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Decoding workplace gaslighting: evaluating a Persian version of the gaslighting workplace scale

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Abstract

Background Gaslighting is a form of psychological abuse that undermines individuals' perception of reality through manipulation and often exploits power imbalances in relationships. This phenomenon is prevalent in nursing workplaces, where subtle bullying behaviors persist. This study aims to evaluate the psychometric properties of the Persian version of the Workplace Gaslighting Scale in nursing context.

Methods This cross-sectional study was conducted online in 2025 on 306 nurses. The Gaslighting in the Workplace scale was translated using the forward-backward method. Validity (face, content, construct, convergent, and discriminant) and internal consistency were assessed. Confirmatory factor analysis (CFA) was conducted using fit indices, while reliability was assessed with Cronbach's alpha and McDonald's omega. Data analysis was conducted using Amos 26 and Jamovi 2.4.14.

Results The two-dimensional model of the scale was tested and confirmed with good fit indices in confirmatory factor analysis: CMIN = 121.627, DF = 53, CMIN/DF = 2.295, CFI = 0.960, TLI = 0.915, SRMR = 0.036, and RMSEA = 0.065. Cronbach's alpha (0.911) and McDonald's omega (0.912) confirmed excellent internal consistency. Most factor loadings were above 0.65, except for items 3 and 4. Convergent validity was partially supported (AVE: 0.434, 0.560; CR > 0.70). Discriminant validity was confirmed (HTMT: 0.695, MSV: 0.425).

Conclusion The Persian version of the Workplace Gaslighting Scale demonstrated strong psychometric properties, including excellent construct validity and internal consistency, confirming its reliability for assessing gaslighting in nursing workplaces.

Keywords Gaslighting, Workplace gaslighting, Nurse, Psychometrics

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Introduction

Gaslighting is a form of psychological abuse in which an individual manipulates another person into doubting their mental health, memories, and perception of reality [1]. This form of emotional manipulation undermines independent thinking and often leads to cognitive dissonance, which is a conflict between personal beliefs and actual behaviors [2]. Gaslighting is a continuous process of instilling doubt in another person's mind [3], often observed in relationships where one partner has greater control and influence (i.e., a power imbalance) [4]. The term originates from a play in which a seemingly kind husband used deception and manipulation to isolate his wife and convince her that she was mentally unstable, allowing him to seize her assets [1].

Gaslighting can occur as either a single, isolated incident or a continuous pattern of manipulation, constituting a form of ongoing abuse [5]. As a result, the victim may not recognize it in the early stages. Even the perpetrator of gaslighting may be unaware of the harm they are causing through their behavior. Both forms have serious emotional consequences for the victim [6]. In interpersonal dynamics, gaslighting takes place in relationships with power imbalances, where senior employees employ tactics like denial, minimization, and contradiction to manipulate or exert control over less experienced colleagues [4].

In recent years, interest in this subject has grown, leading to a deeper understanding of its effects in various contexts. The fact that Merriam-Webster Dictionary selected this term as the Word of the Year for 2022 reflects the increased public awareness of gaslighting [7]. Today, gaslighting is used to describe the psychological manipulation strategies of abusers in politics, interpersonal relationships, and even the workplace [8]. Stern believes that we live in a "Gaslight Culture," where individuals are deeply influenced by a culture that repeatedly encourages us to believe in ideas that are false [9].

Nursing is also not immune to this phenomenon. In the nursing environment, gaslighting occurs when managers or colleagues ignore nurses' concerns about issues such as overtime and make them believe that excessive commitment is normal and necessary, thereby pushing them toward workaholism [10].Taylor's thematic analysis revealed that tools designed to measure horizontal violence and bullying in the workplace fail to capture the subtle prevalence of gaslighting. The degrading and insulting behaviors used by bullies are unprofessional and are never reported by victims, which causes bullying behaviors to continue [11].

Identifying gaslighting behaviors in nursing environments is difficult because there is limited research focused specifically on this concept. Instead, the literature is abundant in studies on bullying, incivility, and horizontal violence. Additionally, individuals unfamiliar with the concept may not recognize that they are experiencing gaslighting, as perpetrators can often explain it away as "giving advice" or "providing guidance" [12]. Gaslighting is a deceptive tactic in which individuals in positions of power use psychological techniques to create doubt in a person's perception, memory, and mental well-being [13]. However, justice for gaslighting victims is scarce, as it is often attributed to a lack of understanding of gaslighting tactics and a lack of leadership skills in managing these situations [2].

Despite increasing awareness of workplace mistreatment, research on gaslighting remains limited due to a lack of standardized measurement tools that can accurately capture its nuances. The subtle and manipulative nature of gaslighting makes it difficult to assess using traditional workplace bullying or harassment scales, as these instruments often fail to differentiate gaslighting from other forms of mistreatment. Furthermore, most existing studies on workplace gaslighting are conceptual or qualitative, lacking robust psychometric tools that allow for quantitative assessment and cross-cultural comparisons. The absence of such validated instruments hinders efforts to systematically investigate the prevalence, impact, and organizational factors associated with gaslighting. Currently, the Workplace Gaslighting scale, developed and psychometrically validated by Kukreja and Pandey (2023), can be used to measure this concept [6]. This 12-item scale is available in English; however, no validated instrument exists for assessing workplace gaslighting in Iran. Therefore, this study aimed to translate and psychometrically evaluate the Persian version of the Workplace Gaslighting Scale to provide a reliable and valid tool for assessing workplace gaslighting among Iranian nurses.

Methods

This cross-sectional methodological study was conducted in 2025 on Iranian nurses. Participants were recruited using an online survey distributed through popular social media platforms like WhatsApp and Telegram. According to Comrey and Lee (1992), a sample size of 100 is considered poor, 200 fair, 300 good, 500 very good, and 1,000 or more excellent. As they recommend obtaining at least 500 participants for factor analytic studies whenever possible, the sample size of this study (306 nurses) falls within the "good" category, indicating its adequacy for factor analysis [14]. Eligible participants were invited to complete the questionnaire. Inclusion criteria included a willingness to participate in the study and at least one year of work experience. The questionnaire was designed using Porsline, a platform equivalent to Google Forms. The first page of the online survey included a cover letter explaining the study's objectives and emphasizing

the confidentiality of the information. Participants were informed that by clicking the "Next" button, they consented to participate in the study and could proceed to the questionnaire.

Measurement

Socio-demographic form

To collect data, a demographic information form and the Persian version of the Workplace Gaslighting Scale were used. The demographic form gathered details such as age, gender, marital status, workplace department, and work experience. Additionally, job stress among nurses was assessed using a single question: "How much stress do you experience at work?" The responses were categorized into three levels of low, moderate, and high.

Workplace gaslighting scale

This scale, developed by Kukreja and Pandey (2023), consists of 12 items rated on a 5-point Likert scale ranging from "Never" (scored 0) to "Always" (scored 4). The initial item pool included 30 items, but 9 were removed based on expert recommendations during content validation. Another seven items were eliminated due to low correlation with the total score in item analysis, leaving 14 items. In principal component analysis with Promax rotation, two factors, Trivialization and Affliction, were extracted, each with eigenvalues greater than 1. Two items that did not load on any factor were excluded. The Trivialization factor includes 7 items reflecting the supervisor's actions in undermining the views, fears, and realities of subordinates. The Affliction factor consists of five items addressing pain, suffering, and distress. The Cronbach's alpha values for these factors were 0.860 and 0.842, respectively. Confirmatory factor analysis indicated excellent fit indices [6].

Translation

After obtaining permission from the original developers, the tool was translated using the forward-backward translation method. Initially, the English version was translated into Persian by two independent translators. The Persian translations were reviewed, compared, and finalized. Subsequently, the final Persian version was translated back into English by two additional translators. The final English version was then sent to the original developers, who approved it after a round of revisions [15].

Face and content validity

Face validity aims to assess how well an instrument measures the intended concept. A tool with high face validity is one in which respondents confirm that the questionnaire items are suitable for measuring the target construct [12]. To assess this, the Persian version of the scale was given to ten nurses, who read the items aloud and provide feedback on any ambiguities [16]. Content validity reflects the extent to which items collectively provide an appropriate operational definition of a construct. It helps researchers gather valuable feedback from experts and evaluate the dimensions of the intended construct [13]. To establish content validity, the Persian version of the Workplace Gaslighting Scale was sent to five experts for evaluation and feedback on its items and content [17].

Item analysis

Descriptive statistics were calculated for the sociodemographic features of the sample and the questionnaire items, including measures such as mean, standard deviation (SD), kurtosis, and skewness, as appropriate. The item-rest correlation was used to evaluate each item's correlation with the total score of the remaining items (excluding itself). This method assesses how well each item aligns with the rest and helps identify items that may exhibit poor performance or inconsistency within the overall scale [18].

Construct validity

Confirmatory factor analysis (CFA) was employed to verify the two-factor structure of the scale, as identified in the original development study, by using model-fit indices [6]. Items with factor loadings of 0.40 or higher were retained, following previous research suggesting that loadings of 0.40 or above are acceptable in confirmatory models. Model fit was evaluated using a combination of fit indices, including chi-square (χ^2), root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR). The following guidelines were applied: RMSEA values below 0.05 suggest a good fit, values between 0.05 and 0.08 indicate a moderate fit, CFI and TLI values between 0.90 and 0.95 suggest an acceptable fit, and values above 0.95 represent a good fit. Additionally, SRMR values below 0.08 indicate a good fit [19]. Cronbach's alpha was used to assess internal consistency. Since Cronbach's alpha is influenced by the number of items, McDonald's omega coefficient was also used for a more precise evaluation. For both coefficients, values above 0.70 are considered acceptable [20]. All analyses were conducted using AMOS version 26 and Jamovi version 2.4.14.

Convergent and discriminant validity

Convergent validity assesses how well the indicators of a construct relate to and measure a common concept. It is evaluated using Average Variance Extracted (AVE) and Composite Reliability (CR). An AVE value greater than 0.50 indicates that a factor adequately explains its related concepts, while a CR value above 0.70 confirms

Table 1 Demographic characteristics of sample ($n = 306$ nurses)

Variables	Frequency	Percentage	M (SD)
Age (year)			34.55 (8.41)
Work experience (year)			10.60 (8.15)
Gender			
Male	79	25.8	
Female	227	74.2	
Marital status			
Married	192	62.7	
Single	114	37.3	
Ward			
Emergency	39	12.7	
Critical	77	25.2	
General	59	19.3	
Others	131	42.8	
Stress level			
Low	51	16.7	
Moderate	103	33.7	
High	152	49.6	

strong internal consistency [21, 22]. To evaluate discriminant validity, two methods were applied: the Heterotrait-Monotrait ratio (HTMT) and Maximum Shared Variance (MSV). According to the HTMT criterion, the value should be below 0.85 to confirm that the factors are distinct. Additionally, the MSV should be lower than the AVE to ensure sufficient differentiation between factors [22].

Results

In this study, 306 nurses participated, with a mean age of 34.55 years (SD = 8.41) and an average work experience of 10.60 years (SD = 8.15). Most of the nurses were female (74.2%) and married (62.7%), with 49.6% reporting high levels of job stress. (Table 1)

Face and content validity

During the translation process, face validity was assessed to ensure that all items were conceptually and linguistically clear for the target population. Since the items were straightforward and the translation was conducted in coordination with the original instrument developers, no significant modifications were necessary. However, based on nurses' feedback, a minor revision was made to item 1, in which the phrase 'diverting the topic' was changed to 'changing the topic' to improve clarity and enhance understanding. The content validity of the scale was qualitatively assessed by three nursing experts and two psychologists who were familiar with scientific research. These experts evaluated the items in terms of clarity, relevance, and alignment with the concept of workplace gaslighting. Based on their feedback, none of the items required modification, as they were considered appropriate in their original form.

Item analysis

The mean item scores of the workplace gaslighting scale ranged from 1.03 to 1.87, with the highest score corresponding to item #12 and the lowest score to item #3. Additionally, the highest and lowest correlations were observed for item #6 (0.735) and item #3 (0.398), respectively (Table 2). The correlations between items are presented in a heatmap, which displays the relationships between items in a matrix format. In the heatmap, each cell represents the correlation coefficient between two items. The intensity and direction of the correlations are illustrated with a gradient of colors, where darker shades indicate stronger correlations (Fig. 1).

Reliability

The overall mean score for workplace gaslighting was 19.20 ± 10.26, and the mean scores for its two dimensions

Table 2 Descriptive statistics for workplace gaslighting scale

Factor	Item	Mean (SD)	Item-rest correlation	Skewness	Kurtosis
Trivialization	1. Your supervisor changed the topic to make it seem like you were at fault.	1.74 (1.20)	0.643	0.121	-0.817
	2. Your supervisor made you feel like you were imagining things.	1.23 (1.13)	0.492	0.477	-0.702
	3. Your supervisor made negative comments about you and then rewarded you.	1.07 (1.06)	0.398	0.667	-0.481
	4. Your supervisor's words did not match his/her actions.	1.79 (1.21)	0.626	0.066	-0.869
	5. Your supervisor failed to deliver their promises and denied them.	1.78 (1.19)	0.637	0.038	-0.852
	6.Your supervisor tried to undermine your grievances to belittle them.	1.81 (1.21)	0.735	0.133	-0.816
	7. Your supervisor twisted or misrepresented things you said.	1.41 (1.19)	0.712	0.452	-0.623
Affliction	8. Your supervisor exerted unnecessary control over you.	1.68 (1.29)	0.731	0.204	-1.03
	9. Your supervisor made you criticize yourself too much.	1.42 (1.20)	0.712	0.446	-0.715
	10. Your supervisor created situations where you must depend on him/her to make most decisions.	1.56 (1.25)	0.684	0.406	-0.814
	11. You experienced emotional exhaustion at work due to your supervisor.	1.83 (1.27)	0.710	0.102	-0.995
	12. Your supervisor displayed unpredictable behavior, being kind one moment and harsh the next.	1.87 (1.22)	0.652	0.147	-0.896

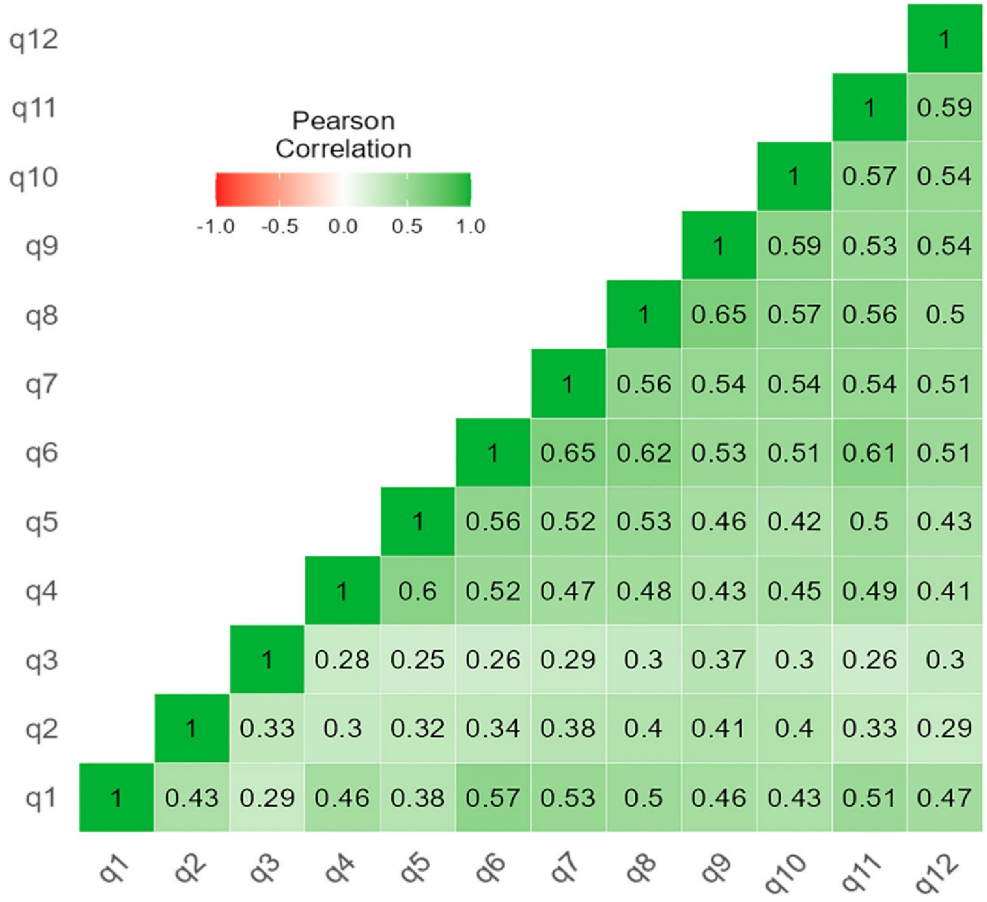

Fig. 1 Correlation Heatmap

were 10.83 ± 5.81 and 8.36 ± 5.02, respectively. Internal consistency was evaluated using Cronbach's alpha and McDonald's omega coefficients. For the overall questionnaire, Cronbach's alpha and McDonald's omega were 0.911 and 0.912, respectively. For the Trivialization factor, Cronbach's alpha and McDonald's omega coefficients were 0.836 and 0.838, respectively, while for the Affliction factor, they were 0.866 and 0.867, respectively.

Construct validity

The CFA results indicated that the Persian version of the Workplace Gaslighting Scale demonstrated good model fit, with the following fit indices: CMIN = 121.627, DF = 53, CMIN/DF = 2.295, CFI = 0.960, TLI = 0.915, SRMR = 0.036, and RMSEA = 0.065 (90% CI: 0.050–0.080) (Fig. 2).

Convergent and discriminant validity

To assess convergent validity, AVE and CR were used. The AVE value for the first factor was 0.434, while for the second factor, it was 0.560. Since the AVE value for the first factor is below 0.50, this factor lacks sufficient convergent validity. However, the AVE value for the second factor is greater than 0.50, indicating partial support for its convergent validity. The CR values were 0.830 for the first factor and 0.864 for the second factor.

Since both values exceed 0.70, these factors can be considered to have adequate reliability, despite the AVE value for the first factor being below the desired threshold. To assess discriminant validity, the HTMT ratio and MSV were used. The HTMT value was 0.695, which is below the 0.85 threshold, indicating that the two factors are sufficiently distinct and supporting divergent validity. Furthermore, the MSV value was 0.425, which is lower than the AVE values of both factors, further confirming the distinction between constructs.

The findings, categorized by demographic variables, showed that the mean gaslighting score was significantly higher among single nurses (M = 21.52, SD = 10.41) compared to married nurses (M = 17.82, SD = 9.95) ($p < 0.002$). Additionally, the highest and lowest gaslighting scores, categorized by hospital units, were observed in intensive care units (M = 21.66, SD = 10.47) and other departments (M = 17.06, SD = 9.85), respectively. The mean gaslighting score in intensive care units was significantly higher than in other departments ($p < 0.011$). There was no

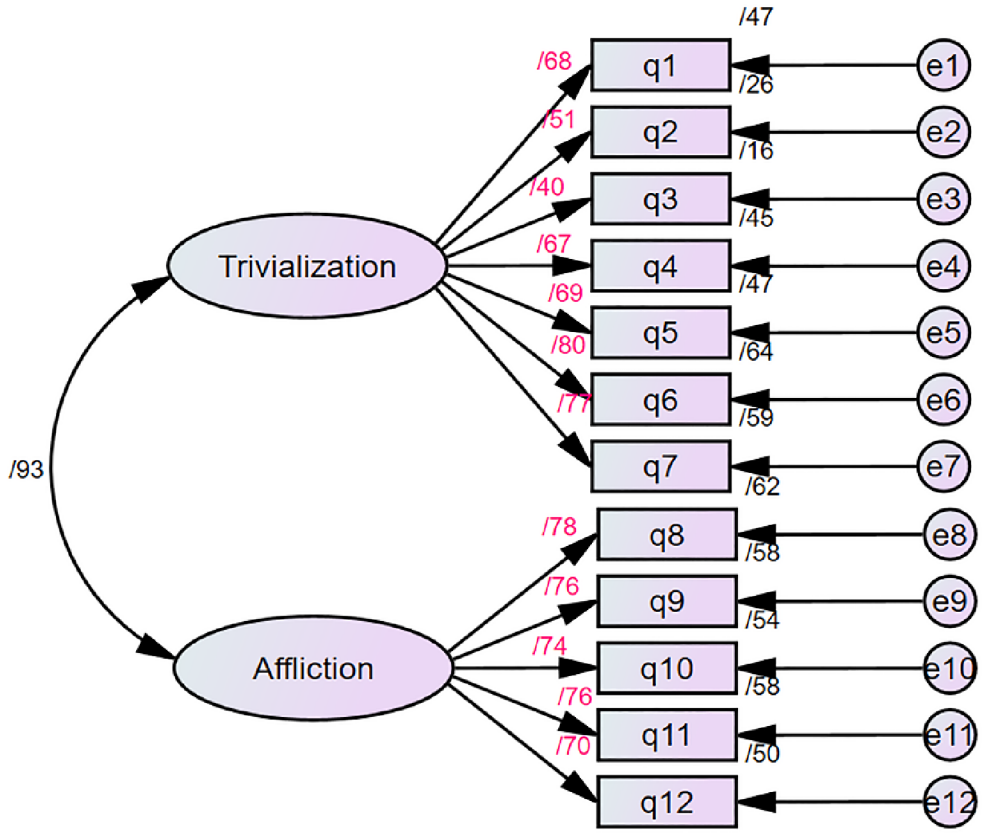

Fig. 2 The final model

significant correlation between age and work experience with the overall mean gaslighting score and its dimensions. A one-way ANOVA was conducted to compare the mean gaslighting scores across different hospital wards, including the emergency ward (19.51 ± 7.77), critical care ward (21.66 ± 10.47), general wards (20.52 ± 11.54), and other departments (19.20 ± 10.26). The analysis revealed a statistically significant difference among these groups (F = 3.799, $P = 0.011$). Post hoc Tukey's test further indicated that the mean gaslighting score in the critical care ward was significantly higher than in other departments ($P = 0.009$).

Discussion

In this study, the psychometric properties of the Persian version of the Workplace Gaslighting Scale were assessed among nurses, and the results confirmed the validity and reliability of the instrument. The item-rest correlation results showed that each item was well correlated with the other items and likely contributed to the dimensions or constructs under investigation. Item #6 (Your supervisor tried to undermine your grievances to belittle them.) had the highest item-rest correlation. This item indicates the use of negative and domineering strategies by the supervisor to dismiss and marginalize employees' problems and complaints. The high item-rest correlation for this item suggests that many Iranian nurses recognize this behavior as part of their daily experiences with their supervisors. This item likely reflects a situation in Iranian nursing environments where supervisors, rather than accepting responsibility, try to dismiss or discredit the complaints or requests of nurses. The highest mean score was related to item #12 (Your supervisor displays unpredictable behavior, being kind one moment and harsh the next.), indicating that many participants identified this specific behavior as a significant aspect of gaslighting in the workplace. This behavior may represent one of the core characteristics of gaslighting supervisors. Unpredictable and contradictory behaviors by supervisors can lead to feelings of insecurity, anxiety, and uncertainty among employees. This factor can directly impact their mental health and job performance.

Factor 1 (Trivialization) includes seven items with high factor loadings. These items describe behaviors where the supervisor minimizes or dismisses employees' concerns, fears, or realities in a simplistic and inattentive manner. Such a supervisor typically displays a negative attitude toward situations, approaches them with skepticism, and adopts a superficial and dismissive approach when addressing complex issues. According to Christensen and Evans-Murray (2021), gaslighting in nursing workplaces often involves ignoring nurses' abilities and expertise. The

persistence of such abusive behaviors leads to decreased confidence, diminished performance, and compromised quality of care [2]. In Iran similar workplace challenges, coupled with job instability and discrimination, have prompted many nurses to consider migration. Currently, the country is facing a nursing shortage [23]. Additionally, findings from another study revealed that nearly 40% of medical students who received scholarships to study abroad do not return to the country [24]. This highlights broader issues of professional dissatisfaction and systemic challenges in the healthcare sector. What distinguishes gaslighting from other forms of workplace aggression is its deliberate nature. Unlike some aggressive behaviors that may happen randomly or spontaneously, gaslighting is characterized by a persistent and repetitive pattern over time [9].

In factor 1, the highest factor loading was related to Item #6 (0.80). This item indicates that supervisors attempt to ignore and discredit nurses' complaints, which may suggest a flawed managerial structure in nursing environments where nurses' issues are not properly addressed. Regarding this finding, researchers assert that supervisors who resort to gaslighting leverage their authority to erode employees' trust in their own judgment and abilities. These individuals habitually undermine the competence and expertise of their subordinates, which gradually leads to a decline in their self-confidence. Over time, such behavior cultivates a toxic work environment where employees experience a pervasive sense of insecurity and inadequacy [2, 25, 26]. Gaslighting is a maladaptive communication pattern in which one party seeks to destabilize the other's perception of reality [27]. Kukreja and Pandey argue that, in a workplace environment, supervisors may distort facts, deny previous discussions, or make contradictory statements, leading subordinates to question their memory and understanding of situations [6].

Factor of affliction refers to a construct that generates emotions such as pain, suffering, and torment. This factor pertains to the negative emotions that the supervisor can induce in the target through their behaviors, such as causing mental distress or emotional pain resulting from gaslighting tactics. Gaslighters try to exert their authority over nurses through this behavior. Although this situation limits nurses' independence, it also creates an environment of fear and uncertainty in the workplace [6]. In this factor the highest factor loading was related to Item #8 (Your supervisor tends to exert unnecessary control over you) (0.78), which indicates that unnecessary control exerted by supervisors over nurses could be a primary cause of stress and burnout among them. The literature review suggests that gaslighting represents an attempt to establish control in relationships. For this behavior to be effective, there must be an imbalance of power in the relationship, meaning one party has more power and can dominate the other. This power discrepancy gradually grows and strengthens over time. The gaslighter slowly erodes the other person's trust in themselves, while the gaslightee (the one being manipulated) gradually begins to trust the person who is distorting their perception of reality. The results indicate that the scale and its dimensions demonstrate good internal consistency. Although the Cronbach's alpha coefficient is sensitive to the number of items and is expected to show a lower value when the number of items is small, in this study, the Cronbach's alpha values for the entire questionnaire and its dimensions were found to be satisfactory.

The results of the convergent validity analysis showed that the AVE for the first factor (0.434) was lower than the recommended threshold (0.50), which may be due to the heterogeneity among the items within this factor. In contrast, the AVE value for the second factor (0.560) exceeded the standard threshold, indicating acceptable convergent validity. However, despite the low AVE value for the first factor, the CR for both factors was above 0.70, demonstrating strong internal consistency. Previous research suggests that if the AVE is below 0.50 but the CR exceeds 0.70, convergent validity can still be considered acceptable, as high CR reflects strong inter-item correlations and adequate construct reliability [28]. Divergent validity was assessed using the HTMT ratio and the MSV. The MSV value (0.425) was lower than the AVE values of both factors, further confirming sufficient divergent validity. These findings indicate that the factors identified in this scale are largely distinct from each other and each independently reflects a specific aspect of gaslighting in the workplace. Notably, the study by Henseler et al. (2015) demonstrated that the HTMT method is highly accurate in assessing discriminant validity, with an accuracy of 97–99%. Given this evidence, the HTMT results provide a more reliable indication of discriminant validity in the present study [29].

The findings showed that the mean gaslighting score was significantly higher in single nurses compared to married nurses. This result could be attributed to the social support married individuals receive from their families and spouses, which can mitigate the negative effects of gaslighting in the workplace. Previous studies have also shown that social support is associated with reduced stress and increased resilience in nurses [30, 31]. Given the limited resources available on the differences in gaslighting between single and married nurses, further research is recommended to explore this issue and identify the underlying factors. In this study, nurses with higher job stress had higher gaslighting scores. Research on the relationship between job stress and gaslighting among nurses is limited. However, previous studies have demonstrated that job stress can be associated with

decreased mental health and increased burnout among nurses [32]. A study found that mental health problems were inversely linked to social support, rewards, and skill discretion [33].

Limitation

This study has several limitations. First, the online survey method may have excluded nurses with limited internet access or less activity on social media. While this approach ensured anonymity, future studies should use diverse data collection methods for more inclusive participation. Second, the cross-sectional design limits our ability to infer causal relationships between gaslighting and its psychological outcomes. Since this study captures data at a single point in time, it does not allow us to track how gaslighting may evolve or persist over time. Longitudinal studies would be valuable to assess the long-term effects of gaslighting and how these effects might change over a prolonged period, providing deeper insights into the sustained impact of gaslighting on employees' mental health and job performance.

Third, self-reported data may have introduced social desirability bias, leading to an underreporting of gaslighting behaviors. Combining self-reports with interviews or observational data could provide a more comprehensive understanding. Fourth, the absence of identification codes in the online survey could have allowed duplicate responses, impacting data validity. Future studies should incorporate response-tracking mechanisms. Fifth, the AVE for one of the factors in this study was below the recommended threshold of 0.50, indicating insufficient convergent validity for that factor. While the composite reliability (CR) was above 0.70, suggesting adequate reliability, future research should aim to improve the measurement of this factor. Finally, convenience sampling introduces selection bias, as the sample was limited to nurses active on messaging platforms like WhatsApp and Telegram. Future studies should diversify the sample to reduce this bias.

Conclusion

Gaslighting behavior primarily harms the organization and everyone connected to it. Consequently, management teams, including human resource leaders, need to identify gaslighting as a critical toxic factor in the workplace and prioritize efforts to raise awareness about its impact. Addressing this issue requires a valid and reliable scale to measure this complex and multifaceted phenomenon. The findings of this study demonstrate that the Persian version of the gaslighting instrument is both valid and reliable, establishing it as an effective tool for future research. Having a Persian version of this instrument equips Iranian managers with the capability to systematically assess and address gaslighting in nursing workplace settings, fostering healthier and more supportive work environments.

Abbreviations

AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CR	Composite Reliability
HTMT	Heterotrait-Monotrait
MSV	Maximum Shared Variance

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Author contributions

RGG, PK, JP, and AN designed the study; RGG and MJ contributed to the data analysis and interpretation and drafted the manuscript; AN and KB conducted the data collection and analysis; MJ, PK, JP, AN, KB, and RGG revised the manuscript for important intellectual content. All authors read and approved the final version of this manuscript.

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Data availability

The datasets used in the present study are available from the corresponding author upon reasonable request.

Declarations

Ethical approval and consent to participate

The study protocol was reviewed and approved by the Ethics Committee of Bam University of Medical Sciences (Approval ID: IR.MUBAM.REC.1403.61). All procedures involving human participants were performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Prior to data collection, the study objectives were clearly explained to all participants. Participation was entirely voluntary, responses were anonymous, and all data were used solely for research purposes. Written informed consent was obtained from all participants before enrollment in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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