

A photograph showing a group of people, including several children, walking through a vast area of rubble and debris. In the background, partially destroyed buildings stand under a clear blue sky with scattered clouds. One person is carrying a large orange box. The scene depicts the severe impact of conflict on civilian life.

Text Analysis of the Conflict in Gaza Reveals the Civilian Impact

Kevin Linares

(https://github.com/klinares/airwars_scraping_project)

Israel-Hamas Conflict, 1 Year Later

- **Background:** 10/7/2023 Hamas attacks Israel killing 1,200 people, Israel retaliates.
 - Estimated Palestinian dead ~44,000 (60% children & women).
- **Problem:** Hamas Ministry of Health (MoH) reports casualties, cannot be corroborated.
- **Claim:** “Women & children disproportionately killed” [UN-OHCHR](#)
- **Research Question:** To what extent can open-source data be used to identify patterns in the targeting of Palestinian civilians in Gaza?



Methodology: Analyzing Casualty Incidents

Data Source: [Airwars](#) tracks civilian incidents from conflicts.

- 1. Web Scrape:** ~ 800 incidents (~9,000 deaths).
- 2. Parse JSON:** Extract incident characteristics, including geo-coordinates (65% of incidents), & store in SQLite database.
- 3. Reverse Geo-coding:** Supply incident coordinates to [Nominatim](#) API, return site type (school, hospital).
- 4. Sentiment Analysis:** Derive emotional tone from assessments. [DistilRoBERTa-base](#), classifies text into Ekman's 6 basic emotions.
- 5. Clustering Analysis:** Explore geographically civilian casualty patterns.

The screenshot shows a detailed report from Airwars about a civilian casualty incident. The top navigation bar includes links for Conflicts, Archive, Research, Investigations, News, About, and a dropdown for "الدول" (Countries). The main content area features a large image of a person, followed by the title "ISPT120524j" and the date "May 12, 2024". The "INCIDENT DATE" section shows "May 12, 2024". The "LOCATION" section describes the incident as occurring in the "Daloul building in the al-Zaytoun neighborhood, southeast of Gaza City, Gaza, the Gaza Strip". A "Web link" icon is present. The "Airwars assessment" section contains a detailed narrative of the event, mentioning 39 civilians killed and dozens injured, including children. It also quotes Alhawyah Channel and lists names of victims. The "Summary" section provides a quick overview of the incident's context, including strike status, type, infrastructure affected, and harm reported. Below this is a table of sources, and at the bottom, a list of suspected belligerents.

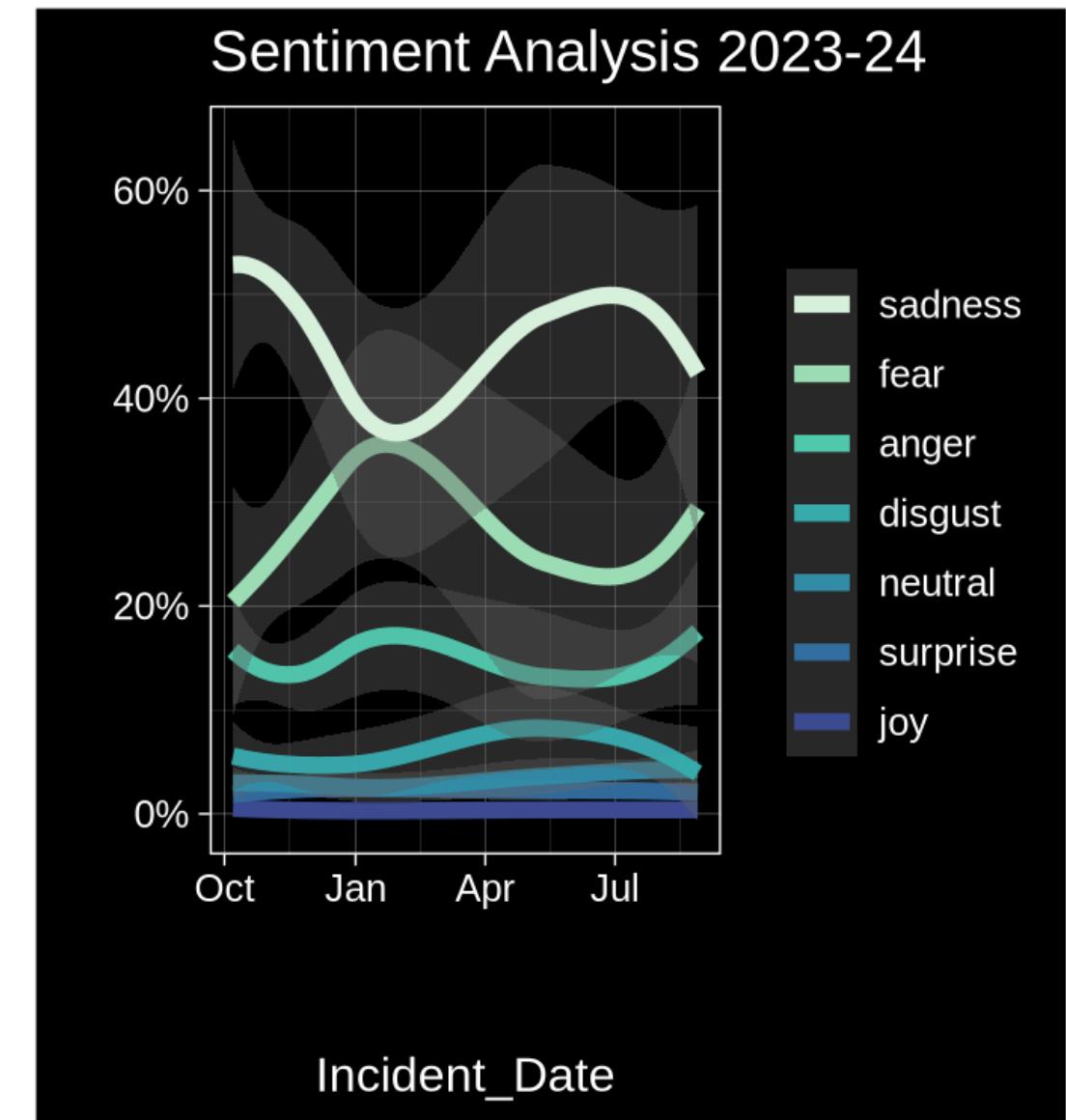
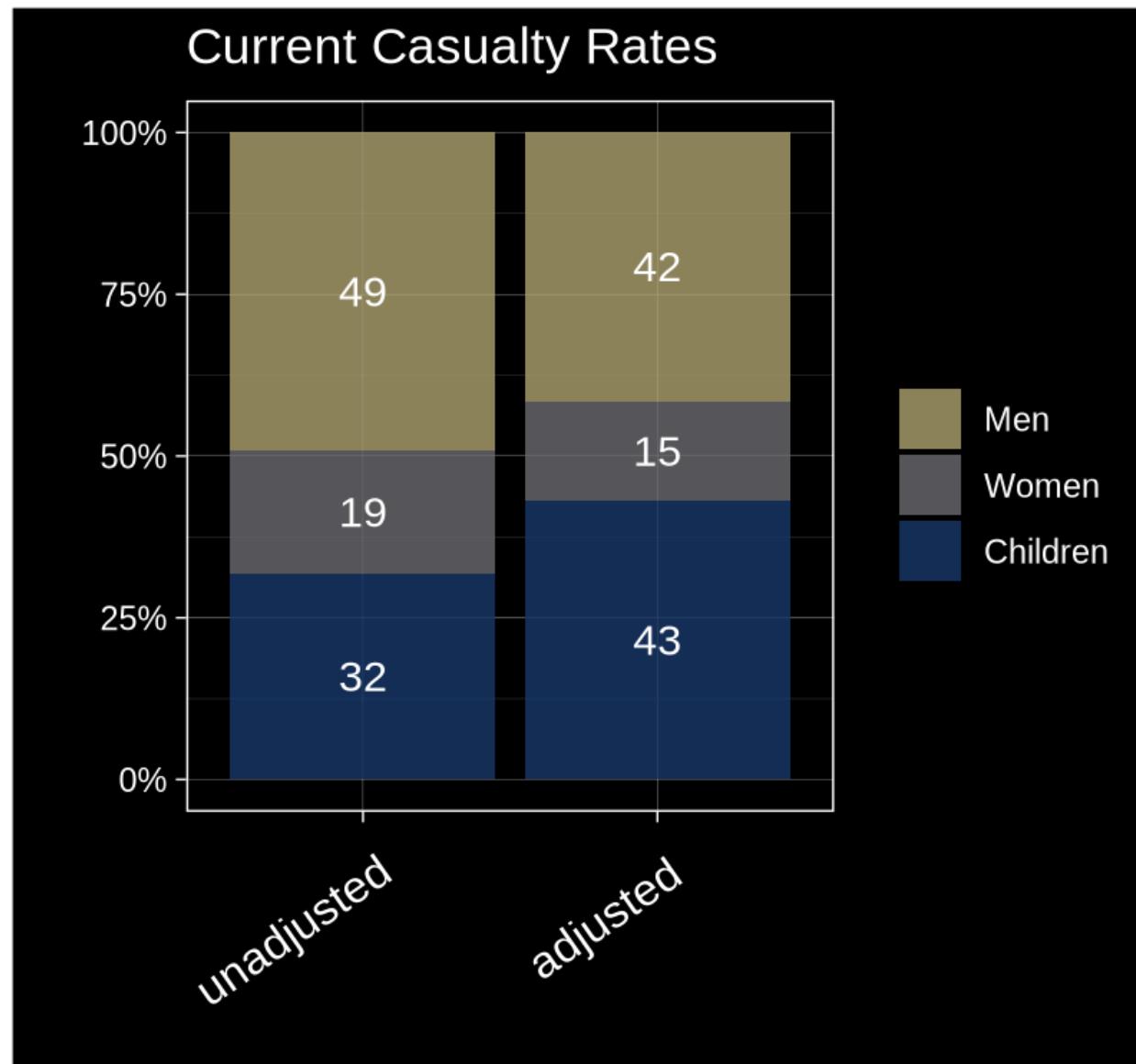
Summary	
Strike status	Likely strike
Strike type	Airstrike
Civilian infrastructure	IDP or refugee camp, Residential building
Civilian harm reported	Yes
Civilians reported killed	39 (4-5 children, 17 women, 21 men)
Civilians reported injured	12-24
Cause of injury / death	Heavy weapons and explosive munitions
Airwars civilian harm grading	Fair
Suspected belligerent	Israeli Military

Sources (12) [↑ collapse]

@alhawyahchannel	TWITTER, ARABIC	Archive
Tasneen.hussam	FACEBOOK, ARABIC	Archive
Samar Hanouna	FACEBOOK, ARABIC	Archive
Asaad Mohammad	FACEBOOK, ARABIC	Archive
Alzaytoon2017	FACEBOOK, ARABIC	Archive
Rami A A Daloul	FACEBOOK, ARABIC	Archive
Samar Hanouna	FACEBOOK, ARABIC	Archive
Abu Jihad Daloul	FACEBOOK, ARABIC	Archive
Amyl billah	FACEBOOK, ARABIC	Archive
Abu Jihad Daloul	FACEBOOK, ARABIC	Archive
Abdulla Daloul	FACEBOOK, ARABIC	Archive
Abu Jihad Daloul	FACEBOOK, ARABIC	Archive

Results: Casualty Rate, Sentiment Analysis

- Children more likely to be killed after adjusting for population size.
- Sadness is the prominent emotional tone, followed by fear, varies across time.



Results: Hierarchical Clustering

- Cannot discern patterns in the targeting of civilians.
 - 3-cluster model: Cluster 3 contained high average deaths from airstrikes associated w/ fear & anger, & occurred at schools & hospitals.

