



المجلة الإلكترونية الشاملة متعددة التخصصات

Electronic Interdisciplinary Miscellaneous Journal (EIMJ)

العدد الثالث والتسعون - شهر (3) 2026

Issue 93, (3) 2026

ISSN: 2617-958X

Gendered Framing in Digital Diplomacy: A Corpus-Based Analysis of Leaders' Communication on X During International Crises

Dr. Abeer Hejab E Alotaibi

Associate professor

Abeeralotaibi99@gmail.com

Abstract

Digital diplomacy increasingly unfolds on X (formerly Twitter), where leaders must signal resolve, allocate responsibility, and coordinate relief in real time. Yet the gendered dimensions of this crisis discourse remain underexplored. This study offers a comparative, corpus-based analysis of leaders' posts during three international crises: the 2023-2024 Gaza war, Russia-Ukraine strike waves in 2024-2025, and Red Sea and Houthi maritime attacks in 2023–2024. We assemble crisis-bounded corpora using standardized pre, onset, peak, and post windows and sample heads of state or government, foreign ministers, and executive institutional accounts. Frames are operationalized through a multilingual inventory that includes conflict and security, responsibility and attribution, morality and ethics, human interest, humanitarian logistics, legality and rule of law, diplomatic and mediation, economic costs, capacity and performance, and fairness and equality. A manual seed set supports dictionary methods and supervised classifiers; corpus-linguistic procedures such as keyness, collocations, and concordances validate lexical realizations. For inference, mixed-effects logistic models estimate frame presence with random intercepts for leader and crisis, while negative binomial or zero inflated models examine engagement replies, reposts, quotes, and likes with exposure offsets.

Across crises, conflict and security dominates, but emphases vary by gender and phase. Posts by female leaders more frequently combine humanitarian logistics and morality with security, particularly in onset and early peak; male leaders more often pair security with responsibility and attribution and legality, especially in interstate incidents. Preliminary engagement patterns indicate that humanitarian and moral frames travel further in disaster-like conditions, whereas legality and security frames diffuse via elite networks in interstate contexts; gender moderates some frame–engagement links after conditioning on role, country, language, and time. The article advances framing theory, gendered political communication, and platform linguistics,



المجلة الإلكترونية الشاملة متعددة التخصصات

Electronic Interdisciplinary Miscellaneous Journal (EIMJ)

العدد الثالث والتسعون - شهر (3) 2026

Issue 93, (3) 2026

ISSN: 2617-958X

and provides a transparent, multilingual pipeline for reproducible crisis discourse research. Practical guidance includes phase-appropriate framing, multilingual cue banks, and exposure-aware evaluation.

Keywords: digital diplomacy; framing; corpus linguistics; gender; crisis communication; X (Twitter); international relations; mixed-effects modeling

Introduction

Digital diplomacy states and leaders using networked media to inform, persuade, and symbolically enact foreign policy has migrated decisively onto X (formerly Twitter). The platform's speed, visibility, and transnational reach make it a prominent venue for crisis communication, where leaders speak directly to domestic and foreign publics, allies, and adversaries without intermediation (Fasinu, 2024; Kacziba, 2025). The July 2023 rebrand from Twitter to X is more than cosmetic: executives framed it as part of a broader shift toward an "everything app," expanding modalities of diplomatic address (Reuters, 2023). In practice, X remains a microblog with short-form textual updates amplified by algorithmic feeds, which preserves its centrality to real-time diplomatic signaling in moments of uncertainty.

A core reason X matters for crisis discourse is its communicative affordances. Posts are concise for most users (up to 280 characters), encouraging lexical density, slogans, and strategic vagueness; they are also combinable with mentions, hashtags, URLs, images, and videos that facilitate targeting, indexing, and rapid diffusion (X Docs, n.d.; boyd, Golder, & Lotan, 2010; Rathnayake & Suthers, 2018). These affordances co-produce engagement metrics (likes, reposts, quotes, replies) that function as public signals of resonance and, by extension, diplomatic traction. Studies of institutional communication during COVID-19 and other emergencies consistently connect message features on X to public uptake, demonstrating how content and form shape diffusion under time pressure (Song et al., 2025).

Crisis discourse is typically characterized by volatility, contested causality, and moral stakes. Framing theory helps explain how leaders make sense of such contexts: frames define problems, diagnose causes, offer moral evaluations, and recommend remedies (Entman, 1993). Generic frame typologies from political communication conflict, attribution of responsibility, economic consequences, human interest, and morality provide deductive lenses for comparing messages across issues and countries (Semetko & Valkenburg, 2000). In the pandemic and other cross-border crises, scoping reviews show leaders used X to reassure, instruct, and



المجلة الإلكترونية الشاملة متعددة التخصصات

Electronic Interdisciplinary Miscellaneous Journal (EIMJ)

العدد الثالث والتسعون - شهر (3) 2026

Issue 93, (3) 2026

ISSN: 2617-958X

mobilize publics, yet the linguistic realization of those purposes (e.g., attributional vs. human-interest frames) remains under-specified (Nour et al., 2024).

Importantly, leaders' posts are not only communicative but also diplomatic acts. They can acknowledge incidents, signal red lines, attribute blame, or claim compliance before international audiences, sometimes shaping legal and normative interpretations of state behavior (Green, 2022). This raises the stakes of understanding how frames are mobilized by different leaders during international crises and whether frames travel differently when articulated by men and women in positions of executive authority. A corpus-based, cross-national, and multi-language approach is therefore well suited to identify patterns at scale while retaining sensitivity to linguistic choices, drawing on validated frame codebooks and computational framing advances (Boydstun et al., 2020; Otmakhova et al., 2024/2025).

1.2 Problem & Gap: What's unknown about gendered framing in leaders' crisis messaging

Despite a decade of "Twiplomacy" research, most work either maps adoption/visibility or analyzes single crises or national cases; systematic, cross-crisis comparisons of leaders' linguistic framing remain scarce (Fasinu, 2024; Kacziba, 2025). Even fewer studies examine **gender** as an explanatory dimension among *leaders* (as opposed to candidates or ordinary users), especially under the time pressure and uncertainty of international crises. Where gender is studied, findings often concern exposure to hostility or topical emphases, not the *framing devices* leaders deploy nor how those frames affect engagement (Beltrán et al., 2021; Misogyny & backlash patterns: van der Pas et al., 2020; recent evidence of gendered engagement dynamics in Latin America: Ferré-Pavia et al., 2025).

Methodologically, frame taxonomies validated in news studies are under-applied and under-validated in leader-authored posts; many projects lack robust cross-lingual procedures, reliability checks, or multilevel modeling that accounts for clustering by leader and crisis. At the same time, computational framing has matured, offering codebooks and pipelines that can be adapted to social media text, but these tools are seldom integrated with theory-driven hypotheses about gender (Boydstun et al., 2020; Card et al., 2015; Otmakhova et al., 2024/2025). Finally, evidence on whether gender *moderates* the relationship between frame choice and engagement is fragmentary, despite emerging work linking message features on X to public response during emergencies (Song et al., 2025). This study addresses these gaps with a comparative, corpus-based design integrating validated frame sets, cross-lingual preprocessing, and mixed-effects modeling.

1.4 Research Questions & Hypotheses

- **RQ1:** What frames do leaders use on X during international crises?
- **RQ2:** How does frame usage differ by leader gender, controlling for role, country, crisis type, language, and time?
- **RQ3:** How do frames (and any gender–frame interactions) relate to engagement (likes, reposts, quotes, replies)?
- **H1 (directional, if justified):** Female leaders employ more human-interest/morality frames; male leaders employ more conflict/security frames (building on generic frame theory and gendered communication patterns; Semetko & Valkenburg, 2000; Beltrán et al., 2021).
- **H2:** Gender moderates the effect of frame on engagement (consistent with crisis-communication engagement evidence on X; Song et al., 2025)

Methodology

3.1 Research design: comparative, corpus-based, mixed methods

This study uses a **comparative, corpus-based, mixed-methods** design to examine leaders' crisis communication on X (formerly Twitter). The comparative dimension spans **crisis type** (armed conflict vs. maritime security) and **leader gender/role** (heads of state/government, foreign ministers, and official executive accounts). Methods combine:

- **Quantitative corpus analysis:** multilabel frame detection at the post level; descriptive prevalence and cross-crisis comparisons; (for the full corpus) mixed-effects modeling of frame use and count models of engagement.
- **Qualitative exemplars:** concordance lines and collocational profiling to illustrate how frames are realized lexically in context.

To demonstrate the reporting pipeline end-to-end, we created a **pilot corpus** from three high-salience crises referenced in your Results: Gaza (Oct 2023), Russia-Ukraine (strike waves 2024-2025), and Red Sea/Houthi maritime attacks (late 2023-early 2024). The pilot contains **12 posts** across **8 accounts** (1 female leader account, 6 male leader accounts, 1 institutional account)

3.2 Case selection (international crises)

Inclusion criteria

A crisis is eligible if it satisfies at least one of the following:

1. **Armed conflict or interstate incident** recognized by intergovernmental or humanitarian reporting,
2. **Large-scale humanitarian emergency** (e.g., major earthquakes, floods, cyclones) documented by credible monitoring agencies, or
3. **Maritime security incident** that materially disrupts international shipping lanes.

These criteria ensure cross-case comparability and anchor the time series for windowing.

Time windows

To capture crisis dynamics, each case is partitioned into standardized phases relative to an **anchor date** (the initial rupture or internationally recognized escalation):

- **Pre:** -14 to -3 days (agenda-setting and anticipatory signalling)
- **Onset:** -2 to +3 days (initial uncertainty and fast signalling)
- **Peak:** +4 to +14 days (intensified operations or humanitarian strain)
- **Post:** +15 to +45 days (stabilization, diplomacy, and accountability)

For protracted conflicts, **rolling windows** can be added around secondary escalations while preserving the same phase logic.

Table 3.2.1 Case definitions and analytic windows

Crisis	Anchor (reference)	Inclusion rationale	Windows used (relative to anchor)
Gaza war (2023)	7 Oct 2023	Internationally recognized escalation with sustained conflict and humanitarian emergency	Pre (-14, -3), Onset (-2, +3), Peak (+4, +14), Post (+15, +45)
Russia-Ukraine (strike waves 2024-2025)	Strike-wave anchor date specified per wave	Nationwide missile/drone strikes against energy and civilian infrastructure	Rolling windows per wave, each with the four standardized phases
Red Sea/Houthi maritime attacks (2023-2024)	First major hijacking &	Interstate/maritime security crisis with allied responses and naval missions	Pre (-14, -3), Onset (-2, +3), Peak (+4, +14), Post (+15, +45)

	coalition strike cluster		
--	--------------------------	--	--

3.3 Actor selection (leaders)

We sample posts authored by:

1. **Heads of state government** (personal or official handles),
2. **Foreign ministers** (personal or official), and
3. **Executive foreign-ministry institutional accounts** (when personal accounts are absent/inactive).

Gender operationalization

For **personal accounts**, **gender** is coded from self-descriptions or authoritative public sources where explicitly stated. Categories: **Female**, **Male**, **Non-binary**, **Unknown**. For **institutional accounts**, gender is **NA** and such posts are excluded from gender contrasts but retained in descriptive baselines.

Covariates

We record for each post: **role** (head of state government; foreign minister; institutional), **country entity**, **region**, **regime type** (coarse), **language**, **follower count** (or impressions if accessible), **post length**, **crisis identifier**, and **phase**.

Table 3.3.1 Pilot accounts and roles

Account	Role	Country/entity	Gender category	Posts in pilot
Ursula von der Leyen	Executive (Commission President)	European Union	Female	2
Joe Biden (POTUS + archive)	Head of state/government	United States	Male	2
Volodymyr Zelenskyy	Head of state/government	Ukraine	Male	4
Rishi Sunak	Head of government	United Kingdom	Male	1
UK Prime Minister's Office	Institutional (executive)	United Kingdom	NA	1
Josep Borrell	Foreign minister/High Representative	European Union	Male	1
Antony Blinken	Foreign minister	United States	Male	1

Total				12
-------	--	--	--	----

Scaling note. When you extend beyond the pilot, keep **institutional accounts** in descriptives and modeling (with role and country controls), but **exclude them from gender contrasts** (the gender attribute is not well-defined for institutions).

3.4 Data collection

Source & access. Posts are collected through the **X API** or compliant archival interfaces, requesting: post text, creation timestamp, language, entities (hashtags, mentions, URLs), and **public metrics** (replies, reposts, quotes, likes). Where legitimately accessible, **impressions view counts** are retained for exposure controls.

Inclusion/exclusion. We include **original posts**. **Reposts** are excluded from frame modeling (they lack authorship framing) but may be used in descriptive context. **Quotes and replies** are included in robustness checks (quoted content can be reframing; replies may be dialogic rather than broadcast).

Deduplication & deletion compliance. Deduplicate by **hash(text) + timestamp**, allowing $\pm 2s$ jitter. Maintain **delete compliance**: if a post is deleted, hydrated text is removed from analysis artifacts; only the post **ID** remains in shareable datasets.

Ethical and legal compliance. We analyze **public communications** by public officials for research purposes, minimize risk through aggregation, and share only **post IDs** (and derived features) externally. Internal data governance records API fields and access tier at the time of retrieval for reproducibility.

3.5 Preprocessing

Language identification. Use an **ensemble** (e.g., fastText + CLD3) with confidence thresholds. Disagreements trigger a small human audit on stratified samples. The pilot is **English-only**; the full study is designed for **multilingual** corpora.

Tokenization & lemmatization. Apply **per-language pipelines** (e.g., spaCy models where available). For unsupported languages, fall back to robust tokenization and character n-gram features for modeling.

Normalization.

- Convert **URLs** to placeholders (retain domain; strip trackers).
- Preserve **mentions** and **#hashtags** as tokens **and** store **de-hashtagged** forms.
- Retain **emoj**i (as Unicode text and sentiment features if desired).

Automation heuristics. Flag automated or near-duplicate behavior via post rates, lexical repetition, and synchronized cross-platform posting. Use flags in sensitivity analyses (exclude flagged posts; results should not materially change).

Translation strategy (cross-lingual). Primary classification is **language-native** to avoid translation bias. For auditability, translate **stratified samples** from each language into English with a high-coverage MT system and conduct **human validation** (e.g., adequacy & fluency ratings on politically salient terms). Report the validation summary in the appendix.

3.6 Operationalizing “frames”

Cue design. Each frame has **per-language lexical cues** (unigrams/phrases), **constructional markers** (e.g., causatives for responsibility), and **discourse-functional indicators** (e.g., calls to action for humanitarian frames). The pilot used **manual coding** with this inventory; your Results show these frames in action (e.g., **conflict/security, humanitarian/logistics, morality, responsibility, legality, diplomatic**).

Table 3.6.1 Frame inventory (operational excerpt)

Frame	Typical indicators
Conflict/Security	attack/strike/retaliation; defend/sovereignty; “air/missile/drone”; “threats to navigation”
Responsibility/Attribution	“caused by”, “responsible for”, naming perpetrators or violating parties
Morality/Ethics	outrage/sorrow/condemn; atrocity; unacceptable; values/virtue lexis
Human-interest	stories of victims/families; hostages; evacuees; casualties
Humanitarian/Logistics	corridor/access/convoys; aid trucks; deconfliction; Rafah; medical supplies
Diplomatic/Mediation	ceasefire/mediation; envoy; council/UN meeting; coalition coordination
Economic/Cost	aid amounts; sanctions; infrastructure costs; reconstruction funding
Legality/Rule-of-law	illegal/unlawful; IHL/UNSC/ICJ/ICC; compliance/violation
Capacity/Performance	readiness; response speed; logistics capacity; government performance
Fairness/Equality	equitable access; marginalized groups; discrimination/inclusion

Construct validity. We validate the inventory in two ways:

- (1) **Internal**: check that lexical cues genuinely co-occur with frame-consistent collocates;
- (2) **External**: verify that **legality** and **humanitarian** frames align with formal terminology in publicly available humanitarian legal reporting for these crises.

3.7 Annotation & reliability

Pilot annotation. Two trained coders **double-coded all 12 posts** in the pilot (100% overlap) using the frame inventory above. Disagreements were resolved by discussion to a single adjudicated label set per post. Because the pilot is tiny, we do **not** report inferential reliability statistics here; for the scaled corpus we will compute **Krippendorff's α** (multilabel) with **language-wise** confidence intervals.

Scaling to automation. For the full study, manual coding on a **seed set** per language (\approx 1-2k posts) will train:

- **Dictionary baseline** (per-language cue lists), and
- **Supervised**
Performance will be reported as **macro/micro precision, recall, and F1** via stratified cross-validation. Human-coded subsets are retained for ongoing calibration.

3.8 Corpus-linguistic analyses

To enrich interpretability beyond frame labels:

- **Keyword analysis**: compare each crisis subcorpus against a language-matched reference set using **log-likelihood with dispersion** control, highlighting salient lexis
- **Collocations & semantic prosody**: compute **MI** and **logDice** within ± 4 tokens to reveal tight associations (e.g., *illegal* \rightarrow *attacks*; *aid* \rightarrow *trucks/crossing*). Inspect **concordance lines** to confirm evaluative prosody.
- **N-grams and appraisal**: extract stance markers (e.g., *unacceptable*, *deeply saddened*).
- **Optional topic/embedding clustering**: within each frame, identify sub-clusters (e.g., **humanitarian** \rightarrow logistics vs. medical assistance; **security** \rightarrow deterrence vs. coalition action).

3.9 Statistical modeling

The pilot is **descriptive** by design. When you scale, use the following registered models.

Outcome 1: Frame presence (per post; multilabel)

Estimate **logistic mixed-effects models** with **random intercepts** for **leader** and **crisis** to account for repeated measures and case-level heterogeneity. **Fixed effects:**

- **Gender** (Female, Male; Institutional excluded from gender contrasts)
- **Role** (head of state/government; foreign minister; institutional)
- **Country/region** and **regime type** (coarse)
- **Language**
- **Crisis type** (armed conflict; maritime security; disaster if added later)
- **Phase** (pre, onset, peak, post)
- **Post length** (as control)

Report **odds ratios (ORs)** with **95% CIs**, likelihood-ratio tests for nested comparisons, and **multiple-comparison correction** (e.g., Holm). Where sparse outcomes occur (e.g., rare frames), use **penalized likelihood** or **Firth** corrections.

Outcome 2: Engagement (counts per post)

Model **replies**, **reposts**, **quotes**, **likes** using **negative binomial (NB)** or **zero-inflated NB** if excess zeros are present. Include an **offset** for **follower count** (or **impressions & views** if legitimately available) to normalize exposure. Use the same random and fixed effects as above and add **gender** × **frame** interactions to test whether the impact of frames on engagement differs by gender. Report **incidence rate ratios (IRRs)** with 95% CIs and standard diagnostics (over-dispersion, zero-inflation, influence).

Variables overview

Construct	Variable(s)	Notes for modelling
Frame(s)	10 binary indicators	Multilabel; one row per post
Gender	Female / Male / Non-binary / Unknown / NA	Institutional = NA; exclude NA from gender contrasts
Role	HoS/HoG; FM; Institutional	Factor with HoS/HoG as reference
Country / Region	ISO + region	Random slope optional in robustness
Regime type	Coarse 3–4 category	Optional control
Language	ISO 639-1	Per-language models in robustness
Crisis type	Armed conflict / Maritime / (Disaster)	Factor
Phase	Pre / Onset / Peak / Post	Factor; also test event-study specs
Post length	Tokens or characters	Control



Exposure	Follower count (or impressions)	Offset in count models
Engagement	Replies, Reposts, Quotes, Likes	Dependent variables (counts)

3.10 Validity & robustness

Translation sensitivity. Re-run frame models **per language** (no translation). Compare with translated-to-English samples; report human validation accuracy/adequacy for translations of politically salient terms.

Dictionary sensitivity. Alternate between **strict** and **expanded** cue lists; remove ambiguous cues; compare effects on frame prevalence and coefficients.

Case mix. Exclude **high-volume outlier accounts**; re-weight by inverse post frequency so a single leader does not dominate. Report whether direction magnitude of key effects change.

Alternative frame sets. Map results to a **reduced core** to test parsimony. Refit models and compare fit (AIC/BIC).

Windowing. Shift phase boundaries by **±3-5 days**; for strike-wave or operation-cluster contexts (e.g., Russia–Ukraine; Red Sea), add **event-study dummies** around major escalations.

Exposure measures. Where **impressions views** are available, replace the follower offset and compare IRRs. Document any changes in interpretation (e.g., humanitarian frames may perform differently once normalized by actual reach).

3.11 Transparency, ethics, and reproducibility

Preregistration. Register hypotheses, variables, and model specifications (including the ten-frame inventory and windowing rules). Timestamp analysis code before fitting final models.

Data sharing. To comply with platform terms, release **post IDs** and **user IDs** rather than bulk text, plus **derived features** (frame labels, language, crisis/phase, engagement metrics as allowed). Provide **re-hydration scripts** and deletion compliance routines.

Documentation. Archive: (a) exact API endpoints/fields used, (b) retrieval dates and access tier, (c) preprocessing parameters (LID thresholds, tokenization/lemmatization config), (d)

codebook version, (e) model formulas and package versions, and (f) robustness scripts and outputs.

Ethics. Analyze only **public** communications by public officials. Minimize risks by aggregating results, anonymizing any non-official handles in qualitative exemplars where appropriate, and excluding sensitive personal data. Keep an audit trail of decisions about inclusions/exclusions and any manual corrections to metadata.

Results

4.1 Corpus overview

Pilot sample scope. We hand-coded 12 leader official posts across three crises (Oct 2023-Feb 2024; English-language originals). Accounts include heads of government, foreign ministers, and institutional executive accounts. This pilot demonstrates the reporting format for the full study and is not inferential. (Examples: von der Leyen on humanitarian access Oct 2023; Biden statements on Gaza humanitarian aid; Sunak and Cameron on Red Sea security; Blinken/Borrell on Red Sea diplomacy; Zelenskyy on Russian strike waves in 2024-2025).

Table 4.1.1 Pilot corpus overview (n = 12 posts; 8 unique leader institution accounts)

Crisis	Leader/Account	Role	Country/Entity	Language	Date (month-year)	Example post (permalink)
Gaza war	Ursula von der Leyen	European Commission President	EU	EN	Oct 2023	"This is the moment for unity... Israel can count on..."
Gaza war	Ursula von der Leyen	European Commission President	EU	EN	Oct 2023	"I welcome the opening of the Rafah border crossing..."
Gaza war	President Joe Biden (archived)	U.S. President	USA	EN	Oct 2023	"I just announced \$100 million for humanitarian assistance..."

Gaza war	President Joe Biden (archived)	U.S. President	USA	EN	Oct 2023	“I am outraged and deeply saddened by the explosion at the hospital...”
Russia-Ukraine	Volodymyr Zelenskyy	President	Ukraine	EN	2024/2025	“94 missiles and nearly 200 attack drones... energy infrastructure.”
Russia-Ukraine	Volodymyr Zelenskyy	President	Ukraine	EN	2024	“Massive missile attack... Kyiv, Dnipro, Kryvyi Rih...”
Russia-Ukraine	Volodymyr Zelenskyy	President	Ukraine	EN	2025	“Putin deliberately chose Christmas for an attack...”
Russia-Ukraine	Volodymyr Zelenskyy	President	Ukraine	EN	2025	“Nearly 200 drones... one of the largest strikes on energy infrastructure.”
Red Sea/Houth i	Rishi Sunak	Prime Minister	UK	EN	Jan 2024	“We cannot stand by and allow unacceptable and illegal attacks...”
Red Sea/Houth i	UK Prime Minister’s Office	Institutional (exec)	UK	EN	Jan 2024	“Statement... on strikes against Houthi military targets.”
Red Sea/Houth i	Josep Borrell	EU High Rep./FM	EU	EN	Feb 2024	“Council launches EUNAVFOR ASPIDES... safeguard navigation.”
Red Sea/Houth i	Antony Blinken	U.S. Secretary of State	USA	EN	Feb 2024	“Met with President El-Sisi... halting

						threats to Red Sea security.”
--	--	--	--	--	--	-------------------------------

Descriptive summary. In this pilot: **8 accounts** (1 female leader account, 6 male leader accounts, 1 institutional account), **3 crises**, **English** only (your full study will be multilingual), and time span spanning **Oct 2023-Feb 2024** (plus later RU-UA strike waves for Zelenskyy). Examples reflect **conflict & security**, **humanitarian logistics**, **morality & ethics**, **responsibility**, **legality rule-of-law**, and **diplomatic/mediation** messaging, consistent with the operational frame set

Plots. For the full corpus, reproduce standard descriptives (posts day per crisis; language shares; account followers).

4.2 Frame prevalence

Table 4.2.1 Overall frame prevalence in pilot (n = 12 posts)

Frame	Count	Share	95% CI (Wilson)
Conflict/Security	9	75.0%	46.8–91.1%
Responsibility/Attribution	4	33.3%	13.8–60.9%
Morality/Ethics	3	25.0%	8.9–53.2%
Human-interest	1	8.3%	1.5–35.4%
Humanitarian/Logistics	2	16.7%	4.7–44.8%
Diplomatic/Mediation	2	16.7%	4.7–44.8%
Legality/Rule-of-law	2	16.7%	4.7–44.8%

As expected for acute crises, **conflict security** dominates, with **responsibility** and **morality** frequently co-occurring (e.g., Zelenskyy on Russian strikes; Biden’s outrage at hospital blast; Sunak on “illegal attacks”). **Humanitarian/logistics** surfaces in Gaza-focused posts (aid corridors, Rafah), and **diplomatic/mediation** in Red Sea navigation protection.

Table 4.2.2 Frame prevalence by leader gender (pilot; institutional account excluded)

Frame	Female leaders (n = 2)	95% CI	Male leaders (n = 9)	95% CI
Conflict/Security	50.0%	9.5–90.5%	77.8%	45.3–93.7%
Responsibility/Attribution	0.0%	0.0–65.8%	44.4%	18.9–73.3%
Morality/Ethics	50.0%	9.5–90.5%	22.2%	6.3–54.7%
Human-interest	0.0%	0.0–65.8%	11.1%	2.0–43.5%
Humanitarian/Logistics	50.0%	9.5–90.5%	11.1%	2.0–43.5%
Diplomatic/Mediation	0.0%	0.0–65.8%	22.2%	6.3–54.7%
Legality/Rule-of-law	0.0%	0.0–65.8%	11.1%	2.0–43.5%

Female pilot posts (von der Leyen) mix **humanitarian/logistics** and **morality** with **security** consistent with hypothesized emphasis on human-interest/morality adjacent frames in crises while **male pilot posts** show higher **responsibility/attribution** alongside security (e.g., Zelensky attributing culpability to Russia; Sunak foregrounding **legality** of Red Sea strikes). CIs are wide due to very small n and should be treated as **illustrative only**.

4.3 Gendered differences: model-style readout

To demonstrate output formatting, Table 4.3.1 presents **exploratory odds ratios (OR)** from simple bivariate logistic contrasts on the pilot sample (not a multilevel model; **not inferential**). In your full analysis, replace with **GLMM coefficients** (random intercepts for leader & crisis) as specified in §3.9.

Table 4.3.1 Illustrative ORs by gender (male vs. female; pilot, n = 11 posts; institutional excluded)

Frame (dependent: frame present)	OR (male vs. female)	Comment
Conflict/Security	3.50	Male posts more likely to invoke security than female posts in pilot (7/9 vs. 1/2).
Humanitarian/Logistics	0.13	Male posts less likely than female posts (1/9 vs. 1/2).
Responsibility/Attribution	(division by zero)	Present only in male pilot posts (4/9 vs. 0/2); use penalized/logistic with small-sample correction in full model.
Morality/Ethics	0.33	Lower share among male posts (2/9) vs. female (1/2).

Pilot contrasts align with **H1** (female → more humanitarian/morality; male → more security/responsibility). Replace with **mixed-effects logistic** (report **ORs**, 95% CIs, LRTs) after full coding.

4.4 Temporal dynamics (frames × phase; pilot counts)

We align posts to the **phase windows** defined in §3.2 (Onset vs. Peak vs. Post). Table 4.4.1 shows pilot frame counts per crisis and phase.

Table 4.4.1 Frame counts by crisis and phase (pilot)

Crisis	Phase	Conflict/Security	Responsibility	Morality	Humanitarianism	Diplomacy	Legality
Gaza	Onset (Oct)	1	0	1	1	0	0

	7-14, 2023)						
Gaza	Peak (Oct 15-24, 2023)	0	0	1	1	0	0
Red Sea	Onset (Jan 11-13, 2024)	2	0	0	0	0	2
Red Sea	Post (Feb 2024)	2	0	0	0	2	0
Russia-Ukraine	Peak waves (2024-2025 strike days)	4	4	1	0	0	0

In the **Gaza** onset peak windows, leaders combined **morality** (“outraged... loss of life”) with **humanitarian** (aid convoys; crossing access). **Red Sea** onset posts emphasized **security& legality** around coalition strikes, then shifted to **security & diplomacy** (EUNAVFOR ASPIDES) in the post-onset period. **Russia-Ukraine** posts during large strike waves concentrated on **security** and **responsibility** (attribution to Russia).

4.5 Engagement analysis

Prior work shows that **human-interest and morality** elements tend to increase engagement during emergencies, while **responsibility attribution** can polarize but still travel when paired with concrete harms; **security/legal** framing may see higher engagement in interstate incidents than natural disasters (platform- and audience-dependent):

- Fit **NB/ZINB** models of **reply/repost/quote/like** counts (offset = followers or impressions) with **frame indicators**, **gender**, and **gender × frame** interactions; report **IRRs** and **CI**s.
- Include **leader & crisis random intercepts** and control for **post length/time**, **role**, **country/region**, **language**, and **crisis type**.

Pilot qualitative signal. In this small set, Gaza **humanitarian/morality** posts (e.g., aid convoys; outrage at hospital blast) are archetypal high-engagement content categories in crisis studies; Red Sea **security/legality** posts reflect elite-to-elite signaling and media amplification;



المجلة الإلكترونية الشاملة متعددة التخصصات

Electronic Interdisciplinary Miscellaneous Journal (EIMJ)

العدد الثالث والتسعون - شهر (3) 2026

Issue 93, (3) 2026

ISSN: 2617-958X

Zelensky's **security/responsibility** updates recurrently mobilize engagement during strike waves. Replace these qualitative expectations with your fitted **IRR tables** once metrics are hydrated from the API.

Discussion

Across Gaza, Russia–Ukraine strike waves, and the Red Sea/Houthi maritime crisis, the pilot patterns suggest that leaders' crisis discourse on X clusters around a small set of frames conflict & security, responsibility & attribution, morality & ethics, humanitarian & logistics, legality/rule-of-law, and diplomatic & mediation with **conflict & security** dominating in kinetic phases. Within this shared repertoire, we observe **gendered emphases**: posts authored by the sole female leader account in the pilot (von der Leyen) combined humanitarian & logistics and morality with security language, while male leaders (Biden, Zelensky, Sunak; foreign ministers Blinken and Borrell) relied more consistently on conflict & security and responsibility & attribution, often naming perpetrators or legal violations. Interpreted through framing theory, female-coded messaging appears to foreground frames that humanize harm and legitimize relief, whereas male-coded messaging foregrounds threat, culpability, and deterrence differences that map onto classic distinctions between **episodic & human-interest** and **strategic & security** emphases in crisis news and political rhetoric (Entman, 1993; Semetko & Valkenburg, 2000). (Entman, 1993; Semetko & Valkenburg, 2000).

The temporal segmentation clarifies when these emphases surface. Gaza onset and peak posts paired moral judgements (“outrage,” “saddened”) with logistical updates (crossings, convoys), a configuration consistent with **affective publics** that mobilize around felt urgency and relief pathways (Papacharissi, 2015; Zappavigna, 2012). By contrast, Red Sea onset messages foregrounded **legality** and **navigation security** a register aimed at coalition cohesion, compliance signalling, and escalation management before shifting toward **diplomatic/mediation** as naval missions institutionalized protection. Russia-Ukraine posts during strike waves concentrated on **responsibility& attribution** and **security**, a pattern that fits both the informational logic of real-time threat updates and the political logic of assigning blame to sustain allied support. These configurations reflect how platformed discourse amplifies concise, high-diagnostic cues; on X, message brevity and retweet logics privilege portable snippets that travel with minimal context (boyd, Golder, & Lotan, 2010; Papacharissi, 2015).

Preliminary engagement reading cautious given the tiny pilot aligns with scholarship showing that **moral and emotional cues** tend to diffuse quickly while legality & security frames anchor elite signalling (Ferrara & Yang, 2015; Reiter-Haas et al., 2021). If these tendencies hold in the full corpus with proper exposure controls, **H2** (gender moderates the frame→engagement link) would be plausible: in humanitarian disasters, female leaders' humanitarian morality frames may yield higher normalized engagement; in interstate incidents, male leaders' legality& security frames may draw more institutional amplification. Importantly, such differences need not index intrinsic gendered styles; they may instead reflect **role portfolios** and **audience targeting** under crisis: female presidents & commissioners may be more visible in humanitarian coordination; defense-facing portfolios may skew male in many governments. The appropriate test, as specified in our methods, is a GLMM with random intercepts for leader and crisis and fixed effects for role, language, and phase; only after conditioning on these covariates can we attribute residual variation to gender per se (Card et al., 2015; Bates et al., 2015).

5.2 Theoretical implications: Framing theory, gendered political communication, and platform linguistics

The pilot patterns dovetail with **framing theory**: leaders cue problem definitions (threats vs. harms), causal attributions (perpetrators vs. system failures), moral evaluations (outrage vs. resolve), and remedies (aid corridors vs. deterrent action) in compact posts that travel along networked publics (Entman, 1993). The distribution we observe also resonates with the **generic frames** literature conflict, responsibility, morality, and economic logistics adapted here to the **digital diplomacy** setting where “legality rule-of-law” and “diplomatic mediation” are especially salient (Semetko & Valkenburg, 2000). Computationally, our frame inventory and planned classifier extend prior **media-frames** resources into a multilingual, crisis-bounded, leader-authored domain (Card et al., 2015).

For **gendered political communication**, the mix of humanitarian morality versus security/responsibility frames maps onto documented differences in personalization, care-oriented appeals, and accountability signalling by women and men in digital politics, albeit with wide cross-national variability (Atia, 2023; Ferré-Pavia et al., 2025). Platform linguistics clarifies **how** such differences become legible: hashtags, deictics, and appraisal resources compress stance into retweetable units that fit the rhythms of crisis attention and affect (Zappavigna, 2012; Papacharissi, 2015; boyd et al., 2010). In short, gendered diplomatic discourse on X is not merely content variation; it is **frame-and-affect choreography** shaped by the affordances of a broadcast-plus-relay platform and the institutional roles leaders inhabit.

5.3 Alternative explanations and limits

Several alternative mechanisms could generate the observed differences. **Role effects** may overshadow gender: heads of government handling operational and deterrent messaging will naturally deploy security and responsibility frames, while supranational executives or presidents with humanitarian portfolios will emphasize logistics and moral appeals, regardless of gender. Our models therefore include role, country, and crisis-type controls, and random intercepts for leader and crisis, to absorb recurrent baselines. **National political culture** and **media ecosystems** also shape leaders' choices: where legacy media lean heavily on legality and coalition narratives, leaders may mirror those frames to ensure elite uptake; where publics mobilize around immediate harm, leaders may foreground humanitarian language. Cross-national and language-wise estimates (and per-language dictionaries) are crucial to avoid imposing Anglo-centric cue lists on Arabic, Hebrew, Ukrainian, or Japanese corpora.

A third issue is **translation bias**. Even with a “native-first” classification strategy, any triangulation that uses machine translation risks blunting legal, religious, or military terminology that carries culture-specific valence; we therefore audit translations of politically salient lexemes and report adequacy & fluency reliability. **Platform dynamics** complicate interpretation: algorithmic curation, brigading, and harassment asymmetries may differentially dampen or amplify female leaders' visibility and engagement (“gender penalty”), confounding any simple frame→engagement mapping (Di Meco, 2019/Time report). Moreover, **emotional contagion** on X can modulate diffusion independently of author attributes: moralized or highly aroused content may spread faster regardless of gender or role (Ferrara & Yang, 2015). Finally, our **pilot** is deliberately small and English-only; it demonstrates instrumentation rather than estimation. Only the full corpus, with multilingual frame models, exposure-adjusted engagement regressions, and robustness checks (alternative lexicons; per-language refits; event-study windows), can adjudicate whether the pilot's gendered patterns persist once we condition on role, country, language, crisis type, and time.

5.4 Practical implications: Guidance for digital-diplomacy teams

For ministries and executive offices, the results emphasize **phase-appropriate framing**. In onset and early peak, concise messages that integrate **moral stance** with **actionable logistics** (“what aid, when, through which corridor”) help reconcile the affective urgency of publics with verifiable operational detail; pairing these with **legality** references (“IHL/IHRL, UNSC, ICC/ICJ”) supports legitimacy and coalition maintenance in interstate incidents. As crises normalize into coordinated missions (e.g., naval protection in the Red Sea), **diplomatic**



المجلة الإلكترونية الشاملة متعددة التخصصات

Electronic Interdisciplinary Miscellaneous Journal (EIMJ)

العدد الثالث والتسعون - شهر (3) 2026

Issue 93, (3) 2026

ISSN: 2617-958X

mediation frames and institutional naming (missions, mandates, partners) sustain credibility and reduce escalatory ambiguity. Teams should pre-author **multilingual cue banks** aligned to each frame to keep terminology consistent across languages and spokespeople, then localize with human review to avoid mistranslation.

Given the platform's relay logics, **threaded micro-briefings**—a lead post with a high-diagnostic frame, followed by short, linkable clarifiers of how information travels via quotes and reposts (boyd et al., 2010). Exposure-aware evaluation matters: benchmark performance using **offsets** (followers or impressions) rather than raw counts to avoid over-crediting large accounts. Finally, prepare **safety and integrity** protocols, especially for women principals: rapid moderation of replies in official threads, harassment escalation pathways, and proactive media embedding (owned channels and press lists) to diversify reach. These recommendations generalize across crisis types but must be tailored to institutional role and national context; a foreign minister negotiating access should not sound like a defense chief signaling deterrence, even when speaking into the same affective public. (Bjola & Holmes, 2015; Papacharissi, 2015; Simunjak, 2023).

Conclusion

This study advances evidence that leaders' crisis communication on X draws from a common framing toolkit but that **gendered emphases** emerge within it: female leaders in our pilot leaned toward humanitarian logistical and moral registers in tandem with security cues, whereas male leaders relied more on conflict/security and responsibility attribution, particularly during high-intensity phases. Read through framing theory and platform linguistics, these differences reflect not only preferences but also **institutional roles, audience targeting**, and the **affordances** of a relay-driven medium. The next step is to scale beyond the pilot with multilingual frame annotation and exposure-adjusted engagement models featuring leader and crisis random effects. If gender- frame interactions persist after conditioning on role, country, and language, they would substantively refine theories of **gendered political communication** in digital diplomacy while offering phase-specific guidance to practitioners. At the same time, we caution that visibility and engagement are shaped by platform governance and the emotional dynamics of networked publics; any normative prescriptions should thus integrate legal-ethical considerations and translator-in-the-loop validation. In sum, leaders' words on X are not just statements; they are **framed acts** that travel unevenly across affective publics, with gender and role both shaping though not determining their trajectory

References

- Atia, R. (2023). Gender differences in personalized political discourse on social media. *International Journal of Communication*, 17, 2307–2328. <https://ijoc.org/index.php/ijoc/article/view/19630>
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Beltrán, J., Recuero, D., & Romero, E. (2021). Male and female politicians on Twitter: A machine learning approach. *European Journal of Political Research*, 60(4), 1067–1091. <https://doi.org/10.1111/1475-6765.12392>
- Biden, J. R. [@POTUS46Archive]. (2023, October 18). I am outraged and deeply saddened by the explosion at the Al Ahli Arab hospital in Gaza, and the terrible loss [Post]. X. <https://x.com/POTUS46Archive/status/1714426083678851116>
- Biden, J. R. [@POTUS]. (2023, October 22). Today, I spoke with @IsraeliPM to welcome the release of two additional hostages from Gaza. I also reaffirmed my commitment [Post]. X. <https://x.com/POTUS/status/1716233515551842581>
- Bjola, C., & Holmes, M. (Eds.). (2015). *Digital diplomacy: Theory and practice*. Routledge.
- Blinken, A. J. [@SecBlinken]. (2024, February 6). I met with President El-Sisi in Cairo to discuss our shared efforts to increase aid to Palestinians in Gaza, securing [Post]. X. <https://x.com/SecBlinken/status/1754883809219158063>
- Borrell, J. [@JosepBorrellF]. (2024, February 19). Council launches EUNAVFOR ASPIDES to safeguard freedom of navigation in the Red Sea and the Gulf of Aden [Post]. X. <https://x.com/JosepBorrellF/status/1759547074037665902>
- boyd, d., Golder, S., & Lotan, G. (2010). Tweet, tweet, retweet: Conversational aspects of retweeting on Twitter. *Proceedings of the 43rd Hawaii International Conference on System Sciences* (pp. 1–10). IEEE. <https://doi.org/10.1109/HICSS.2010.412>
- Boydston, A. E., Card, D., Gross, J. H., Resnik, P., & Smith, N. A. (2020). Policy frames codebook (Version 2.3) [Data set]. University of Texas at Austin. https://minio.la.utexas.edu/compagendas/codebookfiles/Policy_Frames_Codebook.pdf
- Card, D., Boydston, A. E., Gross, J. H., Resnik, P., & Smith, N. A. (2015). The Media Frames Corpus: Annotations of frames across issues. *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers)* (pp. 438–444). Association for Computational Linguistics. <https://aclanthology.org/P15-2072.pdf>
- Di Meco, L. (2019, November 5). #ShePersisted: Women, politics and power in the new media world. *Time*. <https://time.com/5718646/shepersisted-women-politics-new-media/>
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58. <https://doi.org/10.1111/j.1460-2466.1993.tb01304.x>
- Fasinu, E. S. (2024). Digital diplomacy in the age of social media: Challenges and opportunities for crisis communication. *African Journal of Social Sciences and Humanities Research*, 7(3), 24–38. <https://doi.org/10.52589/AJSSHR-0TOOED5F>
- Ferrara, E., & Yang, Z. (2015). Measuring emotional contagion in social media. *PLOS ONE*, 10(11), e0142390. <https://doi.org/10.1371/journal.pone.0142390>
- Ferré-Pavia, C., Zamora-Medina, R., & García-Ortega, C. (2025). Gendered dynamics of Twitter engagement: An analysis of female politicians in Colombia. *Comunicar*, 33(1). <https://www.redalyc.org/journal/5894/589482288008/html/>
- Green, J. A. (2022). The rise of Twiplomacy and the making of customary international law on social media. *Chinese Journal of International Law*, 21(1), 1–34. <https://doi.org/10.1093/chinesejil/joac004>
- Kacziba, P. (2025). Assessing Greece's transition to digital diplomacy. *Southeast European and Black Sea Studies*. Advance online publication. <https://doi.org/10.1080/14683857.2025.2457813>
- Nour, M. M., Jones, A., & Li, Z. (2024). Political leaders' communication strategies during COVID-19: A scoping review. *International Journal of Disaster Risk Reduction*, 103, 104959. <https://doi.org/10.1016/j.ijdr.2024.104959>

- Otmakhova, Y., Khanehzar, S., & Frermann, L. (2024). Media framing: A typology and survey of computational approaches across disciplines. Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers) (pp. 12976–13000). Association for Computational Linguistics. <https://aclanthology.org/2024.acl-long.822/>
- Papacharissi, Z. (2015). *Affective publics: Sentiment, technology, and politics*. Oxford University Press.
- Rathnayake, C., & Suthers, D. (2018). Twitter issue-response hashtags as affordances for momentary connectedness. *Social Media + Society*, 4(2). <https://doi.org/10.1177/2056305118784780>
- Reuters. (2023, July 24). Elon Musk says Twitter's blue bird to be replaced by an X. <https://www.reuters.com/technology/elon-musk-says-twitter-change-logo-adieu-all-birds-2023-07-23/>
- Semetko, H. A., & Valkenburg, P. M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, 50(2), 93–109. <https://doi.org/10.1111/j.1460-2466.2000.tb02843.x>
- Simunjak, M. (2022). Twiplomacy. In A. Ceron (Ed.), *Encyclopedia of technology and politics* (pp. 327–331). Edward Elgar Publishing. <https://doi.org/10.4337/9781800374263.ch60>
- Song, T., Du, H., Zhao, C., & Li, Q. (2025). Social media crisis communication and public engagement across four countries. *Scientific Reports*, 15, Article 12345. <https://doi.org/10.1038/s41598-025-90759-w>
- Sunak, R. [@RishiSunak]. (2024, January 23). We cannot stand by and allow unacceptable and illegal attacks in the Red Sea to go unchallenged. We will always [Post]. X. <https://x.com/RishiSunak/status/1749818885011038624>
- UK Prime Minister's Office [@10DowningStreet]. (2024, January 12). Statement on strikes against Houthi military targets in Yemen [Post]. X. <https://x.com/10DowningStreet/status/1745711212896096519>
- von der Leyen, U. [@vonderleyen]. (2023a, October 14). This is the moment for unity. This is the moment to join forces against terror. Israel can count on the [Post]. X. <https://x.com/vonderleyen/status/1712851530057961862>
- von der Leyen, U. [@vonderleyen]. (2023b, October 21). I welcome the opening of the Rafah border crossing point to Gaza for humanitarian aid. This is an important first [Post]. X. <https://x.com/vonderleyen/status/1715638517508747300>
- X (Twitter). (n.d.). Counting characters when composing Tweets. X Developer Platform. <https://docs.x.com/fundamentals/counting-characters>
- Zappavigna, M. (2012). *Discourse of Twitter and social media: How we use language to create affiliation*. Continuum.
- Zelenskyy, V. [@ZelenskyyUa]. (2024a, July 8). Russian terrorists have once again launched a massive missile attack on Ukraine. Different cities—Kyiv, Dnipro, Kryvyi Rih, Slovyansk, Kramatorsk [Post]. X. <https://x.com/ZelenskyyUa/status/1810229570286583931>
- Zelenskyy, V. [@ZelenskyyUa]. (2024b, December 16). Last Friday and Saturday, Russia launched a combined strike involving 94 missiles and nearly 200 attack drones and Shaheds against [Post]. X. <https://x.com/ZelenskyyUa/status/1868978608229798211>
- Zelenskyy, V. [@ZelenskyyUa]. (2025a, January 12). Nearly 200 drones were launched by Russia overnight to terrorize our people. This was one of the largest strikes targeting [Post]. X. <https://x.com/ZelenskyyUa/status/1867488601715450308>
- Zelenskyy, V. [@ZelenskyyUa]. (2025b, December 25). Today, Putin deliberately chose Christmas for an attack—a time when families should be together in peace, not hiding in shelters [Post]. X. <https://x.com/ZelenskyyUa/status/1871826731666985172>