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Abstract

Purpose – The purpose of this research is to investigate the role of organizational support, as it is evidenced by supervisor’s support and co-workers’ support, in the work engagement levels of employees who are parents of children with special needs and disabilities (SND).

Design/methodology/approach – We employed a self-administered survey questionnaire in Singapore and we collected 224 usable responses. We used moderated hierarchical regression analysis to assess the relationships among organizational support, employees’ child disability severity and levels of work engagement.

Findings – The research results indicated that higher levels of supervisor’s and co-workers’ support have a positive impact on work engagement levels of employees with children with SND. In addition, we observed that supervisor’s support and co-workers’ support moderate the relationship between employee child’s disability severity and work engagement levels.

Research limitations/implications – The results contribute to the introduction of a discussion about supportive practices directed toward this diverse group of employees in Singapore. Our research findings are country-specific.

Practical implications – We propose that Human Resource Management practitioners could craft policies that may trigger tangible and emotional support by supervisors and co-workers of employees with children with disabilities, depending on employee children’s disability severity.

Originality/value – This research is the first empirical examination that measures the work engagement levels of employed parents of children with SND in Singapore considering both organizational and family dimensions.

Keywords – engagement, supervisor, co-workers, disability, caregivers, diversity management.

Introduction

Past literature regarding employee work engagement has not sufficiently examined the unique set of needs of a diverse population, that of employees who are parents of children with special needs/ disabilities (SND). Despite the increased strain that they experience at home, employees with children with SND contribute significantly to the overall performance of organizations. Thus, studies focus on working parents of children with SND can significantly benefit both this population and their work environments.

World Health Organization (WHO, 2011) approaches disability as “the umbrella term for impairments, activity limitations and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual’s contextual factors (environmental and personal factors)” (p. 4). During the past years, the number of people with disabilities has been increasing and it has presently reached one billion, representing one sixth of the world’s population (WHO, 2011). Although there is some research on the inclusion of people with SND in the workplace (e.g. Dwertmann and Boehm, 2016; Meacham, Cavanagh, Shaw and Bartram, 2017), we still know little about the work engagement of employees with children with SND (Li, Shaffer, and Bagger, 2015; Stewart, 2013). Recent research studies have consistently shown that these parents experience heavier caregiving duties than parents of typically developing children and, as a result, they are more likely to experience mental health and emotional distress (Deater-Deckard, 2004; Morris, 2014; U.S. Department of Health and Human Service, 2008). As

Morris (2014) indicates, the heavier caregiving duties of these parents raise concerns about their ability to balance family and work issues with negative implications to their well-being.

There has currently been a small number of research reports and systematic reviews which indicate that social support provided to these parents should be improved (e.g., Authors, 2017; Stewart, 2013; Sullivan, Farnsworth and Susman-Stillman, 2018), given that social support can buffer the negative impact that raising a child with SND has on parental well-being (Breevaart and Bakker, 2011). Most of this research has focused on Western European and Northern American contexts, whereas less attention has been given to the Asia-Pacific region. However, the limited availability of social support for parents with children with SND has been the research theme of a number of recent studies conducted in Singapore, which emphasize the high levels of anxiety experienced by parents concerning their child's care and future (Poon, 2013; Poon, Koh and Magiati, 2013; Poon, Musti-Rao and Wettasinghe, 2013).

In this context, the present study sets out to investigate work engagement levels, examining the role that perceived organizational support (Eisenberg, et al., 2002; Thomas and Ganster, 1995), as this is portrayed by supervisors and colleagues, can play an important role in the levels of work engagement of employees with children with SND. Drawing on *family-work strain* (Hobfoll, 1989) and *perceived organizational support* (Eisenberger et al., 1986; Eisenberger et al., 2002; Thomas and Ganster, 1995) literatures, we explore whether the family-work strain that derives from the disability severity levels of employees' children and the support that employees receive in their work place influence their engagement at work. By investigating the work engagement of employees with children with SND, we can enhance our theoretical knowledge regarding antecedents that influence the work engagement levels of these employees, considering levels of family strain. Hence, this study endeavors to empirically corroborate relationships refining existing theoretical underpinnings on work engagement, investigating variations depending on children's disability severity levels (Rosenzweig, Brennan and Ogilvie, 2002) and support provided by employees' supervisors and colleagues (Bakker and Demerouti, 2007).

In the following sections, we present the conceptual framework of the present study, the review of the relevant literature, our methodology and the research results. We conclude with the discussion and implications for theory and practice.

Aim of the study and conceptual framework

Individuals inhabit multiple roles both in the workplace and at home, and they can be less or more engaged in one or in some of them (Rothbard, 2001). Engagement is the "positive, fulfilling, work-related state of mind" in which absorption, vigor, and dedication, exhibited by an individual at the workplace, leads to higher job performance, which benefits both the individual and the organization (Bakker and Demerouti, 2008). Employee work engagement is described by heavy work investment in terms of time and effort, and levels of engagement are frequently associated with employee performance. Higher levels of work engagement have been reported to promote individual mental and physical health, leading to higher organizational commitment and better group performance (Bakker and Demerouti, 2008), and, thus, the overall levels of corporate performance. According to Bakker and Demerouti's (2008) job-demands-resources model, physical, social or organizational aspects of the job "play an intrinsic motivational role because they foster employees' growth, learning and development, or an extrinsic motivational role because they are instrumental in achieving work goals" (p. 211). Demerouti et al. (2001) and Bakker and Demerouti (2007) argue that organizational justice and support and the organizational climate may relate positively to work engagement. Moreover, as Schaufeli (2018) notes, work engagement levels of employees from

different societies tend to vary, and, we need to do more to identify the variations in levels of work engagement internationally. Given the increased family strain experienced by employees who are parents of children with SND, it is vital to identify the parameters of involvement and their influence on the work engagement of this population taking into consideration the organizational support provided in the workplace.

Organizational support research has indicated that supervisors and colleagues have an important role in developing employees' attitudes toward the organization and their general work engagement (e.g., Ferguson et al., 2015; Rousseau and Aube, 2010). According to Rosenzweig, Huffstutter and Burris (2004) parents value relationships with their supervisor and co-workers, because they provide the necessary support to balance family and work responsibilities. The support provided by supervisors and co-workers promote the development of a positive work culture, which Biggs et al. (2014) have reported to have positive long-term effects on work engagement as well as overall organizational outcomes.

Support provided by the supervisor has been found to influence employees' psychological well-being, job attitudes, and their general job performance more than other sources of social support (Chen and Chiu, 2008; Ng and Sorensen, 2008). Rousseau and Aube (2010) state that supervisor support includes caring about subordinates, valuing their contributions and helping them develop their skills. Support includes the provision of knowledge or advice to resolve an issue and achieve task completion, as well as provision of care, understanding and sympathetic listening toward subordinates (Swanson and Power, 2001; Tucker, Jimmieson and Bordia, 2018).

In addition to the support provided by supervisors, co-workers' support is also regarded as a factor related to work engagement. Biggs, Brough and Barbour (2014) argue that the support provided by co-workers is a proximal job resource that reflects the degree to which employees perceive that their work colleagues provide empathic concern, practical assistance and informational support. The positive relationships between co-workers are considered critical in shaping organizational outcomes and the well-being of employees since, according to Au and Leung (2016), this kind of relationships provides positive effects on knowledge sharing, organizational citizenship behaviors and work performance, consequently decreasing burnout and turnover.

As DeRigne and Porterfield (2010) indicate, the caregiving of children with special health care needs is intensive and involves high monitoring of the child's condition, which frequently encompasses a large number of medical treatments and collaboration with several health professionals. On a research study conducted among Singaporean parents on the likelihood of future outcomes (e.g., community life, adult responsibilities) for children with SND, parents with children with severe disabilities indicated that their children were less likely to achieve these outcomes than parents with children with mild disabilities (Poon, Koh, and Magiati, 2013). As Lambe (2012) notes, the nature and the number of care tasks that parents with children with SND have to undertake are related to the severity of disability. This means that low-functioning children with disabilities need more intensive care than high functioning children with disabilities. This care can range from simple help self-skills (e.g., feeding, dressing, toileting) to more specialized interventions (e.g., tube feeding, administration of medication). As a result, disability severity has an increasing impact on employees' family and work lives, especially for mothers with children with SND (Crettenden, Wright, and Skinner, 2014; Morris, 2014).

In this context, assessing the role of perceived organizational support, it is essential to investigate how the disability severity of employees' child influences these employees' work engagement levels, also considering whether support from the supervisor and co-workers may affect

this relationship. Based on this framework, we develop our conceptual model and we test in a sample of Singaporean employees who are parents of children with SND. Our model is depicted in Figure 1.

[Insert Figure 1 about here]

Literature Review

Work engagement and employees with children with disabilities

Work engagement has been associated with employees' well-being (e.g., health), superior job performance and high life satisfaction (Shimazu, Schaufeli, Kamiyara and Kawakami, 2015; Shimazu, Schaufeli, Kubota and Kawakami, 2010). In addition, research suggests that formal family-supportive organizational policies can mitigate the increasing employee work and family demands through enhanced work-life boundary flexibility (Allen, 2001; Kossek and Distelberg, 2009). In line with this, Kossek and Distelberg (2009) argue that formal family supportive organizational policies, when encouraged, can mitigate the increased family demands of employees.

Parents of children with SND face significant challenges in getting into or remaining in paid work. A 2016 survey in Singapore commissioned by the Lien Foundation (NCSS, 2016) with more than 1000 participants revealed that even though there was strong ideological support toward the inclusion of persons with SND, Singapore had yet to introduce laws to enhance social support. In addition, the 2012-2016 Enabling Master plan (NCSS, 2016) indicated that the burden of tending children with SND fell mostly on mothers. According to the new 2017-2020 Enabling Master plan (NCSS, 2016), parents of children with disabilities face challenges in carrying out their caregiving functions, when they are in full-time employment. Thus, based on this new master plan, caregivers need additional support to provide care to their children who require high levels of care (e.g., assistance with daily living activities, medical treatment). Supportive work environments may include provisions such as flexible work hours, caregiving leave or even the opportunity to switch to part-time jobs, and need to promote social support toward employees who have children with SND.

Disability severity

Research has pointed to the needs of parents with children with SND (e.g., Brennan and Brannon, 2005; Steward, 2013) and with health care needs (e.g., DeRigne and Porterfield, 2010), as groups of parents who experience a different type of caregiving in comparison to parents of typically developing children (Jang, 2008). For example, in a recent study in Japan, Ejiri and Matsuzawa (2017) found that mothers of children with intellectual disabilities enrolled in special education schools had lower workforce participation and lower income, when compared to mothers with typically developing children. Other research studies have reported that mothers of children with severe disabilities invest less hours in their work, they are more likely to resign (DeRigne, 2012) or have more difficulties in working as paid employees than those who are parents of typically developing children (Kogan et al., 2008). Similar results were reported by Dillon-Wallace, Donagh and Fordham (2016) who found that the employees with children with SND reported higher levels of strain and fewer gains regarding work-life balance in comparison to employees with typically developing children.

Although a number of research studies has shown that employees with children with SND experience more difficulties in their employment than employed parents with typically developing children, the impact of the disability severity of the child has sparsely been investigated (e.g.,

Brennan and Brannan, 2005; Warfield, 2005). In addition, to the authors' knowledge, the role of organizational support (i.e., supervisor support and co-worker support) in the relationship between the severity of disability and work engagement has not been previously empirically studied. A few recent studies have shown that the severity of disability accompanies higher levels of parental strain that reflect into the work environment. For example, Booth and Kelly (1998), studying a sample of mothers of infants with disabilities, noted that the impact on work plans was greater for mothers whose infants presented severe disabilities, such as lower mental, motor, and adaptive functioning or chronic health problems, or disability types that demand the use of adaptive equipment. Rosenzweig et al (2002) found that the increased care demands of employees with children with severe multiple disabilities impacted negatively their work lives and performance. Similarly, the low independence levels of children, spouses or parents were also found to have negative impact in Bainbridge and Broady's (2017) research study. Warfield (2005) identified significantly higher stress levels among mothers who have children with increased behavior problems, compared to those whose children presented less severe behavior problems.

Brennan and Brannan (2005), in their study on caregivers with children with emotional and behavioral disorders, documented that there is a positive relationship between child's disability severity and caregivers' strain in relation to work absenteeism. A positive association between the child's disability severity and caregivers' strain was also documented by Brannan and Heflinger (2001). Wright, Crettenden and Skinner (2016) also reported that more than one third of Australian fathers whose children had severe disabilities reported that caring for their children has impeded their job opportunities and career progression. Based on the above research results, we infer that: *Hypothesis 1: Higher levels of child's disability severity will have a negative impact on work engagement levels of employees who are parents of children with SND.*

Supervisor's support

Rousseau and Aube (2010) argue that supervisor support provides employees with an emotionally satisfying work experience, which eventually helps them develop an attachment and sustain their functioning in their employing organization. Zhang et al. (2016) reported that Chinese subordinates actively seek to develop *guanxi* with their supervisors in an attempt to receive support related to their personal lives and family issues. Meta-analyses have provided evidence of the direct negative relationship of supervisor's support on employees' burnout (Halbesleben, 2010) and turnover intentions (Chiaburu and Harrison, 2008; Ng and Sorensen, 2008), two conditions that have been negatively related with work engagement in the literature.

In a recent study, Ferguson et al. (2015) found that support provided by the supervisor contributes to employee's work boundary flexibility and that this flexibility benefits employee's overall family functioning and organizational commitment. Within a healthcare context, Rousseau and Aube (2010) reported similar results, confirming that supervisor's support has an additive effect on employee's affective commitment levels. Pan and Yeh's (2012) study among 637 Taiwanese employees highlighted that employees' perceptions toward their supervisors influence their general perceptions of the organization. The authors argue that employees consider their organization as supportive or not depending on the signals they receive from the entire work environment and supervisors constitute a source of exceptionally important signals.

Research focusing on employed disability caregivers has not directly examined the support that these employees receive from their supervisor in relation to their levels of work engagement. However, there have been found peripheral associations with a few other variables, which may be linked to work engagement. For example, in their study of a sample with employed disability

caregivers, Li, Shaffer and Bagger (2015) reported low life satisfaction corresponding to high work to family conflict, in the presence of low perceived support by the supervisor. Also, in Matthews et al.'s (2011) qualitative study on employees with children with autism, the participants requested socio-emotional support by their supervisors, such as better understanding of their increased strain and schedule flexibility, which can help them disengage from family-life concerns while at work. A recent literature review on employed parents with children with SND documented that the support provided by the supervisor has an impact on balancing work and family issues (Brown and Clark, 2017), a factor that has been associated with levels of employees' engagement at work.

Several studies among employed parents of typically developing children have established a direct positive relationship between supervisor support and work engagement. For example, James, McKechnie, and Swanberg (2011) and Swanberg, McKechnie, Ojha, and James (2011) indicated that the support that employees received from their supervisors, in a large US retail company and in hourly retail jobs, respectively, is a major factor for the work engagement of these employees. Similar findings were reported by Bakker and his colleagues (2007) in a sample of Finnish teachers. The authors found that supervisor's support increased teachers' work engagement, helping them cope with their extensive teaching demands. A positive relationship between supervisors' support and work engagement has been also identified in a number of studies from the Asia-Pacific region, including Chinese employees' in manufacturing, information technology and service industries (Qing and Zhou, 2017), Australian nurses (Holland, Cooper, and Sheehan, 2016), and airport employees in Eastern China (Li, et al., 2014). In brief, the important role that supervisors' support plays in levels of work engagement has been further corroborated by several other studies (e.g., Kossek, Lewis and Hammer, 2010; Zhang and Liao, 2015). Thus, the existing literature provides convincing evidence of the relationship between supervisor's support and increased levels of work engagement. We consequently formulate the following hypothesis:

Hypothesis 2: Higher levels of supervisor's support toward employees who are parents of children with SND will have a positive impact on employees' levels of work engagement.

Co-workers' support

The support employees experience from their co-workers has also been associated with variables peripherally linked to work engagement. For example, Moreau and Magean (2012) studied a sample of 597 healthcare professionals in Canada and found that co-workers' support predicts employees' overall psychological health and work satisfaction. Reversely, an earlier study among 13,779 Swedish male and female worker had revealed that work-related social support may accentuate the impact of job strain, with workers facing high strain and receiving low support displaying higher rates of cardiovascular disease prevalence rates (Johnson and Hall, 1988). Rousseau and Aube (2010) confirmed a positive relationship between coworkers' support and affective commitment. In addition, Ng and Sorensen (2008) found that the support provided by co-workers has an additive effect on job satisfaction.

Similar to the lack of research on supervisor's support and work engagement in groups of employees who are parents of children with SND, there is no prior empirical research on the relationship between co-workers' support and work engagement in such groups of employees. In particular, for employees with children with SND, even though there have been references that social support can benefit these employees (e.g., Brown and Clark, 2017; Matthews et al., 2011), co-workers' support as a specific type of support has attracted inadequate attention by scholars. Yet, in a qualitative study on the work perspectives of parents of children with disabilities, Freedman

and her colleagues (1995) noted that support from colleagues was an important source of support that these parents derived from their workplace.

In general, past research has yielded evidence regarding the beneficial effect that co-workers' support has on work engagement. In a meta-analysis on work engagement, co-workers' support was one of the variables that was positively associated with work engagement (Halbesleben, 2010). Similarly, early research studies have identified co-workers' support as one of the predictors of employees' three work engagement components (i.e., vigor, dedication and absorption) (Bakker, Emmerik and Euwema, 2006; Schaufeli and Bakker, 2004). In a sample of flight attendants, Xanthopoulou et al. (2008) found that co-workers' support had unique positive effects on work engagement and that this support had an indirect effect on their in-role performance through work engagement. In a recent research study conducted by Anitha (2014), co-workers' support was among the factors that predicted high work engagement, and as a result, the author proposed that organizations should enhance positive peer relationships through suitable work environments and programs.

In line with these findings, in a sample of Chinese and Australian employees, Brough et al. (2013) observed a positive relationship between co-workers' support and work engagement. A positive association between these two variables has also been verified in a Chinese police officers sample (Hu, Schaufeli and Taxis, 2016), in an Australian sample of police service employees (Biggs et al., 2014), as well as in a South Korean sample of business consultants (Choi, 2013). Overall, in line with the underlying assumption in the literature, positive interactions among co-workers provide support which help employees cope with work demands and thus enhance their engagement (Halbesleben, 2010). Therefore, the following hypothesis is offered:

Hypothesis 3: Higher levels of co-workers' support toward employees who are parents of children with SND will have a positive impact on employees' levels of work engagement.

The moderating role of support

Albeit limited in number, a few studies that focus on the increased parental strain of employees who are parents of children with SND have suggested that higher levels of disability severity may affect negatively these employees' work engagement levels, and that support in the work environment may alleviate this adverse impact. Researching parents of children with emotional and behavioral disorders, Rosenzweig et al. (2004) highlighted the value that the relationships with the supervisor and co-workers have in supporting employees' ability to meet both family roles and work responsibilities. In a pertinent study of employees with children with developmental disabilities, Brown (2014) indicated a positive relationship between increased levels of difficulties deriving from child's disability severity and higher levels of interference of family in work. Examining further these relationships and considering supervisor's support, Brown (2014) observed that lower levels of family strain, measured as family interference with work, are associated with higher levels of supervisor's support. Similarly, Breevaart and Bakker (2011), in their study among parents with children with behavioral problems, found that the difficulties of raising a child with such problems can be buffered by the support provided by co-workers.

Given that (a) employees' child disability severity generates increased strain that reflects into engagement with work (e.g., DeRigne, 2012), (b) supervisor's and co-workers' support have a positive impact on work engagement levels (e.g., Moreau and Magean, 2012), and (c) positive social support is associated with alleviating family-related strain (e.g., Breevaart and Bakker, 2011), we build on the evidence of the existing literature and we, therefore, argue that the support that these employees receive in their organizational context (i.e., supervisor's and co-workers' support)

influences the relationship between the disability severity of their child and these employees' work engagement levels. We, thus, formulate the following hypotheses:

Hypothesis 4a: Supervisor's support will moderate the relationship between child's disability severity and work engagement of employees who are parents of children with SND

Hypothesis 4b: Co-workers' support will moderate the relationship between child's disability severity and work engagement of employees who are parents of children with SND

Method

Data Collection and Participants

In this exploratory study, we investigate work engagement measuring the attitudes of employed parents of children with SND focusing on organizational contexts in Singapore. A survey research in the form of a self-administered questionnaire was designed. Employees were approached and invited to participate in the research through special education institutions. Participating employees had stated that they were employed in a public or private organization during the period of the study. We informed the participants that their responses would remain confidential and anonymous.

We collected data from 224 employees, who were parents of children with disabilities. Participants worked full-time or part-time in Singaporean public and private organizations. The average age of the participants was 44.08 years (S.D. = 7.43). 43% of the participants were male, whereas 30% of them worked in the public sector. Participants had an average work experience of 19.43 years (S.D. = 8.46). 31.2% of them held a university degree. The respondents were employed in industries, such as banking, transportations, retail, accounting, media, construction etc.

Measures

In the compiled survey questionnaire, we included several constructs that measured employees' job attitudes and work-family demographic information. The variables included in our analysis are described below.

Work Engagement

We adopted the nine-item shortened version of the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2006). Participants indicated their agreement to the statements on a 7-point Likert scale ranging from 1, which corresponded to "Never," to 7, which corresponded to "Always" or "Every day." We initially examined the structure of the work engagement scale through exploratory factor analysis. The one-factor solution accounted for 68.63% of the variance. We also performed confirmatory factor analysis in MPlus (Muthén and Muthén, 2017), to confirm the scale's factor structure. The single-factor structure presented goodness-of-fit statistics ($\chi^2_{2, N=224} = 2.61, p=.27; CFI = .99; TLI = .99; RMSEA = .04; 90\% CI = .00, .14$) that indicated a good model fit (Cheung and Rensvold, 2002). The scale's Cronbach alpha was equal to .91. Sample items included: "I am immersed in my work" and "I am enthusiastic about my job."

Disability Severity

We asked parents to indicate the level of their child's disability severity, employing a binary variable, where 0 represented low-functioning disability types, whereas 1 represented high-functioning disability types. Parents were asked to indicate their child's functioning based on different conditions such as intellectual ability, physical, mental or sensory disability, or other health issues.

Supervisor's Support

To measure supervisor's support, we adopted the Thomas and Ganster's (1995) 9-item Supervisor Support Scale. The examined items assessed the frequency with which the employee's supervisor displayed their support in the past two months. On a five-point Likert-type scale the answers ranged from 1=never to 5=very often. The one-factor solution that derived from the exploratory factor analysis included six items and explained 67.92% of the total variance. Based on the confirmatory factor analysis's statistics ($\chi^2_{2, N=224} = 3.20, p=.20$; CFI = .99; TLI = .99; RMSEA = .05; 90% CI = .00, .15), the single-factor structure provided a good model fit. The Cronbach's Alpha reliability coefficient of the scale was .86. Sample items from the employed scale included: "My supervisor juggles tasks or duties to accommodate my parental responsibilities" and "My supervisor switches schedules (hours, overtime hours, vacation) to accommodate my parental responsibilities".

Co-workers' Support

To measure coworkers' support we adopted four items from Thomson et al.'s (1999) scale and an item from Allen's (2001) work. The five items of the scale were: "In general, coworkers in this organization are quite accommodating of family-related needs", "Co-workers in this organization encourage others to be sensitive to employees' family and personal concerns", "Co-workers in this organization are sympathetic toward employees' child care responsibilities", "In the event of a conflict, co-workers are understanding when employees have to put their family first" and "Co-workers in this organization are not supportive of employees' needs to balance work and family obligations" (seven-point Likert scale: 1=strongly disagree, 7=strongly agree). The deriving one-factor solution from the exploratory factor analysis explained 67.26% of the total variance. The single-factor structure fit the data well ($\chi^2_{2, N=224} = 2.27, p=.32$; CFI = .99; TLI = .99; RMSEA = .02; 90% CI = .00, .14). The Cronbach's Alpha reliability was .77.

Control Variables

Participants were invited to report a number of demographic characteristics, such as sector of employment, work experience, education, and number of children with disabilities. The control variables in our analysis were: gender, age, education, weekly workload (hours per week) and shared parenthood (0=single parents, 1=otherwise).

Results

The analysis of the data aimed to explore whether the disability severity of employees' children and organizational support, demonstrated by the levels of support provided by supervisors and co-workers, may relate to the work engagement levels of employed parents of children with disabilities.

Recognizing the self-report nature of the measured construct, we employed a number of precautionary strategies to alleviate potential common method risks. Specifically, as a procedural remedy, we included in the questionnaire scales relevant to both the work and family lives of the participants, so that the respondents would not associate the measurement of the predictor variables with that of the criterion variable (Podsakoff et al., 2003). We additionally informed the respondents that their answers would remain anonymous and confidential. Also, the employment of the Harman single-factor test (Podsakoff and Organ, 1986) allowed us to verify that no unusual variations existed in the collected responses; not a single factor accounted for the covariance in the measured variables. Furthermore, the examination of the correlations matrix revealed the presence of a

balanced mix of both significant and nonsignificant relationships among the researched variables, with several correlations being close to zero. In addition, to confirm the convergent and discriminant validity of our construct, we performed a CFA in Mplus (Muthén and Muthén, 2017), including the three latent variables. The measurement model presented a good fit ($\chi^2_{51, N=224} = 60.67, p=0.17; CFI = .99; TLI = .99; RMSEA = .03; 90\% CI = .00, .05$) (Hu and Bentler, 1999).

The results of the performed correlation analysis provided an initial indication regarding the relationship between the independent variables and employees' levels of work engagement. The means and standard deviations of the measured variables are presented in Table 1.

[Insert Table 1 about here]

Hypotheses 1, 2, 3, 4a and 4b were tested using hierarchical regression analysis, where gender, age, education, weekly workload and shared parenthood were treated as control variables. We reviewed the correlation coefficients between the independent variables (Hair et al. 1998) and we evaluated the risk of multicollinearity among the independent variables calculating Tolerance and Variance Inflation Factor (VIF) diagnostics. The VIF values were low ($VIF < 1.37$) for high levels of tolerance ($Tolerance > .73$). The results of the hierarchical regression analysis on work engagement are presented in Table 2.

[Insert Table 2 about here]

The first step of the analysis, which tested the contribution of the control variables to the explanation of work engagement levels, did not provide a significant regression model. The second step of the regression analysis did not render a significant model, either. The third step of the regression analysis rendered a significant model ($F=6.41, p<.001$). Supervisor's support ($\beta = .20, p<.01$) and coworkers' support ($\beta = .27, p<.001$) were positively related with employee levels of work engagement. The model that derived from the fourth step of the hierarchical regression was statistically significant ($F=5.79, p < .001$) increasing the explained total variance to 18%. The coefficients of gender ($\beta = -.13, p<.05$) and the first interaction variable (disability severity * supervisor's support) ($\beta = -.15, p<.05$) were negative, whereas the coefficients of supervisor's support ($\beta = .19, p<.01$), coworkers' support ($\beta = .29, p<.001$) and the second interaction variable (disability severity * coworkers' support) ($\beta = .15, p<.05$) were positive.

Male employees and those who enjoy higher levels of support by their supervisor and their co-workers tend to display higher levels of work engagement. Furthermore, the effect that disability severity has on levels of work engagement when supervisor's support is low is significantly different than when supervisor's support is high. Accordingly, the effect that disability severity has on levels of work engagement when supervisor's support is low is significantly different than when supervisor's support is high. For low supervisor's support levels, high disability severity implies lower work engagement levels, whereas, for high supervisor's support levels, high disability severity implies increased work engagement levels. Reversely, when co-workers' support is low, high disability severity is associated with increased work engagement levels, whereas, when co-workers' support is high, high disability severity is associated with lower work engagement levels. The plots of the interactions are presented in Figures 2 and 3. Based on these findings, hypotheses 2, 3, 4a and 4b were fully corroborated.

[Insert Figure 2 about here]

[Insert Figure 3 about here]

Discussion

Given the role that employees' engagement holds in firms' performance (Barrick et al., 2015), the study of the organizational factors associated with levels of work engagement is gaining increased importance. This study set the goal of identifying employees who are parents to children with disabilities in order to measure their job attitudes, considering both organizational and parental dimensions. Overall, the analysis of the results indicates that the work engagement of employees who are parents of children with SND tends to be dependent on perceived organizational support and the severity of the disability of the child. Support provided by the supervisor and the colleagues appear to positively impact levels of work engagement of employees who have children with SND. Very significantly, the relationship between the disability severity of employees' children and the work engagement of the employees was observed to be moderated by the levels of support provided both by the supervisor and the co-workers.

The findings concerning the positive relationships between supervisor's support/ co-workers' support and work engagement are in line with the existing literature (Biggs et al., 2014; Christian et al., 2011; James et al., 2011; Timms et al., 2012). Contributing to the consistency of prior findings in different settings, the corroborated hypotheses in our sample of employees who are parents of children with SND generalizes theory in more diverse employee populations, providing a rationale for organizations to introduce inclusive policies, which may enhance the work engagement of employees who experience higher strains in their family lives. The fact that such employees have been relatively overlooked in the existing management literature (Lewis, Kagan and Heaton, 2000) adds value to this research effort, which may initiate a generalized discussion regarding the needs of these groups in the workplace.

Consistent with the *family-work strain* and *perceived organizational support* literatures (Eisenberger et al., 2002; Hobfoll, 1989; Thomas & Ganster, 1995), this study concluded that, overall, the impact of the severity of disability is significantly weaker when higher levels of support are provided by the supervisor and colleagues. Consequently, our results demonstrate that parenthood strain experienced by employees who have children with SND can be alleviated by the understanding, sympathy and support expressed by both supervisors and co-workers. The negative impact that the child's severity of disability might have on employees' work had been reported in prior studies (Brennan and Brannan, 2005; Warfield, 2005; Wright, Crettenden and Skinner, 2016). Breevaart and Bakker's (2011) recommendation to include the severity of employee children's disability as a variable in future research was successfully met by the present study. As the authors had predicted, and we corroborated in this study, support may significantly buffer the strain that employees of children with more severe disabilities experience at work, benefiting their levels of work engagement.

For high supervisor's support levels, high disability severity is associated with increased work engagement levels, whereas for low supervisor's support levels, high disability severity is associated with lower work engagement levels. Conversely, for high co-workers' support levels, high disability severity is associated with lower work engagement levels, whereas, for low co-workers' support levels, high disability severity is associated with increased work engagement levels. This moderation effect highlights the important role that supervisor's support plays in work engagement, especially when employees' children display severe disabilities. At the same time, our results indicate that the impact of co-workers' support on work engagement has been particularly beneficial for employees whose children face less severe disabilities. Consequently, the intensity of

both types of support influences significantly differently the relationship between disability severity and work engagement. It can be inferred that, depending on child's disability severity, the supervisor and the co-workers may hold complementary important roles in alleviating strain deriving from the disability of employed parents' child. We reflect that, when child's disability is more severe, employees consider support provided by the supervisor particularly beneficial, which reflects in their levels of work engagement. For milder disability severity types, employees tend to perceive support from colleagues more beneficial, which in turn reflects into their work engagement levels. Although past research has shown that working parents value the contribution of supervisors and co-workers, due to the support they receive toward meeting their work and parental responsibilities (Rosenzweig et al., 2004), the present research reveals that social support is an important variable when studying the relationship between parental strain specifically focusing on the severity of the child's disability and work engagement.

The important role that organizational support holds when examining the relationships between disability severity and work engagement constitutes an interesting finding that may also lead us deduce significant HR practices. On the one hand, it could be inferred that when disability severity is high, the supervisor of the employee can be prioritized to design supportive actions, such as flexible work schedules, as well as other tangible psychological and practical accommodations of their employee's needs, which can be instrumental toward alleviating family-related strain and enhancing work engagement. On the other hand, when the disability type of employees' child is not as severe (i.e., high functioning), implementing HR initiatives that focus on co-workers, may benefit the engagement of the employees, who would not exclusively seek for support in their supervisors' actions. For instance, organizing disability and family-strain awareness seminars that may enhance co-workers' sympathy, agreeableness and support toward their colleague's family-related strain could alleviate parental strain and increase work engagement.

The control variable gender was also found to be negatively associated with employee levels of work engagement, revealing the significance of this demographic variable regarding child's disability and work engagement. Female employees who are mothers of children with SND experience lower work engagement levels. One plausible explanation of this finding is that due to their highly requiring motherhood role, female employees may experience lower levels of work engagement, when compared to their male counterparts. Indeed, the increased strain that mothers of children with developmental disabilities experience has been referred as a factor that hinders positive work outcomes (Crettenden et al., 2014). Although, to date, literature has identified several associations between personal characteristics and work engagement (Naruse et al., 2013), we reflect that, in future studies, the relationship between gender and work engagement needs to be further assessed in combination with other variables, such as hierarchical rank, which may hold a mediating or moderating role toward work engagement.

Last, the present research points to the direction that, by embracing parental needs of employees who are parents of children with disabilities and, thus, formalizing organizational support initiatives toward this population, organizations in Singapore, and perhaps internationally, can benefit by increasing work engagement levels of their employees. Although recent Singaporean legislation (e.g., NCSS, 2016) has targeted employees with increased caregiving responsibilities and a limited stream of research has started focusing on these employees' needs for social support both in Singapore and in the Asia-Pacific region (e.g., Poon, 2013), our research findings substantiate further the need for Singaporean organizations to continue introducing supportive practices for parents of children with severe disabilities.

Implications for research, policy and practice

Based on our results, we reflect that this research fills a significant gap in the literature proposing a *human resource management* research framework for the study of roles and attitudes of caregivers of children with SND in their workplaces. We extend the *family–work strain* and *perceived organizational support* literatures in a diverse population and, thus, our findings can significantly support the strength of existing and future research models. The present study empirically examined, for the first time, work engagement in a sample of Singaporean parents of children with SND. Prior research had investigated work engagement in general workplace contexts (e.g., Llorens et al., 2006) or in more specific occupational samples, such as those of nurses (e.g., Naruse et al., 2013) or teachers (Bakker et al., 2007). Focusing on the Singaporean work environment, this research provides several original insights regarding children’s disability severity, family strain, organizational support and employee work engagement, variables that can be further investigated and refined by future researchers who are interested in the Asia-Pacific region.

Furthermore, this research emerges a number of significant implications for policy and practice. Workforce diversity has been receiving increased attention during the past years and it is expected to grow in the upcoming decades (Breevaart and Bakker, 2011; Stewart, 2013; Sullivan, Farnsworth, and Susman-Stillman, 2018). Given the role that organizational support plays in work engagement, to enhance diversity, *human resource management* practitioners are encouraged to design policies that may trigger tangible and emotional support by supervisors of employees who are simultaneously parents of children with SND, especially for employees whose children display severe disability types. As Krisor and Rowold (2014) indicate, it is easier for employees with high caregiving responsibilities to respond to work and family demands, when an organization fosters a family-friendly culture in a constructive and understanding way. Simultaneously, diversity management training programs and policies may highlight the positive role that co-workers’ support may have for the engagement of employees who are parents to children of disabilities. These programs and policies could additionally focus on the identification of employees with children with exceptional care responsibilities, and on creating opportunities for employees to disclose these exceptional responsibilities by mitigating any stigma associated with having a child with SND (Corrigan and Miller, 2004). Research has shown that employees who share their demanding situation at home with their supervisors and colleagues benefit from the support that they receive (Breevaart and Bakker, 2011). Organizations with clear organizational support plans in place could encourage employees with children with SND to share their situation and seek for help, especially when their child experiences severe disabilities.

More specifically, in non-Western contexts, employees who have children with disabilities tend not to disclose their child’s disability (Lim, Thaver, and Slee, 2008) and, consequently not to report at work their increased parental responsibilities, possibly due to lack of existing official practices. In diverse international contexts, this lack of reporting in the workplace may be attributed to parents’ concerns about discrimination deriving from the perceived ‘guilt’ or ‘stigma’ that social pressure may create to parents of children with disabilities. Hence, the results of this study have important implications for societies which do not have a legal framework or a socio-cultural background that support parents of children with SND, emphasizing the need for HR executives to actively seek such information and craft policies that can boost the work engagement levels of these employees.

Limitations and future research

This research displays a number of limitations. First, we collected our data approaching parents through special education schools, a process that may not necessarily represent and capture specificities of many diverse underlying workplace dynamics of the Singaporean workplace (Schwarz and Bohner, 2001). We, thus, suggest that future studies investigate the differences that might exist in the attitudes of employees with children with SND in different organizational contexts. Second, research participants lived and worked in the urban context of Singapore and, consequently, our findings may not necessarily be applicable to rural populations. Future research should also include rural populations, allowing for reflections on more elaborate sociocultural comparisons.

Third, despite the procedural and statistical precautions we adopted, we acknowledge potential common method bias risks as an additional limitation of this study. Fourth, our research investigated the attitudes of employees with children with SND employing a quantitative data collection methodology. Future research could additionally focus on the collection of qualitative data through, for instance, in-depth interviews or ethnographic observations from employees' work and family lives. Qualitative data could provide rich descriptions and meaningful justifications and interpretations of the intricacies around the complex social issue of work engagement, especially for employees with increased caregiving responsibilities. Fourth, this research specifically focused on the family strain of employees who are parents of children with SND. However, increased strain may also be met in employees with children without SND. Thus, we encourage that future studies investigate possible differences that might exist in these two groups of employees, a comparison that may generate possible differences.

Fifth, this research examined specific relationships that have previously been sporadically investigated in the extant literature (e.g., the influence of child's disability severity on employees' work engagement). However, we propose that more research is needed to shed light on the relationship we observed in this research (i.e., the moderating role of disability severity in the relationship between supervisor's and co-workers' support and work engagement) in order to better explain what the characteristics and meanings of these relationship are for employees with children with SND in diverse work and cultural contexts.

Last, our results are based on data derived only from employees in Singapore, and thus the inferred research conclusions are society-specific. Future replications of our study in other societies would potentially refine the employed research framework and provide more rigorous research conclusions based on divergent organizational, economic, socio-cultural and legal specificities.

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Table 1. Descriptive statistics and correlations matrix of the examined variables.

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9
1. Work engagement	5.17	1.30	1.00								
2. Disability Severity ^a	.40	.49	.01	1.00							
3. Supervisor's support	2.87	.90	.32**	-.04	1.00						
4. Co-workers' support	4.95	1.08	.37**	.03	.48**	1.00					
5. Gender ^b	.57	.50	-.09	.08	.07	.02	1.00				
6. Age	44.08	7.43	-.07	-.03	-.04	.04	-.24**	1.00			
7. Education	12.95	3.49	.16*	-.13	.12	.17**	.02	-.10	1.00		
8. Workload ^c	44.08	15.04	.04	-.00	-.16*	-.04	-.26**	.12	.01	1.00	
9. Shared parenthood ^d	.88	.33	.06	-.04	.10	.10	-.18**	.05	.17*	.19**	1.00

Notes:

** . Correlation is significant at the 0.01 level.

* . Correlation is significant at the 0.05 level.

^a 0=low-functioning child, 1=high-functioning child

^b 0=male, 1=female

^c average work hours per week

^d 0=no, 1=yes

Table 2. Hierarchical Regression Analysis on employees' work engagement.

VARIABLE	FIRST STEP		SECOND STEP		THIRD STEP		FOURTH STEP	
	β	t	β	t	β	t	β	t
Gender ^a	-.11	-1.52	-.11	-1.54	-.13	-1.93	-.13	-2.04*
Age	-.08	-1.18	-.08	-1.17	-.10	-1.56	-.12	-1.83
Education	.15	2.15*	.15	2.19*	.08	1.31	.07	1.15
Workload ^b	.02	.31	.02	.30	.07	1.06	.07	1.06
Shared parenthood ^c	.01	.17	.01	.17	-.04	-.54	-.03	-.41
Disability Severity ^d			.03	.45	.02	.32	.01	.22
Supervisor's support (SS)					.20	2.74**	.19	2.63**
Co-workers' support (CS)					.27	3.78***	.29	4.03***
Disability Severity * SS							-.15	-2.11*
Disability Severity * CS							.15	2.04*
R ²	.04		.04		.19		.21	
Adj. R ²	.02		.02		.16		.18	
ΔR^2	.04		.00		.15		.02	
F-statistic	1.80		1.53		6.41***		5.79***	

Notes: n=224; standardized regression coefficients are reported.

* p \leq .05 ** p \leq .01 *** p \leq .001

^a 0=male, 1=female

^b average work hours per week

^c 0=no, 1=yes

^d 0=low-functioning child, 1=high-functioning child

Figure 1. Conceptual model

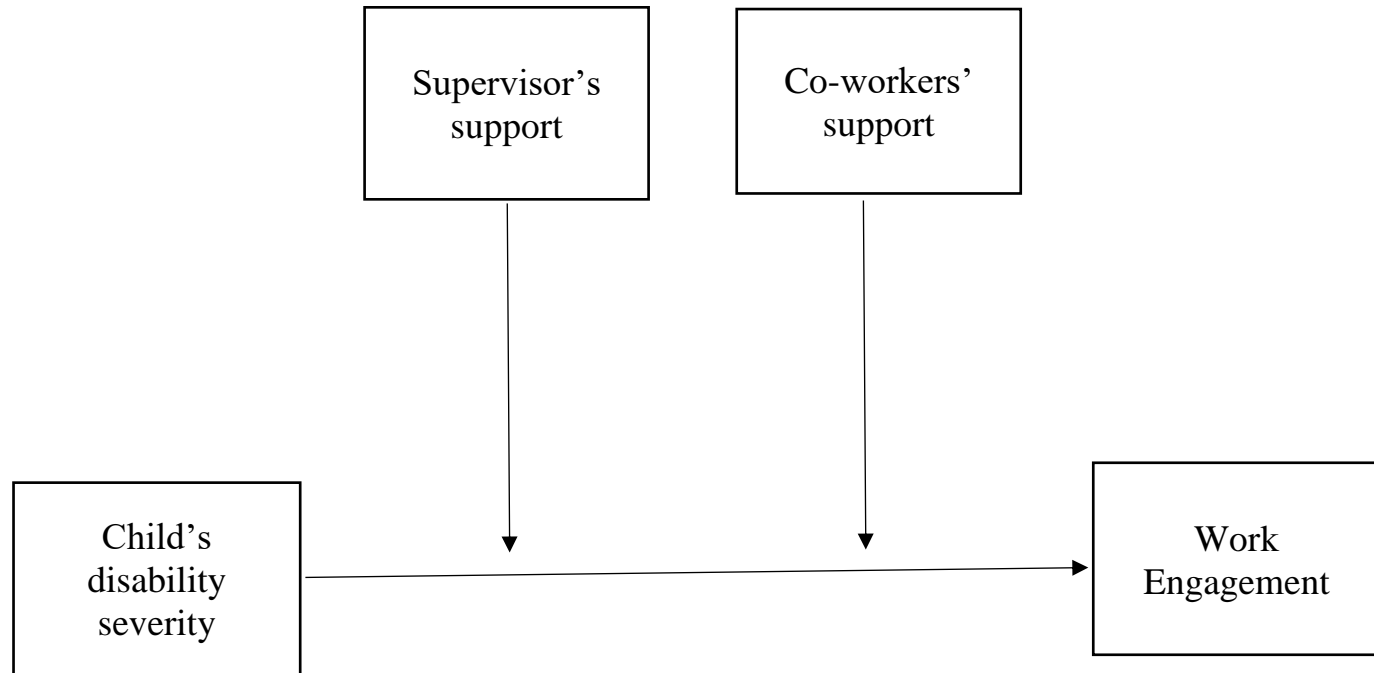


Figure 2. The interaction of child's disability severity and supervisor's support in predicting levels of employee work engagement

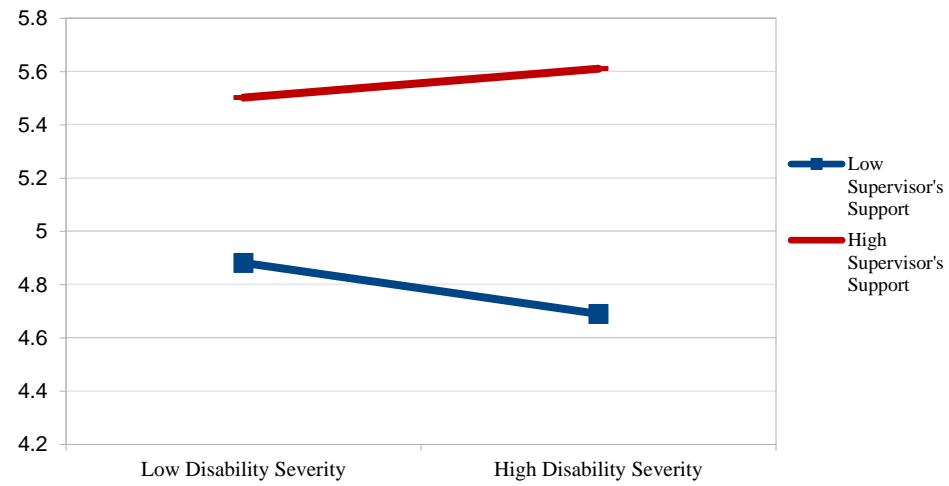


Figure 3. The interaction of child's disability severity and co-workers' support in predicting levels of employee work engagement

