

Original Article

Psychometric evaluation of the workplace gaslighting scale among Pakistani nurses

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ABSTRACT

Background & Aim: Gaslighting is a subtle yet harmful form of psychological manipulation, and healthcare environments are particularly vulnerable to such behaviors. Nurses are at increased risk, as gaslighting can undermine confidence, impair performance, and threaten patient safety. This study evaluated the psychometric properties of the Workplace Gaslighting Scale among Pakistani nurses.

Methods & Materials: A cross-sectional psychometric study was conducted with 217 nurses from public and private hospitals in Pakistan. Face, content, construct, convergent, and discriminant validity were assessed, and internal consistency was evaluated using Cronbach's alpha and McDonald's omega. Confirmatory factor analysis was used to test model structures, and known-groups validity was examined across demographic and professional subgroups. Analyses were performed using AMOS 26 and Jamovi 2.4.14.

Results: Internal consistency was high for the dimensions of Trivialization ($\alpha=0.906$; $\omega=0.908$) and Affliction ($\alpha=0.925$; $\omega=0.929$). Convergent validity was established ($AVE=0.581$ and 0.713 ; $CR=0.905$ and 0.926). Due to a very high inter-factor correlation ($r=0.92$), indicating a lack of discriminant validity, the dimensions were not supported as independent constructs. Instead, a second-order model demonstrated acceptable fit ($CFI=0.947$, $IFI=0.947$, $CMIN/DF=3.292$), confirming they merge into a single, unified workplace gaslighting construct. Known-groups validity was indicated by higher overall scores among nurses in private hospitals compared to public hospitals ($p=0.004$) and a positive association with years of experience ($p=0.004$).

Conclusion: The Workplace Gaslighting Scale demonstrated acceptable reliability and a coherent second-order factor structure, although certain limitations, including a high RMSEA value and lack of discriminant validity in the first-order model, indicate that further validation with larger and more diverse samples is needed.

Introduction

Gaslighting, a form of psychological manipulation in which a perpetrator systematically undermines an individual's perception of reality, has gained increasing attention as a harmful workplace phenomenon (1). Originally conceptualized in interpersonal and domestic contexts (2). Gaslighting in organizational settings manifests through denial, trivialization, distortion, and persistent contradiction that ultimately lead targets to doubt their memory, judgment, and competence (3, 4). Research suggests that workplace gaslighting results in significant

psychological consequences, including lowered self-esteem, emotional exhaustion, and deterioration in job performance (5, 6).

Healthcare environments, particularly nursing settings, may be especially vulnerable to such forms of psychological manipulation. Nurses often work in hierarchical structures, experience high workloads, and operate within team cultures where speaking up may be discouraged (7, 8). These conditions can allow manipulative supervisory behaviors to persist, increasing the risk of gaslighting-like interactions. Workplace psychological mistreatment in nursing has been linked to burnout, reduced teamwork, compromised patient safety, and diminished quality of care



(6, 9). Despite these potential consequences, gaslighting in nursing workplaces, especially in low- and middle-income countries (LMIC), remains an underexplored area of empirical investigation.

Accurate measurement is essential for understanding the prevalence, correlates, and consequences of workplace gaslighting and for informing organizational interventions. The Workplace Gaslighting Scale is one of the first standardized instruments to conceptualize and quantify gaslighting within organizational contexts (10). However, psychometric properties often vary across languages, cultures, and professional groups. Cross-cultural validation is therefore necessary to ensure that constructs are interpreted consistently, particularly in regions such as Pakistan, where workplace cultural norms, hierarchical authority structures, and communication patterns differ from other contexts where the scale was originally developed.

Given this gap, the present study aimed to evaluate the psychometric properties of the Workplace Gaslighting Scale among Pakistani nurses. Importantly, nursing workplaces in Pakistan operate within strong hierarchical structures, high power-distance dynamics, indirect communication norms, and gender-based power disparities, all of which may influence how gaslighting behaviors are perceived and reported. For this reason, validating the scale in this specific cultural and professional context is essential not merely as a geographical replication but as a necessary step to ensure measurement accuracy, cultural appropriateness, and interpretive validity. Establishing a valid and reliable tool for use among Pakistani nurses will support future research and guide policies and interventions to mitigate psychological harm, strengthen healthy work environments, and improve the quality of nursing care.

Methods

Study design and setting

This study employed a cross-sectional psychometric design to evaluate the validity

and reliability of the Workplace Gaslighting Scale among Pakistani nurses. The study was conducted in two tertiary-level hospitals located in Islamabad, Pakistan: one public and one private. The private hospital is a Joint Commission International (JCI)-accredited quaternary care facility characterized by structured governance systems, standardized clinical protocols, and performance-driven management practices. In contrast, the public hospital is a large, approximately 1300-bed, tertiary care teaching and referral center providing services across more than 30 specialties. It is characterized by high patient volume, resource constraints, and a workforce with diverse educational and experiential backgrounds. These hospitals were purposively selected to capture variability in organizational structures, management styles, and workplace cultures within the Pakistani healthcare system. Private sector institutions typically operate under more formalized accountability systems and performance expectations, whereas public sector hospitals often face systemic challenges such as staffing shortages and hierarchical complexity. Including both settings enabled us to examine the psychometric properties of the scale across contrasting work environments, thereby enhancing the heterogeneity and contextual relevance of the sample.

Participants and Sampling

Registered nurses were recruited through a convenience sampling strategy. Eligible participants were required to have at least six months of clinical work experience and be willing to complete the online survey. The recruitment link was distributed via WhatsApp, a widely used communication platform in Pakistan, enabling nurses from different hospital units and work shifts to access the questionnaire at their convenience. Importantly, online completion ensured that nurses could respond privately, without the presence of their head nurse, which minimized potential pressure, reduced social desirability bias, and increased the likelihood of receiving honest and unbiased responses. Although the data were collected from two hospitals, both

institutions are located in Islamabad, the capital of Pakistan, where nurses from multiple provinces and regions work, which enhances the diversity and representativeness of the sample. Based on Comrey and Lee's recommendations (11) for factor analytic studies, a minimum sample size of approximately 200 was considered adequate for psychometric evaluation. The final achieved sample met this requirement and was therefore deemed sufficient for conducting the planned analyses.

Procedure

Data were collected using an online questionnaire developed in Google Forms. The survey began with an information page that explained the purpose of the study, the procedures involved, confidentiality assurances, and the voluntary nature of participation. Proceeding to the next page was considered as providing informed consent.

Measure

For data collection, a demographic information form and the Workplace Gaslighting Questionnaire were used. The demographic form included information such as age, gender, work experience, and marital status. The Workplace Gaslighting Questionnaire was developed by Kukreja and Pandey (2023). This scale was developed to measure gaslighting behaviors by supervisors or managers in the workplace and consists of 12 items that were created based on a comprehensive review of the literature related to organizational mistreatment, psychological harassment, and structural abuse. The items are scored on a five-point Likert scale from "never" (0) to "always" (4); higher scores indicate more experience of gaslighting behaviors. In the original version, psychometric analyses including exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted, and the results showed that this scale has a two-factor structure. These two factors are Trivialization (7 items) and Affliction (5 items). In the original study, in addition to confirming the two-factor structure, the researchers also tested

a second-order factor analysis model, which showed that the two factors together represent a general and comprehensive construct called "gaslighting in the workplace." Reliability indices for both factors in the original version were reported to be above 0.80, indicating good internal consistency and psychometric adequacy of the instrument (10).

Face validity

Face validity of the instrument was evaluated using a qualitative approach. Five clinical nurses were invited to review the scale and assess each item in terms of clarity, simplicity, readability, and relevance to workplace interactions. They were asked to comment on any wording that appeared vague, difficult, or inconsistent with typical professional experiences in nursing practice. The feedback provided by the nurses was reviewed by the research team. Since no major issues regarding clarity or interpretability were identified, and the items were generally perceived as appropriate and comprehensible, the original items were retained without modification for subsequent psychometric analyses (12).

Content validity

Content validity was assessed using an expert panel consisting of three senior nursing professionals and two psychologists specializing in organizational behavior and psychometrics. The experts independently evaluated each item in terms of relevance, representativeness, and alignment with the theoretical construct of workplace gaslighting. Their qualitative feedback was collected to refine the wording of the items and ensure conceptual accuracy.

In addition to the qualitative assessment, content validity was also quantitatively evaluated using the Content Validity Index (CVI). Two levels of CVI were calculated: the I-CVI (item-level content validity index) for each item and the S-CVI (scale-level content validity index) for the overall instrument. The expert panel members were asked to rate each item based on the criteria of relevance, clarity, and simplicity

using a four-point scale (1=not relevant, 4=highly relevant). The I-CVI was calculated by dividing the number of experts who gave a rating of 3 or 4 by the total number of experts. According to the standards proposed by Waltz and colleagues, I-CVI values equal to or greater than 0.78 were considered acceptable. To determine the content validity of the entire scale, the S-CVI/Ave (average scale-level content validity index) was computed by averaging the I-CVI values across all items. A value above 0.90 was considered indicative of strong content validity (13).

Item analysis

At this stage, to examine the distribution of responses and the normality of the data, descriptive characteristics of each item, including the mean, standard deviation, skewness, and kurtosis, were calculated. Skewness and kurtosis values between ± 2 were considered acceptable indicators of normal distribution (14). In addition, the item-total correlation was computed to determine the degree of consistency between each item and the overall scale score. Correlations above 0.30 were regarded as indicative of satisfactory item-total consistency (15). To assess the internal consistency reliability of the scale, Cronbach's alpha and McDonald's omega coefficients were calculated for the total scale as well as when each item was deleted. A substantial decrease in alpha or omega upon deletion of an item would indicate that the item weakens the internal consistency of the scale.

Construct validity

To assess construct validity, CFA was conducted using the Maximum Likelihood Estimation method in AMOS version 24. The hypothesized two-factor structure, based on the original theoretical framework of the scale, was tested. Model fit was evaluated using several commonly recommended indices, including the Comparative Fit Index (CFI), Incremental Fit Index (IFI), Chi-square divided by degrees of freedom (CMIN/DF), and the Root Mean Square Error of Approximation (RMSEA). According to established guidelines, acceptable model fit is typically indicated by CFI and IFI

values ≥ 0.90 , CMIN/DF values < 5 , and RMSEA values ≤ 0.08 (16).

Convergent and discriminant validity

To assess convergent and discriminant validity, the Average Variance Extracted (AVE) and Composite Reliability (CR) were calculated for each factor. For convergent validity, AVE values greater than 0.50 were considered acceptable, indicating that the items adequately represent the underlying construct. Discriminant validity was evaluated using the Fornell-Larcker criterion, which states that the square root of the AVE for each factor should be greater than its correlations with other factors in the model (17, 18).

Known-groups validity

To assess known-groups validity, the mean scores of the workplace gaslighting scale were calculated and compared across different demographic groups, including age, years of work experience, gender, and type of hospital (public vs. private) (15).

Reliability

To assess internal consistency reliability, Cronbach's alpha and McDonald's omega coefficients were calculated for the overall scale and its subscales. Values above 0.70 were considered acceptable indicators of internal consistency, as commonly recommended in psychometric research. Both coefficients exceeded this threshold, confirming satisfactory reliability of the scale (19, 20).

Ethical consideration

This study is part of an approved research project at Shifa Tameer-e-Millat University and has received ethical approval from the Institutional Review Board and Ethics Committee (IRB & EC) under the reference number IRB # 217-25. Participation was voluntary, data were collected in person, and all questionnaires were completed anonymously. Written informed consent was obtained from all participants prior to data collection. All procedures performed in this study involving human participants were conducted in

accordance with the ethical standards of the institutional research committee and with the Declaration of Helsinki.

Results

A total of 217 nurses participated in this study, with a mean age of 34.26 years ($SD=8.39$; range: 22–58 years) and an average work experience of 10.95 years ($SD=8.73$). Of the participants, 81.6% ($n=177$) were female, and 18.4% ($n=40$) were male. In terms of workplace setting, 142 nurses (65.4%) were employed in public hospitals, 71 nurses (32.7%) in private hospitals, and 4 nurses did not respond to this question.

Face validity

Face validity assessment demonstrated that all five clinical nurses found the items clear, readable, and relevant to workplace experiences. No ambiguities or wording issues were identified, indicating that the scale items were easily understood and appropriately interpreted by the target population.

Content validity

Content validity results demonstrated strong expert agreement. All five experts evaluated the items solely in terms of their

relevance to the construct of workplace gaslighting. The Item-level Content Validity Index (I-CVI) for all items was 1.00, indicating unanimous expert agreement regarding item relevance. The Scale-level Content Validity Index (S-CVI/Ave) was also 1.00, reflecting excellent overall content validity. Since all CVI values exceeded recommended thresholds, no items required modification or deletion.

Item analysis

The mean item scores of the Workplace Gaslighting Scale ranged from 1.42 to 2.67, with the highest mean observed for item 10 and the lowest for item 2. The mean scores for the first and second subscales were 14.06 ± 5.21 and 10.95 ± 4.55 , respectively, and the total score was 25.02 ± 9.40 . Regarding item-total correlations, item 10 showed the highest correlation (0.826), while item 2 had the lowest (0.508). In addition, Cronbach's alpha and McDonald's omega coefficients, if each item were deleted, ranged from 0.943 to 0.952, indicating that none of the items significantly decreased the internal consistency of the scale. The skewness and kurtosis values for total and subscale scores fell within the acceptable range (± 2), indicating approximate normality of distribution (Table 1).

Table 1. Descriptive and psychometric properties of the workplace gaslighting scale items by factor

Factor	Item	Mean (SD)	Item-total correlation	Skewness	Kurtosis
Trivialization	1. Your supervisor diverted the topic to project the fault onto you.	1.94 (0.965)	0.710	0.610	-0.761
	2. Your supervisor told you that you were “imagining” things.	1.42 (0.620)	0.508	1.18	0.308
	3. Your supervisor passed degrading comments followed by rewards.	1.90 (0.897)	0.734	0.745	-0.248
	4. The words of your supervisor did not match with his/her actions.	2.39 (1.013)	0.818	0.325	-0.551
	5. Your supervisor denied the promises he/she made earlier.	2.38 (1.056)	0.811	0.432	-0.503
	6. Your supervisor undermined your complaints.	2.40 (1.071)	0.819	0.318	-0.721
	7. Your supervisor “twisted” or misrepresented things you said.	1.64 (0.805)	0.697	1.12	0.581
Affliction	8. Your supervisor had unnecessary control over you.	2.41 (1.171)	0.813	0.492	-0.615
	9. Your supervisor made you your worst critic.	1.73 (0.830)	0.766	0.839	-0.223
	10. Your supervisor made you depend on him/her for making most of the decisions.	2.67 (1.178)	0.826	0.385	-0.629
	11. You felt emotionally drained at work because of your supervisor.	2.09 (1.021)	0.820	0.639	-0.271
	12. Your supervisor was very sweet to you one moment and very mean the other moment.	2.06 (0.953)	0.814	0.527	-0.681

Reliability

The internal consistency of the Trivialization and Affliction subscales, as

measured by Cronbach's alpha, was 0.906 and 0.925, respectively. Corresponding McDonald's omega values were 0.908 for Trivialization and 0.929 for Affliction.

Construct, convergent, and discriminant validity

CFA was conducted on a sample of 217 participants. Initially, a two-factor model, aligned with the original structure of the instrument, was examined. The results revealed a high correlation between the two factors ($r = 0.92$), indicating a strong relationship. The initial model fit indices were as follows: CMIN/DF = 5.075, IFI = 0.902, CFI = 0.902, and RMSEA = 0.137 (90% CI: 0.121–0.154). To account for shared method and content variance, theory-driven error covariances were added between items 1 and 2 (both focusing on creating doubt in the victim's perception) and between items 8 and 10 (reflecting a causal relationship between unpredictable behavior and employee dependency) (21). Following these modifications, sample-size-independent fit indices showed substantial improvement (CFI=0.947, IFI=0.947, CMIN/DF=3.292). Although the RMSEA value (0.103; 90% CI: 0.086–0.121) remained above the conventional cutoff of 0.08, methodological studies indicate that RMSEA tends to over-reject acceptable models when degrees of freedom are small, and the sample size is moderate (22). Given this methodological context and the significant improvement in other indices, the overall model performance was deemed acceptable (Figure 1A).

To evaluate construct validity, both convergent and discriminant validity were assessed. Convergent validity was established, as AVE values (0.581 and 0.713) and CR values (0.905 and 0.926) for both factors exceeded the recommended thresholds of 0.50 and 0.70, respectively. Discriminant validity was assessed using the Fornell-Larcker criterion. As anticipated from the high inter-factor correlation, the square roots of the AVEs were smaller than the correlation between the two factors ($r=0.92$). Consequently, discriminant validity between Trivialization and Affliction was not established. Given this lack of discriminant validity, a strict single-factor model was tested, which yielded slightly inferior fit indices (CMIN/DF = 3.512, IFI = 0.942, CFI = 0.942, RMSEA = 0.108) compared to the modified two-factor model (Figure 1B). Crucially, while the two-factor structure provided a slightly better mathematical fit (likely due to minor methodological or phrasing nuances), the failure to establish discriminant validity ($r=0.92$) demonstrates that these two dimensions are not empirically distinct constructs. Therefore, we do not claim construct validity for Trivialization and Affliction as independent subscales. Instead, consistent with psychometric best practices, these highly overlapping dimensions must be interpreted conceptually and empirically as a single, unified 'Workplace Gaslighting' construct.

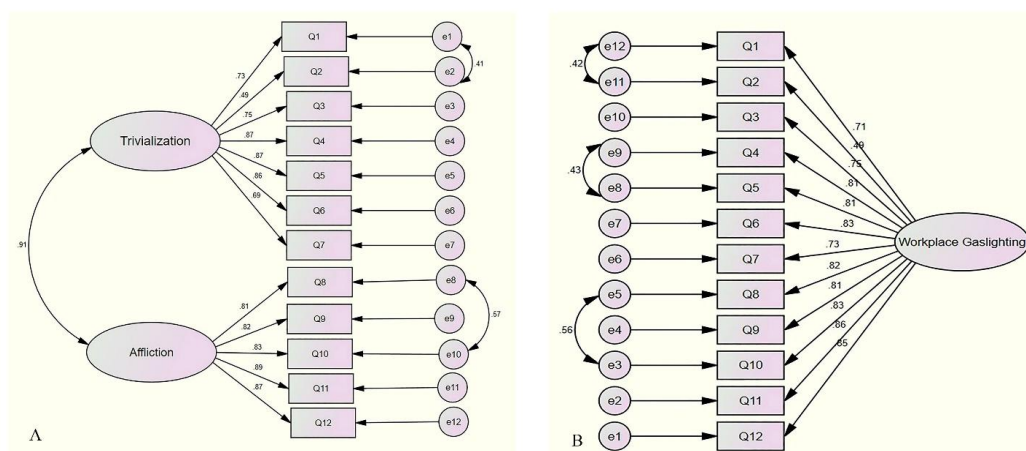


Figure 1. Visual comparison of the two-factor and one-factor CFA models tested in the study

Considering the extremely high correlation ($r=0.92$) between the two first-order factors and the lack of discriminant validity, it became evident that both dimensions essentially represent a single, broader underlying construct. To empirically illustrate this, a second-order factor model was tested. This approach aimed to confirm that a single higher-order latent construct (Workplace Gaslighting) thoroughly accounts for the variance in both primary dimensions. The model yielded fit indices identical to the correlated two-factor model (CMIN/DF=3.292,

IFI = 0.947, CFI = 0.947, and RMSEA=0.103), which is mathematically expected when only two first-order factors are present. Rather than proving two distinct subscales, this second-order structure strongly supports the theoretical premise that all items collectively measure one overarching “Workplace Gaslighting” construct. High factor loadings were maintained across the board; for instance, items 4 and 5 loaded at 0.87 on the first dimension, and item 11 loaded at 0.89 on the second (Figure 2).

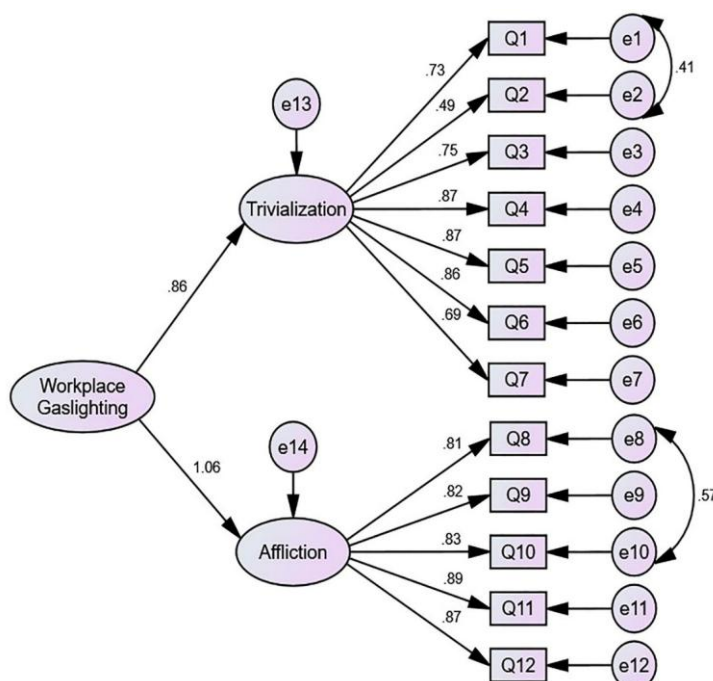


Figure 2. Second-order confirmatory factor analysis model of workplace gaslighting, with Trivialization and Affliction as first-order factors

Known-groups validity

The results showed that the mean score of workplace gaslighting among female nurses (24.61 ± 9.27) was not significantly different from that of male nurses (26.85 ± 9.86) ($p=0.174$). However, nurses working in private hospitals reported significantly higher gaslighting scores (26.35 ± 9.39) compared to those in public hospitals (22.47 ± 9.07) ($p=0.004$). Furthermore, there was no significant correlation between age and gaslighting scores, but a significant positive correlation was found between years of work experience and gaslighting scores ($r=0.194$,

$p=0.004$), indicating that gaslighting increased with greater work experience.

Discussion

Findings from this study, which aimed to examine the psychometric properties of the Workplace Gaslighting Scale among Pakistani nurses, initially explored the theoretical two-factor structure consisting of Trivialization and Affliction. Interestingly, the item groupings in this structure align perfectly with findings from the Iranian version of the scale (23) and the original version (10), differing only in their ordering. However, our rigorous empirical assessment revealed an exceptionally high correlation between these dimensions,

demonstrating that they do not function as empirically distinct constructs in this population. Therefore, rather than representing separate aspects of gaslighting, our findings strongly suggest that Trivialization and Affliction are highly intertwined facets that collectively and meaningfully represent a single, overarching ‘Workplace Gaslighting’ construct. This strong structural alignment with previous versions underscores the cross-cultural robustness of the scale’s theoretical foundation, while our psychometric refinement highlights the practical necessity of using a unified global score in diverse organizational and cultural settings.

In the original validation (10), a second-order CFA was also conducted due to a strong correlation ($r = 0.68$) between the two factors, suggesting that they could be conceptualized as reflections of a broader construct, Workplace Gaslighting. The original second-order model demonstrated excellent fit indices ($\chi^2/df = 1.244$, $CFI = 0.992$, $RMSEA = 0.034$, $SRMR = 0.030$). Building on this theoretical foundation, a second-order factor analysis was also performed in the current study. However, because our data exhibited an exceptionally high inter-factor correlation ($r=0.92$) and a clear lack of discriminant validity, the second-order model in our context serves a more definitive purpose. Rather than merely confirming a hierarchical structure of two distinct subscales, it empirically demonstrates that Trivialization and Affliction merge entirely into a single, unified construct in this population. This finding reinforces the conceptual strength of the overall tool while confirming the necessity of using it as a unidimensional measure. The application of a second-order model aligns with the precedent set by the original Indian validation (10), which also addressed a high inter-factor correlation. This approach, however, contrasts with the Persian version of the scale, validated among nurses, where a two-factor structure was retained. These divergent findings suggest that while the scale’s items consistently tap into two theoretical themes (Trivialization and Affliction), their empirical separability may vary across cultural contexts (23). In the

Pakistani nursing context, our findings point unequivocally toward a unified construct. Consequently, the second-order CFA in our study provides the crucial empirical evidence that Trivialization and Affliction are best understood as indicators of a single higher-order Workplace Gaslighting factor, reinforcing the use of a global score. The second-order model demonstrated an acceptable fit to the data ($CFI = 0.947$, $IFI = 0.947$, $CMIN/DF = 3.292$, $RMSEA = 0.103$). Although the RMSEA value exceeded the conventional threshold, this index indicates that the model’s fit remains borderline rather than fully satisfactory (16, 22, 24). We acknowledge that our use of theory-driven error covariances improved certain fit indices without fully resolving the underlying sources of model misspecification (16). Therefore, the second-order model should be interpreted as providing preliminary empirical support for a largely unidimensional representation of workplace gaslighting rather than definitive evidence of optimal model fit.

Beyond the statistical rationale of the exceptionally high inter-factor correlation, the interpretation of Workplace Gaslighting as a fully unified, overarching construct is firmly grounded in conceptual theory. As Sweet (2019) argued, gaslighting inherently involves both external manipulative behaviors (e.g., trivialization, denial, distortion) and their internal psychological consequences (e.g., confusion, emotional exhaustion), reflecting a deeply intertwined rather than easily separable phenomenon (25). Similarly, Ferraro (2006) conceptualized gaslighting as “spinning tales” that violate the victim’s sense of reality, essentially fusing the manipulative acts (Trivialization) with their affective impact (Affliction). Therefore, our empirical finding, that these dimensions function as fully integrated reflections of a single latent construct rather than distinct subscales, is both theoretically coherent and highly consistent with prior conceptualizations of gaslighting as a holistic, layered dynamic of psychological abuse (26).

In the present model, items 4 and 5 from the Trivialization dimension and item 11

from the Affliction dimension had the highest factor loadings. Items 4 and 5 directly refer to the inconsistency between words and actions and the denial of previous commitments, which are among the most prominent manifestations of gaslighting and cause the victim to doubt their perception of reality. Such behaviors, involving the distortion or denial of previously agreed realities, are consistent with what Ferraro (2006) described as “spinning tales” that violate victims’ sense of reality and distort their perceptions of everyday events (26). Therefore, rather than merely representing an isolated Trivialization factor, the discrepancy between a supervisor’s words and actions and the denial of promises appears to represent the core behavioral triggers of the overarching Workplace Gaslighting experience in the Pakistani context. This empirical link is consistent with Sweet’s (2019) sociological analysis of gaslighting, which shows that perpetrators often “twist reality,” “flip the script,” and “deny previous events” specifically to create the psychological confusion and sense of madness (Affliction) in their victims (25). Nevertheless, this theoretical convergence should not obscure the empirical limitation that Trivialization and Affliction could not be statistically distinguished in this sample, which constrains the scale’s factorial interpretability. Future studies are therefore encouraged to re-examine whether this unidimensional pattern persists across occupations or cultures, or whether contextual variability allows partial differentiation of these dimensions.

Item 11, on the other hand, directly addresses the internal and emotional consequences of the gaslighter’s behavior, reflecting emotional exhaustion as the ultimate outcome of such interactions. This item clearly captures the essence of the Affliction dimension, as it emphasizes the psychological distress and emotional harm caused by workplace gaslighting, which explains its highest loading for this aspect of the scale. Based on the results of various studies showing that, in the long term, psychological abuse affects victims more negatively than does physical abuse, this finding further supports the interpretation that emotional exhaustion and

psychological distress are the most detrimental consequences of gaslighting in the workplace (27-29). In the Persian version (23), however, item 6 (“Your supervisor undermined your complaints”) had the highest loading in the Trivialization dimension, and item 8 (“Your supervisor had unnecessary control over you”) had the highest loading in the Affliction dimension. This suggests that, in Persian-speaking workplace cultures, gaslighting is more often manifested through the dismissal of employees’ concerns and excessive supervisory control, whereas in the Pakistani context, it is more strongly characterized by the inconsistency between words and actions and the resulting emotional exhaustion. While both versions draw on the same theoretical themes of manipulation and distress, our current evidence indicates that, at least in this sample, these behavioral and emotional elements did not demonstrate clear statistical separation. Rather than functioning as fully distinct constructs, they appear to represent overlapping aspects of workplace gaslighting, as perceived and experienced by Pakistani nurses. It is important to note, however, that this lack of discriminant validity limits the interpretability of subscale scores and may reflect both measurement overlap and cultural/contextual integration of gaslighting experiences.

The findings of this study showed that the mean overall gaslighting score among nurses working in private hospitals was significantly higher than that of nurses working in public hospitals. This difference may be attributed to more centralized management structures, higher levels of competition, and increased performance pressures in private hospitals, all of which may create conditions conducive to controlling behaviors and psychological manipulation. Similar findings were reported by Kukreja and Pandey (2023), who emphasized the role of organizational culture and power dynamics in fostering workplace gaslighting (10). Additionally, an increase in work experience was associated with higher mean gaslighting scores. One possible explanation is that more experienced staff, due

to greater exposure and familiarity with workplace environments, are more sensitive to manipulative psychological behaviors. This finding is consistent with the perspectives of Ferraro (2006) and Anderson (2009), who argue that longer work experience enhances individuals' recognition of emotionally abusive behavioral patterns in the workplace (26, 27).

Limitations and strengths

This study has several limitations. The use of convenience sampling and online survey distribution may have introduced selection bias and limited the representativeness of the sample. Although the sample size was adequate for factor analysis, a larger and more diverse sample would allow for more robust psychometric testing, including model invariance across different groups. Furthermore, the study did not compare the Workplace Gaslighting Questionnaire with other relevant constructs, such as burnout or job satisfaction, which would have helped establish convergent validity by examining its associations with important workplace outcomes. Additionally, convergent and discriminant validity were assessed through CFA-based indices within the same model, which aligns with contemporary psychometric practices but does not replace broader nomological validation that future studies may consider.

Despite these limitations, a notable strength of the study is that it provides the first psychometric evaluation of the Workplace Gaslighting scale among nurses in Pakistan. This contributes valuable evidence regarding the scale's applicability, cultural relevance, and usefulness in the Pakistani healthcare context.

Conclusion

This study aimed to examine the psychometric properties of the Workplace Gaslighting Scale among Pakistani nurses. The findings demonstrated that the scale possesses a conceptually and statistically sound structure. Although the results indicated an interpretable factor structure, the

dimensional findings should be viewed cautiously, given the borderline model fit and the lack of clear discriminant validity between the subscales. The second-order representation appeared plausible in this sample; however, further research using larger and more diverse groups is needed before drawing firm conclusions about the hierarchical structure of the construct. Similarly, the observed associations with demographic and professional characteristics offer hypothesis-generating insights rather than definitive explanations, as the study did not directly assess organizational climate or related workplace variables. Taken together, the findings suggest that the scale may serve as a useful starting point for assessing workplace gaslighting in healthcare settings, but additional validation, including nomological, convergent, and cross-group invariance testing, is required to establish its broader utility.

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Authors' contributions

KA: Conceptualization; Methodology; Writing—original draft; Project administration; Obtaining ethical approval; Submission and follow-up of the project; Writing – review & editing. RGG: Formal analysis (statistical analysis); Methodology; Writing—review & editing; Contribution to proposal development. SN: Data curation; Investigation (sampling and data collection); Writing—review & editing. RP: Data curation; Investigation (sampling and data collection);

Writing— review & editing. HSN: Formal analysis (assistance in statistical analysis); Writing— original draft (partial contribution); Writing— review & editing.

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Conflict of interests

The authors declare no competing interests.

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