Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Burnout, depressive and anxiety symptoms in the structure of wartime academic distress among Ukrainian academic staff

Natalia Tsybuliak

nata.tsibulyak@gmail.com

Berdyansk State Pedagogical University

Uliana Kolomiiets

Sumy State University

Volodymyr Vakhitov

American University Kyiv

Anastasiia Popova

Berdyansk State Pedagogical University

Anastasiia Lutsenko

Max Planck Institute for Innovation and Competition

Yuriy Petrushenko

Sumy State University

Yana Suchikova

Berdyansk State Pedagogical University

Article

Keywords: burnout, depressive symptoms, anxiety, academic staff, Ukraine, higher education, war

Posted Date: November 18th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10343778/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Burnout, depressive and anxiety symptoms in the structure of wartime academic distress among Ukrainian academic staff

Abstract. Burnout is commonly conceptualized as an occupational phenomenon, yet under prolonged societal crises work-related strain may become closely intertwined with broader psychological distress. This study examined the cross-sectional structure of burnout, depressive symptoms, and anxiety symptoms among Ukrainian academic staff working during the full-scale war. An online survey was conducted between December 2023 and February 2024 among 429 academic staff members from Ukrainian higher education institutions. Burnout was assessed using the Maslach Burnout Inventory–Human Services Survey, anxiety symptoms with the GAD-7, and depressive symptoms with the PHQ-9. Burnout was analysed both as a composite construct and through its three dimensions: emotional exhaustion, depersonalization, and personal accomplishment. The results showed that burnout, depressive symptoms, and anxiety symptoms were strongly interrelated, but not as a single undifferentiated syndrome. Depressive symptoms occupied the strongest connecting position in the specified cross-sectional models, substantially attenuating the association between burnout and anxiety symptoms. Dimension-level analyses showed that emotional exhaustion was the burnout dimension most closely connected with broader psychological distress. Depersonalization showed weaker and more peripheral associations, while personal accomplishment was inversely associated with depressive symptoms and appeared to reflect a distinct dimension of professional efficacy and meaning rather than simply the absence of burnout. Contextual analyses further suggested that wartime displacement should be interpreted in relation to institutional continuity: personal displacement appeared most distressing when it occurred without institutional relocation. These findings should be interpreted as evidence of structural interconnection and contextual patterning, not as causal mediation or temporal sequence. The study contributes to a differentiated understanding of academic burnout under prolonged crisis and points to the need for integrated support approaches that address emotional exhaustion, depressive symptoms, anxiety symptoms, professional meaning, and the institutional conditions under which academic work continues during war.

Keywords: burnout; depressive symptoms; anxiety; academic staff; Ukraine; higher education; war.

Introduction

Burnout has become a central construct in contemporary discussions of occupational well-being, particularly in professions characterized by sustained emotional labour, chronic stress exposure, institutional instability, and intensified performance demands. In ICD-11, the World Health Organization classified burnout as an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed (World Health Organization, 2019). Burnout is commonly conceptualized through three dimensions: emotional exhaustion, depersonalization or cynicism toward work, and reduced personal accomplishment or professional efficacy. Although this framework positions burnout as work-related rather than clinical, substantial theoretical and empirical debate concerns the extent to which burnout can be distinguished from broader psychological distress, especially depressive symptoms and anxiety.

Research across occupational settings consistently documents high bivariate correlations among burnout, depressive symptoms, and anxiety, while systematic reviews and meta-analyses indicate that these constructs remain empirically distinguishable when examined with appropriate methods (Bianchi et al., 2015; Koutsimani et al., 2019). Emotional exhaustion, in particular, has repeatedly emerged as the burnout dimension most closely connected with broader psychological morbidity (Schonfeld and Bianchi, 2022). Recent network-oriented studies among healthcare workers during the COVID-19 pandemic similarly suggest that emotional exhaustion often occupies a central position in the associations among burnout, depressive symptoms, and anxiety (Tao et al., 2024; Huang et al., 2026). Vandenabeele et al. (2025) further argued that under prolonged stress conditions the boundaries between burnout and broader psychological distress become increasingly difficult to distinguish empirically. Together, this literature suggests that burnout, depression, and anxiety should not always be treated as isolated outcomes, particularly when occupational stress is embedded within wider systems of insecurity and prolonged uncertainty.

Higher education is a particularly relevant setting for examining these relationships. Academic work combines cognitive, emotional, administrative, and relational labour, while also being embedded in systems of knowledge production, performance evaluation, and institutional continuity. International research shows that academic staff experience sustained workload pressure, publication and funding demands, role conflict, digital overload, emotional labour, and erosion of work-life boundaries (Winefield and Jarrett, 2001; Watts and Robertson, 2011; Kinman and Wray, 2020; Nicholls et al., 2022). Recent studies have identified workload, institutional climate, insufficient organizational support, workplace conflict, and unstable academic pathways as important contributors to burnout and psychological distress in academia (Waaijer et al., 2018; Guthrie et al., 2018; Yingying et al., 2025; Cadena-Povea et al., 2025). Academic staff are also increasingly expected to provide psychosocial support to students, maintain continuous digital availability, and adapt to institutional uncertainty, which may intensify burnout when resources and support are limited (Kinman and Wray, 2020; Kolomitro et al., 2020; Rodríguez-De Avila and Paba-Argote, 2023).

These dynamics become more complex during prolonged societal crises, when occupational stressors intersect with institutional disruption, chronic uncertainty, and broader psychological threat. Evidence from pandemic, disaster, humanitarian, and military-conflict settings shows that crisis-related disruption can intensify emotional exhaustion, technostress, cognitive overload, anxiety, and depressive symptoms among educators, healthcare workers, humanitarian personnel, and other knowledge workers (Marsh et al., 2022; Mallhi et al., 2023; Foo et al., 2023; Tao et al., 2024; Hakhmigari and Diamant, 2025). Hakhmigari and Diamant (2025) showed that routine disruption and work-family conflict were stronger predictors of burnout than general stress exposure itself, suggesting that prolonged crisis conditions may alter how occupational functioning and psychological distress are related.

The Ukrainian higher education sector provides a critical context for examining these relationships. Since the beginning of Russia's full-scale invasion, Ukrainian universities have operated under displacement, infrastructural destruction, forced migration, digital instability, air raids, chronic uncertainty, and disruption of educational routines (Lavrysh et al., 2025; Orzhel et al., 2023; UNESCO, 2024; Brintseva, 2026). Under these conditions, academic labour extends beyond conventional professional functioning and becomes embedded in broader processes of institutional continuity, knowledge preservation, and societal resilience (Fisher, 2025; Brintseva, 2026). The wartime university is therefore not merely a high-stress workplace, but a crisis-affected institutional environment in which occupational functioning is closely intertwined with societal disruption and prolonged uncertainty.

Empirical studies among Ukrainian academic staff have documented intensified burnout, anxiety, and depressive symptoms during the war. Previous research showed progressive increases in burnout, particularly emotional exhaustion and depersonalization (Tsybuliak et al., 2023; Tsybuliak et al., 2025), while broader studies of Ukrainian higher education highlighted the effects of displacement, institutional disruption, forced migration, digital instability, and prolonged uncertainty on academic functioning and staff well-being (Lavrysh et al., 2025; Orzhel et al., 2023; UNESCO, 2024). Other studies identified elevated anxiety and depressive symptoms among Ukrainian academics and linked these outcomes to migration status, institutional relocation, and perceived organizational support (Tsybuliak et al., 2024; Kurapov et al., 2024). At the same time, wartime studies suggest that burnout dimensions may not move in parallel: emotional exhaustion and depersonalization increased substantially, whereas indicators of personal accomplishment remained comparatively stable or even increased in some groups (Tsybuliak et al., 2025). Emerging conceptual work has similarly suggested that academic work under prolonged crisis may help sustain professional meaning and institutional continuity despite severe emotional exhaustion (Finikov et al., 2026).

Despite growing research on academic mental health during wartime, several important gaps remain. Burnout, depressive symptoms, and anxiety are still frequently examined separately rather than within integrated analytical frameworks, while limited attention has been paid to the differential roles of burnout dimensions in relation to broader psychological distress among academic staff. Evidence also remains limited regarding whether depressive symptoms attenuate the observed association between burnout and anxiety under conditions of prolonged societal crisis. More broadly, wartime higher education settings remain underrepresented in burnout research, particularly regarding how occupational and broader psychological distress interact under conditions of institutional disruption, chronic uncertainty, and prolonged crisis functioning.

The present study examined the empirical interconnections among burnout, depressive symptoms, and anxiety symptoms among Ukrainian academic staff working under prolonged wartime conditions. Specifically, it examined whether the burnout–anxiety symptoms association was reduced after depressive symptoms were included in the model, whether burnout dimensions showed distinct associations with depressive symptoms and anxiety symptoms, and whether these patterns remained similar after adjustment for sociodemographic and wartime-related contextual variables, including personal displacement and institutional relocation.

Based on previous evidence, it was hypothesised that burnout would be positively associated with both depressive and anxiety symptoms; that depressive symptoms would show the strongest association with anxiety symptoms; and that the association between burnout and anxiety symptoms would be attenuated after accounting for depressive symptoms. Emotional exhaustion was further expected to show the most consistent positive associations with both depressive and anxiety symptoms.

Methods

Study design and data collection

This study employed a cross-sectional design, with data collected via an online survey administered between December 2023 and February 2024.

A pilot test involving 15 academic staff members was conducted to assess question clarity, wording, survey flow, and completion time. The final survey was created in Google Forms, distributed via email, and shared through academic networks, professional associations, and social media platforms. Recruitment combined purposive and snowball sampling: initial invitations were distributed through institutional email lists, Ukrainian higher education professional associations, and academic social media groups, after which participants were asked to forward the invitation to colleagues meeting the eligibility criterion. This strategy was adopted because centralised sampling frames for Ukrainian academic staff were unavailable or inaccessible during the period of active conflict.

Participation was voluntary and anonymous. Respondents were informed about the purpose of the study and their right to withdraw at any time without consequences. The inclusion criterion required participants to be academic staff working at Ukrainian higher education institutions during the ongoing full-scale war.

No a priori sample-size calculation was conducted because centralized sampling frames for Ukrainian academic staff were inaccessible during active conflict, and recruitment was constrained by wartime institutional disruption. The sample size was therefore determined by feasible recruitment. The achieved analytic sample of N = 429 exceeded commonly cited minimum recommendations for exploratory SEMs of moderate complexity, but this was treated only as an indication of sample adequacy, not as evidence of power to detect all plausible associations or support causal inference (Kline, 2016; Wolf et al., 2013). Of 431 submissions received, two were excluded during data-quality screening due to contradictory responses regarding institutional relocation status, yielding a final analytic sample of N = 429. All items used in the analyses were set as required in Google Forms; therefore, there were no missing values for the variables included in the analyses.

The present analyses use the same cross-sectional dataset of 429 Ukrainian academic staff collected between December 2023 and February 2024 and previously reported in three publications examining burnout dynamics, anxiety symptoms, and depressive symptom severity among Ukrainian academic staff during wartime (Tsybuliak et al., 2024, 2025, 2026). The present manuscript addresses a distinct research question: the cross-sectional structural interrelationships among burnout dimensions, depressive symptoms, and anxiety. Specifically, none of the prior publications estimated structural equation models decomposing burnout into emotional exhaustion, depersonalization, and personal accomplishment while examining whether the burnout–anxiety association was reduced after depressive symptoms were included in the model. None of the tables, figures, or statistical outputs presented here duplicate previously published material, and the theoretical framing and interpretations are original to this manuscript.

Measures

The online survey consisted of a structured questionnaire comprising four main sections.

1) Demographic and professional characteristics. This section gathered background information, including age, gender, academic degree, job title, changes in permanent place of residence during the full-scale war, and whether the participant's university had undergone relocation due to the war. Academic degree categories reflect the Ukrainian higher education system, in which a "PhD holder" denotes a doctoral degree equivalent to the international PhD / Candidate of Sciences, and a "Doctor of Science" represents the subsequent higher academic degree. Migration status reflected war-related

displacement: internal migrants were academic staff who relocated within Ukraine, external migrants were those who relocated abroad, and non-displaced participants were those who remained in their pre-war location. Intuitional relocation referred to the formal institutional transfer of higher education institutions from occupied or frontline areas to safer Ukrainian-controlled regions, enabling continuity of teaching, research, and administrative activities.

2) Burnout. Burnout was assessed using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS), a 22-item instrument measuring three core dimensions of burnout: emotional exhaustion (EE; 9 items), depersonalization (DP; 5 items), and personal accomplishment (PA; 8 items) (Maslach et al., 2018). Responses were recorded on a 7-point Likert scale ranging from 0 (never) to 6 (every day). Subscale scores were calculated according to standard scoring procedures (Maslach et al., 2018). Higher emotional exhaustion and depersonalization scores indicate higher burnout. Personal accomplishment is scored in the opposite direction: higher PA reflects stronger perceived accomplishment and therefore lower burnout. In dimension-level analyses, PA was retained in its original direction. For analyses requiring an overall burnout score or achievement-related burnout category, PA was reverse-coded so that higher values consistently reflected higher burnout burden.

3) Anxiety symptoms. Anxiety symptoms were assessed using the Generalized Anxiety Disorder 7-item scale (GAD-7), a widely used self-report screening measure of generalized anxiety symptom severity (Spitzer et al., 2006). Participants rated how frequently they had experienced anxiety symptoms over the preceding two weeks using a 4-point scale: 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly every day. The seven items were summed to provide a total score ranging from 0 to 21, with higher scores indicating greater anxiety symptom severity. The Ukrainian version of the GAD-7 was used. Formal psychometric validation was not conducted within the present study; however, Ukrainian-language applications of the GAD-7 have reported acceptable psychometric properties, including internal consistency evidence (Aleksina et al., 2024; Kohut and Chaban, 2025). Standard cut-off scores of 5, 10, and 15 were used to indicate mild, moderate, and severe anxiety symptom levels, respectively (Spitzer et al., 2006).

4) Depressive symptoms. Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9), a validated and widely used self-report measure of depressive symptom severity (Kroenke et al., 2001). Participants rated the frequency of depressive symptoms experienced over the past two weeks using a 4-point scale: 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly every day. Responses to the nine items were summed to yield a total score ranging from 0 to 27, with higher scores indicating greater depressive symptom severity. The Ukrainian version of the PHQ-9 was used. Formal validation was not conducted as part of the present study; however, previous Ukrainian-language applications have reported acceptable psychometric properties for the PHQ-9 (Kohut and Chaban, 2025). Depressive symptoms severity was categorized as follows: none–minimal (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27), following standard PHQ-9 scoring guidance (Kroenke et al., 2001).

Sample characteristics

A total of 429 academic staff members from Ukrainian higher education institutions participated in the study. Respondents represented diverse wartime experiences, including personal displacement and work in relocated and non-relocated universities (Table 1).

Table 1. Demographic and professional characteristics of participants

Variable	Category	n	%
Age	Under 35	73	17.0
	35–45 years	152	35.4
	46–60 years	167	38.9
	61 and older	37	8.7
Gender	Men	109	25.4
	Women	320	74.6
Academic degree	PhD student	83	19.4
	PhD holder / Candidate of Sciences	273	63.6
	Doctor of Science	73	17.0
Personal relocation	Internal migrant	129	30.1
	External migrant	62	14.4
	Stayed in place	238	55.5
Intuitional relocation	Remained in original location	270	62.9
	Relocated	159	37.1

As shown in Table 1, the largest age group was 46–60 years. Women comprised 74.6% of the sample. Most respondents held a PhD / Candidate of Sciences degree and the academic rank of Associate Professor. In terms of personal displacement, 55.5% had remained in place, 30.1% were internal migrants, and 14.4% were external migrants. Regarding institutional context, 37.1% of respondents worked at relocated universities.

Ethics approval and consent to participate

The study adhered to ethical standards outlined in the Declaration of Helsinki and the Belmont Report. Informed consent was obtained from all participants. Respondents were informed of the voluntary nature of participation, their right to withdraw, and the anonymous handling of their responses.

Ethical approval was granted by the Ethics Committee of Berdyansk State Pedagogical University, Ukraine (Protocol No. 12/2023). Given the conflict setting, sensitive data were handled with heightened caution. To protect participants' identities and reduce potential risk, precise geographic location and academic discipline were not collected.

Statistical analysis

All statistical analyses were conducted in Stata, version 17. The dataset was screened for completeness, valid response ranges, and internal consistency of responses before analysis. All variables used in the analyses were mandatory in the online survey; therefore, there were no missing values in the analytic dataset.

Given the cross-sectional design, the analyses were intended to examine empirical associations among burnout, depressive symptoms, and anxiety rather than causal effects. SEM was used here as a regression-based framework for decomposing contemporaneous associations among variables, not as a causal path model. Arrows in the models indicate theoretically specified conditional associations rather than temporal sequence or causal direction. Terms such as "indirect association" and "structural model" therefore refer to statistical patterns and should not be interpreted as evidence of temporal or causal ordering. The direction of paths was theoretically specified and statistically evaluated, but temporal ordering cannot be inferred from these data.

Raw scale scores were calculated according to the scoring procedures for each instrument. Burnout was assessed using the MBI-HSS, with separate scores for emotional exhaustion, depersonalization, and personal accomplishment. Anxiety was assessed using the GAD-7 total score, and depressive symptoms were assessed using the PHQ-9 total score. Internal consistency was assessed using Cronbach's alpha for the GAD-7, PHQ-9, and MBI-HSS. These estimates were used to evaluate the reliability of the scale scores in the present sample (Supplementary Materials, Table S1).

To facilitate comparison across constructs with different original score ranges, burnout, depressive symptoms, and anxiety symptoms scores were rescaled to a common 0–100 metric using the following transformation:

$$Rescaled\ score = \frac{observed\ score}{maximum\ possible\ score} \times 100$$

Rescaled 0–100 scores were used for descriptive statistics and Spearman correlations only; all structural equation models were estimated on the original raw scale scores (MBI-HSS subscale totals; GAD-7 total score, range 0–21; PHQ-9 total score, range 0–27), so that path coefficients retain their natural metric interpretation and can be directly compared with estimates from prior studies using these instruments.

Higher rescaled scores indicated higher levels of burnout, depressive symptoms, and anxiety. For overall burnout scores, personal accomplishment was reverse-coded before aggregation so that higher values consistently indicated higher burnout burden.

Descriptive statistics were calculated for burnout, depression, and anxiety, including means, standard deviations, medians, interquartile ranges, and upper-percentile values. Bivariate associations among the three constructs were estimated using Spearman's rank-order correlations.

Exploratory structural equation models were then estimated to examine whether the burnout–anxiety association was reduced when depressive symptoms were included in the model. The first model included total burnout, depressive symptoms, anxiety, and a burnout-by-depression interaction term. Interaction terms were estimated using centred variables. Standard errors and confidence intervals for structural paths and indirect associations were estimated using bootstrap procedures with 1,000

replications. Indirect associations were calculated as products of the relevant paths using post-estimation procedures.

Because burnout is multidimensional, additional exploratory SEM models decomposed burnout into emotional exhaustion, depersonalization, and personal accomplishment. These models examined the associations of each burnout dimension with depressive and anxiety symptoms, as well as model-implied indirect associations with anxiety symptoms via depressive symptoms. The component-level model also examined whether the depressive symptoms–anxiety symptoms association differed by level of personal accomplishment.

To assess contextual covariates, ordinary least squares regression models examined age, gender, academic degree, institutional relocation status, and personal displacement status as correlates of anxiety, depression, total burnout, and burnout dimensions. A further exploratory SEM examined whether the observed pattern remained after accounting for burnout dimensions and contextual covariates. Model fit was assessed using the comparative fit index, Tucker-Lewis index, root mean square error of approximation, and standardized root mean square residual. Because fit indices were mixed, the adjusted SEM was interpreted as an exploratory sensitivity analysis rather than as a confirmatory model.

Supplementary analyses were conducted to assess the robustness and contextual interpretation of the main findings. These included expanded SEM tables, OLS models examining contextual covariates across psychological outcomes, screen-positive symptom analyses by displacement configuration, latent profile analysis of combined burnout and symptom patterns, a latent-variable SEM, and a dimension-level partial-correlation network. These analyses were exploratory and were used to evaluate whether the main pattern was consistent across complementary analytical approaches rather than to provide independent confirmatory evidence.

Statistical significance was evaluated using two-sided tests. For primary analyses, p values below 0.05 were considered statistically significant. In supplementary OLS analyses, p values below 0.10 were reported as marginal associations when relevant but were not treated as primary evidence.

Results

To address the study aim, the results are organised in four steps. First, the distributions of burnout dimensions, depressive symptoms, and anxiety symptoms are described. Second, bivariate and dimension-level associations among these constructs are examined. Third, exploratory SEM is used to decompose the burnout–anxiety symptoms association after the inclusion of depressive symptoms and to examine whether this pattern differs across burnout dimensions. Finally, adjusted and supplementary contextual analyses are used to examine whether the main dimension-level pattern remains similar after accounting for sociodemographic and wartime-related variables, and how distress is patterned across displacement and institutional relocation configurations.

Distribution of burnout, depressive symptoms, and anxiety symptoms

Before examining the associations among burnout, depressive symptoms, and anxiety symptoms, the distributions of these variables were assessed. This analysis characterised the overall levels and variability of occupational and psychological distress in the sample and provided a descriptive basis for the subsequent analyses of associations.

Figure 1 presents the distributions of the three burnout dimensions – emotional exhaustion, depersonalization, and personal accomplishment – together with depressive symptoms and anxiety symptoms, all expressed on a common 0–100 metric. This dimension-level view illustrates that the burnout components did not contribute uniformly to the overall descriptive profile. Emotional exhaustion showed the highest average burden among the burnout dimensions, whereas personal accomplishment remained comparatively high, indicating that perceived professional efficacy was preserved in at least part of the sample despite elevated distress.

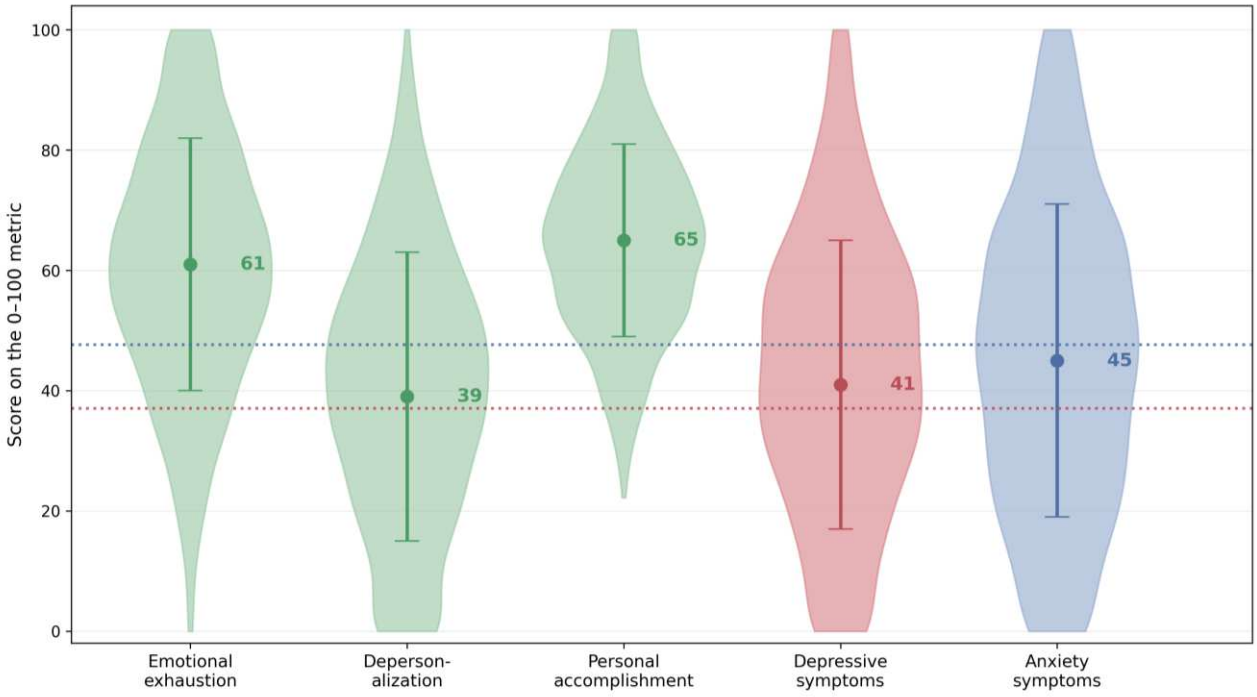


Figure 1. Distribution of burnout dimensions, depressive and anxiety symptoms

Note. Scores are reported on the 0–100 metric. Dots indicate means and vertical bars indicate ±1 SD. Horizontal dashed lines indicate the 0–100 equivalents of the GAD-7 ≥ 10 and PHQ-9 ≥ 10 screening thresholds and are shown only as reference markers for anxiety and depressive symptoms; they do not apply to the burnout dimensions. Higher emotional exhaustion, depersonalization, depressive symptoms, and anxiety symptoms indicate higher distress, whereas higher personal accomplishment indicates stronger perceived professional efficacy.

To complement this dimension-level overview, Table 2 reports descriptive statistics for the three focal constructs used in the main associative analyses: overall burnout, depressive symptoms, and anxiety symptoms. Mean scores were broadly similar across the three constructs, but anxiety symptoms showed the widest dispersion and the highest upper-tail values. Overall burnout was somewhat less dispersed, which is consistent with its role as a composite indicator aggregating across distinct burnout dimensions.

Table 2. Descriptive statistics for burnout, depressive and anxiety symptoms

Construct	Mean	SD	Median	IQR	90th percentile
Burnout	45.21	18.66	45.02	31.74-57.82	67.93

Depressive symptoms	41.02	23.95	37.04	22.22-55.56	77.78
Anxiety symptoms	45.47	26.33	42.86	28.57-61.90	85.71

Note. Descriptive statistics are reported on the 0-100 rescaled metric. Structural equation models reported below were also estimated on the 0-100 metric. For the overall burnout score, personal accomplishment was reverse-coded before aggregation so that higher scores consistently indicated higher burnout burden. IQR = interquartile range; SD = standard deviation.

The mean overall burnout score should be interpreted as a descriptive indicator of burnout burden rather than as a diagnostic category. Its main value in the present analysis is comparative: it provides a general starting point before examining whether the burnout dimensions show distinct associations with depressive symptoms and anxiety symptoms in the models that follow.

Bivariate associations among burnout, depressive symptoms, and anxiety symptoms

Spearman correlation analyses first examined the bivariate associations among the three focal constructs: overall burnout, depressive symptoms, and anxiety symptoms. As shown in Table 3, all three constructs were strongly and positively correlated, with the strongest association observed between depressive and anxiety symptoms.

Table 3. Spearman correlations among burnout, depressive symptoms, and anxiety symptoms

Construct	**Burnout**	**Depressive symptoms**	**Anxiety symptoms**
Burnout	1.000	-	-
Depressive symptoms	0.782	1.000	-
Anxiety symptoms	0.670	0.794	1.000

Note. All correlations were statistically significant at $p < 0.001$.

This pattern indicates substantial empirical overlap among the three constructs, but it does not imply that they are identical. Rather, it suggests that occupationally grounded burnout and broader psychological distress were closely interconnected in this wartime academic sample.

Figure 2 extends the bivariate analysis to the level of burnout dimensions. The dimension-level correlations showed that emotional exhaustion and depersonalization were positively aligned with depressive and anxiety symptoms, whereas personal accomplishment showed the opposite pattern. This indicates that higher perceived professional efficacy was associated with lower distress-related scores.

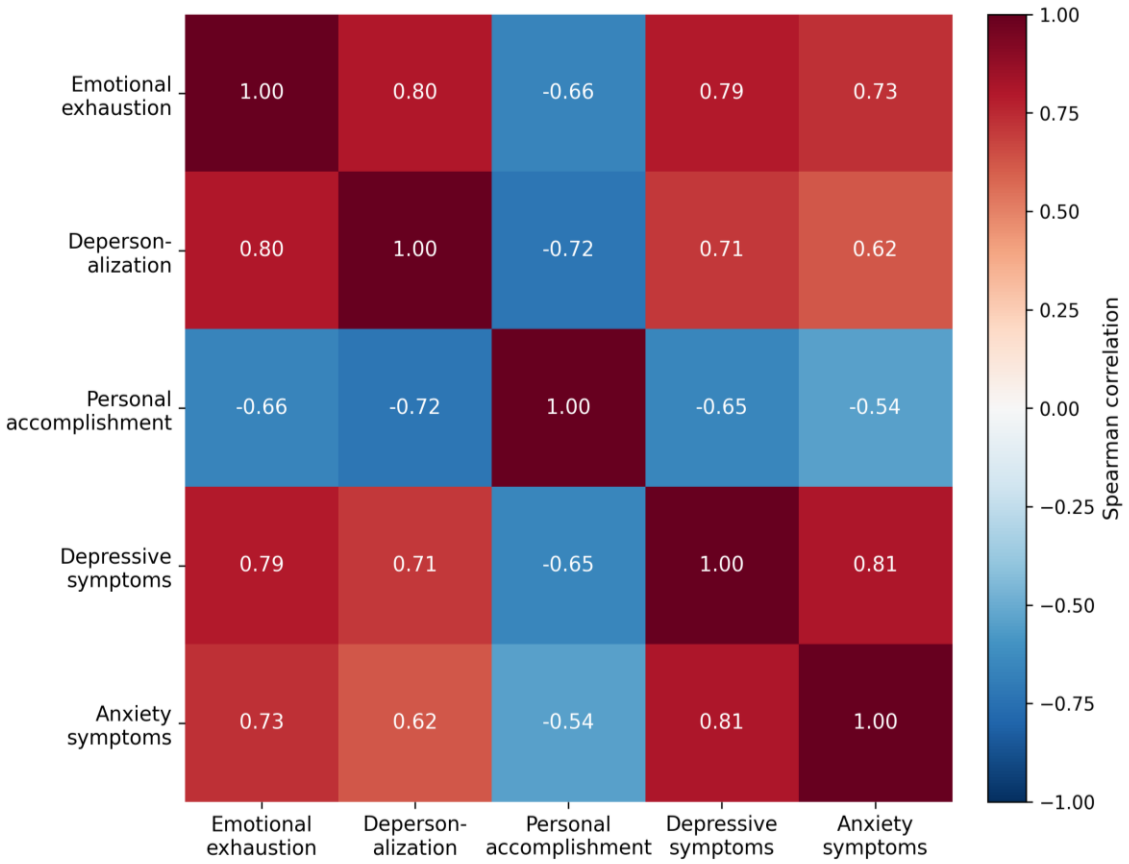


Figure 2. Correlations among burnout dimensions, depressive symptoms, and anxiety symptoms

Note. Values represent Spearman correlations among emotional exhaustion, depersonalization, personal accomplishment, depressive symptoms, and anxiety symptoms. Positive correlations are shown in red and negative correlations in blue. Higher personal accomplishment indicates stronger perceived professional efficacy; therefore, negative correlations between personal accomplishment and distress-related dimensions indicate that higher accomplishment was associated with lower distress.

Together, the construct-level and dimension-level correlations provided the basis for the subsequent structural models, which examined whether the burnout–anxiety symptoms association was reduced when depressive symptoms were included and whether this pattern differed across burnout dimensions. As a supplementary robustness check, a dimension-level partial-correlation network was estimated to examine whether the same pattern was visible after conditioning on the other displayed dimensions. This analysis again identified depressive symptoms and anxiety symptoms as the strongest connected pair, while emotional exhaustion was the burnout dimension most directly connected to this distress core. Personal accomplishment showed an inverse connection with depressive symptoms, whereas depersonalization showed weaker and less stable links. The network analysis was exploratory and is reported as robustness evidence rather than as a causal map (Supplementary Figure S3; Supplementary Table S10).

Composite and dimension-level burnout associations with depressive symptoms and anxiety symptoms

Exploratory structural equation models were estimated on the revised 0–100 metric. The models were used as regression-based decompositions of contemporaneous associations and should not be

interpreted as causal mediation models. Table 4 summarizes the composite burnout model and the dimension-level model.

Table 4. Composite versus dimension-level burnout associations with depressive symptoms and anxiety symptoms

Predictor	Depressive symptoms	Anxiety symptoms (direct)	Indirect via depressive symptoms
Composite model			
Total burnout	1.052*** (0.031) [0.990, 1.113]	0.255*** (0.066) [0.126, 0.384]	0.764*** (0.057) [0.652, 0.876]
Dimension-level model			
Emotional exhaustion	0.636*** (0.062) [0.514, 0.759]	0.363*** (0.070) [0.226, 0.500]	0.427*** (0.053) [0.324, 0.529]
Depersonalization	0.123* (0.059) [0.007, 0.240]	-0.027 (0.057) [-0.139, 0.085]	0.083* (0.041) [0.003, 0.162]
Personal accomplishment	-0.270*** (0.058) [-0.385, -0.156]	0.100 (0.069) [-0.035, 0.236]	-0.181*** (0.042) [-0.263, -0.099]

Note. Coefficients are unstandardized estimates on the 0-100 metric; bootstrap standard errors from 1,000 replications are shown in parentheses; 95% confidence intervals are shown in square brackets. The depressive symptoms -> anxiety symptoms path was 0.727*** (0.051) in the composite model and 0.670*** (0.053) in the dimension-level model. The total association of burnout with anxiety symptoms in the composite model was 1.019*** (0.044), 95% CI [0.933, 1.105]. Indirect associations are model-implied products of paths in a cross-sectional SEM and should not be interpreted as causal mediation. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

In the composite model, total burnout was strongly associated with depressive symptoms, and depressive symptoms were strongly associated with anxiety symptoms. Although total burnout retained a direct association with anxiety symptoms, the larger model-implied indirect association via depressive symptoms suggested that, in the specified cross-sectional model, the burnout–anxiety symptoms association was substantially organised through depressive symptom severity.

The dimension-level model provided a more differentiated picture. Emotional exhaustion carried the clearest distress-related signal: it was positively associated with depressive symptoms and retained a direct association with anxiety symptoms. Depersonalization showed only a small association with depressive symptoms and no direct association with anxiety symptoms. Personal accomplishment showed a different pattern: it was inversely associated with depressive symptoms and had no robust direct association with anxiety symptoms. The depressive symptoms × personal accomplishment interaction was statistically significant, suggesting that the depressive symptoms–anxiety symptoms association was weaker at higher levels of perceived professional accomplishment.

Figure 3 visualizes the main statistically significant paths from the dimension-level model. It highlights that emotional exhaustion showed both a direct association with anxiety symptoms and a model-implied indirect association via depressive symptoms, whereas depersonalization and personal

accomplishment showed only model-implied indirect associations with anxiety symptoms through depressive symptoms.

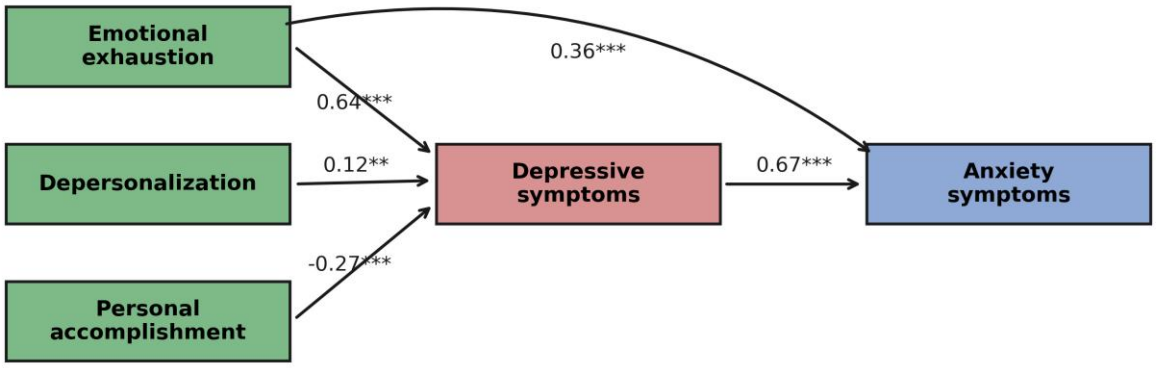


Figure 3. Dimension-level structural model for burnout, depressive and anxiety symptoms

Note. Coefficients are unstandardized estimates on the 0–100 metric from the dimension-level structural model. Only statistically significant paths are shown. Direct paths from depersonalization and personal accomplishment to anxiety symptoms were not statistically significant and are omitted for clarity. Indirect associations are model-implied products of paths in a cross-sectional SEM and should not be interpreted as causal mediation.

Because the main structural models were estimated using observed scale scores, a latent-variable SEM was estimated as a supplementary robustness analysis. This model produced a consistent ordering of associations: emotional exhaustion was the burnout dimension most strongly linked to depressive symptoms, depressive symptoms were strongly linked to anxiety symptoms, and depersonalization was not independently associated with depressive symptoms once the shared variance with emotional exhaustion was modelled. The latent model therefore supported the interpretation that emotional exhaustion, rather than depersonalization, carried the clearest burnout-related connection with broader psychological distress (Supplementary Figure S2; Supplementary Table S9).

Taken together, these findings indicate that the composite burnout score masked important differences among burnout dimensions. Emotional exhaustion was the burnout component most closely connected with broader psychological distress, depersonalization appeared more peripheral, and personal accomplishment operated as a distinct efficacy-related dimension rather than simply as the absence of burnout.

Adjusted model with sociodemographic and wartime-related covariates

An adjusted exploratory structural model was estimated including burnout dimensions, sociodemographic variables, personal displacement, institutional relocation, and the interaction between personal displacement and institutional relocation. The model was intended to assess whether the main dimension-level pattern remained similar after accounting for contextual variables, rather than to establish causal pathways. Because the adjusted model was saturated, global fit indices are uninformative.

Table 5. Adjusted exploratory structural model with sociodemographic and wartime-related covariates

Predictor	Depressive symptoms (direct)	Anxiety symptoms (direct)	Indirect via depressive symptoms
Emotional exhaustion	0.640*** (0.062)	0.327*** (0.065)	0.429*** (0.053)
Depersonalization	0.142* (0.061)	0.028 (0.056)	0.095* (0.042)
Personal accomplishment	-0.248*** (0.059)	0.072 (0.068)	-0.166*** (0.042)
Depressive symptoms -> anxiety symptoms	-	0.670*** (0.054)	-
Age 35-45	3.741 (2.073)	0.763 (2.262)	2.507 (1.424)
Age 46-60	4.797* (2.031)	-0.634 (2.188)	3.215* (1.391)
Age 61+	6.358* (2.763)	3.456 (2.891)	4.261* (1.889)
Women	-1.348 (1.699)	-0.384 (1.756)	-0.904 (1.140)
Degree: Candidate/PhD	-2.265 (1.719)	-0.564 (1.668)	-1.518 (1.158)
Degree: Doctor of Science	-2.111 (2.430)	1.506 (2.346)	-1.415 (1.644)
Institution relocated	4.341 (2.501)	3.619 (3.029)	2.910 (1.696)
Internal migrant	5.970 (3.153)	3.749 (3.970)	4.001 (2.162)
External migrant	2.475 (2.565)	1.513 (2.953)	1.659 (1.713)
Institution x Internal migrant	-6.394 (4.094)	-2.423 (5.135)	-4.285 (2.787)
Institution x External migrant	-1.687 (4.639)	2.657 (5.568)	-1.131 (3.105)

Note. Unstandardized coefficients on the 0-100 metric; bootstrap standard errors from 1,000 replications are shown in parentheses. Reference categories: age < 35, men, PhD student, stayed in place, institution not relocated. The model is saturated (df = 0), so global fit indices are uninformative. Because personal displacement and institutional relocation were included with interaction terms, the coefficients for institutional relocation and displacement should be interpreted conditionally, relative to the specified reference categories, rather than as average main effects. . *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

As shown in Table 5, the adjusted model was consistent with the main dimension-level pattern. Emotional exhaustion remained the burnout dimension most consistently associated with broader psychological distress, showing associations with both depressive symptoms and anxiety symptoms. Depersonalization was associated with depressive symptoms but not directly with anxiety symptoms, whereas personal accomplishment was inversely associated with depressive symptoms and showed no robust direct association with anxiety symptoms. Depressive symptoms remained strongly associated with anxiety symptoms.

The model-implied indirect associations followed the same pattern as in the unadjusted dimension-level model: emotional exhaustion showed the largest positive model-implied indirect association with anxiety symptoms via depressive symptoms, depersonalization showed a smaller positive indirect association, and personal accomplishment showed a negative indirect association. Thus, the differentiated pattern of burnout-dimension associations remained broadly similar after adjustment for sociodemographic and wartime-related covariates.

To further examine the contextual component of these associations outside the SEM decomposition, supplementary OLS models were estimated for anxiety symptoms, depressive symptoms, overall burnout, and the three burnout dimensions. These models showed that internal displacement was associated with higher distress when the institution had not relocated, whereas the interaction between internal displacement and institutional relocation was negative for several outcomes. This pattern is consistent with the interpretation that personal displacement was most strongly associated with distress when it occurred without institutional relocation, although these contextual models explained only a modest share of variance and should be interpreted as exploratory rather than causal evidence (Supplementary Table S5).

To aid interpretation of the displacement-related pattern, Figure 4 presents the proportion of respondents scoring at or above the screening thresholds for anxiety and depressive symptoms across personal displacement and institutional relocation configurations. The highest screen-positive rates were observed among internally displaced academic staff whose institutions had not relocated, whereas rates were lower among internally displaced staff whose institutions had relocated. Given the small cell size for internally displaced staff whose institutions had not relocated, this pattern should be interpreted cautiously. Nevertheless, the descriptive configuration-level pattern visually aligns with the adjusted model, in which displacement-related distress appeared to vary by institutional relocation status. The corresponding cell percentages and odds-ratio models are reported in Supplementary Tables S6–S7.

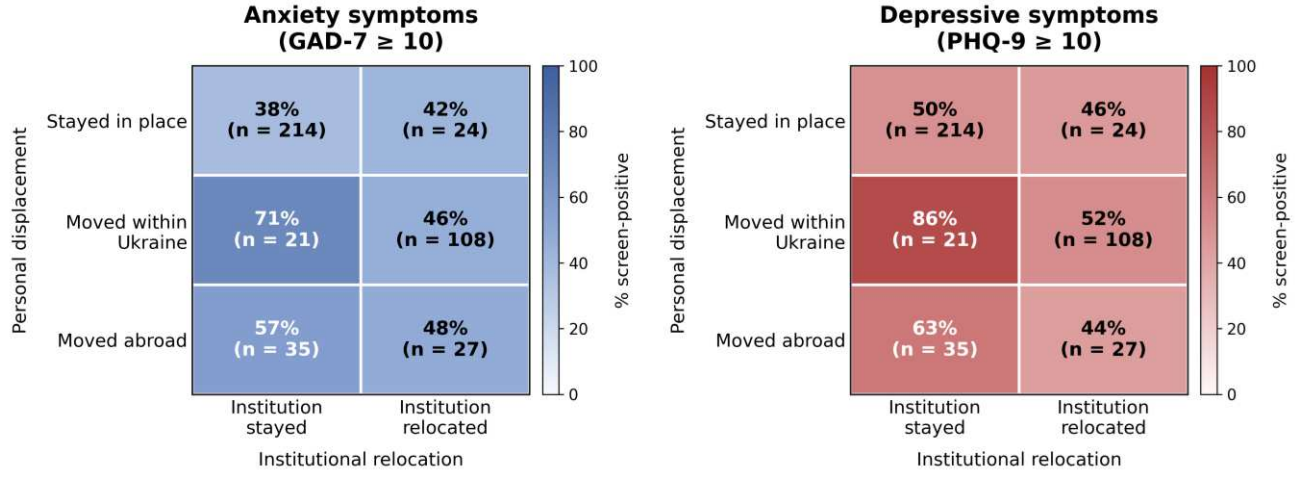


Figure 4. Screen-positive anxiety and depressive symptoms by personal displacement and institutional relocation configuration

Note. Percentages indicate the proportion of respondents in each displacement configuration scoring at or above the screening threshold. Anxiety symptoms were defined as GAD-7 ≥ 10 and depressive symptoms as PHQ-9 ≥ 10. These thresholds indicate elevated symptom burden and should not be interpreted as clinical diagnoses. Cell sizes vary across configurations, particularly for internally displaced staff whose institutions had not relocated; therefore, percentages should be interpreted cautiously.

As a person-centred complement to the variable-level models, latent profile analysis identified a small high-comorbid-distress profile characterized by very high emotional exhaustion, depersonalization, depressive symptoms, and anxiety symptoms, together with low personal accomplishment. This profile was disproportionately populated by staff displaced without institutional relocation, supporting the interpretation that the most severe distress clustered within a specific wartime configuration of personal displacement without institutional continuity (Supplementary Figure S1; Supplementary Table S8).

Taken together, the results indicate a differentiated structure of wartime academic distress. Burnout, depressive symptoms, and anxiety symptoms were strongly interconnected, but the associations were not uniform across burnout dimensions. Emotional exhaustion showed the clearest connection with broader psychological distress, depressive symptoms occupied the central statistical position in the specified models, and personal accomplishment functioned as a distinct efficacy-related dimension rather than merely as the inverse of distress. Contextual and person-centred supplementary analyses further indicated that displacement-related distress was most pronounced when personal displacement occurred without institutional relocation.

Discussion

This study examined the empirical associations among burnout, depressive symptoms, and anxiety symptoms among Ukrainian academic staff working during the full-scale war. The findings suggest that these constructs were not independent expressions of distress in wartime academia, but their associations were not symmetrical. Depressive symptoms showed the most stable association with anxiety symptoms, and the burnout–anxiety association was substantially reduced after depressive symptoms were included in the specified cross-sectional models. At the same time, the dimension-level analyses showed that burnout should not be treated as a uniform construct: emotional exhaustion showed the clearest and most consistent association with broader psychological distress, depersonalization was more peripheral, and personal accomplishment appeared to operate as a distinct dimension of professional efficacy and meaning rather than simply as the inverse of burnout.

These findings are consistent with previous evidence showing substantial empirical overlap among burnout, depressive symptoms, and anxiety symptoms (Bianchi et al., 2015; Koutsimani et al., 2019). This overlap is theoretically expected, as the three constructs share affective, cognitive, motivational, and functional components of distress. However, the present findings add nuance to this literature. Anxiety symptoms among Ukrainian academic staff during wartime did not appear to be merely a parallel manifestation of burnout. Rather, the association between burnout and anxiety symptoms was largely organised through depressive symptoms in the specified statistical models. This does not imply that burnout and depressive symptoms are the same construct: burnout remains occupationally grounded, whereas depressive symptoms refer to broader psychological distress. Instead, the findings suggest that under prolonged war-related strain, occupational exhaustion and broader affective distress may become tightly intertwined.

A key theoretical question concerns the ordering of the association among burnout, depressive symptoms, and anxiety symptoms. The present study does not establish temporal sequence. Because the data are cross-sectional, alternative orderings may produce statistically plausible models, particularly given the strong empirical overlap between depressive and anxiety symptoms. The specified ordering should therefore be understood as theoretically motivated rather than empirically proven. Nevertheless, there are reasons for treating burnout, and especially emotional exhaustion, as the occupationally grounded starting point of the main model. Burnout is defined as a work-related

phenomenon arising from chronic workplace stress, whereas depressive and anxiety symptoms represent broader forms of psychological distress (World Health Organization, 2019). Longitudinal studies have shown that burnout may precede later depressive symptoms (Hakanen and Schaufeli, 2012), although other prospective evidence also points to reciprocal associations between burnout and depressive symptoms (Ahola and Hakanen, 2007; Toker and Biron, 2012). The literature therefore does not justify a strong causal claim, but it does support the view that chronic occupational strain can become embedded in broader affective distress over time.

The ordering of depressive and anxiety symptoms is even less definitive. Longitudinal evidence suggests that anxiety and depressive symptoms are often bidirectional risk factors for one another, with differences in predictive strength generally modest and context-dependent (Jacobson and Newman, 2017). Network perspectives on comorbidity similarly caution against treating depressive and anxiety symptoms as fully separable entities with simple one-directional pathways, because comorbidity may arise from direct symptom-to-symptom relations and fuzzy diagnostic boundaries (Cramer et al., 2010). For this reason, the alternative specification in which anxiety symptoms and depressive symptoms are reversed should be treated as a useful sensitivity analysis rather than as evidence against the main model. The main model is retained because it is theoretically coherent for an occupational-health study: chronic work-related exhaustion is positioned as the occupational strain component, depressive symptoms as the broader affective-distress component, and anxiety symptoms as a closely related but distinct manifestation of internalising distress.

In this study, depressive symptoms were positioned as the central statistical construct because they substantially reduced the burnout–anxiety association and showed the most stable association with anxiety symptoms across models. This should not be interpreted as evidence that depressive symptoms causally mediate the effect of burnout on anxiety. Rather, the findings suggest that, in this wartime academic sample, the association between occupational exhaustion and anxiety symptoms was largely organised through a broader depressive-symptom component of distress. The model therefore speaks to the structure of distress rather than to its temporal development.

The dimension-level findings refine this interpretation. The association between burnout and broader psychological distress was not evenly distributed across the three burnout dimensions. Emotional exhaustion carried the clearest and most consistent distress-related signal. It was strongly associated with depressive symptoms and retained a direct association with anxiety symptoms, suggesting that affective depletion is the burnout component most closely connected with broader psychological distress. This is consistent with previous research identifying emotional exhaustion as the core component of burnout and the dimension most closely related to broader psychological morbidity (Schonfeld and Bianchi, 2022), as well as with network-oriented work showing that exhaustion often occupies a central position in crisis-related distress structures (Tao et al., 2024; Huang et al., 2026).

In the Ukrainian wartime academic context, the centrality of emotional exhaustion is theoretically meaningful. Academic staff have faced ordinary academic demands—teaching, research, administration, publication pressure, digital availability, and student support—while simultaneously living and working under war-related disruption, displacement, air raids, infrastructural instability, uncertainty, and institutional reorganisation. Emotional exhaustion may therefore reflect more than workload fatigue. It may capture the cumulative depletion associated with maintaining academic and institutional continuity while living under prolonged insecurity.

Depersonalization appeared more peripheral. Although it was weakly associated with depressive symptoms, it showed no robust direct association with anxiety symptoms. This suggests that

emotional distancing or detachment may be part of the burnout experience without forming the main bridge to anxiety-related distress. One possible, but untested, interpretation is that depersonalization may have a different meaning in wartime academia than in ordinary occupational contexts. It may reflect emotional distancing, coping, moral fatigue, reduced relational engagement, or an adaptive narrowing of emotional investment under conditions of prolonged strain. Future mixed-methods research is needed to clarify the subjective meaning of depersonalization in crisis-affected academic settings.

Personal accomplishment also operated differently from the two negative burnout dimensions. Higher personal accomplishment was associated with lower depressive symptom severity and showed a negative model-implied indirect association with anxiety symptoms through depressive symptoms. In the revised models, personal accomplishment did not show a robust direct association with anxiety symptoms. This supports an interpretation of personal accomplishment as a distinct dimension of professional efficacy and meaning rather than simply as the inverse of burnout. In wartime academia, academic staff may remain emotionally exhausted while still preserving a sense that their work is meaningful, useful, and professionally valuable. The finding is consistent with previous Ukrainian wartime studies suggesting that personal accomplishment may remain stable or even increase despite severe emotional exhaustion (Tsybuliak et al., 2025), and with conceptual work on wartime universities as institutions of continuity and meaning-making (Finikov et al., 2026). Personal accomplishment should therefore not be treated as a simple protective factor or as the absence of burnout. Rather, it may represent a separate dimension of professional functioning that can coexist with high emotional burden.

The contextual findings further suggest that wartime displacement should not be treated as a single uniform condition. The most vulnerable configuration appeared to be personal displacement without institutional relocation. Academic staff who relocated individually while their institution had not relocated showed higher distress, whereas the association was substantially weaker when personal displacement occurred within the context of institutional relocation. This pattern should be interpreted cautiously because the relevant subgroup was small and the interaction was not consistently significant across all structural specifications. However, it offers a theoretically meaningful distinction between individual disruption and collective institutional continuity.

Institutional relocation may function not only as an administrative response to war but also as a form of collective continuity. When a university relocates with its staff, it may preserve communication, professional community, routines, symbolic belonging, and organisational structure. These resources may partly buffer the psychological burden of personal displacement. Conversely, staff who relocate individually while their institution remains in place may experience displacement as a more isolated rupture, with weaker continuity of academic community and institutional support. This interpretation remains exploratory, but it points to the importance of examining personal and institutional displacement jointly rather than as separate background variables.

The demographic and contextual findings should therefore be interpreted as markers of wartime positioning rather than as stable explanatory mechanisms. Gender and academic degree did not show robust adjusted associations in the structural model, whereas age and relocation patterns were more model-dependent. This is not unexpected, given that sociodemographic variables alone accounted for only a modest proportion of variance in psychological outcomes. In prolonged crisis contexts, individual characteristics may matter less as isolated predictors and more through their interaction with institutional structures, professional roles, displacement histories, and available support.

Theoretically, the findings support a differentiated view of burnout in prolonged crisis contexts. Burnout should neither be collapsed into depressive symptoms nor treated as fully separate from broader psychological distress. Instead, occupational and psychological distress appear to become closely interconnected when academic work is embedded in chronic insecurity and institutional disruption. At the same time, the results show the limits of treating burnout as a single score: emotional exhaustion, depersonalization, and personal accomplishment carried different psychological meanings in this wartime academic context.

In this respect, the study contributes to academic mental-health research by shifting the focus from the level of distress to the organisation of distress. Existing research has established that academic work is associated with workload pressure, publication and grant competition, emotional labour, digital overload, and insufficient institutional support (Winefield and Jarrett, 2001; Watts and Robertson, 2011; Guthrie et al., 2018; Kinman and Wray, 2020; Nicholls et al., 2022; Cadena-Povea et al., 2025). The present findings show that, in wartime higher education, these pressures are not merely intensified; they are reorganised through displacement, institutional continuity, and broader psychological threat. This suggests that academic staff mental health in crisis contexts should be understood not only through individual symptoms or workload exposure, but through the interaction between occupational demands, depressive and anxiety symptoms, professional meaning, and institutional belonging.

The findings also have practical implications for institutional mental-health support in wartime higher education, although these should be understood as practice-oriented interpretations of associative findings rather than evidence of intervention effectiveness. Universities may need integrated support models that address burnout and broader psychological distress together: reducing demands and emotional exhaustion, detecting depressive and anxiety symptoms, and preserving professional meaning without turning commitment or resilience into additional pressure for productivity or self-sacrifice. The relocation findings further suggest that support should be attentive to institutional continuity, particularly for staff who are personally displaced without a relocated institutional community and may require targeted outreach, stronger communication, and additional mechanisms of belonging.

Limitations

Several limitations should be acknowledged. First, the cross-sectional design prevents conclusions about temporal ordering or causality. Although the direction of paths in the SEM was theoretically specified and statistically evaluated, the data cannot establish whether burnout precedes depressive symptoms, whether depressive symptoms precede anxiety symptoms, or whether these processes develop reciprocally over time. Alternative specifications, including models in which anxiety symptoms and depressive symptoms are reversed, should therefore be regarded as sensitivity analyses rather than as tests of causal direction.

Second, the study relied on self-report measures. GAD-7 and PHQ-9 assess symptom severity rather than clinical diagnoses, and the MBI-HSS captures self-reported burnout dimensions. Although the instruments showed acceptable internal consistency, self-report data may be influenced by response styles, current mood, and shared method variance. Relatedly, possible conceptual and measurement overlap among burnout, depressive symptoms, and anxiety symptoms should be considered. The strong associations observed in this study may partly reflect shared distress variance across self-report measures.

Third, the sample was recruited through online and snowball sampling under wartime conditions. This strategy was appropriate and feasible in the context of displacement and institutional disruption, but it limits generalisability. The sample was predominantly female and highly qualified, which reflects the structure of Ukrainian academia to some extent but may also shape the observed patterns.

Fourth, the adjusted structural model should be interpreted as exploratory. The inclusion of several sociodemographic and wartime-related covariates, as well as the personal displacement by institutional relocation interaction, was intended to assess whether the main pattern remained similar under contextual adjustment. However, the model should not be treated as a confirmatory causal model. In particular, the relocation interaction should be described as a suggestive buffering pattern rather than as confirmed evidence of moderation.

Fifth, the subgroup of internally displaced staff whose institution had not relocated was small. Although this group showed the highest distress levels and is theoretically important, the exact magnitude of these associations is uncertain. The pattern should therefore be carried forward cautiously, with emphasis on the qualitative distinction between individual displacement and displacement within a relocated institutional community rather than on exact coefficient sizes.

Sixth, the analyses were conducted on an existing dataset that had been used in previous studies of burnout, anxiety, and depressive symptoms among Ukrainian academic staff. Although the present analysis addressed a distinct research question and did not duplicate previous statistical outputs, the measures were not originally designed specifically to test the structural model examined here.

Conclusion

This study shows that burnout, depressive symptoms, and anxiety symptoms were strongly interconnected among Ukrainian academic staff during the full-scale war, but not as a single undifferentiated syndrome. Its main contribution is the identification of a dimension-specific structure of wartime academic distress. Emotional exhaustion emerged as the burnout dimension most closely connected with broader psychological distress, whereas depersonalization was more peripheral and personal accomplishment appeared to reflect a distinct dimension of professional efficacy and meaning rather than simply the absence of burnout.

Depressive symptoms occupied the strongest connecting position in the specified cross-sectional models: the association between burnout and anxiety symptoms was substantially reduced when depressive symptoms were included. This pattern should not be interpreted as causal mediation or temporal sequence, but it suggests that anxiety symptoms in this context were embedded in a broader depressive-symptom configuration of distress.

The findings also indicate that wartime displacement in academia should be understood in relation to institutional continuity. Personal displacement appeared most distressing when it occurred without institutional relocation, suggesting that academic work, institutional belonging, and collective continuity may shape how displacement is psychologically experienced.

The practical value of these findings is that support for academic staff in wartime should move beyond generic burnout prevention. Universities should treat emotional exhaustion as an early warning signal, assess depressive and anxiety symptoms alongside burnout, preserve professional meaning without converting it into pressure for self-sacrifice, and maintain strong institutional ties

with displaced staff. In wartime higher education, mental-health support is therefore also a question of institutional continuity.

References

Ahola K, Hakanen J (2007) Job strain, burnout, and depressive symptoms: a prospective study among dentists. J Affect Disord 104(1–3):103–110. https://doi.org/10.1016/j.jad.2007.03.004

Aleksina N, Gerasimenko O, Lavrynenko D et al (2024) Ukrainian adaptation of the Generalized Anxiety Disorder scale (GAD-7): diagnostic experience in the state of martial law. Insight: Psychol Dimens Soc 11:77–103. https://doi.org/10.32999/2663-970X/2024-11-5

Bianchi R, Schonfeld IS, Laurent E (2015) Burnout-depression overlap: a review. Clin Psychol Rev 36:28–41. https://doi.org/10.1016/j.cpr.2015.01.004

Brintseva O (2026) The impact of war on Ukrainian universities: a difference-in-differences analysis and post-war recovery strategies. High Educ Q 80(2):e70113. https://doi.org/10.1111/hequ.70113

Cadena-Povea H, Hernández-Martínez M, Bastidas-Amador G et al (2025) What pushes university professors to burnout? A systematic review of sociodemographic and psychosocial determinants. Int J Environ Res Public Health 22(8):1214. https://doi.org/10.3390/ijerph22081214

Cramer AOJ, Waldorp LJ, van der Maas HLJ et al (2010) Comorbidity: a network perspective. Behav Brain Sci 33(2–3):137–193. https://doi.org/10.1017/S0140525X09991567

Finikov T, Lyman I, Suchikova Y (2026) When roots cling to the soil: intra-regional relocation of universities as a strategy for educational resilience in wartime. Reg Sci Policy Pract 18(3):100282. https://doi.org/10.1016/j.rspp.2026.100282

Fisher G (2025) The wartime university: the role of higher education in civil readiness. Policy Note 65. Higher Education Policy Institute, Oxford. https://www.hepi.ac.uk/reports/universities-role-in-global-conflict/. Accessed 30 Jun 2026

Foo CYS, Tay AK, Yang Y et al (2023) Psychosocial model of burnout among humanitarian aid workers in Bangladesh: role of workplace stressors and emotion coping. Confl Health 17:17. https://doi.org/10.1186/s13031-023-00512-1

Guthrie S, Lichten CA, Van Belle J et al (2018) Understanding mental health in the research environment: a rapid evidence assessment. RAND Health Q 7(3):2. https://pubmed.ncbi.nlm.nih.gov/29607246/

Hakanen JJ, Schaufeli WB (2012) Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. J Affect Disord 141(2–3):415–424. https://doi.org/10.1016/j.jad.2012.02.043

Huang Y, Luo X, Xu R et al (2026) Relationship between depression, anxiety and emotional exhaustion among infectious disease nurses: a network analysis. BMC Psychiatry 26:369. https://doi.org/10.1186/s12888-026-07996-0

Jacobson NC, Newman MG (2017) Anxiety and depression as bidirectional risk factors for one another: a meta-analysis of longitudinal studies. Psychol Bull 143(11):1155–1200. https://doi.org/10.1037/bul0000111

Kalfon Hakhmigari M, Diamant I (2025) Occupational burnout during war: the role of stress, disruptions in routine, sleep, work-family conflict, and organizational support as a moderator. PLoS One 20(1):e0316917. https://doi.org/10.1371/journal.pone.0316917

Kinman G, Wray S (2020) Well-being in academic employees: a benchmarking approach. In: Burke RJ, Pignata S (eds) Handbook of research on stress and well-being in the public sector. Edward Elgar Publishing, Cheltenham, pp 152–166. https://doi.org/10.4337/9781788970358.00019

Kline RB (2016) Principles and practice of structural equation modeling, 4th edn. Guilford Press, New York

Kohut A, Chaban O (2025) The evaluation of psychometric properties of the Ukrainian versions of PCL-5, PHQ-9 and GAD-7 scales. Psychosom Med Gen Pract 10(1). https://doi.org/10.26766/pmgp.v10i1.597

Kolomitro K, Kenny N, Le-May Sheffield S (2020) A call to action: exploring and responding to educational developers' workplace burnout and well-being in higher education. Int J Acad Dev 25(1):5–18. https://doi.org/10.1080/1360144X.2019.1705303

Koutsimani P, Montgomery A, Georganta K (2019) The relationship between burnout, depression, and anxiety: a systematic review and meta-analysis. Front Psychol 10:284. https://doi.org/10.3389/fpsyg.2019.00284

Kroenke K, Spitzer RL, Williams JBW (2001) The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med 16(9):606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Kurapov A, Pavlenko V, Drozdov A et al (2024) Impact of war on Ukrainian university students and personnel: repeated cross-sectional study. J Loss Trauma. https://doi.org/10.1080/15325024.2024.2433990

Lavrysh Y, Lytovchenko I, Lukianenko V et al (2025) Teaching during the wartime: experience from Ukraine. Educ Philos Theory 57(3):197–204. https://doi.org/10.1080/00131857.2022.2098714

Mallhi TH, Khan NA, Siddique A et al (2023) Mental health and coping strategies among university staff during the COVID-19 pandemic: a cross-sectional analysis from Saudi Arabia. Sustainability 15(11):8545. https://doi.org/10.3390/su15118545

Marsh E, Vallejos EP, Spence A (2022) The digital workplace and its dark side: an integrative review. Comput Hum Behav 128:107118. https://doi.org/10.1016/j.chb.2021.107118

Maslach C, Jackson SE, Leiter MP (2018) Maslach Burnout Inventory manual, 4th edn. Mind Garden, Menlo Park, CA

Nicholls H, Nicholls M, Tekin S et al (2022) The impact of working in academia on researchers' mental health and well-being: a systematic review and qualitative meta-synthesis. PLoS One 17(5):e0268890. https://doi.org/10.1371/journal.pone.0268890

Orzhel O, Trofymenko M, Porkuian O et al (2023) Displaced universities in Ukraine: challenges and optimal development models. Eur J Educ 58(4):629–644. https://doi.org/10.1111/ejed.12581

Rodríguez-De Avila UR, Paba-Argote Z (2023) Young vs adults: adaptability to ICTs, resilience, anxiety and depression in university students and professors. Eur Psychiatry 66(Suppl 1):S461–S462. https://doi.org/10.1192/j.eurpsy.2023.990

Schonfeld IS, Bianchi R (2022) Distress in the workplace: characterizing the relationship of burnout measures to the Occupational Depression Inventory. Int J Stress Manag 29(3):253–259. https://doi.org/10.1037/str0000261

Spitzer RL, Kroenke K, Williams JBW et al (2006) A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 166(10):1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Tao R, Wang S, Lu Q et al (2024) Interconnected mental health symptoms: network analysis of depression, anxiety, stress, and burnout among psychiatric nurses in the context of the COVID-19 pandemic. Front Psychiatry 15:1485726. https://doi.org/10.3389/fpsyt.2024.1485726

Toker S, Biron M (2012) Job burnout and depression: unraveling their temporal relationship and considering the role of physical activity. J Appl Psychol 97(3):699–710. https://doi.org/10.1037/a0026914

Tsybuliak N, Kolomiiets U, Lopatina H et al (2024) Anxiety among Ukrainian academic staff during wartime. Sci Rep 14:27152. https://doi.org/10.1038/s41598-024-78052-8

Tsybuliak N, Kolomiiets U, Mytsyk H et al (2026) Depressive symptom severity among Ukrainian academic staff during the full-scale war: associations with gender, displacement, and university relocation. Depression and Anxiety 2026:9937337. https://doi.org/10.1155/da/9937337

Tsybuliak N, Kolomiiets U, Popova A et al (2025) Progressive intensification of burnout among academic staff during the war. Humanit Soc Sci Commun 12:1994. https://doi.org/10.1057/s41599-025-06322-5

Tsybuliak N, Suchikova Y, Shevchenko L et al (2023) Burnout dynamic among Ukrainian academic staff during the war. Sci Rep 13:17975. https://doi.org/10.1038/s41598-023-45229-6

UNESCO (2024) Analysis of war damage to the Ukrainian science sector and its consequences. UNESCO, Paris. https://unesdoc.unesco.org/ark:/48223/pf0000388803. Accessed 30 Jun 2026

Vandenabeele R, Joosen MCW, van Dam A (2025) Chronic stress in relation to clinical burnout: an integrative scoping review of definitions and measurement approaches. Front Psychol 16:1712340. https://doi.org/10.3389/fpsyg.2025.1712340

Waaijer CJF, Teelken C, Wouters PF et al (2018) Competition in science: links between publication pressure, grant pressure and the academic job market. High Educ Policy 31:225–243. https://doi.org/10.1057/s41307-017-0051-y

Watts J, Robertson N (2011) Burnout in university teaching staff: a systematic literature review. Educ Res 53(1):33–50. https://doi.org/10.1080/00131881.2011.552235

Winefield AH, Jarrett R (2001) Occupational stress in university staff. Int J Stress Manag 8(4):285–298. https://doi.org/10.1023/A:1017513615819

Wolf EJ, Harrington KM, Clark SL et al (2013) Sample size requirements for structural equation models: an evaluation of power, bias, and solution propriety. Educ Psychol Meas 73(6):913–934. https://doi.org/10.1177/0013164413495237

World Health Organization (2019) International statistical classification of diseases and related health problems, 11th rev. https://icd.who.int/browse11/l-m/en. Accessed 30 Jun 2026

Yingying S, Omar MK, Ismail N (2025) Job stress and burnout among lecturers: a systematic literature review and meta-analysis. Front Psychol 16:1673812. https://doi.org/10.3389/fpsyg.2025.1673812

Data availability

The anonymised dataset supporting the findings of this study is available in Zenodo [LINK].

Ethical statements

Ethical approval

This study followed strict ethical standards for research involving human participants in accordance with the Declaration of Helsinki and the Belmont Report. All participants provided informed consent and were made aware of their right to withdraw from the study at any time without repercussions. Confidentiality and anonymity of the data were upheld throughout the study. Ethical approval was granted by the Ethics Committee of [UNIVERSITY NAME] (Protocol No. 12/2023), confirming adherence to high ethical standards.

Informed consent

This study involved non-interventional research, specifically the collection of data through surveys and questionnaires. All participants were fully informed about the purpose of the study, the nature of

their participation, and their rights, including the voluntary nature of their involvement and the option to withdraw at any time without consequences. Participants were assured that their anonymity would be strictly maintained, with no personally identifiable information collected at any stage of the research process.

The data collected were used exclusively for academic purposes and analysed in aggregate form to ensure confidentiality. No risks to participants were identified beyond potential emotional discomfort when reflecting on burnout-related experiences. Participants were encouraged to seek professional support if needed.

Consent to participate and for data publication was obtained from all participants.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementaryMaterialsrevised3006.docx