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Empowered, accountable, and committed? Applying self-determination theory to examine work-place procrastination

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Abstract

Background – This research examines the role of psychological characteristics (psychological empowerment and psychological ownership) in reducing employees' workplace procrastination. Further, using organizational commitment theory, this research examines the mediating mechanism of organizational commitment in the relationship between psychological characteristics and employees' workplace procrastination.

Methods – Two studies were conducted to test our hypotheses. In Study 1, we collected online data from 146 working individuals via the crowdsourcing platform Prolific. For Study 2, we gathered data from 384 employees in the banking sector in Pakistan using a paper-and-pencil survey questionnaire. Both studies employed a time-lagged data collection approach to minimize common-method bias.

Results – The research findings supported our hypotheses that organizational commitment mediated the positive relationship between psychological characteristics and employees' workplace procrastination.

Conclusion – Previous studies have focused on the factors responsible for employees' workplace procrastination. This study advances our knowledge by identifying the antecedents of employees' workplace procrastination and examining the underlying mediating mechanism.

Keywords Psychological empowerment, Psychological ownership, Organizational commitment, Workplace procrastination, Self-determination theory

Background

Workplace procrastination has become a critical barrier to productivity and employee well-being in today's fast-paced work environments. Defined as deliberate postponement of work-related tasks by engaging in non-work-related activities without intending to harm others [1], it represents a self-regulatory failure that can undermine organizational effectiveness and individual success. While procrastination is often considered a time management failure, emerging research underscores a variety of psychological and motivational factors associated with this phenomenon [2–5]. Procrastination at work can harm organizational development and employees'

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well-being [6, 7]. This behaviour could negatively impact organizational outcomes, such as low productivity and a less competitive work environment [8–10]. Further, its negative impacts extend to the individual level of employees in the form of low salaries, decreased performance, and shorter employment tenure [2, 11, 12]. Considering these adverse effects, it is of paramount importance to identify effective strategies to reduce procrastination in the workplace.

Despite acknowledging the adverse impacts of workplace procrastination on individual and organizational outcomes, most of the existing studies have focused on academic settings, with comparatively limited investigation within the organizational domain [13]. Recently, researchers have shown interest in examining this phenomenon within the work setting [14]. However, organizational scholars have primarily focused on theory development [15], measurement [1, 16], and differentiating procrastination from related concepts [17], with a lesser emphasis placed on empirical research. Further, previous research has addressed contextual factors, such as leadership style [18, 19] and workload [20], rather than intrinsic motivational drivers. This partial perspective suggests a crucial gap in understanding how internal psychological processes can help reduce procrastination behaviours at work.

To address this gap on workplace procrastination, Self-Determination Theory (SDT) could be a promising theoretical lens. SDT emphasizes the critical role of three basic psychological needs including autonomy, competence, and relatedness in fostering intrinsic motivation and well-being [21]. When these psychological needs are fulfilled, employees are more likely to feel empowered, engaged, and intrinsically motivated, reducing the likelihood of maladaptive behaviours such as procrastination [22]. However, the application of SDT to workplace procrastination remains limited, particularly in relation to psychological constructs that promote motivation and accountability. However, the application of SDT to workplace procrastination remains limited, particularly in relation to psychological constructs that promote motivation and accountability.

Two such constructs, psychological empowerment, and psychological ownership, are central to this study. Psychological empowerment (PE) constitutes a subjective, cognitive, and attitudinal phenomenon that enables individuals to perceive themselves as effective, competent, and authorized to execute various tasks and thus reduces their tendencies to delay tasks [23–26]. Similarly, psychological ownership is the feeling of personal investment and responsibility toward one's job, which encourages accountability and engagement and discourages procrastination [27]. The centre of organizational psychological ownership is the sense of possession that

reflects a mental attachment to an organization. This attachment motivates employees to get involved in pro-organizational behaviours and, thus, less likely to engage in destructive behaviours such as procrastination [28]. Both constructs are aligned with SDT's core psychological needs and may play a vital role in reducing procrastination behaviour.

Despite these theoretical connections, little is known about the underlying mechanisms that explain how psychological empowerment and ownership influence procrastination. Drawing from SDT, this study proposes **organizational commitment** as a key mediating mechanism. Organizational commitment refers to employees' psychological attachment toward their organization and their willingness to exert effort on its behalf [29]. When employees' psychological needs are fulfilled, they are more likely to develop a more substantial commitment to the organization, which may, in turn, reduce procrastination behaviours [2]. However, the mediating role of organizational commitment in this context has not been examined.

This research aims to address three important yet unexplored gaps in the organizational behaviour literature. First, though motivational factors like psychological empowerment and ownership enhance job satisfaction and performance, their role in mitigating workplace procrastination has not been examined [30]. Second, most organizational studies have focused on external factors, neglecting the internal psychological processes that drive employee behaviour. Third, while the harmful effects of procrastination are well-documented, few studies have offered actionable insights into how organizations can proactively reduce it through motivational interventions [3, 22].

This study aims to; (a) examine the impact of psychological empowerment and psychological ownership on workplace procrastination, guided by the Self-Determination Theory and (b) investigate the mediating role of organizational commitment in the relationship between these motivational constructs and procrastination. First, while research on procrastination has been primarily conducted in the academic setting, its examination within an organizational context has been limited, leading many organizational behaviour scholars to call for more focused research in this area [e.g., 11, 14]. Based on self-determination theory, this research shifts the focus of procrastination research from academic settings to organizational contexts, responding to calls for more work-related investigations. Second, by applying the tenets of SDT, this research examined the underlying mechanism of organizational commitment through which psychological empowerment and psychological ownership can affect subsequent employee procrastination behaviour. Finally, the implication of this study may

guide organizations in implementing better psychological and motivational interventions that enhance employee motivation, accountability, and commitment and ultimately help organizations reduce workplace procrastination among employees.

Theoretical basis and research hypothesis

Self-determination theory

Self-determination theory suggests that satisfying psychological needs such as autonomy, competence, and relatedness brings pleasure and happiness and fosters positive work behaviours [24]. In contrast, if these needs remain unfulfilled, it leads to undesirable behaviours [31]. When individuals' basic needs are fulfilled, their frequency of procrastinating work will reduce [32]. Moreover, psychological needs such as autonomy, relevance, and mastery are compatible with SDT tenets, enhancing self-regulatory processes that help employees advance without procrastination [33]. Seemingly, the environments that facilitate such psychological needs increase self-generated motivation and decrease dependence on extrinsic motivation, thereby reducing procrastination behaviour. Psychological empowerment extent a person's comprehensive psychological experiences that includes self-efficacy, work meaning and autonomy [34]. The core focus of this psychological perspective is the extent to which they actually perceive empowerment. The degree to which psychological empowerment translate into psychological state of subordinates is the basis of SDT theory [35].

Based on self-determination theory, we propose that employees' psychological characteristics (i.e., psychological empowerment and ownership) can satisfy employees' psychological needs. Psychological empowerment serves employees' fundamental needs, such as self-efficacy, competence, and self-determination [36]. Similarly, employees' desire to psychologically own their organization is based on satisfaction of needs of efficacy, self-identity, and relatedness [37] Fig. 1. Therefore, drawing on self-determination theory, the psychological characteristics

of the employees will help reduce their procrastination behaviour by serving their fundamental needs.

Psychological empowerment and workplace procrastination

Self-Determination Theory posits that intrinsic motivation is vital in driving proactive work behaviours [38], reducing tendencies to procrastinate. Recent research findings support this viewpoint, arguing that only intrinsic motivation, which is based on the principles of satisfaction of the three psychological needs of individuals: autonomy, competence, and relatedness, provides for high levels of activity and performance. Ryan and Deci [39] explains how intrinsic motivation results in better performance and creativity by satisfying those psychological needs. Moreover, according to Vansteenkiste et al. [40], the satisfaction of these needs contributes to the improvement of employees' proactive action and the decrease in the proneness of procrastination. In addition, Van den Broeck et al. [41] study shows that attitudinal self-regulation, such as intrinsic motivation, significantly influences perseverance, discouraging procrastination. Seemingly, these studies underline the importance of intrinsic motivation as postulated by SDT, in reducing procrastination.

Psychological empowerment fosters intrinsic motivation, where employees find internal satisfaction in their work [24, 42]. Intrinsically motivated employees are less prone to procrastination, as they find the work engaging and rewarding [43]. Psychological empowerment holds a sense of self-efficacy, the belief in one's abilities to influence outcomes [44, 45]. This belief can reduce procrastination, which is often fuelled by self-doubt and a perceived lack of ability. Zimmerman [46] suggested that empowered employees are more likely to take timely actions rather than delaying tasks. Employees with psychological empowerment feel confident in their ability to accomplish tasks effectively [47, 48], which is pivotal in reducing procrastination [49, 50].

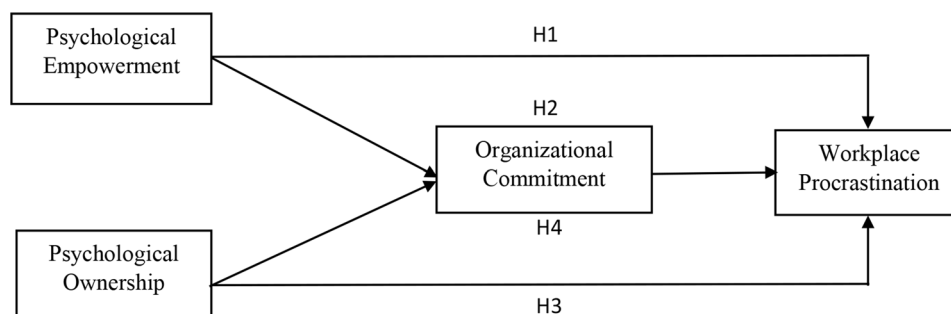


Fig. 1 Theoretical model of the study. Impact of psychological characteristics (psychological empowerment and psychological ownership) on employees' workplace procrastination, mediating role of organizational commitment. (Note: H1 and H3 denotes direct hypotheses. H2 and H4 denotes mediation hypotheses)

Another aspect of psychological empowerment is the feeling of having an impact, which instils employees with a sense of responsibility toward their tasks. This sense of responsibility can limit the act of procrastination. Being psychologically empowered makes employees fully accountable and responsible for work outcomes, encouraging employees to engage actively and be less likely to defer tasks [51]. Self-determination theory suggests that when employees' basic psychological needs are satisfied, they are more likely to act positively [52] and avoid undesirable behaviour at work [53]. Psychological empowerment increases the value employees place on their tasks [54]. When tasks are valued and meaningful, the tendency to procrastinate decreases [55]. Based on these arguments, we suggest the following hypothesis.

Hypothesis 1 Psychological empowerment significantly reduces workplace procrastination behaviour among employees.

Mediating role of organizational commitment between psychological empowerment and workplace procrastination

Based on self-determination theory, when employees' basic psychological needs are satisfied, they are more likely to act positively [52] and avoid undesirable behaviour at work [53]. According to the tenets of SDT, when the basic psychological needs for autonomy, competence, and relatedness are met at the workplace, it leads to positive employee attitudes and behaviours [56]. Psychological empowerment improves employees' self-efficiency, increases their decision-making authority, and provides them with psychological meaningfulness of their organizational roles and tasks [57, 58]. Psychological empowerment boosts employee's organizational commitment and encourages them to involve in pro-social behaviours [59, 60]. Research studies supported the notion that psychological empowerment leads to higher levels of organizational commitment and work engagement and lower levels of procrastination and counterproductive work behaviour [23, 61, 62]. Other recent research shows that psychologically empowered employees believe that they can handle difficult work circumstances and achieve important work objectives, fulfilling their fundamental psychological needs [63]. As a result, they have less negative work behaviour and more favourable job attitudes [64]. Recent research findings on Self-determination theory show that psychologically empowering employees by increasing their self-efficacy, autonomy, and meaningfulness of roles addresses basic psychological needs and minimizes procrastination and other adverse effects [65].

Psychologically empowered employees are competent to perform their task successfully because they feel self-sufficient and self-assured to influence at [66], which

reduces the amount of irrational delay [15]. Employees high in psychological empowerment feel confident in their ability to accomplish tasks effectively [48], which helps them reduce their procrastination behaviour [49, 50]. Psychologically empowered individuals tend to be highly self-motivated, resilient, and concentrated [67], refraining from putting off work. Higher psychological empowerment is associated with higher organizational commitment [23].

Employees with high psychological empowerment are willing to take responsibility for their tasks and express a higher organizational commitment [68]. They are less likely to exhibit procrastination behaviour at work [69]. Psychological empowerment increases employees' self-confidence, encouraging them to perform tasks more effectively and enhancing organizational commitment [70]. Employees' organizational commitment enables them to reduce their procrastination in the workplace [71]. Employees who feel autonomy in their decision-making are ready to take responsibility, exert effort to accomplish goals, and show more commitment toward their organization [72]. Highly committed employees accept their responsibilities, want to stay in their organization and show a lower tendency to procrastinate their tasks [73]. According to self-determination theory, psychologically empowered individuals are more self-driven and competent to perform their tasks, which leads them to show a high level of organizational commitment [74]. Organizational commitment is the employees' psychological bond with the organization that reflects numerous elements of behavioural volition, persistence, and dedication [75–77], which restrict them in engaging non-work-related behaviour [78].

Hypothesis 2 Organizational commitment mediates the relationship between psychological empowerment and workplace procrastination behaviour.

Psychological ownership and workplace procrastination

Employees who experience feelings of psychological ownership often sense greater control and power over their tasks, which enhances their self-efficacy [27, 79, 80]. This, in turn, is likely to foster positive work outcomes. Having control over one's own behaviour increases the sense of responsibility, motivating employees to engage in positive behaviour and avoid negative actions, such as procrastination [79, 81–83]. Control is a key characteristic of psychological ownership; greater control leads to feelings of possession, pleasure, and self-efficacy [27, 84, 85], which, in turn, enhances effort toward the target. Studies have shown that employees who exhibit high levels of psychological ownership are more engaged, show higher job satisfaction, and are more proactive in their work and thus less likely to procrastinate the tasks.

When employees feel they have control at work and possess intimate knowledge of the organization [27], a sense of ownership arises, compelling them to invest themselves in achieving organizational tasks without irrational delays [86]. According to self-determination theory, when employees' basic psychological needs are met, they exhibit more positive behaviour [24, 31].

A psychological sense of ownership enables employees to commit their time, effort, and physical and psychological resources and engage in desired behaviours [87, 88]. The decision-making model shows that when employees have psychological ownership of their tasks, they are more self-directed and enjoy more satisfaction in performing their tasks beyond their call of duty [89]. Thus, Dewi et al., [90] investigated the positive link between psychological ownership and organizational citizenship behaviours and higher performance and lower turnover intentions in employees from various industries. Katz et al. [32] reveal that fulfilling these needs can reduce negative behaviour at work. Feelings of psychological ownership encourage employees to invest their time, effort, and physical and psychological energy [27, 86, 91], leading to desirable behaviours [37] and deterring them from procrastination. Based on these arguments, we suggest the following hypothesis.

Hypothesis 3 Psychological empowerment significantly reduces workplace procrastination behaviour among employees.

Mediating role of organizational commitment between psychological ownership and workplace procrastination

Psychological ownership denotes the perception of possession that embodies a cognitive attachment to an organization, and this attachment forecasts employees' affirmative organizational behaviours, such as job satisfaction and organizational commitment [28]. When employees experience a sense of psychological ownership with their organization, indicating that organizations fulfill their essential human needs, they are more likely to assist, nurture, and even make sacrifices for their enterprises and engage in pro-organizational activities [92]. Employees with feelings of psychological ownership experience a greater sense of control and power over the objects, which increases their feelings of self-efficacy [79], and, in turn, they are more likely to foster positive work outcomes. When Employees feel they have control at work and have intimate knowledge about the organization [27], a sense of possession arises, which forces them to invest themselves in achieving the organizational tasks [86], without any irrational delay. Feelings of psychological ownership encourage employees to invest their time, effort, and physical and psychological energy [27, 91, 93],

leads to desirable behaviour [37]), and refrain them from putting off the task.

Pierce, O'driscoll, and Coghlan [80] argued that employees with psychological ownership feel privileged to be a part of their organization, which may boost their organizational commitment. Recent studies confirm the link between organizational commitment and procrastination behaviours [94, 95]. Organizational commitment entails involvement and emotional attachment to an organization, resulting in effort exerted toward the organization's goals [96] and fewer withdrawal behaviours such as procrastination. Highly committed individuals try to show optimal work behaviour [97], which reduces their tendency to procrastinate [17]. The feeling of psychological ownership is linked with self-concept [98], which enhances their confidence and acts as an owner [27, 99, 100] and motivates them to avoid dysfunctional behaviour [101]. Employees who exhibit a high level of psychological ownership are more committed to their organization [84, 85], which refrains them from engaging in non-work-related behaviour [14, 78, 102]. Similarly, a sense of ownership encourages employees to exert effort, leading to higher organizational commitment [37] Fig. 1. Employees with high organizational commitment are more willing to work hard to accomplish the organizational goals, want to maintain their membership with the organization [103], and are less likely to exhibit procrastination behaviour [104].

Hypothesis 4 Organizational commitment mediates the relationship between organization-based psychological ownership and workplace procrastination behaviour.

Methods

To investigate our research hypotheses, we conducted two studies using different samples. The first study was an online survey administered through the online platform Prolific, an online crowdsourcing research platform used to recruit diverse pool of participants within short period of time. The second study was a time-lagged survey conducted among employees from various banks in Pakistan. Time-lagged data collected at two different time points is appropriate in analyzing mediating mechanisms because it helps establish "temporal precedence". Temporal precedence strengthens causal inference among variables by ensuring that the mediator is affected by the IV before influencing the DV, which is difficult to establish in cross-sectional studies. Therefore, time-lagged data allow researchers to examine the mediating mechanisms in a more controlled way.

The reasons for conducting two different studies are twofold. First, conducting multiple studies enhance the external validity of the research findings [105]. While online platforms allow for quick and diverse

data collection, conducting a second study in real-time organizational setting allow researchers to test the consistency of research findings and thus improves the generalizability of the results. Second, data collection from two distinct methods allows researchers engaging in methodological triangulation, which helps to minimize the biases and limitations inherent in a single method. For example, online surveys may suffer from issues like sampling bias and inattentive responses, the field surveys allow researchers to collect data directly from employees in organizational settings to mitigate such issues [26].

Assessment of common method Bias

Common Method Bias (CMB) is a potential methodological concern in studies that rely on self-reported data [106]. Given that the data in these studies were entirely self-reported, it was essential to assess CMB, which could artificially enhance the relationships among constructs [107]. We employed Harman's single-factor test to evaluate CMB as a post hoc check for CMB in both Study 1 and Study 2 [108]. Harman's test involves extracting a single factor from the correlation matrix of the constructs. If this single factor explains a substantial portion of the variance in the data (typically, more than 50%), it suggests that CMB may be a significant concern [106].

In Study 1 and Study 2, the most significant variance explained by a single factor was well below this threshold, at 36% and 30%, respectively (see Table 1). These findings indicate that CMB was not a significant issue in either study. Therefore, the observed relationships between the constructs in both studies are unlikely to be substantially influenced by the measurement method itself, providing greater confidence in the validity of our findings.

Assessment of multicollinearity

Multicollinearity refers to a high degree of the correlation among the predictor variables (Harvey, 1977; 76). To detect any potential issues related to multicollinearity, we examined Variance Inflation Factor (VIF) and the Tolerance values. To confirm the absence of multicollinearity, the value of Tolerance should be greater than 0.20 and

the VIF must be lower than 5.00 [109]. The results of the collinearity tests, as shown in Table 1, suggest that all predictor variables met these thresholds in both studies, and therefore multicollinearity is not an issue in both study 1 and 2.

Analytical approach and statistical tools

We conducted the preliminary data analysis, including descriptive statistics and correlation matrix using SPSS-29, providing a foundation for understanding the essential characteristics of our variables. To assess for common method bias and establish our constructs' discriminant and convergent validity, we conducted Confirmatory Factor Analysis (CFA) using AMOS-29. The CFA analysis allowed us to evaluate the measurement model, ensuring that our constructs were distinct and appropriately correlated. CFA is a critical step in verifying construct validity in behavioural research [109]. We analysed the direct hypotheses (1 & 3) using Hierarchical Regression Model in SPSS-29, which allowed us to predict the impact of each independent variable controlling the effect of exogenous variables. We used PROCESS macro by Hayes to test our mediation hypotheses. The PROCESS macro is a widely used and accepted technique to test complex mediation models [110]. This approach allowed us to calculate the effects of psychological empowerment and psychological ownership on workplace procrastination directly and indirectly through the mediating mechanism of organizational commitment. The use of SPSS, AMOS and PROCESS macro enabled us addressing our research questions with a robust analytical strategy.

Study 1

Survey sample and data collection

In Study 1, Data were collected from a sample of full-time and part-time employees recruited through Prolific, an online panel platform, using an online survey questionnaire. Online data collection platforms have become increasingly popular due to their cost-effectiveness and time-saving advantages. To address potential concerns associated with online data collection, we employed

Table 1 Common method Bias and multicollinearity test for study 1 and 2

Predictor Sets	Variables	Collinearity Statistics				Harmon's Single Factor Analysis	
		Tolerance		VIF		% of Variance Explained by a Single Factor	
		Study 1	Study 2	Study 1	Study 2	Study 1	Study 2
Set 1	PE	0.833	0.929	1.200	1.077	35.65	30.37
	PO	0.833	0.929	1.200	1.077		
Set 2	PE	0.832	0.887	1.202	1.128		
	PO	0.375	0.833	2.664	1.200		
	OC	0.398	0.822	2.514	1.217		

Note: PE = Psychological empowerment; PO = Psychological ownership; OC = Organizational commitment. Set 1: Dependent construct is organizational commitment; Set 2: Dependent construct is procrastination behaviour

several strategies, which included offering monetary rewards (£6 per hour), providing detailed instructions, ensuring participants' free-will consent, and maintaining a balanced sample [111]. To reduce the risk of common method bias, which can occur when the same method is used to collect different data, we gathered our data in two distinct phases [112]. At Time 1 (T1), participants were asked to report their demographics (age, gender, experience, and education) and complete psychological empowerment and ownership measures. Three weeks later, at Time 2 (T2), participants completed measures of organizational commitment and workplace procrastination behaviour.

Initially, 150 respondents completed the T1 survey, of which 148 provided useful responses. Three weeks later, these 148 participants were invited to complete the T2 survey, of which 147 responded. One participant who failed the attention check was removed from the sample, resulting in a final sample size of 146 respondents who provided useable data at both T1 and T2. The sample consisted of 49% males and 51% females, with an average age of 33.8 years ($SD=10.28$) and an average of 9.9 years of work experience ($SD=9.37$). Regarding education, 0.7% of respondents had an intermediate degree, 14.4% had a bachelor's degree, 74.7% had a master's degree, and 10.3% had a doctorate degree.

Measurement

All variables were measured through multiple-item scales using a five-point Likert scale, with higher scores representing higher values.

Psychological empowerment

We adopted the 12-item scale compiled by Spreitzer [25]. Sample statements include "The work I do is very important to me." Cronbach's alpha was 0.926.

Psychological ownership

A 6-item scale adopted by Van Dyne and Pierce [113] and Pierce et al. [80] was used to measure employees' psychological ownership toward their organization. Sample

statements include "This is my organization." The Cronbach's alpha was 0.842.

Organizational commitment

We adopted the 18-item organizational commitment questionnaire (OCQ) scale developed by Meyer, Allen, and Smith [114]. Sample statements include, "I would be very happy to spend the rest of my career with this organization." The Cronbach's alpha was 0.945.

Procrastination

We adopted the 12-item Procrastination at Work Scale (PAWS) developed by Metin et al. [1], measuring employees' procrastination at work. Sample statements include "When I work, even after I make a decision, I delay acting upon it." with Cronbach's alpha of 0.948.

Control variables

We used the conventional practice of using demographic variables and including age, gender, experience, and education as control variables, as these variables showed a significant relationship with procrastination in previous studies [115].

Results and discussion study 1

Descriptive statistics and correlation analysis

The mean, standard deviations, correlations among variables in Study 1, and reliability coefficients are presented in Table 2. The correlation analysis suggests that psychological empowerment is significantly positively correlated with organizational commitment ($r=0.342$, $p<0.01$). At the same time, there is a significant negative correlation between psychological empowerment and employees' workplace procrastination behaviour ($r=-0.237$, $p<0.01$). Similarly, psychological ownership is significantly positively correlated with organizational commitment and significantly negatively correlated with employees' workplace procrastination behaviour ($r=-0.414$, $p<0.01$). A significant negative correlation exists between organizational commitment and employees' workplace procrastination behaviour ($r=-0.546$,

Table 2 Descriptive statistics and correlation analysis for study 1

	Mean	SD	1	2	3	4	5	6	7	8
1 Age	33.780	10.28	-							
2 Gender	1.51	0.502	-0.008	-						
3 Experience	9.909	9.377	0.855**	-0.109	-					
4 Education	2.95	0.522	-0.057	0.003	-0.066	-				
5 Psychological Empowerment	3.567	0.719	0.096	-0.132	0.074	-0.091	0.946			
6 Psychological Ownership	3.821	0.642	0.147	-0.026	0.111	-0.078	0.408**	0.861		
7 Organizational Commitment	3.773	0.605	0.120	0.001	0.144	-0.209*	0.342**	0.370**	0.950	
8 Workplace Procrastination	2.611	0.850	-0.026	-0.070	0.023	-0.035	-0.237**	-0.414**	-0.546**	.960

Numbers on diagonal (bold) are Cronbach's alpha reliability coefficients

* $p<0.05$. ** $p<0.01$

Table 3 Confirmatory factor analysis for study 1

Model	Variables	χ^2	df	χ^2/df	RMSEA	TLI	CFI
1	PE; PO; OC; WP	1691.583	1034	1.636	0.066	0.895	0.903
2	PE + PO; OC; WP	3332.689	1077	3.094	0.120	0.653	0.668
3	PE + PO; OC + WP	4217.682	1079	3.909	0.142	0.518	0.539
4	PE + PO + OC + WP	5207.333	1080	4.822	0.162	0.366	0.393

Notes. All alternative models were compared to the hypothesized four-factor model. CFI: comparative fit index; RMSEA: root mean square error of approximation; TLI: Tucker–Lewis index

PE, Psychological Empowerment; PO, Psychological Ownership; OC, Organizational Commitment; WP, Workplace Procrastination

Table 4 Hierarchical regressions for main study variables

Independent Variables	Procrastination		
	Model 1	Model 2	Model 3
Age	−0.013	0.010	−0.006
Gender	−0.093	−0.160	−0.201
Experience	0.013	0.012	0.008
Qualification	−0.056	−0.091	−0.128
Psychological Empowerment		−0.301**	−0.022
Psychological Ownership			−0.375**
R ²	0.012	0.063	0.106
ΔR ²		0.029	0.068
F	0.443	1.88	2.75**

$p < 0.01$). These correlation analyses preliminarily verified our theoretical hypotheses.

Confirmatory factor analysis

We conducted a confirmatory factor analysis to assess common method bias and establish the discriminant and convergent validity of our constructs [116]. We conducted CFA of our four-factor model, including psychological empowerment, psychological ownership, organizational commitment, and workplace procrastination. The CFA results for our four-factor model, as presented in Table 3, suggest a good fit to the data ($\chi^2 = 1691.583$, $df = 1034$, $\chi^2/df = 1.636$, $RMSEA = 0.066$, $CFI = 0.903$, $TLI = 0.895$) which indicates that these four variables have good discriminant validity and relates to different constructs. To ensure the accuracy of our proposed measurement model, we compared it against three alternative models following the methodology recommended by Bentler and Bonett [117]. The results of the CFA analysis (Table 5) show that the fit indices of our four-factor model (M1) are superior to those of any other model. Further, all the items were loaded on their respective constructs, and the factor loading of each item was above 0.60, which is greater than the minimum recommended value of 0.50 [109]. Thus, the factor loadings for these four variables indicate strong convergent validity.

Hypothesis testing

To test our hypotheses 1 and 3 regarding the negative effects of psychological empowerment and psychological ownership on workplace procrastination respectively, we ran hierarchical regression with psychological

Table 5 Indirect pathways after executing bootstrapping ($N = 146$) for study 1

Indirect Effects Bootstrapping (CI 95%)				
$x \rightarrow m \rightarrow y$	Effect	SE	LLCI	ULCI
Psychological empowerment \rightarrow Organizational commitment \rightarrow Procrastination (H2)	−0.18*	0.06	−0.32	−0.07
Psychological ownership \rightarrow Organizational commitment \rightarrow Procrastination (H4)	−0.46*	0.11	−0.68	−0.25

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

empowerment and psychological ownership as predictors of workplace procrastination, controlling for demographic variables (Table 4). The results of model 3 show the effect of psychological empowerment on workplace procrastination remains non-significant (Model 3: $\beta = -0.022$, $p = 0.887$) and therefore does not support our hypothesis 1. However, the results show a significant negative effect of psychological ownership on employees' workplace procrastination (Model 3: $\beta = -0.375$, $p < 0.01$) and therefore supporting our hypothesis 3.

To test our mediation hypotheses, we utilized SPSS-29 and PROCESS macro [118], an extensively applied technique to examine the indirect effects in mediating models. The PROCESS macro employs a bootstrapping technique to draw repeated samples from the given dataset, making statistical inferences from each sample using interval estimation. The statistical inference will be considered significant if 95% confidence intervals do not contain zero (Preacher and Hayes, 2008 [119]). To probe the indirect effect of psychological empowerment and psychological ownership on workplace procrastination via organizational commitment, we implemented model 4 of the PROCESS macro with 5000 iterations.

Hypothesis 2 Predicted that organizational commitment would mediate the relationship between psychological empowerment and employees' procrastination behaviour. As shown in Table 5, the indirect effect of psychological empowerment on workplace procrastination behaviour through organizational commitment is significant ($\beta = -0.21$, 95% CI, LLCI −0.36, ULCI −0.09). As both LLCI and ULCI are in same direction and does not contain zero, the full mediation occurs and hypothesis 2 is

supported. Hypothesis 4 predicted that organizational commitment would mediate the relationship between psychological ownership and employees' workplace procrastination behaviour. As shown in Table 5, the indirect effect of psychological ownership on workplace procrastination behaviour through organizational commitment is significant ($\beta = -0.58$, 95% CI, LLCI -0.86 , ULCI -0.31). As both LLCI and ULCI are in same direction and does not contain zero, the full mediation occurs and hypothesis 4 is supported.

Discussion

The findings of our study 1 demonstrate the mediating role of organizational commitment in the relationships between psychological empowerment and workplace procrastination, as well as between psychological ownership and workplace procrastination. Employees with high psychological empowerment will likely feel more committed to their organization, engage in proactive behaviours and be less likely to procrastinate. In the context of SDT, organizational commitment acts as a mediator because empowered employees develop a sense of belonging and loyalty to their organization, which diminishes procrastination behaviours [39]. Employees who feel that their contributions matter are motivated to take action rather than delay tasks. Similarly, Employees' strong sense of psychological ownership fosters their commitment to their organization. This sense of ownership can foster a deeper emotional connection to their work, leading to a higher likelihood of taking initiative and less propensity to procrastinate. This notion is consistent with the previous research [113] suggesting that psychological ownership enhances job performance by increasing motivation.

The strength of this study lies in its diverse sample drawn from different industries. However, potential weaknesses include the lack of specific organizational contexts and concerns about data quality. To address these limitations and provide a more robust test of our research hypotheses, we conducted Study 2 using a time-lagged field survey among banking sector employees in Pakistan.

Study 2

Survey sample and data collection

The participants for this study were employees from various banks in Pakistan. The context of the banking sector is particularly relevant for several reasons. First, the banking industry has historically experienced significant delays in decision-making [120], and previous studies have shown that non-work-related activities account for 63% of the health-related costs (US\$311.8 million) incurred by banking employees [121]. The banking

industry plays a crucial role in Pakistan's economy and its performance can be influenced by many factors. One such factor affecting the banking sector is procrastination. Bank employees experience increased procrastination due to expanded challenges, growing client demands, the need for rapid customer service, and time constraints, which notably diminish their productivity. Interestingly, a recent survey conducted in Pakistan among bank employees found that around 80% of them identified themselves as procrastinators. Second, effective time management is crucial for banking employees who often have to complete multiple tasks within tight deadlines. Employee procrastination can result in missed deadlines and increased stress levels [122, 123]. Understanding how to overcome procrastination can help banking employees manage their time more effectively and meet deadlines. Third, procrastination can also impact customer service. If banking employees complete tasks, this can lead to timely or correct information being provided to customers, resulting in dissatisfied customers, lost business, and damage to the bank's reputation.

Using a convenience sampling technique, we collected data from commercial and Islamic banks in Pakistan's private banking sector. All the researchers used their personal and professional networks to approach the various branches of the banks to collect data. Given that most of the country's banking industry is privately held, this focus on private banks provides a comprehensive understanding of the sector's dynamics. Including both types of banks not only broadens the scope of our study but also ensures that our findings are relevant across different banking models, enhancing the generalizability and applicability of the results within Pakistan's financial landscape. This approach allows us to capture diverse perspectives, contributing valuable insights into the organizational behaviours across the banking industry.

Four hundred and fifty respondents were invited to participate in the study. The sample size was determined using a power analysis to ensure that the study would have enough statistical power to detect meaningful changes over time. We contacted the HR managers of the respective banks to obtain a list of employees who agreed to participate in the study. Participants were given instructions on completing the survey and a consent form to acknowledge their voluntary participation. Those who gave their consent received a hard copy of the questionnaire and cover letter, sealed in an envelope to maintain confidentiality. Participants were asked to return the completed questionnaire to a designated box within the organization. They were informed that the survey would be used for academic purposes only and that their anonymity would be preserved.

To reduce common method bias associated with one-time data collection, we conducted a time-lagged survey

Table 6 Descriptive statistics and correlation analysis for study 2

	Mean	SD	1	2	3	4	5	6	7	8
1 Age	31.62	5.69	-							
2 Gender	1.21	0.41	-0.027	-						
3 Experience	6.36	2.97	0.781**	-0.031	-					
4 Education	2.59	0.676	0.243**	-0.005	0.300**	-				
5 Psychological Empowerment	3.59	0.626	-0.134**	0.005	-0.114*	-0.017	0.926			
6 Psychological Ownership	4.13	0.596	0.028	-0.015	0.078	0.008	0.267**	0.842		
7 Organizational Commitment	3.78	0.574	-0.016	0.007	-0.065	0.007	0.290**	0.373**	0.945	
8 Workplace Procrastination	2.55	0.751	-0.012	-0.129*	-0.004	-0.032	-0.269**	-0.339**	-0.538**	0.948

Numbers on diagonal (bold) are Cronbach's alpha reliability coefficients

* $p < 0.05$. ** $p < 0.01$

Table 7 Confirmatory factor analysis for study 2

Model	Variables	χ^2	df	χ^2/df	RMSEA	TLI	CFI
1	PE; PO; OC; WP	2296.703	1030	2.230	0.057	0.904	0.913
2	PE + PO; OC; WP	5423.536	1077	5.036	0.103	0.686	0.700
3	PE + PO; OC + WP	9699.349	1080	8.981	0.144	0.379	0.405
4	PE + PO + OC + WP	7646.136	1079	7.086	0.126	0.526	0.547

Notes. All alternative models were compared to the hypothesized four-factor model. CFI: comparative fit index; RMSEA: root mean square error of approximation; TLI: Tucker–Lewis index

PE, Psychological Empowerment; PO, Psychological Ownership; OC, Organizational Commitment; WP, Workplace Procrastination

in three stages over three months. A total of 450 questionnaires were distributed. At Time 1, participants reported their demographics (age, gender, experience, and education) and completed psychological empowerment and ownership items to measure their awareness of psychological characteristics. At Time 2, one month later, participants completed items on organizational commitment and workplace procrastination to assess the impact of psychological characteristics on participants' organizational commitment and their workplace procrastination.

After eliminating 66 invalid questionnaires, 384 valid questionnaires were retained, resulting in an effective response rate of 85.3%, this response rate was consistent with previous studies [1, 7]. The final sample consisted of 79.4% men and 20.6% women, with an average age of 31.6 years ($SD = 5.69$) and an average experience of 6.4 years ($SD = 2.97$).

Measures

We used the same scales to measure our study variables as in Study 1. Consistent with Study 1, all the variables were measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The Cronbach alphas for psychological empowerment, psychological ownership, organizational commitment, and workplace procrastination scales in study 2 were 0.946, 0.861, 0.950, and 0.960, respectively.

Results and discussion study 2

Descriptive statistics and correlation analysis

As shown in Table 6, both psychological empowerment and psychological ownership are significantly positively

correlated with organizational commitment ($r = 0.290$, $p < 0.01$; $r = 0.373$, $p < 0.01$), while there is significant negative correlation with employees' workplace procrastination behaviour ($r = -0.269$, $p < 0.01$; $r = -0.339$, $p < 0.01$). A significant negative correlation exists between organizational commitment and employees' workplace procrastination behaviour ($r = -0.538$, $p < 0.01$). These correlation analyses preliminarily verified our theoretical hypotheses.

Confirmatory factor analysis

We performed a series of confirmatory factor analyses using AMOS-29 to examine the structural validity of the model. The goodness of fit for our model was assessed against four indices: χ^2/df , CFI, TLI, and RMSEA. Ideally, the value of χ^2/df should be less than 2, the values of CFI and TLI should be equal to or exceed 0.90, and RMSEA should be less than 0.08 [124, 125]. The four-factor model (Model 1) demonstrated a better fit to the data ($\chi^2 = 2296.703$; $df = 1030$; $\chi^2/df = 2.230$; $RMSEA = 0.057$; $TLI = 0.904$; $CFI = 0.913$) compared to the alternative models, which included a three-factor model (Model 2), a two-factor model (Model 3), and a single-factor model (Model 4; Table 7). This result indicates that these four variables have good discriminant validity and relate to different constructs. Further, the factor loading of each item exceeded 0.60, satisfying the standard value criteria [109] and signifying statistical significance among the items. This result indicates good convergent validity of these four variables.

Table 8 Hierarchical regressions for main study variables

Independent Variables	Procrastination		
	Model 1	Model 2	Model 3
Age	−0.003	−0.007	−0.009
Gender	−0.240	−0.239	−0.246
Experience	0.005	0.003	0.015
Qualification	−0.236	−0.031	−0.038
Psychological Empowerment		−0.329***	−0.232***
Psychological Ownership			−0.367***
R ²	0.018	0.092	0.170
ΔR ²		0.080	0.157
F	1.730	7.65	12.86**

Table 9 Indirect pathways after executing bootstrapping (N = 384) for study 2

Indirect Effects Bootstrapping (CI 95%)				
x → m → y	Effect	SE	LLCI	ULCI
Psychological empowerment → Organizational commitment → Procrastination (H2)	−0.18*	0.04	−0.25	−0.11
Psychological ownership → Organizational commitment → Procrastination (H4)	−0.23*	0.05	−0.34	−0.13

p* < 0.05. *p* < 0.01. ****p* < 0.001

Hypothesis testing

As in study 1, in testing Hypotheses 1 and 3, which posulated the influences of psychological empowerment and psychological ownership on workplace procrastination, respectively, we employed hierarchical regression analyses. We controlled for demographic variables to isolate the effects of the psychological constructs. As shown in Table 8, the results from Model 3 suggest a significant negative relationship between psychological empowerment and workplace procrastination ($\beta = -0.232, p < 0.001$) and psychological ownership and workplace procrastination ($\beta = -0.367, p < 0.001$) indicating the empirical support for our hypothesis 1 and 3. These results suggest that higher levels of psychological empowerment and psychological ownership among employees are associated with reduced tendencies to procrastinate in the workplace.

To test our mediation hypotheses, we utilized SPSS-29 and PROCESS macro [118] as in study 1. As demonstrated in Table 9, the indirect effect of psychological empowerment on workplace procrastination behaviour, mediated by organizational commitment, is significant ($\beta = -0.17, 95\% \text{ CI, LLCI } -0.25, \text{ ULCI } -0.11$). Since both the lower limit (LLCI) and upper limit (ULCI) are in the same direction and do not include zero, partial mediation is confirmed, supporting Hypothesis 2. Similarly, the indirect effect of psychological ownership on workplace procrastination behaviour, mediated by organizational commitment, is significant ($\beta = -0.22, 95\% \text{ CI, LLCI } -0.34, \text{ ULCI } -0.13$). Since both LLCI and ULCI are in

the same direction and do not contain zero, partial mediation occurs, validating Hypothesis 4. All the direct and indirect effects among the study variables are presented in Table 9.

Discussion

This research, grounded in Self-Determination Theory (SDT), identifies organizational commitment as a mediator linking psychological empowerment and ownership to employee procrastination. Specifically, fulfilling individuals’ three basic psychological needs—autonomy, competence, and relatedness—encourages intrinsic motivation and positive outcomes like job satisfaction and performance. We observed that greater control and autonomy led employees to complete tasks promptly. Thus, psychological empowerment can enhance organizational commitment by bolstering feelings of autonomy, competence, and relatedness, thereby reducing procrastination. Similarly, psychological ownership can satisfy the need for autonomy and competence, decreasing procrastination. High psychological ownership fosters increased organizational commitment, further reducing procrastination. This highlights the role of psychological ownership in cultivating a sense of organizational responsibility, enhancing commitment, and mitigating procrastination.

Theoretical significance

This research contributes significant theoretical advancements to the study of procrastination, particularly within an organizational setting - a context often overlooked by prior studies primarily focusing on academic settings [126, 127]. First, this study advances our understanding of the antecedents of employee workplace procrastination by introducing two previously unexplored yet critical factors: psychological empowerment and psychological ownership. While prior research has primarily focused on factors leading to procrastination limited attention has been paid to factors mitigating workplace procrastination. By focusing on broader psychological factors related to employees’ empowerment and ownership within the organization, this research broadens the scope of antecedents of workplace procrastination. Further, this study responds to the recent call for research on the motivational and psychological factors in mitigating employees’ workplace procrastination.

Second, this study will help us understand the underlying mechanisms between psychological factors and employee workplace procrastination by identifying the mediation mechanism of organizational commitment. Despite the significant role of intrinsic motivation factors in explaining the effects of personal and contextual factors on employee procrastination behaviours, only a few studies have examined the mediation effect of motivational states linking psychological factors and employee

workplace procrastination. Drawing on SDT theory, we examined organizational commitment as an underlying mechanism through which psychological empowerment and psychological ownership help reduce employee workplace procrastination. Our results support SDT tenets, showing that psychological empowerment and ownership foster employee organizational commitment by fulfilling their basic psychological needs and thus reducing their procrastination behaviour. Therefore, this research shows that SDT theory is a compelling perspective for identifying potentially undiscovered paths linking psychological factors and employee outcomes.

Practical significance

This study offered practical implications for practitioners and managers by examining the influence of psychological empowerment and psychological ownership on workplace procrastination behaviour, shedding light on addressing this issue in the workplace. At the organizational level, reducing procrastination enhances efficiency, better time management, and increased productivity. Organizations can reduce workplace procrastination by fostering an environment that promotes psychological empowerment and ownership. Organizational managers can foster a sense of empowerment and ownership among employees by delegating more autonomy and encouraging them to take responsibility for outcomes. This ownership motivates employees to invest in their tasks, thus reducing procrastination. Moreover, empowered employees feel more capable of influencing their work environment and outcomes, which enhances their intrinsic motivation to complete tasks on time [25]. Managers can encourage this by delegating decision-making authority and providing meaningful tasks that align with employees' strengths and interests [27], which not only improves task engagement but also develops a more agile and responsive workforce.

By unpacking the process through which procrastination behaviour can be controlled via organizational commitment, our research findings suggest that organizational commitment mediates the relationship between psychological empowerment/ownership and procrastination. When employees feel empowered and have a sense of ownership, their commitment to the organization strengthens, leading to higher levels of responsibility and engagement, which reduces procrastination [29]. Organizations can strengthen commitment by recognizing employees' contributions, offering professional development opportunities, and creating a culture where employees' roles are clearly tied to organizational success. This sense of being valued and integral to the organization motivates employees to stay on task and complete their responsibilities efficiently. Managers are encouraged to establish flexible environments that foster positive

psychological norms to enhance employees' willingness, dedication, and motivation for task completion. Furthermore, by acknowledging the mediating role of organizational commitment, this study posits that organizations can augment employees' organizational commitment by amplifying psychological empowerment and ownership, thereby potentially reducing employees' procrastination tendencies.

These findings can help address broader societal challenges, such as employee burnout and job dissatisfaction. By fostering psychologically safe environments that reduce procrastination, organizations can support employees' mental well-being and job satisfaction, contributing to healthier work cultures and communities. Finally, organizational managers and policymakers can apply these findings to design interventions that enhance employee commitment and reduce procrastination-related inefficiencies. The findings of our research can guide Human resource managers to redefine leadership training, inclusive work design, and employee engagement strategies. In doing so, they improve organizational effectiveness and contribute to building resilient, motivated, and high-performing workforces.

Limitations and future research directions

Along with the contribution to the literature on workplace procrastination, this study acknowledges several limitations and offers directions for future research. First, we relied on employees' self-reported data and their subjective evaluations, which may raise issue of response bias and social desirability. To overcome this, future studies could adopt experimental or longitudinal designs, utilize experience sampling methods (ESM), or integrate digital behavioural tracking tools (e.g., activity logs, productivity software) to gather objective data on procrastination patterns in real-time workplace contexts.

Second, while this study focused primarily on psychological empowerment and ownership, previous literature suggests that individual-level personality traits (e.g., low conscientiousness, high neuroticism) and contextual job features (e.g., autonomy, task significance, feedback) are also relevant predictors [128].

Taking an interdisciplinary approach that considers both personality traits and contextual factors from various fields could significantly improve our understanding of workplace procrastination. Further, shared leadership also play a remarkable role in positively influencing the commitment of employee thus would positively affect the job performance and creativity of employees [129] that could be investigated with the psychological empowerment in future. Future research should incorporate these potential moderators to provide a more nuanced understanding of the relationships studied.

We considered procrastination as a negative employee behaviour leading to various adverse impacts on individuals and organizations and examined the factors reducing this negative behaviour. However, moderate levels of procrastination may foster creativity, so an appropriate level of procrastination may, in fact, function as a positive strategy for some employees. Future researchers could focus on the potential upsides of procrastination and attempt to understand this behaviour from another angle. Perhaps identifying the extent to which procrastination could act as a motivator will help scholars and practitioners to manage this behaviour more effectively.

Third, with the increasing digitization of work, future scholars might consider the role of technological distractions (e.g., social media, instant messaging platforms) and the use of productivity-enhancing apps or AI-based nudges (e.g., focus timers, smart notifications) in regulating procrastination [130]. As technological advancement is reshaping the organizational processes, digital tools may serve as a platform for fostering psychological empowerment and ownership [131, 132]. These technological changes may influence employees' motivational responses [133], which affect procrastination behavior at work. These approaches could offer scalable interventions tailored to individual behavioural profiles, further advancing our understanding and management of this complex phenomenon.

Finally, several leadership styles and organizational HRM practices may play a critical role in reducing workplace procrastination. For instance, visionary leadership may reduce procrastination by aligning employee goals and enhancing their intrinsic motivation [134]. Contrary to this, the Despotism leadership style may reduce psychological safety and encourage employee's procrastination behavior [132]. Further, organizational practices such as High-involvement work practices foster employee commitment, which is key component in reducing procrastination.

Conclusion

Workplace procrastination poses a significant risk to employees and organizations. This study found that psychological empowerment and psychological ownership significantly decrease workplace procrastination, with this relationship being mediated by organizational commitment as predicted by self-determination theory. Psychologically empowered employees and those with a strong sense of psychological ownership exhibit decreased procrastination, demonstrating a sense of responsibility and motivation. As a result, organizations should enhance these attributes among employees and prioritize strategies to increase organizational commitment to reduce procrastination effectively. This research has important implications for both research and

practice, emphasizing the need for further investigation into self-determination theory's role in understanding workplace behaviour.

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Author contributions

F.K., M.U.I., conceptualized the study. F.K., M.U.I., M.R., A.S., U.I., contributed to the study designs and data acquisition, analysis, and interpretation. F.K., M.U.I., M.R., writing, F.K., M.U.I., M.R., A.S., U.I., review and editing. All authors approved the final version of the manuscript.

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Data availability

The datasets used and analyzed for the current study are available from the corresponding author upon a reasonable request.

Declarations

Ethics declaration and consent from participants

All procedure in this study were approved by the authors' institutional research ethics committee (School of Business Management, College of Business, Universiti Utara Malaysia). The researcher got informed consent from voluntary participants to gather and process data before participating in the study. This research paper does not contain any studies with animals. We also confirm that all methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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