Research article

Reliability and validity of the Turkish version of the Luxembourg workplace mobbing scale (LWMS) among resident physicians: A cross-sectional study

Work: A Journal of Prevention, Assessment and Rehabilitation
1–8

DOI: 10.1177/10519815261472882
journals.sagepub.com/home/wor

İbrahim Eryılmaz[1], Olgu Aygün[1] and Özden Gökdemir[2]

Abstract

Background: Workplace mobbing is a persistent occupational hazard in medical training, undermining clinician well-being, retention and, ultimately, patient care. Concise, psychometrically sound instruments are needed for routine monitoring in high-workload settings.

Objective: To translate and evaluate the validity and reliability of the Turkish Luxembourg Workplace Mobbing Scale (LWMS) among resident physicians.

Methods: In this cross-sectional validation study, 375 residents from internal medicine and surgical specialties at a tertiary teaching hospital in Turkey completed the Turkish LWMS. Internal consistency (Cronbach's α, McDonald's ω), structural validity (one-factor confirmatory factor analysis) and convergent validity (associations with workload indicators) were assessed. Multiple linear regression examined independent predictors of mobbing exposure.

Results: The Turkish LWMS supported a unidimensional structure with excellent fit (CFI=0.994, TLI=0.988, RMSEA=0.052; SRMR=0.022). Reliability was strong (α=0.863; ω=0.864). Response distributions suggested task-related negative acts were more salient than overt public humiliation; assignment of absurd or meaningless duties was most frequently endorsed, being ridiculed in front of others was least. Weekly working hours showed modest bivariate associations with mobbing exposure, but in the adjusted model specialty group was the only significant predictor: surgical residents reported higher LWMS scores than internal medicine residents ($B = 0.772$, $p < 0.001$).

Conclusion: The Turkish LWMS is a valid, reliable and time-efficient tool for assessing workplace mobbing in residency. Rather than workload being the key driver of mobbing exposure, findings point to the role of specialty-specific organisational culture, emphasizing the need for targeted prevention efforts in high-risk departments.

Keywords

bullying, factor analysis, internship and residency, psychometrics, surveys and questionnaires, workplace

Received: 24 March 2026; accepted: 14 July 2026

Introduction

Population ageing is increasing multimorbidity and care complexity, and with it the need for continuous, person-centred care across settings.[1,2] Health systems have responded by placing greater emphasis on strong primary care to safeguard access, quality and sustainability.[1,2] In many countries, primary care additionally serves as the entry point to the wider system, and such gatekeeping arrangements are often used to support coordination and the efficient use of specialist services.[3] As clinical demand rises across all levels of care, workforce well-being and retention become practical prerequisites for service continuity and patient care quality.[4]

This stability is persistently threatened by adverse psychosocial working conditions. Workplace bullying, or mobbing, refers to repeated negative behaviours directed toward an individual who has difficulty defending themselves, typically occurring over time and involving hostile interactions, social

[1]Department of Family Medicine, Izmir City Hospital, İzmir, Turkey
[2]Faculty of Medicine, Izmir University of Economics, İzmir, Turkey

Corresponding author:
Özden Gökdemir, Izmir University of Economics / Faculty of Medicine, Sakarya Cd. No:15635330 Balçova, Izmir, Turkey.
Email: gokdemirozden@gmail.com

exclusion or systematic undermining.[5] Such experiences are consistently associated with fatigue and psychological distress, impaired performance, reduced engagement and increased intention to leave.[5–7] Resident physicians may be particularly exposed in large teaching hospitals, where everyday practice during training is shaped by steep hierarchies, frequent rotations, high workload and limited autonomy.

Estimating the burden of mobbing is complicated by variation in definitions and measurement approaches, which contributes to wide prevalence ranges across contexts, including nursing.[8] However, evidence suggests this is a particular problem among physicians in training; meta-analytic data indicate that a considerable proportion of residents' report bullying experiences, making it an occupational hazard that should be considered in training programmes.[6] Robust measurement is essential for both surveillance and the evaluation of preventive interventions, given the implications for teamwork, learning climate and workforce stability.

Most research has relied on behaviour-based checklists such as the Negative Acts Questionnaire-Revised, which capture exposure to specific negative acts and their frequency.[8] While these instruments are comprehensive, their length can limit feasibility in time-pressured clinical groups and may reduce response quality when used for routine monitoring or repeated assessments. For benchmarking across units or tracking change during organizational interventions, a more suitable alternative are tools that are more concise, but nevertheless psychometrically robust.

The Luxembourg Workplace Mobbing Scale (LWMS) was developed to meet this need. It provides a concise, five-item assessment of core mobbing experiences rated by frequency, without embedding presumed antecedents or consequences in item content.[9] The LWMS has shown acceptable reliability and construct validity across language versions, with additional evidence for criterion validity and measurement invariance across demographic and occupational groups.[10,11] In addition, its brevity makes it particularly suited to residency settings.

In Turkey, the LWMS has been used across different occupational contexts, including healthcare staff samples.[12,13] However, there is limited evidence specifically addressing the scale's structural validity and reliability among resident physicians. To address this gap, a short, validated Turkish LWMS tailored to medical training environments could support routine monitoring, early detection and benchmarking within residency programmes.

Accordingly, this study aimed to evaluate the validity and reliability of the Turkish version of the LWMS among resident physicians working at İzmir City Hospital. We examined internal consistency, factorial validity and associations with relevant occupational indicators, and explored independent predictors of mobbing exposure. Establishing a time-efficient instrument for this population may facilitate future epidemiologic research and inform targeted prevention efforts in high-risk clinical settings.

Methods

Study design and setting

This cross-sectional psychometric validation study was conducted between January and February 2026 at İzmir City Hospital, a tertiary teaching hospital in İzmir, Turkey. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) recommendations.[14]

Study population and recruitment

Resident physicians working in internal medicine and surgical specialties were eligible. All eligible residents in participating departments were invited to take part via the hospital's internal professional communication networks. Data were collected using a self-administered, web-based survey, which was accessible for 14 days. To enhance participation and reduce differential non-response across departments, targeted reminders were sent to specialty groups with lower initial response rates. The final analytic sample comprised 375 resident physicians.

Data collection procedure

After providing informed consent, participants completed a structured, self-administered questionnaire. This consisted of two sections, the first focused on demographic and occupational information, including age, gender, marital status, specialty group, year of residency training, number of monthly on-call duties, and average weekly working hours, and the second, the workplace mobbing measure.

Workplace mobbing measure

Workplace mobbing was assessed using the Luxembourg Workplace Mobbing Scale (LWMS), a brief 5-item instrument rated on a five-point Likert scale from 1 ("Never") to 5 ("Almost always"), with higher scores indicating more frequent exposure to mobbing behaviours. In the original development and validation studies, internal consistency was acceptable (Cronbach's α approximately 0.72–0.76; McDonald's ω approximately 0.73).[9–11] In the present study, the primary score used for group comparisons and association analyses was the mean item score (range 1–5). For descriptive reporting, a summed total score (range 5–25) was also calculated.

Translation and cultural adaptation

Permission to use and adapt the scale was obtained from the developers prior to the study. The instrument was translated culturally adapted in line with International Society for Pharmacoeconomics and Outcomes Research (ISPOR)

Task Force guidance.[15] This involved independent bilingual translators translating the scale into Turkish and then back-translating it into English. An expert panel reviewed the translated version for semantic and conceptual equivalence, and the pre-final version was piloted in a small group of resident physicians to assess clarity, relevance, and comprehensibility. Minor wording adjustments were made to improve readability.

Sample size considerations

Sample size adequacy was evaluated using commonly applied rules of thumb for psychometric studies (for example, a minimum of 10 participants per item).[16,17] With five items, the target minimum was at least 50 participants; the achieved sample size (N = 375) significantly exceeded this threshold.

Data analysis

Analyses were conducted using IBM SPSS Statistics (version 27.0) and IBM SPSS Amos (version 24.0). Descriptive statistics are presented as mean ± standard deviation (SD) or median (interquartile range, IQR) for continuous variables and n (%) for categorical variables. Distributional characteristics were assessed using histograms, normal probability plots, and item-level skewness and kurtosis.

Reliability. Internal consistency was evaluated using Cronbach's alpha and McDonald's omega. The contribution and the stability of the scale were assessed by examining corrected item–total correlations, and alpha/omega if an item was deleted. In addition, temporal stability (test–retest reliability) was evaluated in a subsample of 30 resident physicians over two-week interval using the intraclass correlation coefficient (ICC), based on a two-way mixed-effects model with absolute agreement.

Confirmatory factor analysis. Structural validity was tested using a one-factor CFA with maximum likelihood estimation in Amos. Model fit was evaluated using the chi-square test, χ^2/df, comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA) with 90% confidence interval, and standardized root mean square residual (SRMR). Model fit under potential departures from multivariate normality was evaluated by applying Bollen–Stine bootstrapping with 2000 resamples. Standardized factor loadings and squared multiple correlations (R^2) were reported for each item. For figure preparation, the standardized CFA estimates were used to generate a high-resolution path diagram in R (lavaan/semPlot).

Known-groups validity and work-related associations. Known-groups validity was examined by comparing mean LWMS scores across gender, marital status, and specialty group using independent-samples t-tests, with Cohen's d reported as effect size. Spearman correlation coefficients were used to assess associations between mean LWMS score and continuous occupational variables (age, residency year, monthly duties, and weekly working hours).

Multivariable analysis. Multiple linear regression was used to identify independent predictors of mean LWMS score. Predictors included age, specialty group, residency year, monthly duties, marital status, and weekly working hours. Results are presented as unstandardized coefficients (B) with standard errors (SE), standardized coefficients (β), 95% confidence intervals (CI), and explained variance (R^2 and adjusted R^2). Regression assumptions were evaluated using residual diagnostics and collinearity statistics. A two-sided p value < .05 was considered statistically significant.

Ethical considerations

Ethics approval was obtained from the Non-Interventional Clinical Research Ethics Committee of İzmir City Hospital in Turkey (Date: 2025 December 03; File number: 2025/583). Written informed consent was obtained from the participants. Permission to use the LWMS was obtained from the developers of the scale.

Results

Participant characteristics

A total of 375 resident physicians took part in the study. The mean (SD) age of the participants was 28.63 (4.01) years. The majority were female (231, 61.6%) and single (259, 69.1%). The 375 resident physicians represented 22 different medical specialties. Family Medicine was the largest group (n = 103, 27.5%), followed respectively by Infectious Diseases (n = 30, 8.0%), Dermatology and Emergency Medicine (each n = 27, 7.2%), Otorhinolaryngology (ENT) (n = 25, 6.7%), and Obstetrics and Gynaecology (n = 21, 5.6%). The remaining specialties accounted for between 4.8% and 0.8% of the sample. Most residents were training in internal medicine specialties (256, 68.3%), and the largest proportion were in their first (114, 30.4%) or second (142, 37.9%) year of residency. Workload indicators suggested demanding schedules, with a median of 5 monthly on-call duties (IQR 2–6) and a median weekly working time of 50 h (IQR 40–60), reaching up to 120 h per week in some cases. Table 1 summarizes the baseline demographic and occupational characteristics of the participants.

Across the LWMS items, task-related negative acts were more often reported than public interpersonal humiliation. The clearest example was Item 3 (being assigned absurd or meaningless duties): 55.8% of participants indicated experiencing this "often" or "almost always" (85 [22.7%]

Table 1. Baseline characteristics of participants (n = 375).

Variable	Mean ± SD / median (IQR)	Min–Max
Age, years	28.63 ± 4.01	24–57
Monthly on-call duties, n	5 (2–6)	0–9
Weekly working hours, hours	50 (40–60)	40–120
Variable	Category	n (%)
Gender	Female	231 (61.6)
	Male	144 (38.4)
Marital status	Single	259 (69.1)
	Married	116 (30.9)
Specialty group	Internal medicine	256 (68.3)
	Surgical	119 (31.7)
Year of residency training	Year 1	114 (30.4)
	Year 2	142 (37.9)
	Year 3	78 (20.8)
	Year 4	35 (9.3)
	Year 5	6 (1.6)

Table note: Continuous variables are presented as mean ± standard deviation or median (interquartile range); categorical variables as n (%).

and 124 [33.1%], respectively). By contrast, Item 4 (being ridiculed in front of others) was the least frequently reported? behaviour; with 48.0% "never" experiencing it, and 69.9%, "never" or "rarely." For the remaining items (Items 1, 2 and 5), responses were generally clustered in the lower categories ("never/rarely": 56.5%, 67.7% and 65.6%, respectively).

Table 2 summarises the psychometric findings for the Turkish LWMS. Internal consistency was high (Cronbach's $\alpha = 0.863$; McDonald's $\omega = 0.864$), and corrected item–total correlations were moderate to strong (0.578–0.765), supporting coherent item performance. Item means ranged from 2.02 to 3.55, with the highest endorsement for Item 3 and the lowest for Item 4; distributional indices showed only modest non-normality (skewness −0.50 to 1.03; kurtosis −0.95 to 0.02).

Furthermore, test–retest reliability analysis conducted on a subsample of 30 residents demonstrated excellent temporal stability for the scale. The single-measures intraclass correlation coefficient (ICC) was 0.996 (95% CI: 0.991 to 0.998, $p < .001$), indicating near-perfect absolute agreement between the two assessments.

Structural validity was supported by a one-factor CFA with excellent fit ($\chi^2(5) = 10.15$, $p = .071$; $\chi^2/df = 2.03$; RMSEA = 0.052 [90% CI 0.000–0.099]; CFI = 0.994; TLI = 0.988; SRMR = 0.022). Standardised factor loadings were moderate to high ($\lambda = 0.602$–0.862), with item-level

Table 2. Reliability, item characteristics, and confirmatory factor analysis results for the turkish version of the Luxembourg workplace mobbing scale (LWMS) in resident physicians (N = 375).

Panel A. internal consistency and item–total statistics

Scale / item	Mean (SD)	Corrected item–total correlation	Cronbach's α if item deleted	McDonald's ω if item deleted
Total scale score (5 items)	12.46 (4.98)	—	α = 0.863	ω = 0.864
Item 1	2.41 (1.21)	0.604	0.853	0.855
Item 2	2.20 (1.26)	0.720	0.824	0.825
Item 3	3.55 (1.34)	0.578	0.862	0.866
Item 4	2.02 (1.22)	0.760	0.814	0.815
Item 5	2.29 (1.16)	0.765	0.814	0.816

Panel B. Descriptive statistics and standardized factor loadings (one-factor model)

Item	M	SD	Skewness	Kurtosis	Standardized loading (λ)	R^2
Item 1	2.41	1.21	0.58	−0.51	0.634	0.402
Item 2	2.20	1.26	0.79	−0.53	0.783	0.613
Item 3	3.55	1.34	−0.50	−0.95	0.602	0.362
Item 4	2.02	1.22	1.03	0.02	0.862	0.744
Item 5	2.29	1.16	0.82	−0.05	0.861	0.741

One-factor CFA model fit: $\chi^2(5) = 10.15$, $p = .071$; $\chi^2/df = 2.03$; RMSEA = .052 (90% CI: .000–.099); CFI = .994; TLI = .988; SRMR = .022.

Panel C. Measurement invariance of the LWMS across specialty groups (Internal medicine vs Surgery)

Model	χ^2 (df)	CFI	SRMR	Model comparison	$\Delta\chi^2$ (Δdf)	p-value	ΔCFI
Configural (no equality constraints)	37.88 (10)	0.965	0.031	—	—	—	—
Metric (factor loadings constrained equal)	46.41 (14)	0.959	0.052	Metric vs. Configural	8.53 (4)	0.074	0.006

Note. Items were rated on a five-point Likert scale (1 = Never, 5 = Almost always); higher scores indicate more frequent exposure to workplace mobbing. Measurement invariance was evaluated to assess whether the LWMS functions equivalently across specialty groups. Invariance at a given level was considered supported when the likelihood-ratio test was non-significant ($\Delta\chi^2$, $p > .05$) and the change in comparative fit index met the recommended criterion ($\Delta CFI \leq .010$).

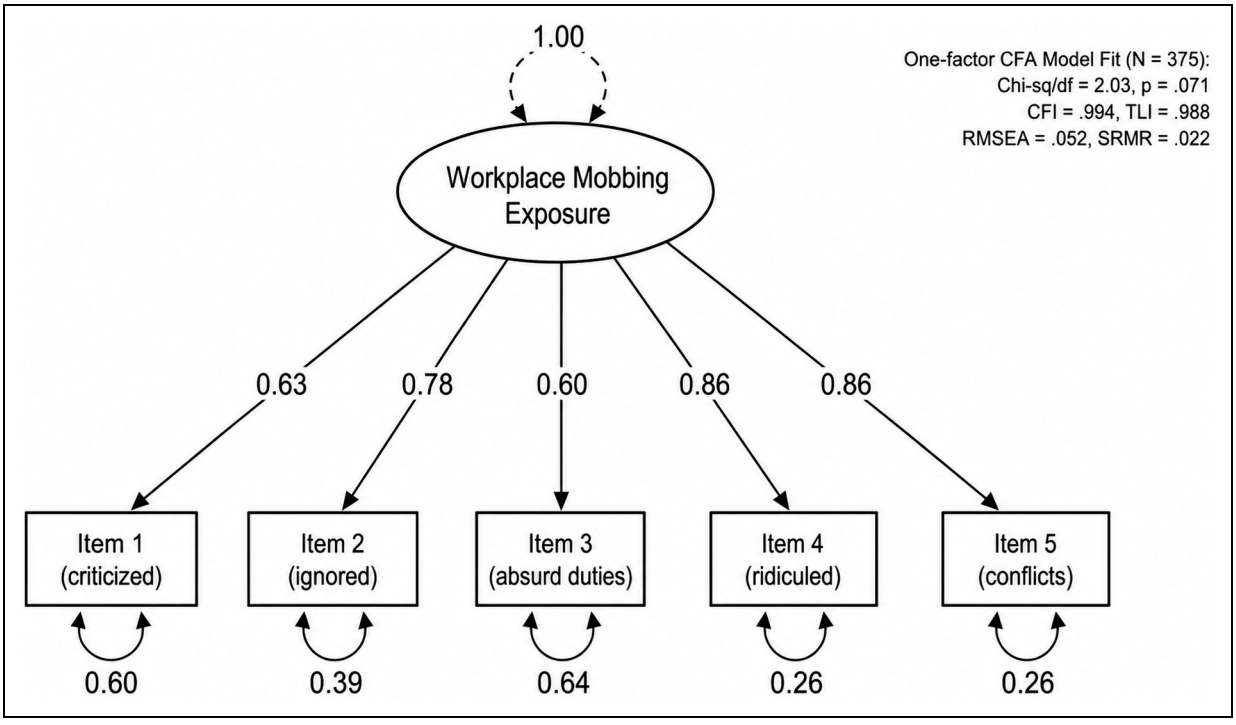

Figure 1. Standardized one-factor confirmatory factor analysis model of the Turkish Luxembourg workplace mobbing scale (LWMS).

explained variance ranging from 0.362 to 0.744, indicating that the latent mobbing construct accounted for a substantial proportion of observed item variance (Figure 1).

Measurement invariance across specialty groups was supported at the metric level. The configural model showed acceptable fit ($\chi^2(10) = 37.88$; CFI = 0.965; SRMR = 0.031), and constraining factor loadings to equality resulted in a small decrement in fit ($\chi^2(14) = 46.41$; CFI = 0.959; SRMR = 0.052). The likelihood-ratio test for the metric versus configural comparison was not significant ($\Delta\chi^2(4) = 8.53$, $p = .074$), and ΔCFI remained within the recommended threshold (0.006), consistent with comparable factor loadings between internal medicine and surgical residents.

Comparison of mobbing exposure across subgroups

Total Luxembourg Workplace Mobbing Scale (LWMS) scores were compared across demographic and occupational characteristics to examine known-groups validity (Table 3, Panel A). Female residents reported higher mean LWMS scores than males (2.59 ± 0.96 vs. 2.34 ± 1.04), and this difference was statistically significant ($t = 2.34$, $p = .020$) with a small effect size ($d = 0.25$). LWMS scores did not differ significantly by marital status (single: 2.47 ± 1.03 vs. married: 2.55 ± 0.92; $t = -0.77$, $p = .444$), reflecting a negligible effect ($d = 0.09$). In contrast, specialty group was strongly associated with mobbing exposure: residents in surgical specialties reported substantially higher LWMS scores than those in internal medicine (3.07 ± 1.10 vs. 2.22 ± 0.82), a highly significant difference ($t = -7.50$, $p < .001$) with a large effect size ($d = 0.93$), indicating pronounced disparities in perceived mobbing across specialty groups (Table 3, Panel A).

Correlations with occupational factors

Bivariate associations between LWMS scores and continuous work-related variables are presented in Table 3, Panel B. Age and residency year were not significantly correlated with the total LWMS score ($r_s = -0.043$ and -0.065, respectively; both $p > .05$). At the item level, residency year showed a small negative correlation with Item 2 ($r_s = -0.138$, $p < .01$), suggesting that more senior residents reported slightly lower frequency of this specific behavior. More distinct relationships were evident in workload indicators: Monthly duties were weakly but significantly associated with the total LWMS score ($r_s = 0.103$, $p < .05$) and with Item 1 ($r_s = 0.199$, $p < .01$) and Item 3 ($r_s = 0.103$, $p < .05$). Weekly working hours demonstrated the most consistent pattern, showing a modest positive correlation with the total LWMS score ($r_s = 0.262$, $p < .01$) and significant correlations with Items 1 3, 4, and 5 ($r_s = 0.190$–0.274, all $p < .01$), but not with Item 2 ($r_s = 0.072$, $p > .05$). Collectively, these findings suggest that workload intensity—particularly extended weekly working hours—is systematically associated with higher exposure to workplace mobbing among resident physicians.

Table 3. Known-groups comparisons and work-related correlations for the Luxembourg workplace mobbing scale among resident physicians (N = 375).

Panel A. comparison of total scale scores across demographic and professional groups (independent samples t-tests)						
Variable	Group	n	Mean ± SD	t	p	Cohen's d
Gender	Female	231	2.59 ± 0.96	2.34	.020	0.25
	Male	144	2.34 ± 1.04			
Specialty group	Internal medicine	256	2.22 ± 0.82	−7.50	<.001	0.93
	Surgical	119	3.07 ± 1.10			
Marital status	Single	259	2.47 ± 1.03	−0.77	.444	0.09
	Married	116	2.55 ± 0.92			

Panel B. spearman correlations between scale scores and work-related variables				
Scale / item	Age	Residency year	Monthly duties	Weekly hours
Mean LWMS score	−0.043	−0.065	0.103‡	0.262†
Item 1	−0.079	−0.017	0.199†	0.273†
Item 2	−0.086	−0.138†	−0.072	0.072
Item 3	−0.006	−0.051	0.103‡	0.274†
Item 4	−0.059	−0.025	0.065	0.190†
Item 5	−0.015	−0.025	0.085	0.200†

Note. Panel A reports independent samples t-tests; Cohen's *d* values are based on pooled standard deviations. Panel B reports Spearman correlation coefficients. LWMS: Luxembourg Workplace Mobbing Scale. † $p < .01$; ‡ $p < .05$.

Table 4. Multiple linear regression analysis predicting LWMS scores (N = 375).

Predictor	B	SE	β	p	95% CI for B
Age (years)	−0.006	0.013	−0.023	.644	−0.030, 0.019
Specialty group	0.772	0.128	0.361	< .001	0.521, 1.023
Year of residency training	−0.094	0.050	−0.095	.059	−0.192, 0.004
Number of monthly on-call duties	−0.009	0.022	−0.026	.671	−0.053, 0.034
Marital status	0.105	0.105	0.049	.317	−0.101, 0.312
Average weekly working hours (hours)	0.004	0.004	0.070	.330	−0.004, 0.012

Model fit: $R^2 = .172$, Adjusted $R^2 = .158$, $F(6, 368) = 12.71$, $p < .001$.
(Std. error of the estimate = 0.913).

Multivariable predictors of workplace mobbing

In the multiple linear regression model predicting total LWMS scores (N = 375), overall model fit was statistically significant ($F(6, 368) = 12.71$, $p < .001$), explaining 17.2% of the variance in LWMS scores ($R^2 = .172$; adjusted $R^2 = .158$) (Table 4). After adjustment for covariates, specialty group remained the only independent predictor of workplace mobbing: surgical disciplines were associated with significantly higher LWMS scores than internal medicine ($B = 0.772$, $SE = 0.128$, $\beta = 0.361$, $p < .001$; 95% CI: 0.521 to 1.023). In the adjusted model, there was no association between LWMS scores and age, monthly on-call duties, marital status, or average weekly working hours (all $p > .05$). Year of residency training showed a borderline association that did not reach conventional statistical significance ($B = -0.094$, $p = .059$). The standard error of the estimate was 0.913 (Table 4).

Discussion

In this cross-sectional study of resident physicians at a tertiary teaching hospital in Turkey, the Turkish Luxembourg Workplace Mobbing Scale (LWMS) showed strong reliability, excellent temporal stability, and clear structural validity. Internal consistency was high (Cronbach's $\alpha = 0.863$; McDonald's $\omega = 0.864$), and a subsample analysis indicated excellent test–retest reliability over a two-week interval (ICC = 0.996). Confirmatory factor analysis supported the hypothesised one-factor model with excellent fit. Metric measurement invariance across specialty groups further suggested that the construct is captured similarly in internal medicine and surgical residents, supporting cross-disciplinary comparisons.

The response profile also offers insight into how mobbing is experienced during medical training. Task-related negative acts were reported more frequently than overt interpersonal humiliation: assignment of absurd

or meaningless duties was the most commonly reported item, and being ridiculed in front of others, the least. This pattern is consistent with the view that mistreatment in residency often operates through everyday work allocation and institutional practices, i.e., behaviours that may be normalised within steep clinical hierarchies, rather than through conspicuous public degradation.[6,8]

Specialty differences were pronounced; surgical disciplines were associated with substantially higher scores (mean LWMS score 3.07) than internal medicine (2.22). Gender differences, although small in magnitude, were statistically significant, unlike differences in marital status. The specialty gradient is consistent with reports of higher levels of hostile behaviours in surgical training environments and other high-intensity hierarchical settings.[18,19] Weekly working hours showed a modest positive association with mobbing scores in bivariate analyses but did not persist after adjustment; specialty group remained the only independent predictor. Together, these findings suggest that specialty-linked organisational context and supervisory practices may contribute to mobbing exposure beyond what is explained by workload indicators alone.[5–7]

The LWMS was originally developed as a brief measure to capture exposure to workplace mobbing through a single underlying construct.[9–11] In Turkey, the scale has previously been applied to study organisational behaviour across various sectors. For instance, a study among general staff in private hospitals in Balıkesir and Giresun reported relatively low mobbing levels (mean $\approx$ 1.83) with acceptable internal consistency ($\alpha \approx 0.77$),[13] while a manufacturing-sector study in Adana expanded the assessment with additional inventory items, which limits the direct comparability of absolute levels.[12] Against this national background, our findings demonstrate substantially higher mobbing exposure for resident physicians compared to mixed hospital workforces.

Establishing a validated, low-burden tool for this specific population addresses a critical methodological gap and is particularly relevant for the broader health system. Internal medicine residents, much like primary care physicians, frequently manage complex, undifferentiated patient presentations and serve as a vital interface for care coordination and triage within large tertiary centres. In these demanding environments, high levels of mistreatment can compromise physician well-being, leading to fatigue and disengagement, which ultimately threatens the continuity and quality of patient care.

Implications for practice and research

From a practice and rehabilitation perspective, the brevity of the scale makes it highly suitable for periodic screening and programme-level quality improvement in residency settings, where respondent burden is a recurrent concern. As a concise five-item instrument, the Turkish LWMS can be incorporated into routine anonymous assessments to identify departments, rotations, or training periods in which the psychosocial work climate is deteriorating. In this way, the scale may function not only as a research instrument, but also as an early warning tool for occupational health and workplace rehabilitation initiatives.

The scale may also contribute to the evaluation of interventions designed to reduce mobbing and improve the training environment. For example, department-level initiatives such as clear anti-bullying policies, confidential reporting pathways, leadership development for senior physicians, structured mentoring, workload and duty allocation review, and feedback-based quality improvement programmes could be monitored by comparing LWMS scores before and after implementation. Therefore, changes in LWMS scores over time may serve as a practical quality indicator for rehabilitation-oriented organisational interventions aimed at improving resident well-being, preserving work participation, and supporting a safer educational climate.

Given the large specialty-group differences observed, interventions should not focus only on general workload reduction, but should also address department-specific culture, hierarchy, communication patterns, and supervisory practices. High-risk surgical departments in particular may benefit from targeted workplace rehabilitation strategies that combine prevention, early identification, intervention, and follow-up monitoring. However, the LWMS should not be interpreted as a diagnostic or legal tool on its own; rather, it should be used as a brief screening and monitoring instrument alongside qualitative feedback, institutional reporting systems, and broader occupational health assessments.

For research, multicentre studies across different regions and training hospitals in Turkey will help clarify generalisability and enable national benchmarking. Longitudinal designs are also necessary to disentangle whether mobbing exposure is primarily a consequence of adverse work climates, or whether it directly contributes to downstream outcomes such as fatigue and intentions to leave the training programme.[5–7]

Limitations

Three main limitations should be considered. First, the study was conducted at a single centre and relied on self-report data, which can be influenced by response styles and a differential willingness to disclose negative workplace experiences. Second, the cross-sectional design precludes causal inferences regarding the directionality between occupational indicators and mobbing exposure. Finally, while metric invariance was established, future research could evaluate scalar invariance to help define strict cut-points or interpretability thresholds for applied clinical settings. Despite these constraints, the sample size was more than adequate for stable estimation, and the Turkish LWMS has been shown as an appropriate tool by the combination of strong internal consistency, excellent test-retest reliability, and robust CFA fit indices.

Conclusion

The Turkish version of the Luxembourg Workplace Mobbing Scale demonstrated strong reliability, excellent temporal stability, and a clear one-factor structure among resident physicians in Turkey. The scale is a valid, time-efficient tool suitable for research and for the routine monitoring of workplace mobbing in residency settings. The observed specialty-related disparities—and their persistence even after adjustment for workload—underscore the need for organisational strategies that address not only general working conditions but also entrenched departmental cultures, with particular attention to surgical training environments. Because of its low respondent burden, the Turkish LWMS may also support rehabilitation-oriented occupational health initiatives as a practical quality indicator, particularly for monitoring whether department-level interventions lead to measurable reductions in mobbing exposure over time.

Acknowledgements

All the authors would like to thank Simon Mumford for language editing

Ethical approval

Ethics approval was obtained from the Non-Interventional Clinical Research EthicsCommittee of İzmir City Hospital in Turkey (Date: 2025 December 03; File number: 2025/583).

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Informed consent

The informed consent has taken online.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. World Health Organization. Ageing and Health, https://www.who.int/news-room/fact-sheets/detail/ageing-and-health (2022, accessed 22 February 2026).
2. United Nations Department of Economic and Social Affairs PD. *World Population Ageing 2023: Challenges and Opportunities of Population Ageing in the Least Developed Countries*, https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_2024_wpa2023-report.pdf (2023, accessed 22 February 2026).
3. Breivold J,, Rø KI and Hjörleifsson S. Conditions for gatekeeping when GPs consider patient requests unreasonable: a focus group study. *Fam Pract* 2022; 39: 125–129.
4. Zhang T, Feng J, Jiang H, et al. Association of professional identity, job satisfaction and burnout with turnover intention among general practitioners in China: evidence from a national survey. *BMC Health Serv Res* 2021; 21: 382.
5. Rosander M and Nielsen MB. Workplace bullying and tiredness at work: A cross-lagged prospective study of causal directions and the moderating effects of a conflict management climate. *J Occup Health* 2022; 64. doi:10.1002/1348-9585.12327
6. Álvarez Villalobos NA, De León Gutiérrez H, Ruiz Hernandez FG, et al. Prevalence and associated factors of bullying in medical residents: A systematic review and meta-analysis. *J Occup Health* 2023; 65(1). doi:10.1002/1348-9585.12418
7. Galanis P, Moisoglou I, Katsiroumpa A, et al. Impact of workplace bullying on quiet quitting in nurses: the mediating effect of coping strategies. *Healthcare*. 2024;12:797.
8. Bambi S, Foà C, De Felippis C, et al. Workplace incivility, lateral violence and bullying among nurses. A review about their prevalence and related factors. *Acta Biomedica Mattioli 1885* 2018; 89: 51–79.
9. Steffgen G, Sischka P, Schmidt AF, et al. The Luxembourg workplace mobbing scale. *Eur J Psychol Assess* 2019; 35: 164–171.
10. Sischka PE, Schmidt AF and Steffgen G. Further evidence for criterion validity and measurement invariance of the Luxembourg workplace mobbing scale. *Eur J Psychol Assess* 2020; 36: 32–43.
11. Sischka PE, Schmidt AF and Steffgen G. Luxembourg Workplace Mobbing Scale (LWMS). *Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS)*. Published online 2021. doi:10.6102/zis298.
12. Özsungur F. The mediating role of boreout in the effects of mobbing on service innovation performance. *Asia Pac J Innov Entrep* 2020; 14: 203–213.
13. Bolat Oİ and Göksu HM. . İşletmelerde yıldırma ve tükenmişlik ilişkisi: duygusal zekânın düzenleyici rolü [the relationship between mobbing at business and burnout: the moderating effect of emotional intelligence]. *Soc Scie Stud J* 2018; 4: 4954–4968.
14. von Elm E, Altman DG, Egger M, et al. The strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol* 2008; 61: 344–349.
15. Wild D, Grove A, Martin M, et al. Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: report of the ISPOR task force for translation and cultural adaptation. *Value Health* 2005; 8: 94–104.
16. Streiner DL. *Norman GR. Health measurement scales*. Oxford University Press, 2002.
17. DeVellis RF. *Thorpe CT. Scale development: Theory and applications*. Sage Publications, 2014.
18. Zhang LM, Ellis RJ, Ma M, et al. Prevalence, types, and sources of bullying reported by US general surgery residents in 2019. *JAMA* 2020; 323: 2093.
19. Hu YY, Ellis RJ, Hewitt DB, et al. Discrimination, abuse, harassment, and burnout in surgical residency training. *N Engl J Med* 2019; 381: 1741–1752.