

Dark Side of Work Engagement: Curvilinear Effects on Service Recovery

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ABSTRACT

Although prior research has established that work engagement positively impacts workplace outcomes, there has been limited investigation of the potential nonlinear impact of excessive work engagement. This study addresses this gap by examining the adverse effects of excessive work engagement on positive work outcomes in service recovery. Data from 31 Indian restaurants were obtained through a multisource sample, and polynomial regression analysis was conducted to examine the moderating effects of job autonomy and challenge stressors on the nonlinear curvature of work engagement. The study's findings show that excessive work engagement negatively affects service recovery performance. However, high job autonomy and challenge stressors can mitigate this negative effect, reducing the adverse impact of excessive work engagement.

Keywords: Work engagement; job autonomy; challenge stressors; service recovery performance.

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1. INTRODUCTION

Service failures are common across service organizations, particularly in the restaurant industry, underscoring the importance of improving frontline employees' service recovery performance. Enhancing employees' work engagement can improve service recovery performance. However, recent studies question the positive impact of work engagement on restaurant outcomes (Shimazu *et al.*, 2018). Instead, scholars have found that work

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engagement follows a curvilinear pattern (Grant & Schwartz, 2011). Frontline restaurant employees also demonstrate curvilinear relationships between work engagement and various factors, including turnover intention (Kibatta & Samuel, 2022). Despite limited research on the boundary conditions that influence frontline restaurant employees' service recovery efforts, it is imperative to understand these boundary conditions to determine when work engagement can lead to favourable outcomes. Pierce and Aguinis (2013) posited that a positive association between antecedent variables and desirable consequences might transform into a negative association after reaching a point of inflexion, resulting in a curvilinear pattern (Grant & Schwartz, 2011). In this regard, there is a paucity of research on the conditional factors determining when and how work engagement leads to favourable outcomes (Kinnunen *et al.*, 2011). Also, recent research suggests that unduly high levels of work engagement can harm service recovery performance (Huyghebaert-Zouaghi *et al.*, 2021).

This study proposes that work engagement improves service recovery when frontline employees possess sufficient job autonomy. However, how job autonomy impacts service recovery as a moderator remains unclear. Specifically, it remains uncertain whether job autonomy can increase service recovery performance by counteracting or reversing the adverse effects of work engagement. This study aims to address this issue. Building on the idea that job autonomy can alleviate the detrimental effects of excessive work engagement (Olugbade & Karatepe, 2019), the Job Demands–Resources (JDR) theory's differentiated job demands perspective (Rich *et al.*, 2010) provides theoretical support for the concept of "challenge stressors" as a moderator that reduces the negative effect of excessive work engagement. As such, this study sought to determine whether challenge stressors can flatten the inverse U-shaped effect of work engagement.

Against this background, this study sought to explore three important research questions: (1) Does work engagement harm the service recovery performance of frontline restaurant employees? If so, what is the critical level of work engagement that leads to the decline in service recovery performance? (2) Does job autonomy moderate the negative impact of work engagement? If so, at what point does the positive effect of job autonomy become more apparent? (3) Do challenge stressors mitigate the adverse effects of work engagement on service recovery performance? If so, at what point do they become the most effective in reducing the adverse effects of high work engagement?

Scholars have shown the role and influence of work engagement (Dai & Wang, 2023) and its potential adverse effects on employee well-being and performance (Pham *et al.*, 2023) in two ways. First, it shows that work engagement improves service recovery when frontline employees have sufficient autonomy. This study demonstrates how job autonomy can mitigate the adverse effects of excessive work engagement. Second, this study examined whether challenge stressors (demands) moderate the inverted U-shaped impact of work engagement. As a result, this study extends the differentiated job demands perspective of JDR theory by considering job autonomy and challenge stressors.

The following section reviews the literature on the theoretical premises of the relationships among the study constructs. We followed the recommendations of Haans *et al.* (2016) to write the theoretical background and conducted a nonlinear regression analysis while articulating the curvilinear relationships. The subsequent sections describe the methods, measures, data analysis, and results. Finally, we discuss our findings and their theoretical and managerial implications for restaurants.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Theoretical premises

This study presents a nonlinear, inverted U-shaped impact of work engagement on frontline employees' work outcomes. Our model suggests that an initial increase in work engagement enhances service recovery performance; however, as engagement continues to rise, it may result in declining efficacy or unfavourable outcomes. Ng and Feldman (2012) proposed a concept of resource accumulation, which explains this concept with a better understanding of this phenomenon. This concept elucidates that enhancing work engagement in individuals will lead to better productivity, which leads to the acquisition of resources and enthusiasm to drive the work, thereby contributing to the increase in engagement in individuals improving the capabilities of providing better service recovery outcomes.

On the other hand, increasing work engagement could result in the saturation of work limits; thereby, the individuals would get exhausted by absorbing excessive workloads and customer interactions, reducing the work outcomes due to fatigue (Fatima *et al.*, 2018). When saturation is reached in an individual, all factors of positive work engagement convert to adverse effects. These negative effects lead to an increase in stress burnout. Beyond the saturation point, resource overload occurs, and further increases in work engagement can lead to excessive stress, burnout, and cognitive overload, thus affecting service recovery performance.

In a previous study, Feldman *et al.* (2015) indicated adverse outcomes of upper levels of work engagement, explicitly concerning work-family conflict. The work-life position will decrease when there is a reduction in personal resources and a decrease in service recovery performance. This is justified by the Conservation of Resources (COR) theory, which highlights that any individual service recovery performance is elevated at a reasonable level of work engagement because a certain level of increase in work engagement could lead to saturation of work resources, overload, and reduced outcomes. Hence, it illustrates that the maximum performance during recovery could be attained at an optimum level of work engagement for the individual's well-being during the recovery process.

Job crafting (Bruning & Campion, 2018) and COR theory suggest that job autonomy and challenge stressors can moderate the inverted U-shaped impact of work engagement, resulting in a flat curve. This study aims to explain the mechanisms underlying this moderation. Job autonomy refers to individuals' freedom and independence in carrying out their work tasks, including making decisions and determining how work is done. When job autonomy increases, employees tend to have control and decisiveness over work methods, work arrangements, and work standards, which promotes job crafting. Job crafting is a proactive process where employees, sometimes with the support of employers, tweak and redesign their job demands and resources to better align with their strengths, interests, and needs. Due to this, employees can enhance the use of their resources and reduce the risk of overload or exhaustion. Furthermore, job autonomy gives employees the freedom to work in a way that suits them, regarding deciding the pace of their work, the order of task completion, and having control over job tasks, or even the freedom to decide when and where they can do their work leading to the job satisfaction. This positive impact on motivation and well-being will enhance work engagement and improve the service recovery performance of employees (Kubicek *et al.*, 2017).

Challenge stressors enhance employees' performance, providing growth opportunities and a conducive learning atmosphere for achievement. Through this, employees acquire their capabilities and learn new skills. By gaining these capabilities and

new skills, employees can manage difficult situations concerning handling customer complaints or resolving service problems, which brings confidence and excitement and will result in higher work engagement. Therefore, an enhancement in promoting the optimal arousal-level performance of individuals with job autonomy and challenge stressors will be enhanced. If work engagement is optimal, with job autonomy and challenge stressors, employees can reach a state of flow in which they are fully immersed and focus on their work tasks. This optimal arousal enhances cognitive functioning, decision-making, and problem-solving skills and improves service recovery performance. Organizations can support staff in attaining optimal work engagement and performance by providing job autonomy and incorporating challenge stressors. This moderation can flatten the inverted U-shaped curve, allowing employees to thrive and deliver an excellent service recovery.

2.2. Nonlinear impact of work engagement

Excessive work engagement can lead to a lack of personal recovery time and counter-productivity, which may arise from incompatibility between frontline employees and restaurant organizations, resulting in psychological stress and decreased service recovery performance. Therefore, moderate work engagement is recommended for optimal service recovery, as it balances personal recovery time and work-related factors. When work engagement is excessive, personal recovery time may be neglected, resulting in decreased energy and emotional investment in work tasks. This leads to suboptimal service recovery owing to low absorption, vigour, and work investment levels (Smith & Karwan, 2010). Therefore, balancing work engagement with personal recovery time is crucial for maintaining high service recovery performance.

The adverse consequences of excessive work engagement on work recovery can be observed in the work–recovery paradox, which results in a decline in work engagement benefits. This leads to negative or inverted U-shaped service recovery performance, as depicted in Fig. 1. The disparity between the advantages of work engagement and the costs of the work–recovery paradox (problematic personal recovery) produces an additive (antagonistic) impact on service recovery performance, resulting in an inverted U relationship (Haans *et al.*, 2016, p. 1184).

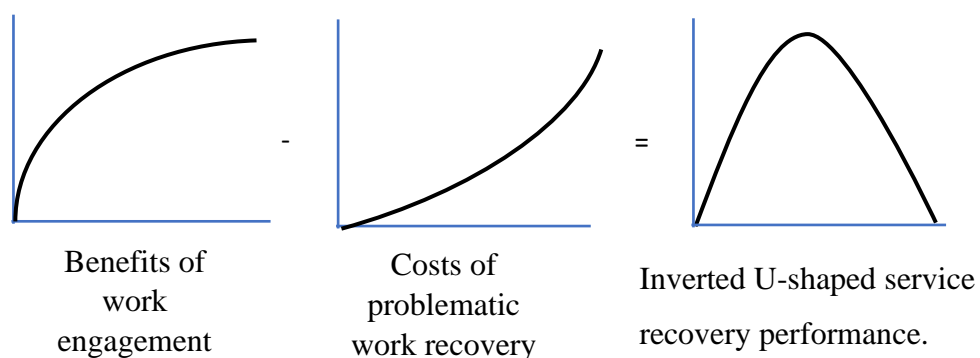


Figure 1. Depiction of the nonlinear impact of excessive work engagement image from Haans, R. F., Pieters, C., & He, Z. L. (2016). Thinking about U: Theorizing and testing U- and inverted U-shaped relationships in strategy research. *Strategic Management Journal*, accessed with copyrights by John Wiley and Sons under License # 5785730274910

Figure 1 demonstrates that the cost of work recovery surpasses the advantages of work engagement, resulting in a detrimental impact that is not proportional. This

combination of excessive emotional investment and physical energy, coupled with the work–recovery paradox, generates a nonlinear relationship between personal recovery and cost, in which individual resources are inversely related to curvilinear costs. Consequently, we propose the following.

Hypothesis 1. *There is a nonlinear relationship between work engagement and service recovery performance, such that restaurants facing low and high levels of work engagement will show negative service recovery performance more often than those facing moderate levels of work engagement.*

2.3. The moderating role of job autonomy

COR theory presents three fundamental propositions regarding service recovery. First, while it is true that individuals with restricted resources may face more challenges in high-stress situations, it is also essential to consider that these individuals may have developed resilience and coping strategies to navigate difficult circumstances effectively. Second, during stressful situations, individuals experience higher resource loss, leading to continual loss of resources. For preserving and obtaining the resources, this theory emphasizes job autonomy, an essential motivating job characteristic (Pham *et al.*, 2023). Third (Hobfoll *et al.*, 2018), while frontline employees may have access to resources with this, they will face limitations regarding energy to engage in additional tasks. Also, not all employees will have the necessary skills or motivations to effectively utilize these resources for positive work-related behaviours (Hewagama *et al.*, 2019).

Moreover, job autonomy may not address all the potential barriers to successfully resolving customer issues. Therefore, other factors, such as resource availability and management support, are essential to ensure successful service recovery outcomes. While job autonomy is significant for frontline employees in service recovery, it is not the only factor contributing to successfully resolving customer issues. Resource availability and management support also play a crucial role in ensuring positive outcomes. First, if frontline employees perceive sufficient empowerment to facilitate service recovery, they will likely experience intrinsic regulation at work (Matsuo *et al.*, 2019). This intrinsic regulation creates the motivation for autonomous work. Second, if what is essential to frontline employees is what they do at work, their values are congruent with their work, strengthening their autonomous motivation (Broeck *et al.*, 2021). Third, feelings of empowerment and the resulting intrinsic and identified regulations increase the motivation for autonomous work. Therefore, we propose the following.

Hypothesis 2. *The curvilinear effect of job autonomy positively moderates the relationship between work engagement and service recovery performance among frontline employees. High job autonomy is linked to increased service recovery performance among frontline restaurant employees in the presence of high work engagement such that the negative effect of work engagement on service recovery performance is reduced.*

2.4. The moderating role of challenge stressors

Based on the differentiated job demands perspective, we argue that "challenge stressors" can stimulate positive effects, foster personal growth, and enhance service recovery performance (Bakker *et al.*, 2022). Yang and Li (2021) articulated that "challenge stressors" are work demands that encourage individuals to face challenges in meeting their achievement needs. Thus, challenging work can lead to a sense of meaning and personal

responsibility. The differentiated job demands perspective distinguishes between challenge and hindrance stressors when conceptualizing job demands (Karatepe, 2014). Although job demands can elicit stress responses that may lead to burnout among frontline restaurant employees (O'Neill & Follmer, 2020), challenge stressors can evoke positive emotions (e.g., excitement, exhilaration, and eagerness), foster work engagement, and contribute to growth and learning perceptions.

The curvilinear effect of challenge stressors can be understood from three perspectives. First, nonlinear inverted U-shaped work engagement weakens service recovery performance. However, this weakening impact will likely flatten when frontline employees perceive service recovery efforts as challenging. Second, service recovery performance is weakened if frontline employees have less recovery time (Hobfoll *et al.*, 2018). However, challenge stressors are likely to bring a sense of accomplishment to frontline employees' service recovery efforts, which can address the work–recovery paradox. Third, restaurants may consider the return on investment in service recovery efforts and benefit–cost-ratio-related perceptions may not inspire them to try service recovery sincerely. Thus, we contend that frontline employees are motivated to meet challenge stressors and improve their service recovery performance. Hence, we propose the following.

Hypothesis 3. *The curvilinear effect of challenge stressors positively moderates the relationship between work engagement and the service recovery performance of frontline employees such that restaurants high in challenge stressors and work engagement show increased service recovery performance, thus flattening the negative effect of frontline employees' work engagement on their service recovery performance.*

3. METHOD

3.1. Study context

The rationale for conducting this study in a chain-based restaurant was twofold. First, chain restaurants increasingly recognize the significance of customer service satisfaction. Customers may not return to them for repeat visits, even if they have experienced delightful service. Thus, chain restaurants seek to intensify their relationships with and cultivate loyal customers. Second, chain restaurants focus on service recovery and frontline employee performance to enable service recovery. From this perspective, this study primarily collected data on the plausible negative side of work engagement in restaurant chains.

3.2. Study design, sample, and procedures

By adopting a cross-sectional research design to assess various constructs and their interrelationships within a restaurant chain, employees were approached to gather information on their work engagement, job autonomy, and challenge stressors. Customers were contacted to collect data on the employees' service recovery performance. The sampling frame for selecting customers was based on a list of all the customers who registered a complaint. A random sample of customers who had registered their complaints online or through a traditional customer complaint process was contacted. The first author personally handed over each questionnaire containing one branch head, 15-20 FLEs, and then 30 selected customer questionnaires to all selected branches. Using a single respondent (i.e. unit head) for each unit is in line with the method adopted by research

using a single key respondent (Liao and Chuang, 2007; Chi and Gursoy, 2009; Lee et al., 2011). At each unit, the customer register served as a basis for the selection of customers using a systematic random sampling method at each unit. The k value for each unit was registered (i.e. N). Furthermore, we ensured that the questionnaire did not include any questions about respondents' names or locations, and anonymity was guaranteed to reduce potential psychological stress and enhance the accuracy of the responses.

The restaurant management did not permit the author to contact the customer directly to ensure the confidentiality of their customer identity. Due to this, we requested management to designate the unit heads as employees, communicate with the selected customers on our behalf, hand over the questionnaire to them, and collect the filled questionnaire back. Moreover, the designated employees at each unit were also requested to distribute the questionnaire among the unit employees and collect back all the filled questionnaires from the unit head and the FLEs to ensure the anonymity of the responses. To maximize the response rate and assess the status of the survey filled in, we collected back the questionnaire from designated employees.

3.3. Data collection

We received responses from 31 unit heads, 620 FLE's and 930 customers and gathered information on work engagement, job autonomy, and challenge stressors. The researcher received 1,581 responses. After matching the responses, the authors retained 1,085 usable responses for analysis. Our sample size adheres to the well-adopted rule that the minimum sample size should exceed ten times the maximum number of paths leading toward the endogenous construct (Hair et al., 2017).

3.4. Demographic profiles of the respondents

The sample consisted of 1,085 matched responses. Most respondents (82%) had undergraduate qualifications or graduate degrees (6%). Most respondents (approximately 64%) were single, and 36% were married. Most (92%) of the study participants had a monthly income of less than INR 25,000, and 6% had monthly payments between INR 25,000 and INR 40,000. Less than half (43%) of frontline employees had less than two years of work experience, 38% had work experience between two years and five years, 12% had work experience in the range of 5–10 years, and 5% had work experience of over ten years.

4. MEASURES

Service recovery performance. To measure this construct, we adopted Liao's (2007) scale. A sample item is: "The restaurant adapted its complaint-handling procedures to satisfy my needs." The responses ranged from strongly disagree (1) to strongly agree (7).

Job autonomy. We adopted a previously developed and tested scale by Crawford *et al.* (2010) to capture job autonomy. A sample item is: "My manager gives me the authority to do my job." The response options ranged from never (1) to daily (7).

Work engagement. The scale developed by Maslach *et al.* (2001) was adopted to measure this construct. Sample items included: "At my job, I feel strong and active." The responses ranged from never (1) to daily (7).

Challenge stressors. We adopted three items from Cavanaugh *et al.* (2000) to test the respondents' work-related demands. We collected all responses using a five-point Likert scale ranging from 1 (producing no stress) to 5 (producing a great deal of stress). An example of challenge stressors is: "The volume of work that must be accomplished in the allotted time."

4.1. Controls

Age and income were used as control variables. However, we tested our regression results with and without control variables, such as educational qualifications, marital status, income, and extra compensation. We found no statistically significant differences in the effects of the control variables. Therefore, we included only age and income as the control variables in the final analysis.

5. DATA ANALYSIS

5.1. The need for multilevel analysis

We performed a multilevel analysis before performing the polynomial regression analysis. We ran the multilevel analysis because of the possibility of heterogeneity of observations concerning service recovery performance within and between branches because customers nest themselves within restaurants. Consequently, the assumption of independence of errors is likely to be violated. To verify this, we developed a non-predictor model. Therefore, we partitioned the outcome variance into within- and between-group components and used an intraclass correlation coefficient to measure the between-group variance against the total variance. The increase in the intraclass correlation coefficient also revealed a rise in between-group variability. Scholars have noted that the cutoff value of the intraclass correlation coefficient is 0.05 (Raykov & Marcoulides, 2015). An intraclass correlation coefficient value higher than 0.05 requires multilevel analysis. After building the null model, we determined the intraclass correlation coefficient to be 0.015. Thus, the results show no need for a multilevel analysis.

5.2. Data aggregation

We thus present our hypotheses at the restaurant level. Shared properties emerge from frequent interactions among unit members (Kamath *et al.*, 2020). Scholars state that a median intraclass coefficient correlation (1) value of 0.12 is necessary to justify aggregation (James, 1982). The intraclass coefficient correlation (2) values were above the recommended threshold of 0.60. While assessing the within-group agreement, we used *R_{WG}* (within-group agreement) values. The within-group agreement mean values were more significant than the threshold of 0.70. Thus, these values provide statistical justification for data aggregation.

5.3. Common method for bias assessment

Data on the study's predictors and outcome variables were collected from two sources. Proximal separation was ensured while deciding on the order of the questionnaire items. Different scale points, types, and anchor labels are used. Biases related to acquiescence and disacquiescence were controlled by including positive and negative items. After the data collection, a full collinearity test was performed. We found that the variance inflation factor (VIF) exceeded 3.3. Thus, method bias may not adversely affect our study's results.

5.4. Confirmatory factor analysis

The hypothesized model with four constructs (work engagement, job autonomy, challenge stressors, and service recovery performance) showed acceptable model fit indices [$\chi^2(21) = 37.6, p < 0.001, CFI = 0.997, TLI = 0.995, SRMR = 0.0104, \text{ and } RMSEA = 0.0270$]. The results indicate that the hypothesized model fits better than the alternative models. The four-factor model revealed better goodness-of-fit indices than the three-factor model, in which we examined a construct that combined the concerns for socioemotional wealth and long-term orientation [$\chi^2(24) = 933, p < 0.001$]. Thus, the results show a distinction between constructs. Moreover, the study constructs demonstrated convergent validity. Table 1 presents the details of the constructs' discriminant validity.

Table 1: Discriminant validity of the study constructs

Model	Description	χ^2	df	CFI	TLI	SRMR	RMSEA
Hypothesized model	Four-factor model	37.6	21	0.997	0.995	0.0104	0.0270
Model 1	Three-factor model	933	24	0.830	0.745	0.114	0.187
Model 2	Two-factor model	1,404	26	0.742	0.643	0.139	0.221
Model 3	One-factor model	4,601	27	0.144	-0.141	0.246	0.395

5.5. Reliability and validity

We tested the internal consistency reliability of the constructs by examining Cronbach's α -values. Our investigation found that all Cronbach's α -values were significant and within the acceptable range of 0.60–0.90.

6. RESULTS

6.1. Unit of analysis and descriptive statistics

The branches of the restaurant chain comprise units of analysis. Therefore, the hypotheses are presented at the restaurant level and aggregate individual employees' responses at the branch level (i.e., at the restaurant level). The descriptive statistics are provided in Table 2.

6.2. Examining evidence of nonlinear relationships

The quadratic relationship between the predictor and outcome variables was tested using a curve estimation approach in SPSS. The results provide evidence of a curvilinear impact of work engagement (Table 3). We found that the value of β_2 was statistically significant ($\beta_2 = -0.60$). The β_2 -value was negative, indicating the presence of nonlinearity. Second, we conducted a robustness check by ruling out the possible cubic curvilinear specification ($\beta_3 = -0.001$). Third, the results did not change even after winsorizing. The results were similar when the curve estimation analysis was performed with the uncentered variable of work engagement (Table 3).

6.3. Polynomial regression analyses

We ran two moderated hierarchical multiple regressions to investigate the curvilinear-by-linear interaction effects. Missing data were analyzed using the mean substitution method. We centred the predictor variables according to the recommendations of Cohen *et al.* (2003). Using the centred variables, we created product terms for the interaction between

(i) work engagement and autonomy and (ii) work engagement and challenge stressors and created squared terms for work engagement and autonomy using centred variables.

In step 4 of Table 4, we entered job autonomy into the regression model. We found that job autonomy was positively correlated with service recovery performance ($\beta=0.12$) with an incremental variance of 10%. In step 5, we entered the interaction terms of work engagement and job autonomy. The results show that the interaction term has a statistically significant positive association with service recovery performance ($\hat{P}^2 = 0.03$), with an additional variance of 1%. Finally, when we entered the curvilinear work engagement-by-linear job autonomy term, it was negatively correlated with service recovery performance ($\beta= -0.19$), thus suggesting the presence of curvilinear main effects while explaining an additional variance of 10%.

Therefore, the results indicated that job autonomy flattens the negative impact of work engagement. Thus, Hypothesis 2 was supported. Figure 2 illustrates the moderating effects of job autonomy. Additionally, we used PROCESS in the SPSS version 26.0 to ascertain the conditional Effects of the focal predictor (quadratic work engagement term) on service recovery performance at low and high values of job autonomy (moderator). The results show that the relationship between the quadratic term of work engagement and service recovery performance is statistically insignificant for low job autonomy ($\beta= -0.0052$). However, at a high level of job autonomy (0.8748), the effect of the quadratic term of work engagement was statistically significant ($\beta= -0.0853$). Thus, high job autonomy flattens the inverted U-shaped effect of work engagement.

6.4. Moderating effect of challenge stressors

In step 1, we entered the age and monthly income control variables into the regression model. Age and monthly income were negatively associated with service recovery performance, explaining a variance of 3%. In step 2, work engagement showed a statistically significant negative association with service recovery performance ($\beta=-0.04$). This indicates an additional variance of 2%. In step 3, the curvilinear term of work engagement was negatively associated with service recovery performance ($\beta=-0.06$), with an additional variance of 4%. Table 5 shows the results of the moderating effect of challenge stressors on the curvilinear work engagement–service recovery performance relationship.

In step 4, we found no additional variance after entering the challenge stressors into the regression model ($\beta=-0$). In step 5, the linear interaction term of work engagement and challenge stressors showed a statistically significant association with service recovery performance ($\beta=0.10$), with an additional variance of 5%. In step 6, the quadratic work engagement-by-linear challenge stressors term showed a statistically significant negative association with service recovery performance ($\beta=-0.29$), explaining an additional variance of 3%. Thus, Hypothesis 3 is supported. Figure 3 shows how "challenge stressors" flattened the adverse effects of work engagement.

Additionally, we used PROCESS in the SPSS version 26.0 to ascertain the conditional effects of the focal predictor (quadratic work engagement term) on service recovery performance at low and high values of challenge stressors (moderator). The results showed that the relationship between the quadratic term of work engagement and service recovery performance was statistically insignificant for "low challenge stressors" ($\beta=-0.0808$). However, at a high level of challenge stressors ($\beta=0.8748$), the effect of the

quadratic term of work engagement on service recovery performance was statistically significant ($\beta=0.0280$).

7. DISCUSSION OF THE FINDINGS

This study advances existing knowledge and understanding within four distinct research streams: discourse based on JDR theory, employee empowerment theory, work stress research, and job crafting perspectives. First, it adds to the JDR research by demonstrating that work engagement can have a curvilinear and adverse effect on frontline employees' service recovery performance. This finding contradicts the contention of the JDR theory that work engagement positively impacts beneficial distal organizational outcomes. Previous research has also documented this effect when examining organizational failure resulting from the introduction of too many products. Moreover, this study's findings indicate that positive variables such as work engagement can lead to counterproductive outcomes, resulting in negative service recovery performance. However, this study goes beyond reporting the too-much-of-a-good-thing (TMGT) phenomenon (Dai *et al.*, 2017) by demonstrating how and when this effect can be mitigated. In keeping with the research on nonlinear relationships in the hospitality sector, our study extends the TMGT effect by presenting crucial findings on curvilinear relationships.

This study aimed to contribute to the JDR research discourse by examining the impact of frontline employees' organizational support, particularly job autonomy and challenge stressors, on their ability to effectively recover from service failure.

Building on the findings of Orłowski *et al.* (2021), who demonstrated the importance of supervisory and co-worker support in moderating the work engagement–service recovery performance relationship, this study extends the research by investigating the moderating effects of work environment variables on this relationship. Specifically, this study examines the nonlinear interaction of job autonomy with the polynomial term of work engagement and finds that it can flatten the apparent "negative side" of excessive work engagement. The results indicate that high work engagement and low job autonomy result in relatively poor service recovery performance, whereas high work engagement and job autonomy result in the best possible service recovery performance. Additionally, this study has invoked empowerment theory in the hospitality industry by demonstrating that high job autonomy can strengthen service recovery performance when work engagement is high. The job crafting theory (Bruning & Campion, 2018) suggests that when employees can personalize their job tasks, relationships, and resources to fit their preferences and abilities better, they will likely experience a sense of autonomy and fulfilment in their work.

Table 2: Descriptive statistics and correlation matrix.

Variables	1	2	3	4	5	6	7	8	9	10	11	Mean	SD	Min	Max
WE	1											4.56	0.96	2.50	6.68
JA	-0.38**	1										3.19	0.87	1.38	4.67
CS	-0.19**	0.70**	1									2.33	0.31	1.69	2.99
SRP	-0.09**	0.37**	0.03	1								5.25	0.27	4.76	6.16
WE ²	-0.01	-0.45**	-0.22**	-0.22**	1							0.93	1.06	0	4.46
JA ²	0.63**	-0.20**	-0	0.11**	0.23**	1						0.76	0.79	0.01	3.30
CS ²	0.35**	0.08**	0.09**	0.23**	0.09**	0.48**	1					0.09	0.12	-0.65	0.65
JA×WE	-0.48**	0.62**	0.49**	0.27**	-0.31**	-0.42**	0.08**	1				-0.32	0.90	-3.84	1.33
WE×CS	-0.24**	0.50**	0.44**	0.20**	-0.30**	-0.16**	-0.09**	0.76**	1			-0.05	0.31	-0.88	0.59
JA×WE ²	-0.40**	0.67**	0.48**	0.19**	-0.73**	-0.49**	0.01	0.78**	0.56**	1		-0.42	1.56	-8.10	1.20
WE ² ×CS	-0.38**	0.64**	0.79**	0.10**	-0.46**	-0.34**	-0.09**	0.73**	0.59**	0.80**	1	-0.07	0.42	-1.59	0.53

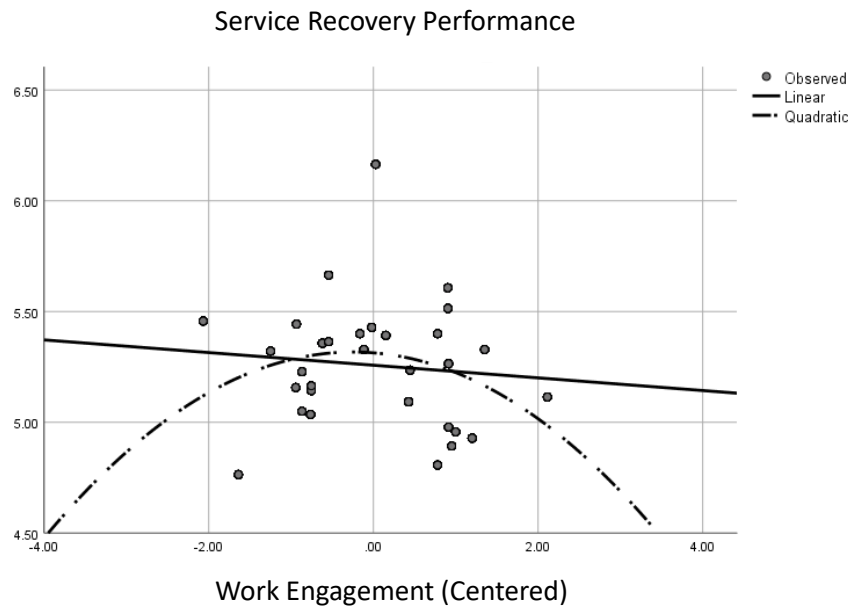
Notes: * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$; JA: job autonomy; WE: work engagement; CS: challenge stressors; SRP: service recovery performance; WE²: work engagement squared; CS²: challenge stressors squared; and JA²: job autonomy squared.

Table 3: Results of curve estimation analysis: Work engagement (centred)–Service Recovery Performance relationship

Regression model	Unstandardized regression coefficients	Std. error	β	t	σ	R^2	Adj.- R^2	df	F
Model 1									
Linear term	-0.03	0.009	-0.099	-3.288	0.001	0.010	0.009	1	10.808
Model 2									
Linear term	-0.030	0.008	-0.103	-3.486	0.001	0.062	0.060	2	35.864
Quadratic term	-0.060	0.008	-0.229	-7.767	0				
Model 3									
Linear term	-0.027	0.014	-0.094	-1.887	0.059	0.062	0.060	3	23.903
Quadratic term	-0.060	0.008	-0.229	-7.766	0				
Cubic term	-0.001	0.005	-0.010	-0.208	0.835				

Note: The predictor variable is work engagement (centred); the dependent variable is service recovery performance.

Curvilinear effects of work engagement on service recovery performance



Notes: We followed the curve estimation procedure in SPSS to plot this relationship. The following key values were used to plot this relationship:

Linear effects:

Independent variable (Work engagement): Work engagement → Service recovery performance (Path coefficient = -0.030 ; $t=3.486$; $p < 0.001$);

Nonlinear effects:

Independent variables squared (Work engagement squared): Work engagement squared (WE^2) → Service recovery performance (Path coefficient = -0.060 ; $t=7.767$; $p < 0.001$).

Thus, the inflection point is observed at the following value of the predictor X (Work engagement):

$$WE_{\text{inflection}} = -(-0.030)/2 \times 0.060 = 0.25.$$

This result shows that the work engagement inflection point of the curve lies at 0.25.

Table 4: Moderated hierarchical multiple regression analysis for job autonomy

Variables entered	Models					
	1	2	3	4	5	6
<i>Step 1</i>						
Age	-0.03*	-0.03**	-0.03**	-0.03**	-0.03**	-0.04***
Monthly income	-0.13***	-0.15***	-0.13***	-0.15***	-0.16***	-0.16***
<i>Step 2</i>						
Work engagement (WE)		-0.04***	-0.04***	0.01***	0.01***	-0.03***
<i>Step 3</i>						
WE ²			-0.06***	-0	-0	-0.16***
<i>Step 4</i>						
Job autonomy (JA)				0.12***	0.11***	0.13***
<i>Step 5</i>						
JA×WE					0.03**	0.19***
<i>Step 6</i>						
WE ² ×JA						-0.19***
Overall R ²	0.03***	0.05***	0.09***	0.19***	0.20***	0.30***
ΔR ²	0.03***	0.02***	0.04***	0.10***	0.01***	0.10***
ΔF	18.81***	20.53***	51.68***	127.54***	5.81***	161.86***
F-stat	18.81***	19.61***	28.32***	50.82***	43.50***	65.98***

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

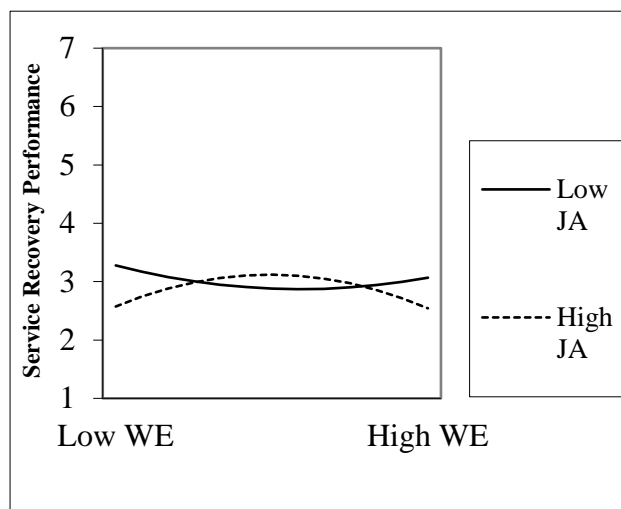


Figure 2: Two-way interaction effect of work engagement and job autonomy

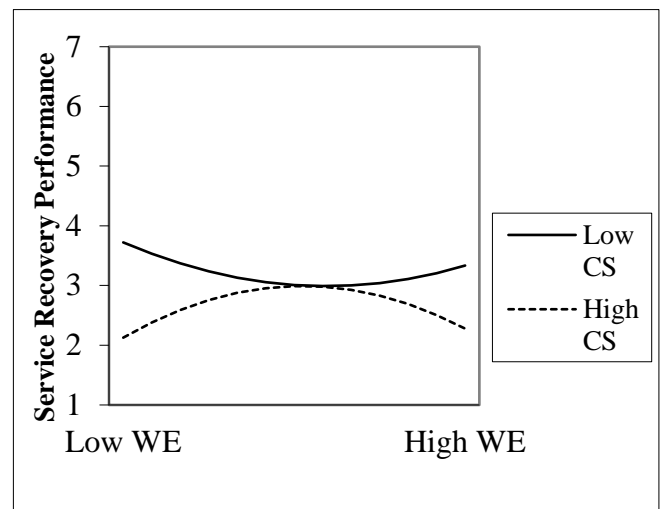


Figure 3: Two-way interaction effect of work engagement and challenge stressors

Table 5: Moderated hierarchical multiple regression analysis for challenge stressors

Variables entered	Models					
	1	2	3	4	5	6
<i>Step 1</i>						
Age	-0.03*	-0.03**	-0.03**	-0.03**	-0.03**	-0.04***
Monthly income	-0.12***	-0.15***	-0.13***	-0.13***	-0.13***	-0.12***
<i>Step 2</i>						
Work engagement (WE)		-0.04***	-0.04***	-0.04***	-0.01***	-0.02***
<i>Step 3</i>						
WE ²			-0.06***	-0.06***	-0.04***	-0.06***
<i>Step 4</i>						
Challenge stressors (CS)				-0	-0.10***	0.11***
<i>Step 5</i>						

CS×WE					0.09***	0.14***
Step 6						
WE ² ×CS						-0.29***
Overall R ²	0.03***	0.05***	0.09***	0.09	0.14***	0.17***
ΔR ²	0.03***	0.02***	0.04***	0	0.05***	0.03***
ΔF	18.81***	20.53***	51.68***	0.110	60.10***	40.16***
F-stat	18.81***	19.61***	28.32***	22.66***	29.93***	32.33***

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

Literature advocates that giving employees more autonomy and decision-making power gives them a great sense of ownership over their work, and they are more likely to go above and beyond customer engagement to enhance service recovery performance. The balance between job autonomy and challenge stressors is crucial for ensuring employees remain motivated and engaged without becoming overwhelmed or burnt out. It is essential for employees to regularly assess and adjust the level of autonomy and challenge stressors in the workplace to maintain a healthy and motivated workforce. Adopting the job crafting theory can involve empowering employees to customize their roles, allowing them to choose which tasks they perform, how they interact with customers, and how they collaborate with team members. By supporting employees by crafting their jobs, organizations can enhance job satisfaction, motivation, and overall performance, ultimately leading to a more positive work environment and an improved customer experience, which is necessary for effective service recovery performance.

8. MANAGERIAL IMPLICATIONS

Giving frontline employees more job autonomy in restaurants has several positive practical and managerial implications. These implications encompass a range of factors, such as increased autonomy, more substantial problem-solving skills, improved customer relations, decreased reliance on administrative support, a positive work atmosphere, and the need for suitable guidance and assistance. More job autonomy makes frontline employees feel more powerful, which boosts their motivation and job satisfaction (Lim *et al.*, 2022). Frontline employees with greater job autonomy are better equipped to manage and address service recovery issues (Hewagama *et al.*, 2019) and engage in a customer-focused manner, which increases customer satisfaction and loyalty (Gong *et al.*, 2020). Improved work autonomy also reduces the need for constant managerial involvement, enabling managers to concentrate on their essential duties (Lim *et al.*, 2022). Furthermore, giving frontline employees greater authority on the job would create a healthy work atmosphere by showing trust and respect and higher job satisfaction, engagement, and commitment.

9. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study examined work engagement's nonlinear and inverted U-shaped influence on service recovery performance while considering the moderating effects of job autonomy and challenge stressors. Despite the limitations of this study, it is essential to acknowledge the potential avenues for future research. First, the investigation was limited to a specific industry, organization, or sample population, which might have affected the generalizability of the findings. Thus, future research should be conducted across diverse sectors, organizations, and employee cohorts to assess the robustness of the results. Second, the study's results are predicted based on the validity and consistency of the evaluation of instruments employed to gauge job autonomy, work engagement, service recovery performance, and challenge stressors. It is advised that to confirm and reinforce the research findings, several metrics must be

employed in subsequent studies. Third, there were particular limitations to the cross-sectional design of our study that hindered us from making firm causal conclusions. Using longitudinal or experimental study methods to determine sequential relationships between challenge stressors, job autonomy, service recovery performance, and work engagement would be beneficial.

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