

Associations between workplace bullying, psychological capital, and organizational citizenship behavior: A meta-analysis with structural equation modeling

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Abstract

Background: Workplace bullying depletes psychological resources, reducing job performance and organizational citizenship behavior. According to conservation of resources theory, psychological capital functions as a crucial psychological resource to influence the organizational citizenship behavior of employees who experience workplace bullying.

Objective: This study aimed to construct and validate a model of the associations between workplace bullying, psychological capital, and organizational citizenship behavior.

Methods: Meta-analysis and structural equation modeling (MASEM) was employed to analyze 40 quantitative empirical studies.

Results: Psychological capital was significantly and positively correlated with organizational citizenship behavior and significantly and negatively correlated with workplace bullying. However, organizational citizenship behavior was significantly and negatively correlated with workplace bullying, indicating heterogeneity among the variables. The total effects were as follows: workplace bullying negatively influenced psychological capital, psychological capital positively influenced organizational citizenship behavior, and workplace bullying negatively influenced organizational citizenship behavior. Psychological capital mediated the association between workplace bullying and organizational citizenship behavior.

Conclusions: Enterprises must address workplace bullying by establishing regulations and complaint channels. Additionally, they should prioritize recruiting employees with high psychological capital and develop employees' psychological capital to enhance workplace contributions and organizational citizenship behavior.

Keywords

workplace bullying, psychological capital, organizational citizenship behavior, meta-analysis, structural equation modeling

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Research background and motivation

Workplace bullying has become a concern in numerous sectors, and Taiwan's Occupational Safety and Health Act has required employers to prevent workplace bullying.¹ However, the definition of the term remains subjective and influenced by power dynamics in the workplace. Consequently, victims may simply endure the abuse silently or leave the organization.

Workplace bullying negatively affects employees by reducing job satisfaction, work performance, and organizational commitment. Workplace bullying also increases job stress and the intention to resign, leading to substantial physical, mental, and emotional distress and potentially causing

posttraumatic stress disorder.^{2,3} However, not all employees who experience workplace bullying are severely affected. Several studies have demonstrated that psychological capital can mediate the adverse effects of workplace bullying. Employees with higher levels of psychological capital

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experience less harm from bullying.⁴⁻⁸ Moreover, Nielsen et al.⁹ reported that leaders are at a similar risk of being bullied as regular employees and that the harm they experience is comparable. Thus, organizations should include leaders as a risk group in their anti-bullying strategies. Additionally, workplace bullying can induce negative emotional states that discourage organizational citizenship behavior (OCB).¹⁰ Therefore, creating a positive and supportive work environment is crucial to mitigating the detrimental effects of workplace bullying and incivility on employee performance.¹¹

The present study reviewed the literature to identify the associations between psychological capital and workplace bullying. One study suggested that individuals in stressful environments with high levels of psychological capital demonstrate enhanced adaptability and coping skills,⁷ and another indicated that psychological capital contributes to positive attitudes, which can reduce deviant behavior and improve employee performance.¹² Additionally, several studies have reported a positive correlation between psychological capital and OCB.^{13,14} By contrast, workplace bullying negatively affects job performance and alters employees' perceptions of their organization, reducing their contribution and willingness to perform tasks outside the scope of their job descriptions.¹⁵ The present study clarified the associations between psychological capital, workplace bullying, and OCB by conducting a systematic review and meta-analysis of the literature. On the basis of this review, the present study constructed a theoretical model to explore the associations between psychological capital, workplace bullying, and OCB. The insights provided by the findings suggest directions for future research.

The use of meta-analysis and structural equation modeling (MASEM) is crucial to psychological research. Although multiple studies have examined workplace bullying, psychological capital, and OCB, variations in research methods and sample characteristics (e.g., participant numbers and regional differences) have rendered comprehensive assessments of these topics and their practical implications challenging. Thus, the present study employed MASEM to integrate research conducted in Taiwan and abroad from the past decade to mitigate cultural bias and yield insights generalizable to a wide range of populations. Structural equation modeling (SEM) was subsequently used to validate the theoretical model proposed to explain these associations.

Literature review

Association between psychological capital and OCB

Avey et al.¹⁶ discovered that psychological capital encourages resilience and positive emotions among employees, which shape their workplace behaviors and attitudes, including OCB and workplace deviance. Ilies et al.¹⁷ similarly reported that positive emotions at work increase employee engagement with their organization, resulting in positive OCB. These phenomena can be explained by the broaden-and-build theory of

positive emotions, which posits that positive emotions encourage further altruistic actions. Additionally, conservation of resources theory proposes psychological capital as a crucial advantage and resource in the workplace. Specifically, employees with psychological capital are more willing to invest in their organization, acquire new resources, or share assets to gain the approval of their superiors or foster harmonious relationships with their coworkers.¹⁸ Therefore, OCB, a form of altruistic work behavior, is influenced by psychological capital and organizational commitment. Additionally, one study demonstrated that organizational commitment mediates the association between psychological capital and OCB.¹⁹

Psychological capital enables employees to maintain a positive emotional state in the workplace, predicts job performance and happiness, and encourages positive organizational behaviors.¹⁴ Numerous studies have demonstrated a strong correlation between psychological capital and OCB.^{13,20-22} For example, Liu (2011) discovered that individuals with higher levels of psychological capital are more likely to do more than is required by their job descriptions and exhibit OCB. Huang and Huang¹³ verified the positive association between psychological capital and OCB, demonstrating that psychological capital can indirectly influence OCB through job satisfaction. Thus, an employee's psychological capital can predict their OCB. Additionally, corporate social responsibility moderates the association between psychological capital and prosocial motivation.²³ Furthermore, high levels of psychological capital enhance job satisfaction and foster positive emotions. Satisfied employees are more willing to engage in behaviors that benefit their organization.²⁴⁻²⁸ Furthermore, work engagement strongly mediates the direct and indirect effects of transformational leadership and psychological capital on OCB.²⁹

In summary, employees who effectively use resources, demonstrate confidence (self-efficacy), adapt to adversity (resilience), maintain positive work-related beliefs (optimism), and proactively pursue their goals (hope) tend to have high psychological capital. This positive, proactive state influences their behavior, leading them to complete tasks autonomously and responsibly. These employees are also more inclined to contribute to their organization and engage in altruistic behaviors that benefit colleagues (OCB). On the basis of these insights, the present study proposes the following hypothesis:

Hypothesis 1: Psychological capital is positively correlated with OCB.

Association between psychological capital and workplace bullying

Workplace bullying increases job stress and adversely affects employees' mental, physical, and emotional health, leading to anxiety, fear, depression, and loss of confidence. This decline in well-being reduces job efficiency and

satisfaction and may even result in the intention to leave the workplace.^{30–32} Affective events theory suggests that negative workplace events directly influence employee behavior or indirectly shape work attitudes. Such outcomes impose substantial costs on organizations.³³ Although early research on workplace bullying focused on “repair” strategies to address its adverse effects, the rise of positive psychology has led scholars to advocate proactive measures to prevent or mitigate the damage caused by bullying. Several studies have demonstrated that psychological capital mediates the negative effects of workplace bullying on employees.^{4,6,8} Others have identified psychological capital as a personal resource that can moderate the harmful effects of workplace bullying. Employees with greater psychological resources exhibit higher resilience to psychological distress and increased creativity when facing workplace stressors, including cyberbullying, indicating that psychological capital is negatively associated with adverse responses to workplace stressors.^{5,34,35} Additionally, Wu et al.⁷ suggested that psychological capital moderates the influence of workplace bullying on employee well-being, enhancing the ability to adapt to challenges.

Psychological capital is a “state-like” attribute that employees can develop over time and through training, reflecting its malleability and adaptability in the workplace.³⁶ According to conservation of resources theory, individuals who experience environmental challenges activate self-protection mechanisms, use available resources to cope, and seek new resources to enhance resilience.³⁷ Furthermore, an individual’s optimism, self-esteem, and self-efficacy are inseparably linked with their work environment.³⁸ Therefore, several studies have identified psychological capital as a crucial resource that can be enhanced through organizational interventions such as training programs.^{5,8}

The comprehensive theoretical framework of work stress suggests that employees use psychological resources to cope and reduce the negative effects of stressful situations on emotions, attitudes, and behaviors. Psychological resources comprise self-efficacy, which reflects confidence in problem-solving abilities;³⁹ optimism, which involves maintaining positive beliefs based on realistic assessments;³⁶ and hope, which drives the individual to posit goals and seek out pathways to achieve them. In cases of workplace bullying, resilience also enables employees to cope with adversity in a flexible manner. Thus, psychological capital is negatively correlated with workplace bullying, indicating that individuals with higher psychological capital can more readily manage the mental and physical challenges such bullying poses. Higher levels of psychological capital within an organization are associated with a lower risk of burnout. Therefore, implementing programs to promote psychological capital and inhibit workplace bullying can foster a healthy organizational

culture.⁴⁰ Additionally, psychological capital training can mitigate the negative outcomes of workplace bullying. On the basis of these insights, this study proposes the following hypothesis:

Hypothesis 2: Psychological capital is negatively correlated with workplace bullying.

Association between OCB and workplace bullying

Workplace bullying is negatively correlated with OCB.⁴¹ The results of integrated analyses have verified that workplace bullying adversely affects employees’ physical, mental, and emotional well-being and work performance.³ For example, Tsai et al.⁴² discovered that bullying in the nursing sector compels staff to undertake tasks beyond their capabilities, leading to a loss of control over their work that may adversely affect the quality of care they provide. Additionally, Mendiratta and Srivastava⁴³ reported that workplace bullying reflects a lack of organizational justice, prompting employees to express dissatisfaction by cooperating less, engaging less in OCB, and increasing deviant behaviors.¹⁰ Finally, the experience of bullying decreases job satisfaction, a factor associated with higher levels of OCB.⁴⁴

Moffat et al.,⁴⁵ employed the job–demands–resources model and environmental psychology to examine how workplace bullying influences turnover intention in employees. Their findings demonstrate that workplace bullying, mediated by work attachment and work environment satisfaction, increases turnover intention. Additionally, Ng et al.⁴⁶ used self-determination theory to analyze the job satisfaction and public service motivation of nursing staff experiencing vertical and horizontal workplace bullying, discovering that abusive leadership indirectly reduces public service motivation by lowering job satisfaction, an association moderated by workplace bullying. Moreover, applying affective events theory, Alqhaiwi et al.⁴⁷ investigated how workplace bullying in the hotel industry induces hostile emotions and leads to counterproductive behavior, demonstrating that trait mindfulness can mitigate these negative emotional responses. Furthermore, Marcatto et al.⁴⁸ utilized social exchange theory to explore how employees under abusive leadership 1) develop OCB toward colleagues facing bullying and 2) exhibit counterproductive behaviors toward supervisors and colleagues not facing bullying. Finally, Taheri et al.⁴⁹ studied the effects of abusive leadership and workplace bullying on job satisfaction and turnover intention in a commercial kitchen environment, indicating that workplace creativity and camaraderie are crucial to employee retention. These studies highlight the diverse effects of leadership style and workplace bullying on employee behavior and attitudes across work environments.

Conservation of resources theory suggests that when individuals lose resources, they experience stress and strive to prevent further loss.³⁷ In the context of workplace bullying, employees conserve resources by reducing their contributions to the organization and minimizing discretionary, extra-role behaviors.^{50,51} Additionally, social exchange theory posits that when individuals perceive violations of obligations or fairness in exchanges, they are likely to respond negatively.⁵² Consequently, employees who experience workplace bullying tend to contribute less to their organization, suggesting a negative correlation between workplace bullying and OCB.^{43,53,54} Lin also¹⁵ identified inappropriate managerial supervision as a form of workplace bullying; they discovered that employees in a positive mood voluntarily engaged in OCB beyond their job scope. By contrast, inappropriate supervision negatively affects OCB at the personal and organizational levels. Moreover, abusive supervision negatively influences all dimensions of organizational well-being.⁵⁵ On the basis of these insights, this study proposes the following hypothesis:

Hypothesis 3: Workplace bullying is negatively correlated with OCB.

Associations between workplace bullying, psychological capital, and OCB

According to conservation of resources theory, individuals with abundant psychological resources experience greater well-being. Positive emotions foster positive interactions among colleagues and work teams. Psychological capital, a major personal resource, influences employees' engagement in work and prosocial behaviors.^{18,25,26,56,57} Thus, employees with sufficient psychological capital respond positively and optimistically to adversity, increasing their willingness to engage in OCB.^{13,22,24} Psychological capital is a measure of the psychological resources that help individuals meet work demands. Employees with high psychological resilience see themselves as adaptable and capable of improving their work environment; they use positive resources to resist stress and setbacks. However, the depletion of these resources due to workplace bullying can reduce work performance, engagement, and willingness to perform extra-role behaviors.^{7,8,50,58} Compared with those with low psychological resilience, those with high psychological resilience are less adversely affected by workplace bullying.^{5,34,53} Bakker⁵⁹ examined the interaction between resilience and inappropriate managerial supervision and the effects of this interaction on burnout. However, perceptions of workplace bullying vary. Some individuals possess greater confidence (self-efficacy),⁶⁰ set positive goals and strive for success (hope),⁶¹ maintain optimism despite adversity,⁶² and

overcome difficulties with resilience.⁶³ These individuals invest more psychological resources in their work, rendering them more likely to engage in OCB. On the basis of these insights, this study proposes the following hypothesis:

Hypothesis 4: Psychological capital mediates the relationship between workplace bullying and OCB.

Methods

Data collection

The present study reviewed the literature from the National Digital Library of Theses and Dissertations in Taiwan, the Airiti Library, and the Web of Science database using the keywords "workplace bullying," "psychological capital," and "organizational citizenship behavior" (Figure 1). Studies were included if they employed pairwise correlation coefficients and were doctoral dissertations, master's theses, or journal articles. The authors prioritized reviewing journal articles over dissertations and theses submitted to journals to avoid reviewing duplicated studies. The sample selection criteria were as follows:

- (a) Only studies using questionnaires for data collection were included; qualitative studies were excluded.
- (b) Only studies with full electronic text and findings on the correlation coefficients were included.
- (c) Only studies published between January 2012 and May 31, 2023, were included.
- (d) Studies having substantial discrepancies in results, using nonstandard sample collection methods, or reporting low questionnaire return rates were excluded.

The search yielded 33 journal articles and 124 theses/dissertations related to workplace bullying, 112 journal articles and 716 theses/dissertations related to psychological capital, and 249 journal articles and 2068 theses/dissertations related to OCB. After filtering for keyword relevance and full-text accessibility, the authors retained 10 Chinese-language journal articles, 146 English-language journal articles, and 61 theses/dissertations. The authors also excluded studies that did not use pairwise correlations

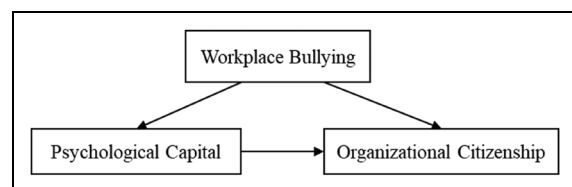


Figure 1. Research framework diagram.

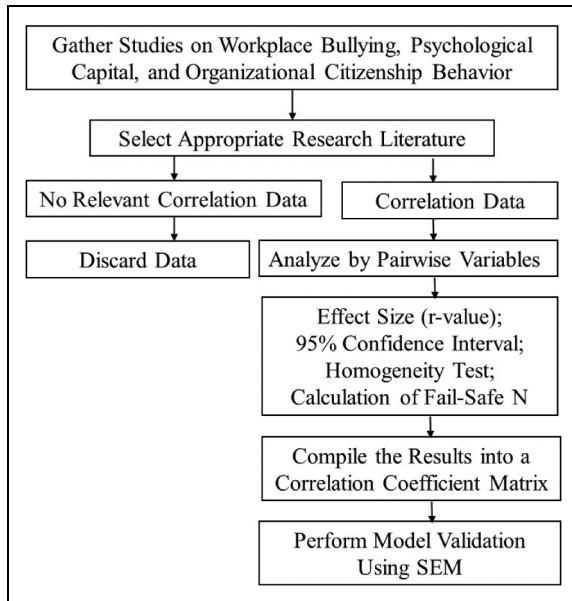


Figure 2. Data analysis flowchart.

or were qualitative, yielding a final sample of 40 manuscripts—34 journal articles and 6 theses/dissertations (Figure 2).

Data analysis

Data analysis was conducted in two stages using Excel and Comprehensive Meta-Analysis 3.0. Initially, data collection involved a literature review and meta-analysis, followed by verification of the theoretical model fit through SEM. The procedures were as follows.

First stage: Studies, sample sources, and data related to the study variables were collected using a meta-analysis. The techniques proposed by Hunter and Schmidt⁶⁴ and Rosenthal⁶⁵ were used to examine the associations between the variables and construct a correlation matrix. Statistical significance was indicated at $p < .05$.

Second stage: The fit of the theoretical model was verified using SEM. The data and correlation matrix from the first stage were subjected to a fit test that incorporated path analysis, confirmatory factor analysis, and SEM. If the test indicated a misfit, the model was revised immediately. If the fit was adequate, the theoretical model was accepted.

Results

Associations between psychological capital, OCB, and workplace bullying

To explore the association between psychological capital and OCB, 23 research samples were analyzed. The homogeneity test yielded a Q value of 183.885, a significant result that resulted in the rejection of the null hypothesis

of homogeneity and verified the heterogeneity of the results. Typically, heterogeneous studies are explained using random effects. However, a random effects model would not have produced meaningful results due to the small sample size. Therefore, a fixed-effects interpretation was applied. The P value was 88.036, indicating high heterogeneity that explained 88.036% of the observed variance. The effect size for the path between psychological capital and OCB was 0.544, suggesting a moderate correlation, with a 95% confidence interval ranging from 0.530 to 0.559. This effect size corresponded to a Z value of 57.696, which was statistically significant. This result supports Hypothesis 1, suggesting a positive correlation between psychological capital and OCB. The fail-safe N for this relationship was 18,656, indicating that 18,656 studies would be required to contradict these results (tolerance interval [$5N + 10$, where N is the total number of samples in the meta-analysis], 125). Rosenthal⁶⁵ argued that unpublished or undiscovered studies do not influence the outcomes of a meta-analysis when the fail-safe N exceeds the tolerance interval, as it was in the present study.

To analyze the association between workplace bullying and psychological capital, 11 research samples were examined. The homogeneity test yielded a Q value of 108.901, a significant result. Due to the small sample size, a random effects model would not have yielded meaningful results; thus, a fixed-effects interpretation was applied. The P value was 90.817, indicating a high level of heterogeneity that explained 90.817% of the observed variance. The effect size for the path between workplace bullying and psychological capital was -0.180 , indicating a low negative correlation. The 95% confidence interval ranged from -0.211 to -0.149 , with a Z value of -11.097 , which was statistically significant. Thus, Hypothesis 2 was supported, suggesting a negative correlation between workplace bullying and psychological capital. The fail-safe N for this relationship was 329 (tolerance interval: 65). The fail-safe N exceeded the tolerance interval.

Six research samples were evaluated to analyze the association between workplace bullying and OCB. The homogeneity test yielded a Q value of 164.362, a significant result. Due to the small number of samples, a random effects model would not have produced meaningful results; therefore, a fixed-effects interpretation was applied. The P value was 96.958, indicating a high level of heterogeneity that explained 96.958% of the observed variance. The effect size for the path between workplace bullying and OCB was -0.268 , indicating a low negative correlation. The 95% confidence interval ranged from -0.312 to -0.224 , with a Z value of -11.313 , which was statistically significant. These results support Hypothesis 3, suggesting a negative correlation between workplace bullying and OCB. The fail-safe N for this relationship was 238 (tolerance interval: 40). The fail-safe N exceeded the tolerance interval (Tables 1 and 2).

Table 1. Results on associations between variables.

Variable	Number of Studies	Effect Size	Z value	95% Confidence Interval		Homogeneity Test	
				Lower Limit	Upper Limit	Q value	I ²
Psychological Capital and Organizational Citizenship Behavior	23	0.544	57.696***	0.530	0.559	183.885	88.036
Psychological Capital and Workplace Bullying	11	-0.180	-11.097***	-0.211	-0.149	108.901	90.817
Workplace Bullying and Organizational Citizenship Behavior	6	-0.268	-11.313***	-0.312	-0.224	164.362	96.958

*** $p < .001$.

Table 2. Publication bias in studies comparing associations between variables.

Variable	N	Fail Safe N	5N + 10
Psychological Capital and Workplace Bullying	11	329	65
Psychological Capital and Organizational Citizenship Behavior	6	238	40
Workplace Bullying and Organizational Citizenship Behavior	23	18,656	125

Verification of associations between psychological capital, OCB, and workplace bullying

On the basis of the meta-analysis results, a correlation matrix was constructed for workplace bullying, OCB, and psychological capital (Table 3). The sample sizes of studies exploring pairwise correlations between workplace friendship, well-being, and organizational commitment varied. These differences in sample sizes could influence the results of subsequent analyses, leading to nonpositive definite problems. Therefore, this study adopted the method suggested by Viswesvaran and Ones,⁶⁶ using the harmonic mean of sample sizes to represent the overall number of samples. The harmonic mean was calculated to be 3,116, which was used as the sample size for SEM verification.

Table 3. Correlation matrix of associations between variables.

Variable	Workplace Bullying	OCB	Psychological Capital
Workplace Bullying	1.000		
Organizational Citizenship Behavior	-0.268***	1.000	
Psychological Capital	-0.180***	0.544***	1.000

*** $p < .001$.

Theoretical validation employing SEM was conducted using SPSS AMOS version 26.0, with maximum likelihood estimation applied for parameter estimation. The initial step involved assessing whether any indicators or parameter estimates failed to meet the preliminary fit criteria. The theoretical model was subsequently evaluated using various model fit indices.

Preliminary fit criteria. The parameter estimates for the effects of workplace bullying on psychological capital, workplace bullying on OCB, and psychological capital on OCB were all below 1, with significant p values (Figure 3, Table 4). This outcome indicates that the parameter estimates met the preliminary fit criteria. The factor loadings for workplace bullying, psychological capital, and OCB were 0.960, 0.949, and 0.947, respectively. Although these loadings slightly exceeded the 0.95 threshold recommended by Bagozzi and Yi,⁶⁷ they were within an acceptable range. Additionally, all error term estimates were positive, with standard errors ranging from 0.017 to 0.019. These values were also within the acceptable range proposed by Bagozzi and Yi.⁶⁷ These results indicate that the model's parameters did not result in overly high estimates, indicating the quality of the model.

In summary, despite the slightly higher factor loading for workplace bullying (>0.95), the model's error variance was positive and significant, the estimated parameters were not close to 1, and the standard error values were not excessively large. These results indicate that the theoretical model used in this study met the preliminary fit criteria and was acceptable.

Overall model fit. The ratio of the Chi-squared value to degrees of freedom was 0, below the threshold of 3 and indicative of acceptable model fit. Nevertheless, because the Chi-squared value may be influenced by sample size, it is seldom used as the sole criterion for assessing absolute fit. Accordingly, several additional fit indices were employed to assess the fit of the model. The goodness of fit index value was 1, surpassing the 0.9 minimum threshold and indicating excellent model fit. The values of the root

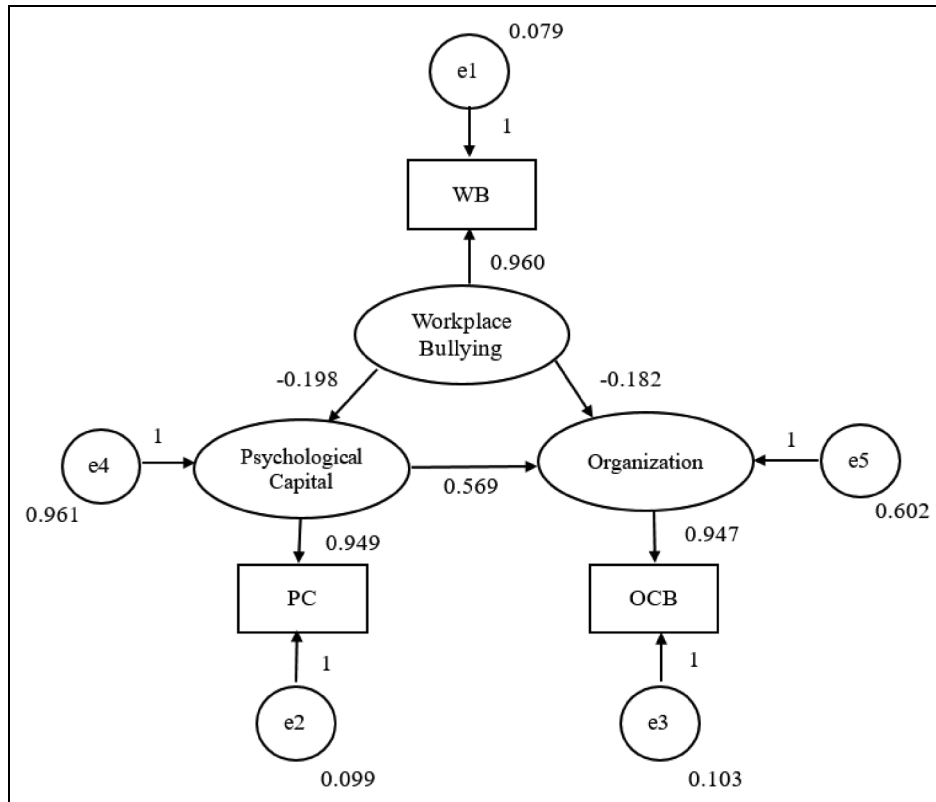


Figure 3. Path diagram of theoretical model with standardized parameter estimates.

Table 4. Parameter estimates.

	Estimate	S.E.	C.R.
Workplace Bullying → Psychological Capital	-0.198	0.019	-10.210***
Workplace Bullying → Organizational Citizenship Behavior	-0.182	0.017	-10.981***
Psychological Capital → Organizational Citizenship Behavior	0.569	0.017	33.815***
Workplace Bullying → Workplace Bullying	0.960		
Psychological Capital → Psychological Capital	0.949		
Organizational Citizenship Behavior → Organizational Citizenship Behavior	0.947		

*** $p < .001$.

mean square residual (RMR) and standardized root mean square residual (SRMR) were 0, below the standard thresholds of 0.05 and 0.08, respectively, indicating that the model fit the data well.

Incremental fit indices, namely, the normed fit index (NFI), incremental fit index (IFI), and comparative fit index (CFI), were all equal to 1, exceeding the 0.9 threshold, indicating the model's excellent fit. Nevertheless, the parsimonious NFI value was 0, failing to meet the threshold of >0.05 , indicating that more parsimonious models (with fewer factors) explained the data less well (Table 5).

Internal structure fit. The individual reliability values for workplace bullying, OCB, and psychological capital were 0.921, 0.897, and 0.901, respectively, all exceeding the

0.5 threshold for reliability. The composite reliability values were 0.923, 0.904, and 0.892, respectively, surpassing the 0.6 threshold for reliability. The average variance extracted (AVE) values were 0.923, 0.904, and 0.891, respectively, exceeding the 0.5 threshold. These metrics verify that the model's internal structure had acceptable fit.

Mediating effect of psychological capital on the association between workplace bullying and OCB

The mediating effect of psychological capital on the association between workplace bullying and OCB was evaluated using the bootstrapping method with 1000 repetitions and a 95% confidence interval (Table 6). The results of both bias-

Table 5. Theoretical model effect sizes.

Total Effect	Workplace Bullying	Psychological Capital
Psychological Capital	-0.198**	0.000
Organizational Citizenship Behavior	-0.295**	0.569**
Direct Effect		
Psychological Capital	-0.198**	0.000
Organizational Citizenship Behavior	-0.182**	0.569**
Indirect Effect		
Psychological Capital	0.000	0.000
Organizational Citizenship Behavior	-0.112**	0.000

** $p < 0.01$.

Table 6. Bootstrapping verification of mediation effects.

Parameter	Method	Estimate	Lower Limit	Upper Limit	p value
Workplace Bullying → Psychological Capital → Organizational Citizenship Behavior	Bias-Corrected Percentile Bootstrapping	-0.112	-0.135	-0.091	0.001
	Percentile Bootstrapping	-0.112	-0.135	-0.091	0.001

corrected percentile bootstrapping and percentile bootstrapping indicated that the confidence intervals did not include 0 and the p values were significant, indicating a mediating effect. These findings demonstrate that psychological capital mediates the association between workplace bullying and OCB.

The analysis of the total, direct, and indirect effects of workplace bullying on OCB revealed significant effects. Specifically, the total effect of workplace bullying on psychological capital was -0.198, as was its direct effect value. Similarly, the total effect of psychological capital on OCB was 0.569, equal to its direct effect value. These findings support the present study's hypotheses. No indirect effects were observed between workplace bullying and psychological capital or between psychological capital and OCB. The direct effect of workplace bullying on OCB was -0.182, and the indirect effect was -0.112; the sum of the direct and indirect effect values thus closely approximated the total effect value of -0.295. This result indicates that psychological capital mediates the effect of workplace bullying on OCB, supporting Hypothesis 4.

Conclusion

In the meta-analysis of the association between psychological capital and OCB, 23 studies were included. The Q value was 183.885, which was significant, and the I^2 value was 88.036, indicating that the model explained 88.036% of the observed variance. The effect size for the paths between these variables was 0.544, with a 95% confidence interval ranging from 0.530 to 0.559 (excluding 0), and a Z value of 57.696; all results were significant. Thus, Hypothesis 1 was supported,

indicating a significant positive association between psychological capital and OCB.

In the meta-analysis of the association between psychological capital and workplace bullying, nine studies and two master's theses/doctoral dissertations were included. The Q value was 108.901, which was significant, and the I^2 value was 90.817, indicating that the model explained 90.817% of the observed variance. The effect size of the path between these variables was -0.180, with a 95% confidence interval ranging from -0.211 to -0.149 (excluding 0), and a Z value of -11.097; all results were significant. In summary, Hypothesis 2 was supported, indicating a significant negative association between psychological capital and workplace bullying.

The meta-analysis of the association between workplace bullying and OCB included five studies and one master's thesis/doctoral dissertation. The Q value was 164.362, which was significant, and the I^2 value was 96.958, indicating that the model explained 96.958% of the observed variance. The effect size of the path between these variables was -0.268, with a 95% confidence interval ranging from -0.312 to -0.224 (excluding 0), and a Z value of 11.313; all results were significant. Thus, Hypothesis 3 was supported, indicating a significant negative association between workplace bullying and OCB.

Significant Q values for psychological capital, workplace bullying, and their associations were noted in the meta-analysis, indicating heterogeneity among these variables. The 95% confidence intervals for all pairwise relationships included 0, indicating significance. Effect sizes ranged from -0.268 to 0.544, suggesting moderate correlations.

Bootstrapping with 1000 iterations and a 95% confidence interval (excluding 0) was applied to assess the

Table 7. Hypothesis testing results.

Hypothesis	Content of Research Hypothesis	Verification Result
Hypothesis 1	Psychological capital and organizational citizenship behavior are positively correlated.	Supported
Hypothesis 2	Psychological capital and workplace bullying are negatively correlated.	Supported
Hypothesis 3	Workplace bullying and organizational citizenship behavior are negatively correlated.	Supported
Hypothesis 4	Psychological capital mediates the relationship between workplace bullying and organizational citizenship behavior.	Supported

mediating effect of psychological capital. The total effect of workplace bullying on psychological capital was equal to its direct effect (-0.198), and the total effect of psychological capital on OCB was also equal to its direct effect (0.569). These findings are consistent with the present study's hypotheses and reveal no indirect effects of workplace bullying on psychological capital or of psychological capital on OCB. The total effect of workplace bullying on OCB was -0.295 , closely reflecting the sum of the direct and indirect effects. This result suggests that psychological capital mediates the relationship between workplace bullying and OCB, supporting Hypothesis 4.

The present study further evaluated the fit of the theoretical model using SEM, with the overall results presented in Table 4-26. The basic model fit satisfied the five criteria proposed by Bagozzi and Yi,⁶⁷ exhibiting positive and significant criterion variance. Additionally, the absolute parameter estimates were less than 1, and the factor loadings for workplace bullying, psychological capital, and OCB were 0.96, 0.949, and 0.947, respectively, all within an acceptable range. For the overall model fit, the Chi-squared and SRMR values were 0, below the threshold of 0.08, and the incremental fit indices (NFI, IFI, and CFI) were all 1, exceeding the 0.9 fit threshold. In evaluations of internal structure fit, the individual item reliability values for workplace bullying, psychological capital, and OCB were 0.921, 0.897, and 0.901, respectively, all above the 0.5 threshold. The composite reliability values were 0.923, 0.904, and 0.892, all exceeding the threshold of 0.6. The AVE for these variables was 0.923, 0.904, and 0.891, respectively, exceeding the 0.5 threshold. These results indicate a strong model fit, suggesting that psychological capital mediates the association between workplace bullying and OCB (Table 7).

Discussion and recommendations

Discussion

Association between psychological capital and OCB. The results of this study reveal a positive association between psychological capital and OCB, which has a moderate correlation effect size and a significant Z value of 57.696. The meta-analysis incorporated studies from Taiwanese and international journals, master's theses, and doctoral dissertations and validated this positive association. The findings

indicate that higher levels of psychological capital are associated with increased employee OCB.

These results are consistent with those of other studies and with theories in the literature. Specifically, broaden-and-build theory suggests that positive emotions encourage individuals to engage in constructive behaviors, increasing their willingness to contribute to their organization.¹⁷ Moreover, according to conservation of resources theory, psychological capital is a vital resource. When such psychological resources are plentiful, individuals are more inclined to invest in acquiring additional resources.¹⁸ This positive reciprocal association between psychological capital and OCB is supported by the findings of numerous studies.^{13,18,68} Additionally, the results of the present study's meta-analysis of studies conducted in Taiwan and abroad indicate that this positive association is not dependent on cultural factors unique to Taiwan.

Association between psychological capital and workplace bullying. The findings of the present study indicate a total effect size of -0.198 for the effect of psychological capital on workplace bullying, indicating a low negative correlation with a significant Z value of -11.097 . Additionally, no indirect effects were observed, suggesting a negative association between psychological capital and workplace bullying.

Workplace bullying is a notable stressor that negatively affects productivity, workplace climate, employee mood, and employee satisfaction. In severe cases, bullying may lead to turnover intention.³⁰⁻³² Turnover is highly costly to organizations, and studies have suggested that psychological capital can help employees better cope with workplace bullying.^{4,6,8} Stress theory models indicate that psychological capital—comprising self-efficacy, hope, optimism, and resilience—is a crucial resource that enables individuals to adapt to stressors such as workplace bullying. According to conservation of resources theory, psychological capital, a dynamic resource, enables individuals to adapt to meet the demands of a stressful environment.³⁸ This adaptive capacity supports the negative association between psychological capital and workplace bullying suggested by previous theories and research.

Association between OCB and workplace bullying. The results of the present study's analysis indicate a negative

association between OCB and workplace bullying, with a total effect size of -0.295 and a significant Z value of -11.313 . Both indirect (-0.112) and direct effects (-0.182) contribute to this effect size, a finding discussed in subsequent sections.

Workplace bullying affects employees' mental and attitudinal states and job performance, although its organizational effects are challenging to quantify. Nevertheless, one study demonstrated that workplace bullying leads nursing staff to undertake tasks in addition to those specified in their job descriptions, compromising the quality of care they provide.⁴² Similarly, inappropriate managerial supervision may force employees to perform tasks outside their job scope.¹⁵ Another study identified a negative association between workplace bullying and OCB, indicating that employees experiencing bullying and perceiving organizational injustice tend to reduce their OCB to address this perceived imbalance.¹⁰ This outcome is consistent with the principles of reciprocity and fairness posited by social exchange theory, which suggests that individuals who feel unfairly treated contribute less to the organization.⁵² Additionally, per conservation of resources theory, the resource depletion caused by workplace bullying drives individuals to avoid further loss, reducing their willingness to engage in tasks that fall outside of their job scope. In conclusion, workplace bullying reduces OCB.

Associations between psychological capital, OCB, and workplace bullying. The theoretical model proposed in the present study examines the associations between psychological capital, OCB, and workplace bullying. The mediation effects of psychological capital on the association between workplace bullying and OCB were validated using bootstrapping with error correction and percentile bootstrapping. After 1000 resamples, the 95% confidence interval did not include 0 and the p values were significant. The total effect size for the path between workplace bullying and OCB was -0.295 , equal to the sum of the direct effect (-0.182) and the indirect effect (-0.112) when considering the mediating effect of psychological capital. These findings suggest that psychological capital partially mediates the association between workplace bullying and OCB.

The model's fit was assessed using fit indices, error measures, and factor loadings, and all fell within their respective ideal ranges. The overall fit was indicated by a CMIN (Chi-squared value divided by degrees of freedom) value of 0, below the maximum threshold of 3. The residual values, including RMR and SRMR, were also 0, indicating satisfactory model fit. Furthermore, the incremental fit index values (NFI, IFI, and CFI) exceeded 0.9. Finally, indices of both individual and composite reliability satisfied conventional thresholds, validating the theoretical model.

The association between workplace bullying and OCB is significantly influenced by psychological capital. Workplace bullying depletes employees' physical, mental,

and psychological resources, rendering the performance of their professional duties or altruistic behaviors challenging.^{7,27,58} However, psychological capital, a positive internal resource that varies among individuals and can be developed through training,²² is crucial to this dynamic, enabling individuals to address challenges with confidence (self-efficacy), maintain positive beliefs (optimism), recover from setbacks (resilience), and remain focused on future goals.^{36,60–62,69} Psychological capital interacts with workplace bullying to mitigate the negative effect of bullying on OCB.

Recommendations

Association between psychological capital and OCB. On the basis of various theoretical perspectives and the MASEM results, the present study uncovered a positive association between psychological capital and OCB. Employees who maintain a positive psychological state are more likely to engage in OCB within their organization, perform their duties diligently, exhibit a greater inclination toward altruistic behaviors, and contribute to the creation of a harmonious and productive workplace. These behaviors enhance collaboration, promote a positive work environment, and create a virtuous cycle of positivity. Thus, strengthening psychological capital increases internal resources, motivating employees to contribute to their organization, improving workplace interactions, and enabling employees to apply their talents more effectively.

Numerous studies have examined the association between psychological capital and OCB, suggesting that companies should evaluate candidates' psychological capital and professional qualifications during hiring. This assessment should focus on how candidates respond to challenges and setbacks, particularly for roles involving frequent interpersonal interactions. Companies can utilize stress tests or questionnaires during interviews to assess candidates' resilience and ability to adapt, identifying individuals with high psychological capital. Additionally, because psychological capital can be developed through training, companies should prioritize its cultivation as a crucial element of talent development. This approach can help employees navigate workplace challenges and strengthen internal resources. Strategies for cultivating psychological capital include offering training seminars on positive psychology and stress management, providing access to psychologists for individual or group therapy sessions, and creating a supportive environment for employees to express and empower themselves. Implementing a performance appraisal and reward system can further enhance employees' autonomy and self-efficacy.⁶⁹ Moreover, a supervisor's positive leadership can encourage team support in encountering challenges, fostering a collaborative and supportive workplace culture that encourages employees to contribute to their team and organization.

Association between psychological capital and workplace bullying. The results of the literature review and meta-analysis of the association between psychological capital and workplace bullying reveal a negative association between these variables, with psychological capital considerably mitigating the symptoms and fatigue associated with bullying. Previous discussions of workplace bullying have primarily focused on its negative aspects, overlooking the positive influence of psychological capital. The results of this study's analysis reveal that individuals with high levels of psychological capital demonstrate resilience, enabling them to overcome workplace stressors and adopt more optimistic approaches to address bullying.⁷⁰

Workplace bullying is pervasive within organizations and can be difficult to detect due to varying definitions of what constitutes bullying. Consequently, bullying is often only addressed after repeated incidents have occurred. Preventive measures are essential to mitigate these risks. During recruitment, individuals with higher psychological capital may exhibit greater self-efficacy and a greater ability to adapt when encountering setbacks or stress. Thus, these employees are less likely to be affected by workplace bullying than those with lower levels of psychological capital. Moreover, individuals with abundant psychological resources are less likely to engage in bullying to compete for organizational resources. Businesses should actively increase awareness of workplace bullying, providing clear definitions and establishing support systems, complaint channels, and penalties to reduce its occurrence. When workplace bullying occurs, businesses must offer resources such as counseling services and job adjustments to support affected individuals. Additionally, organizing events such as sports meets, meal gatherings, family days, and employee trips can strengthen relationships, establish support systems, and enhance overall psychological capital.

Association between workplace bullying and OCB. In 2019, Taiwan's Directorate-General of Personnel Administration introduced the "Proposals for the Prevention and Handling of Workplace Bullying" and the "Workplace Standard Operating Procedures for Managing Bullying." These guidelines advise organizations to act before, during, and after incidents of workplace bullying. During the prevention phase, organizations must rigorously review internal regulations to address workplace bullying and establish clear criteria for defining bullying behavior. Additionally, promoting workplace bullying awareness and creating well-defined complaint channels are crucial. During and after bullying incidents, organizations should implement an employee assistance program to counsel individuals who have been bullied and identify areas for improvement.

Although the public sector has conducted considerable research and proposed various measures to address workplace

bullying, the implementation of these measures remains in its early stages. This delay is primarily due to the subjective nature of workplace bullying, which often complicates distinguishing bullying behavior from work-related conflict. However, the present study identified a negative association between workplace bullying and OCB, suggesting that employees may be reluctant to perform tasks outside of their job descriptions due to the subconscious effects of workplace bullying depleting their psychological resources. Additionally, employees who perceive unjust treatment or betrayal by their organization may also respond defensively, reducing resource investment and becoming less likely to engage in tasks beyond those in their job descriptions.

From an organizational perspective, improper managerial supervision can also be considered a form of workplace bullying. This scenario complicates the identification of bullying behavior due to the unequal power dynamic between the bullies and the bullied, making such behavior more difficult to detect. However, managers can use OCB as an indicator to observe interactions among organizational members and prevent the escalation of workplace bullying.

Associations between psychological capital, OCB, and workplace bullying. Workplace bullying poses a considerable challenge to enterprises. Creating a positive workplace environment is essential for bullying prevention. Businesses should recruit employees with strong psychological traits and provide resources such as club activities, mental health lectures, and counseling services. These initiatives help employees manage work stress, foster healthy interactions among colleagues, and enhance psychological capital, positively influencing behavior.⁷¹ Fair internal systems and accessible complaint channels are crucial to preventing workplace bullying. Team leaders should sharpen their observational skills and use OCB as a metric to understand team dynamics and stop bullying behaviors when they occur.

Employees who experience workplace bullying are often placed in a vulnerable position, struggling to differentiate between normal workplace challenges and bullying. Thus, many choose to remain silent, rationalizing the bully's behavior. Employees who feel uncomfortable in the workplace should document incidents through text, images, or colleague testimonies, noting whether the behavior is isolated or recurs over time. If bullying persists, they should report these incidents to their organization and refuse to tolerate such behavior. Additionally, those who are bullied should seek support through conversations with others or professional counseling services.

Recommendations for future research

This study integrated and analyzed findings from the literature on psychological capital, OCB, and workplace

bullying. Future research should investigate the subdimensions of these elements. Psychological capital typically includes hope, self-efficacy, resilience, and optimism. OCB, as defined by Organ,⁷² often involves altruism, conscientiousness, sportsmanship, courtesy, and civic virtue. Workplace bullying is typically explored through the dimensions of personal derogation, work-related problems, and social exclusion. The present study focused on these variables without examining their subdimensions. Future research should enrich theoretical models by incorporating detailed item-level research into MASEM, constructing models on the basis of specific dimensions of psychological capital, workplace bullying, and OCB and exploring the relationships among these variables.

The present study employed MASEM to examine psychological capital, workplace bullying, and OCB—variables that exhibit gradual changes over prolonged periods. Future research should extend the foundation laid by the present study by using meta-analysis to identify additional variables or expand the scope of research to include organizational-level factors to provide a more comprehensive theoretical perspective. Additionally, incorporating background variables can improve the practical recommendations such studies provide.

The samples in this study were collected from a meta-analysis of only quantitative (survey-based) studies. To address this limitation, future research should incorporate interviews, fieldwork, or text analysis to complement the quantitative findings.

Limitations

Meta-analysis-based studies often face criticisms citing inherent sample variability and the absence of universal evaluative standards. These factors can lead to inconsistencies in questionnaire items and measurements of the same research variable due to methodological differences. Furthermore, the nature and effects of workplace bullying may differ between occupations, and this difference must be accounted for in the measurement of variables. Finally, this study did not assess the quality of the questionnaires or the evaluation process for each research sample, which may have influenced the results.

This study primarily focused on psychological capital, workplace bullying, and OCB. Only research samples with full-text electronic versions that included detailed correlation coefficients and reliability measures were considered, and print literature from Taiwan's National Library was excluded. Additionally, the study employed the keywords “psychological capital,” “workplace bullying,” and “organizational citizenship behavior” to conduct its literature search. Although this approach facilitated the investigation of pairwise correlations among the variables, related studies with similar concepts using different terminology may have been overlooked.

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Statements and declarations

Ethical approval

This noninterventive study did not require ethical approval due to its design, nor did it take place within any private or protected space. Therefore, no specific permissions were required to conduct the study in the geographical regions specific to this study. Additionally, participants' data were deidentified and only analyzed for the purposes of this study.

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