

# A one-year prospective study of organizational justice and work attitudes: an extended job demands-resources model

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21

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## Abstract

**Purpose** – Organizational justice plays a crucial role in shaping employee work attitudes. This study examines how and when procedural, distributive, interpersonal, and informational justice affects employees' affective commitment and work engagement. The research is grounded in an extended job demands-resources model, incorporating the social identity theory. The integrated model hypothesizes that all four dimensions of organizational justice positively influence employees' commitment and engagement by fostering organizational identification. Furthermore, it is posited that this cognitive-affective process is particularly significant when employees face high job demands, as opposed to low job demands.

**Design/methodology/approach** – A three-wave prospective study was conducted with a sample of 400 employees in the social and personal services industry in Hong Kong, China. Data were collected at baseline, three months, and one year.

**Findings** – The findings support the hypothesized conditional indirect associations between organizational justice (procedural, distributive, and informational justice) and both measures of work attitudes.

**Practical implications** – This study highlights the importance of fair, ethical, and just procedures, resource distribution, and communication in organizations, particularly in stressful industries. Employers and supervisors are encouraged to adopt employee-oriented management practices, foster positive leader-member exchange relationships, and acknowledge and reward valuable contributions.

**Originality/value** – This study contributes to the existing literature on organizational justice by elucidating its underlying cognitive-affective mechanism and identifying the boundary conditions under which it operates.

**Keywords** Organizational justice, Organizational identification, Job demands, Affective commitment, Work engagement

**Paper type** Research paper

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## Introduction

Workers may encounter various forms of injustices in the workplace, such as biased performance evaluations (Poon, 2004), unequal compensation (Choshen-Hillel *et al.*, 2015), and harassment or discrimination (Richard *et al.*, 2020). Perceiving an organization as unjust can negatively impact employees' well-being, health, and performance (Cohen-Charash and Spector, 2001). Organizational scholars have identified four types of justice that are applicable across work events, such as employee selection, recruitment, performance evaluation, compensation, training opportunities, and layoffs (Colquitt, 2001). These perceptions of fairness among employees pertain to procedural justice (i.e. ethical and consistent procedures leading to outcomes), distributive justice (i.e. fair distribution of resources and compensation), interpersonal justice (i.e. respectful treatment during decision-making), and informational justice (i.e. timely and truthful explanations for decisions).

Establishing a trustworthy working environment is crucial for various employee outcomes, such as work engagement (Basit, 2017), work quality (Martínez-Tur *et al.*, 2020), and organizational citizenship behaviour (Deluga, 1994). Building trust with employees has become especially important in the aftermath of the COVID-19 pandemic, which has brought sudden changes to work arrangements, organizational policies, layoffs, and forced closure of companies, leading to feelings of concern, doubt, and fear (Ho *et al.*, 2022a). These disruptions have resulted in reduced commitment and engagement among employees (Yuan *et al.*, 2021). Therefore, organizations need to regain employees' trust to re-establish their focus and dedication at work. Fostering a fair and just environment is in the best interest of organizations as it cultivates desirable employee outcomes, ultimately contributing to the overall success of the organization (Whitman *et al.*, 2012).

There are two obstacles hindering the progress of research and theory on organizational justice. First, existing studies investigating the role of organizational justice on work-related attitudes and behaviours have yielded divergent perspectives on how organizational justice operates (i.e. social exchange theory vs affective events theory; Cohen-Charash and Spector, 2001; Colquitt *et al.*, 2023). There is a pressing need for an overarching theoretical model that offers a coherent explanation of the cognitive-affective mechanism of organizational justice. Second, limited research has examined the boundary conditions that determine when organizational justice is most beneficial. Recent calls for further research have emphasized the need to investigate the nuanced ways in which organizational justice influences employee outcomes (Ekmekecioglu and Aydogan, 2019; Farid *et al.*, 2023).

To address the knowledge gaps and limitations in the existing literature, this study proposes an extended job demands-resources (JD-R) model that incorporates social identity theory to elucidate how and when procedural, distributive, interpersonal, and informational justice impact employees' affective commitment and work engagement. Specifically, the study aims to investigate the role of organizational identification as the underlying cognitive-affective mechanism through which organizational justice operates. Fair, ethical, and just organizations are expected to foster committed and engaged employees by enhancing their sense of belongingness and motivation to achieve organizational goals. Moreover, this study aims to examine whether this indirect association is particularly pronounced in high-stress work conditions, where the fair treatment by the organization becomes crucial.

### *Organizational justice and work attitudes*

To explicate the association between organizational justice and work attitudes, we draw on the JD-R model, which posits that job resources contribute to personal development, motivation, and positive work outcomes such as engagement, commitment, performance, and occupational health (Bakker and Demerouti, 2007). Job resources operate through intrinsic and extrinsic motivational processes. Intrinsic motivation is facilitated by job resources that fulfil basic human needs, including autonomy, competence, and relatedness (Ryan and Deci, 2000).

For instance, allowing the expression of views and feelings about organizational policies (procedural justice) satisfies the need for autonomy. Providing recognition and rewards for effort (distributive justice) enhances job competence, while having respectful communication with supervisors (interpersonal justice) cultivates a sense of relatedness. On the other hand, extrinsic motivation is supported by job resources that minimize the psychological and physiological costs of job demands, enabling employees to dedicate efforts to their work. For instance, receiving comprehensive and accurate information for task completion (informational justice) increases the likelihood of goal attainment at work. This is grounded in the perspective of motivational theorists who propose that social contexts, such as the workplace, are responsible for satisfying the psychological needs of individuals to facilitate proactivity and engagement within these environments (Ryan and Deci, 2000).

While the JD-R model has been widely adopted to study work commitment and engagement, the focus has predominantly been on work autonomy, social support, and development opportunities as job resources (e.g. Tims *et al.*, 2013; Van Steenbergen *et al.*, 2018). However, there is a growing recognition in organizational research regarding the significance of organizational practices in establishing a trustworthy, ethical, and fair work environment (Schwepker *et al.*, 2021). Thus, in the present study, we conceptualize organizational justice as a crucial job resource that provides both intrinsic and extrinsic motivation to foster positive work attitudes among employees.

According to the JD-R model, job resources have direct positive effects on work attitudes and behaviours (Bakker and Demerouti, 2007). Consistent with this notion, cross-sectional studies have indicated positive associations between specific dimensions of organizational justice and affective commitment, job satisfaction, and job involvement (Lambert *et al.*, 2021). However, there is a scarcity of longitudinal or prospective studies in this area (about 1% of studies; Li and Cropanzano, 2009; Wolfe and Lawson, 2020). There is a lack of evidence supporting the associations between perceived fairness and affective commitment and work engagement over time. Moreover, many existing studies have focused on only one or selected dimensions of organizational justice, despite potential differences in the relationships between the unique dimensions of organizational justice and work attitudes (Cohen-Charash and Spector, 2001). These knowledge gaps and limitations warrant further investigation into the relationship between organizational justice and work attitudes.

#### *Mediating role of organizational identification*

Previous research on organizational justice has identified two divergent employee responses: cognitive and affective (Colquitt *et al.*, 2023). From a cognitive perspective, researchers argue that employees' response to organizational justice is characterized by cognitions reflecting a sense of obligation and trust towards the organization (Colquitt *et al.*, 2014). This perspective draws on social exchange theory, which suggests that employees are more likely to reciprocate fair treatment from their supervisors or organization with positive work attitudes and behaviours. Studies have demonstrated that employees' trust in the organization and perceived organizational support play significant mediating roles in the relationship between organizational justice and job satisfaction, organizational commitment, and organizational citizenship behaviour (Aryee *et al.*, 2002).

In contrast, from an affective perspective, researchers consider employees' work-related emotions as indicators of their responses to the appraisal of their treatment by their supervisors or organization (Colquitt *et al.*, 2023). This perspective draws on affective events theory, which posits that positive or negative events at work elicit affective responses (e.g. feeling angry when efforts are not recognized) that influence attitudinal and behavioural outcomes. Studies showed that negative emotions (i.e. anger, frustration, concern, depress; Jacobs *et al.*, 2014) mediate the association between organizational justice and unethical behaviour. However, there has been limited effort to develop and test an overarching

theoretical model that effectively integrates these two divergent lines of work to provide a coherent explanation of the cognitive-affective process involved.

Building on the understanding of the underlying mechanisms of organizational justice, this study incorporates insights from the social identity theory (SIT; [Tajfel and Turner, 2004](#)) to propose that perceptions of fairness at work result in favourable work attitudes by enhancing organizational identification. Social identity refers to the internalized membership of social groups, such as identification with the organization, which holds emotional and personal value for individuals ([Ho and Yeung, 2017, 2020](#)). Individuals categorize themselves based on perceived similarities with a particular group, and group membership provides cognitive and affective foundations for their behaviour and interactions within the group. Specifically, social identification encompasses cognitive awareness of one's membership in a social group and emotional attachment to the group ([van Dick et al., 2004](#)). Identifying as a member of a social group motivates individuals to seek positive distinctiveness for the group, thereby maintaining a positive self-concept ([Ho and Yeung, 2017, 2020](#)). Research has provided evidence for the cognitive and affective dimensions of organizational identification and their positive impact on work-related attitudes and behaviours ([Boroş et al., 2011](#)). This conceptualization of social identity thus aligns with the organizational justice literature on the cognitive-affective process, as employees who perceive themselves as members of the organization experience a sense of belongingness (i.e. affective) and are motivated to contribute to the organization's greater good (i.e. cognitive). In other words, the cognitive and affective aspects of organizational identification correspond to the sense of reciprocity and experience of positive emotions derived from organizational justice, respectively.

Given that individuals generally view themselves as just, moral, and ethical ([Ellemers et al., 2019](#)), they are more likely to identify with organizations that share these values ([DeConinck, 2011](#)). Consequently, organizational justice is expected to foster organizational identification. This internalized membership entails an intrinsic motivation to maintain a positive self-concept, thus promotes commitment and engagement to enhance the positivity and status of the organization ([He et al., 2014](#); [Jiang and Law, 2013](#)). Based on theoretical and empirical support from the organizational justice and social identity literature, it can be inferred that organizational justice creates a work environment that employees take pride in being part of. Thus, employees who perceive fair treatment are more likely to strongly identify with the organization, thereby increasing their commitment and engagement at work to contribute towards organizational goals ([Olkkonen and Lipponen, 2006](#)). While there is evidence suggesting that the way organizations treat and engage with employees serves as cues indicating that they are valued and respected by the organization ([Tanis and Beukeboom, 2011](#)), the specific mediating role of organizational identification in the prospective associations between the four dimensions of organizational justice and employee's commitment and engagement at work remains unexplored.

#### *Moderating role of job demands*

Research on the boundary conditions of the associations between organizational justice and work attitudes has been limited. Previous studies have primarily examined whether the effects of organizational justice vary depending on culture ([Silva and Caetano, 2016](#)) and individual characteristics ([van Olffen and de Cremer, 2007](#)). However, evidence from other lines of research suggests that job demands, such as work overload, organizational constraints, and interpersonal conflict ([Spector and Jex, 1998](#)), can moderate one's work experiences and subsequently impact work engagement ([Tesi et al., 2019](#)). According to the JD-R model, job demands can influence work attitudes and behaviours through an impairment process that depletes employees' mental and physical resources ([Bakker and Demerouti, 2007](#)). As job demands require cognitive, emotional, and physical effort, repeated exposure to high-stress work conditions can gradually deplete energy resources, leading to

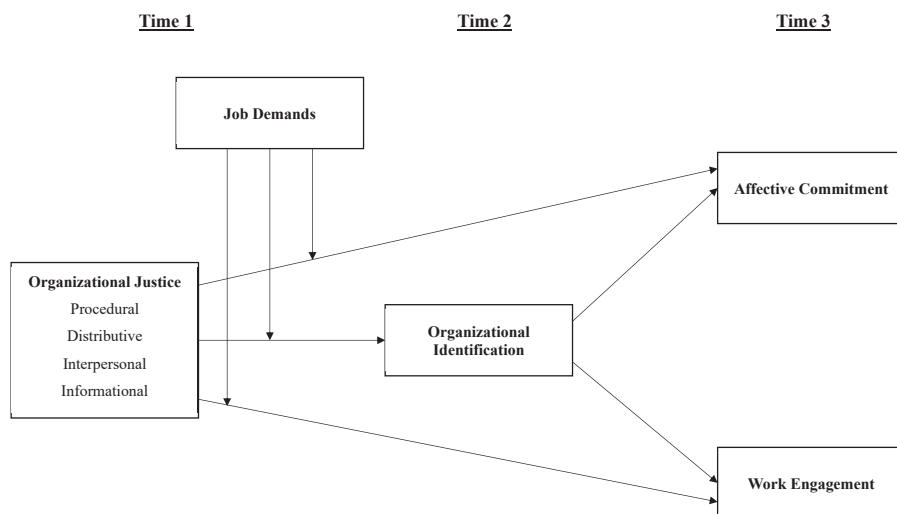
exhaustion, burnout, and withdrawal. Therefore, organizational resources play a crucial role in sustaining employees' commitment and engagement (Ho and Chan, 2022).

Applying to organizational justice, in highly demanding jobs, fair treatment becomes particularly important because employees expect job outcomes (e.g. pay, reward, promotion) to align with the amount of work they perform (work overload), the procedures for obtaining job resources (e.g. equipment, supplies, training) to be well explained (organizational constraints), and conflicts to be resolved fairly and without bias by their supervisors (interpersonal conflict). In contrast, in low demand jobs, organizational justice may be less critical as employees need to invest less effort into their work. The nature of the job would be relatively straightforward, requiring minimal need for elaborate explanations, complex procedures, or in-depth communication that would otherwise have to be carried out fairly.

Taken together, our extended JD-R model proposes that organizational justice serves as a job resource that supports employees' development and helps them achieve their career goals. Employees readily identify with a fair, ethical, and just organization due to the support they receive, as well as the alignment of values and beliefs. Organizational identification fosters a sense of belongingness and motivates individuals to contribute to the organization's greater good, leading to increased commitment and engagement. The effect of organizational justice on work attitudes is further strengthened in the presence of job demands, as it reinforces the perception of "being in the same boat" with others in the organization. These relationships are depicted in a moderated mediation model (Figure 1), in which organizational justice (*predictors*) has conditional indirect associations with affective commitment and work engagement (*outcomes*) through organizational identification (*mediator*) under varying levels of job demands (*moderator*).

### Present study

In sum, existing studies on organizational justice have several limitations in terms of scope, mechanisms, conditions, and methods. Firstly, previous research has focused on selective dimensions of justice, and a comprehensive examination of all four dimensions would provide a better understanding of the essential types of organizational treatment. Secondly, the



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**Figure 1.** Conceptual model of the associations between organizational justice, job demands, organizational identification, affective commitment, and work engagement

investigation of underlying mechanisms has led to divergent directions, and exploring the mediating role of organizational identification could offer a more coherent explanation of the cognitive-affective process. Thirdly, most studies have not considered the impact of working conditions on employees' experiences, and examining the moderating role of job demands would clarify when organizational justice is most impactful. Fourthly, the majority of existing work is cross-sectional, and adopting a prospective design would allow for more rigorous inferences about the temporal ordering of fairness perceptions and work attitudes. This study aims to address these knowledge gaps and limitations in the literature to provide theoretical advancements and practical contributions. Findings can shed light on the psychosocial determinants, mechanisms, and conditions that lead to desirable work outcomes.

Using a three-wave prospective design, the study hypothesizes that: (H1) organizational justice (i.e. procedural, distributive, interpersonal, and informational) at Time 1 (T1) is positively associated with organizational identification at Time 2 (T2), affective commitment at Time 3 (T3), and work engagement at T3; (H2) organizational identification at T2 is positively associated with affective commitment and work engagement at T3; (H3) the association between organizational justice at T1 and affective commitment and work engagement at T3 is mediated by organizational identification at T2, such that organizational justice has a positive indirect association with affective commitment and work engagement through organizational identification; and (H4) the indirect associations between organizational justice at T1 and affective commitment and work engagement at T3 are moderated by job demands at T1, such that organizational justice has a greater indirect association with affective commitment and work engagement through organizational identification when job demands are high, compared to when they are low.

## Method

### *Participants and procedures*

A one-year prospective study was conducted with three waves of data collection: baseline (T1), three months (T2), and one year (T3). Using a time-lagged method with three time points allows for considering the temporal sequence of variables and helps mitigate common method bias, resulting in more robust inferences regarding the directionality of the associations between variables (Maxwell and Cole, 2007). The specified time-lags are appropriate for examining the intermediate and distal associations while maintaining adequate retention rates at follow-up assessments (Ho and Chan, 2022; Ho *et al.*, 2022b).

The participants were full-time employees in the social and personal services industry in Hong Kong, China. They were recruited with the support of a local trade union that represented this group of workers. The study was conducted online to ensure confidentiality and to enhance the validity of the participants' responses. The surveys consisted of validated and reliable scales from existing literature. In instances where Chinese versions were not available, the scales were translated using the translation and back-translation procedure. Informed consent was obtained from the participants via the survey website before they proceeded to the questionnaire. The participants received a HKD100 supermarket coupon (about USD13) as an honorarium after completing each questionnaire. The study was approved by the Human Research Ethics Committee of the affiliated university (Ref. no. 2019-2020-0249).

Meta-analyses on organizational justice research showed medium sized effects (Li and Cropanzano, 2009; Wolfe and Lawson, 2020). Based on this criterion, *a priori* power analysis was conducted to determine the sample size with a statistical power of 0.95, alpha of 0.05, and medium effect size of 0.30 (Faul *et al.*, 2007). In total, 400 eligible participants were recruited and responded to the questionnaire at T1, with 316 (79%) of them responding at the T2 follow-up, and 303 (76%) responding at the T3 follow-up. The participants were mostly

female (76.7%,  $n = 307$ ), between 30 to 39 years old (53.3%,  $n = 213$ ), completed education at the undergraduate (38.8%,  $n = 155$ ) or postgraduate level (45.7%,  $n = 183$ ), and had an average of 11.3 years ( $SD = 7.15$ ) of work experience in the services sector. Independent samples  $t$ -tests and Pearson's Chi square tests were conducted to compare the demographics and baseline study variables between participants who completed and those who dropped out, which revealed that the two samples were identical (all  $p > 0.05$ ).

### Measures

**Organizational Justice.** The Colquitt's Organizational Justice Scale was used to measure perceived organizational justice (Colquitt, 2001). Subscales include procedural (7 items), distributive (4 items), interpersonal (4 items), and informational justice (5 items). The items are rated on a 5-point scale (1 = *to a very small extent*; 5 = *to a very large extent*). An example of the scale is "Does your job outcome reflect the effort you have put into your work?" This scale has good validity and reliability in prior studies on Chinese samples (Li, 2020). The scores on procedural, distributive, interpersonal, and informative justice exhibited high levels of internal consistency in the present study ( $\alpha = 0.85, 0.95, 0.90, 0.93$ , respectively).

**Job Demands.** A 3-item measure of job demands was used to measure stressful working conditions, as indicated by work overload, organizational constraints, and interpersonal conflict (Spector and Jex, 1998). The items are rated on a 5-point scale (1 = *less than once per month or never*; 5 = *several times per day*). An example of the scale is "How often does your job require you to be overloaded (e.g. work very fast, work very hard, have little time to get things done, have a great deal to get done, have to do more work than can be done well, etc.)?" The score on job demands exhibited an acceptable level of internal consistency in the present study ( $\alpha = 0.70$ ).

**Organizational Identification.** An organizational identification measure was used to measure employees' willingness to define oneself as a member of the employing organization (Postmes et al., 2013). Respondents are asked "To what extent do you see yourself as a member of your current organization of employment?" Response is given on a 5-point scale (1 = *not at all*; 5 = *very much*). This measure has been widely used in organizational research due to its feasibility and efficiency over multi-item alternatives (Allen et al., 2022).

**Affective Commitment.** The Affective Commitment Scale was used to measure employees' sense of loyalty and obligation to the organization (Meyer and Allen, 1991). It consists of 6 items, rated on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). An example of the scale is "I would be very happy to spend the rest of my career with this organization." This scale has good validity and reliability in prior studies on Chinese samples (Cheng and Stockdale, 2003). The score on affective commitment exhibited a high level of internal consistency in the present study ( $\alpha = 0.87$ ).

**Work Engagement.** The Utrecht Work Engagement Scale was used to measure work engagement, as characterized by vigour, dedication, and absorption (Schaufeli et al., 2006). It consists of 9 items, rated on a 7-point scale (0 = *never*; 6 = *always*). An example of the scale is "I am immersed in my work." This scale has good validity and reliability in prior studies on Chinese samples (Fong and Ng, 2012). The score on work engagement exhibited a high level of internal consistency in the present study ( $\alpha = 0.94$ ).

### Data analysis

The expectation-maximization (EM) algorithm was adopted to compute maximum likelihood estimates for missing data due to incomplete responses or dropout at follow-up to reduce biased parameter estimates and maintain statistical power for more valid and reliable results (Graham, 2009). Little's MCAR test provided support for the assumption that the data is missing completely at random ( $p > 0.05$ ). Confirmatory factor analysis (CFA) was carried out using the standard maximum likelihood estimator to assess the construct validity of

variables. Organizational justice was evaluated as a multidimensional construct, whereas job demands, affective commitment, and work engagement were evaluated as unidimensional constructs in accordance with their conceptualizations (Colquitt, 2001; Fong and Ho, 2015; Meyer and Allen, 1991). An alternative simplified model with organizational justice as a unidimensional construct was also tested to confirm the factor structures.

Pearson correlation was conducted to explore the relationships among the variables. Moderated mediation analysis was conducted to examine the hypothesized direct, indirect, conditional direct, and conditional indirect associations. The moderated mediation model included organizational justice at T1 as the predictor, job demands at T1 as the moderator, organizational identification at T2 as the mediator, and affective commitment and work engagement at T3 as the outcomes. The control variables included age, sex, education, and work experience. Mean centring was applied to compute the interaction terms and address the multicollinearity issues. Simple slopes analysis was conducted to identify the significant interactions and to understand the nature of the relationships between the predictor and outcomes as a function of the values of the moderator. Conditional indirect associations were tested using the bootstrap method to produce 95% bias-corrected confidence intervals based on 10,000 bootstrap samples. The index of mediation and moderated mediation was used as an inferential test of indirect and conditional indirect associations (Hayes, 2017).

## Results

### *Confirmatory factor analysis*

The CFA showed that all of the standardized factor loadings were statistically significant ( $p < 0.001$ ; Table 1). For organizational justice, the factor loadings ranged from 0.37 to 0.77 for procedural justice, 0.90 to 0.91 for distributive justice, 0.64 to 0.92 for interpersonal justice, and 0.82 to 0.89 for informational justice. For job demands, the factor loadings ranged from 0.62 to 0.72. For affective commitment, the factor loadings ranged from 0.49 to 0.89. For work engagement, the factor loadings ranged from 0.67 to 0.89. The goodness-of-fit of the measurement model was acceptable ( $\chi^2(644) = 1637.79$  ( $p < 0.001$ ), CFI = 0.91, TLI = 0.90, RMSEA = 0.06, SRMR = 0.05). The alternative model with organizational justice as a unidimensional construct was not supported ( $\chi^2(659) = 3159.40$  ( $p < 0.001$ ), CFI = 0.78, TLI = 0.77, RMSEA = 0.10, SRMR = 0.07). Therefore, the results supported the hypothesized factor structure of the constructs.

### *Inter-correlations*

Pearson correlations (Table 2) showed that procedural, distributive, interpersonal, and informational justice at T1 were positively correlated with organizational identification at T2 ( $r = 0.26$ – $0.37$ ,  $p < 0.001$ ), affective commitment at T3 ( $r = 0.26$ – $0.35$ ,  $p < 0.001$ ), and work engagement at T3 ( $r = 0.35$ – $0.38$ ,  $p < 0.001$ ). Job demands at T1 was negatively correlated with organizational identification at T2 ( $r = -0.19$ ,  $p < 0.001$ ), affective commitment at T3 ( $r = -0.20$ ,  $p < 0.001$ ), and work engagement at T3 ( $r = -0.28$ ,  $p < 0.001$ ). Organizational identification at T2 was positively correlated with affective commitment at T3 ( $r = 0.47$ ,  $p < 0.001$ ) and work engagement at T3 ( $r = 0.35$ ,  $p < 0.001$ ).

### *Mediation*

The results from the path analysis (Table 3) showed that procedural, distributive, interpersonal, and informational justice at T1 had significant positive direct associations with organizational identification at T2 ( $b = 0.27$ ,  $p < 0.001$ ;  $b = 0.31$ ,  $p < 0.001$ ;  $b = 0.18$ ,  $p < 0.001$ ;  $b = 0.25$ ,  $p < 0.001$ , respectively), affective commitment at T3 ( $b = 0.23$ ,  $p < 0.001$ ;  $b = 0.15$ ,  $p < 0.001$ ;  $b = 0.11$ ,  $p = 0.004$ ;  $b = 0.13$ ,  $p < 0.001$ , respectively), and work

Variable/Item	$\lambda$	SE
Procedural Justice		
PJ1	0.70***	0.03
PJ2	0.70***	0.03
PJ3	0.76***	0.02
PJ4	0.37***	0.05
PJ5	0.77***	0.02
PJ6	0.62***	0.03
PJ7	0.76***	0.03
Distributive Justice		
DJ1	0.90***	0.01
DJ2	0.90***	0.01
DJ3	0.90***	0.01
DJ4	0.91***	0.01
Interpersonal Justice		
INTERJ1	0.91***	0.01
INTERJ2	0.89***	0.01
INTERJ3	0.92***	0.01
INTERJ4	0.64***	0.03
Informational Justice		
INFOJ1	0.82***	0.02
INFOJ2	0.83***	0.02
INFOJ3	0.87***	0.02
INFOJ4	0.89***	0.01
INFOJ5	0.83***	0.02
Job Demands		
JD1	0.65***	0.05
JD2	0.72***	0.04
JD3	0.62***	0.04
Affective Commitment		
AC1	0.55***	0.04
AC2	0.49***	0.04
AC3	0.86***	0.02
AC4	0.89***	0.01
AC5	0.81***	0.02
AC6	0.71***	0.03
Work Engagement		
WE1	0.84***	0.02
WE2	0.87***	0.02
WE3	0.89***	0.01
WE4	0.80***	0.02
WE5	0.70***	0.03
WE6	0.86***	0.02
WE7	0.83***	0.02
WE8	0.74***	0.03
WE9	0.67***	0.03

**Note(s):**  $\lambda$  = standardized factor loading; SE = standard error; \*\*\* $p$  < 0.001

**Source(s):** Authors' own creation or created by author

**Table 1.**  
Confirmatory factor  
analysis of variables

engagement at T3 ( $b = 0.38, p < 0.001$ ;  $b = 0.29, p < 0.001$ ;  $b = 0.26, p < 0.001$ ;  $b = 0.28, p < 0.001$ , respectively). Moreover, organizational identification at T2 had a significant positive direct association with affective commitment at T3 ( $b = 0.31, p < 0.001$ ) and work engagement at T3 ( $b = 0.27, p < 0.001$ ). Thus, hypotheses 1 and 2 were supported.

Procedural ( $b = 0.10, SE = 0.03, 95\% CI [0.049, 0.147]$ ;  $b = 0.09, SE = 0.03, 95\% CI [0.039, 0.150]$ , respectively), distributive ( $b = 0.10, SE = 0.02, 95\% CI [0.061, 0.144]$ ;  $b = 0.08,$

**Table 2.**  
Inter-correlations  
between variables

	1	2	3	4	5	6	7
1. Procedural Justice T1							
2. Distributive Justice T1	0.73***						
3. Interpersonal Justice T1	0.56***	0.56***					
4. Informational Justice T1	0.67***	0.65***	0.73***				
5. Job Demands T1	-0.28***	-0.26***	-0.30***	-0.34***			
6. Organizational Identification T2	0.26***	0.37***	0.27***	0.34***	-0.19***		
7. Affective Commitment T3	0.33***	0.35***	0.26***	0.31***	-0.20***	0.47***	
8. Work Engagement T3	0.36***	0.38***	0.35***	0.38***	-0.28***	0.35***	0.48***

**Note(s):** T1: baseline; T2: 3-month follow-up; T3: 1-year follow-up. \*\*\* $p < 0.001$   
**Source(s):** Authors' own creation or created by author

**Table 3.**  
Moderated mediation  
analysis from  
organizational justice  
to organizational  
identification to  
affective commitment  
and work engagement  
conditional on job  
demands

	Mediator		Dependent variable			
	Organizational identification T2		Affective commitment T3		Work engagement T3	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
PJ T1	0.27	<0.001	0.23	<0.001	0.38	<0.001
DJ T1	0.31	<0.001	0.15	<0.001	0.29	<0.001
InterJ T1	0.18	<0.001	0.11	0.004	0.26	<0.001
InfoJ T1	0.25	<0.001	0.13	<0.001	0.28	<0.001
JD T1	-0.10	0.08	-0.05	0.20	-0.22	<0.001
PJ x JD T1	0.24	<0.001	-0.04	0.45	-0.09	0.22
DJ x JD T1	0.15	0.004	-0.02	0.69	-0.02	0.76
InterJ x JD T1	0.08	0.13	-0.01	0.89	0.05	0.43
InfoJ x JD T1	0.14	0.004	-0.02	0.52	0.03	0.55
OI T2			0.31	<0.001	0.27	<0.001

**Note(s):** PJ = procedural justice; DJ = distributive justice; InterJ = interpersonal justice; InfoJ = informational justice; JD = job demands; OI = organizational identification. T1: baseline; T2: 3-month follow-up; T3: 1-year follow-up. Controlling for age, sex, education, work experience  
**Source(s):** Authors' own creation or created by author

$SE = 0.02$ , 95% CI [0.039, 0.133], respectively), interpersonal ( $b = 0.08$ ,  $SE = 0.02$ , 95% CI [0.042, 0.116],  $b = 0.07$ ,  $SE = 0.02$ , 95% CI [0.031, 0.111], respectively) and informational justice ( $b = 0.09$ ,  $SE = 0.02$ , 95% CI [0.056, 0.131];  $b = 0.07$ ,  $SE = 0.02$ , 95% CI [0.038, 0.120], respectively) each were significantly indirectly associated with affective commitment and work engagement through organizational identification. Thus, hypothesis 3 was supported.

*Moderated mediation*

The results from the path analysis (Table 3) showed that job demands at T1 significantly moderated the associations between procedural ( $b = 0.24$ ,  $p < 0.001$ ), distributive ( $b = 0.15$ ,  $p = 0.004$ ), and informational justice at T1 ( $b = 0.14$ ,  $p = 0.004$ ) and organizational identification at T2. Specifically, procedural (simple slopes:  $b = 0.45$ ,  $SE = 0.08$ , 95% CI [0.304, 0.605]), distributive (simple slopes:  $b = 0.42$ ,  $SE = 0.06$ , 95% CI [0.304, 0.531]) and informational justice (simple slopes:  $b = 0.36$ ,  $SE = 0.06$ , 95% CI [0.255, 0.471]) had greater associations with organizational identification when job demands were high, compared to

when they were low. The interaction between interpersonal justice and job demands on organizational identification was non-significant. Moreover, the moderating role of job demands at T1 on the associations between the four dimensions of organizational justice at T1 and affective commitment at T3 as well as between the four dimensions of organizational justice at T1 and work engagement at T3 were non-significant.

Overall, the conditional indirect association was significant for procedural ( $b = 0.07$ ,  $SE = 0.03$ , 95% CI [0.016, 0.137];  $b = 0.06$ ,  $SE = 0.03$ , 95% CI [0.012, 0.135], respectively), distributive ( $b = 0.04$ ,  $SE = 0.02$ , 95% CI [0.004, 0.083];  $b = 0.03$ ,  $SE = 0.02$ , 95% CI [0.003, 0.075], respectively) and informational justice ( $b = 0.04$ ,  $SE = 0.02$ , 95% CI [0.007, 0.085];  $b = 0.03$ ,  $SE = 0.02$ , 95% CI [0.005, 0.070], respectively) on affective commitment and work engagement through organizational identification, conditional on job demands. Specifically, procedural (simple slopes:  $b = 0.14$ ,  $SE = 0.03$ , 95% CI [0.075, 0.210];  $b = 0.12$ ,  $SE = 0.04$ , 95% CI [0.054, 0.210], respectively), distributive (simple slopes:  $b = 0.12$ ,  $SE = 0.03$ , 95% CI [0.076, 0.178];  $b = 0.10$ ,  $SE = 0.03$ , 95% CI [0.042, 0.161], respectively) and informational justice (simple slopes:  $b = 0.11$ ,  $SE = 0.02$ , 95% CI [0.070, 0.160];  $b = 0.09$ ,  $SE = 0.03$ , 95% CI [0.039, 0.140], respectively) had greater indirect associations with affective commitment and work engagement when job demands were high, compared to when they were low. The conditional indirect association was non-significant for interpersonal justice ( $b = 0.03$ ,  $SE = 0.02$ , 95% CI [-0.016, 0.064];  $b = 0.02$ ,  $SE = 0.02$ , 95% CI [-0.013, 0.055], respectively). Thus, hypothesis 4 was partially supported.

## Discussion

Consistent with H1, the results showed that procedural, distributive, interpersonal, and informational justice at baseline had direct positive associations with organizational identification three months later, and with affective commitment and work engagement one year later. Consistent with H2 and H3, organizational identification at three months had direct positive associations with affective commitment and work engagement at one year and served as a mediator of the relationships between organizational justice (i.e. all four dimensions) and positive work attitudes. Furthermore, largely consistent with H4, the indirect associations between organizational justice (i.e. procedural, distributive, and informational) at baseline and affective commitment and work engagement at one year through organizational identification at three months were conditional on job demands at baseline.

The results supported our extended JD-R model, which suggests that organizational justice serves as a valuable resource for employees, particularly those in highly demanding jobs. Employees who perceive fair treatment are more inclined to identify with the organization because it reinforces their just, moral, and ethical self, in addition to the support they receive. Organizational identification triggers both affective and cognitive responses, leading to increased affective commitment and work engagement. This reflects employees' willingness and desire to contribute to the organization's greater good. The cognitive-affective process is particularly prominent in high-stress work conditions, where fair procedures, resource distribution, and leader-member communication become crucial. Our findings provide support for this reasoning in relation to procedural, distributive, and informational justice, indicating that their associations with desirable work attitudes operate through organizational identification and are contingent on job demands. Therefore, this study extends the conceptualization of organizational justice beyond transactional exchange or positive work event (i.e. affective events theory; Jacobs *et al.*, 2014). It offers empirical evidence for organizational justice as a critical job resource that interacts with job demands to provide both intrinsic and extrinsic motivation, thereby fostering positive work attitudes among employees.

Our findings align with previous research on organizational justice and work attitudes, providing insights into the interconnected mechanisms that link the cognitive and affective processes identified in divergent lines of work (Cohen-Charash and Spector, 2001; Colquitt *et al.*, 2023).

Prior evidence on organizational perceptions and affective reactions to organizational justice (Colquitt *et al.*, 2023) can thus be re-conceptualised and collectively examined as a cognitive-affective process, as indicated by organizational identification (Ho and Yeung, 2017, 2020). Moreover, in addition to culture and individual characteristics (Silva and Caetano, 2016; van Offen and de Cremer, 2007), this study contributes to understanding the role of work context in organizational justice perceptions, highlighting that employees' psychosocial experiences are influenced by their job demands. Future research on organizational justice should further explore the various aspects of work as boundary conditions, such as the moderating role of cognitive, emotional, and physical demands imposed by different job characteristics (Bakker and Demerouti, 2007).

While the evidence in this study did not support the conditional indirect association between interpersonal justice and work attitudes, this does not imply that it is inconsequential or ineffective. Rather, our findings indicate that interpersonal justice leads to higher organizational identification, which subsequently results in greater affective commitment and work engagement, regardless of the level of job demands. Previous research has predominantly focused on selective dimensions of organizational justice, with procedural justice receiving the most attention and interpersonal justice receiving the least (Cohen-Charash and Spector, 2001; He *et al.*, 2014; Jiang and Law, 2013). Our findings suggest the importance of comprehensively examining the effects of each dimension of organizational justice, as they may play distinct roles in shaping work attitudes and behaviours.

#### *Limitations*

There are some limitations that should be acknowledged. Firstly, self-selection bias was inevitable as participants volunteered to participate in the study through informed consent. This may have resulted in a sample of employees who were more resourceful and had less demanding jobs compared to those who chose not to participate. Secondly, the recruitment of employees specifically from the social and personal service industry was done to minimize industry-specific confounds, but it limits the generalizability of the results to the human services sector. Further research is needed to validate the proposed model with workers from other industries, particularly those involving manual labour. Thirdly, while self-report measures are the standard method for assessing organizational justice and work attitudes, their use may have introduced social desirability bias. Lastly, endogeneity issues such as omitted variables, simultaneity, and common method variance have potential to impact coefficient estimates (Hill *et al.*, 2020). Although we have addressed some of these concerns by introducing a time lag in measuring the predictor and outcome variables (temporal separation; Podsakoff *et al.*, 2003), it is important to acknowledge that this approach may not completely resolve all of these issues. Due to these aforementioned limitations, definitive causal relationships cannot be established. The observed associations in this study provide a snapshot of what one might expect to see if causal effects were present.

#### *Practical implications and conclusion*

The practical implications of this study are threefold. Firstly, our findings highlight the significance of procedural, distributive, and informational justice in maintaining employees' commitment and engagement, particularly in high-demand jobs. Employers and supervisors in stressful industries are advised to implement human resource management practices that encourage knowledge sharing, establish norms of reciprocity, facilitate coordination, provide opportunities for procedural voice in organizational activities, fulfil promised obligations, and use objective performance appraisals (Oubrich *et al.*, 2021). Secondly, fostering interpersonal justice promotes committed and engaged employees across working conditions. To strengthen supervisor-subordinate relationships and cultivate positive work attitudes, employers and supervisors should convey messages that demonstrate intimacy (e.g. warmth, closeness, and inclusion), similarity (e.g. connection and openness), and composure (e.g. relaxation and

comfort; Mikkelsen *et al.*, 2017). Thirdly, organizational identification serves as a crucial factor in explaining the relationships between organizational justice and work attitudes. Therefore, management should enhance employees' subjective experience by implementing employee-oriented practices that value employees' contributions, acknowledge their accomplishments, understand their needs, provide support when necessary, show concern for their well-being, and help maximize their potential (i.e. organizational support; Ho and Chan, 2022). In sum, organizational justice plays a vital role in the success of organizations by fostering employees' emotional attachment and dedication. When organizational actions and decisions are perceived as fair, ethical, and just, employees are likely to be emotionally connected to the organization and committed to its success.

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