DOI: https://doi.org/10.30841/2708-8731.3.2026.364514
UDC 618:159.9:004.77

Women academics' mental and reproductive well-being in digital higher education under wartime conditions: boundary blurring and emotional exhaustion

O. A. Cherepiekhina[1], O. O. Stavytskyi[2], V. A. Bulanov[3], O. V. Puchyna[4], V. V. Sokolova[5], M. I. Hrechanyk[6]
[1]PHEI "Dnipro Technological University "STEP""
[2]The National University of Water and Environmental Engineering, Rivne
[3]National University Zaporizhzhia Polytechnic
[4]Centre for Psychological Rehabilitation of the Charitable Organisation "Charitable Foundation "Superhumans", Dnipro
[5]HEI "Alfred Nobel University", Dnipro
[6]Zaporizhzhia National University

Digitalized academic work in higher education forms a specific psychosocial mechanism of boundary blurring between professional and private life. For female teachers, this may have insufficiently studied physical consequences, since reproductive well-being is sensitive to the deficit of recovery, emotional exhaustion, and disruption of life rhythms due to risks to safety and attachment during wartime.
The objective: **to examine whether boundary blurring in digitalized academic work is associated with lower reproductive well-being among women university educators in Ukraine during wartime, and whether this association is mediated by emotional exhaustion.**
Materials and methods**. A total of 869 women educators from 9 Ukrainian higher education institutions participated in the study. Boundary blurring was assessed with an adapted test of boundary permeability "work – home – digital interference", emotional exhaustion – by the Emotional Exhaustion subscale of the Maslach Burnout Inventory (MBI-EE), reproductive well-being – author-developed Reproductive Well-Being in Digital Academia Questionnaire (RWDAQ). Correlation analysis, hierarchical regression, and mediation analysis were used to process the data, as well as testing the interaction with internally displaced person (IDP) status.**
Results**. Boundary blurring was a statistically significant negative predictor of RWDAQ Total ($\beta = -0.41$, $p < 0.001$), explaining 17% of variance. Adding emotional exhaustion increased the explanatory power of the regression model to 32% ($R^2 = 0.32$; $\Delta R^2 = 0.15$, $p < 0.001$). The indirect effect through MBI-EE was statistically significant (effect = –0.18; 95% confidence interval [–0.22; –0.14]), suggesting a mediated psychosocial relationship between boundary blurring and reproductive well-being in the context of war. No moderating effect of IDP status was found ($p > 0.05$).**
Conclusions**. A key challenge of wartime digital academia for Ukrainian women educators is a structural boundary blurring, linked to emotional exhaustion and reduced reproductive well-being, which may serve as a sensitive psychosomatic indicator of the embodied load of digital labor, underscoring the need for institutional recovery and boundary-management strategies.**
Keywords: *women academics, reproductive well-being, attachment, interaction, digital work, wartime.*

Психічне та репродуктивне благополуччя жінок-викладачок у цифровізованій вищій освіті в умовах війни: розмиття меж і емоційне виснаження

О. А. Черепєхіна, О. О. Ставицький, В. А. Буланов, О. В. Пучина, В. В. Соколова, М. І. Гречаник

Цифровізація академічної праці у вищій освіті формує специфічний психосоціальний механізм розмиття меж між професійним і приватним життям. Для викладачок це може мати недостатньо досліджені тілесні наслідки, оскільки репродуктивне благополуччя є чутливим до дефіциту відновлення, емоційного виснаження та порушення життєвих ритмів у зв'язку з ризиками для безпеки й прив'язаності під час війни.
Мета дослідження: визначення взаємозв'язку розмиття меж у цифровізованій академічній праці з нижчими показниками репродуктивного благополуччя викладачок України у воєнний час та з'ясування ролі емоційного виснаження як механізму опосередкування цього зв'язку.
Матеріали та методи. У дослідження увійшли 869 викладачок 9 закладів вищої освіти України. Розмиття меж оцінювали за допомогою адаптованого тесту проникності меж «робота – дім – цифрове втручання», емоційне виснаження – за підшкалою MBI-EE (the Emotional Exhaustion subscale of the Maslach Burnout Inventory), репродуктивне благополуччя – за авторською анкетою RWDAQ (Reproductive Well-Being in Digital Academia Questionnaire). Для обробки даних застосовували кореляційний аналіз, ієрархічну регресію та медіаційний аналіз, а також тестування взаємодії зі статусом внутрішньо переміщеної особи (ВПО).

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

Результати. Розмиття меж було статистично значущим негативним предиктором показника RWDAQ Total (β = –0,41, p < 0,001), пояснюючи 17% дисперсії. Додавання емоційного виснаження підвищило пояснювальну здатність регресійної моделі до 32% (R^2 = 0,32; ΔR^2 = 0,15, p < 0,001). Непрямий ефект через MBI-EE був статистично значущим (effect = –0,18; 95% довірчий інтервал [–0,22; –0,14]), що свідчить про опосередкований психосоціальний зв'язок між розмиттям меж і репродуктивним благополуччям на тлі війни. Модераційного впливу статусу ВПО не виявлено (p > 0,05).

Висновки. Ключовим викликом цифровізованої академічної праці для викладачок України у воєнний час є структурне розмиття меж, пов'язане з емоційним виснаженням і нижчим рівнем репродуктивного благополуччя, яке може розглядатися як психосоматичний індикатор тілесного навантаження цифровізованої праці та актуалізує потребу в інституційних стратегіях відновлення й управління межами.

Ключові слова: *викладачки, репродуктивне благополуччя, прив'язаність, взаємодія, цифровізована праця, війна.*

In the context of the ongoing digital transformation of higher education, the well-being of women educators and women academics has gained heightened social and medico-psychological relevance. Academic work is increasingly conducted online, accompanied by intensified professional role demands, sustained digital availability, and shifting boundaries between work and private life [1–4]. For women who combine teaching, research, and emotionally supportive functions within university environments, these processes may generate a distinctive configuration of psychosocial load, with implications not only for mental health but also for embodied and reproductive dimensions of well-being [5].

The escalation of digital academic workload-linked to remote teaching, administratively integrated workflows, and continuous communication with students-has been associated with elevated levels of stress and occupational burnout among university teaching staff. Empirical evidence suggests that online teaching is related to increased emotional exhaustion and psycho-emotional strain in university educators [6–8]. Women professors and women researchers constitute a particularly vulnerable group in this context, as digital working regimes often coincide with unequal distributions of caregiving, invisible emotional labor, and broader social responsibility. Prior studies have addressed aspects of teachers' occupational stress linked to the digitalization of education [9–11], including the effects of technostress on women's reproductive health among female educators and students [12, 13], teachers' emotional exhaustion during the COVID-19 pandemic [14, 15], and technostress at work and its implications for psychological well-being among employees and students [16, 17].

A key psychological mechanism capturing the specificity of digitalized academia is boundary blurring-the erosion of boundaries between professional and private spheres of life. In digital learning environments, information and communication technologies increase the permeability of work boundaries, promoting persistent role presence, constrained recovery opportunities, and a chronic state of "partial occupancy" even during non-work hours [18]. Research also indicates that after-hours digital communication substantially elevates the risk of emotional exhaustion and burnout [19]. This positions boundary blurring as a central driver of psycho-emotional overload in contemporary higher education and in educators' work in particular [20–22]. However, empirical evidence remains limited regarding whether and how boundary blurring functions as a primary factor of psycho-emotional overload specifically among women university educators.

Within this framework, emotional exhaustion-the core component of occupational burnout-becomes particularly salient. Technostress and the digital demands of remote work may serve as predictors of exhaustion among educators, as supported by recent studies in educational settings [23–25]. Yet, the literature still lacks focused analyses of how technostress and the digital demands of remote academic work predict exhaustion specifically in women educators. Thus, the digitalization of higher education creates not only a new organizational reality but also new psychosocial risks for women's academic well-being.

At the same time, despite extensive research on mental health and burnout in occupational contexts, the relationship between these processes and women's reproductive well-being remains insufficiently elaborated [26]. Reproductive health in the research literature is often reduced to fertility outcomes or clinical diagnoses, whereas contemporary approaches emphasize its multidimensionality as an integration of bodily autonomy, hormonal regulation, menstrual well-being, and the subjective sense of control over one's bodily rhythms. Evidence suggests that occupational burnout is associated with reproductive disruptions among women in high-demand professions, including female physicians and women in medical academia [12, 27, 28]. Moreover, psychological distress and work-related stress have been linked to menstruation-related symptoms among working women [29], supporting the psychosomatic sensitivity of reproductive functioning to chronic load.

These issues are particularly acute in Ukraine, where digital academic work unfolds under prolonged wartime instability. War constitutes a macro-context that amplifies psycho-emotional strain, disrupts daily rhythms, constrains recovery, and heightens vulnerability among women in the academic community [30]. Studies indicate increased psychosocial strain among Ukrainian scholars under wartime conditions [31–33], as well as specific challenges of distance education in relocated universities [34]. In our study, wartime conditions are treated as a contextual amplifier of digital load rather than as a direct measure of trauma exposure.

Despite this growing body of work, several unresolved issues define the current research gap. First, it remains insufficiently understood how boundary blurring in digitalized academic work may be associated with women's reproductive well-being. Second, empirical models that explicate psychological mechanisms underlying this association are scarce, particularly regarding emotional exhaustion as a potential mediator. Third, there is a methodological shortage of instruments designed to assess women's reproductive well-being specifically within digitalized academic environments, underscoring the need for context-sensitive psychometric approaches. Under wartime conditions, it is also important to consider potential interaction effects between digital boundary erosion and social instability factors, including women educators' internal displacement status.

The objective: to conceptualize women university educators' mental and reproductive well-being as a psychosocial dimension of adaptation to digitalized higher education under wartime conditions, and to empirically examine how boundary blurring between professional and private life, via emotional exhaustion, is associated with reproductive well-being indicators among women educators in Ukraine.

MATERIALS AND METHODS

The study employed a quantitative cross-sectional design and examined psychosocial associations between boundary blurring (i.e., the erosion of boundaries between professional and private life [35]), emotional exhaustion as a core component of occupational burnout, and indicators of reproductive well-being among women university educators. Data were collected in the context of digitalized higher education in Ukraine during ongoing wartime instability, which was conceptualized as a macro-contextual amplifier of psycho-emotional load rather than as a separate study variable (Table 1).

Participant recruitment was conducted through internal academic channels of the participating universities, institutional email distribution lists, and professional educational networks. Data collection took place between October and December 2025. The survey was administered online using secure digital platforms, consistent with the prevailing conditions of academic work and remote teaching in the context of digitalized higher education.

Inclusion criteria were: female gender; age ≥ 22 years; affiliation with the academic community (university educator, researcher, or academic staff member); and active engagement in the digital educational process (online or hybrid teaching and/or academic work). Exclusion criteria included: pregnancy at the time of participation (to avoid physiological confounding of reproductive indicators); and the presence of acute medical conditions that could substantially influence somatic well-being (self-reported). To operationalize the key constructs, a combination of standardized instruments and an author-developed measure was employed.

1. Digital Academic Boundary Blurring Scale (Adapted Items).

Boundary blurring was assessed using an adapted set of items rather than a standalone validated instrument. The adapted measure was contextualized to digital academic work and captured the degree of work permeation into private time, sustained availability, and the absence of temporal pauses between professional and non-work roles. Higher scores indicated more intensive boundary erosion between work and personal life in digital environments [19].

2. Emotional Exhaustion (Maslach Burnout Inventory).

The mental-health component of occupational burnout was evaluated using the Emotional Exhaustion subscale of the Maslach Burnout Inventory (MBI-EE), an internationally validated instrument designed to measure chronic psycho-emotional depletion under sustained professional demands. The subscale includes nine items reflecting feelings of energetic exhaustion, emotional overload, and loss of psychological resources. Higher scores corresponded to greater levels of emotional exhaustion [36].

3. Reproductive Well-Being (Author-Developed Questionnaire; Appendix A).

To assess reproductive well-being under conditions of digitalized academic work, an author-developed instrument – the Reproductive Well-Being in Digital Academia Questionnaire (RWDAQ) was constructed. The questionnaire comprised 28 items and was designed to capture subjective psychosomatic dimensions of women's reproductive well-being, including menstrual stability, hormonal regulation (via embodied symptoms), bodily autonomy, sexual well-being, perceived control over personal biological rhythms, and somatic recovery. The scale was developed in response to a methodological gap in measurement tools integrating the digital academic work context with reproductive well-being conceptualized as a psychosocial process. The RWDAQ structure included the following domains (subscales) listed in Table 2.

Table 1

Institutional distribution (9 Ukrainian HEIs) (n = 869)

HEIs	n	%
PHEI "Dnipro Technological University "STEP""	88	10.1
Oles Honchar Dnipro National University	112	12.9
National University Zaporizhzhia Polytechnic	101	11.6
Zaporizhzhia National University	98	11.3
Classic Private University	82	9.4
MIHE "Khortytsia National Educational and Rehabilitational Academy"	124	14.3
The National University of Water and Environmental Engineering	86	9.9
Zaporizhzhia State Medical University	130	15.0
HEI "Alfred Nobel University"	48	5.5

Notes: HEI – higher education institution; PHEI – private HEI; MIHE – municipal institution of higher education.

Table 2

Domains (subscales) included in the RWDAQ

Domains (subscales)	Content focus	Items	Reliability (Cronbach's α)
1. Menstrual & Bodily Stability	Cyclicality, bodily stability	1–4	0.82
2. Psychosomatic Sensitivity	Bodily reactions to digital stress	5–8	0.84
3. Bodily Autonomy & Control	Control over bodily rhythms, autonomy	9–12	0.81
4. Recovery Deficit & Resourcefulness	Recovery deficit, exhaustion	13–16	0.86
5. Emotional–Reproductive Regulation	Emotional–reproductive mutual regulation	17–20	0.83
6. Boundary Intrusion & Embodied Depletion	Bodily exhaustion through boundary blurring	21–27	0.85
7. Global Well-Being Item	Integral reproductive well-being	28	–

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

Table 3

Constructs and measures

Constructs/variables	Measurement instrument	Number of items	Example of item content	Response scale	Reliability (Cronbach's α)
Boundary blurring (*X*)	Digital Academic Boundary Blurring Scale (adapted items)	6	"Work invades my private time through digital accessibility"	Likert 1–5	0.83
Emotional exhaustion (*Med*)	MBI-EE	9	"I feel emotionally drained by work"	Likert 0–6	0.91
Reproductive well-being (overall indicator) (*Y*)	Author-developed RWDAQ	28	"I experience reproductive well-being as part of my mental resource"	Likert 1–5	0.89

Notes: boundary blurring was assessed using an adapted set of items derived from work–home boundary permeability models and research on digital intrusion into private time. Reproductive well-being was conceptualized as a psychosomatic dimension of women's well-being within digitalized academic work environments; MBI-EE – the Emotional Exhaustion subscale of the Maslach Burnout Inventory; RWDAQ – Reproductive Well-Being in Digital Academia Questionnaire.

Statistical analysis

Data processing was performed using SPSS version 27. The analytical strategy included the following procedures:

1. Descriptive statistics M (mean), SD (standard deviation) were computed for all primary study variables.
2. Correlation analysis was conducted to examine associations between boundary blurring, emotional exhaustion, and reproductive well-being.
3. Hierarchical regression analysis was applied to determine the incremental contribution of boundary blurring and burnout-related indicators in explaining variance in reproductive well-being.
4. Mediation analysis was performed using the PROCESS macro (Model 4) to test the indirect effect of emotional exhaustion as a psychosocial mechanism mediating the association between boundary blurring and reproductive well-being.

Internal consistency reliability of the scales was assessed using Cronbach's alpha (α). Bivariate associations were examined using Pearson's correlation coefficient (r). Hierarchical regression analysis was used to evaluate the incremental predictive value of boundary blurring and emotional exhaustion for reproductive well-being; results are reported as unstandardized regression coefficients (B), standardized coefficients (β), standard errors (SE), and associated t- and p-values. The proportion of variance explained by the models is expressed as the coefficient of determination (R^2), with changes in explanatory power indicated by ΔR^2.

Indirect effects were estimated using bootstrapping (5,000 resamples) with 95% confidence intervals (CIs). Mediation was considered statistically significant when the CI did not include zero. The model variables were specified as follows: predictor (*X*) = boundary blurring; mediator (*Med*) = emotional exhaustion (MBI-EE); outcome (*Y*) = reproductive well-being (RWDAQ) (Table 3).

In addition to the core model variables (boundary blurring, emotional exhaustion, and reproductive well-being), sociodemographic covariates were included in the regression and mediation analyses: age, years of academic experience, marital status, and internally displaced person (IDP) status (0 = non-displaced, 1 = displaced). This approach allowed us to control for the potential influence of wartime-related life instability on recovery processes and emotional exhaustion outcomes. Furthermore, a moderation analysis was conducted to examine whether the strength of the association between boundary blurring and reproductive well-being differed as a function of IDP status (interaction term: boundary blurring × IDP).

Ethical considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants provided informed consent electronically prior to completing the survey. Data were collected anonymously, and all information was used exclusively for scientific purposes. The study was approved by the Ethics Committee of the Institute for the Development of Practical Psychology (Zaporizhzhia), Protocol No. 9, 02 September 2025. Informed consent was obtained from all participants. Ethical principles of anonymity, confidentiality, voluntariness, and the right to withdraw were strictly respected in accordance with the Declaration of Helsinki. Sensitive items were minimized, and participants were provided with a list of SRHR (Sexual and Reproductive Health and Rights) and psychological support services at the end of the survey.

Limitations and future directions

First, the cross-sectional design does not allow causal inferences; all relationships are interpreted as associations. Second, wartime conditions were treated as a contextual background of the sample rather than operationalized as a separate variable, which limits the ability to quantitatively disentangle their specific contribution. Third, RWDAQ is an author-developed instrument requiring further extended psychometric validation.

Promising future directions include longitudinal research designs, the inclusion of additional covariates (age, academic experience, work schedule, marital status), and cross-national samples to assess the generalizability of the conceptual framework. Although IDP status was included as a contextual factor, future longitudinal studies should more explicitly evaluate the role of wartime traumatic exposures and displacement-related conditions as potential moderators of psychosomatic dimensions of reproductive well-being.

RESULTS AND DISCUSSION

The sample comprised 869 women academics and educators recruited from nine higher education institutions in Ukraine (PHEI "Dnipro Technological University "STEP""; Oles Honchar Dnipro National University; National University Zaporizhzhia Polytechnic; Zaporizhzhia National University; Classic Private University; HEI "Alfred Nobel University"; MIHE "Khortytsia National Educational and Rehabilitational Academy" of Zaporizhzhia Regional Council; The National University of Water and Environmental Engineering; Zaporizhzhia State Medical University (Table 4), ensuring a multi-center sampling framework.

The study examined levels of boundary blurring between professional and private life domains, emotional exhaustion (MBI-EE), and reproductive well-being (RWDAQ). Descriptive statistics and correlation coefficients are presented in Table 5. The mean level of boundary blurring was M = 3.42 (SD = 0.78), emotional exhaustion averaged M = 3.15 (SD = 1.12), and overall reproductive well-being (RWDAQ Total) was M = 3.08 (SD = 0.64). Across RWDAQ domains, the mean values were as follows: Menstrual & Bodily Stability (M = 3.11, SD = 0.72), Recovery Deficit & Resourcefulness (M = 2.89, SD = 0.81), and Bodily Autonomy & Control (M = 3.05, SD = 0.74).

Correlation analysis revealed statistically significant associations among the primary study variables. Boundary blurring was positively correlated with emotional exhaustion ($r = 0.54$, $p < 0.001$) and negatively correlated with overall reproductive well-being (RWDAQ Total) ($r = –0.41$, $p < 0.001$). Emotional exhaustion was also negatively correlated with RWDAQ Total ($r = –0.52$, $p < 0.001$). Significant correlations were additionally observed between boundary blurring, emotional exhaustion, and the RWDAQ domains of Menstrual & Bodily Stability, Recovery Deficit & Resourcefulness, and Bodily Autonomy & Control.

Hierarchical regression analysis indicated that, at Step 1, boundary blurring was a statistically significant predictor of RWDAQ Total ($\beta = –0.41$, $p < 0.001$; $R^2 = 0.17$). At Step 2, the inclusion of emotional exhaustion substantially increased the explained variance of the model ($R^2 = 0.32$; $\Delta R^2 = 0.15$, $p < 0.001$). In the final model, emotional exhaustion remained a significant predictor of RWDAQ Total ($\beta = –0.45$, $p < 0.001$), while boundary blurring retained statistical significance, though with a reduced coefficient ($\beta = –0.18$, $p < 0.001$) (Table 6).

Table 4

Socio-demographic and academic characteristics of the sample (n = 869)

Variables	Categories	n	%
Age, years	M ± SD	**38.9 ± 9.4**	–
	22–30	214	24.6
	31–40	298	34.3
	41–50	221	25.4
	≥ 51	136	15.7
Academic experience, years	M ± SD	**13.6 ± 8.2**	–
	≤ 5	176	20.3
	6–15	372	42.8
	≥ 16	321	36.9
Academic role	University educator (teaching staff)	512	58.9
	Researcher / scientific staff	357	41.1
Teaching format	Predominantly online	489	56.3
	Hybrid (online + offline)	380	43.7
Marital status	Married/ partnered	502	57.8
	Single/not partnered	256	29.5
	Divorced/ widowed	111	12.7
Wartime displacement status	IDP	283	32.6
	Non-displaced	586	67.4

Notes: M – mean; SD – standard deviation; IDP – internally displaced person.

Table 5

Descriptive statistics and correlations among the main study variables (n = 869)

Variables	M	SD	1	2	3	4	5	6
1. Boundary Blurring (6 items)	3.42	0.78	–	–	–	–	–	–
2. Emotional Exhaustion (MBI-EE)	3.15	1.12	0.54	–	–	–	–	–
3. RWDAQ Total (Well-Being)	3.08	0.64	–0.41	–0.52	–	–	–	–
4. Menstrual & Bodily Stability	3.11	0.72	–0.28	–0.34	0.71	–	–	–
5. Recovery Deficit & Resourcefulness	2.89	0.81	–0.45	–0.56	0.79	0.48	–	–
6. Bodily Autonomy & Control	3.05	0.74	–0.39	–0.49	0.76	0.52	0.61	–

Notes: $p < 0.001$; M – mean; SD – standard deviation; MBI-EE – the Emotional Exhaustion subscale of the Maslach Burnout Inventory; RWDAQ – Reproductive Well-Being in Digital Academia Questionnaire; RWDAQ scores are interpreted as indicators of psychosomatic reproductive well-being in the context of digitalized academic work. Boundary blurring was assessed using an adapted set of items capturing boundary permeability and sustained digital availability.

Table 6

Hierarchical regression predicting reproductive well-being (RWDAQ)

Steps	Predictors	β	SE	p
Step 0 (Covariates)	Age	–0.12	0.03	0.002
	Academic experience	–0.08	0.03	0.018
	Marital status (partnered)	0.06	0.03	0.041
	IDP status (1 = displaced)	–0.15	0.04	< 0.001
Step 1 (Main effect)	Boundary blurring	–0.41	0.04	< 0.001
Step 2 (Mediator)	Emotional exhaustion (MBI-EE)	–0.45	0.04	< 0.001
Step 3 (Moderation test)	Boundary blurring × IDP	–0.04	0.03	0.211

Notes: model fit: Step 0: $R^2 = 0.09$; Step 1: $\Delta R^2 = 0.17$; Step 2: $\Delta R^2 = 0.15$ (Total $R^2 = 0.32$); Step 3: $\Delta R^2 = 0.00$ (not significant); IDP – internally displaced person; MBI-EE – the Emotional Exhaustion subscale of the Maslach Burnout Inventory; SE – standard error; $p < 0.001$.

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

Table 7

Mediation analysis (PROCESS Model 4): indirect association between boundary blurring and reproductive well-being through emotional exhaustion (n = 869)

Pathway / Effect	B	SE	t	p	95% Boot CI	R^2
A: Boundary Blurring → Emotional Exhaustion (a path)	0.78	0.04	19.50	< 0.001	–	0.29
B: Emotional Exhaustion → RWDAQ Total (b path)	–0.23	0.01	–18.60	< 0.001	–	0.32
C: Boundary Blurring → RWDAQ Total (direct effect, c')	–0.14	0.02	–7.00	< 0.001	–	–
D: Boundary Blurring → RWDAQ Total (total effect, c)	–0.32	0.02	–16.00	< 0.001	–	–
E: Boundary Blurring → Emotional Exhaustion → RWDAQ Total (indirect effect, a × b)	–0.18	0.02	–	–	[–0.22; –0.14]	–

Notes: B – unstandardized regression coefficient; SE – standard error; R^2 – coefficient of determination; MBI-EE – the Emotional Exhaustion subscale of the Maslach Burnout Inventory; RWDAQ – Reproductive Well-Being in Digital Academia Questionnaire; CI – confidence interval; *X* = Boundary Blurring (6-item adapted set); *Med* = Emotional Exhaustion (MBI-EE); *Y* = Reproductive Well-Being (RWDAQ Total); CI not including zero indicates statistical significance ($p < 0.05$); R^2 for *Med* = 0.29; R^2 for *Y* = 0.32.

At Step 0 of the model, socio-demographic covariates (age, years of academic experience, marital status, and internal displacement status) were entered, collectively accounting for 9% of the variance in RWDAQ outcomes ($R^2 = 0.09$). IDP status emerged as a significant negative predictor of reproductive well-being ($\beta = –0.15$, $p < 0.001$), reflecting the vulnerability of women's reproductive dimensions of well-being within the broader wartime social context.

At Step 1, the primary predictor-boundary blurring between professional and private life domains-was introduced and demonstrated a statistically significant negative association with reproductive well-being ($\beta = –0.41$, $p < 0.001$), explaining an additional 17% of variance ($\Delta R^2 = 0.17$, $p < 0.001$). The inclusion of emotional exhaustion (MBI-EE) at Step 2 substantially increased the explanatory power of the model ($\Delta R^2 = 0.15$, $p < 0.001$), with emotional exhaustion emerging as a strong negative predictor of RWDAQ ($\beta = –0.45$, $p < 0.001$). Overall, the final model accounted for 32% of the variability in reproductive well-being ($R^2 = 0.32$).

A supplementary moderation test indicated that the interaction between boundary blurring and IDP status was not statistically significant ($\beta = –0.04$, $p = 0.211$), suggesting relative stability of the observed associations regardless of displacement status. Thus, boundary blurring in digital academic work may be conceptualized as a broadly relevant psychosocial mechanism linked to women educators' reproductive well-being under crisis conditions.

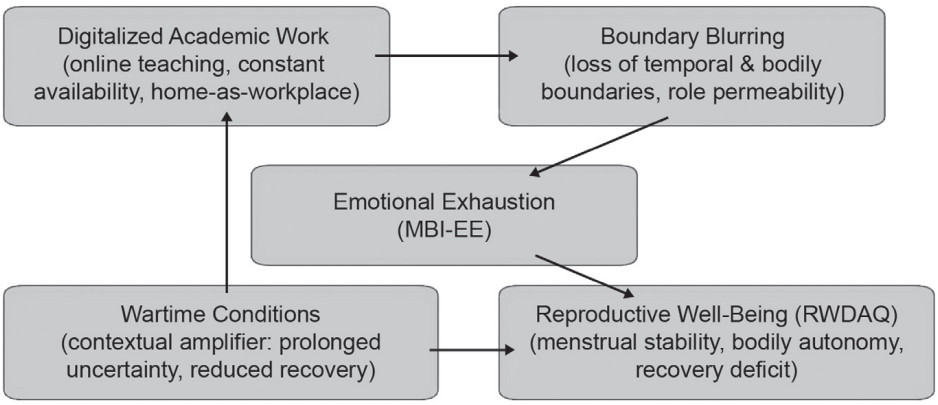
Mediation analysis was conducted using the PROCESS macro (Model 4) with 5,000 bootstrap resamples (Table 7). The pathway from boundary blurring to emotional exhaustion was statistically significant ($B = 0.78$, $SE = 0.04$, $p < 0.001$; $R^2 = 0.29$). In the model including both predictors (boundary blurring and emotional exhaustion), the path from emotional exhaustion to RWDAQ Total was significant ($B = –0.23$, $SE = 0.01$, $p < 0.001$), as was the direct effect of boundary blurring on RWDAQ Total ($B = –0.14$, $SE = 0.02$, $p < 0.001$). The total effect of boundary blurring on RWDAQ Total was also statistically significant ($B = –0.32$, $SE = 0.02$, $p < 0.001$). The indirect effect was –0.18, with a 95% bootstrap CI of [–0.22; –0.14], indicating a significant mediated pathway.

The obtained findings support the interpretation that emotional exhaustion may function as a psychosocial mechanism through which boundary blurring in digitalized academic work is associated with reduced reproductive well-being (RWDAQ), within the limits of a cross-sectional design. The core associations between boundary blurring, emotional exhaustion, and reproductive well-being remained statistically significant after controlling for age, years of academic experience, marital status, and IDP status. A supplementary moderation test indicated that the boundary blurring × IDP interaction was not statistically significant ($p > 0.05$), suggesting relative stability of the observed effects regardless of displacement. Thus, boundary erosion emerges as a broadly relevant mechanism of digital load in women's academic work under wartime conditions.

These results contribute to the growing international literature on digital strain in knowledge work and suggest that, for women educators, boundary blurring may represent a systemic psychosocial risk factor linked not only to psychological exhaustion but also to broader embodied and reproductive dimensions of well-being. A key empirical contribution is the presence of statistically significant associations between boundary blurring and reproductive well-being (RWDAQ), alongside a significant indirect effect via emotional exhaustion (MBI-EE), consistent with mediated pathway logic in studies of digital availability and work-home interference.

1) Boundary blurring as a digital load mechanism rather than a mere "inconvenience of schedule".

Research using smartphone activity and after-hours availability has shown that post-work digital communication and social norms of constant accessibility are associated with increased work–home interference and exhaustion [37]. Our findings align with this line of inquiry and further specify its relevance in an academic group where digital interaction often takes an "unbounded" form (preparation of teaching materials, continuous emailing, learning management platforms, and student consultations). Boundary blurring among women academics may therefore represent not merely organizational tension but a persistent configuration of academic labor that increases susceptibility to emotional exhaustion [38, 39]. A bold but theoretically grounded implication of our results is that, in digital academia, boundary blurring may operate as a "low-intensity yet high-duration daily stressor" that gradually erodes recovery resources even in the absence of acute peak stress events. Such prolonged, low-level strain often falls outside the focus of classical occupational stress models, yet accumulates as chronic embodied load.



Embodied boundary strain framework: an indirect pathway linking boundary blurring in digitalized academic work, emotional exhaustion, and women academics' reproductive well-being (Ukraine under wartime conditions)

Notes: RWDAQ – Reproductive Well-Being in Digital Academia Questionnaire; MBI-EE – the Emotional Exhaustion subscale of the Maslach Burnout Inventory.

2) Emotional exhaustion as a node linking digital boundary erosion to embodied well-being.

Our findings demonstrated a strong association between boundary blurring and emotional exhaustion, and in turn, emotional exhaustion was significantly related to lower RWDAQ scores. This is consistent with evidence of increasing emotional exhaustion among educators during intensive online and hybrid teaching, where technological load and working from home have been linked to heightened stress and depletion [2, 14]. Studies focusing on women educators have similarly emphasized the role of technostress and digital demands in shaping emotional exhaustion [40].

Importantly, the novelty of the present study lies not in reiterating burnout as such, but in demonstrating that emotional exhaustion is statistically associated with reproductive well-being understood in psychosocial terms. This brings our findings closer to research lines where occupational stress and psychological distress are linked to menstruation-related symptoms and disruptions [12]. Taken together, emotional exhaustion may be conceptualized as a psychosocial "transmission mechanism" through which digital overload and boundary erosion correlate with perceptions of reproductive dysregulation (in terms of recovery, cyclic stability, and bodily autonomy).

3) Reproductive well-being as a psychosocial indicator of adaptation to digital academia.

Within our framework, RWDAQ is not reduced to clinical diagnoses but captures subtle shifts in well-being: cyclic stability, bodily autonomy, recovery deficit, and subjective control over biological rhythms. This is where our contribution moves beyond the obvious: we propose reproductive well-being as a sensitive indicator of disrupted recovery processes under digitalized labor regimes. In other words, RWDAQ may detect changes that have not yet reached clinical thresholds but reflect functional "shifts" in embodied rhythms in response to chronic load. This interpretation aligns with evidence that menstrual symptoms are associated with reduced work capacity and increased presenteeism among women, highlighting reproductive well-being as a meaningful dimension of occupational functioning [29].

4) Wartime conditions as an amplifier, not the sole explanation.

The results should be interpreted in light of the fact that data were collected under wartime conditions in Ukraine [41, 42]. Crucially, within our conceptual logic, war is not treated as an "explanation of everything" but rather as a contextual amplifier: it may intensify uncertainty, undermine recovery, and normalize prolonged states of readiness in which digital boundaries erode even more rapidly. In this sense, the present study does not merely restate that "war is exhausting" but clarifies: war may magnify the very digital mechanism (boundary blurring) that is statistically linked to emotional exhaustion and reproductive well-being.

This study conceptualizes women academics' reproductive well-being as a psychosocial dimension of embodied mental health and examines how digitalized academic work environments, intensified under wartime disruption, may be associated with reproductive well-being outcomes through boundary blurring and emotional exhaustion. In this study, we propose an embodied boundary strain framework (Figure) describing a potential psychosocial pathway through which digitalized academic work may be associated with women academics' reproductive well-being. Within this framework, sustained digital availability and role permeability between work and private life contribute to boundary blurring as a structural mechanism of temporal and embodied boundary erosion. In turn, this process is linked to emotional exhaustion as a key burnout component, which may manifest in lower reproductive well-being, including recovery deficit, bodily autonomy, and cyclic stability. Wartime conditions are conceptualized as a contextual amplifier that may intensify boundary erosion and complicate recovery processes within academic environments.

CONCLUSIONS

This study empirically demonstrated that boundary blurring between professional and private life domains – a defining feature of digitalized academic work – is statistically associated with reduced reproductive well-being among women academics under wartime conditions in Ukraine. The findings confirm that boundary blurring is not merely an organizational characteristic of digital labor, but may constitute a systemic psychosocial load factor linked to embodied dimensions of women's well-being.

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

Emotional exhaustion (MBI-EE) was identified as a key psychological mechanism in this relationship, significantly mediating the association between boundary blurring and reproductive well-being. This allows digital boundary erosion to be interpreted as a factor associated with recovery deficit and heightened psychosomatic vulnerability. Accordingly, the results support an indirect pathway in which sustained digital availability and role permeability may be linked to emotional exhaustion and to lower levels of bodily autonomy, cyclic stability, and subjective control over biological rhythms.

A central conceptual contribution of this article lies in broadening the understanding of reproductive well-being as a psychosocial indicator of women's adaptation to digitalized regimes of academic labor, beyond reductions to fertility outcomes or strictly biomedical parameters. The proposed embodied boundary strain framework highlights that digital academia may impose an "invisible cost of efficiency", manifested through the gradual depletion of restorative and embodied resources.

The practical implications underscore the need for institutional rethinking of boundary management in higher education. Protecting temporal boundaries, implementing policies of digital availability, and supporting recovery processes may be important not only for burnout prevention, but also for broader dimensions of women's reproductive well-being. Future research should further clarify these associations through longitudinal designs, expand the psychometric validation of RWDAQ, and examine the role of additional contextual and biopsychosocial moderators.

The present findings support an applied conclusion: within digitalized academia, boundary protection should not be framed as an individual employee's "self-discipline". Rather, it represents an institutional mechanism for safeguarding well-being-including reproductive well-being-through availability regulations, the "right to disconnect", structured communication windows, and recovery-oriented organizational support.

Evidence from the pandemic period has already indicated a high risk of chronic exhaustion as a systemic phenomenon in academic environments and our results further specify that for women academics such exhaustion may have embodied, reproductive-sensitive manifestations directly relevant to reproductive well-being.

Conflict of interest. The authors declare no conflicts of interest.

Appendix A

Reproductive Well-Being in Digital Academia Questionnaire (RWDAQ)

(Author-developed instrument; 28 items)

Response format (Likert scale, 1–5)

1 – Does not describe my condition at all
2 – Rather not
3 – Partly/Sometimes
4 – Mostly yes
5 – Fully describes my condition

A. Cyclic Stability and Bodily Regulation

1. My menstrual cycle remains stable even during periods of high academic workload.
2. I notice that intensive online work affects my bodily rhythms.
3. During prolonged stress, my body responds with changes in cyclic regularity.
4. I feel that my body is able to recover adequately over the course of the month.

B. Psychosomatic Signals of Reproductive Well-Being

5. I experience somatic symptoms (tension, pain, discomfort) when overloaded by digital work.
6. My reproductive well-being is sensitive to emotional exhaustion.
7. I notice a connection between psychological fatigue and bodily manifestations.
8. My body provides signals when the threshold of workload has been exceeded.

C. Bodily Autonomy and Perceived Control

9. I maintain a sense of control over my bodily rhythm within a digital work routine.
10. The online format of academic work often blurs my physiological boundaries of rest.
11. I am able to respond to my body's needs in a timely manner even during demanding work periods.
12. My academic schedule leaves space for bodily self-care.

D. Recovery Capacity and Resourcefulness

13. After online workload, I have sufficient time for full recovery.
14. I often experience a recovery deficit due to constant digital availability.
15. The absence of pauses throughout the day affects my overall female bodily well-being.
16. Sleep and rest support my hormonal and emotional balance.

E. Emotional Well-Being and Reproductive Context

17. My reproductive well-being is closely connected to my emotional state.
18. Chronic exhaustion reduces my sense of bodily harmony.
19. I feel that women's health requires psychological resources.
20. I have space for inner stability even under crisis conditions.

F. Sexual Well-Being (A sensitive yet important dimension)

21. Psycho-emotional overload influences my sexual well-being.
22. I experience reduced bodily sensitivity during periods of digital fatigue.
23. I maintain a positive connection with my body and femininity.

G. Boundary Blurring as a Contributor to Bodily Exhaustion

24. Work often "intrudes" into my private space and personal time.
25. I find it difficult to mentally end the working day in an online format.
26. My bodily needs are often postponed due to academic availability demands.
27. The boundary between work and recovery has become less distinct for me.

H. Integrated Reproductive Well-Being

28. Overall, I experience reproductive well-being as part of my psychological resources and life balance.

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

Information about the authors

Cherepiekhina Olha A. – PHEI "Dnipro Technological University "STEP"". *E-mail: olga.cherry.2013@gmail.com*
ORCID: 0000-0001-6970-1217

Stavytskyi Oleg O. – The National University of Water and Environmental Engineering, Rivne. *E-mail: o.o.stavytskyi@nuwm.edu.ua*
ORCID: 0000-0002-0792-5036

Bulanov Valerii A. – National University Zaporizhzhia Polytechnic; tel.: (066) 299-65-63. *E-mail: bulanovvalerij67@gmail.com*
ORCID: 0000-0002-2575-1367

Puchyna Olga V. – Centre for Psychological Rehabilitation of the Charitable Organisation "Charitable Foundation "Superhumans", Dnipro. *E-mail: puchynaolga@gmail.com*
ORCID: 0009-0001-7799-6454

Sokolova Viktoriia V. – HEI "Alfred Nobel University", Dnipro. *E-mail: sokolova.v@duan.edu.ua*
ORCID: 0000-0002-1162-2396

Hrechanyk Mariia I. – Zaporizhzhia National University. *E-mail: kunjutkazp@gmail.com*
ORCID: 0000-0003-1650-3692

Відомості про авторів

Черепєхіна Ольга Анатоліївна – ПЗВО «Дніпровський технологічний університет ШАГ». *E-mail: olga.cherry.2013@gmail.com*
ORCID: 0000-0001-6970-1217

Ставицький Олег Олексійович – Національний університет водного господарства та природокористування, м. Рівне. *E-mail: o.o.stavytskyi@nuwm.edu.ua*
ORCID: 0000-0002-0792-5036

Буланов Валерій Анатолійович – Національний університет «Запорізька політехніка»; тел.: (066) 299-65-63. *E-mail: bulanovvalerij67@gmail.com*
ORCID: 0000-0002-2575-1367

Пучина Ольга Віталіївна – Центр психологічної реабілітації Благодійної організації «Благодійний фонд "Superhumans"», м. Дніпро. *E-mail: puchynaolga@gmail.com*
ORCID: 0009-0001-7799-6454

Соколова Вікторія Вікторівна – ВНЗ «Університет імені Альфреда Нобеля», м. Дніпро. *E-mail: sokolova.v@duan.edu.ua*
ORCID: 0000-0002-1162-2396

Гречаник Марія Ігорівна – Запорізький національний університет. *E-mail: kunjutkazp@gmail.com*
ORCID: 0000-0003-1650-3692

REFERENCES

1. Przytuła S, Sułkowski Ł, Kulikowski K. Human resource management in higher education institutions: An international perspective (1st ed.). Routledge. 2024. doi: 10.4324/9781003458425.
2. Mosleh SM, Kasasbeha MA, Aljawarneh YM, Alrimawi I, Saifan AR. The impact of online teaching on stress and burnout of academics during the transition to remote teaching from home. BMC Med Educ. 2022;22(1):475. doi: 10.1186/s12909-022-03496-3.
3. Yang X, Du J. The effect of teacher self-efficacy, online pedagogical and content knowledge, and emotion regulation on teacher digital burnout: A mediation model. BMC Psychol. 2024;12(1):51. doi: 10.1186/s40359-024-01540-z.
4. Wang H, Ding H, Kong X. Understanding technostress and employee well-being in digital work: the roles of work exhaustion and workplace knowledge diversity. Int J Manpower. 2023;44(2):334-53. doi: 10.1108/IJM-08-2021-0480.
5. De Simone S, Cicotto G, Lampis J. Occupational stress, job satisfaction and physical health in teachers. Eur Rev Appl Psychol. 2016;66(2):65-77. doi: 10.1016/j.erap.2016.03.002.
6. Travers CJ, Cooper CL. Mental health, job satisfaction and occupational stress among UK teachers. In: Cooper CL, editor. Managerial, occupational and organizational stress research. London: Routledge; 2024, p. 291-308.
7. Desouky D, Allam H. Occupational stress, anxiety and depression among Egyptian teachers. J Epidemiol Glob Health. 2017;7(3):191-8. doi: 10.1016/j.jegh.2017.06.002.
8. Malik NAA, Björkqvist K, Österman K. Factors associated with occupational stress among university teachers in Pakistan and Finland. J Educ Health Community Psychol. 2017;6(2):1-14.
9. Ma Y, Pongpisanu S. Resilience in the digital age: Technostress and its impact on university lecturers in China. J Cultural Analysis Soc Change. 2025;10(4):1544-51. doi: 10.64753/jcasc.v10i4.3044.
10. Palayoor AJ, Mavoothu D. Technostress mitigation in education: A person-environment fit approach to ICT demands and teacher capabilities. Lex Localis J Local Self-Gov. 2025;23(S5):2581-8. doi: 10.52152/801620.
11. Luo YQ. The impact of technostress on work meaningfulness among university teachers in the context of digital transformation of education: The chain mediating role of digital resilience and job burnout [Internet]. Research Square; 2025. Available from: https://doi.org/10.21203/rs.3.rs-7493995/v1.
12. Sasaki N, Watanabe K, Egawa M, Ito Y, Kanamori Y, Tsuji R, et al. Job stress, psychological distress, and menstruation-related symptoms in female workers: A cross-sectional study. BJOG. 2025;132(10):1438-51. doi: 10.1111/1471-0528.18153.
13. Matsuura Y, Tran NH, Yasui T. The changes in menstrual and menstrual-related symptoms among Japanese female university students: A prospective cohort study from three months to nine months after admission. Healthcare (Basel). 2023;11(18):2557. doi: 10.3390/healthcare11182557.
14. Bleck V, Lipowsky F. Teachers' emotional exhaustion before and during the COVID-19 pandemic: Neither emotional exertion nor vacation feeling. Front Psychol. 2022;13:887494. doi: 10.3389/fpsyg.2022.887494.
15. Gewin V. Pandemic burnout is rampant in academia. Nature. 2021;591(7850):489-91. doi: 10.1038/d41586-021-00663-2.
16. La Torre G, Esposito A, Sciarra I, Chiappetta M. Definition, symptoms and risk of technostress: A systematic review. Int Arch Occup Environ Health. 2019;92(1):13-35. doi: 10.1007/s00420-018-1352-1.
17. Asad MM, Erum D, Churi P, Guerrero AJM. Effect of technostress on psychological well-being of post-graduate students: A perspective and correlational study of higher education management. Int J Inf Manage Data Insights. 2023;3(1):100149. doi: 10.1016/j.jjimei.2022.100149.
18. Kossek EE, Ruderman MN, Braddy PW, Hannum KM. Work–nonwork boundary management profiles: A person-centered approach. J Vocat Behav. 2012;81(1):112-28. doi: 10.1016/j.jvb.2012.04.003.
19. Matthews RA, Barnes-Farrell JL. Development and initial evaluation of an enhanced measure of boundary flexibility for the work and family domains. J Occup Health Psychol. 2010;15(3):330-46. doi: 10.1037/a0019302.
20. Loeckx J. Blurring boundaries in education: Context and impact of MOOCs. Int Rev Res Open Distrib Learn. 2016;17(3):92-121.
21. Levy R, Asman O, Barnoy S. Boundary-blurred behaviors in academic teachers-students facebook interaction: are guidelines needed? A cross-sectional study. BMC Nurs. 2024;23(1):816. doi: 10.1186/s12912-024-02466-y.
22. Gibney VH, West KL, Gershenson S. Blurred boundaries: A day in the life of a teacher. In: Hamermesh DS, editor. Time use in economics. Bingley: Emerald Publishing Limited; 2023, p. 247-75.
23. Thiyagu K, Joshith VP. Perception towards the use of digital technology and factors generating techno-stress

ISSN 2708-8723 (print)
ISSN 2708-8731 (online)

among teacher educators. RIGEO. 2021;11(5):4182-92. doi: 10.48047/rigeo.11.05.300.
24. Ram R, Kannaujiya S. A study of the relationship between techno stress and well-being among primary school teachers. Voice Creative Res. 2025;7(1):317-24. doi: 10.53032/tvcr/2025.v7n1.36.
25. Redondo-Flórez L, Tornero-Aguilera JF, Ramos-Campo DJ, Clemente-Suárez VJ. Gender differences in stress- and burnout-related factors of university professors. Biomed Res Int. 2020;2020:6687358. doi: 10.1155/2020/6687358.
26. Cherepiekhina O, Kravchenko T, Turubarova A, Bulanov V, Zalevska O. Psychological dimensions of female students' reproductive health: universities, digital care, and demographic futures. Reprod Health Woman. 2025;(7):30-8. doi: 10.30841/2708-8731.7.2025.343877.
27. Győrffy Z, Dweik D, Girasek E. Reproductive health and burn-out among female physicians: Nationwide, representative study from Hungary. BMC Womens Health. 2014;14:121. doi: 10.1186/1472-6874-14-121.
28. Załuski M, Makara-Studzińska M. Latent occupational burnout profiles of working women. Int J Environ Res Public Health. 2022;19(11):6525. doi: 10.3390/ijerph19116525.
29. Koh S, Okawara M, Hirashima K, Kuwazuru T, Yamashita S, Ohkubo N, et al. Association of menstrual-related symptoms and presenteeism: A cross-sectional study of working women in Japan. J Occup Environ Med. 2025;67(5):311-6. doi: 10.1097/JOM.0000000000003340.
30. Velykodna M, Deputatov V, Klymenko I, Lazos G, Pysarenko T, Karamushka L. Satisfaction with the quality of university education in psychology in wartime Ukraine: group comparison between university students and graduated psychologists. Rev Romaneasca Pentru Ed Multidimensionala. 2025;17(4):526-37. doi: 10.18662/rrem/17.4/1067.
31. Velykodna M, Gorbunova V, Frankova I, Deputatov V, Happell B. Predictors of satisfaction and value of advanced training for mental health professionals in wartime Ukraine. Issues Ment Health Nurs. 2023;44(11):1096-108. doi: 10.1080/01612840.2023.2258217.
32. Prodan VI. Education in conditions of war and emergency situations: Experience of countries and prospects for Ukraine. Scientific Bulletin of Uzhhorod National University. Series "Law". 2023;78(1):126-32. doi: 10.24144/2307-3322.2023.78.1.20.
33. Vitrenko Y. Higher education in the conditions of Ukraine's recovery from the consequences of the war: what should the strategy be? Herald National Acad Educ Sci Ukr. 2024;6(2):1-10. doi: 10.37472/v.naes.2024.6214.
34. Velykodna M, Mishaka N, Miroshnyk Z, Deputatov V. Primary education in wartime: how the russian invasion affected Ukrainian teachers and the educational process in Kryvyi Rih. Rev Romaneasca Pentru Ed Multidimensionala. 2023;15(1):285-309. doi: 10.18662/rrem/15.1/697.
35. Kamleitner B. Blurring boundaries and the erosion of ownership. In: Luks F, editors. Chancen und Grenzen der Nachhaltigkeitstransformation. Springer Gabler, Wiesbaden; 2019. doi: 10.1007/978-3-658-22438-7_7.
36. Maslach C, Jackson SE, Leiter MP. Maslach burnout inventory (3rd edition). In: Zalaquett CP, Wood RJ, editors. Evaluating stress: A book of resources Scarecrow Education; 1997, p. 191-218.
37. Derks D, van Duin D, Tims M, Bakker AB. Smartphone use and work–home interference: The role of recovery and work engagement. J Occupational Organizational Psychol. 2015;88(1):155-77. doi: 10.1111/joop.12083.
38. Johnston K, Tanwar J, Pasamar S, Van Laar D, Bamber JA. Blurring boundaries: work-life balance and unbounded work in academia. The role of flexibility, organisational support and gender. Labour Industry. 2022;32(2):139-55. doi: 10.1080/10301763.2022.2081902.
39. Ruppanner L, Huffman ML. Blurred boundaries: Gender and work-family interference in cross-national context. Work Occupations. 2014;41(2):210-36. doi: 10.1177/0730888413500679.
40. Jena RK, Mahanti PK. An empirical study of Technostress among Indian academicians. Int J Ed Learning. 2014;3(2):1-10. doi: 10.14257/ijel.2014.3.2.01.
41. Malachynska MYo. Women's reproductive health and fertility during the war and post-war period. Reprod Health Woman. 2025;(1):28-32. doi: 10.30841/2708-8731.1.2025.323706.
42. Tatarchuk TF, Kosei NV, Plaksiieva KD, Tutchenko TM, Iarotska NV, Kozlov SM. Current issues in reproductive health of the female military personnel in Ukraine. Reprod Health Woman. 2025;(7):7-14. doi: 10.30841/2708-8731.7.2025.343872.

Стаття надійшла до редакції 30.01.2026. – Дата першого рішення 04.02.2026. – Стаття подана до друку 13.03.2026