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The gaslighting at work scale: Development and initial validation

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ABSTRACT

Our study aimed to develop and validate a tool to measure workplace gaslighting: the Gaslighting at Work Scale (GWS). Mean age of our sample ($n = 400$) was 38.9 years, while 82.5% were females and 51.7% have been working in the public sector. We examined content validity, face validity, construct validity, concurrent validity and reliability of the GWS through several analyses, such as calculation of content validity ratio and item-level face validity index, item analysis, exploratory and confirmatory factor analysis, correlation analysis, and calculation of Cronbach's alpha, McDonald's Omega, Cohen's kappa and intraclass correlation coefficient. We identified a two-factor structure for the GWS with 11 items: loss of self-trust and abuse of power. Concurrent validity of the GWS was excellent since we found significant correlations between GWS, Patient Health Questionnaire-4, Quiet Quitting Scale, Utrecht Work Engagement Scale-3, and Single Item Burnout measure. The reliability of the GWS was excellent since Cronbach's alpha and McDonald's Omega was 0.939 and 0.940, respectively. In test-retest study, intraclass correlation coefficient was 0.997. In conclusion, the GWS is a valid, short and easy-to-use tool that measures gaslighting behaviors of supervisors. Valid identification of harmful supervisor behaviors is crucial to promote subordinates' mental health and work productivity.

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Introduction

Psychological manipulation known as gaslighting involves subjecting individuals to abuse that causes them to question their own perceptions or abilities (Gass & Nichols, 1988). This ongoing process aims to plant seeds of self-doubt in the victim's mind (Fielding-Singh & Dmowska, 2022). The increased public awareness of gaslighting is evident from the fact that the

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“Merriam-Webster Dictionary” name it the Word of the Year for 2022 (Merriam-Webster Dictionary, 2025).

Those subjected to gaslighting may experience a range of mental health issues, including depression, anxiety, guilt, grief, insomnia, anger, social avoidance, post-traumatic stress disorder, and suicidal thoughts (Abramson, 2014; Bates, 2020; Covert, 2019; Dickson et al., 2023; Riggs & Bartholomaeus, 2018; Stern, 2018). What sets gaslighting apart from other types of workplace aggression is its intentional, repetitive pattern of behavior that persists over time, aimed at undermining, contradicting, or denying another person’s perspective or experiences (Stern, 2018).

In the work environment, gaslighting is employed by those in leadership positions, and involves undermining subordinates’ perceptions and realities through belittlement, instilling negative emotions like fear and self-doubt (Sweet, 2019). Supervisors acting as gaslighters use their authority to employ psychological strategies that cause others to question their own judgment, memories, and mental stability. In the workplace, supervisors might distort facts, deny previous discussions, or make inconsistent statements, leading subordinates to question their recollection and understanding of events. This gaslighting strategy aims to erode subordinates’ credibility and create confusion, fostering an unreal work environment (Kukreja & Pandey, 2023; Sweet, 2019). As a result, supervisors attempt to influence subordinates’ judgment by making them doubt the accuracy of their own perceptions. This can provoke feelings of guilt and uncertainty, further diminishing subordinates’ self-assurance and negatively affecting their sense of self-worth (Graves & Spencer, 2022). Ultimately, subordinates may lose trust in their own ability to perceive reality accurately, and, thus, a “loss of self-trust” dimension of workplace gaslighting may be established.

In the workplace, gaslighting can manifest as relentless criticism and the deliberate dismissal of subordinates’ experiences and emotions. Subordinates may find their concerns and frustrations minimized or dismissed, leading them to question their own feelings and perceptions. This invalidation can result in a feeling of isolation and helplessness, as they struggle to find support or empathy within their work environment (Jones, 2023). Additionally, workplace gaslighting is often closely linked with the assertion of power and control. Supervisors who engage in gaslighting behavior may assert their authority over subordinates by constantly scrutinizing their actions, micromanaging their work, or setting unrealistic demands. This power dynamic can be particularly especially damaging to subordinates, as it reduces their autonomy and fosters an atmosphere of fear and obedience (Kukreja & Pandey, 2023). Moreover, gaslighting behavior may involve shifting blame and responsibility onto subordinates for any shortcomings or failures. Instead of providing support and guidance, supervisors may deflect culpability onto

subordinates, making them scapegoats for any arising issues (Graves & Spencer, 2022). Finally, such behavior creates a hostile work environment in which the supervisor exploit their position or authority to manipulate and control them, and, thus, an “abuse of power” dimension of workplace gaslighting may be established.

Recent studies have demonstrated the harmful effects of workplace gaslighting on professional relationships and individual performance (Atta et al., 2025; Farid et al., 2024; Fernandopulle, 2021; Gillespie et al., 2017; Griscti, Aston, Warner, Martin-Misener, & McLeod, 2017). However, the existing literature is poor, leaving significant room for improving the quality of research in this area. For instance, only one study used a valid tool to measure workplace gaslighting (Atta et al., 2025). In particular, literature suggests a positive association between workplace gaslighting and emotional exhaustion, job dissatisfaction, and turnover intention (Fernandopulle, 2021; Gillespie et al., 2017; Griscti et al., 2017). In contrast, a negative association has been observed between workplace gaslighting and career entrenchment, work motivation, and job embeddedness (Atta et al., 2025; Farid et al., 2024).

Despite the growing literature on workplace bullying, mobbing, harassment and abuse, the measurement of workplace gaslighting has received limited attention. For example, there are numerous validated scales for measuring bullying, mobbing, harassment and abuse at work, such as the “Negative Acts Questionnaire,” the “Leymann Inventory of Psychological Terrorization,” the “Workplace Ostracism Scale,” and the “Workplace Psychologically Violent Behaviors” (Einarsen et al., 2009; Ferris et al., 2008; Leymann, 1990; Yildirim & Yildirim, 2007). However, there is only one instrument currently available for measuring workplace gaslighting, i.e., the “Gaslighting at Work Questionnaire” (GWQ) (Kukreja & Pandey, 2023). In particular, Kukreja and Pandey recently developed their questionnaire to measure gaslighting at work using a sample of employees in India. Despite the strengths of the GWQ, there remains considerable room for improving the valid measurement of workplace gaslighting. The GWQ was developed in India; thus, it is culturally specific and may have limited applicability in other countries, such as Europe or North America. Therefore, the appropriateness of administering the GWQ outside India may be questionable. Workplace structure is a key factor in the occurrence of gaslighting at work. India may exhibit distinct work culture characteristics which could result in unique patterns of workplace gaslighting behavior. Consequently, an alternative gaslighting at work scale could provide scholars with the opportunity to measure this phenomenon in a more valid way across cultures and countries.

In this context, the aim of our study was to develop a valid and reliable scale to measure gaslighting at work. Given that gaslighting at work is an

alarming issue, we aimed to develop a scale to measure this phenomenon to address the existing gap in the literature. In particular, we developed and validated a scale to measure gaslighting behaviors in the dynamic relationship between supervisor and subordinates.

Materials and methods

Development of the scale

We present the development and validation of the Gaslighting at Work Scale (GWS) in [Figure 1](#). First, we performed a complete and thorough literature review to identify scales that measure constructs similar to gaslighting at work such as bullying, mobbing, harassment and abuse at work (Einarsen et al., 2009; Ferris et al., 2008; Kukreja & Pandey, 2023; Leymann, 1990; Yildirim & Yildirim, 2007). Also, we expanded our review by assessing scales that measure gaslighting in romantic or parental relationships or even friendships (Bhatti et al., 2021; Hailes & Goodman, 2025; Tager-Shafir et al., 2024). In this context, we discussed the way that the items of these scales may be useful to develop the items of the GWS. After all, we developed 32 items to measure gaslighting at work.

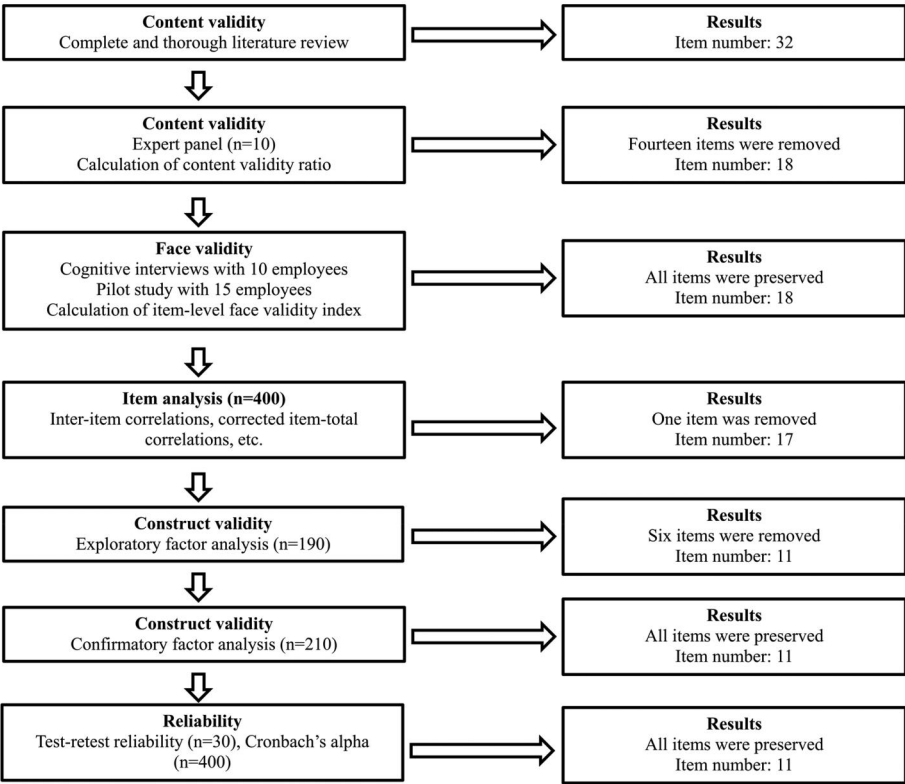


Figure 1. Development of the gaslighting at work scale.

Second, we employed an expert panel ($n=10$) from different backgrounds, such as psychiatrists, psychologists, sociologists, general physicians, and social workers. We considered as experts those who have at least 10 publications in organizational behavior, human resources management, and mental health issues. Moreover, our experts had at least five years experience in organizational behavior and human resources management. We used the expert panel to assess the content validity of the initial set of 32 items. Thus, we invited experts to rate each item as “not essential,” “useful but not essential” or “essential”. Then, we calculated the content validity ratio with the following formula:

$$\text{Content validity ratio} = \frac{n - \frac{N}{2}}{\frac{N}{2}}$$

In the formula above, we considered “N” as the total number of experts ($N=10$), and “n” as the number of experts that rate an item as “essential”. Literature suggests to retain items with a content validity ratio greater than 0.80 (Ayre & Scally, 2014). In this step, we removed 14 items due to unacceptable content validity ratio. Thus, we retained 18 items in our scale.

Third, we examined the face validity of the 18 items by performing cognitive interviews with 10 employees (Meadows, 2021). All employees understood the items without meaning issues. We further assessed the face validity of the 18 items by calculating the item-level face validity index. Fifteen employees rated the clarity of the items, and the answers were on a four-point Likert scale: 1 = item is not clear; 2 = item is somewhat clear; 3 = item is quite clear and; 4 = item is highly clear. Literature suggests to retain items with an item-level face validity index greater than 0.80 (Yusoff et al., 2019). Item-level face validity index for the 18 items ranged from 0.866 to 1.000, and, thus, we kept all items in the GWS.

After all, we retained 18 items in our scale to assess workplace gaslighting caused by the supervisors. The GWS assesses supervisors’ attitudes during the last six months and includes items such as “In the last six months, your supervisor denies saying things that you remember him/her saying,” “In the last six months, your supervisor lies to you,” and “In the last six months, your supervisor tells you that you are “imagining” things”. Answers are on a five-point Likert scale; never (1), rarely (2), sometimes (3), very often (4), and always (5). Higher values indicate higher levels of workplace gaslighting. [Supplementary Table 1](#) presents the 18 items that were created after the initial development phase of the GWS.

Participants and procedure

Our study population included 400 employees in Greece who have been working at least for one year in public or private sector. Our sample

included employees from several industries, such as banks, hospitality services, firms in financial intermediation or asset management, hospitals, schools, media, and security services. Our participants could have any job role as long as they were accountable to a supervisor. Moreover, employees of any educational level or cultural background could participate in our study. There were no racial/ethnic differences since all participants were Greek. All employees should be adults over 18 years old. We employed different approaches to obtain our sample. In particular, we recruited employees through face-to-face interviews, social media (i.e., Facebook and LinkedIn), and e-mail campaigns. In this context, we created an online version of the study questionnaire by using Google forms, and we disseminated it through social media and e-mails. After all, we obtained a convenience sample. Response rate was 76.9% (400 out 520). To reduce bias, we included in our analysis only employees that answered all items in the study questionnaire. Thus, we removed 34 incomplete questionnaires. We collected our data during December 2024.

Final overall sample included 400 employees. In our sample, 82.5% ($n=330$) were females, and 17.5% ($n=70$) were males. Mean age was 38.9 years (standard deviation; 10.5). Among our employees, 51.7% ($n=207$) have been working in the public sector, while 48.3% ($n=193$) in the private sector. Mean work experience was 14.3 years (standard deviation; 9.95), with a median value of 14 years (minimum; 1, maximum; 38).

Item analysis

We performed an item analysis for the 18 items that were produced after the initial development phase of the GWS. We calculated inter-item correlations, corrected item-total correlations, floor and ceiling effects, skewness, kurtosis, and Cronbach's alpha (when a single item was deleted) for the 18 items (Costello & Osborne, 2005). Acceptable values for inter-item correlation range from 0.15 to 0.75 (DeVon et al., 2007), and for item-total correlation are higher than 0.30 (De Vaus, 2004). We considered floor or ceiling effects when more than 85% of participants achieve the lowest or highest possible score, respectively (Yusoff et al., 2021). In our study, the lowest possible score was the answer "never," while the highest possible score was the answer "always". Skewness values between -2 to $+2$, and kurtosis values between -3 to $+3$ are indicative of normal distribution (Hair et al., 2017).

Construct validity

We examined the construct validity of the GWS by performing factor analysis. First, we conducted exploratory factor analysis (EFA) to explore the

underlying factor structure of the GWS, and then we conducted confirmatory factor analysis (CFA) to verify the results of the EFA.

Literature suggests that the minimum sample size for the EFA is 50 observations (De Winter et al., 2009) or five observations per item (Costello & Osborne, 2005). Also, the minimum sample size for the CFA is 200 observations (Klein, 2016). We satisfied these requirements since we used 190 employees to perform the EFA, and 210 employees to perform the CFA. In particular, we split randomly our 400 employees into two groups to conduct EFA and CFA with different samples. Random split method is the most straightforward method for splitting a sample in order to achieve equivalent subsamples of our participants from the total sample ($N = 400$) (Lorenzo-Seva, 2022; Mondo et al., 2021).

First, we conducted EFA, and we analyzed the 17 items that were emerged after the initial development of the GWS. We calculated the Kaiser-Meyer-Olkin index and p-value for Bartlett sphericity test. Acceptable values for the Kaiser-Meyer-Olkin index and Bartlett sphericity test are >0.80 and <0.05 , respectively (Hair et al., 2017). Acceptable values for the Kaiser-Meyer-Olkin index and Bartlett sphericity test indicate sample adequacy. We used oblique rotation (promax method in SPSS) to perform EFA since we found from the component correlation matrix that all the items were significantly correlated. Since the scale was normally distributed we used the maximum likelihood estimator (Briggs & MacCallum, 2003). Acceptable values for the EFA are the following: eigenvalues >1 , factor loadings >0.60 , communalities >0.40 , and the total variance explained by the factors $>65\%$ (Hair et al., 2017). Moreover, we calculated Cronbach's alpha for the factors that were produced by the EFA with values >0.7 considered to be acceptable (Bland & Altman, 1997). Finally, we named the factors rationally.

Then, we conducted CFA to confirm the validity of the GWS factor structure. Since the scale was normally distributed, we used the maximum likelihood estimator. We considered each item itself as a manifest variable, and the two factors (loss of self-trust and abuse of power) as latent factors (Rose et al., 2019). We checked the goodness of fit indices in CFA by calculating two indices of absolute fit, two indices of relative fit, and one index of parsimonious fit. In particular, we calculated root mean square error of approximation (RMSEA) and goodness of fit index (GFI) as absolute fit indices, normed fit index (NFI) and comparative fit index (CFI) as relative fit indices, and chi-square/degree of freedom (χ^2/df) as a parsimonious fit index. We used the following acceptable values: $RMSEA < 0.10$, $GFI > 0.90$, $NFI > 0.90$, $CFI > 0.90$, and $\chi^2/df < 5$ (Baumgartner & Homburg, 1996; Brown, 2015; Hu & Bentler, 1998; Yusoff et al., 2021). Moreover, we calculated standardized regression weights between items and

factors, and correlation coefficients between factors. Additionally, we measured the modification index, error correlations, and factor loadings. Since all items had acceptable error correlations and cross-factor loadings, we retained all in the final version of the scale. Error correlations > 0.40 (Brown, 2015) and cross-factor loadings > 0.30 (Hair et al., 2017) are considered as problematic. Our two factors (loss of self-trust and abuse of power) were correlated, and the two-factor first order model showed a very good fit to data. Moreover, we conducted CFA with two factors plus a second-order factor but we did not find an improvement on our model. Thus, we kept the two-factor first order model. We applied the Maximum Likelihood estimator with bootstrap approach (number of bootstrap samples were 200) (Enders, 2001). We conducted CFA using AMOS (version 21).

Concurrent validity

We used the Patient Health Questionnaire-4 (PHQ-4), the Quiet Quitting Scale (QQS), the Utrecht Work Engagement Scale (3 items version) (UWES-3), and the Single Item Burnout (SIB) measure to assess the concurrent validity of the GWS.

Literature suggests an association between gaslighting and mental health issues, such as depression, anxiety, guilt, grief, insomnia, anger, social avoidance, post-traumatic stress disorder, and suicidal thoughts (Abramson, 2014; Bates, 2020; Covert, 2019; Dickson et al., 2023; Riggs & Bartholomaeus, 2018; Stern, 2018). Among these mental health variables, we chose to measure anxiety and depression.

The PHQ-4 measures anxiety and depression (Kroenke et al., 2009). Total score ranges from 0 to 6, and higher scores indicate greater anxiety and depressive symptoms. We expected a positive correlation between the GWS and the PHQ-4.

The QQS includes nine items and measures levels of quiet quitting among employees (Petros Galanis et al., 2023). Example items for the QQS are the following: “I do the basic or minimum amount of work without going above and beyond,” “I take as many breaks as I can,” and “If a colleague can do some of my work, then I let him/her do it”. Answers are rated on a five-point Likert scale as follows: strongly disagree (1), disagree (2), neither disagree or agree (3), agree (4), strongly agree (5). Total score ranges from 1 to 5. Higher scores indicate higher levels of quiet quitting. We used the valid Greek version of the QQS (Petros Galanis et al., 2024). In our study, Cronbach’s alpha for the QQS was 0.851, while McDonald’s Omega was 0.854. We expected a positive correlation between the GWS and the QQS.

The UWES-3 includes three items and measures levels of work engagement among employees (Schaufeli et al., 2019). Example items for the UWES-3 are the following: “At my work, I feel bursting with energy” and “I am enthusiastic about my job”. Answers are on a seven-point Likert scale from never (0) to every day (6). Total score on UWES-3 ranges from 0 to 6. Higher scores indicate higher levels of work engagement. We used the valid Greek version of the UWES-3 (Katsiroumpa et al., 2024). In our study, Cronbach’s alpha for the UWES-3 was 0.796, while McDonald’s Omega was 0.819. We expected a negative correlation between the GWS and the UWES-3.

We used the SIB to measure job burnout among employees (Hansen & Pit, 2016). The SIB measures overall work burnout on a scale from 0 (not at all burnt out) to 10 (extremely burnt out). Higher scores indicate higher levels of job burnout. We used the valid Greek version of the SIB (P Galanis et al., 2024). We expected a positive correlation between the GWS and the SIB.

We measured a total score for the GWS and the factors that were created from the EFA and the CFA. Thus, we summed the answers in all items and we divided the sum by the total number of items to calculate the total score for the GWS. Similarly, we calculated the score for the two factors of the GWS. In particular, we summed the answers in items #1, #2, #3, #8, #16 (Table 1), and we divided the sum by five to calculate the total score for the factor “loss of self-trust”. Moreover, we summed the answers in items #5, #6, #12, #13, #14, #18 (Table 1), and we divided the sum by six to calculate the total score for the factor “abuse of power”. Thus, all scores ranged from one to five, and higher scores indicated higher levels of workplace gaslighting.

Reliability

We used the overall sample ($N=400$) to examine the reliability of the final version of the GWS. First, we measured Cronbach’s alpha and McDonald’s Omega for the GWS and the factors. Acceptable values for Cronbach’s alpha and McDonald’s Omega are >0.7 (Bland & Altman, 1997).

Moreover, we calculated corrected item-total correlations, inter-item correlations, and Cronbach’s alpha when a single item was deleted for the 11 items of the final structure model of the GWS. Acceptable values for inter-item correlation range from 0.15 to 0.75 (DeVon et al., 2007) and for item-total correlation are >0.30 (De Vaus, 2004).

Finally, we performed a test-retest study to further examine the reliability of the final version of GWS. In that case, 30 employees completed the GWS twice in one week. Answers on the GWS are in an ordinal scale, and, thus, we calculated Cohen’s kappa to estimate reliability. Values for Cohen’s kappa between 0.60 and 0.79 indicate moderate level of agreement,

Table 1. Exploratory factor analysis using oblique rotation (promax method) for the gaslighting at work scale ($n = 190$).

In the last six months, your supervisor ...	Factors		Communalities
	Loss of self-trust (items #1, #2, #3, #8, #16)	Abuse of power (items #5, #6, #12, #13, #14, #18)	
1. denies saying things that you remember him/her saying (e.g. your supervisor denies he/she said something, even though you know that he/she did)	0.704	0.164	0.703
2. lies to you (e.g. your supervisor makes you question your perception of reality)	0.605	0.208	0.606
3. tells you that you are “imagining” things (e.g. your supervisor accuses you of being “crazy”)	0.821	−0.041	0.624
4. makes you feel like you misunderstand	0.363	0.504	0.671
5. makes you doubt your qualifications (e.g. your supervisor criticizes your abilities)	0.170	0.678	0.668
6. ignores your complaints and concerns (e.g. your supervisor does not answer your queries and requests)	0.210	0.611	0.619
7. makes you question your memory about things that happen between him/her and you	0.496	0.375	0.677
8. accuses you of lying when you disagree with him/her (e.g. your supervisor assigns you a job and when you try to turn it down because you are occupied he/she does not believe you)	0.977	−0.171	0.724
9. blames you for mistakes that you do not make	0.551	0.263	0.599
11. gossips about you to your colleagues	0.504	0.313	0.597
12. tries to manipulate you (e.g. your supervisor tries to control you by convincing you that your beliefs and thoughts are groundless)	0.160	0.672	0.645
13. makes you depend on him/her for making decisions about your work (e.g. your supervisor accuses you for poor performance)	−0.231	0.998	0.814
14. does not give clear instructions about what to do (e.g. your supervisor gives you contradictory or ambiguous instructions)	0.048	0.618	0.431
15. excludes you from important meetings relevant to your job	0.452	0.241	0.433
16. twists/misrepresents your words or ideas to make you appear foolish or incompetent (e.g. your supervisor tries to humiliate you in front of your colleagues)	0.766	0.064	0.667
17. steals your ideas or work and present them as his/her own	0.560	0.079	0.389
18. does not tolerate disagreement or criticism (e.g. your supervisor attacks you when you disagree with him/her)	0.155	0.630	0.573
Eigenvalues	10.122	1.059	
% of variance	59.539	6.231	
Cumulative % of variance	59.539	65.770	

Values express factors loadings unless otherwise is indicated.

while values between 0.80 and 0.90 indicate strong level of agreement, and values above 0.90 indicate perfect level of agreement (McHugh, 2012). Additionally, we calculated intraclass correlation coefficient for the total score of GWS, and for scores on two factors. In that case, we calculated the two-way mixed intraclass correlation coefficient (absolute agreement). Values for intraclass correlation coefficient between 0.5 and 0.75, between 0.75 and 0.9, and above 0.90 are indicative of moderate, good, and excellent reliability, respectively (Koo & Li, 2016).

Ethical considerations

The Ethics Committee of the Faculty of Nursing, National and Kapodistrian University of Athens approved our study protocol (approval number; 15, December 9, 2024). Moreover, we conducted our study in accordance with the Declaration of Helsinki (World Medical Association, 2013). We collected our data in an anonymous and voluntary basis. We informed participants about the aim and the design of our study and they gave their informed consent.

Statistical analysis

We use absolute numbers and percentages to present categorical variables. Also, we use mean, standard deviation, median, minimum value and maximum value to present continuous variables. We employed the Kolmogorov-Smirnov test and Q-Q plots to examine the distribution of scores on our scales. Scores on GWS, PHQ-4, QQS, UWES-3 and SIB followed normal distribution. Thus, we calculated Pearson's correlation coefficient to examine correlation between scales. P-values less than 0.05 were considered as statistically significant. We used AMOS version 21 (Amos Development Corporation, 2018) to conduct CFA using. All other analyses were conducted with the IBM SPSS 28.0 (IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp).

Results

Item analysis

We included the 18 items that were produced after the initial development phase of the GWS (Supplementary Table 2). Additionally, Supplementary Table 3 shows the inter-item correlations between the 18 items. We deleted item #10 (i.e., In the last six months, your supervisor tells you that you are paranoid or “crazy”) due to high floor effect, skewness, and kurtosis. The remaining 17 items had acceptable corrected item-total correlations, inter-item correlations, floor and ceiling effects, skewness, and kurtosis. Cronbach's

alpha for the 17 items was 0.958 and was reduced after elimination of each single item.

Exploratory factor analysis

We included 17 items in the EFA (Supplementary Table 2). We found acceptable values for Kaiser-Meyer-Olkin index (0.952), and p-value for Bartlett sphericity test (<0.001). Thus, our sample was adequate to perform EFA. Table 1 shows EFA using oblique rotation (promax method) for the GWS. We removed items #4, #7, #9, #11, #15, #17 due to unacceptable communalities (lower than 0.40) or/and factor loadings (lower than 0.60). In particular, factor loadings for these items ranged from 0.079 to 0.560. Moreover, communality for the item17 was 0.389. There was no items load onto both factors. Thus, the final version of the GWS included 11 items; #1, #2, #3, #5, #6, #8, #12, #13, #14, #16, #18 (Table 1).

Our EFA identified two factors; loss of self-trust and abuse of power (Table 1). The first factor reflects the fact that subordinates lose trust in their own ability to recognize reality, and for this reason, was labeled as “loss of self-trust”. The second factor reflects the fact that supervisors use their powerful position or authority to take unfair advantage of subordinates, gain and maintain power over them, and control them, and so it was named “abuse of power”. These two factors confirmed our theoretical background for the workplace gaslighting (see Introduction). The total variance explained by the two factors was 65.770%. Eigenvalue for the factor “loss of self-trust” was 10.122, and for the factor “abuse of power” was 1.059. Eigenvalues for the other factors were lower than the acceptable value of 1. Since eigenvalues represent the variance explained by a factor out of the total variance, we found that the factor “loss of self-trust” contributes more to explaining the workplace gaslighting than the factor “abuse of power”. In other words, the factor “loss of self-trust” could be a better predictor of the workplace gaslighting than the factor “abuse of power”. Figure 2 shows the eigenvalues of the factors for the GWS. Factor loadings ranged from 0.605 to 0.998, while communalities ranged from 0.431 to 0.814.

Cronbach’s alpha for the GWS was 0.937, while McDonald’s Omega was 0.938. Cronbach’s alpha and McDonald’s Omega for the two factors of the GWS ranged from 0.903 to 0.906 (Supplementary Table 4).

In conclusion, EFA identified a two-factor model with 11 items (Supplementary Table 5).

Confirmatory factor analysis

We conducted CFA to verify the factors of the GWS that obtained from the EFA (Figure 3). The goodness-of-fit statistics suggested that the two-

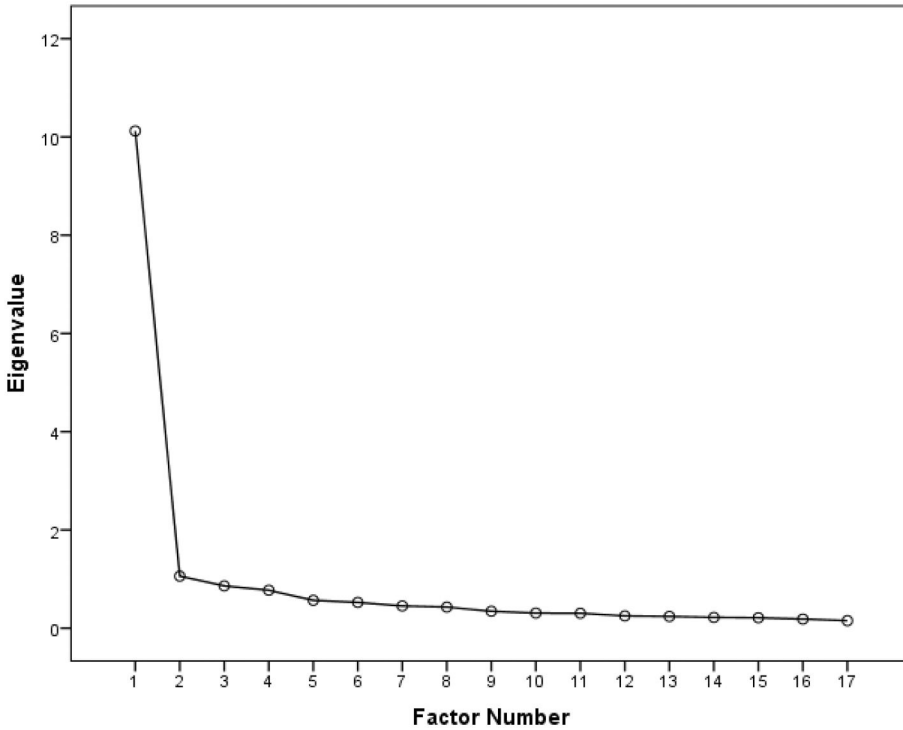


Figure 2. Scree plot of the eigenvalues of the factors for the gaslighting at work scale.

factor model with 11 items of the GWS provided a very good fit to data; $\chi^2/df = 1.210$, RMSEA = 0.032 (90% confidence interval = 0.0001 to 0.061), GFI = 0.962, NFI = 0.971, CFI = 0.995. Moreover, standardized regression weights between items and factors ranged from 0.68 to 0.83 ($p < 0.001$ in all cases). Correlation between the two factors was positive (0.88) and statistically significant ($p < 0.001$). Moreover, we conducted CFA with two factors plus a second-order factor but we did not find an improvement on our model. In particular, the goodness-of-fit statistics for the model with two factors plus a second-order factor were the following: $\chi^2/df = 2.930$, RMSEA = 0.096 (90% confidence interval = 0.077 to 0.116), GFI = 0.896, NFI = 0.920, CFI = 0.945. Thus, the best model was the two-factor first order model.

In conclusion, EFA and CFA identified a two-factor 11-items model for the GWS; loss of self-trust, and abuse of power.

Concurrent validity

Concurrent validity of the GWS (Table 2) was excellent since we confirmed our research hypotheses. In particular, we found a positive correlation between the GWS and anxiety ($r = 0.51$, $p\text{-value} < 0.001$), depression ($r = 0.49$, $p\text{-value} < 0.001$), QQS ($r = 0.29$, $p\text{-value} < 0.001$), and SIB

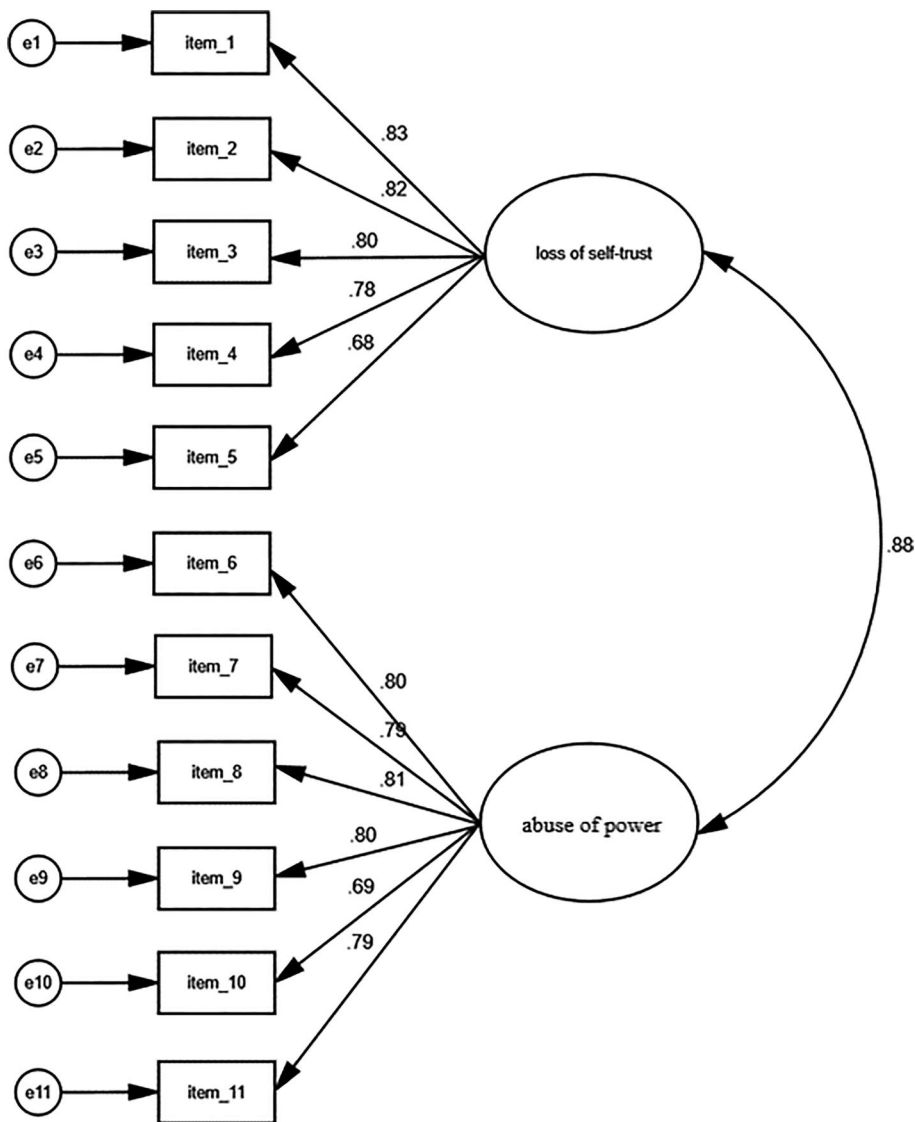


Figure 3. Confirmatory factor analysis of the gaslighting at work scale.

Table 2. Correlations between the gaslighting at work scale (GWS), the patient health questionnaire-4 (PHQ-4), the quiet quitting scale (QQS), the Utrecht work engagement scale (UWES-3), and the single item burnout (SIB) measure ($N = 400$).

	PHQ-4									
	Anxiety		Depression		QQS		UWES-3		SIB	
GWS	PCC	P-value	PCC	P-value	PCC	P-value	PCC	P-value	SCC	P-value
Loss of self-trust	0.43	<0.001	0.40	<0.001	0.25	<0.001	−0.23	<0.001	0.21	<0.001
Abuse of power	0.53	<0.001	0.51	<0.001	0.29	<0.001	−0.25	<0.001	0.27	<0.001
Total score	0.51	<0.001	0.49	<0.001	0.29	<0.001	−0.25	<0.001	0.25	<0.001

PCC: Pearson's correlation coefficient.

($r = 0.25$, $p\text{-value} < 0.001$). Moreover, we found a negative correlation between the GWS and the UWES-3 ($r = -0.25$, $p\text{-value} < 0.001$). Our findings were similar for the two factors (loss of self-trust and abuse of power) of the GWS.

Reliability

Cronbach's alpha of the GWS was 0.939, and McDonald's Omega was 0.940 indicating excellent internal consistency of the scale. Cronbach's alpha and McDonald's Omega for the two factors ranged from 0.902 to 0.905. Corrected item-total correlations had values between 0.641 and 0.788, while all inter-item correlations had values between 0.15 and 0.70. Also, removal of each single item did not increase Cronbach's alpha (Supplementary Table 6).

Cohen's kappa for the 11 items ranged from 0.840 to 0.914 ($p < 0.001$ in all cases), (Supplementary Table 7). Moreover, intraclass correlation coefficient for the total score was 0.997, while for the two factors was 0.994 in both of them ($p < 0.001$ in all cases), (Supplementary Table 8). Therefore, reliability of GWS was excellent.

Discussion

Although research on the work environment has focused on the valid measurement of bullying, mobbing, harassment and abuse at work (Einarsen et al., 2009; Ferris et al., 2008; Leymann, 1990; Yildirim & Yildirim, 2007), it has largely overlooked the assessment of workplace gaslighting. As a result, the absence of validated tools for measuring workplace gaslighting limits our ability to identify gaslighting behaviors from supervisors. Workplace gaslighting is distinct from other forms of workplace aggression, and, therefore, specific tools are needed to measure this construct. Moreover, gaslighting behaviors are typically experienced in relationships where power imbalances occur, such as those between supervisors and subordinates (Sweet, 2019). Accordingly, scholars should develop valid tools to measure gaslighting behaviors within these power-laden relationships between supervisors and subordinates in the work environment. In response to this research gap, we developed and validated a new scale to measure gaslighting at work.

Gaslighting is associated with several mental health issues such as anxiety, depression, burnout, anger, insomnia, reduced self-esteem and self-efficacy, post-traumatic stress disorder, and guilt (Abramson, 2014; Bates, 2020; Covert, 2019; Dickson et al., 2023; Riggs & Bartholomaeus, 2018; Stern, 2018), and, thus, valid measurement of this phenomenon in workplace settings is essential to improve workers' professional life and mental health. The

GWS may help on this direction by assessing levels of workplace gaslighting in a valid way. In particular, human resources staff can use scales such as the GWS to diagnose toxic patterns and negative supervisors' behaviors such as workplace gaslighting. Since workplace gaslighting undermines trust, collaboration, and morale in a workplace it is necessary to measure this phenomenon, and, subsequently, develop appropriate strategies to reduce it. For instance, human resources offices may encourage a speak-up culture, protect and improve psychological well-being of workers, and inform supervisors about their negative behaviors. Moreover, in some cases supervisors may unintentionally gaslight due to poor communication or control-driven styles. In this case, measurement of workplace gaslighting with valid scales such as the GWS may promote leadership accountability, support fact-based conflict resolution, and guide training, coaching, or restructuring. Additionally, since workplace gaslighting is often subtle and ambiguous, a valid tool could help us to clarify whether someone is intentionally distorting reality, and differentiate dysfunction from malicious manipulation. Furthermore, we should mention that repeated psychological manipulation may fall under workplace bullying laws, and harassment or discrimination policies. In this case, valid measurement of workplace gaslighting may provide documentation and evidence for grievances or legal proceeding. Therefore, measuring gaslighting is essential in working environments where power can be abused covertly, and well-designed scales such as the GWS can bring the phenomenon of workplace gaslighting to light and trigger meaningful actions.

Specifically, we developed a valid and reliable tool for measuring workplace gaslighting, i.e., the Gaslighting at Work Scale. Our validity and reliability analyses confirmed the robust psychometric properties of the GWS. The initial development process involved identifying potential items by performing a complete and thorough literature review, calculating the content validity ratio *via* an expert panel, and assessing item-level face validity index through interviews with employees (Ayre & Scally, 2014; Bhatti et al., 2021; Hailes & Goodman, 2025; Meadows, 2021; Tager-Shafir et al., 2024; Yusoff et al., 2019). After all, we created a pool of 18 items. Then, we performed an item analysis for these items, and removed one item due to a high floor effect, skewness, and kurtosis.

Then, we performed both exploratory and confirmatory factor analysis to assess the construct validity of the GWS. Specifically, we included the remaining 17 items in the exploratory factor analysis, and we removed six items due to unacceptable communalities and/or factor loadings. Factor analysis revealed two factors which explain 65.770% of the total variance of workplace gaslighting. In particular, the factors were the following: loss of self-trust (five items), and abuse of power (six items).

The factor “loss of self-trust” explained 59.539% of the total variance, and the factor “abuse of power” explained 6.231%. These two factors aligned with our theoretical background for workplace gaslighting. Specifically, the “loss of self-trust” factor refers to the fact that supervisors distort facts, deny previous discussions, or make contradictory statements, leading subordinates to lose confidence in their own perception of reality (Fielding-Singh & Dmowska, 2022; Graves & Spencer, 2022; Kukreja & Pandey, 2023; Sweet, 2019). Moreover, the “abuse of power” factor refers to the fact that supervisors foster a hostile work environment in which they exploit their powerful position to manipulate and control subordinates (Graves & Spencer, 2022; Jones, 2023; Kukreja & Pandey, 2023). Confirmatory factor analysis verified the GWS factors identified in the exploratory factor analysis since all indices indicated very good fit to the data (Baumgartner & Homburg, 1996; Brown, 2015; Hu & Bentler, 1998; Yusoff et al., 2021). In conclusion, factor analysis identified a two-factor, 11-items model for the GWS.

Additionally, we found that the GWS has excellent concurrent validity. In particular, our findings revealed a positive correlation between the GWS and anxiety, depression, quiet quitting, and job burnout. Moreover, we found a negative correlation between the GWS and work engagement. Our findings suggested that employees who experience workplace gaslighting are more likely to suffer from burnout, anxiety and depressive symptoms, engage in quiet quitting, and become disengaged from their work. Existing literature supports our results, which suggests a positive association between workplace gaslighting and emotional exhaustion, job dissatisfaction, and turnover intention (Fernandopulle, 2021; Gillespie et al., 2017; Griscti et al., 2017). Additionally, two studies found a negative association between workplace gaslighting and career entrenchment, work motivation, and job embeddedness (Atta et al., 2025; Farid et al., 2024). It appears that supervisors’ use of gaslighting techniques plays a significant role in creating an environment conducive to mobbing, which negatively impacts subordinates’ confidence and mental well-being. The impact of gaslighting extends beyond targeted individuals, fostering a harmful workplace environment that promotes widespread employee disengagement and turnover (Farid et al., 2024; Fernandopulle, 2021). Further studies have built upon these observations by exploring the mechanisms through which gaslighting facilitates mobbing behaviors. Researchers have shown that gaslighting may undermine trust and communication among subordinates, resulting in greater isolation and vulnerability of the targeted individuals (Christensen & Evans-Murray, 2021; Grissinger, 2017). This isolation enables group mobbing activities, as the victims’ reduced credibility and lack of support systems weaken their ability to defend themselves or seek for help (Liu et al., 2021).

Moreover, the reliability of the GWS was excellent since Cronbach's alpha and McDonald's Omega for the scale was 0.939 and 0.940, respectively. Moreover, Cronbach's alpha for the "loss of self-trust" and "abuse of power" factors was 0.902 and 0.904, respectively. Also, McDonald's Omega for the "loss of self-trust" and "abuse of power" factors was 0.903 and 0.905, respectively. Additionally, in the test-retest study we found that the intraclass correlation coefficient for the GWS was 0.997, while for the two factors was 0.994 in both of them.

Limitations

Our study had several limitations. Firstly, we used a convenience sample from a specific country, resulting in an underrepresentation of males compared to the general population. The inability to calculate a response rate due to our recruitment methods (social media and e-mail campaigns) limits the generalizability of our findings. Moreover, since we collected our data from one country, we cannot generalize our results. Future studies should employ more representative samples across diverse settings, including measurements in different countries and various professional groups (e.g., employees from different organizations and companies such as healthcare workers, administrative staff and teachers), to further validate the GWS. Despite these limitations, our psychometric analysis was robust, meeting all sample size requirements. Secondly, our study was not conducted in clinical settings, which may affect the applicability of our results in clinical practice for diagnostic purposes. Research in controlled clinical environments could provide valuable insights, such as identifying cutoff points for the GWS and assessing its predictive validity through clinical examinations of subordinates experiencing gaslighting at work. Thirdly, the use of self-report scales to measure concurrent validity may have introduced information bias, potentially influenced by social desirability factors. Additionally, while we examined concurrent validity by assessing correlation between the GWS and four other scales (PHQ-4, QQS, UWES-3, and SIB), future research could incorporate additional scales for further validation. Moreover, although we measured several aspects of validity, we do not assess discriminant validity. Examination of discriminant validity will improve our knowledge regarding the validity of the GWS. Fourthly, our cross-sectional design limits our ability to capture changes in levels of gaslighting at work over time. Longitudinal studies are necessary to investigate potential temporal variations in levels of gaslighting at work. Finally, social desirability bias is always probable in studies with self-report instruments. However, since we performed our study in an anonymous and voluntarily basis, we considered that the social desirability bias would be low.

Conclusions

There is an absence of valid tools to measure gaslighting at work. Given that gaslighting at work is an alarming issue, there is a need for valid tools to measure this phenomenon. In this context, we developed and validated the Gaslighting at Work Scale. After a thorough reliability and validity analysis we found that the GWS is a brief and easy-to-use tool with robust psychometric properties. We found that the final version of the GWS includes 11 items. Moreover, we identified two factors; loss of self-trust (five items), and abuse of power (six items). Therefore, the GWS may be used as a timely tool to measure levels of workplace gaslighting and identify high-risk subordinates. Valid identification of harmful supervisor behaviors is crucial to promote subordinates' mental health and work productivity. Thus, the GWS may help policy makers, supervisors, clinicians and scholars to understand this phenomenon, and implement measures to diminish its impact on subordinates' life. Moreover, valid measurement of workplace gaslighting can allow the identification of consequences of this phenomenon both in individual level and organizational level.

Finally, as we mentioned above in detail, our study had several limitations, and, thus, further studies should be conducted to further examine the reliability and validity of the GWS. Translation, cultural adaptation and validation of the GWS in other languages and cultural settings is essential to prove that the GWS could be a useful tool for measuring workplace gaslighting. Similarly, since we conducted our study in a heterogeneous sample of employees, future studies should include specific work samples, such as white-collar workers, blue-collar workers, health-care workers, teachers, and journalists. Our study suffers from selection bias since we employed a convenience sample. Thus, random and stratified samples in future studies could be more representative of populations. Additionally, the cross-sectional design of our study did not allow us to measure levels of workplace gaslighting throughout the time. To close this gap, longitudinal studies should be conducted to further evaluate possible variations in levels of workplace gaslighting. We used four valid scales to measure concurrent validity of the GWS, but several other scales could be used to further establish the validity of the scale. Additionally, future studies should examine other types of validity, such as divergent validity, discriminant validity, and convergent validity. Identification of cutoff points for the GWS should be useful to discriminate high-risk workers from low-risk workers. This approach may help directors, supervisors, policy makers and human resources staff to establish appropriate interventions to reduce levels of workplace gaslighting among high-risk workers.

Disclosure statement

No potential conflict of interest was reported by the authors.

Ethical approval

The Ethics Committee of the Faculty of Nursing, National and Kapodistrian University of Athens approved our study protocol (approval number; 15, December 9, 2024). All procedures followed were in accordance with the ethical standards of the Ethics Committee of the Faculty of Nursing on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants for being included in the study.

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Data availability statement

Data are available on Figshare repository at 10.6084/m9.figshare.28143995.

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