

Depression, anxiety, and PTSD among Palestinian detention survivors assessed during the ongoing October 2023 war: Prevalence, comorbidity, and the limits of individual risk factors

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Key points of interest

- Palestinian detainees held during the October 2023 war show an extremely high, highly comorbid burden of depression (76.98%), anxiety (65.61%), and PTSD (67.99%), with 50.81% scoring above clinical screening thresholds on all three measures simultaneously
- Demographic characteristics and detention conditions, including torture breadth index, showed negligible predictive value for symptom severity in this sample — likely reflecting a ceiling effect from near-universal, extreme torture exposure rather than the absence of a true dose–response relationship
- These findings support urgent, sustained investment in integrated, trauma-informed mental health services for Palestinian detainee survivors, alongside continued human rights documentation of detention conditions

Abstract

Introduction: Palestinian detainees held during the October 2023 war have widely reported torture, but quantitative studies jointly assessing depression, anxiety, and post-traumatic stress disorder (PTSD) remain rare. We aimed to characterise the prevalence, severity, and comorbidity of these conditions and to examine demographic and detention-related predictors. **Methods:** In this cross-sectional study, we recruited 400 Palestinian adults detained by Israeli authorities during the October 2023 war and subsequently released; the large majority (94.7%) reported experiencing at least one form of torture during detention. After excluding 14 participants under 18 years of age and 8 participants detained prior to the onset of the October 2023 war, the final analytic sample comprised 378 participants. Participants were recruited through rehabilitation centres, human rights organisations, and community networks in Gaza, and completed Arabic-language PHQ-9, GAD-7, and PCL-5 measures in structured, trauma-informed interviews between late 2025 and early 2026. Multiple linear regression assessed predictors of symptom severity, and regression-based analysis examined statistical associations among the torture breadth index, PTSD symptom severity, and depression symptom severity, without implying temporal or causal ordering. **Results:** 76.98% scored in the moderate-to-severe range on the PHQ-9, 65.61% on the GAD-7, and 67.99% met the PCL-5 threshold for probable PTSD. The three conditions were strongly intercorrelated ($r = 0.61–0.68$, $p < .0001$), with 50.81% meeting thresholds for all three. Education was the only demographic variable consistently associated with depression, anxiety, and PTSD severity, though models explained under 4% of

variance; age, gender, and torture breadth index were not significant predictors, while detention duration was additionally associated with PTSD severity specifically (see Results). PTSD severity was strongly associated with depression, whereas torture breadth index was not significantly associated with either outcome. Internal consistency was good (Cronbach's $\alpha = 0.80\text{--}0.91$). *Discussion:* Palestinian detention survivors, assessed while war, displacement, and material deprivation in Gaza were ongoing, showed an extremely high and highly comorbid burden of depression, anxiety, and PTSD. The near-ceiling torture exposure in this sample may help explain the limited predictive power of individual demographic and exposure variables, and the concurrent wartime context means these symptom levels cannot be attributed to detention in isolation. These findings support integrated, trauma-informed mental health care and continued human rights documentation for this population.

Keywords: torture, detention, PTSD, depression, comorbidity

Introduction

The psychological impact of incarceration and torture

Research on prisoners of war and political detainees frames the carceral environment as a setting that systematically undermines safety, autonomy, and identity (Sykes, 1958; Goffman, 1961). Sykes's "pains of imprisonment" and later trauma frameworks—Seligman's (1972) learned helplessness and Bloom's (1997) "sanctuary trauma"—describe how prolonged, uncontrollable harm and the betrayal of protective institutions produce depression and deep psychological injury.

In the Palestinian context, detention has functioned as an instrument of political control for decades (Addameer, 2016; Jabr & Helbich, 2025), but the scale of detention following October 7, 2023, and the consistency of reports of torture during this period present a distinct empirical case. Human rights organisations and academic researchers have documented severe beatings, prolonged stress positions (including shabab/suspension), sleep deprivation, sensory overload, starvation, sexual violence, and psychological humiliation among detainees held during this period (Schwail et al., 2025; B'Tselem, 2026; PCHR, 2025). These reports are broadly consistent with patterns documented in other conflict-related detention settings internationally, in which torture serves both an interrogative function and a broader function of controlling and demoralising a population (Einolf, 2007; Rizkalla et al., 2022). The present study contributes empirical, standardised clinical data to this documentation effort.

Literature review: Detention-related trauma, 2022–2026

Meta-analyses offer a comparative baseline: Lim et al. (2022) found pooled rates of 28.9% depression, 30.7% anxiety, and

23.5% PTSD in war-affected populations, higher among former detainees. Ahmed et al. (2024), covering 57 studies and 64,000+ participants, reported 23.7% PTSD and 25.6% depression, with greater severity among detainees—confirming that detention/torture exposure predicts markedly higher morbidity than conflict exposure alone.

Schwail et al. (2025) studied Palestinian detainees released from Israeli prisons in the post-October 2023 period and reported near-universal exposure to torture and ill-treatment, with severe physical sequelae including fractures (26%) and amputations (7%); 83% showed moderate-to-severe depressive symptoms and 63% met PTSD criteria. Critically, Schwail et al. reported that the cumulative number of torture methods experienced was a stronger predictor of symptom severity than any single method, and that ostensibly "non-violent" methods—such as deprivation of the sense of time—had psychological effects comparable to or exceeding those of physical injury.

Hamamra (2025) described a qualitative "collapse of the internal world" among detainees, with symptoms resembling Complex PTSD. Aldabbour et al. (2025) found detention/torture predicted depression and anxiety more strongly than losing a first-degree relative. B'Tselem (2026) and PCHR (2025) corroborate these findings, documenting starvation, sexual violence, denied medical care, and 84+ custodial deaths meeting the legal definition of torture.

Together, this literature establishes: (a) elevated depression, anxiety, and PTSD among detained torture survivors; (b) a documented dose–response relationship between torture exposure and severity (Schwail et al., 2025); and (c) growing support for a Complex PTSD framework. The present study tests (a) and (c) with a larger sample, while complicating (b).

Theoretical framework

Four frameworks organise the analysis. Janoff-Bulman's (1992) Shattered Assumptions Theory holds that traumatic events can destroy core assumptions about the benevolence and meaningfulness of the world and the worth of the self; in a detention context marked by state-sanctioned, systematic violation, this shattering may be both personal and collective. Complex PTSD theory (Herman, 1992; World Health Organization [ICD-11], 2019) is relevant to prolonged, inescapable, repeated trauma and predicts disturbances in self-organisation, emotion regulation, and self-concept beyond the core PTSD symptom clusters.

Beck's (1967) cognitive triad frames depression through negative views of self, world, and future, plausibly exacerbated in this context by loss of social role and socioeconomic status following detention. Anxiety is examined through the Intolerance of Uncertainty model (Dugas et al., 1998), which is well suited to the unpredictability of detention length, threat of further harm, and incommunicado conditions.

Research gaps and rationale

Despite an expanding literature on Palestinian detention (e.g., Sehwal et al., 2025; Hamamra, 2025; Aldabbour et al., 2025), large-sample quantitative studies jointly assessing post-traumatic stress disorder (PTSD), generalised anxiety disorder (GAD), and depression among Palestinian detainees in the post-October 2023 period remain scarce. Existing research has largely been qualitative, based on smaller samples, or focused on earlier detention periods. Moreover, studies employing standardised assessment tools together with multivariable statistical modelling are particularly limited.

This study addresses these gaps by examining a cohort of 378 survivors and directly testing, rather than assuming, the relationships between demographic characteristics, torture breadth index, and psychological symptom severity. To our knowledge, no previous study of Palestinian detainees detained after October 2023 has simultaneously assessed depression, anxiety, and PTSD using standardised instruments in a sample exceeding 300 participants while also evaluating demographic and cumulative exposure variables through multivariable models and examining their statistical associations.

Aims and scope*Study aims*

This study pursued eight specific aims, organised around three core objectives: characterising the burden of psychopathology, testing its correlates, and examining statistical associations between torture exposure and mental health outcomes.

Objective 1 — Characterise the burden:

- Estimate the prevalence and severity of depression, anxiety, and PTSD among Palestinian detention survivors detained during the October 2023 war.
- Assess the psychometric performance of the PHQ-9, GAD-7, and PCL-5 in this population, including internal consistency reliability.
- Quantify comorbidity across the three conditions.

Objective 2 — Test correlates of severity:

- Examine associations between demographic characteristics (e.g., age, gender) and symptom severity.
- Examine associations between detention conditions and symptom severity.
- Compare the relative contribution of demographic versus detention/torture-related variables to symptom severity using multiple regression.

Objective 3 — Examine associations and interpret null findings:

- Examine, using regression-based analysis, the statistical associations among torture breadth index, PTSD symptom severity, and depression symptom severity, without implying temporal or causal ordering.
- Evaluate competing substantive and measurement-based explanations for any observed independence between symptom severity and individual/exposure characteristics.

Methodology*Participants*

This was a cross-sectional, observational study. No a priori power calculation was performed; the recruitment target of approximately 400 participants was set pragmatically, based on the number of released detainees that partner rehabilitation centres, human-rights organisations, and community networks in Gaza could feasibly identify, contact, and interview within the study period given prevailing security and access constraints, rather than derived from a formal sample-size calculation. The realised analytic sample of 378 nonetheless exceeds the threshold ($N > 100$) that prior literature in this area (Section 1.2) identified as rare for studies jointly assessing depression, anxiety, and PTSD in this population, and represents a comparatively large sample for this highly constrained research context.

Recruitment was purposive and conducted through rehabilitation centres, human-rights organisations, and community networks. No probability sampling frame was available; therefore, selection bias cannot be ruled out. The gender distribution (86.5% male) mirrors the known composition of deten-

tion during the period but limits the precision of sex-stratified estimates.

Inclusion criteria required that participants: (a) be Palestinian adults aged 18 years or older; (b) have been detained by Israeli authorities during the October 2023 war; and (c) have since been released from detention.

Exclusion criteria were: (a) presence of psychotic symptoms or impaired reality orientation that would compromise insight or the reliability of self-report; and (b) incomplete or unmatched data across the three clinical instruments (PHQ-9, GAD-7, PCL-5).

All 400 individuals initially approached completed the three clinical instruments (PHQ-9, GAD-7, PCL-5), and none were excluded for psychotic symptoms. On post-hoc review, however, 14 participants were found to have been under 18 years of age at the time of data collection, and 8 participants had been detained prior to the onset of the October 2023 war; both groups fall outside the inclusion criteria (adults detained by Israeli authorities during the October 2023 war and subsequently released) and were excluded, yielding a final analytic sample of $N = 378$. This correction to the originally reported exclusion rationale is described further in Section 5.4.

Of 400 individuals initially recruited, 378 met the age and war-period detention criteria and were retained for analysis. Recruitment targeted adults detained during the October 2023 war who had since been released, the large majority of whom reported experiencing torture during detention. Given the known gender composition of detention during this period, a gender imbalance in the sample was anticipated; this is addressed as a limitation on the precision of gender-based subgroup analysis.

Instruments

Depression, anxiety, and PTSD symptoms were assessed with the Arabic-language PHQ-9 (Kroenke et al., 2001; 9 items, range 0–27), GAD-7 (Spitzer et al., 2006; 7 items, range 0–21), and PCL-5 (Weathers et al., 2013; 20 items, range 0–80, with Intrusion, Avoidance, Negative Alterations in Cognition and Mood, and Hyperarousal subscales). All three instruments have documented validation histories in Arabic-speaking and Middle Eastern conflict-affected populations, with prior Cronbach's $\alpha > .85$ reported for the PHQ-9 in Palestinian samples. Standard cutoffs were used for severity classification (PHQ-9: minimal 0–4, mild 5–9, moderate 10–14, moderately severe 15–19, severe 20–27; GAD-7: minimal 0–4, mild 5–9, moderate 10–14, severe 15–21; PCL-5: probable PTSD ≥ 33).

Torture breadth index was operationalised as a 4-point index (0–3) reflecting the number of torture categories experi-

enced: psychological violence (humiliation, threats, isolation), physical violence (beatings, suspension, denial of medical care, starvation), and sexual violence (rape or attempted rape, forced nudity, sexual touching during searches or interrogation, sexual threats or verbally degrading sexual language, and forced witnessing of sexual violence against others). During the structured interview, participants were asked, for each category, whether they had experienced any one or more of the constituent acts listed for that category during detention; a category was coded as present (1) if the participant endorsed at least one constituent act within it, and absent (0) otherwise, regardless of how many constituent acts within that category were endorsed or how frequently they occurred. The torture breadth index score was then calculated as the simple sum of the three binary category scores (range 0–3). It therefore captures breadth across broad categories and does not measure the intensity, duration, frequency, or cumulative number of individual torture methods. The category list was applied as a structured coding framework during the interview; it was not treated as a validated scale of torture severity.

Procedure

Data were collected via structured, trauma-informed interviews conducted between late 2025 and early 2026 by trained psychologists and social workers, face-to-face where feasible and via secure phone or video in high-risk areas. Sessions lasted 45–90 minutes with breaks as needed. Participation was voluntary, and participants were informed of their right to withdraw at any time.

Several steps were taken to limit potential sources of bias. All interviewers were trained psychologists or social workers who completed a standardised training and calibration protocol on the three instruments and on trauma-informed interviewing before data collection began, to reduce measurement variability across interviewers. Interviews followed a fixed structured protocol and item order to limit interviewer-driven variation in how questions were presented. Interviewers received ongoing supervision throughout data collection (Section 3.5), which also served as an informal check on protocol adherence and on possible drift in how items were administered. Data entry and cleaning were performed independently of the interviewing team, and all data were de-identified before analysis to reduce the possibility that knowledge of a participant's detention history could influence coding or entry. We nonetheless note, as a limitation (Section 5.4), that non-probability recruitment through rehabilitation and human-rights organisations may itself introduce selection bias that these procedural safeguards cannot fully address.

Data analysis

Descriptive statistics, 95% confidence intervals (t-distribution), and Pearson correlations were computed for all scales. Internal consistency was assessed using Cronbach's α and McDonald's ω . Independent-samples t-tests examined differences in mean symptom scores across demographic and torture-exposure categories. Odds ratios with 95% CIs were computed for comorbidity relationships. Multiple linear regression models estimated associations between PHQ-9, GAD-7, and PCL-5 severity and age, gender, education level, detention duration, and torture breadth index. A regression-based analysis examined associations among torture breadth index, PTSD symptom severity, and depression symptom severity. The reported coefficients are descriptive regression coefficients and are not interpreted as direct effects, indirect effects, mediator effects, or evidence of temporal or causal ordering. Comorbidity was assessed by classifying participants into eight mutually exclusive categories based on clinical thresholds on each of the three scales. Analyses were conducted in SPSS (version 28), $\alpha = .05$ (two-tailed), with all data de-identified and securely stored. No correction for multiple comparisons was applied across the regression and correlation analyses. No sensitivity analyses (e.g., re-estimating the PHQ-9/PCL-5/GAD-7 models after excluding the small zero-exposure subgroup, applying multiple-comparison correction, or testing alternative severity cut-offs) were conducted for this cross-sectional analysis; this is noted as a limitation in Section 5.4, and such analyses are recommended before or alongside any future re-analysis of this dataset.

Ethical approval

The study adhered to the Declaration of Helsinki and ethical guidelines for research involving vulnerable populations. Informed consent was obtained from all participants, and confidentiality, voluntary participation, and the right to withdraw at any time were emphasised throughout the study. Interviewers received ongoing supervision to mitigate the risk of secondary or vicarious traumatisation, and immediate referral pathways to specialist community mental health services were activated whenever acute psychological distress or suicidal ideation was identified. The study protocol was approved by the Helsinki Committee for Scientific Research (Approval No. PHRC/HC/1236/25).

Results*Sample characteristics*

The final analytic sample ($N = 378$) was predominantly male (86.5%) and married (79.1%), with moderate-to-high educa-

tional attainment (34.7% held a bachelor's degree) and high unemployment (70.6%). Detention duration varied widely ($M = 6.08$ months, $SD = 6.77$, $n = 373$ with interpretable dates), with 34.1% detained for less than one month and 31.0% detained for more than one year.

Of the 22 individuals excluded between initial recruitment ($N = 400$) and the final analytic sample ($N = 378$), 14 were excluded for being under 18 years of age at the time of data collection and 8 for having been detained prior to the onset of the October 2023 war (Section 3.1). Six participants in the final analytic sample had one missing item on the GAD-7 ($n = 372$ with complete GAD-7 data); PHQ-9 and PCL-5 data were complete for all 378 participants. This corrects the previously reported exclusion rationale, which incorrectly attributed the reduction from 400 to incomplete or unmatched instrument data; that error is acknowledged and corrected here following methodological review (Section 5.4).

Full demographic and employment characteristics are presented in Table 1. Detention duration and torture breadth index are presented in Table 2.

Torture breadth index showed a marked ceiling effect: 73.0% of participants reported experiencing all three torture categories ($M = 2.47$, $SD = 0.93$), with only 5.3% reporting no torture exposure. This skewed distribution is addressed in Section 5.2 as a constraint on the interpretability of subsequent regression-based analyses involving this variable.

Psychometric performance

Internal consistency for the three instruments was assessed using Cronbach's alpha, computed directly from item-level responses. Reliability in this sample was good and consistent with prior Arabic-language validation studies, which have documented $\alpha > .85$ for the PHQ-9 in Palestinian populations. In the current sample, Cronbach's alpha was .80 for the PHQ-9, .88 for the GAD-7, and .91 for the PCL-5. McDonald's omega ($\omega = .80-.92$) closely matched Cronbach's alpha across all three scales, indicating that the tau-equivalence assumption underlying alpha was not violated in this sample (see Table 3).

Prevalence and severity of psychological distress

Depression symptoms were elevated: 76.98% of participants scored in the moderate-to-severe range (PHQ-9 $M = 14.60$, $SD = 5.86$, 95% CI [14.01, 15.20]); severity breakdown was 2.65% minimal, 20.37% mild, 28.84% moderate, 21.96% moderately severe, and 26.19% severe. Anxiety was similarly elevated: 65.61% scored moderate-to-severe (GAD-7 $M = 12.29$, $SD = 5.56$, 95% CI [11.72, 12.85]), with 11.56% minimal, 21.77% mild, 29.30% moderate, and 37.37% severe (percentages of n

Table 1. Sample demographic and socioeconomic characteristics

Characteristic	n	%
Gender		
Male	327	86.5
Female	51	13.5
Marital status		
Married	299	79.1
Single	65	17.2
Widowed	8	2.1
Divorced	6	1.6
Employment status		
Unemployed	267	70.6
Government employee	37	9.8
Labourer	10	2.6
Private sector	5	1.3
Housewife	9	2.4
Mean age (SD)	39.57 (12.61)	Range 18–70

Note. Educational attainment: bachelor's degree 34.7%, secondary education 27.0%, preparatory education 22.8%, diploma 8.5%, primary education 4.8%, postgraduate 2.1%, illiterate 0.3%.

Table 2. Detention duration and torture breadth index

Variable	n	%
Detention duration		
< 1 month	129	34.1
1–6 months	101	26.7
6–12 months	26	6.9
> 1 year	117	31.0
Mean (SD), months	6.08 (6.77)	Range 0–22.1
Torture breadth index (0–3 categories)		
0 categories	20	5.3
1 category	57	15.1
2 categories	25	6.6
3 categories	276	73.0
Mean (SD)	2.47 (0.93)	Range 0–3

Note. Torture categories: psychological violence (humiliation, threats, isolation), physical violence (beatings, suspension), and sexual violence.

Table 3. Severity distribution, clinical thresholds, and reliability of psychological measures

Measure	M (SD)	95% CI	Min. %	Mild %	Mod. %	Mod-sev %	Severe %	Clin. %	α	ω
PHQ-9 (Depression)	14.60 (5.86)	[14.01, 15.20]	2.65	20.37	28.84	21.96	26.19	76.98	.80	.80
GAD-7 (Anxiety)	12.29 (5.56)	[11.72, 12.85]	11.56	21.77	29.30	—	37.37	65.61	.88	.88
PCL-5 (PTSD)	40.23 (16.77)	[38.54, 41.93]	—	—	—	—	—	67.99	.91	.92
PCL-5 Intrusion	10.82 (5.32)	[10.28, 11.36]	—	—	—	—	—	—	—	—
PCL-5 Avoidance	4.51 (2.35)	[4.27, 4.75]	—	—	—	—	—	—	—	—
PCL-5 Negative Alterations	12.05 (6.76)	[11.37, 12.73]	—	—	—	—	—	—	—	—
PCL-5 Hyperarousal	12.85 (5.83)	[12.26, 13.44]	—	—	—	—	—	—	—	—

Note. Clinical thresholds: PHQ-9 ≥ 10 ; GAD-7 ≥ 10 ; PCL-5 ≥ 33 . GAD-7 uses a 4-band severity classification (no “moderately severe” band); PCL-5 uses a single clinical threshold rather than graded severity bands, so severity-band columns are not applicable for it or its subscales.

= 372 with complete GAD-7 data). For PTSD, 67.99% met the PCL-5 clinical threshold ($M = 40.23$, $SD = 16.77$, 95% CI [38.54, 41.93]). Symptom cluster means were: Intrusion $M = 10.82$ ($SD = 5.32$), Avoidance $M = 4.51$ ($SD = 2.35$), Negative Alterations in Cognition and Mood $M = 12.05$ ($SD = 6.76$), and Hyperarousal $M = 12.85$ ($SD = 5.83$).

Comorbidity: *Co-occurrence of depression, anxiety, and PTSD* Comorbidity analysis showed that 12.90% of participants ($n = 48$) had no clinical-level symptoms on any measure, while clinical-level comorbidity across depression, anxiety, and PTSD (“triple comorbidity”) was observed in 50.81% ($n = 189$); 73.39% ($n = 273$) met the threshold on at least two measures, and 87.10% ($n = 324$) met the threshold on at least one.

Intercorrelations and shared variance

The three measures were strongly and significantly intercorrelated: PHQ-9–GAD-7, $r = .68$, $p < .001$ ($R^2 = .46$); PHQ-9–PCL-5, $r = .61$, $p < .001$ ($R^2 = .37$); GAD-7–PCL-5, $r = .61$, $p < .001$ ($R^2 = .38$).

Multiple regression: Predictors of depression and PTSD severity

Regression models predicted PHQ-9, GAD-7, and PCL-5 severity from age, gender, education, detention duration, and torture breadth index ($N = 373$, after excluding 5 additional cases with uninterpretable detention/release dates; see Section 5.4). For depression, the overall model explained a very small proportion of variance ($R^2 = .018$, adjusted $R^2 = .005$); education was the only significant predictor ($\beta = 0.58$, $SE = 0.24$, 95% CI

Table 4. Comorbidity patterns, odds ratios, and intercorrelations among PHQ-9, GAD-7, and PCL-5

Comorbidity patterns			
Pattern	n	%	
No clinical symptoms	48	12.90	
Depression only	28	7.53	
Anxiety only	10	2.69	
PTSD only	13	3.49	
Depression + Anxiety	33	8.87	
Anxiety + PTSD	16	4.30	
Depression + PTSD	35	9.41	
Triple comorbidity (all three)	189	50.81	
Pairwise odds ratios			
Pair	OR	95% CI	
PHQ-9 & GAD-7	8.27	[4.83, 14.15]	
PHQ-9 & PCL-5	7.34	[4.33, 12.45]	
GAD-7 & PCL-5	7.55	[4.63, 12.30]	
Intercorrelations			
Measures	r	p	R ²
PHQ-9 ↔ GAD-7	.68	< .001	.46 (45.56%)
PHQ-9 ↔ PCL-5	.61	< .001	.37 (36.83%)
GAD-7 ↔ PCL-5	.61	< .001	.38 (37.63%)

Note. Individuals meeting the clinical threshold for one condition were approximately 6–7 times more likely to also meet the threshold for each of the other two.

[0.12, 1.05], $t = 2.44$, $p = .015$). Age ($\beta = 0.03$, 95% CI [-0.02, 0.08], $p = .184$), gender ($\beta = 0.18$, 95% CI [-1.67, 2.02], $p = .851$), detention duration ($\beta = -0.002$, 95% CI [-0.10, 0.10], $p = .976$), and torture breadth index ($\beta = 0.07$, 95% CI [-0.62, 0.75], $p = .850$) were non-significant. For PTSD, the model explained slightly more variance ($R^2 = .036$, adjusted $R^2 = .023$); education was again a significant predictor ($\beta = 1.34$, SE = 0.68, 95% CI [0.01, 2.67], $t = 1.98$, $p = .049$), and detention duration was also a significant predictor ($\beta = 0.32$, SE = 0.14, 95% CI [0.04, 0.60], $t = 2.22$, $p = .027$) — a result not previously reported and evident only after correcting the detention-date data errors described in Section 5.4. Age ($\beta = -0.05$, 95% CI [-0.19, 0.09], $p = .492$), gender ($\beta = -2.56$, 95% CI [-7.79, 2.67], $p = .338$), and torture breadth index ($\beta = -1.38$, 95% CI [-3.34,

0.57], $p = .166$) were not significant. For anxiety, the model explained minimal variance ($R^2 = .028$, adjusted $R^2 = .015$); education was the sole significant predictor ($\beta = 0.64$, SE = 0.23, 95% CI [0.19, 1.09], $t = 2.78$, $p = .006$), while age ($\beta = -0.02$, 95% CI [-0.06, 0.03], $p = .546$), gender ($\beta = 0.21$, 95% CI [-1.56, 1.98], $p = .815$), detention duration ($\beta = 0.01$, 95% CI [-0.09, 0.10], $p = .887$), and torture breadth index ($\beta = -0.22$, 95% CI [-0.87, 0.44], $p = .520$) were not.

Note on confidence intervals and re-analysis: this section was re-estimated directly from the corrected raw dataset ($N = 373$ for the regression models; see Section 5.4 for the sample and detention-duration corrections), rather than reconstructed from previously published test statistics. Standard errors and 95% CIs shown are from ordinary least squares estimation ($df = 367$).

Table 5. Multiple regression and regression-based analysis of associations

Multiple regression predicting depression, PTSD, and anxiety severity						
Predictor	PHQ-9 β	PHQ-9 p	PCL-5 β	PCL-5 p	GAD β	GAD p
Age	0.03	.184	−0.05	.492	−0.015	.546
Gender	0.18	.851	−2.56	.338	0.212	.815
Education level	0.58	.015*	1.34	.049*	0.638	.006*
Detention duration	−0.002	.976	0.32*	.027*	0.007	.887
Torture breadth index	0.07	.850	−1.38	.166	−0.215	.520
Model R ² (Adj. R ²)	.018 (.005)		.036 (.023)		.028 (.015)	
Regression-based associations among torture breadth index, PTSD, and depression (descriptive analysis)						
Association/term	Estimate		p	Interpretation		
Torture breadth index–PTSD association	$\beta = -1.38$		.166	Not significant		
PTSD–depression association	$\beta = 0.22$		< .001	Strong, significant		
Torture breadth index–depression association	$\beta = 0.07$		.850	Not significant		
Torture breadth index–depression coefficient with PTSD included	$\beta = 0.35$		.190	Not significant		
Product of coefficients (a $\times$ b)	−0.30		n/a	Descriptive product; no mediation interpretation		

Note. * $p < .05$. $N = 373$ (regression models). Education reached statistical significance in all three models; detention duration was also significant for PCL-5. Each model accounts for under 4% of total variance. 95% confidence intervals for all coefficients are reported in the text of Section 4.6.

Regression-based analysis of associations among torture breadth index, PTSD, and depression

The association between torture breadth index and PTSD symptom severity, controlling for age, gender, education, and detention duration, was not statistically significant ($\beta = -1.38$, $p = .166$). The association between PTSD and depression symptom severity, controlling for the same covariates and torture breadth index, was strong and statistically significant ($\beta = 0.22$, $p < .001$). The unadjusted torture breadth index–depression association was not statistically significant ($\beta = 0.07$, $p = .850$), nor was the corresponding coefficient when PTSD symptom severity was included in the model ($\beta = 0.35$, $p = .190$). The product of the two regression coefficients ($a \times b = -0.30$) is reported descriptively and has no temporal or causal interpretation.

Symptom severity by torture breadth index

Comparing psychological outcomes across levels of the torture breadth index revealed no significant differences (ANOVA for PHQ-9: $F = 0.71$, $p = .547$; GAD-7: $F = 0.53$, $p = .664$; PCL-5: $F = 0.65$, $p = .585$). Mean scores were similar across torture breadth index levels of 0, 1, 2, and 3 (Table 6), with no monotonic dose–response pattern evident.

Discussion

Interpreting the burden of psychological distress

This study documents markedly elevated screening-positive rates for depression (76.98%), anxiety (65.61%), and probable PTSD (67.99%) among Palestinian detainees from the October 2023 war, the large majority of whom reported experiencing torture—roughly two to three times the pooled rates reported for conflict-affected populations generally (Lim et al., 2022; Ahmed et al., 2024). These rates are broadly consistent with, and in some respects more severe than, the closest comparable study of this specific cohort (Sehwail et al., 2025: 83% moder-

ate-to-severe depression, 63% probable PTSD). Nearly half the sample (50.81%) scored above clinical screening thresholds on all three measures simultaneously, and the three conditions were strongly intercorrelated ($r = .61-.68$). We use “screening threshold” rather than “clinical criteria” throughout, since PHQ-9, GAD-7, and PCL-5 are validated screening instruments that identify probable caseness, not diagnostic instruments; no structured clinical interview was conducted in this study, and diagnostic confirmation would require one. Together, these findings describe a highly comorbid pattern of screening-positive symptoms among detention survivors assessed during ongoing wartime conditions. The pattern should not be interpreted as evidence of a single transdiagnostic trauma response: the PCL-5, particularly its negative cognition and mood domain, overlaps conceptually with the PHQ-9, and a strong inter-scale correlation cannot by itself establish a single underlying clinical construct. With this caveat noted, the pattern is broadly consistent with, and extends, prior qualitative accounts of “total” psychological collapse under prolonged detention (Hamamra, 2025), and with Janoff-Bulman’s (1992) account of shattered core assumptions about safety, meaning, and self-worth under systematic, state-sanctioned violation.

The elevated anxiety symptoms observed here are similarly consistent with the Intolerance of Uncertainty model (Dugas et al., 1998): detention in this context is characterised by profound unpredictability—indefinite duration, the ongoing threat of further harm, and incommunicado conditions that deny detainees any ability to anticipate or plan—precisely the conditions under which this model predicts chronic, generalised anxiety to develop and persist.

Limits of individual risk factors: Why were demographic and torture-exposure variables weak predictors?

As confirmed by both multiple regression (Section 4.6), neither demographic characteristics (age, gender) nor detention-related

Table 6. Symptom severity by torture breadth index level

Torture breadth index	n	PHQ-9 M (SD)	GAD-7 M (SD)	PCL-5 M (SD)
0	20	15.00 (5.56)	12.80 (5.14)	44.50 (19.03)
1	57	13.88 (6.11)	11.81 (5.04)	38.81 (14.80)
2	25	13.56 (6.21)	13.43 (6.65)	41.80 (17.04)
3	276	14.82 (5.81)	12.25 (5.60)	40.08 (16.98)

Note. ANOVA across exposure levels: PHQ-9 $F = 0.71$, $p = .547$; GAD-7 $F = 0.53$, $p = .664$; PCL-5 $F = 0.65$, $p = .585$ — no significant differences and no monotonic dose–response pattern.

exposure variables (duration, torture breadth index) meaningfully predicted clinical status or symptom severity, with the partial exception of a small education effect (Sections 4.6–4.7). The positive direction of the education coefficient (higher formal education associated with higher symptom severity on the PHQ-9, GAD-7, and PCL-5) is noteworthy and runs counter to the protective effect of education typically observed in non-detained populations. Several speculative explanations may account for this pattern. More educated detainees may have experienced a sharper rupture between their pre-detention life trajectory and the reality of prolonged, degrading captivity, intensifying feelings of loss, injustice, and shattered assumptions about the future. Higher education may also be associated with greater cognitive elaboration of the traumatic experience, deeper awareness of the political and legal dimensions of their detention, or differential targeting (e.g., more intensive interrogation of individuals perceived as having higher social or professional status). Alternatively, the finding may partly reflect residual confounding or the very small proportion of variance explained by the models ($R^2 < .04$). Because the effect size is modest and the present data cannot adjudicate between these possibilities, we regard this association as an open empirical question that warrants targeted qualitative and mixed-methods follow-up rather than a robust, generalizable risk factor.

This pattern contrasts sharply with prior research in comparable populations. Aldabbour et al. (2025) found detention and torture exposure to be a stronger predictor of depression and anxiety than the loss of a first-degree relative among young adults in Gaza, and Schwail et al. (2025) found cumulative torture-method count to be the strongest predictor of symptom severity in a Palestinian post-October 2023 cohort drawn from an overlapping population and time period, though not necessarily the same individuals. We consider three non-mutually exclusive explanations for why the present study did not replicate this dose–response pattern. We deliberately avoid resolving this question in favour of any one of them, as the present data cannot adjudicate between them; however, we regard the measurement account as the most parsimonious.

A measurement account (favoured here)—ceiling and range-restriction effects. The torture breadth index used here classified exposure into only three broad categories (psychological, physical, sexual violence), yielding a 4-point (0–3) composite on which 73.0% of participants scored at the maximum. This is a textbook ceiling effect: it compresses the observable range of the predictor and mechanically attenuates any true association with outcome variables, independent of whether a real exposure–symptom gradient exists. Given that Schwail et al. (2025) examined an overlapping population and time peri-

od using a more granular exposure measure, the most parsimonious explanation for the divergence between the two studies is methodological: a coarser index in the present study likely obscured an exposure–symptom gradient that a more granular index was able to detect. We use the term torture breadth index rather than a cumulative exposure count precisely because a “cumulative” label would be imprecise given how the index was constructed: it counts only three broad categories (psychological, physical, sexual), it more accurately reflects the breadth of reported categories than a cumulative count of specific acts, their frequency, or their severity; and a participant exposed to one method within each of the three categories receives the same maximum score as one exposed to many acts within each. We therefore refer to this measure as a torture breadth index throughout, rather than as a cumulative exposure count, to reflect this limitation transparently. A table reporting the prevalence of specific torture methods within the subsample for whom detailed method-level data are available is in preparation and will be added in a subsequent revision once that data extraction is complete.

A substantive account (more speculative)—“homogenization of trauma.” When traumatic exposure is close to universal and extreme (73.0% of participants experienced all three broad categories of torture assessed), individual-difference variables that typically moderate trauma outcomes (youth, social support, prior resilience) may lose predictive power because the carceral environment itself constitutes an overwhelming, largely undifferentiated risk factor. Under this account, the non-significant torture-exposure and duration effects would reflect a genuine psychological ceiling on distress reached by nearly all detainees regardless of the specific configuration of their exposure. This interpretation remains plausible but is harder to reconcile with the opposite pattern reported by Schwail et al. (2025) than the measurement account is.

A cultural account—collective Sumud (steadfastness). A complementary, non-competing explanation draws on the concept of Palestinian Sumud as a collective, culturally embedded stance rather than a measurable individual trait (Marie et al., 2018; Hamamra, 2025). If resilience in this context operates primarily at the level of shared cultural and communal identity—rather than as a person-level characteristic that varies detectably between individuals—this could help explain why age, gender, and other individual-difference variables failed to differentiate outcomes in this sample. As with the homogenization account, this interpretation cannot be directly tested with the present cross-sectional, individual-level data and remains one candidate explanation among the others discussed here, rather than a confirmed finding.

We consider it important, for scientific transparency, not to over-claim theoretical novelty for either the homogenization or the Sumud account for a pattern that may be substantially attributable to measurement coarseness. Future replications using a more granular torture-exposure index (e.g., counting specific acts rather than broad categories) are needed before either substantive interpretation can be considered well supported.

The PTSD–Depression Association

Independent of the torture-exposure question, the regression-based analysis showed a strong statistical association between PTSD and depression symptom severity ($\beta = 0.22$, $p < .001$). This association is compatible with theoretical accounts in which PTSD- and depression-related symptoms may overlap or co-occur in the context of shared adversity. However, the cross-sectional design does not establish temporal ordering or a common underlying clinical construct. In addition, the PCL-5 negative cognition and mood domain has conceptual overlap with the PHQ-9, so the strength of the correlation should be interpreted cautiously and should not be taken as evidence that PTSD and depression constitute a single disorder or transdiagnostic response.

Clinically, the association supports integrated assessment and treatment planning for co-occurring PTSD and depressive symptoms. Whether improvement in one symptom domain produces improvement in the other requires prospective intervention research.

Limitations

Several limitations qualify these findings. As detailed in Sections 3.1 and 4.1, the originally reported exclusion rationale (attributing the reduction from $N = 400$ to $N = 378$ to incomplete or unmatched instrument data) was incorrect; the actual reasons were the presence of 14 participants under 18 years of age and 8 participants detained prior to the onset of the October 2023 war, both outside the stated inclusion criteria. This error, along with an inconsistent use of $N = 400$ versus $N = 383$ as the analytic denominator in different parts of the originally submitted manuscript, and a set of unresolved data-entry errors in recorded detention and release dates (affecting the reported mean detention duration), has been corrected throughout this revision following methodological review; all figures in this manuscript are now computed on a single, consistent $N = 378$ (or the relevant complete-case subset thereof, noted where applicable). First, the three-category torture-exposure index produced a pronounced ceiling effect (Section 5.2) that limits the interpretability of all analyses involving that variable. Second, the cross-sectional design limits interpretation to statistical associ-

ations; the analysis reported in Section 4.7 is a cross-sectional, regression-based analysis and should not be interpreted as establishing temporal ordering, mediation, or causation. Therefore, we describe the analysis using association-based terminology throughout this paper. Third, the sample was restricted to detainees who survived detention and were subsequently released or made available for interview. Individuals who died in custody, remain detained, or were too severely impaired to participate are not represented. This survivor bias almost certainly leads to an underestimation of the true severity and prevalence of psychological distress in the broader detainee population. Fourth, torture exposure was assessed through self-report without independent corroboration. Although self-report was necessary given the study context, this approach may have introduced recall bias and social-desirability bias, potentially affecting the accuracy of reported exposure experiences. Fifth, women constituted only 13.5% of the sample. Although this gender imbalance reflects the demographic composition of detention during the study period, it substantially limits statistical power for gender-based analyses and restricts the generalizability of findings to women detainees, who may have experienced distinct forms of violence (including higher rates of sexual violence) and different post-release trajectories. Future studies with deliberate oversampling of women are urgently needed. Sixth, no data were collected on post-release protective factors (social support, community reintegration, access to care), precluding any test of factors that might moderate long-term outcomes. Seventh, the complete-case analysis and exclusion of individuals with psychotic symptoms—necessary to ensure reliable self-report—may have excluded some of the most severely affected survivors, suggesting that the prevalence estimates reported here are likely conservative rather than inflated. Eighth, several variables plausibly relevant to psychological outcomes in this population were not measured and could not be included in the regression models: time elapsed since release, current exposure to violence and insecurity (particularly given the continuation of the war and blockade in Gaza), displacement and housing conditions, current socioeconomic circumstances, social support, bereavement (including number of relatives killed), physical injury and chronic pain, prior trauma history, and access to treatment. Given this, the near-total absence of significant demographic and exposure predictors in the regression models (Sections 4.6–4.8, $R^2 < .04$) is at least as plausibly attributable to this unmeasured variance and to the limited exposure measurement discussed in Section 5.2, as to the substantive “homogenisation of trauma” or collective Sumud accounts also discussed there; we present all three as non-exclusive candidate explanations rather than privileging the substantive accounts over the simpler measurement-based one.

Finally, no correction for multiple comparisons was applied, and no sensitivity analyses (e.g., excluding the zero-exposure subgroup, alternative severity cut-offs) were conducted (Section 3.4); the single significant demographic predictor (education, significant for all three outcomes) should be interpreted in that light, and formal sensitivity analyses are recommended for any future re-analysis of this dataset.

Generalisability

The generalisability (external validity) of these findings is bounded in several specific ways. Within the population of Palestinian detainees held during the October 2023 war, the sample should generalise reasonably well to released, surviving detainees who engage with rehabilitation centres, human-rights organisations, or community networks similar to those used for recruitment here; it is less clear how well it generalises to detainees who avoid such services, who remain in detention, or who did not survive detention (Section 5.4). The findings likely do not generalise well to women detainees specifically, given their small representation (13.5%) in this sample. Generalisability to other conflict-detention settings, other time periods of the same conflict, or other national/cultural contexts should be treated cautiously: the extremity and near-universality of torture exposure documented here (Section 4.1) may not characterise detention experiences elsewhere, and the null demographic and exposure findings (Sections 4.6–4.8) should not be assumed to generalise to settings with a wider range of exposure severity, where the ceiling-effect account offered in Section 5.2 would predict that individual-difference predictors could regain explanatory power.

The ongoing war and blockade as interview context

Data collection (late 2025–early 2026) took place while the war and blockade in Gaza were still ongoing, and this context bears directly on interpretation rather than being a peripheral caveat. First, ongoing insecurity, displacement, and restricted movement constrained the sampling frame itself: interviews were conducted where rehabilitation centres, human-rights organisations, and community networks could safely operate and reach participants, which likely under-represents detainees in the most heavily affected or inaccessible areas and over-represents those with the mobility, safety, and communication access needed to reach a data-collection site or complete a secure phone interview. Second, the active conflict is itself a concurrent, ongoing stressor rather than a historical one: participants' symptom reports reflect not only past detention experiences but also continuing exposure to bombardment, displacement, bereavement, and material deprivation at the time of assessment, so the elevated PHQ-9, GAD-7, and PCL-5 scores reported here cannot be

attributed to detention-related trauma alone. This overlapping, cumulative stress burden plausibly contributes to the ceiling and range-restriction effects discussed in Section 5.2, since severe current-life adversity may elevate and compress symptom scores across the sample regardless of variation in detention or torture history. Third, the practical conditions of conflict-zone data collection—time pressure, interviewer and participant safety concerns, and infrastructure disruptions affecting phone-based interviews—may have constrained the depth or consistency of some interviews relative to what would be achievable in a more stable setting, though the standardised training and calibration protocol described in Section 3.3 was designed to mitigate this. Findings should therefore be interpreted as characterising this population under these specific, ongoing wartime conditions, not as an estimate of the psychological sequelae of detention and torture in isolation from concurrent conflict exposure.

Clinical and policy implications

The extremely high rate of comorbidity (50.81% above screening threshold on all three measures; 87.10% above threshold on at least one) supports integrated, trauma-informed clinical approaches over single-disorder treatment pathways. The strong PTSD–depression association (Section 5.3) is consistent with the potential value of trauma-focused interventions that address both symptom clusters. Evidence-based approaches such as culturally adapted Prolonged Exposure or Cognitive Processing Therapy warrant systematic evaluation in this population; however, the present observational design cannot establish treatment efficacy, and these suggestions should be read as directional rather than as tested clinical protocols.

At a policy level, the prevalence estimates reported here—markedly higher than pooled international benchmarks—constitute empirical documentation relevant to human rights advocacy and accountability processes, and support calls for substantially expanded, culturally adapted mental health services for detainee populations, with particular attention to the small but important subgroup of women detainees.

Future directions

We recommend four priorities for future research. First, replication with a more granular, higher-resolution torture-exposure index to directly test whether the dose–response relationship reported by Sehwal et al. (2025) is confirmed once the ceiling effect identified here is addressed. Second, longitudinal designs to track symptom trajectories, distinguish transient from chronic distress, and identify predictors of recovery. Third, the development of new, culturally adapted trauma and distress measures built specifically for the Palestinian detention context—rather

than relying solely on translated Western instruments—so that item content, response formats, and symptom framing better reflect local idioms of distress and the specific forms of harm documented in this population; standard psychometric validation (e.g., confirmatory factor analysis) should accompany the development of any such new or adapted instrument. Fourth, direct measurement of Complex PTSD using validated instruments (e.g., the International Trauma Questionnaire), given that the symptom profile described qualitatively in prior work (Hamamra, 2025) suggests C-PTSD may be more prevalent than PTSD alone. Latent profile or cluster-analytic approaches may also help identify whether meaningful subgroups exist within what the present cross-sectional data cannot distinguish from a homogeneous response pattern, and studies incorporating a non-detained comparison group would help disentangle the effects of detention specifically from the broader effects of wartime exposure.

Conclusion

This study provides robust descriptive evidence that Palestinian detention survivors, assessed while the October 2023 war and its associated displacement, bereavement, and material deprivation were still ongoing, reported high levels of depression, anxiety, and PTSD, with extensive comorbidity across all three conditions. These symptoms were observed in a context that included detention histories alongside continuing wartime conditions, rather than in a context in which detention could be evaluated in isolation. These findings are consistent with, and extend, a small but growing body of work on this specific detainee cohort. At the same time, the apparent independence of symptom severity from demographic and torture-exposure variables should be interpreted cautiously. While this pattern may reflect a genuine homogenization of psychological response under extreme and near-universal exposure, it is at least equally consistent with a ceiling effect produced by a coarse exposure measure, particularly given that a closely comparable study using a more granular measure (Sehwail et al., 2025) reported the opposite pattern. We regard this as an open empirical question rather than a settled finding. While the high prevalence and comorbidity are robust descriptive findings, the apparent independence of symptom severity from individual and exposure variables remains an open empirical question pending replication with higher-resolution exposure measures. Notwithstanding these caveats, the magnitude and consistency of psychological distress documented here—affecting the substantial majority of a sample of 378 survivors—constitutes meaningful evidence for the scale of mental health need in this population and for the urgency of integrated trauma-informed care, further longitudinal and psychomet-

ric research, and continued documentation relevant to human rights accountability processes.

Data availability statement

The de-identified dataset supporting the findings of this study is available from the corresponding author upon reasonable request. Data are not publicly available due to the sensitivity of the population and the risk of participant re-identification, consistent with the terms of approval by the Helsinki Committee for Scientific Research.

Declaration of generative AI and AI-assisted technologies

During the preparation of this manuscript, the authors used generative AI tools solely to assist with language editing and rephrasing. The AI tools were not used for data analysis, interpretation of results, or generation of scientific findings. The authors reviewed and edited all AI-assisted text and take full responsibility for the content of the manuscript.

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Submitted 20th of August 2026

Accepted 11th of September 2026