The Development and Validation of the Academic Mobbing Scale: The Case of Türkiye

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Abstract

The Academic Mobbing Scale (AMS) was explicitly designed to evaluate workplace mobbing experiences within academic settings systematically. Following an exploratory factor analysis (EFA), the scale was found to comprise a six-factor structure that accounts for a significant portion of the variance in mobbing experiences. The identified dimensions of the scale are as follows: "Communication and Relationship Barriers", "Barriers to Academic Work and Responsibilities, "Degradation and Discrimination", "Withholding of Resources", "Violence and Harassment", and "Cyber Mobbing". The scale comprises 32 items and was developed following an extensive pilot study to ensure its relevance and effectiveness. The psychometric properties of the AMS were assessed, and Cronbach's alpha coefficients indicated strong internal consistency. Specifically, the alpha values for the subscales were .93, .91, .88, .80, .83, and .72, respectively, with an overall scale reliability coefficient of .95. These results suggest that the AMS is a reliable tool for understanding the nuances of mobbing behaviours affecting academics. The Academic Mobbing Scale aims to facilitate a comprehensive understanding of the phenomenon by capturing various mobbing outcomes.

Keywords: Mobbing, Academic, Scale development, Factor analysis

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Introduction

The widespread use of digital technologies in rapidly evolving educational systems has necessitated the adoption of contemporary approaches in teaching. As education adapts to the digital age, pedagogies that integrate face-to-face and virtual environments with digital tools have become increasingly prevalent. In this process, instructional content has shifted from traditional text-based models to multimedia-supported structures that encourage community contributions (Thierstein, 2009). E-Twinning is one such secure and free online learning platform where teachers and students from various schools collaborate to achieve shared goals. The platform's main objective is to contribute to the development of joint projects by all school
context.

Research has shown that faculty members face various stressors, particularly in environments characterized by heavy workloads, limited support, and high expectations. These factors can lead to elevated anxiety and professional burnout. One of the primary contributors to stress is workload. It has been demonstrated that the high individual demands associated with more senior academic roles are linked to elevated stress levels among faculty members. Holmgren et al. (2009) reported that those in higher professional ranks face significant workload pressures, contributing to perceived stress and increased sick leave rates. Furthermore, Kinman et al. (2006) documented a relationship between extended working hours and psychological distress among academic staff in UK universities, further confirming workload as a common and influential stress factor in academic life.

Additionally, job satisfaction has been shown to impact stress levels significantly. Shin and Jung (2013) posited that job satisfaction levels vary across countries. It is further noted that high stress levels are prevalent in many academic environments and that systemic factors contribute to faculty stress in different educational contexts. Kaplan et al. (2005) examined the impact of self-expectations related to school-related stress and its effect on performance, highlighting that elevated stress can negatively impact performance and potentially create a cycle that further increases stress levels. The phenomenon of mobbing in academia is receiving increasing attention due to its significant psychological consequences, including elevated levels of anxiety and stress among faculty members. For instance, Şenol et al. (2015) report that more than half of the academic staff in Türkiye have experienced verbal mobbing, often perpetrated by their superiors, thus highlighting a worrying trend of workplace violence within universities. This finding suggests the presence of a systemic problem wherein academic culture, especially when coupled with harmful leadership styles, contributes to a hostile work environment that leads to heightened anxiety and stress levels among faculty members. A substantial corpus of research has extensively documented the psychological impact of mobbing, showing that victims frequently experience a range of serious mental health issues. Mobbing has been associated with various psychiatric conditions, including post-traumatic stress disorder (PTSD), depression, and generalized anxiety disorder (Karaahmet, 2013). Tatar and Yüksel (2018) further elucidate that psychological trauma resulting from mobbing may be exacerbated by pre-existing vulnerabilities, noting that individuals with prior exposure to psychological stressors are at greater risk of experiencing mobbing in the future. Although workplace mobbing has been widely studied, most existing mobbing scales were developed for general organizational settings and are not tailored to the structural and relational characteristics of academic institutions. Generic instruments often fail to capture academic-specific behaviors such as obstruction of research and teaching activities, manipulation of academic evaluation processes, exclusion from scholarly networks, or informal power asymmetries embedded in academic hierarchies. As a result, the applicability and content validity of these instruments remain limited when used in higher education contexts.

In academic environments, mobbing tends to manifest through behaviors that are closely tied to academic roles, promotion systems, publication processes, and collegial governance structures. These behaviors are often subtle, relational, and institutionalized, making them difficult to detect using general workplace bullying frameworks. In the Turkish higher education context, hierarchical governance structures, centralized evaluation mechanisms, and informal power relations may further shape how mobbing is enacted and experienced. Therefore, there is a need for a measurement tool that reflects a behavior set specific to academia and sensitive to the institutional and cultural characteristics of the Turkish university system. Further studies have revealed a troubling relationship between mobbing in academia and gender dynamics. Yenilmez (2021) shed light on gender-specific mobbing within universities, illuminating female academics' intersectional challenges. These challenges often include not only mobbing behaviours but also additional pressure and stress stemming from gender-based discrimination. This gendered response is reflected in various studies that emphasize how marginalized groups within the academic workforce are more prone to heightened levels of anxiety and stress due to both mobbing and systemic biases embedded in academic hierarchies (Majerski, 2024). In such cases, the psychological well-being of the targeted individual tends to deteriorate, and other colleagues are also negatively affected by the situation. Such employees often fear becoming the next victim of mobbing, reducing their productivity and overall work performance (Şen, 2017).

In studies conducted to determine the prevalence of mobbing, Hoel (1999) reported that between 3% and 50% of employees have experienced mobbing. Similarly, Leymann (1990) found that 25% of employees in Sweden had been subjected to mobbing, while Rayner (1997) reported that this figure reached 50% in the United Kingdom. In Switzerland, 3.5% of employees have reportedly experienced mobbing during their professional lives (Cemaloğlu & Ertürk, 2007). In his study, Leymann examined the psychological conditions that lead to workplace mobbing and the illnesses observed in victims. He found that 3.5% of a workforce of 4.4 million (approximately 154,000 individuals) had been mobbing for various reasons within the work environment (Ghiasee, 2022). These significant statistics reveal that individuals worldwide are frequently exposed to mobbing in the workplace.

In summary, within academic contexts, mobbing represents a complex and multifaceted issue at the intersection of anxiety and stress. Those faculty members who are subjected to mobbing often experience immediate psychological distress and may face long-term consequences that affect both their professional and personal lives. Institutions must recognise the presence of mobbing and foster a supportive environment that addresses the underlying cultural factors contributing to such harmful behaviour.

Building on this perspective, the present study conceptualizes academic mobbing as a multidimensional construct grounded in recurring behavioral domains documented in the literature. These domains form the conceptual framework guiding the scale development process and include communication and relationship barriers, barriers to academic work, degradation and discrimination, withholding of resources, violence and harassment, and cyber mobbing. This framework provides the theoretical basis for item generation and empirical validation of the scale.

Background

The concept of psychological violence, otherwise referred to as mobbing, was first introduced to the academic literature by Austrian scientist Konrad Lorenz, who employed the term to describe the behaviour of animals attempting to drive away other animals or intruders they perceive as threats (Leymann & Henz, 1990). In Turkish, "mobbing" is also known as harassment, intimidation, or bullying. It denotes actions and behaviours intended to victimize, unfairly exclude, or discredit individuals or groups targeted in the workplace, schools, or communities for various reasons. Unwanted behaviours experienced by an individual in the work environment have been shown to negatively affect occupational health and safety. Such behaviours have a detrimental effect on job performance, with the potential to cause lasting psychological damage and lead to emotional exhaustion (Jung, Lim, & Chi, 2020).

The prevalence of mobbing can often be traced to inadequate organisational practices and toxic workplace environments that tolerate or overlook aggressive behaviour. A paucity of clearly defined policies addressing workplace harassment can contribute to the proliferation of such conduct (Lemon & Barnes, 2021). Competitive environments that lack proper support structures may inadvertently foster mobbing behaviour, leading to the development of a culture where significant psychological harm can occur without intervention (Rasool et al., 2020). As has been documented in the extant literature, instances of bullying and mobbing within the workplace are known to be particularly severe in sectors where comprehensive policies are lacking. This has been shown to result in significant negative consequences for academic staff in higher education institutions (Lemon & Barnes, 2021).

In academic settings, mobbing manifests through a distinct set of behaviours that are closely linked to academic roles, collegial relations, and institutional power structures. Unlike general workplace bullying, academic mobbing often targets an individual's scholarly identity, academic productivity, and professional legitimacy. Therefore, recent studies emphasize the importance of conceptualizing academic mobbing through behavioural domains rather than as isolated incidents (Leymann, 1996; Salin, 2008).

Drawing on prior theoretical and empirical research, academic mobbing can be framed as a multidimensional process encompassing relational, task-related, organizational, and technology-mediated behaviours (Rodríguez-Carballeira et al., 2010; Einarsen et al., 2011). This behavioural-domain approach allows for a more precise operationalization of mobbing experiences in higher education contexts.

The first domain, communication and relationship barriers, includes behaviours such as social exclusion, spreading rumours, and deliberate disruption of collegial communication. These behaviours constitute core mechanisms of mobbing and have been consistently documented in academic and professional environments characterized by informal power hierarchies (Leymann, 1996; Salin, 2008).

The second domain, barriers to academic work and responsibilities, reflects behaviours aimed at obstructing teaching, research, and academic career progression, including interference with course assignments, research activities, and evaluation processes. Prior studies emphasize that such task-related obstructions are particularly salient in academic settings, where performance and legitimacy are strongly tied to scholarly output (Cassell, 2011; Neumann & Salustri, 2019).

Humiliation and discrimination constitute a third behavioural domain, encompassing public degradation, stigmatization, and identity-based discriminatory practices. Empirical classifications of mobbing behaviours identify humiliation as a central strategy through which targets' professional credibility and psychological well-being are undermined (Rodríguez-Carballeira et al., 2010; Iloh, 2021).

The withholding of resources domain captures organizational-level behaviours such as denial of access to information, administrative support, physical space, or academic opportunities. Previous research has documented resource withdrawal as a systematic mechanism used to marginalize individuals and weaken their institutional position (Salin, 2008; Pıçakçıefe et al., 2016; Erdemir, 2023).

The violence and harassment domain includes overt hostile behaviours such as verbal threats, intimidation, and, in rare cases, physical aggression. Although less prevalent in academia, these behaviours represent severe forms of mobbing associated with significant psychological harm (Einarsen et al., 2011; Stoetzer et al., 2009).

Finally, cyber mobbing reflects the increasing role of digital communication in academic harassment, including hostile emails, online defamation, and coordinated attacks through social media or institutional platforms. Recent studies highlight cyber mobbing as an extension of traditional mobbing processes in higher education, intensified by the permanence and visibility of digital environments (Iloh, 2021; Mahmoudi, 2024).

Together, these six behavioural domains synthesize recurring patterns identified in the literature and form the conceptual framework underlying the present scale development process.

In the organizational psychology and occupational health literature, mobbing has been predominantly conceptualized as a systematic and prolonged exposure to hostile behaviours that place the target in a powerless position (Leymann, 1996; Einarsen et al., 2011). Leymann's (1996) seminal model emphasizes the processual nature of mobbing, framing it as a sequence of escalating negative acts that evolve from subtle interpersonal conflicts into severe social exclusion and professional marginalization. Building on this foundation, Einarsen et al. (2011) conceptualize workplace bullying and mobbing within a broader stressor–strain framework, in which repeated exposure to negative acts undermines psychological well-being, job performance, and organizational commitment.

More recent typological approaches have further refined these theoretical foundations by categorizing mobbing behaviours into distinct behavioural domains. Rodríguez-Carballeira et al. (2010), through a Delphi-based hierarchical classification, identify core strategies of workplace bullying, including social isolation, reputational attacks, task-related obstruction, and direct intimidation. Salin (2008) similarly situates mobbing within organizational power dynamics, highlighting how structural conditions, such as control over resources, decision-making authority, and career opportunities, enable systematic harassment.

Within academic settings, these general mobbing models require contextual adaptation. Academic work is characterized by high levels of autonomy, evaluative dependence (e.g., peer review, tenure, promotion), and symbolic capital, which render academics particularly vulnerable to task-related obstruction, reputational damage, and the strategic withholding of institutional resources (Cassell, 2011; Iloh, 2021). Empirical studies focusing on higher education institutions have consistently shown that academic mobbing manifests not only through interpersonal hostility but also through deliberate interference with teaching, research, and career advancement processes (Neumann & Salustri, 2019; Erdemir, 2023).

Accordingly, the conceptual framework underlying the present scale integrates classical mobbing theories with sector-specific evidence from higher education. The six dimensions of the scale—communication and relationship barriers, barriers to academic work and responsibilities, degradation and discrimination, withholding of resources, violence and harassment, and cyber mobbing—are theoretically grounded in established mobbing models while reflecting behavioural patterns uniquely salient to academic environments (Leymann, 1996; Einarsen et al., 2011; Rodríguez-Carballeira et al., 2010; Iloh, 2021). This integrative framework provides a theoretically robust basis for operationalizing academic mobbing as a multidimensional construct and supports the content validity of the developed measurement instrument.

Method

Participants

The study population consists of all academics working at public universities in Türkiye. The sample for the pilot study was selected through simple random sampling from academics employed at the top three public universities according to the 2022–2023 University Ranking by Academic Performance (URAP): Hacettepe University, Middle East Technical University, and Istanbul University. The URAP Research Laboratory, a non-profit organization, was established in 2009 under the Informatics Institute at Middle East Technical University (METU). URAP is responsible for conducting annual national and international university rankings as a public service (URAP Research Laboratory, 2024). Three hundred forty online questionnaires were distributed to academics at these universities, constituting the target group. Of these, 315 were returned with usable data, yielding a response rate of 92.6%. The initial pilot study, the main study, was conducted with academics employed at the top 20 public universities in Türkiye, as ranked in the 2022–2023 University Ranking by Academic Performance (URAP). Of the 1,541 online questionnaires distributed to academics at the top 20 public universities in Türkiye, 710 were completed, resulting in a response rate of 46.1%.

Scale Development Process

The development process of the Academic Mobbing Scale followed a series of structured steps: (I) the development of a pilot questionnaire, (II) the administration of the pilot questionnaire, (III) the analysis and revision of the pilot results, (IV) the administration of the revised questionnaire, and (V) the analysis of the results of the revised questionnaire. At each stage of the design and development process, the instrument's characteristics were examined through empirical studies and expert review. In this regard, the process was guided by the Standards for Educational and Psychological Testing (American Educational Research Association [AERA], American Psychological Association, & National Council on Measurement in Education [NCME], 1999).

Based on the principles outlined in the conceptual framework, an initial item pool of 66 statements was created. This item pool was submitted to the evaluation by two field experts, who were tasked to rate each item using a three-point scale. The values assigned to each category are 1 = appropriate, 2 = inappropriate but revisable, and 3 = inappropriate. Items that were not assigned a rating of "1" were discussed by the authors in a follow-up meeting, where they were either revised or eliminated. Consequently, the item pool was reduced to 60 statements through a refinement process. Subsequently, the response format of the scale was discussed, and it was agreed that a five-point Likert-type scale would be adopted. The scale was developed to assess the perceived frequency of mobbing behaviours, employing the following response categories: 1 = never experienced, 2 = rarely experienced, 3 = moderately experienced, 4 = frequently experienced, and 5 = fully experienced.

Data Analysis

In both the pilot and primary studies, exploratory factor analysis (EFA) was conducted to identify the underlying structure among the items in the AMS. However, in the main study, the data collected from 710 academics were randomly divided into two subsamples (n_1 = 355, n_2 = 355) to enable factor analysis. EFA was applied to the first subsample (n_1), while confirmatory factor analysis (CFA) was conducted on the second subsample (n_2). Descriptive statistics, EFA, and reliability analyses were performed using SPSS 18, while CFA was carried out using LISREL 8.80 (Jöreskog & Sörbom, 2006).

Before the analysis, the assumptions of EFA, which require evidence of metric variables, were tested. The aforementioned assumptions included inter-item correlations (above .30), the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (>.60), Bartlett's Test of Sphericity (p < .001), the absence of outliers, and normality (Field, 2005; Tabachnick & Fidell, 2007).

Univariate normality was assessed through skewness and kurtosis values, visual inspection of histograms with normal curves, and the Kolmogorov–Smirnov test. Given the sensitivity of the Kolmogorov–Smirnov test to sample size, its results were interpreted with caution and were not used as the sole criterion for assessing normality. According to Kline (2011), skewness and kurtosis values exceeding 3 and 10, respectively, may indicate the presence of violations of univariate normality.

Furthermore, Mardia's (1985) multivariate kurtosis coefficient was examined. For the assumption of multivariate normality to be considered acceptable, the critical ratio of this coefficient should not exceed 1.96. Considering the overall pattern of skewness, kurtosis, and graphical diagnostics, the data were deemed to exhibit approximate normality, which is sufficient for exploratory and confirmatory factor analytic procedures.

Boxplots were reviewed to detect potential outliers, and no severe outliers were identified in the data. Regarding the sample size, the criteria of $N/p > 5$ or a total sample size greater than 250 were considered, suggesting that the sample size in this study was adequate (Everitt, 2001; Gorsuch, 1983).

In exploratory factor analysis, the Principal Axis Factoring (PAF) extraction method was used in line with the approach recommended in scale development studies aimed at revealing latent structures. Principal component analysis (PCA) was not preferred because it is a data reduction technique. This approach aims to determine the factor structure more accurately based on the common variance between items.

In determining the number of factors, the criterion of eigenvalues being greater than 1 was not sufficient; the scree plot was examined and the results of the parallel analysis were taken into account. The fact that the breakpoint in the scree plot became apparent after the fifth factor and that the first five factors were found to be meaningful when compared to the eigenvalues obtained from random data sets in the parallel analysis indicated that the scale had a five-factor structure.

The following criteria were used in selecting items: (i) the loading value of the items on the relevant factor must be at least .40, (ii) the loading difference must be greater than .10 for items loaded on more than one factor, and (iii) the communality values of the items must be above .30. Items that did not meet these criteria were excluded from the analysis, and the factor analysis was re-run.

Due to significant intercorrelations among the subdimensions, the oblique rotation method, direct oblimin, was employed. The number of factors was determined by utilising eigenvalues of at least one as a criterion, while a minimum factor loading of .30 was adopted for item retention.

The factor structure identified through EFA was then subjected to a confirmatory factor analysis (CFA). The model fit was evaluated by calculating the chi-square statistic, and it was adjusted considering the degree of kurtosis in the data (Finney & DiStefano, 2013). The additional fit indices employed in this study encompassed the following: RMSEA ≤ .06 and SRMR ≤ .08 (Hu & Bentler, 1999), GFI > .90 (Marsh & Hau, 1996), CFI > .95 (Hu & Bentler, 1999), and IFI > .90 (Byrne, 1998). Cronbach's alpha coefficient was utilised to assess the internal consistency and reliability of the overall scale and its subscales.

Findings

Pilot Study

In order to examine the factor structure of the scale, the researchers conducted an EFA. Before the analysis, the EFA assumptions were tested, which revealed no correlation coefficients below .30. The Bartlett's test yielded a statistically significant result (p < .001). The KMO value exceeded the minimum threshold of .60 (.94). The skewness and kurtosis values, which indicated a normal distribution, ranged between -3 and +3. The Kolmogorov–Smirnov test yielded non-significant results (p > .05); however, given the sensitivity of this test to sample size, its results were interpreted with caution. Therefore, univariate normality was primarily evaluated based on skewness and kurtosis values and visual inspection of histograms with normal curves, which suggested no severe deviations from normality. The histograms with standard curves indicated that univariate normality had not been violated. Multivariate outliers were examined using Mahalanobis distance values, and cases exceeding the critical threshold were checked for potential multivariate outliers. The results indicated that the data met the necessary assumptions for factor analysis.

During the exploratory factor analysis (EFA), item retention and elimination decisions were guided by established psychometric criteria, including factor loadings (≥ .40), cross-loading differences (≥ .10), and conceptual coherence within factors. Items exhibiting substantial cross-loadings, weak communalities, or forming conceptually ambiguous factors were removed iteratively. Following successive EFAs, the scale was refined from an initial pool of 60 items to a final set of 32 items loading on six theoretically interpretable dimensions. Detailed information regarding item elimination steps, removed items, and their respective justifications is provided in Appendix A to enhance transparency while maintaining the flow of the main text.

As a result of the EFA, it was determined that the factors related to the scale were categorised into eleven dimensions (60 items in total). However, several items were excluded from the scale due to cross-loadings, specifically those loaded on multiple factors with factor loading differences of .10 or less. The following items were removed for the following reasons: Item 7 (Being excluded within one's department or division), Item 13 (Receiving insulting or degrading remarks about one's personality [habits, manners, etc.], attitudes, or private life), Item 15 (Being asked to leave one's department), Item 16 (Being constantly reminded of one's mistakes or wrongdoings), Item 19 (Being excessively monitored at work), Item 27 (Students being encouraged to file complaints against one), Item 33 (Not being invited to departmental or faculty events), Item 35 (Being humiliated through indirect references by those you do not get along with in class), Item 41 (Being frequently interrupted or embarrassed in public), Item 44 (Being treated as if one is invisible in shared environments), Item 45 (One's teaching schedule being arranged without input from the individual concerned), Item 54 (Being disturbed via phone, email, or inappropriate messages), and Item 56 (Receiving constant warnings about the termination of one's employment contract). In addition, Items 46 (Subjective evaluations of academic incentive, performance, tenure extension or promotion files) and 59 (Intentional rejection of files by reviewers involved in academic incentive and performance processes) were found to form a single factor and were also excluded from the scale. Furthermore, Item 2 (Having one's courses taken away) and Item 53 (Being persistently excluded due to one's gender) were also removed from the scale, forming a separate factor. Following the removal of these items, a new EFA was conducted with the remaining 43 items.

As a result of the second EFA, the factors associated with the scale cluster are under seven dimensions; however, several items were excluded due to cross-loadings, specifically those loaded on more than one factor with factor loading differences of .10 or less. The following items were removed from the scale for the following reasons: Item 1 (Devaluation of academic work by labelling it as low quality), Item 3 (Obstruction of career advancement), Item 11 (Psychological unwellness), Item 17 (Subjection to unpleasant pranks by individuals one does not get along with), Item 42 (Being given humiliating nicknames), and Item 52 (Having important responsibilities taken away and being assigned tedious tasks). A new EFA was conducted with the remaining 37 items.

Following the third EFA, it was ascertained that the scale comprised six factors. However, additional items were excluded due to similar cross-loading issues: Item 6 (Being harassed through monitoring of one's social media accounts), Item 8 (Being mocked for one's political views, ethnic identity, or religious beliefs), Item 28 (Being portrayed as mentally unstable), Item 29 (Withdrawal of colleagues from academic projects or collaborations involving the individual in question), and Item 31 (Being prevented from participating in academic events). An additional EFA was conducted with the remaining 32 items.

The fourth EFA revealed a six-factor structure, explaining 67.83% of the total variance. The six dimensions were labelled as follows: (i) Communication and Relationship Barriers, (ii) Barriers to Academic Work and Responsibilities, (iii) Degradation and Discrimination, (iv) Withholding of Resources, Violence and Harassment, and (v) Cyber Mobbing. As a result of the pilot study, a 32-item scale was finalized. The Cronbach's alpha values for the six subscales were .93, .91, .88, .80, .83, and .72, respectively; the overall reliability coefficient for the scale was found to be .95.

Although the number of items was reduced from 60 to 32 throughout successive EFAs, this refinement process was guided by both statistical and theoretical considerations. Items were removed primarily due to cross-loadings or unstable factor structures, rather than content irrelevance. Importantly, each of the final six dimensions retained multiple items representing the core behavioral domains identified in the academic mobbing literature. Therefore, the reduction in item number is not expected to compromise content coverage, but rather to enhance construct clarity, parsimony, and measurement precision.

Main Study: EFA Findings

Before analysis, the assumptions of the EFA were tested in the main study using the split-half method ($n_1 = 355$). The results obtained during this process of assumption-checking were similar to those from the pilot study, and the six-factor structure of the scale was tested.

Table 1. Factor Loads, Means, and Standard Deviation Values for the AMS.

Items	Six-factor structure						Mean	SD
	Communication and Relationship Barriers	Barriers to Academic Work and Responsibilities	Degradation and Discrimination	Withholding of Resources	Violence and Harassment	Cyber Mobbing		
47.	.87						2.11	1.49
14.	.86						2.15	1.49
51.	.82						2.05	1.35
10.	.81						2.19	1.47
32.	.76						2.21	1.49
48.	.76						2.07	1.44
18.	.76						2.69	1.56
36.	.71						2.75	1.68
20.	.65						1.75	1.19
55.	.64						2.41	1.62
24.		.86					1.68	1.26
25.		.84					1.72	1.29
34.		.79					1.65	1.20
22.		.77					1.76	1.25
43.		.73					1.55	1.20
26.		.69					2.08	1.50
23.		.63					2.20	1.48
21.			.89				2.67	1.54
9.			.88				2.67	1.54
58.			.77				2.26	1.50
5.			.65				2.39	1.60
12.			.65				2.39	1.60
4.			.64				2.86	1.50
38.				.76			1.66	1.26
30.				.71			1.76	1.30
37.				.69			2.05	1.43
50.					.85		1.18	.59
39.					.83		1.15	.58
40.					.71		1.12	.53
57.						.88	1.21	.73
49.						.84	1.20	.73
60.						.71	1.11	.50
Mean	2.24	1.81	2.42	1.82	1.15	1.17		
Standard deviation (SD)	1.14	1.05	1.24	1.12	.49	.57		
Explained variance (%)	16.14	15.34	13.71	8.93	7.81	7.45		

As a result of the EFA conducted in the main study, a six-factor structure explaining 69.37% of the total variance was identified. By the expert opinions, the names of the dimensions were maintained as follows: "Communication and Relationship Barriers", "Barriers to Academic Work and Responsibilities", "Degradation and Discrimination", "Withholding of Resources", "Violence and Harassment", and "Cyber Mobbing". The factor loadings, arithmetic means, and standard deviations of the items in the measurement tool are presented in Table 1.

Main Study: CFA Findings

Based on the factor structure revealed through the EFA results, a confirmatory factor analysis (CFA) was conducted on the second sample group of the split-half method (n_2 = 355). The goodness-of-fit indices calculated for the six-factor model, which consisted of 32 items, are as follows: χ^2 = 1327.00 (df = 458, p < .001), χ^2/df = 2.90, RMSEA = .07, SRMR = .08, GFI = .76, CFI = .97, and IFI = .97. Although there is no consensus on an acceptable ratio for the χ^2 statistic, it is generally recommended that this value should be no greater than 5.0 (Wheaton et al., 1977) and, preferably, below 2.0 (Tabachnick & Fidell, 2007). Although the CFI and IFI values indicated excellent incremental fit, the GFI value (.76) was below commonly suggested thresholds. This result should be interpreted in light of the model complexity and sample size. Previous studies have noted that GFI is particularly sensitive to the number of observed variables and tends to decrease in models with a large number of items and latent factors. Therefore, greater emphasis was placed on incremental fit indices (CFI, IFI) and residual-

based indices (RMSEA, SRMR), which are considered more robust in complex measurement models. The standardized factor loadings of the validated structure of the AMS were found to be .91 for "Communication and Relationship Barriers", .87 for "Barriers to Academic Work and Responsibilities", .81 for "Degradation and Discrimination", .90 for "Withholding of Resources", .79 for "Violence and Harassment", and .45 for "Cyber Mobbing" (see Figure 1). The relatively lower standardized loading observed for the Cyber Mobbing dimension (.45) suggests that this factor, while related to the overarching academic mobbing construct, may represent a more distinct behavioral domain. This finding is consistent with recent literature emphasizing that cyber mobbing involves different mechanisms, visibility patterns, and temporal dynamics compared to face-to-face mobbing behaviors. Therefore, cyber mobbing may be more weakly integrated into the higher-order construct, and its inclusion should be interpreted as theoretically meaningful but empirically differentiated.

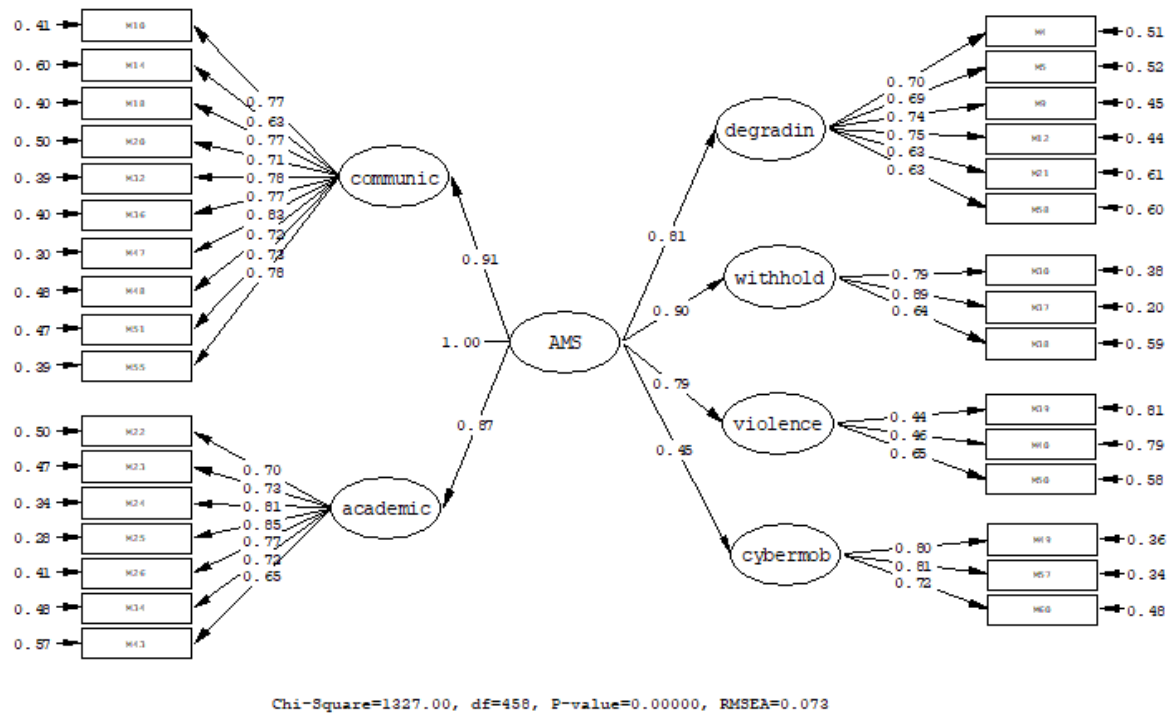Chi-Square=1327.00, df=458, P-value=0.00000, RMSEA=0.073

Figure 1. Standardized loadings of the 32-item, six-factor structure of the AMS.

Subsequently, the relationships among the subdimensions of the validated structure were examined in terms of the extent to which academics experience mobbing. The five-point scale was interpreted as follows: The scale ranges from 5.00 to 4.21, denoting a response of "fully experienced"; from 4.20 to 3.41, indicating a response of "frequently experienced"; from 3.40 to 2.61, marking a response of "moderately experienced"; from 2.60 to 1.81, designating a response of "rarely experienced"; and from 1.80 to 1.00, suggesting a response of "never experienced". Based on the established classification, academics reported experiencing mobbing "never experienced" on average (M = 1.77, SD = .94). A more thorough analysis indicated that the highest level of mobbing was observed in the subdimension of Degradation and Discrimination (M = 2.42, SD = 1.24), followed by Communication and Relationship Barriers (M = 2.24, SD = 1.14), Withholding of Resources (M = 1.82, SD = 1.12), Barriers to Academic Work and Responsibilities (M = 1.81, SD = 1.05), Cyber mobbing (M = 1.17, SD = .57), and Violence and Harassment (M = 1.15, SD = .49). Academics reported "rarely" experiencing mobbing in the subdimensions of Degradation and Discrimination, Communication and Relationship Barriers, Withholding of Resources, and Barriers to Academic Work and Responsibilities, while reporting "never experienced" for Cyber mobbing and Violence and Harassment.

The highest item-level scores were as follows: in the Degradation and Discrimination subdimension, the item "Ignorance or disregard of your opinions in academic meetings and committees." received the highest mean score (M = 2.86); in Communication and Relationship Barriers, the item "The misuse of authority by your supervisors against you." (M = 2.75); in Withholding of Resources, "Being prevented from accessing the department's

resources" (M = 2.05); in Barriers to Academic Work and Responsibilities, "The absence of an invitation to academic juries and committees within your department or faculty." (M = 2.20); in Cyber mobbing, "Dissemination of misinformation about you via social media platforms." (M = 1.21); and in Violence and Harassment, "50. Individuals, you have conflicts with being appointed to your students' thesis or doctoral qualification juries." (M = 1.18).

It should also be noted that CFA results are influenced by the choice of estimation method and model complexity. Given the relatively large number of items and factors, fit indices such as GFI may underestimate model fit. In line with current recommendations, multiple indices were considered jointly rather than relying on a single criterion. Consequently, the model fit should be interpreted as acceptable but not perfect, reflecting a balance between empirical adequacy and theoretical comprehensiveness.

Measurement Invariance Test Results

In order to evaluate measurement invariance in the six-factor model, data from both the EFA and CFA were combined, and the relevant statistics are presented in Table 3. The six-factor model demonstrated a good model fit based on the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) indicated an acceptable model fit for both genders. Furthermore, the configural invariance model, the metric invariance model, and the scalar invariance model across gender groups all demonstrated satisfactory model fit, as evidenced by acceptable CFI values and good RMSEA levels. A minor reduction in model fit was observed between the configural and metric invariance models ($\Delta\chi^2$ = 72.42; p < .001; ΔCFI = –.01; ΔRMSEA = .01). Similarly, only a slight decrease in fit was noted between the metric and scalar invariance models ($\Delta\chi^2$ = 25.51; p < .001; ΔCFI = .001; ΔRMSEA = .001). Configural, metric, and scalar invariance across age groups also demonstrated acceptable fit. The comparison between the configural and metric models yielded ($\Delta\chi^2$ = 104.51; p < .001; ΔCFI = –.001; ΔRMSEA = .01), and between the metric and scalar models ($\Delta\chi^2$ = 68.84; p < .001; ΔCFI = –.01; ΔRMSEA = .001), again indicating only minor decreases in model fit. Based on the findings and the recommendations by Chen (2007), measurement invariance was confirmed across both gender and age groups.

Table 2. AMS's measurement invariance across gender and age groups

	Invariance	χ2(df)	P	CFI	RMSEA [90% CI]
Gender	Configural	1647.51 (362)	<.01	.96	.059 [0.057; 0.061]
	Metric	1719.93 (384)	<.01	.95	.060 [0.058; 0.062]
	Scalar	1745.44 (394)	<.01	.95	.060 [0.058; 0.062]
Age	Configural	2398.01 (688)	<.01	.95	.043 [0.041; 0.045]
	Metric	2502.52 (716)	<.01	.95	.044 [0.042; 0.046]
	Scalar	2571.36 (742)	<.01	.94	.044 [0.042; 0.046]

Note. *χ2(df)*: chi-square test of model fit (degrees of freedom), *CFI*: comparative fit index, RMSEA [*90% CI*]: root mean square error of approximation [90% confidence interval].

Reliability Findings

The Cronbach's alpha coefficients for the subdimensions of the AMS ranged from .79 to .93, with an overall alpha of .96 for the full scale (see Table 4). The Pearson correlation coefficients indicated statistically significant and positive relationships among all subdimensions. A strong correlation was observed between Communication and Relationship Barriers and Barriers to Academic Work and Responsibilities (r = .76, p < .01), Degradation and Discrimination (r = .75, p < .01), and Withholding of Resources (r = .72, p < .01). Moderate correlations were found between Communication and Relationship Barriers and Violence and Harassment (r = .49, p < .01), as well as Cyber Mobbing (r = .36, p < .01). Similarly, Barriers to Academic Work and Responsibilities showed a strong correlation with Withholding of Resources (r = .72, p < .01), and moderate correlations with Degradation and Discrimination (r = .59, p < .01), Violence and Harassment (r = .56, p < .01), and Cyber mobbing (r = .46, p < .01). Degradation and Discrimination was moderately correlated with Withholding of Resources (r = .65, p < .01) and Violence and Harassment (r = .41, p < .01), and weakly correlated with Cyber mobbing (r = .30, p < .01). Withholding of Resources also had moderate correlations with Violence and Harassment (r = .51, p < .01) and Cyber mobbing (r = .38, p < .01). Finally, a moderate correlation was identified between Violence and Harassment and Cyber Mobbing (r = .53, p < .01). The findings suggest that the scale as a whole demonstrates a high level of reliability, and each of the six subdimensions also exhibits strong internal consistency.

Table 3 AMS's Sub-Dimensional Statistics.

Sub-dimensions	CR	AVE	MSV	CA	1	2	3	4	5	6
1. Communication and Relationship Barriers	.934	.590	.577	.93	**.77**					
2. Barriers to Academic Work and Responsibilities	.906	.581	.577	.89	.76**	**.76**				
3. Degradation and Discrimination	.886	.569	.563	.87	.75**	.59**	**.75**			
4. Withholding of Resources	.764	.519	.518	.81	.72**	.72**	.65**	**.72**		
5. Violence and Harassment	.840	.639	.313	.79	.49**	.56**	.41**	.51**	**.80**	
6. Cyber Mobbing	.853	.661	.281	.82	.36**	.46**	.30**	.38**	.53**	**.81**
Overall				.96						

** Correlation is significant at the .01 level.

Note. CR: Composite reliability, AVE: Average variance extracted, MSV: Maximum shared variance, CA: Cronbach's alpha. The bold values are the square root of the AVE values in the same row.

The present study sought to estimate composite reliability. In addition to item reliability, average variance extracted (AVE) was employed to assess the items' convergent and discriminant validity. According to Hair et al. (2006), a cut-off value of AVE > .50 is recommended for convergent validity, and the square root of AVE should exceed inter-construct correlations to confirm discriminant validity. The latent variables in the scale were found to be convergent, with significant factor loadings exceeding composite reliability values of .70 (p < .05) and AVE values greater than the minimum threshold of .50. Discriminant validity was supported by the square roots of the AVE for each subdimension, which were found to be greater than the inter-factor correlations.

Discussion, Conclusion, and Recommendations

AMS's development represents a significant advancement in comprehending the complex dynamics of workplace bullying within academic institutions. Employing exploratory factor analysis (EFA), the study identified a six-factor structure that captures diverse manifestations of mobbing experienced by academics. The factors under discussion include Communication and Relationship Barriers, Barriers to Academic Work and Responsibilities, Degradation and Discrimination, Withholding of Resources, Violence and Harassment, and Cyber Mobbing. These findings are consistent with the results of the study conducted by Goodboy et al. (2022).

Identifying these specific dimensions is consistent with extant literature that characterizes the multifaceted nature of mobbing, particularly in high-stress environments such as academia. For instance, factors related to Degradation and discrimination are consistent with findings that suggest emotional abuse in educational settings can result in harmful psychological consequences for individuals, similar to those reported in the workplace bullying literature (Erdemir, 2023). Such patterns may manifest through overt behaviours such as verbal degradation (Duyan, 2020) or more covert actions such as cyber mobbing, highlighting the need for a nuanced understanding of how different forms of academic mobbing affect individuals (Tösten et al., 2018).

As indicated by the reported Cronbach's alpha values, the internal consistency of the AMS demonstrates its robustness. The alpha values ranging from .72 to .93 across the various factors suggest high levels of reliability and internal coherence, indicating that the scale is well-structured and serves as a dependable tool for assessing the scope and impact of mobbing in academic settings (Yıldız & Uzunsakal, 2018). The overall Cronbach's alpha coefficient of .95 indicates exceptional effectiveness in capturing the phenomena of interest, which is critical for both research and practical applications in academic institutions.

Although the comparative fit indices (CFI and IFI) indicated a very good model fit, the relatively low GFI value (GFI = .76) warrants further consideration. The goodness-of-fit index is known to be sensitive to sample size, model complexity, and the number of observed variables, and tends to decrease as the number of items and latent constructs increases (Sharma vd., 2005; Hooper vd., 2008). In complex, multidimensional measurement models—particularly those developed for scale construction—GFI values below conventional cut-off thresholds have been frequently reported despite otherwise acceptable or strong model fit (Marsh vd., 2004).

In the present study, the six-factor structure comprising 32 observed variables increases the stringency of absolute fit indices such as GFI. Therefore, greater emphasis was placed on incremental fit indices (CFI and IFI), which are less affected by model complexity and sample size and are widely recommended in contemporary structural equation modeling practice (Hu & Bentler, 1999). Nevertheless, the relatively low GFI value is acknowledged as

a limitation of the model and suggests that future studies may consider testing alternative model specifications or shortened versions of the scale to further improve absolute model fit (Kline, 2016).

Moreover, incorporating multiple mobbing dimensions within the scale reflects a holistic understanding of mobbing in academia. In particular, the factors of Barriers to Academic Work and Responsibilities and Withholding of Resources correspond to the findings that excessive workloads, lack of support, and insufficient resources have been shown to engender increased levels of stress and job dissatisfaction, which may, in turn, engender mobbing behaviours (El-Zoghby et al., 2022). These findings underscore the significance of institutional factors in mitigating or exacerbating mobbing and suggest that educational leaders should adopt comprehensive strategies that address individual behaviors and systemic challenges.

The effects of the aforementioned factors are of critical importance, as the parameters outlining relational barriers and cyber mobbing shed light on the complex interaction between human relations and technological advancements in contemporary academic life. As cyber mobbing becomes increasingly prevalent, understanding how this mechanism operates within academic settings is essential for developing interventions. The extant literature suggests that the emotional consequences of cyberbullying can be as severe as, or even more severe than, traditional forms of harassment, necessitating careful policies and procedures within academic institutions (Duyan, 2020; Çakı & Erol, 2022).

The findings derived from this scale may also contribute to the growing field of academic psychology, particularly concerning emotional well-being. Recent studies have illuminated how academic stressors may be exacerbated by experiences of mobbing, leading to increased burnout among affected individuals and a decline in institutional commitment (Tösten et al., 2018). In this context, it is recommended that institutions consider integrating the Mobbing Scale as a core component of mental health and support services, which would enable the identification of populations at risk and the provision of timely and appropriate interventions (Kaguhangire-Barifaijo et al., 2022).

The findings of the present study indicate that academics, on average, reported relatively low levels of exposure to mobbing behaviours. At first glance, this result may appear inconsistent with a growing body of literature documenting mobbing as a pervasive problem in higher education institutions (Cassell, 2011; Leymann, 1996; Iloh, 2021). However, similar patterns of low self-reported prevalence have also been observed in previous studies, particularly those relying on self-report measures administered within hierarchical organizational settings (Einarsen et al., 2011; Salin, 2008).

One possible explanation for this finding relates to underreporting tendencies commonly identified in mobbing and workplace bullying research. Individuals may normalize negative behaviours as part of academic culture, especially in highly competitive and hierarchical environments, and therefore refrain from labeling such experiences as mobbing (Salin, 2008; Cassell, 2011). Fear of stigmatization, retaliation, or damage to professional reputation may further suppress disclosure, particularly in academic systems characterized by strong power asymmetries and informal control mechanisms (Leymann, 1996; Erdemir, 2023).

Cultural and contextual factors may also contribute to lower reported levels. In collectivist or authority-oriented organizational cultures, behaviours such as exclusion, excessive criticism, or obstruction of academic work may be perceived as legitimate managerial practices rather than psychological violence (Rodríguez-Carballeira et al., 2010). Consequently, academics may report lower overall mobbing scores despite experiencing behaviours that align conceptually with mobbing strategies described in the international literature.

Moreover, methodological considerations should be acknowledged. Self-report instruments capture perceived and acknowledged experiences, which may differ from actual exposure, particularly for subtle or indirect forms of mobbing (Einarsen et al., 2011). Prior studies have shown that indirect behaviours—such as withholding resources, marginalization, or reputational damage—are less likely to be reported unless respondents possess a clear conceptual understanding of mobbing (Leymann, 1996; Rodríguez-Carballeira et al., 2010).

Taken together, the relatively low mobbing levels reported in this study should not be interpreted as evidence of the absence of academic mobbing. Rather, these findings likely reflect a combination of normalization processes, cultural influences, and the inherent limitations of self-report data. From this perspective, the results are consistent with earlier research emphasizing that mobbing in academia often remains latent, indirect, and under-acknowledged, despite its documented psychological and organizational consequences (Cassell, 2011; Iloh, 2021).

Finally, it is important to consider the socio-cultural contexts in which mobbing occurs. Several factors, such as institutional culture, leadership style, and societal norms, can all influence the prevalence and acceptance of mobbing behaviours in academic settings (Erten & Çögenli, 2024; Ayık, 2022). For instance, institutions characterized by hierarchical leadership may face more pronounced issues related to mobbing, as power differentials can facilitate abusive dynamics (Doménech-Betoret et al., 2019).

Limitations and Suggestions for Future Research

Although the present study reports that the AMS is a valid and reliable measurement tool, several limitations should be acknowledged. Firstly, the AMS encompasses particular theoretically critical and experimentally prominent scenarios. In future studies, it is recommended that if behaviours relevant to academics' daily work life and experiences of mobbing are identified, they should be integrated into the scope of the scale to enhance its comprehensiveness. Secondly, the limitation pertains to the nature of mobbing itself. Unfortunately, although many bullying frameworks identify both micro- and macro-level antecedents of bullying (Harvey et al., 2009; Moayed et al., 2006), few have attempted to elaborate on the significant impact of national culture on organizational bullying behaviours. Whether bullying is primarily a function of the individual or the situation remains unresolved. The role of personality variables in predicting bullying may be an important reason, and institutional culture may also influence bullying behaviour (Lewis, 2006).

Conflict of interest
The authors declare that there is no conflict of interest between the authors and any institutions.

Authors' Contribution Rate
The first author contributed 70%, the second author 30%.

Ethical Approval
For this study, approval was received from the Gazi University Educational Sciences Ethics Committee with the decision numbered 1096117/18 and dated 19/11/2024.

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The Academic Mobbing Scale

Items	Mobbing Behaviours	Never experienced	Rarely experienced	Moderately experienced	Frequently experienced	Fully experienced
1	Speaking unfavourably about you to individuals outside the university.					
2	Being shouted at or becoming the subject of an outburst of anger (or resentment).					
3	Being deliberately ignored by your colleagues.					
4	The spread of gossip and rumours about you.					
5	Pressuring those who are friendly or close to you.					
6	Making claims against your academic competence.					
7	Being subjected to accusations and allegations.					
8	The misuse of authority by your supervisors against you.					
9	Being the subject of excessive mockery or ridicule.					
10	Your supervisor is adopting an adversarial position towards you.					
11	Applying pressure to prevent students from enrolling in your courses.					
12	Applying pressure to prevent students from selecting you as their advisor.					
13	Aggressive behaviour directed toward students under the supervision of.					
14	Others displaying biased attitudes toward your students' theses or articles.					
15	Pressuring administrators to exclude you from academic committees and boards.					
16	Preventing your appointment to senior administrative positions.					
17	The absence of an invitation to academic juries and committees within your department or faculty.					
18	Being subjected to an unsustainable workload.					
19	Being humiliated by the assignment of tasks that fall below your level of competence.					
20	Being held responsible for tasks that fall outside your designated area of authority.					
21	Being pressured not to request your entitlements (e.g., sick leave, vacation time, travel allowance, etc.).					
22	Withholding academic information that is crucial to your success.					
23	Ignorance or disregard of your opinions in academic meetings and committees.					
24	The loss of office facilities or technological equipment.					
25	Being refused access to university laboratories and other research facilities.					
26	Being prohibited from using departmental or faculty resources.					
27	Individuals, you have conflicts with being appointed to your students' thesis or doctoral qualification juries.					
28	Being subjected to sexual harassment.					
29	Being subjected to physical violence.					
30	Being subjected to online harassment via fake social media accounts.					
31	Dissemination of misinformation about you via social media platforms.					

| 32 | Being harassed during live broadcasts on various platforms, such as Zoom, YouTube, or Instagram. | | | | | |

Sub-dimensions and Items
1. Communication and Relationship Barriers: 1-2-3-4-5-6-7-8-9-10
2. Barriers to Academic Work and Responsibilities:11-12-13-14-15-16-17
3. Degradation and Discrimination: 18-19-20-21-22-23
4. Withholding of Resources: 24-25-26
5. Violence and Harassment:27-28-29
6. Cyber Mobbing: 30-31-32

Appendix A

Item Elimination Process during Exploratory Factor Analysis (EFA)

To ensure both statistical robustness and conceptual clarity, the scale development process followed an iterative exploratory factor analysis (EFA) procedure. Item retention and elimination decisions were guided by established psychometric criteria, including (a) factor loadings of at least .40, (b) cross-loading differences greater than .10, (c) adequate communalities, and (d) theoretical coherence with the intended construct. Items failing to meet these criteria were removed stepwise. The detailed elimination process is summarized in Table A1.

Table A1. Summary of Item Elimination across EFA Stages

EFA Stage	Removed Items	Primary Reason(s) for Removal
Initial EFA (60 items)	7, 13, 15, 16, 19, 27, 33, 35, 41, 44, 45, 54, 56	Substantial cross-loadings (difference ≤ .10), weakening factorial distinctiveness
	46, 59	Formation of an isolated single factor; lack of conceptual integration with the overall construct
	2, 53	Emergence of an unintended separate factor; misalignment with the theoretical scope of academic mobbing
Second EFA (43 items)	1, 3, 11, 17, 42, 52	Cross-loadings, low communalities, and conceptual ambiguity
Third EFA (37 items)	6, 8, 28, 29, 31	Insufficient factor loadings (< .40), redundancy, or overlap across dimensions
Final EFA (32 items)	_	Six-factor structure retained; all remaining items demonstrated satisfactory psychometric and conceptual properties