

Airwars



# Patterns of harm analysis

Gaza, October 2023

# Findings

## Introduction

On October 7, 2023, Palestinian militants breached the Israel-Gaza border fence into Israel, killing at least 1,200 people and taking a further 251 into Gaza. Israel subsequently launched one of the most intense military campaigns of the 21st century. As of November 2024, more than 43,000 Palestinians have been killed, according to official statistics from the Palestinian Ministry of Health (MoH) in Gaza.

The international community has raised grave concern about Israeli military practice and the unprecedented scale of civilian harm. The United Nations has repeatedly warned that Israel is breaching international law and even United States (US) President Joe Biden, a staunch ally of Israel, eventually labelled the military response “over the top.” In January 2024, South Africa brought a claim of genocide against Israel at the International Court of Justice (ICJ).

Israeli officials argue that the military does everything possible to avoid harming civilians, and say that Hamas’ tactic of embedding itself in the civilian population makes civilian harm an inevitable byproduct of seeking to destroy Hamas’ military infrastructure. Israel also claims that the level of civilian harm in Gaza is broadly consistent with, and even favourable to, other comparable conflicts in recent decades, including the US-led bombing campaign against the Islamic State in Iraq and Syria.

With Israeli strikes in Lebanon initially mirroring the pace and intensity of the Gaza campaign, the manner in which Israel has conducted the war in Gaza may signal the development of a concerning new norm: a way of conducting air campaigns with a greater frequency of strikes, a greater intensity of damage, and a higher threshold of acceptance for civilian harm than ever seen before.

This report focuses on the pattern and intensity of civilian harm during the opening weeks of Israel’s campaign in Gaza, comparing the level of civilian harm with military campaigns documented by Airwars over a decade of work in some of the world’s most intense and complex conflict zones.

At the time of analysing this dataset, Airwars had published 606 incidents of civilian harm reported between October 7th and October 31st 2023 - the first three weeks of the war. In these incidents, a minimum of 5,139 civilians were reported killed. This represents only a fraction of the more than 7,000 incidents of civilian harm in Gaza that Airwars researchers have monitored since October 2023, the vast majority of which are yet to be published. Still, this record of harm constitutes an evidence base that is large enough to allow for reliable comparisons with other conflicts, and to draw conclusions on those findings.

Since October 7th, policy makers, journalists and military personnel have sought to understand the comparative intensity of this war against others. Primarily, this report intends to speak to these comparative questions and provide a clear, data-driven response for those trying to understand patterns of harm in Gaza. As such, the report does not address the full and varied lives of those individuals who are reflected in this report. Such narratives are available on Airwars' public civilian harm archive.

## Key findings

By almost every metric, the harm to civilians from the first month of the Israeli campaign in Gaza is incomparable with any 21st century air campaign. It is by far the most intense, destructive, and fatal conflict for civilians that Airwars has ever documented. Key findings include:

- At least 5,139 civilians were killed in Gaza in 25 days in October 2023. This is nearly four times more civilians reported killed in a single month than in any conflict Airwars has documented since it was established in 2014.
- In October 2023 alone, Airwars documented at least 65 incidents in which a minimum of 20 civilians were killed in a particular incident. This is nearly triple the number of such high-fatality incidents that Airwars has documented within any comparable timeframe.
- Over the course of 25 days, Airwars recorded a minimum of 1,900 children killed by Israeli military action in Gaza. This is nearly seven times higher than even the most deadly month for children previously recorded by Airwars.
- Families were killed together in unprecedented numbers, and in their homes. More than nine out of ten women and children were killed in residential buildings. In more than 95 percent of all cases where a woman was killed, at least one child was also killed.
- On average, when civilians were killed alongside family members, at least 15 family members were killed. This is higher than any other conflict documented by Airwars.

# 1 - The Airwars Methodology

This report will consider patterns of harm, analysing trends documented by Airwars. These trends include the rate at which civilians were killed, the average number of civilians killed per incident, and the rates at which women and children were killed. In each area, the report will outline Airwars' record of civilian harm documented in Gaza in October 2023, and compare this record to other conflicts documented by Airwars.

For ten years and across eight conflict zones, Airwars has consistently applied the same open-source casualty recording methodology. Each incident of civilian harm is subject to a multi-stage review process. This includes primary language monitoring, in-depth primary language research, multi-stage English-language assessment and review, and geolocation. As such, each incident can take weeks, or even months, to publish.

While open source and publicly available, the evidence informing each Airwars assessment can be highly personal. Often shared by those who knew the victims, sources present memories of friends and family members injured or killed, along with accounts of the violence and destruction. Assessing and documenting the information shared by each source, Airwars maintains a quantitative translation of the assessments archive as a coded dataset. This dataset allows for analysis of the archive, with the goals of understanding scale, analysing patterns, and leveraging comparisons across conflicts.

Each 'datapoint' is intended to be fully replicable by anyone navigating the archive, which is fully public and open access. Detailed methodology notes are also [publicly available](#) on the Airwars website, and are outlined in more detail at the end of this report.

Airwars' previous casualty recording efforts include documenting civilian harm attributed to US military action in multiple conflicts. Airwars documented all public reports of casualties from US and partnered actions in the campaign against the so-called Islamic State (ISIS) since 2014, recording almost [3,000 incidents of harm](#) and at least 8,000 associated civilian deaths. More than [70 percent of civilian harm cases](#) investigated by the US military originated as Airwars referrals.

During the anti-ISIS campaign, the battles of Mosul and Raqqa were considered some of the fiercest urban fighting since the Second World War. Afterwards, the UN declared that the cities were practically uninhabitable, with [at least 80 percent of the city of Mosul](#) almost entirely destroyed.

Throughout the report, these two battles are used as points of comparison for the rates of harm in Gaza.



In addition, Airwars has documented civilian casualties from Russian support to the Syrian government and military since 2015. This includes almost 5,000 incidents of harm and up to 24,000 casualties.

Airwars has also documented select periods of harm resulting from Russian military actions in Ukraine, documenting the 'Battle of Kharkiv', in particular. As the information environment in Ukraine is tightly controlled, with little information about civilian and non-civilian victims released either officially or unofficially, the utility of open-source civilian harm monitoring is limited. As such, comparisons to the civilian impact of the Russian campaign in Ukraine are not included in this report.

In addition, Airwars has documented civilian harm from Turkish military action in Iraq and Syria, US airstrikes in Somalia, Yemen and other conflicts, and civilian harm recorded in Israel and Gaza during the May 2021 war. All Airwars records are publicly available on the Airwars website.

Airwars operates in contested information spaces, and Airwars' reports reflect that. Where attribution to a strike is disputed, for example, or where the civilian status of an individual is unclear, this ambiguity is reflected in an advanced categorisation and coding system.

Referencing metrics of harm, this report considers the most conservative estimates, or the lowest possible estimates. Upper estimates of civilian harm are included in each incident published on Airwars' fully public archive.

While the application of Airwars' methodology is consistent, the type and nature of information shared online has evolved and continues to evolve - with time and across contexts.

As Airwars uses a grading system that reflects the saturation of the information environment, comparative analysis may yield different results depending on how the data from Airwars' archive is filtered.

Generally, when Airwars publishes minimum estimates, only "fair" or "confirmed" cases are included. However, driven by the context of the conflicts under review in this report, some comparative analyses include incidents categorised as "contested" or "weak". The inclusion of such incidents are explained where appropriate, with a fuller methodology included at the end of this report. Supporting data can be found on the Airwars website.

## Gaza documentation

Each incident in this sample reflects Airwars' efforts to systematically investigate and publish claims of civilian harm in Gaza. The data includes incidents where one civilian was killed; as well as mass casualty incidents where more than one hundred civilians were killed.

This report presents a window into the 25-day period between October 7, 2023 and November 1, 2023 in Gaza, as this period of time covers nearly all consecutive incidents of civilian harm for which Airwars research is complete. From this period, Airwars had published 606 incidents of civilian harm by the time of analysis in August 2024. At that time, an additional 200 incidents from this 25-day period were yet to be published, and more than 6,000 incidents of alleged civilian harm cases since November 1, 2023 await thorough research and review.

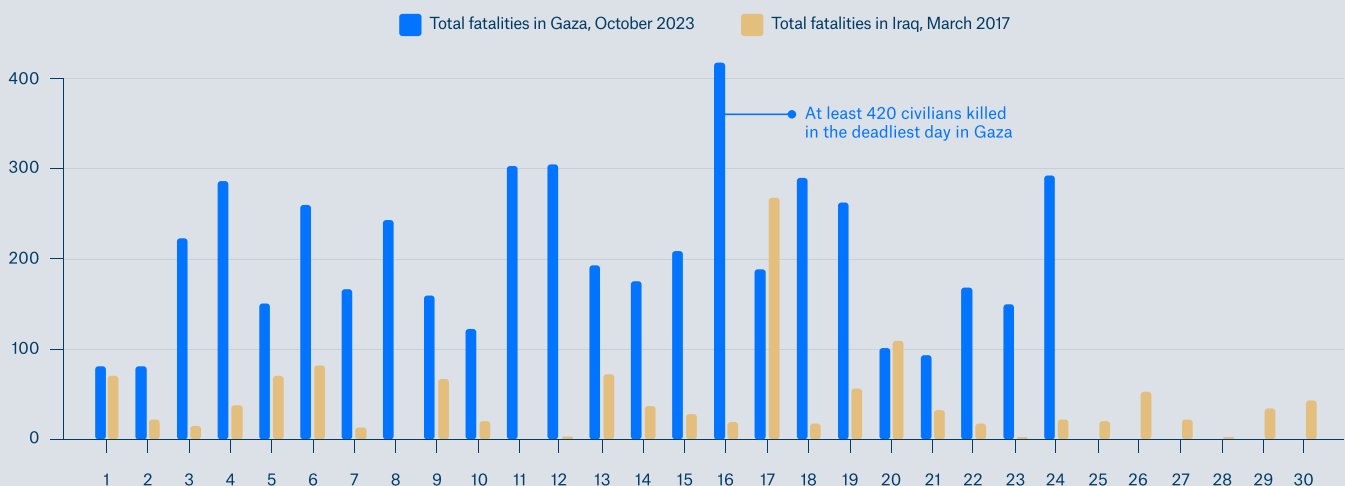
While expecting the overall trends to remain, magnitudes of difference - where measures of civilian harm in Gaza outpace those from previously documented conflicts - are expected to grow.

## 2 - Rates of harm

In 25 days of October 2023, civilian harm in Gaza occurred on a scale unmatched by any conflict previously documented by Airwars. This section will outline a number of key metrics by which such rates are measured.

When discussing rates of civilian harm, the most commonly used metric in public debate is the number of civilians killed in a particular period. Airwars found that at least 5,139 civilians were killed in Gaza between October 7th through the 31st. This number is only a minimum, with the maximum number of civilians killed reaching 6,668. It is also a known undercount as Airwars' work is ongoing, with additional civilian deaths from the period still under analysis.

**Number of civilians killed per day in Gaza compared to the deadliest month previously documented by Airwars (Iraq, March 2017)**



This conservative figure (5,139 civilians killed) is already nearly four times the number of civilians killed in the most lethal month previously documented by Airwars: March 2017, where at least 1,470 civilians were killed by the US coalition in Iraq.

In the Battle of Raqqa, where the US-led Coalition fired 30,000 artillery rounds into the city over four months, Airwars documented 2,556 civilians killed by US coalition forces. 956 of these civilians were killed in strikes where attribution was recorded as contested, i.e. where harm may have resulted from other actors. Even taking this higher number of civilian deaths into account, it is still only half the number of civilians killed in 25 days in Gaza.

### Minimum civilian casualties, by conflict

<i>Battle of Raqqa (whole four-month period)</i>	2,556
<i>Battle of Raqqa (deadliest month, March 2017)</i>	1,470
<i>Gaza, October 2023</i>	5,139

### Civilians killed per incident

Another key metric by which experts in civilian protection assess how militaries conduct warfare, and by proxy the level of attention paid to civilian harm, is the number of civilians killed per incident. Civilian harm expert Larry Lewis has pointed to the "magnitude of civilian harm per incident" as key to understanding the "overall risk to civilians from military actions."

Airwars data show that by this metric, the first month in Gaza was more deadly than any conflict previously documented.

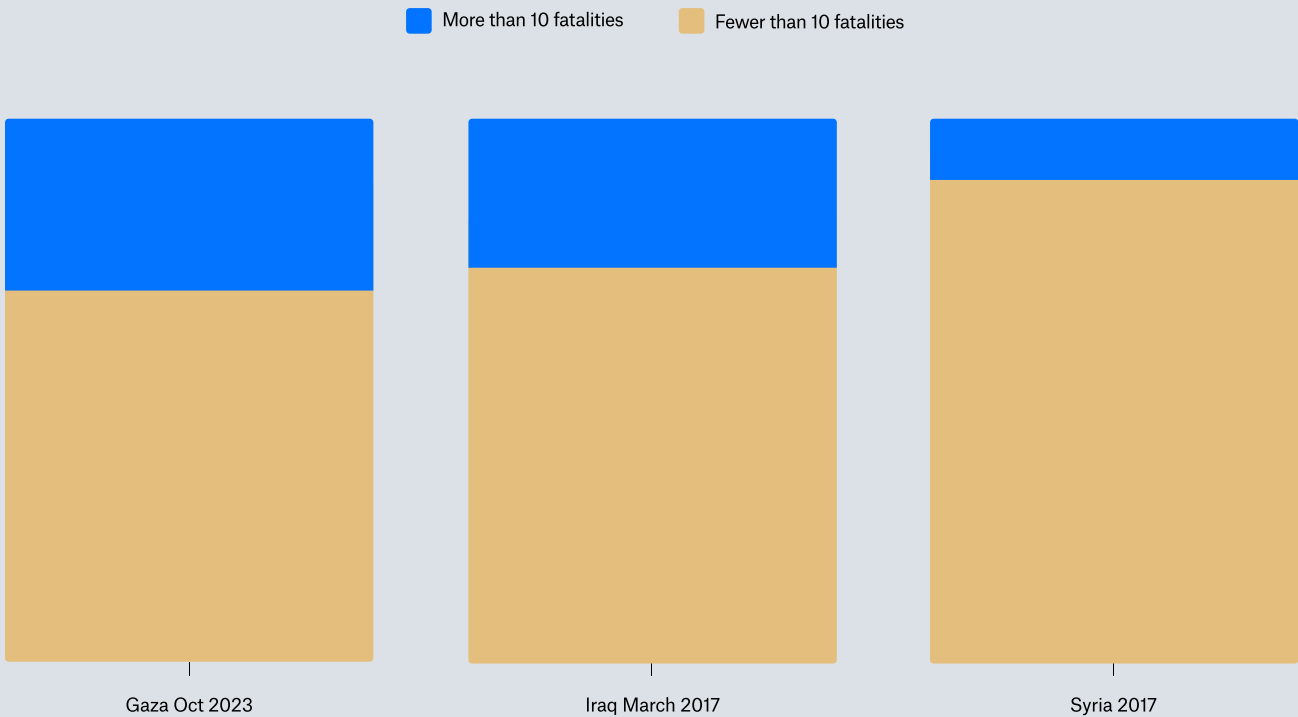
In October 2023, Airwars documented at least 65 incidents in which a minimum of 20 civilians were killed in a single incident. This is nearly triple the number of such high-fatality incidents in the deadliest month previously documented by Airwars, which were recorded in Iraq in March 2017.

Comparison of the number of high-fatality incidents

	Number of incidents with 10+ deaths	Total number of civilians killed in incidents where 10+ civilians were killed	Number of incidents with 20+ deaths	Total number of civilians killed in incidents where 20+ civilians were killed
<i>Iraq, March 2017 (Deadliest month previously recorded by Airwars)</i>	46	1,333	26	1,075
<i>Gaza, October 2023</i>	195	3,929	65	2,146

When expanding this sample to include incidents where at least ten civilians were killed, the pattern remains. Over the 25-day period in Gaza, more than a third of lethal incidents involved the killing of at least ten civilians. This is more than four times the number of such high-fatality incidents previously recorded by Airwars.

Proportion of civilian harm incidents resulting in more than 10 fatalities





The closest comparative case, as demonstrated in the figure above, was March 2017 during the Battle of Mosul in Iraq, where Airwars recorded more than ten fatalities in just under a third of incidents. This includes cases in Mosul with contested attribution.

However, the vastly different sample sizes - 85 incidents involving at least one civilian fatality in the deadliest month during the Battle of Mosul compared to more than 500 such cases in Gaza - make for an imperfect comparison. Specific information about the individuals killed during the Battle of Mosul was also far less detailed than in Gaza, with only four percent of victims publicly identified. In Gaza, this figure was 90 percent.

## Munitions released

A further metric for assessing the scale of military conduct is the declared rate of munitions used.

Getting like-for-like data on military activities is challenging, especially when it comes to public reporting on strike frequency and munitions use. Israel has not released reliable data on munitions released throughout the war, but there are indications that the IDF's declared rate of weapons use exceeded that of any other modern air power.

During the US-led Coalition against the Islamic State, the US reported deploying around 40,000 munitions from strikes in 2017, one of the deadliest years of the campaign against the Islamic State. The highest number of bombs dropped in a single day that year was 500 munitions, in the Battle of Raqqa.

### Number of munitions deployed per day

<i>Highest known number of bombs dropped in a single day, Battle of Raqqa</i>	500
<i>Estimated daily number of bombs dropped during the first week in Gaza</i>	850+

One week into the campaign in Gaza, the IDF declared it had already dropped 6,000 bombs on the densely populated area, for an equivalent of more than 850 per day. By December 2023, CNN reported that a US intelligence assessment revealed that Israel had used 29,000 munitions on Gaza in less than three months, an average of more than 300 per day. Israel has not released any further information on the scale of weapons released.

The closest comparative case, as demonstrated in the figure above, was March 2017 during the Battle of Mosul in Iraq, where Airwars recorded more than ten fatalities in just under a third of incidents. This includes cases in Mosul with contested attribution.

However, the vastly different sample sizes - 85 incidents involving at least one civilian fatality in the deadliest month during the Battle of Mosul compared to more than 500 such cases in Gaza - make for an imperfect comparison. Specific information about the individuals killed during the Battle of Mosul was also far less detailed than in Gaza, with only four percent of victims publicly identified. In Gaza, this figure was 90 percent.

## Munitions released

A further metric for assessing the scale of military conduct is the declared rate of munitions used.

Getting like-for-like data on military activities is challenging, especially when it comes to public reporting on strike frequency and munitions use. Israel has not released reliable data on munitions released throughout the war, but there are indications that the IDF's declared rate of weapons use exceeded that of any other modern air power.

During the US-led Coalition against the Islamic State, the US reported deploying around 40,000 munitions from strikes in 2017, one of the deadliest years of the campaign against the Islamic State. The highest number of bombs dropped in a single day that year was 500 munitions, in the Battle of Raqqa.

### Number of munitions deployed per day

<i>Highest known number of bombs dropped in a single day, Battle of Raqqa</i>	500
<i>Estimated daily number of bombs dropped during the first week in Gaza</i>	850+

One week into the campaign in Gaza, the IDF declared it had already dropped 6,000 bombs on the densely populated area, for an equivalent of more than 850 per day. By December 2023, CNN reported that a US intelligence assessment revealed that Israel had used 29,000 munitions on Gaza in less than three months, an average of more than 300 per day. Israel has not released any further information on the scale of weapons released.

## Matching IDF footage to incidents of harm

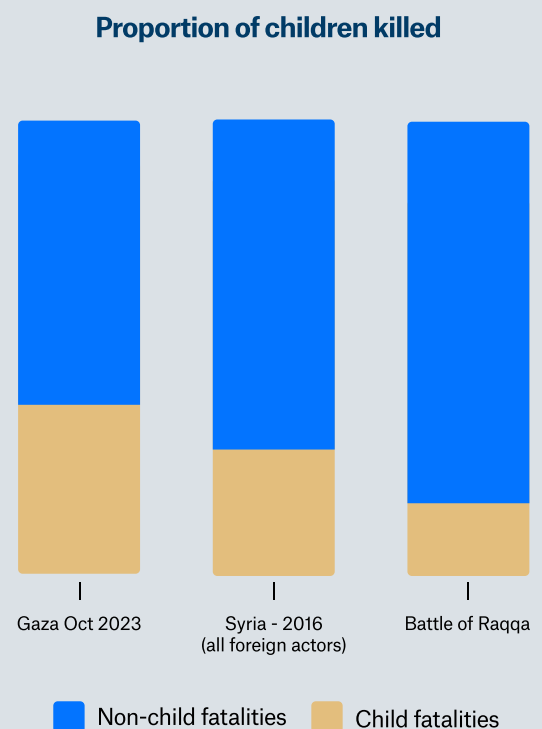
Between October 7th and November 7th, Israeli forces released more than 600 video clips of its own airstrikes, intending to show the world via their social media accounts the precision of their campaign.

Each clip varied in level of detail, with some posts referencing time periods relevant to the strike or information regarding the strike target, such as a tunnel or named individual. Clips also included multiple locations spliced together to make one longer video.

Over nine months, Airwars' investigative team analysed these clips and compared them to geolocated reports of civilians killed or injured. They ultimately identified at least 17 incidents where civilians were killed in strikes the Israeli military itself released footage of. In total, Airwars found that at least 448 civilians were killed in these strikes, including at least 204 children.

## 3 - Victim demographics

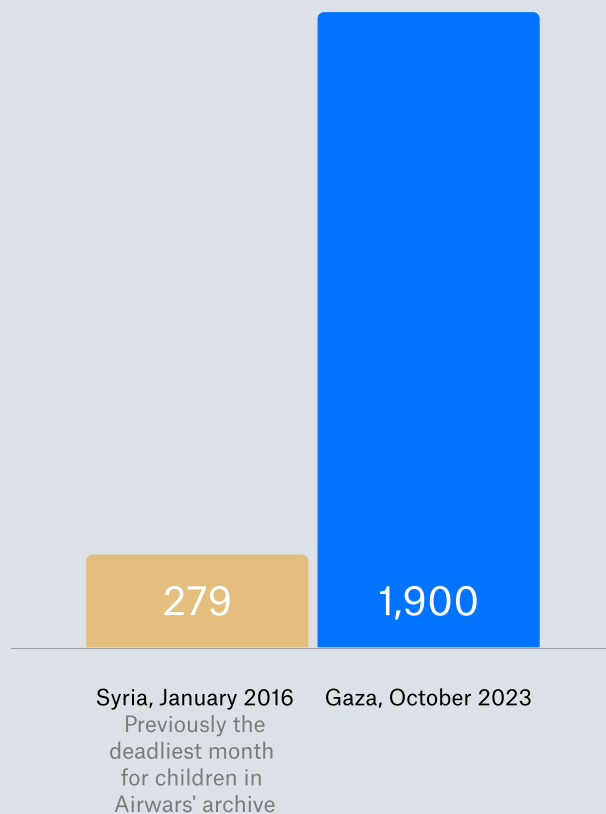
The rates of women and children killed in war have become a widely used proxy for civilian status. Airwars disagrees with this usage, as it implicitly assumes that all adult males are militants. Nevertheless, comparative demographic analysis of the victims of the war in Gaza can provide significant insights.



## Children

Across all conflicts documented by Airwars, October 2023 in Gaza was by far the deadliest month for children.

### Comparing child fatalities

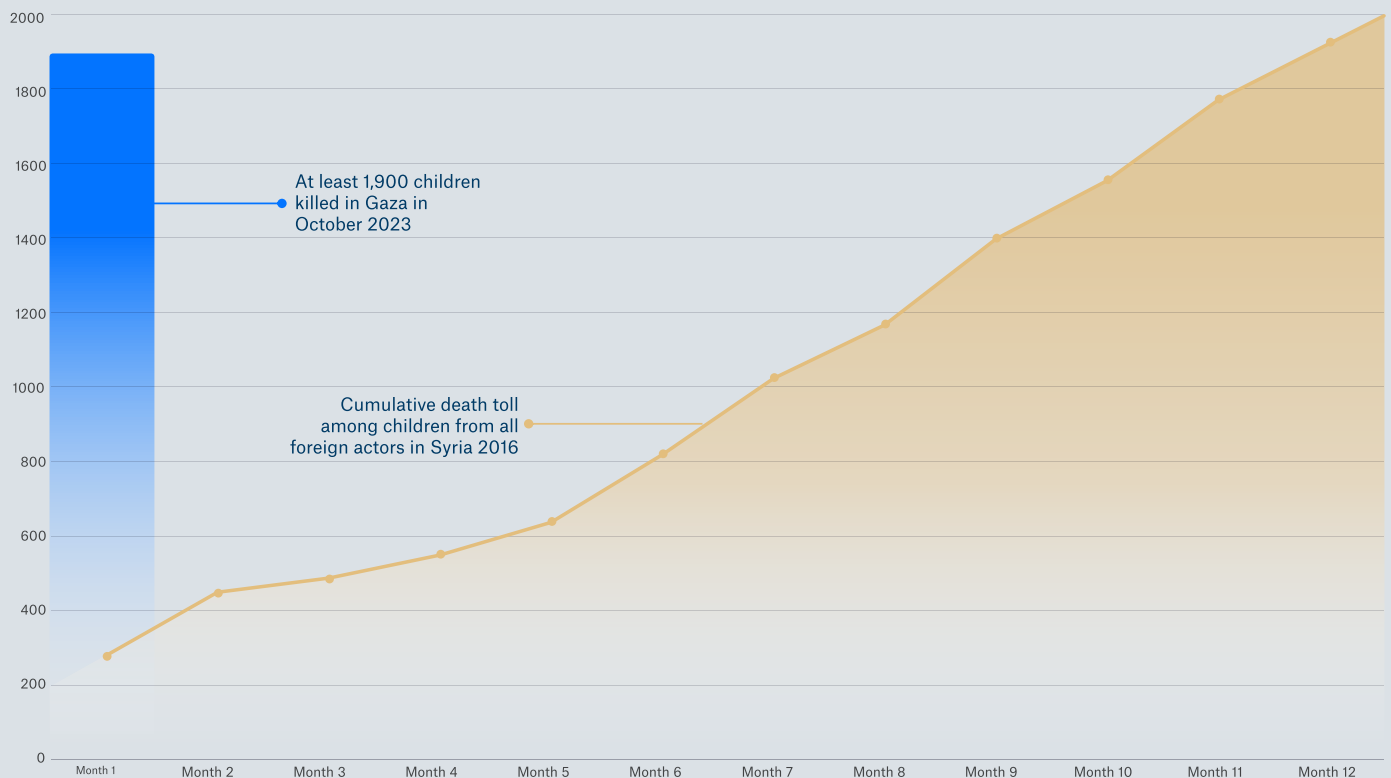


The closest comparable metric is from the month of January 2016 in Syria, when at least 279 children were killed by foreign actors. Nine of these children were killed in incidents attributed to the US-led Coalition, 265 in incidents attributed to the Russian bombing campaign, and five in incidents where attribution was contested between US-led coalition forces and Russian forces.



In Airwars' archive, the number of children killed in 25 days in October 2023 in Gaza nearly exceeds the highest number of children killed over the course of an entire year. In 2016, Airwars recorded that at least 1,926 children were killed in Syria, resulting from both the Russian campaign in support of the Syrian regime and the air war waged by the US-led Coalition against ISIS.

### First month of Gaza war parallels Syria's deadliest year for children



Represented by the line above is the minimum number of children killed in Syria across the entirety of 2016 by foreign actors. Of the 1,926 children killed, at least 1,221 were killed in incidents where some sources attributed the incident to Russian forces, while others cited forces associated with the Syrian regime.

Proportionally, children make up a significantly higher number of those killed in Gaza compared to any other conflict documented by Airwars. This is despite the fact that understanding the number of children killed per strike can be limited as sources often report on numbers of civilians killed without outlining the demographic breakdown. As such, all figures regarding the killing of children are known undercounts.

Where Airwars was able to identify the likely ages of those killed, at least 36 percent of those killed in Gaza in October 2023 were children. In even the deadliest year for children in Syria, 2016, children made up 26 percent of those killed. In the Battle of Raqqa, children made up 25 percent of those killed. During the Battle of Mosul, children made up less than 9 percent of those reported killed.

#### **Percentage of fatalities known to be children, by conflict**

<i>Deadliest year for children in Syria (2016)</i>	26 percent
<i>Battle of Raqqa</i>	25 percent
<i>Battle of Mosul</i>	9 percent
<i>Gaza, October 2023</i>	36 percent

The percentage of civilian harm incidents in Gaza that involved children being harmed was also historically high, compared to other conflicts documented by Airwars using the same methodology.

Of the 606 incidents published from October 2023, 551 involved civilians being killed, with the remaining incidents recording only injuries. Of these 551, at least one child was killed in 347 of the incidents, or 63 percent of all incidents. In comparison, during the battles of Raqqa and Mosul, children were killed in 31 and 30 percent of incidents, respectively.

#### **Percentage of incidents involving the death of at least one child, by conflict**

<i>Battle of Raqqa</i>	31 percent
<i>Battle of Mosul</i>	30 percent
<i>Gaza, October 2023</i>	63 percent

In incidents where children were killed, the number of children killed was higher than that recorded in any previous conflict.

During the Battle of Raqqa, at least 394 children were killed in 141 incidents. Prior to October 2023, January 2016 in Syria was the deadliest month for children that Airwars had documented. In this period, Airwars recorded at least 279 child fatalities across 97 incidents by foreign actors. This means that, with respect to both of these periods, when an incident was lethal to children, on average, nearly three children were killed.

INCIDENTS WITH THE HIGHEST  
NUMBER OF CHILDREN KILLED IN  
OCTOBER 2023, AS OF AUGUST 2024

INCIDENT CODE  
ISPT0783

DATE  
2023-10-31

EXACT LOCATION  
Jabalia Camp, North Gaza, the Gaza Strip  
31.532720, 34.498137

FATALITIES  
126-143 civilians  
(69 children, 22 women, 28 men)  
On October 31, 2023 confirmed Israeli strikes on the densely populated Jabalia refugee camp killed at least 126 civilians, including 69 children. Israel confirmed that it conducted the strike, with the stated target being Hamas leader Ibrahim Biari and "his base".

EVIDENCE  
107 pieces of digital content identified and archived

Full incident report

INCIDENT CODE  
ISPT0784

DATE  
2023-10-31

EXACT LOCATION  
Al Muhandeseen Tower, Deir Al Balah, the Gaza Strip  
31.441886, 34.393011

FATALITIES  
133-164 civilians  
67-77 children, 36 women, 18 men  
On October 31st 2023, an alleged Israeli airstrike on the multi storey al-Muhandeseen Tower (the 'Engineers Tower') located east of Nuseirat Camp, Central Gaza, killed between 133 and 164 civilians, including a likely estimate of 67 children. Airwars was able to identify 133 civilians belonging to 14 different families.

EVIDENCE  
120 pieces of digital content identified and archived

Full incident report

In Gaza in October 2023, at least 1,900 children were killed in 347 incidents. This means that when an incident was lethal to children, on average, more than five children were killed.

Average number of children killed when an incident was lethal to children

Battle of Raqqa	3
Gaza, October 2023	5

In ten years of work across eight conflicts, prior to the war in Gaza the highest death toll among children in a single event documented by Airwars was 32. This incident was a [strike likely carried out by the US-led coalition](#) in the Syrian village of Ber Mahli on April 30th, 2015. 32 children were killed in the strike, alongside 19 women and 13 men. The US military denied that they were responsible for the harm in this strike.

As of October 2024, Airwars has published five incidents from October 2023 in which more than 32 children were killed in Gaza. These are as follows:

- [October 31st, Jabalia](#) - 69 children killed
- [October 31st, Engineering building \(used as the basis for a HRW report\)](#) - 67 children killed
- [October 25th, Al Taj tower](#) - 44 children killed
- [October 17th, Bureij Camp](#) - 40 children killed
- [October 30th, in the vicinity of Al-Taj Tower 3](#) - 38 children killed

In 47 incidents, more than ten children were killed in a single event. This accounts for the killing of at least 790 children.

Families sheltering together

These trends in child fatalities, particularly the frequent occurrence of many children being killed in a single incident, can be at least partly explained by the ways in which these civilians were killed. In October 2023, extended families in Gaza typically gathered together in one apartment block or home deemed to be the safest. As such, strikes that hit residential buildings often killed large numbers of children.

Of the minimum 1,900 children killed, 92 percent were killed in incidents involving the destruction of a residential building, at least 526 children were recorded killed in attacks on IDP or refugee settlements, and at least 66 children were killed in incidents involving the destruction of religious sites. 82 percent of children killed died in strikes on residential infrastructure where no militant was publicly reported killed.

## Women

Airwars recorded a minimum of 1,213 women killed in Gaza in October 2023.

This is more than six times the number of women killed during the four-month Battle of Raqqa, more than nine times the number of women killed by the US coalition during the Battle of Mosul (excluding cases of contested attribution), and more than seven times the number of women killed in Syria by foreign actors in September 2017 - the most lethal month for women previously recorded by Airwars.

### Number of women known to have been killed, by conflict

<i>Battle of Raqqa</i>	281
<i>Battle of Mosul</i>	123
<i>Syria, September 2017 (from foreign actors)</i> <i>Previously the deadliest month for women in Airwars' archive</i>	162
<i>Gaza, October 2023</i>	1,213

Of the 1,213 women killed, at least 90 percent were killed in a residential building, and 96 percent were killed in incidents where at least one child was also killed. On average, in an incident where a woman was killed, approximately six children were also killed.

Less than eight percent of these women were killed in incidents where, through open source review, Airwars found that a militant was also killed.

By comparison, in Syria in September 2017, 70 percent of women were killed in incidents where a child was also killed; during the Battle of Raqqa, 68 percent; and during the Battle of Mosul, 76 percent.

### Percentage of women killed in incidents that were also deadly for children

<i>Battle of Raqqa</i>	68 percent
<i>Battle of Mosul</i>	75 percent
<i>Syria, September 2017 (from foreign actors)</i> <i>Previously the deadliest month for women in Airwars' archive</i>	70 percent
<i>Gaza, October 2023</i>	96 percent



Airwars documented more women killed per incident on average than any other conflict.

In October 2023 in Gaza, at least 1,213 women were killed in 324 incidents, an average of nearly four women per incident. In Syria in September 2017, fewer than two women were killed on average, during the Battle of Raqqa, two women were killed, and during the Battle of Mosul, nearly three women were killed.

#### Average number of women killed in incidents lethal to women

<i>Battle of Raqqa</i>	2
<i>Battle of Mosul</i>	3
<i>Syria, September 2017 (from foreign actors)</i> <i>Previously the deadliest month for women in Airwars' archive</i>	<2
<i>Gaza, October 2023</i>	4

## Families

Airwars was able to identify the family names for more than 90 percent of the 5,139 civilians recorded killed in October 2023.

Airwars researchers systematically recorded when an individual was killed alongside a family member. In doing so, Airwars found that a minimum of 4,557 of the 5,139 civilians killed in October 2023, or 88 percent of those killed, were killed alongside at least one family member.

#### Minimum number of civilians killed in Gaza who were killed alongside a family member

<i>Civilians killed</i>	5,139
<i>Civilians killed alongside a family member</i>	4,557

When a named civilian was killed, an average of 14 family members were killed alongside them.

This average is likely an undercount. When possible, Airwars separates family units by nuclear family. As such, there may be incidents where multiple family members were killed or injured together, as was the case in an [alleged Israeli airstrike on October 24, 2023](#) which hit the Mukhaimer family home in Tal al-Sultan area, killing 21 members of the Muhkaimer family. Airwars was able to determine four nuclear family groupings within the extended Mukhaimer family all killed together that day.

This average of fifteen family members killed together is unprecedented in Airwars' ten years of work recording civilian harm. There may be a number of factors driving this result, including the fact that Airwars teams have been able to identify more family names in this campaign than in any other conflict.

However, even when comparing to previous Gaza wars where comparative samples of identified individuals are available, the number of family members killed together in October 2023 is significantly higher. When a civilian was killed by an alleged Israeli airstrike in Gaza during the Israeli military's ten-day campaign in May 2021, on average, they were killed alongside eight family members.

#### Comparing average number of civilians killed alongside family members

<i>Gaza, May 2021</i>	8
<i>Gaza, October 2023</i>	14

## Finding names, identifying families

A significant part of Airwars' methodology involves finding the names of those killed or injured, in order to better understand who was killed and differentiate between militant and civilian status.

In Gaza, lists of those killed are often shared on social media by relatives and friends. Family Facebook pages once used for announcing events and gatherings are now employed to list those individuals killed.

Airwars teams also find names of individuals by reviewing images of body bags and dead bodies - where names are often written on the bags, on scraps of paper pinned to the bodies, or on the bodies themselves.

The Palestinian Ministry of Health (MoH) has also released lists of victims throughout the war, with much debate around the reliability of this data. In July 2024, Airwars published the [largest and most in-depth public analysis](#) of the MoH data yet, using open source monitoring to independently identify nearly 3,000 full names of civilian victims killed in the first 17 days of the war. By comparing those victims' names with the first list produced by the MoH, the investigation found a high correlation between the official MoH data and what Palestinian civilians reported online - with 75 percent of publicly reported names also appearing on the MoH list. Experts said the investigation was a key verification that the MoH lists are broadly reliable.

Airwars researchers continue to find names and match them to official lists, with new incidents published each month.

# 4 - Militant presence

Prior to October 2023, Hamas had controlled the Gaza Strip since 2007. The group maintained a military force estimated at tens of thousands, and had established a police and security force responsible for domestic security. In addition a number of smaller allied militant organisations - most prominently Palestinian Islamic Jihad - maintained active military forces in Gaza.

Using publicly available information, Airwars makes every effort to investigate connections between individuals killed and militant groups. Evidence includes any suggestion in local sources that directly associate individuals with participation in hostilities or membership in a militant group. This may include the presence of an insignia belonging to a militant group active in Gaza, the display of particular flags or emblems on a coffin, imagery of individuals in uniform or holding weapons, and official statements from militant groups or associated individuals active within Gaza.

If the only source claiming militant status is the alleged perpetrator, this is included as context in Airwars’ assessments, but is not considered definitive evidence. For example, individuals named by the US military as militants in other contexts have later been corrected after further investigation – as in this 2023 strike in Syria.

Airwars does not capture incidents where militants are killed but there are no corresponding civilian deaths or injuries. Airwars assumes civilian status unless there is evidence to the contrary.

In the 25 days in Gaza, Airwars found that only a fraction of incidents involving the death of civilians included evidence of militant presence.

Of the 606 published incidents of civilian harm from Gaza in October 2023, at least 26 include public evidence of the death of at least one militant from Hamas or another Palestinian militant group. This includes cases where militant status is ambiguous or contested. For example, an individual has been recorded as a militant if they were referred to as “mujahid” or “commander” but no definitive connection to an armed group was found. This corresponds to around four percent of incidents.

## Number of incidents of civilian harm with publicly reported of militant deaths

<i>Incidents involving the death of a militant</i>	26
<i>Total number of incidents</i>	606

INCIDENT CODE  
ISPT0280

DATE  
2023-10-17

EXACT LOCATION  
Bureij camp, Deir Al Balah, the Gaza Strip  
31.442202, 34.400014

FATALITIES  
92 civilians  
(40-47 children, 28-30 women, 17-19 men)  
At least 92 civilians, including 40 children and 28 women, were killed and at least 13 others were injured by a declared Israeli airstrike on the Bureij camp in the centre of the Gaza Strip on Tuesday, October 17, 2023. The strike targeted and killed Ayman Nofal, a security and intelligence leader in Hamas.

MILITANT DEATHS  
2 deaths  
In a post on Facebook, the military said it had "liquidated one of the most prominent Hamas leaders, Ayman Nofal" and claimed that Nofal "directed numerous terrorist attacks against Israel and the security forces, and directed missile launches, with special guidance to target areas populated by Israeli civilians."

EVIDENCE  
90 pieces of digital content identified and archived

Full incident report

In these 26 incidents, a minimum of 522 civilians were killed, alongside a minimum of 32 and maximum of 60 militants. Per incident, where there was evidence of a militant presence, an average of 20 civilians were killed at minimum. Each case recording a militant death recorded an average of one militant death.

Minimum number of civilians, militants killed in incidents involving the death of a militant, as identified by open sources

Civilians killed	522
Militants killed	32

In six of these 26 incidents, there was a corresponding official Israeli statement acknowledging the strike. These incidents declared by Israeli forces account for a minimum of 176 civilian deaths, and a minimum of 15 militant deaths. All of these incidents involved the destruction of residential buildings.

## 5- Civilian environment

Throughout the documentation of civilian harm in Gaza, Airwars researchers have built an evolving list of ‘infrastructure’ and ‘observation’ tags in order to capture wider aspects of the civilian environment, alongside fatalities and injuries within the general population. This list has broadly been designed in coordination with other documentation organisations and researchers. Airwars does not capture incidents in which infrastructure is damaged but civilians are not reportedly killed or injured.

Airwars continues to develop its documentation of the infrastructure damaged and destroyed in incidents where civilians are harmed. While Airwars has documented the damage and destruction of infrastructure since October 2023, Airwars’ documentation of infrastructure in previous conflicts was not tagged in the same way. As such, Airwars is unable to directly compare the numbers and rates of attacks on civilian infrastructure.



## Healthcare

Airwars identified 20 incidents where civilians were harmed in or around healthcare infrastructure (such as ambulances, hospital facilities, or medical clinics) in Gaza during October 2023. Civilians were killed in 15 of these incidents.

These 20 incidents include one ‘contested’ incident, whereby strike attribution is contested between Palestinian militant groups and Israeli forces - the October 17, 2023 blast at the Al-Ahli hospital. If this incident is excluded from analysis, Airwars estimates that 46 to 71 civilians were killed in incidents involving healthcare infrastructure.

Additionally, Airwars documented 28 incidents where healthcare personnel were killed. Across these incidents, Airwars found that 50 to 52 healthcare personnel were killed. In 16 of these incidents, healthcare personnel were killed in their homes or while sheltering, and were often killed alongside members of their family.

In 12 cases, healthcare workers were killed in the line of duty. In seven of these incidents, healthcare workers were killed while they were in ambulances.

Healthcare personnel were the only civilians killed in seven incidents, resulting in a minimum of 11 healthcare personnel killed. The remaining incidents saw an additional 421 civilians killed, at minimum. This includes mass casualty incidents such as two strikes on the Jabalia camp on October 9 and October 31, 2023, killing at least 65 and 125 civilians, respectively.

In the 28 incidents where healthcare personnel were killed, children were killed in 54 percent of them (15 incidents), resulting in a minimum of 180 children killed when healthcare personnel were killed.

### Summary of civilian harm: incidents where healthcare personnel were killed

Location of the incident	Number of incidents where healthcare personnel were killed	Total number of civilians killed (minimum)	Number of children killed (minimum)	Number of healthcare personnel killed (minimum)	Number of militants killed (minimum, maximum)
<i>Residential infrastructure /while sheltering</i>	16	376	158	24	12-25 (2 incidents)
<i>Ambulance</i>	7	14	0	14	0
<i>Hospital or medical clinics</i>	5	77	17	12	0
<b>Total</b>	<b>28</b>	<b>467</b>	<b>175</b>	<b>50</b>	<b>12-25</b>

EXAMPLE INCIDENTS IN WHICH HEALTHCARE PERSONNEL WERE KILLED

INCIDENT CODE  
ISPT0268

DATE  
2023-10-16

NEARBY LANDMARK  
Civil Defence Centre, Al Tuffah, Gaza, the Gaza Strip  
31.506667, 34.471389

FATALITIES  
6 male healthcare personnel  
On 16th October, 2023, at least six men working in the Palestinian civil defense were killed, and another seven employees were injured (two in a critical condition) as a result of an alleged Israeli airstrike on the civil defense centre in al-Tufah neighbourhood, east of Gaza City. All victims were reportedly providing humanitarian services at the time of attack.

EVIDENCE  
14 pieces of digital content identified and archived

Full incident report

INCIDENT CODE  
ISPT0264

DATE  
2023-10-16

NEARBY LANDMARK  
Vicinity of the Civil Defense Headquarters, Gaza, the Gaza Strip  
31.50169, 34.438913

FATALITIES  
4-7 civilians  
4-6 paramedics  
At dawn on Monday, October 16th, 2023, between four to seven civilians, including between four to six paramedics, were reportedly killed and several more injured when two alleged Israeli airstrikes hit an ambulance and the Civil Defense headquarters in the Tal al-Hawa neighbourhood southwest of ... Gaza City.

Al Jazeera also reported on the strike and reposted a video by the Red Crescent showing moments between two strikes: an ambulance with civilians, including a young girl and paramedics inside the ambulance, and moments later the sound of another airstrike, presumed to be at the Civil Defense Headquarters, is heard nearby.

EVIDENCE  
14 pieces of digital content identified and archived

Full incident report

Food supply

Airwars identified 13 incidents of civilian harm involving the damage or destruction of some form of food supply or infrastructure. This includes marketplaces, bakeries, and food distributions.

A minimum of 118 civilians were killed across twelve of these incidents, with an average of 10 civilians killed per incident. A minimum of 218 civilians were also injured, with an average of 27 civilians injured per incident.

Summary of civilian harm: incidents where food supplies or infrastructure was damaged or destroyed

Number of incidents	Total number of civilians killed (minimum)	Number of children killed (minimum)	Total number of civilians injured (minimum)	Number of children injured (minimum)	Number of militants killed (minimum, maximum)
13	118	27	218	12	0-0

## Religious infrastructure

Airwars identified 34 incidents where civilians were harmed in incidents on or in close proximity to religious infrastructure. In 17 incidents, civilians were harmed when a mosque was hit directly. Civilians were killed in 30 of these incidents, accounting for at least 226 fatalities and 257 injuries.

Airwars has access to some level of demographic information for 163 of these individuals. From this information, 66 of those killed in attacks on religious infrastructure were children, 48 were women, and 47 were men. In incidents where a religious site was directly hit, at least 84 civilians were killed, including at least 21 children, 15 women and 15 men. A further 105 civilians were reported wounded.

### Summary of civilian harm: incidents on or in close proximity to religious infrastructure

Number of incidents	Total number of civilians killed (minimum)	Number of children killed (minimum)	Total number of civilians injured (minimum)	Number of children injured (minimum)	Number of militants killed (minimum, maximum)
34	266	66	257	27	2-2

#### EXAMPLE INCIDENTS OF STRIKES HITTING RELIGIOUS STRUCTURES

INCIDENT CODE	DATE
ISPT0372	2023-10-19

---

**EXACT LOCATION**  
Saint Porphyrius Church, Gaza, the Gaza Strip  
31.503694, 34.462428

---

**FATALITIES**  
23-27 civilians  
(10 children, 8-10 women, 5-7 men)  
On October 19th 2023, at around 8:30 pm, a declared Israeli strike hit a building adjacent to the centuries-old Greek Orthodox St. Porphyrius Church on Omar Al-Mukhtar Street, in Gaza city. Airwars identified the names of at least 23 civilians killed, including ten children, eight women and five men across three families.

---

**EVIDENCE**  
77 pieces of digital content identified and archived

Full incident report

INCIDENT CODE	DATE
ISPT0063	2023-10-09

---

**EXACT LOCATION**  
Al-Sousi Mosque, Gaza, the Gaza Strip  
31.529549, 34.447078

---

**FATALITIES**  
10-11 civilians  
(2 children, 3-4 women, 3 men)  
**Injuries: 60 civilians**  
On Monday October 9th 2023, at approximately 11:10am, a deadly airstrike allegedly conducted by the Israeli military destroyed the Abdullah bin Omar (Al-Sousi) mosque on the territory of the Al-Shati refugee camp, located in the Gaza strip west to the Gaza city, killing up to 11 civilians, including at least two children and a pregnant woman, and wounding 60 other civilians.

---

**EVIDENCE**  
39 pieces of digital content identified and archived

Full incident report

## Journalists

The number of journalists killed in Gaza during 25 days in October 2023 is roughly equivalent to the average number of media workers killed in conflict settings globally per year over the 30 years prior to October 2023.

In Gaza, Airwars recorded the killing of 22 journalists across 20 incidents over the course of 25 days. According to the Committee to Protect Journalists (CPJ), between 1992 and 2022, 515 journalists were killed while on a dangerous assignment or by crossfire, or an average of 17 journalists a year.

In the same period, CPJ reports that 616 journalists were killed while covering war, or an average of 21 journalists a year. UNESCO reported that 28 journalists were killed in conflict zones in 2022, and 20 in 2021.

Airwars incidents from October show that a journalist was the only civilian killed in six of the 20 incidents identified. In other cases, at least 169 civilians were also killed in incidents where a journalist was killed.

Children were killed in more than half of the cases where a journalist was killed (12 incidents), resulting in a minimum of 65 children killed in the same events when journalists were killed.

### Summary of civilian harm: incidents where a journalist was killed

Number of incidents	Total number of civilians killed (minimum)	Number of children killed (minimum)	Number of journalists killed (minimum)	Number of militants killed (minimum, maximum)
22	169	65	23	1-1

#### EXAMPLES INCIDENTS IN WHICH JOURNALISTS WERE HARMED

INCIDENT CODE	DATE
ISPT0102p	2023-10-10

---

NOT YET GEOLOCATED  
Babel Building, Al Mouasasat Street, Gaza, the Gaza Strip

---

FATALITIES  
7-9 civilians  
(7 men, 3 journalists, 1 militant)  
On Tuesday October 10th 2023, at least seven civilians, including three journalists, were killed, in an alleged Israeli airstrike on the Babel building in al-Mouasasat Street (Institution Street) close to the port in Gaza City. According to a Facebook post by Saeleem Hosny, a "group of journalists and a group of neighbours were killed, and many people were injured."

---

EVIDENCE  
24 pieces of digital content identified and archived

Full incident report

INCIDENT CODE	DATE
ISPT0174	2023-10-13

---

NEARBY LANDMARK  
Vicinity of the Civil Defense Headquarters, Gaza, the Gaza Strip 31.516667, 34.45

---

FATALITIES  
1 journalist  
On the evening of Friday, October 13th 2023, the comedian, blogger, artist, journalist and activist Ali Nisman, aged 35, was killed in an alleged Israeli airstrike on Gaza City. Roya News described Ali as "a satirical comedian who participated in several television dramas and participated in many Palestinian dramatic artistic works and series and monologue songs."

---

EVIDENCE  
41 pieces of digital content identified and archived

Full incident report

## 6 - Conclusion

All research carried out by Airwars is intended to cut through the 'fog of war' - to provide an evidence base that offers civilians a route to accountability, to give policy makers the tools they need to make decisions that protect civilians, and to present an accurate and comprehensive picture even in the most contested of battlefields.

This report has focused on only the first 25 days of the Israeli military campaign, as this is the period where Airwars has a near complete chronological dataset of more than 600 incidents. This large evidence base allows Airwars to draw comparisons to other 21st century military campaigns, conduct patterns analysis, and reach comparative conclusions about the conduct of Israeli warfare.

As demonstrated throughout this report, by all major metrics used to measure rates of civilian harm, the pace at which civilians were killed in this 25-day period in Gaza outpaces any recent military campaign. The number of civilians killed, the rate of women and children killed, and the rate of munitions used are all on a scale never before documented by Airwars.

While the intensity of strikes and civilian harm in Gaza during October 2023 was unprecedented by modern historical standards, Airwars' research finds that the year since has followed a worryingly similar pattern. Airwars researchers monitor incidents as close to real time as possible. As of November 2024, Airwars has monitored more than 7,000 allegations of civilians killed or injured from explosive weapons in Gaza. Each incident goes through a multi-stage review and documentation process, often taking weeks, and sometimes months, before being published. As such, it may take some years for Airwars to publish all incidents identified in the war.

Nevertheless, some extrapolations can be made from this monitoring data. Airwars identified more than 800 incidents of civilian harm in October 2023 and almost 800 again in December 2023. In the months since, Airwars recorded, on average, about 500 casualty events per month, primarily from explosive weapons. This is nearly twice the number of incidents recorded for the next-most intense month of conflict previously documented by Airwars. In early October 2024, an uptick of strikes in Gaza brought the rates of reported harm close to the intensity of the early days of the campaign.

Mass casualty incidents have been documented throughout the period. In August 2024, Airwars published a series of incidents that focussed on attacks on civilians sheltering in or outside schools. In one case, Airwars recorded the names of at least 77 civilians killed in a series of strikes on the Al-Tabi'een school - dozens of others were impossible to identify, counted only by survivors collecting bags of body parts by the kilo.

In late September 2023, Israel began a major military campaign in Lebanon. On the first day of the escalated bombing campaign, September 23rd, health officials reported more than 500 fatalities, though it did not distinguish between civilians and militants. Airwars teams recorded more than 50 civilian harm incidents from that day and are working to publish the details of the civilian harm in each incident. Still, it is clear that the initial days of the escalation in Lebanon were comparable in intensity only to the Gaza war. This trend of more strikes and more civilian harm must cause concern for all those working to limit the impact of war on civilians.

All data presented in this report is fully accessible on the Airwars website as an evolving archive of civilian harm.

## Detailed Methodology

Airwars' casualty recording process is intended to be fully replicable and transparent, to facilitate further investigation by others and to ensure trust in findings. A full set of records, examples, and tailored analysis relating to the themes outlined in this report are provided in full in a separate Annex that accompanies this report on the Airwars website.

Airwars uses an incident-based approach to document harm to civilians from explosive weapons use. Each incident is defined as a moment in time and space where sources alleged that an explosive weapon led to the fatality or injury of civilians. All incidents are an aggregate of open source accounts alleging that civilian harm occurred. Airwars incidents are to be considered 'live', as cases are updated to account for information that was not available or not identified by Airwars during the original research.

Airwars has adopted the same casualty recording methodology for ten years across all conflicts. Detailed methodology notes are all public, but more detailed explanations around information handling outlined in the Airwars internal assessment handbook can be provided on request.

### Overall methodology notes/links

- [Gaza-specific methodology note](#)
- [Airwars' general methodology note](#)
- [Standards for Casualty Recording](#)
- [OHCHR report on the impact of casualty recording](#) (includes references to Airwars findings)



Our previous casualty recording efforts include:

- Civilian casualties from the US and allied campaign against ISIS in Iraq and Syria from 2014. This archive now totals more than 8,000 casualties originating from almost 3,000 incidents. The US Government has admitted to just over 1,400 casualties - almost half of which originated as Airwars referrals. These can all be found in press releases on the US Central Command website (for example [this release](#)). All records are publicly available on the Airwars website, [here](#).
- Civilian casualties from Russian support to the Syrian Regime since 2015. This includes almost 5,000 incidents of harm and up to 24,000 casualties. Many of these casualties may be attributable in whole or in part to the Syrian Regime rather than Russian forces, as distinguishing between actors is challenging. Patterns of harm are analysed on the Airwars website [here](#), and have been referenced by others - [such as this Syrian Justice and Accountability Center report on double-tap strikes](#). All Airwars records are publicly available on the Airwars website, [here](#).
- Civilian casualties during the 'Battle of Kharkiv' - a key battleground oblast on the Russian border of Ukraine following the full scale invasion in February 2022. Findings are detailed [here](#), and all records are available [here](#).

We also documented [the 2011 NATO campaign in Libya](#), the [ensuing civil war with foreign intervention in Libya from 2012](#), [US military and CIA operations in Yemen](#), [Turkish actions in northern Syria and Iraq against Kurdish forces and factions](#), and the [US campaign against al-Shabaab in Somalia](#). In addition in [May 2021](#), Airwars teams documented all civilian casualties in Israel and the [Gaza Strip](#) during the deadly ten day war.

## Militant vs civilian distinction

Airwars assumes civilian status unless there is evidence to the contrary. Evidence includes any suggestion in local sources that directly associate individuals with participation in hostilities or membership of a militant group. This may include insignia belonging to militant groups active in Gaza (such as a flag on a coffin); or individuals in uniform or holding weapons. If the only source claiming militant status is the perpetrator (i.e. Israel), this is included as context in Airwars assessments but is not considered definitive evidence.

In cases where civilian status is contested, Airwars applies the minimum casualty range '0' to both the civilian casualty field and to the militant field.

Note that Hamas administrative officials (such as political activists) would generally not be considered militants by Airwars, unless there is evidence of participation in hostilities or membership in Hamas' armed wing.

Members of the political party Fatah are not considered militants, despite historic militant activity, given that there has been no large-scale organised Fatah military presence in Gaza since 2007, and given the fact that the group is not believed to have access to advanced weaponry.

## Child casualties

Airwars counts any individual under the age of 18 as a child where their age has been identified among local sources. Where possible, Airwars researchers additionally cross-check ages found in local sources with ages provided in Ministry of Health lists of fatalities.

Where ages are not found among open sources, Airwars categorises children based on the references and context in open source media. For example, if there are images of children clearly under the age of 18, they will be categorised as such. Where ages are more ambiguous (for example, in older teenagers), this ambiguity is accounted for in the assessment and the individual would be counted in the upper and not lower child casualty range. If individuals are referred to as 'child of xxx', further information will be used to corroborate if these are adult children or individuals under the age of 18 (for example, if they are married or have children of their own).

In line with Airwars standard methodology for quantifying qualitative statements, references to children without exact numbers will be categorised as at least two children (these will be seen in the assessment as, for example, 'child of XX' and 'child of XX' in fatality lists).

## Infrastructure tagging

Airwars researchers have built an evolving list of 'infrastructure' and 'observation' tags throughout the Gaza project. This list has broadly been designed in coordination with other documentation organisations and researchers.

Note that incidents can be tagged with more than one infrastructure or observation: this means that particularly for tags on 'IDP or refugee camps' there will likely be overlaps with 'residential building' tags, given the semi-formalised nature of IDP settlements (particularly in the first month of the campaign). Camps such as Bureij and Jabalia, for example, would likely be tagged as both residential and IDP camps. These identifiers are self-reported based on descriptions given by local sources.

## Identifying names

Airwars identifies individuals by both partial and full names. For example, if an individual is only referred to as 'the wife of XX', this individual will be listed as such in the fatality list. Where possible, Airwars has additionally been matching names identified through open sources with lists of fatalities produced by the Ministry of Health. In July 2024, Airwars released a [major investigation detailing this methodology in full](#).

Family units are identified by references in local sources (for example ‘individual X was killed alongside his children’), and are grouped accordingly per incident to facilitate analysis.

## Comparative analysis

For comparative analysis with Gaza, Airwars predominantly uses harm from foreign actors in Syria since 2014 as a key comparative dataset, as this was previously the most intense conflict documented by Airwars.

In order to present the most accurate comparative sample, incidents presented exclude those that have been graded either as ‘weak’ or ‘discounted’ across Airwars archives. This means if incidents only have a single source claim or circular reporting, or if allegations originally documented by Airwars were later found to be false (for example, if an individual Airwars originally categorised as a civilian was later proven to be a militant).

For comparison with the May 2021 conflict in Gaza, this dataset excludes a subset of ‘contested’ cases, which Airwars was able to attribute to Palestinian militant misfires. Such contested cases are harder to identify in the October 2023 campaign given the lack of access for on-the-ground reporters and human rights groups. Nevertheless, incidents where there may be doubt as to the perpetrator have been excluded from the comparative sample (such as the Al-Ahli hospital blast), to facilitate the comparison.

Sample sizes for comparative datasets are therefore as follows:

- 566 incidents (Gaza, October 2023)
- 438 incidents (US-led coalition, Battle of Raqqa, June 6, - October 17, 2017)
- 6,661 incidents (Syria, September 23, 2014 - February 3, 2024)

References to data sources outside of Airwars own records for comparative analysis include casualty totals for journalists provided by the Committee to Protect Journalists (CPJ), which are independently researched by CPJ. Note that CPJ differentiates between journalists and ‘media workers’ (including translators, drivers, fixers). Airwars categorises journalists as any individual self-described or described by others as such.

This report was only possible due to the work of more than 50 Airwars researchers, volunteers and others carefully picking through the complicated information environment to produce hundreds of assessments of individual civilian harm events. A complete list of our 2023 and 2024 volunteers is available [here](#).

This report was published in December 2024

Lead author: Ryan Geitner

Assessment, Research and Geolocation: Abdulwahab Tahhan, Ahmed Al-Aydi, Alexander Royall, Anna Zahn, Anika Venkatesh, Azul De Monte, Clarie Alspektor, Clive Vella, David Shrestha, Duncan Salkovskis, Joel Schölin, Iryna Chupryna, Lily Donahue, Mohammed al Halabi, Poppy Wallis, Rowena De Silva and Shihab Halep

Editing: Emily Tripp, Joe Dyke

Visual Design: Nathan Walker