$ years), and
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7 approximately 66.6% ($n = 673$) of respondents had either a university or postgraduate
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9 qualification. The respondents spent an average of 39.2 hours ($SD = 10.6$ hours) working per
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11 week.
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20 3.2 Measures 21

22 *Self-efficacy to regulate work and life.* Self-efficacy to regulate work and life was
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24 measured using a newly validated five-item scale (Chan *et al.*, 2015). The scale sought to assess
25
26 the confidence level of respondents in regulating their work and non-work domains based on the
27
28 centrality of efficacy beliefs in their lives. A sample item is ‘How confident are you in achieving
29
30 your ideal work–life balance?’ Each item had a scale ranging from 0 = cannot do at all to 100 =
31
32 highly certain can do, and higher scores meant that employees were more likely to believe in
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34 their own ability to cope with work–life challenges. Cronbach’s alpha for this scale was 0.96.
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38 *Work demand.* Work demand was measured using Boyar *et al.*’s (2007) five-item
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40 measure of job demands. A sample item is ‘My work demands a lot from me’. Respondents
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42 indicated their agreement with each item on a five-point scale ranging from 1 = strongly disagree
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44 to 5 = strongly agree, with higher scores representing higher levels of work demand. Cronbach’s
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46 alpha for this scale was 0.91.
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50 *Family demand.* Family demand was measured using Boyar *et al.*’s (2007) four-item
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52 measure of family demands. A sample item is ‘I have to work hard on family-related activities’.
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54 Respondents indicated their agreement with each item on a five-point scale ranging from 1 =
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3 strongly disagree to 5 = strongly agree, with higher scores representing higher levels of family
4 demands. Cronbach's alpha for this scale was 0.86.
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8 *Work-life balance.* Work-life balance was measured using Brough *et al.*'s (2014) four-
9 item scale. Employees were asked to respond to the items by reflecting on their work and non-
10 work activities. Their responses were indicated on a five-point scale ranging from 1 = strongly
11 disagree to 5 = strongly agree, with higher scores representing better perceptions of work-life
12 balance. A sample item is 'I currently have a good balance between the time I spend at work and
13 the time I have available for non-work activities'. Cronbach's alpha for this scale was 0.94.
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22 *Work engagement.* Work engagement was measured using the shortened nine-item
23 Utrecht Work Engagement Scale developed by Schaufeli *et al.* (2006), which has proven to be
24 relatively stable across time, internally consistent and cross-nationally valid in multiple studies.
25 The scale was developed based on three aspects of work engagement: vigour, dedication and
26 absorption. Ratings were completed on a seven-point scale ranging from 0 = never to 6 = always.
27
28 A sample item from the 'vigour' subscale is 'At my work, I feel bursting with energy'. A sample
29 item from the 'dedication' subscale is 'My job inspires me'. Lastly, a sample item from the
30 'absorption' subscale is 'I am immersed in my work'. Cronbach's alpha for this scale was 0.92.
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41 *Control variables.* Researchers have consistently defined and conceptualised both work
42 and family demands to include variables such as number of hours worked, schedule, marital
43 status, family work hours, number of children at home and number of dependents at home.
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45 Therefore, to limit the risk of spurious effects on the study variables, we controlled for gender (0
46 = male, 1 = female), marital status (0 = single or never married, 1 = divorced or separated, 2 =
47 married or cohabiting), age, number of hours worked per week, tenure at current company and
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3 education level (1 = secondary level, 2 = vocational education and training or diploma level, 3 =
4 college or university level, 4 = postgraduate level).
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10 3.3 Data screening

11 Data screening was conducted using SPSS (version 22.0). A missing completely at random
12 (MCAR) test resulted in a chi-square value of 544.98 (df = 501; $p < 0.09$), which indicated that
13 the data were indeed MCAR. Of the 1,134 responses gathered, 53 cases (4.7% of the sample)
14 were deleted using list-wise deletion because of the presence of multiple missing values. The
15 data were subsequently screened for univariate and multivariate outliers. There were 12
16 univariate outliers, and the test for multivariate outliers using Mahalanobis distance indicated
17 that there were 59 multivariate outliers. Hence, 71 cases were excluded because they were found
18 to significantly reduce the multivariate normality and overall fit of the hypothesised model. This
19 yielded a final sample size of 1,010 survey participants.
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36 3.4 Analyses

37 Sample group analysis, confirmatory factor analysis (CFA), correlation analysis and structural
38 equation modelling (SEM) were conducted using SPSS (version 22.0) and AMOS (version 22.0).
39 SEM was performed to determine whether the hypothesised mediation model was consistent
40 with the data collected. The consistency was evaluated through model-data fit, which indicated
41 the extent to which the hypothesised relationships among the constructs were plausible. Along
42 with the chi-square statistic, the following fit indices are reported: standardised root mean square
43 residual (SRMR), goodness-of-fit index (GFI), Tucker–Lewis index (TLI), comparative fit index
44 (CFI), parsimony comparative fit index (PCFI) and root mean square error of approximation
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(RMSEA). Values for the GFI, TLI, CFI and PCFI are between 0 and 1, with values closer to 1 representing a better-fitting model. A value of 0.05 or less for SRMR and a value of 0.08 or less for RMSEA are also indicative of a good-fitting model.

4. Results

4.1 Sample group analysis

The four samples were tested for differences via the mean scores of the research variables. One-way ANOVA was conducted with organisation as the independent variable and the five constructs (self-efficacy, work demand, family demand, work–life balance and work engagement) as dependent variables. The one-way ANOVA F-test statistic was significant for self-efficacy ($p < 0.04$), but was not significant for work demand ($p < 0.18$), family demand ($p < 0.14$), work–life balance ($p < 0.13$) or work engagement ($p < 0.29$). These results indicate that the mean scores for the criterion variables of the chain mediation model did not differ significantly across the four organisations. Thus, the four samples were combined to form a single, heterogeneous, diverse sample.

4.2 Measurement model

Based on the two-step procedure proposed by Anderson and Gerbing (1988), a measurement model of the latent variables was first estimated using CFA, followed by a test of the hypothesised structural model using SEM. 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. To determine the presence of common method variance (CMV), the common latent factor test was conducted

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3 using CFA. The test assumes that a single factor will account for all of the covariance among the
4 variables of interest if CMV is present (Podsakoff and Organ, 1986). As shown in Table II, the
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6 fit statistics for the tests of the one-, four- and five-factor measurement models revealed that the
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8 five-factor model was the best-fitting model, suggesting that the five scales were distinct. Also,
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10 the common latent factor test demonstrated that CMV had minimal effect on the results.
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15 [Insert Table II]
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20 4.3 Correlational analyses

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22 The correlational analyses (see Table III) provided initial support for all hypotheses except *H3b*.
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24 Self-efficacy was positively and significantly correlated with work–life balance ($r = 0.65, p <$
25 0.001), and work demand was positively and significantly correlated with work engagement (r
26 $= .11, p < 0.01$). Family demand, however, was not significantly correlated with work
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28 engagement ($r = -0.06, p > 0.05$). Additionally, self-efficacy to regulate work and life was
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30 significantly and negatively correlated with both work demand ($r = -0.34, p < 0.001$) and family
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32 demand ($r = -0.17, p < 0.001$). Similarly, both work demand ($r = -0.45, p < 0.001$) and family
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34 demand ($r = -0.17, p < 0.001$) were significantly and negatively correlated with work–life
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36 balance. Work–life balance, in turn, was significantly and positively correlated with work
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38 engagement ($r = 0.23, p < 0.001$). The correlations among the constructs indicated that work
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40 demand and work–life balance are likely to fully mediate the hypothesised relationship between
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42 self-efficacy and work engagement.
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51 [Insert Table III]
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53 Several significant relationships were observed between the control variables and the
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55 predictor and outcome variables of self-efficacy and work engagement. Specifically, age, tenure,
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3 education level and the number of hours worked per week were found to be significantly
4 correlated with the two variables. To minimise and control for the spurious effects of the control
5 variables on the study variables, all four control variables were included in the test of the
6 hypothesised structural model but were shown to have no significant effect on any of the study
7 variables.
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18 *4.4 Structural model*

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20 After evaluating the measurement models, the second stage involved testing the relationships
21 among the latent factors. The SEM analysis revealed that the chi-square statistic was significant
22 and the fit indices were satisfactory, indicating that the structural model was a good fit to the
23 observed data. Moreover, the fit indices all fell within the acceptable range as specified in the
24 SEM literature. Additionally, all predicted paths were statistically significant (see Table IV and
25 Figure 2). A closer look at the path estimates of the full mediation model revealed that work and
26 family demands fully mediated the relationship between self-efficacy and work–life balance.
27 Work–life balance also fully mediated the relationship between work and family demands and
28 work engagement. These results provide strong support for the hypotheses presented earlier.
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40 [Insert Table IV]
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46 *4.5 Full mediation and partial mediation models*

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48 The specific nature of the hypothesised chain mediation model was further examined.
49 Specifically, the significant direct effects of self-efficacy on work engagement became non-
50 significant after including both work and family demands and work–life balance as mediators.
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55 This finding lent more support to the full mediation model. However, the direct effect of family
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demand on work–life balance also became non-significant ($r = -0.05$, $p > 0.05$) after a direct path was included between self-efficacy and work–life balance, thereby yielding a partial mediation model (see Figure 3). As shown in Table IV, the fit indices of the partial mediation model were also slightly better than those for the full mediation model.

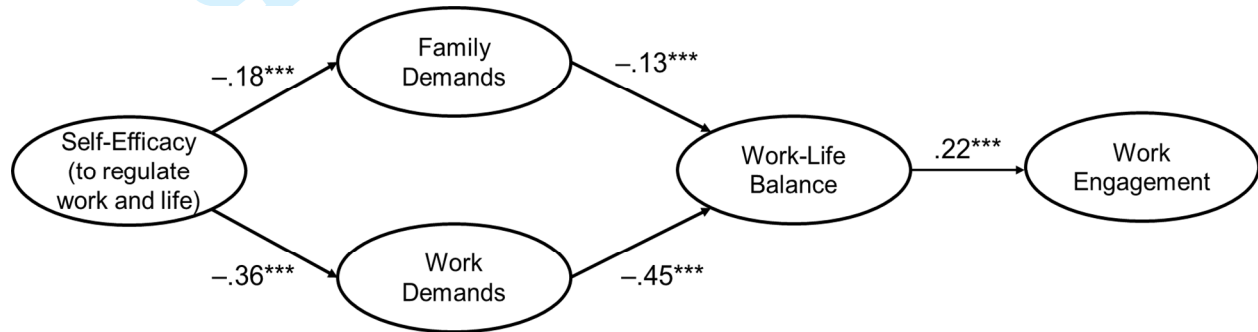


Figure 2. Structural model (Full mediation)

Note: Values represent standardised regression weights; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

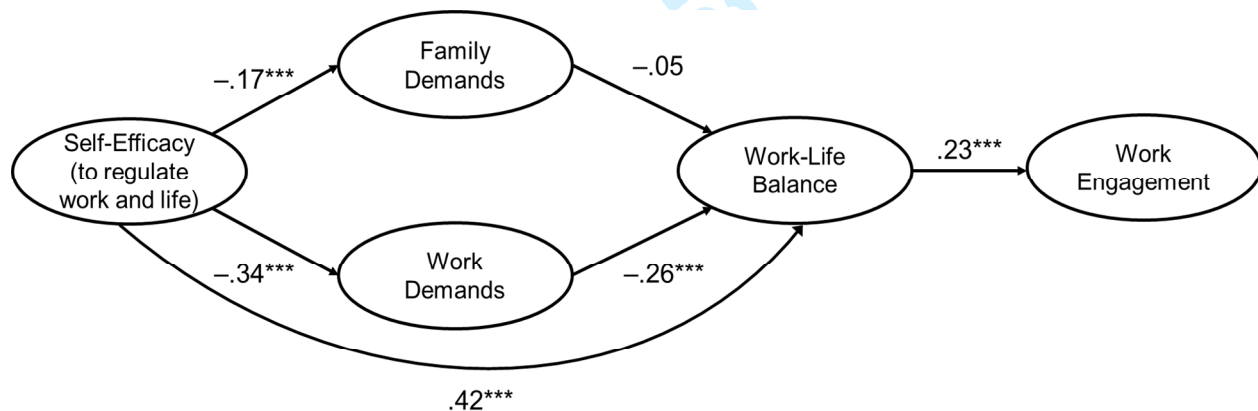


Figure 3. Structural model (Partial mediation)

Note: Values represent standardised regression weights; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Discussion

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4 The primary aim of this research was to investigate the roles of self-efficacy and work–life
5 balance in assisting employees to overcome work and family demands, to achieve work
6 engagement. The hypothesised chain mediation model was based on social cognitive theory and
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8 COR theory. However, while full mediation was supported, the relationship between family
9
10 demand and work engagement became insignificant when a path linking self-efficacy to work–
11
12 life balance was included. The findings indicate two possibilities: (1) work and family demands
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14 account for some, but not all, of the relationship between self-efficacy and work–life balance; or
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16 (2) as explained in a number of prior studies (e.g., Kossek *et al.*, 2011), work remains central in
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18 people’s lives such that family demand has a comparatively weaker influence on work–life
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20 balance than work demand. In prioritising work responsibilities, employees may sacrifice their
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22 family and personal roles in the process (Kossek *et al.*, 2011). The findings could also indicate
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24 that employees are less likely to be affected by demands stemming from the family domain,
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26 which further emphasises the need to look beyond objective measures of work–life balance, as
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28 employees are unlikely to view both domains equally in the first place.
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39 *5.1 Theoretical implications*

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41 The current research findings are consistent with those of previous research and empirical studies
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43 based on social cognitive theory and COR theory in showing that self-efficacious employees
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45 seek to obtain, retain and protect resources in order to manage their role demands and attain
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47 wellbeing. In this study, psychosocial and cognitive wellbeing was operationalised through
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49 work–life balance and work engagement. Self-efficacious employees are able to obtain their
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51 goals, as previous successful experiences have increased their resource pools, enabling them to
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53 acquire other resources (Hobfoll, 2001). This generates gain spirals, as the positive emotions,
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3 energy, experiences and other outcomes associated with the enlarged resource pool in turn
4 provide other resources that increase future levels of self-efficacy (Schaufeli *et al.*, 2009). A
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6 potential area for further investigation is the feedback path linking work engagement or work–
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8 life balance to self-efficacy; experiencing work engagement or achieving a sense of balance may
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10 become another resource into which employees can tap to build further resources.
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15 The current study also emphasised the importance of self-efficacy as a vital personal
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17 resource for employees seeking to manage work and family demands to achieve a sense of
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19 work–life balance and, consequently, work engagement. Self-efficacy equips employees with the
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21 ability and confidence to ‘affect, shape, curtail, expand, and temper what happens in their lives’
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23 (Grant and Ashford, 2008, p. 3). Importantly, the present study found that self-efficacy serves as
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25 a powerful resource that influences employees’ perceptions and interpretations of work and
26
27 family demands. Self-efficacy is founded on Bandura’s (1986) triadic reciprocal determinism
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29 model, which suggests an interplay of environmental, personal and cognitive factors in affecting
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31 outcomes. Hence, it is proposed that future research should examine other relevant social and
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33 environmental factors (e.g., organisational culture and family-friendly policies) that have the
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35 potential to influence individuals’ perceptions of work and family demands, work–life balance,
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37 and work engagement. Incorporating these constructs and other outcomes (e.g., family
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39 functioning) could increase the robustness of the chain mediation model and enrich the literature
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41 on self-efficacy, role demands, balance and engagement.
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48 Work–life balance was also examined in a conceptual framework that specifies its
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50 relationships with antecedents (self-efficacy and role demands) and outcomes (work
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52 engagement), thereby contributing to the further expansion of the construct’s nomological
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54 network. Although researchers have studied concepts such as work–family conflict and work–
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3 family enrichment extensively, few studies have specifically examined work–life balance as a
4 distinct construct (Kalliath and Brough, 2008). In contrast to previous studies that primarily drew
5 on role strain theory to conceptualise work–life balance, COR theory was used to highlight the
6 fact that each employee has a finite amount of resources with which to manage their role
7 demands, and any subsequent gain or depletion of resources will have a direct impact on work–
8 life balance.
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10 Building on Christian *et al.*'s (2011) seminal work on engagement, the relationships
11 between work engagement and work–life balance, role demands and self-efficacy were explored,
12 thereby contributing to the ongoing incremental refinements to existing models and measures of
13 work engagement. Although Schaufeli *et al.*'s (2002) definition and measure of work
14 engagement remain widely used and accepted in academia, Albrecht (2012) pointed out that
15 there may be other dimensions of engagement that have been left out by Schaufeli *et al.*'s (2002)
16 conceptualisation. For instance, Macey *et al.* (2009) argued in support of a definition of
17 engagement that encompasses organisational goal alignment. Another broader issue is the divide
18 between academia and practice. Macey *et al.* (2009) indicated that research on and the practice
19 of engagement are progressing along different paths due to the lack of psychometric evidence of
20 engagement measures in academia, and the lack of peer-reviewed analysis of engagement
21 measures in the practitioner domain. Evidently, these are future areas of research to be explored
22 when advancing the discourse on work engagement.
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48 Finally, although only partial support was demonstrated for the mediating effects of
49 family demand on the efficacy–balance relationship, there are many compelling reasons to
50 believe that family demand is as important as work demand when studying the work–family
51 interface and work outcomes. Family-related constructs and concepts remain neglected in the
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3 work–family literature, and recent studies (e.g., O’Neill *et al.*, 2009) have shown that employees’
4 and leaders’ workplace behaviours are influenced by family matters and organisational factors,
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6 as well as individual traits and competencies.
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10 11 12 *5.2 Practical implications* 13

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15 These findings have potential implications for practice, particularly for HR management in
16 organisations. Macey *et al.* (2009) remarked that ‘rarely has a term resonated as strongly with
17 business executives as employee engagement has in recent years’ (p. xv). Indeed, work
18 engagement remains a hot topic within both the academic and practitioner domains (Albrecht,
19 2012). This has led to the development of interventions that seek to enhance employees’ self-
21 efficacy and work engagement. Despite the benefits of such interventions, Ouweneel *et al.* (2013)
22 indicated that they are only implemented when organisations encounter problems. Following
23 Ouweneel *et al.*’s (2013) recommendations, managers and HR practitioners could implement
24 positive psychology interventions that seek to enhance employees’ self-efficacy on a regular
25 basis. In fact, Ouweneel *et al.* (2013) developed a web-based training program with goal-setting
26 and resource-building tools that seek to foster positive emotions, self-efficacy and coping
27 abilities in employees, which together, further enhance employees’ work engagement over time.
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43 Employees who experience positive emotions and work engagement have also been
44 found to view their employers as being more supportive of work–family integration (Dunn and
45 O’Brien, 2013). Importantly, having work–life balance and healthy family relationships can
46 assist employees in fulfilling their work roles and responsibilities. Organisations could thus seek
47 to strengthen employees’ competency in managing multiple role demands by implementing
48 stress management programs and family-friendly policies, to make work and family demands
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3 more compatible. Stress management programs teach employees about the nature and sources of
4 stress, the effects of stress on health, and personal resources and skills to cope with and reduce
5 stress. Family-friendly workplace policies ensure that employees can opt for flexible
6 arrangements around their work and families when fulfilling their role responsibilities. In
7 addition to organisation-level interventions, managers and HR practitioners could provide
8 training to supervisors to help them manage their teams, as they are the ones dealing with
9 employees directly.
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20 Nevertheless, positive psychology interventions will only be beneficial to organisations if
21 their employees are willing to embrace the implemented changes (Christian *et al.*, 2011). To
22 enhance both work–life balance and work engagement, managers could design jobs that include
23 motivational characteristics and, if necessary, be open to implementing job crafting
24 (Wrzesniewski and Dutton, 2001). With job crafting, employees are able to adjust their work
25 environments, job affiliations, nature of work duties and variety of tasks performed to suit their
26 needs. Consequently, managers and HR practitioners can enhance engagement in the workplace,
27 as employees are more likely to perceive their work as being meaningful and thereby derive
28 satisfaction from it.
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43 *5.3 Methodological strengths and limitations*

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45 This study had several notable strengths and limitations. Because cross-sectional studies assess
46 putative causes and effects simultaneously, they may not accurately reflect longitudinal
47 mediation effects, so temporal causal relations cannot be established. Although the mediation
48 analysis was conducted at one time point, the large sample of employees from a range of
49 organisations in different industries and the use of CFA and SEM statistical techniques lent
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3 confidence and robustness to the results. Coupled with the use of theoretical knowledge to
4 explain the underlying mediation mechanisms, as well as the superior CFA and SEM fit indices,
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6 causal inferences can potentially be made from the results.
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10 Nevertheless, future studies should conduct similar or related studies to further
11 investigate the reciprocal causality between work engagement and work–life balance with self-
12 efficacy. The low approximated response rates across all four organisations could also imply the
13 results are not fully representative of the participating organisations~~undermine the~~
14 ~~representativeness of the sample in this study. To circumvent this issue, researchers need to have~~
15 ~~a targeted list of respondents to determine the exact response rates and to ensure that the targeted~~
16 ~~organisation(s) is not undergoing major changes as the survey is being implemented. Data from~~
17 ~~similar studies of comparable datasets can also be pooled together to increase statistical power~~
18 ~~and test invariances (Wunsch *et al.*, 2010).~~ Finally, Christian *et al.* (2011) also noted that
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20 research on work engagement could benefit from time-lagged designs, as the construct is
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22 conceptualised as a relatively stable state, at least within the timeframe of one year (Schaufeli *et*
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24 *al.*, 2006).
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41 **6. Conclusion**

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43 This research was conducted to explore the underlying relationship linking self-efficacy to work–
44 life balance and ultimately work engagement. Specifically, the hypothesised chain model was
45 grounded in social cognitive theory and COR theory, both of which demonstrated that self-
46 efficacious employees are capable of achieving work–life balance and experiencing work
47 engagement despite the presence of work and family demands. The findings emphasised the
48 importance of self-efficacy as a personal resource that positively affects the way employees
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3 perceive role demands. Such positive perceptions, in turn, give rise to causal chain-like
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5 synergistic effects, which ultimately contribute to employees' work-life balance and work
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Table I. Demographic characteristics of research sample ($n = 1,010$)

Variable	Sample
Gender	Male: 36.1% (365) Female: 62.9% (635) Did not disclose: 1.0% (10)
Age	Range: 17–71 years Mean: 41.1 years SD: 11.1 years
Marital status	Single/Never Married: 19.6% (198) Divorced/Separated/Widow(er): 8.2% (83) Married/Co-habiting: 70.9% (716) Did not disclose: 1.3% (13)
Number of hours worked per week	Range: 1.0–100.0 hours Mean: 39.2 hours SD: 10.6 hours
Tenure at current company	Range: 0.0–42.0 years Mean: 8.1 years SD: 7.9 years
Education level	Secondary: 15.9% (161) TAFE/Diploma: 17.2% (174) University/College: 31.6% (319) Postgraduate: 35.0% (354) Did not disclose: 0.2% (2)

Table II. Results of confirmatory factor analysis (CFA) ($n = 1,010$)

Model	χ^2	df	p -value	χ^2/df	SRMR	GFI	TLI	CFI	PCFI	RMSEA
1-factor	12,641.87	321	0.00	39.38	0.20	0.41	0.42	0.47	0.43	0.20
4-factor	3,153.25	315	0.00	10.01	0.10	0.80	0.86	0.88	0.79	0.09
5-factor	1,266.28	311	0.00	4.07	0.07	0.91	0.95	0.96	0.85	0.06

Note: df = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker–Lewis index; CFI = comparative fit index; PCFI = parsimony comparative fit index; SRMR = standardised root mean square residual; RMSEA = root mean square error of approximation.

Table III. Descriptive statistics, bivariate correlations, and coefficient alpha reliabilities (n = 1,010)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	0.63	0.48	–										
2. Age	41.12	11.15	–0.14***	–									
3. Marital status	1.53	0.81	–0.06	0.28***	–								
4. Education	2.86	1.07	–0.07*	0.02	0.05	–							
5. Tenure	8.10	7.92	–0.11***	0.52***	0.06	–0.09**	–						
6. Hours worked per week	39.22	10.63	–0.20***	0.12***	–0.00	0.12***	0.09**	–					
7. Self-efficacy	60.28	24.42	0.07*	–0.13***	–0.04	0.04	–0.18***	–0.17***	(0.96)				
8. Work demands	3.53	1.05	–0.09**	0.12***	0.06	0.14***	0.15***	0.35***	–0.34***	(0.91)			
9. Family demands	2.85	1.14	0.03	0.07*	0.27***	–0.01	0.07*	–0.12***	–0.17***	0.12***	(0.86)		
10. Work–life balance	3.64	1.15	0.03	–0.09**	–0.04	–0.03	–0.13***	–0.28***	0.65***	–0.45***	–0.17***	(0.94)	
11. Work engagement	3.15	1.10	0.02	0.14***	0.11***	0.17***	–0.01	0.18***	0.32***	0.11**	–0.06	0.23***	(0.92)

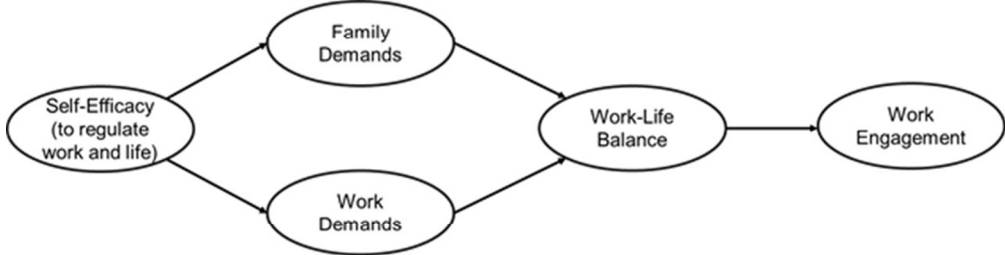
Note: *p < 0.05, **p < 0.01, ***p < 0.001.

Table IV. Results of structural equation modelling (SEM) ($n = 1,010$)

Model	χ^2	df	p -value	χ^2/df	SRMR	GFI	TLI	CFI	PCFI	RMSEA
Full Mediation	1,737.48	316	0.00	5.50	0.14	0.89	0.93	0.94	0.85	0.07
Partial Mediation	1,377.42	315	0.00	4.37	0.09	0.91	0.95	0.95	0.86	0.06

Note: df = degrees of freedom; GFI = goodness-of-fit index; TLI = Tucker–Lewis index; CFI = comparative fit index; PCFI = parsimony comparative fit index; SRMR = standardised root mean square residual; RMSEA = root mean square error of approximation.

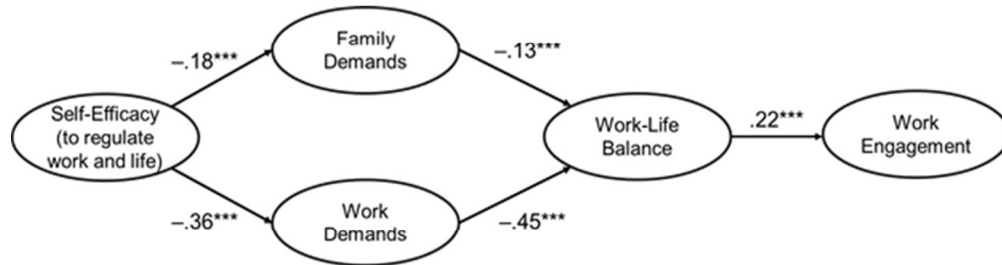
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Hypothesised chain mediation model

338x190mm (96 x 96 DPI)

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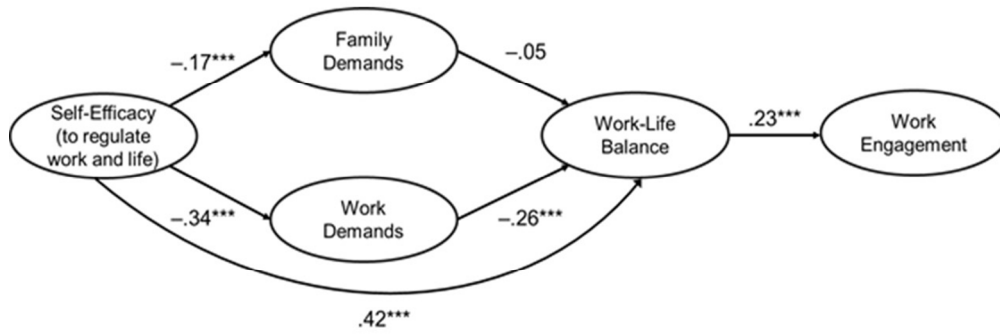
Structural model (Full mediation)

338x190mm (96 x 96 DPI)

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Structural model (Partial mediation)

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