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Terrorist Organizations in the News:

A Computational Approach to Measure Media Attention towards Terrorism

Abstract

Media play a vital role in shaping public perceptions of political violence, including terrorism. By covering extremists, media grant terrorists access to a global audience and legitimize their standing as illegitimate, yet as influential actors in international conflicts. Extending research on terrorist attacks as events of political violence, this study analyzes media attention towards terrorist organizations as actors of political violence. Specifically, we focus on how news values connected to groups and their actions explain media attention. We use computational methods, specifically an automated content analysis of media coverage of 30 terrorist organizations in the US and the UK ($N = 18,536$). Results illustrate that terrorists can prompt media attention through newsworthy events, specifically by perpetrating lethal attacks on civil targets. The news value of continuity leads to follow-up coverage once a group has secured media attention, while other characteristics such as group ideology or governmental designations are not consistently associated with coverage. By highlighting the role of news values and the capitalization of such by terrorist organizations, the study critically reflects on journalism's role in covering extremists.

Word Count: 8,998

The rise of the Islamic State (IS)¹ is a striking example of the importance of media attention for terrorists: The terrorist group² and its attacks received excessive attention by Western news media (Sui et al., 2017), with journalists disseminating key propaganda narratives (Courty et al., 2019). Even before the IS “elevated mass-mediated terrorism to an unprecedented level” (Nacos, 2016, p. 31), terrorists such as Al-Qaeda leader Osama bin Laden considered media attention a key resource in pursuing their goals (Nacos, 2016). As Yarchi (2016) points out: Modern conflicts are also fought on the front of the media.

While journalists are compelled to cover terrorism due to its inherent newsworthiness, by doing so, they make terrorists and their acts visible for a global audience and legitimize terrorists as seemingly influential actors in global conflicts (Nacos, 2016; Weimann, 2012), which, as journalists fear, empowers extremists (Abubakar, 2020). To understand forces driving attention towards terrorism, studies have mostly compared how often different attacks are covered. Both interviews with journalists (Abubakar, 2020) and content analyses indicate that news values play a vital role for which attacks claim the headlines (Hase, 2021; Kearns et al., 2019; Sui et al., 2017). However, not only acts, but also actors of violence are frequently covered (Hoffman et al., 2010), with attacks drawing attention to perpetrators’ grievances (Chermak & Gruenewald, 2006).

While studies have analyzed coverage of selected terrorist groups such as the IS (Zhang & Hellmueller, 2016) or Boko Haram (Demarest et al., 2020), studies on other groups, especially from a comparative perspective, are largely missing. The few studies that do take a comparative angle indicate differences in media attention towards (Paletz et al., 1982) and portrayals of terrorist groups (Nagar, 2010) but cannot systematically explain these (for a recent exception, see Schoon & Beck, 2021). Knowing which terrorist groups are granted media

¹ While various terms are used to refer to the Islamic State (“IS”, “ISIS”, “Daesh”), we follow Pettersson et al. (2019) by using “the Islamic State” or “IS”.

² We use the terms “terrorist group”, “terrorist organization”, “terrorists”, and “extremists” interchangeably.

attention over others and why is especially important given that media coverage influences public perceptions of terrorism (Dolliver & Kearns, 2019), including support for military interventions against perpetrators (Baele et al., 2019).

We address these gaps by comparing media attention towards 30 terrorist groups in the US and the UK. Based on computational methods, specifically an automated content analysis, we analyze which factors are associated with media attention towards different perpetrators of political violence. Our results show that news values related to sensational attacks perpetrated by these groups, but also continuity in coverage play a vital role while a group's ideology, size, or its designation by national governments do not have consistent effects. Thus, the study calls for a stronger reflection on how extremists may exploit journalistic reliance on news values and bypass gatekeeping processes by perpetrating newsworthy attacks.

Defining Terrorism and Terrorist Organizations

Any analysis of media and terrorism starts with the challenge of defining terrorism. Albeit a vast number of definitions, many scholars understand *terrorism as the strategic use of violence by actors for the sake of political objectives to propagate fear in a target population* (Matusitz, 2013; Weinberg et al., 2004). *As such, terrorism is a form of political violence alongside war, mass protests, or military coups.* Just as there is no universally-accepted definition of terrorism, no uniform profile of terrorist organizations exists. Following Phillips (2015), we chose an inclusive definition of terrorist organizations as *non-state actors with political goals that perpetrate terrorist acts.* This approach stands in contrast to exclusive definitions that, for example, only consider groups as terrorist if they hold territory and are thus too restrictive.

Research in terrorism studies has advanced our understanding of how terrorists behave, with *instrumental theories* being particularly fruitful to conceptualize the relationship between terrorists and the media. Within this framework, terrorists are considered strategic actors who

intentionally employ violence for political ends (Crenshaw, 1987; McCormick, 2003). Attacks are the consequence of cost-benefit-analyses by terrorists deciding where, when, who and how to attack for maximum impact (Schelling, 1981), especially anticipated media attention: As most people do not directly experience attacks, but learn of them through the media where they are “interpreted, packaged, and retransmitted” (McCormick, 2003, p. 483), mass media influence how political violence is perceived and responded to by the public and policy makers (McCormick, 2003; Nacos, 2016). While not all perpetrators seek media attention (Surette et al., 2009), publicity is considered an important resource for most – especially for perpetrators from abroad that may only be able to reach an international audience through the media (Hoffman et al., 2013). But how and why do the media cover terrorism?

The Ambivalent Effects of Terrorism Coverage

For journalists, terrorism presents an ethical dilemma: They consider extremists and their claims to be illegitimate but need to alert citizens about the threat they pose (Abubakar, 2020). The question, however, is how excessively and with which angle journalists should do so, a question often discussed by communication scholars (Rothenberger, 2021). Scholars and journalists alike stress that journalism should *delegitimize* terrorism, for example by constraining media attention to a reasonable level, avoiding glorification of perpetrators, and defusing narratives put forward by terrorists (Marthoz et al., 2017). Similar to coverage of protests, where actors challenging the status quo are depicted in a negative light (Gitlin, 1980), news does portray terrorists negatively (Paletz et al., 1982; Rothenberger & Hase, in press) which decreases support for extremists (Kaltenthaler et al., 2018). However, journalists still feel that by paying attention to terrorists in the first place, they unwillingly empower them (Abubakar, 2020).

This feeling is somehow justified: Not only can news be stereotypical by insufficiently differentiating between Muslims, Islam, and terrorism (Matthes et al., 2020). Negative

information about Muslims leads to polarization (Schmuck et al., 2020) which is a breeding ground for radicalization (Mucha, 2017). Apart from its content, the existence of news on terrorism is a problem in itself, especially if specific terrorist attacks (Chermak & Gruenewald, 2006; Hase, 2021) or groups (Sui et al., 2017) are granted excessive attention. By covering terrorists, citizens across the world as well as policy makers are made aware of their existence (Nacos, 2016), which exerts pressure on politicians to react towards these actors, especially if they are connected to acts of violence. Coverage of bin Laden, for example, “elevated him [...] to a global leading figure” (Weimann, 2012, p. 188): After the 2004 train bombings in Madrid, bin Laden released a tape suggesting Al-Qaeda would put a halt to attacks if military forces in Muslim countries were withdrawn. Prompted by excessive media coverage, governments across the globe condemned the offer; however, “their immediate reaction was a testament to bin Laden’s quasi-legitimate status” (Nacos, 2016, p. 40). Thus, even if news delegitimizes actors, media attention towards terrorists itself paves the way for extremists to pursue their goals, for example to apply pressure to politicians and influence policies (Yarchi, 2016). By covering terrorists, media make extremists visible – as illegitimate, yet seemingly inevitable actors in global conflicts.

Given that “terrorists recognize that their best route to public recognition is through appealing to traditional news values” (Weimann, 2012, p. 189), we now turn towards the concept of news values and its role in terrorism coverage.

News Values & Their Importance for Terrorism Coverage

Events across the world compete for journalistic attention. The ground laying study by Galtung and Ruge (1965) identified a variety of factors influencing which events are considered newsworthy and consequently selected for coverage. Such factors, later called news values, help to determine why events are being reported as news and others are not, and shape journalistic gatekeeping (Shoemaker & Vos, 2009). Across a broad range of studies,

reoccurring news values include *negativity*, i.e., whether events relate to death and injury, *conflict*, i.e., whether events relate to controversies or fights, *magnitude*, i.e., how many people are affected, *relevance*, i.e., whether events impact people perceived to be important for or similar to journalistic audiences, and *continuity*, i.e., whether events have been covered before (Galtung & Ruge, 1965; Harcup & O’Neill, 2001, 2017). However, it should be noted that studies refer to a variety of additional news values and other conceptualizations (for an overview, see O’Neill & Harcup, 2009) – for example, as to whether negativity and conflict should be understood as different news values (Harcup & O’Neill, 2017).

Terrorist attacks are inherently newsworthy, given that they are related to negativity and conflict (Abubakar, 2020; Weimann, 2012): Based on the definition of terrorism, perpetrators use violence because they disagree with and want to change the status quo. However, more than 190,000 terrorist attacks have been committed since 1970 (Start, 2017). So even if attacks are more newsworthy than other events, they still compete for attention with one another. For US coverage of domestic terrorism between 1980 and 2001, Chermak and Gruenewald (2006) found that only fifteen attacks accounted for 79 percent of all coverage; similarly, Paletz et al. (1982) illustrate that terrorist groups differ in how much media attention they receive. We now discuss in more detail which aspects influence why some terrorists are granted excessive media attention while others are ignored.

Lethality of Attacks

Terrorists may be granted more attention by the media if they are known for being highly lethal. The more deaths terrorists cause, the higher the perceived negativity, conflict and magnitude of their actions – and therefore, their newsworthiness. For terrorist attacks, studies have indicated clear support for lethal acts to be covered more: Kearns et al. (2019) find a 46 percent increase in US coverage of domestic terrorist attacks with every fatality. Similar results have been reported by other studies comparing coverage of different acts of political violence,

including terrorist attacks (Chermak & Gruenewald, 2006; Sui et al., 2017) or armed conflicts and war (Baden & Tenenboim-Weinblatt, 2018; Zerback & Holzleitner, 2018). Given that terrorists are often granted attention because of their attacks (Chermak & Gruenewald, 2006; Paletz et al., 1982), we pose H1:

H1: Terrorist organizations that have been more lethal globally receive more media attention in the US and the UK than organizations that have been less lethal globally.

Geographical Focus of Violence

However, the location of such violence also matters. Events related to countries perceived to be influential for or similar to journalistic audiences fulfill the news value of relevance (Galtung & Ruge, 1965; Harcup & O'Neill, 2001). Elmasry and el-Nawawy (2020) show that attacks leading to victims in Western countries lead to more coverage than attacks on non-Western countries. Similarly, Sui et al. (2017) illustrate that the number of US fatalities has a higher influence on the amount of US news coverage of terrorist incidents than the number of global casualties. These findings are in line with research on other acts of political violence such as armed conflicts where deaths occurring close to home are deemed more relevant by the media (Zerback & Holzleitner, 2018). Media-oriented terrorists calculate where to attack for maximum impact (Surette et al., 2009), with Western targets promising more attention by international news audiences (Hoffman et al., 2013). We pose H2:

H2: Terrorist organizations that have been more lethal in North America or Europe receive more media attention in the US and the UK than organizations that have been less lethal in these areas.

Target Choice

Another strategy for maximizing coverage is to attack vulnerable targets such as tourists or civilians, as these non-combatant targets are considered especially “innocent” (Coady, 2004).

Attacking them increases the negativity and thus the newsworthiness groups are connected with. Journalistic audiences can also more easily identify with tourists or civilians, which increases groups' perceived relevance for recipients. However, previous studies illustrate mixed results for associations between target choice and media attention: Few studies explicitly test for correlations between tourists/civilians being targeted and media attention and if they do, they come to different conclusions (Chermak & Gruenewald, 2006; Weimann & Brosius, 1991). Mostly, research finds that attacks on airplanes as well as law enforcement, governmental, or military targets receive more media attention than other attacks (Chermak & Gruenewald, 2006; Kearns et al., 2019; Weimann & Brosius, 1991). Therefore, we ask:

RQ1: Do terrorist organizations that have more often attacked tourist/civilian targets receive more media attention in the US and the UK?

Continuity in Coverage

In addition, groups may receive more attention simply because they have been the subject of news before. Research on news values has found continuity, i.e., whether an event has been in the news at a previous point of time, to be associated with news selection: "Once an event has become headline news it remains in the media spotlight for some time" (Harcup & O'Neill, 2001, p. 263) because journalists tend to follow up on issues. Continuity was and still is an important news value (Galtung & Ruge, 1965; Harcup & O'Neill, 2001), with Harcup and O'Neill (2017) ranking it to be one of the most important ones. The few studies that have analyzed the role of continuity in coverage of political violence tentatively support its influence:

Once conflicts have gained media attention, they receive relatively steady levels of coverage independent of how they develop (Baden & Tenenboim-Weinblatt, 2018). In fact, previous media attention is a stronger predictor for media attention than new bursts of violence, as Baum and Zhukov (2015) find for coverage of the Libyan civil war. Similar patterns in coverage of terrorist groups seem plausible: Oftentimes, coverage of terrorist groups is the consequence of

previous news on attacks that drew attention to the perpetrators behind them (Chermak & Gruenewald, 2006). We pose H3:

H3: The higher the amount of media attention towards a terrorist organization in the past, the higher the amount of subsequent media attention in the US and the UK.

Ideology of Terrorist Organizations

Another important aspect is a group's ideology, specifically whether terrorists claim to follow a form of radical Islam or not. As news values are bound to national contexts (O'Neill & Harcup, 2009), which are especially important in coverage of political violence (Hase, 2021; Nossek, 2004), groups that are associated with Islam may be considered more newsworthy. Western news coverage often includes stereotypical portrayals of Islam (Ahmed & Matthes, 2017), for example by not differentiating between Islam on the one hand and terrorists claiming to follow a form of radical Islam on the other hand, especially in the context of lethal attacks (Matthes et al., 2020). Such negative, stereotypical coverage can activate polarization (Schmuck et al., 2020) as well as Islamophobia as hostile attitudes towards Muslims and Islam (von Sikorski et al., 2018). Due to societal stereotypes, it is therefore plausible that groups associated with a form of radical Islam are inherently associated with negativity and conflict and, in turn, considered more newsworthy. Studies comparing coverage of different attacks illustrate that violence associated with Muslims or perpetrators assumingly following radical forms of Islam receive more coverage (Gilbert, 2020; Kearns et al., 2019) although Sui et al. (2017) do not find for all groups claiming to follow a form of radical Islam to be covered more. Given that, for the most part, previous research still overwhelmingly indicates stereotypical news portrayals of Islam as being connected to terrorism (Ahmed & Matthes, 2017; Hase, 2021; Matthes et al., 2020), we pose H4:

H4: Terrorist organizations in the pursuit of a form of radical Islam will receive more media attention in the US and the UK than organizations not in the pursuit of a form of radical Islam.

Size of Terrorist Organizations

The size of terrorist groups might also be associated with media attention. Gaibullov et al. (2020) argue that “the most essential resource of terrorist groups is their membership or size.” (p. 4) Larger groups are more successful in executing lethal attacks and better poised to solicit news recruits (Gaibullov et al., 2020). In line with this, d’Orazio and Salehyan (2018) argue that public fears might be heightened if violence is associated with formal organizations as “ties to a larger organization imply that others hold similar, extreme beliefs” (p. 1022). In addition, larger groups often have more institutionalized propaganda channels (Gaibullov et al., 2020) which might increase media attention. The IS, for example, was often covered related to its sophisticated propaganda campaigns (Zhang & Hellmueller, 2016). Thus, Gaibullov et al. (2020, p. 14) conclude that terrorist “groups’ size may bolster their likelihood of success in joining the political process or in obtaining some of their goals”. Larger groups have more resources, are likely to outlast over a longer time and are thus perceived as a bigger threat, which increases their newsworthiness in terms of the negativity they are associated with. We pose H5:

H5: The larger the size of a terrorist organization, the higher the amount of media attention in the US and the UK.

Governmental Designations

When it comes to coverage of political violence, the media clearly favor political elites: Terrorism coverage is characterized by a particularly strong relationship between the media and the government in that journalists rely on governmental sources and emphasize governmental

strategies in dealing with terrorists (Zhang & Hellmueller, 2016). Correspondingly, the majority of experts cited in the news are or have been members of state institutions. These experts rarely challenge governmental narratives, which “suggests a strong orientation by the mainstream media towards official definitions” (Miller & Mills, 2009, p. 431) on who is a terrorist and why. One if not the most important indicator of governmental definitions of terrorism are official designation lists published by both the US (US Department of State, n.d.) and the UK (Home Office, 2020). These designations serve a symbolic goal in that they assure “that people were paying attention to this group” (Legrand, 2018, p. 264). If groups are clearly deemed illegitimate according to governmental designations, they are perceived as particularly negative and associated with enduring conflict, in turn increasing their newsworthiness. Although few studies have analyzed the impact of governmental designations on coverage, Gilbert (2020) recently found that for US coverage of kidnappings, perpetrators officially designated as terrorist by the US Department of State received more coverage. We pose H6:

H6: Organizations that are designated as terrorist organizations by a nation’s government will receive more media attention in that particular country than groups not designated as terrorist organizations.

Method

Our methodological approach includes five steps: (1) selection of countries and media outlets, (2) selection of terrorist organizations, (3) automated content analysis, (4) measurement of variables, and (5) panel analysis.

Selection of Countries and Media Outlets

We sampled coverage in two countries: the United States (US) and the United Kingdom (UK). By choosing the UK and the US as units of comparison, we used a most-similar design similar to previous studies (Papacharissi & de Fatima Oliveira, 2008). While our results cannot be generalized to coverage across the globe – and we do not aim to do so –, our analysis of

these two countries from January 1, 2014 until December 31, 2016 was led by our research interest: Throughout the observation period, fatalities due to political violence, including terrorism, increased sharply worldwide (Pettersson et al., 2019). This also applies to the US and the UK where – compared to other countries – attacks were far less frequent, but increased from the mid-2010s on (Start, 2017). Between 2014 and 2016, 322 terrorist attacks occurred in the UK, among them the murder of Jo Cox by a right-wing extremist and the attack on Tube passengers by a follower of the IS. In contrast, the US suffered fewer terrorist attacks, namely 131, including the Charleston church shooting targeting African Americans and the San Bernardino attacks by homegrown terrorists claiming to be inspired by radical Islam. Thus, media attention towards terrorism³ as well as public concern about the issue was higher than usual (European Commission, 2020; Riffkin, 2015). As two key military powers, the US and the UK are also at the forefront of government-led counter-terrorism initiatives and advance their political interests in countries where certain terrorist organizations operate – further indicated by them publishing terror designation lists, which enabled us to analyze the influence of varying national stances towards terrorism. Thus, our choice of countries and the corresponding time frame was initiated by an interest in a period of increased salience and (perceived) threat by terrorism in Western countries. While we would have liked to expand the years analyzed here, data on attacks were, at the time of data collection, only accessible until 2016.

We decided to sample articles from two news media outlets for the US (*The New York Times*, *Wall Street Journal*) and the UK (*The Guardian*, *The Times*). We chose these up-market news outlets because of their audience reach as well as their varying political orientation as they secure different political views on terrorism. Studying such legacy outlets seems particularly important as these outlets set the political agenda and provide more nuanced coverage of

³ A cursory search for the number of articles mentioning “terrorism” by outlets in our sample shows that news attention rose from 3,900 articles in 2010 to 7,900 articles in 2016.

controversial issues (Langer & Gruber, 2020). However, we are aware that based on this limited sample, we cannot sufficiently generalize as to how the entirety of national coverage in both countries may look like.

Selection of Organizations

We analyzed media attention to different terrorist groups listed in the Global Terrorism Database (GTD, Start, 2017), a database listing attacks across the globe, in line with previous research using the database to sample groups (Gaibulloev et al., 2020; Phillips, 2015). The GTD's definition of terrorism is closely related to our definition of terrorism and terrorist organizations as it "defines a terrorist attack as the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." (Start, 2017, p. 10) Thus, the database is very inclusive for the purpose of our study. We sampled 30 terrorist organizations based on four criteria (level and main region of activity, size of organization, ideology) to guarantee sufficient variance in our independent variables.

Automated Content Analysis

To measure how many articles mentioned each group on a given day, we developed dictionaries including synonyms for each organization based on a variety of databases on terrorist groups (see Supplementary Material, Element A1). Given that some dictionaries included ambiguous names and abbreviations, e.g., "ISIS" or "the IS" as synonyms for the Islamic State, we tested the validity of longer dictionaries against a manual gold standard (lowest $F_1 = .84$, see Supplementary Material, Element A2). Based on these dictionaries, we sampled all articles mentioning any of the 30 groups at least once. The corpus consists of $N = 18,536$ articles published by *The Guardian*, *The Times*, *The New York Times*, and *The Wall Street Journal* between January 1, 2014 and December 31, 2016. Out of these articles, $N = 7,289$ were published in the US and $N = 11,247$ in the UK.

Measurement of Variables

The following section summarizes how we measured our dependent and independent variables. Variables are indexed by the subscript i , the subscript t , or the subscript t,i . The subscript i specifies which group i out of all thirty groups is analyzed, while the subscript t specifies which day t within our observation period is analyzed. Thus, time-varying variables are identified via the subscript t,i , while time-invariant variables are identified via the subscript i . For more details on measurements, including related data sources, please refer to the Supplementary Material (Element A1).

Dependent Variable

The dependent variable is *Media Attention* $_{t,i}$ which describes the count of articles mentioning group $_i$ on day $_t$. For panel analyses, we used the log-transformed count of articles to account for skewness. Using articles mentioning a group is certainly only one way in which media attention to terrorist groups can be measured, which is why we point out limitations of this approach in the discussion.

Independent Variables

We used the GTD (Start, 2017) to create the variables *Global Fatalities* $_{t-180,i}$ (H1), *Regional Fatalities* $_{t-30,i}$ (H2), and *Tourist/Civilian Targets* $_{t-180,i}$ (RQ1). According to H1, we expect terrorist organizations to receive more media attention if they are known for being lethal. Hence, *Global Fatalities* $_{t-180,i}$ describes the count of fatalities caused by group $_i$ six months prior to day $_t$. The length of all lags was determined by model fit based on the Bayesian Information Criterion (see Supplementary Material, Element A3). H2 states that groups known for attacking close to home receive more attention. Thus, *Regional Fatalities* $_{t-30,i}$ describes the count of fatalities caused by group $_i$ in North America or Western Europe in the month previous to day $_t$. RQ1 asks whether previous attacks on tourist or civilian targets increase attention. *Tourist/Civilian Targets* $_{t-180,i}$ describes the count of attacks on civilian/tourist targets by group $_i$

six months prior to day_t . According to H3, media attention towards a specific group $_i$ at time $_t$ is associated with media attention to the same group $_i$ at a previous point in time. Hence, *Previous Media Attention* $_{t-7,i}$ measures the count of articles referring to group $_i$ in the week prior to day_t . Please note the difference in time lags for time-varying variables, i.e., longer lags of six months for *Global Fatalities* $_{t-180,i}$ and *Tourist/Civilian Targets* $_{t-180,i}$, a monthly lag for *Regional Fatalities* $_{t-30,i}$, and a weekly lag for *Previous Media Attention* $_{t-7,i}$, as indicated by the subscript of each variable.

Related to H4, *Islamist* $_i$ is a dichotomous, time-invariant variable describing whether an organization claims to follow a form of radical Islam (1) or another, non-Islamist ideology (0). Related to H5, *Size* $_i$ is a categorical, time-invariant variable and describes how many members a group is assumed to have (1 = below 1.000 members; 2 = above 1.000 and below 10.000 members, 3 = above 10.000 members). Studies typically use categorical variables to determine membership size as the exact number of members a group is assumed to have is almost impossible to track. As most groups in our sample are relatively large, we used a less fine-grained measure of size than most other databases to guarantee sufficient variation in our independent variable *Size* $_i$. Related to H6, *Designation* $_i$ is a binary variable describing whether group $_i$ was designated as a terrorist organization by the US government or the UK government on day_t . While a group's designation was coded for each day_t as this could have changed throughout the observation period, no such change occurred which renders the variable time-invariant. For panel analysis, all independent variables were z-standardized to ease model comparison.

Panel Analysis

We created two panel datasets, one for the US and one for the UK. Given the fact that we have 30 organizations $_i$ ($N = 1, \dots, 30$) observed on 1,096 days $_t$ ($T = 1, \dots, 1096$), both datasets include 32,880 observations, with missing values for the first week due to the lagged dependent

variable *Previous Media Attention*_{*t-7,i*}. Our data can be described as a balanced panel with group-days as the unit of analysis. We account for this nested structure, i.e., observations not being independent but clustered by groups_{*i*} across days_{*t*}, by using a fixed effects panel model with Driscoll Kraay standard errors which correct for autocorrelation, heteroscedasticity, and cross-sectional dependence (Driscoll & Kraay, 1998). In short, fixed effects models account for unobserved heterogeneity by including subject-specific effects in the form of dummy variables for each group_{*i*}. Driscoll Kraay standard errors correct for potentially biased standard errors due to the presence of, for example, cross-sectional dependence between groups. Given multicollinearity between *Global Fatalities*_{*t-180,i*} and *Tourist/Civilian Targets*_{*t-180,i*}, Model 1a and 1b present results for the US where both variables are included separately (Table 2). Model 2a and 2b illustrate the same models for the UK (Table 3). Since fixed effects cancel out time-invariant variables, Model 1a and 1b as well as 2a and 2b only include time-varying variables. Effects of time-varying variables *and* time-invariant variables *Islam*_{*i*}, *Size*_{*i*}, and *Designation*_{*t*} were calculated via the Taylor-Hausman estimator. The Taylor-Hausman estimator allows for some of the independent variables to be endogenous, meaning they can be correlated with individual effects, by using some of the exogenous variables as instrumental variables (Hausman & Taylor, 1981). For a more detailed explanation of both estimators, please refer to the Supplementary Material (Element A3). Again, we estimated the effect of *Global Fatalities*_{*t-180,i*} and *Tourist/Civilian Targets*_{*t-180,i*} separately. Model 1c and 1d present the results of the Taylor-Hausman estimator with cluster robust standard errors for the US (Table 2). Model 2c and 2d illustrate results for the UK (Table 3).

Results

Descriptive Results

Table 1 illustrates how many articles mentioned each terrorist organization in the US and the UK. Both countries display similar patterns of news attention, specifically excessive

coverage of the IS compared to all other groups: More than half of all articles in both the US (64.18%) and the UK (79.68%) reported on the group, indicating that the IS dominated coverage between 2014 and 2016. Other terrorist groups, e.g., Hamas (14.08% of US articles, 7.01% of UK articles), Hezbollah (12.59% of US articles, 6.32% of UK articles), or Boko Haram (8.71% of US articles, 5.89% of UK articles) were also covered, but much less frequently. Most groups were almost never mentioned. Two things are especially noteworthy: First, the IS is a clear outlier as media attention to the group stands in stark contrast to coverage of all other groups. Second, most of the groups receiving at least some coverage claim to be motivated by a form of radical Islam but not all Islamist groups are covered: While Hamas, Hezbollah, or Boko Haram are covered more frequently, other groups connected to a form of radical Islam – for example, Lashkar-e-Taiba or Jemaah Islamiyah – are almost never mentioned.

[insert Table 1 here]

Multivariate Results

According to our first hypothesis, terrorist organizations known for being lethal across the world gain more media attention. Across models, we find a consistent, positive association between global fatalities caused by a specific group and media attention. According to the full models, i.e., the models that include time-varying and time-invariant variables, the higher the number of fatalities in the previous six months, the more media attention a group received in the US ($\beta = .05, p < .001$ in Model 1c) and the UK ($\beta = .12, p < .01$ in Model 2c). Thus, H1 is supported.

[insert Table 2 here]

[insert Table 3 here]

Our second hypothesis proposed that the more lethal terrorist organizations in Northern America or Europe as regions relevant to the US and the UK, the more media attention they

receive. We find a significant association between the number of fatalities caused by a specific group in the previous month and media attention in the UK ($\beta = .02, p < .05$ in Model 1c, similar in Model 1d). However, this effect turns not significant in the fixed effects estimation in Model 1a and 1b. For the US, associations are not consistent ($\beta = -.0, p = .73$ in Model 2c, similar in Model 2d). Thus, we only find very limited support for H2.

According to RQ1, we also asked whether the choice of targets, i.e., whether a group is known for attacking civilian and tourist targets, had an effect on media attention. We find that the higher the number of attacks on tourist/civilian targets in the previous six months, the more media attention a group received in the US ($\beta = .05, p < .001$ in Model 1d) and the UK ($\beta = .11, p < .01$ in Model 2d).

Our third hypothesis proposed that due to the news value continuity, the more terrorist organizations have been reported on in the past, the more coverage they received at a later point in time, even when controlling for attacks. Based on the results including both time-varying and time-invariant variables, previous levels of coverage were associated with media attention at a later point of time in the US ($\beta = .16, p < .001$ in Model 1c, similar in Model 1d) and the UK ($\beta = .09, p < .001$ in Model 2c, similar in Model 2d). Thus, H3 is supported.

Turning to H4, we proposed that terrorist organizations associated with a radical form of Islam were more likely to be covered than non-Islamist groups. Islamist ideology neither had a consistent effect on media attention in the US ($\beta = -.04, p = .67$ in Model 1c, similar in Model 1d) nor the UK ($\beta = -.05, p = .54$ in Model 2c, similar in Model 2d). H4 is not supported.

H5 proposed that terrorist organizations with more members were awarded more media attention. Given the inconsistent effect of size on media attention in the US ($\beta = -.03, p = .71$ in Model 1c, similar in Model 1d) and the UK ($\beta = .03, p = .28$ in Model 2c; similar in Model 2d), H5 is not supported.

Lastly, H6 proposed that organizations officially designated as terrorist organizations by the media's national government received more media attention. However, designation had no consistent effect in the US ($\beta = .27, p = .37$ in Model 1c, similar in Model 1d) or the UK ($\beta = .18, p = .23$ in Model 2c, similar in Model 2d). H6 is not supported.

Discussion

While many studies have argued that newsworthy attacks are a way for terrorists to make the headlines (Nacos, 2016; Surette et al., 2009), few have systematically analyzed which factors influence media attention to terrorist groups. Using a computational approach to measure patterns of terrorism coverage, this study indicates that terrorist groups may indeed influence media attention by perpetrating lethal attacks on tourist/civilian targets.

Excessive Coverage of the IS

Our analysis of media attention towards 30 terrorist groups in UK and US news coverage illustrates that between 2014 and 2016, media attention was focused almost exclusively on the IS. Other international terrorist groups such as Hamas, Hezbollah, or Boko Haram were mentioned, but less frequently. Most other groups were not granted any attention at all. The excessive coverage of the IS indicates that the group was indeed highly effective in elevating mass-mediated terrorism to a new level (Nacos, 2016).

Newsworthy Attacks Drive Attention towards Extremists

The results of our panel models indicate that newsworthy attacks high in negativity, conflict, magnitude, and, partly, relevance due to their geographical focus, are correlated with attention towards the perpetrators behind them. Terrorist groups known for being highly lethal across the globe (H1) and attacking vulnerable targets such as civilians or tourists (RQ1) were covered more. Groups seemingly posing a more imminent threat due to past fatalities in Western Europe or North America as regions close to and relevant for reporting outlets only partly received more media attention (H2). However, results on the location of fatalities are not

very robust and the effect only occurred in one country, which is why it should be considered with caution. Still, our overall results are in line with previous studies indicating that brutal attacks on vulnerable targets are covered more (Chermak & Gruenewald, 2006; Kearns et al., 2019; Sui et al., 2017; Weimann & Brosius, 1991). Interestingly, our study illustrates that findings on coverage of terrorist attacks extend to coverage of terrorist groups: Terrorist organizations are considered more newsworthy if they perpetrate lethal and shocking attacks. We also found continuity to be an important news value, i.e., terrorist organizations to receive more attention if they have already been in the headlines (H3). This is, again, in line with previous studies illustrating that continuity is an important news value (Galtung & Ruge, 1965; Harcup & O'Neill, 2001, 2017), including for the coverage of political violence (Baden & Tenenboim-Weinblatt, 2018; Baum & Zhukov, 2015).

Interestingly, other aspects such as whether groups claim to follow a radical form of Islam (H4), membership size (H5), or official designations by a country's government (H6) were not consistently associated with media attention. Especially our results concerning group ideology might seem surprising in light of previous studies pointing out that attacks by self-identified Muslims or Islamists are covered more (Gilbert, 2020; Kearns et al., 2019), although these effects have already been shown to not hold for different Islamist groups (Sui et al., 2017).

One reason for this might be our measure of Islamist ideology, which is too simplistic and may not sufficiently capture differences between groups such as the IS or the Hamas. Piazza (2009, see also Yarchi, 2016) proposes that an importance difference may lie in Islamist groups with global goals such as Al-Qaida or the IS and groups with more local grievances such as Hamas. While the first target transnational audiences which underlines their need for attention by the international press (Hoffman et al., 2013), the latter have more specific goals, such as the liberation of specific (national) territory, for which they do not necessarily need attention by international media outlets. Given that our study did not include enough groups to further

differentiate between forms of radical Islam, we need future research considering a more nuanced picture of terrorism associated with Islamic ideology (Piazza, 2009).

Unintended Consequences of Journalistic Reliance on News Values

The result that newsworthy attacks may initiate coverage of extremists underlines the dilemma journalists are confronted with when covering political violence (Abubakar, 2020). Certainly, particularly lethal groups focusing on vulnerable targets pose a threat to journalistic audiences and should thus be reported on for news media to fulfill their democratic function. However, if journalists are highly susceptible to newsworthy events, meaning they feel drawn to report on them, terrorists can strategically perpetrate attacks oriented towards maximized publicity to draw attention to their grievances. In a sense, this supports instrumental theories (Crenshaw, 1987; McCormick, 2003) arguing that terrorists may strategically conduct attacks to enter the public arena through media coverage and communicate their messages to both the public and policymakers (Nacos, 2016; Surette et al., 2009). What is more, once groups have secured media attention through newsworthy attacks, they may receive repeated coverage even when controlling for new acts of violence. On the one hand, this is understandable as news follows up on issues (Harcup & O'Neill, 2017). If groups are mentioned in the context of their attacks, for example, follow-up coverage may shed more light on their goals and grievances (Chermak & Gruenewald, 2006). However, given that media attention causes new attacks (Jetter, 2017), journalists should carefully consider when and whether continuous coverage is necessary, especially if it is as excessive as news on the IS. Such excessive coverage of one group leaves little room for other actors of political violence: While groups like Seleka or the Allied Democratic Forces that are mainly active on the African continent may not be as deadly as the IS, especially in Western countries, they still caused several hundred fatalities throughout the observation period (Start, 2017), making them relevant for large parts of the world. However, with a total of 62 articles reporting on Seleka and 13 articles covering the Allied

Democratic Forces, US and UK audiences were barely made aware these groups exist. Similar to the media not paying any attention to conflicts perceived to be irrelevant to national audiences (Hawkins, 2011), excessive coverage of selected groups can be harmful in that humanitarian suffering caused by others can go on unchecked. With no media attention, policymakers have few incentives to engage in conflict resolution. Thus, journalists need to continuously reflect how much coverage is too much – and whether reporting serves to inform or to sell headlines and, unwillingly, empower extremists.

Limitations & the Road Ahead

Our study bears important limitations. As mentioned, we analyzed media attention towards a limited sample of 30 terrorist organizations. Subsequent studies need to expand this sample to more effectively estimate the influence of time-invariant predictors such as ideology, which in itself could be measured in a more fine-grained way. Future studies should also more strongly include national contexts, for example whether a country is engaging in war against terrorist groups. Using the count of articles as a measure of media attention is certainly another limitation given that groups might only be mentioned in passing. In addition, how these groups are portrayed might differ (Nagar, 2010) and, thus, a more in-depth analysis of the content of news may deliver further insights into how journalists (de-)legitimize perpetrators of political violence.

Despite these limitations, this study highlights the influence of news values on coverage of political violence, particularly how terrorists may play on journalism's reliance on newsworthy events by perpetrating shocking attacks. It also serves as an example for how journalism studies can combine interdisciplinary data and computational methods to answer questions relevant to our field.

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Appendix

Table 1

Articles Mentioning Each Terrorist Organization by Country

Terrorist Organization	US Corpus	UK Corpus
	Number of Articles (%)	
Abu Sayyaf Group	12 (0.16%)	9 (0.08%)
Al-Shabaab	173 (2.37%)	396 (3.52%)
Allied Democratic Forces	11 (0.15%)	2 (0.02%)
Baloch Republican Army	0 (0%)	0 (0%)
Bangsamoro Islamic Freedom Movement	4 (0.05%)	4 (0.04%)
Barisan Revolusi Nasional	1 (0.01%)	0 (0%)
Boko Haram	635 (8.71%)	663 (5.89%)
Communist Party of India (Maoists)	0 (0%)	0 (0%)
Democratic Front for the Liberation of Rwanda	14 (0.19%)	26 (0.23%)
Donetsk People's Republic	127 (1.74%)	113 (1.0%)
Hamas	1,026 (14.08%)	788 (7.01%)
Hezbollah	918 (12.59%)	711 (6.32%)
Hizbul Mujahideen	2 (0.03%)	3 (0.03%)
IS	4,678 (64.18%)	8,962 (79.68%)
Janjaweed	12 (0.16%)	13 (0.12%)
Jemaah Islamiyah	26 (0.36%)	13 (0.12%)
Kurdistan Workers' Party	230 (3.16%)	345 (3.07%)
Lashkar-e-Taiba	53 (0.73%)	30 (0.27%)
Lord's Resistance Army	49 (0.67%)	24 (0.21%)
Mozambique National Resistance Movement	4 (0.05%)	1 (0.01%)
National Liberation Army of Colombia	0 (0%)	0 (0%)
New People's Army	8 (0.11%)	3 (0.03%)
Nordic Resistance Movement	0 (0%)	2 (0.02%)
Paraguayan People's Army	0 (0%)	0 (0%)
Real Ulster Freedom Fighters	0 (0%)	0 (0%)
Revolutionary Armed Forces of Columbia	234 (3.21%)	253 (2.25%)
Seleka	29 (0.4%)	33 (0.29%)
Shining Path	19 (0.26%)	27 (0.24%)
Tehrik-i-Taliban Pakistan	261 (3.58%)	124 (1.1%)
United Liberation Front of Assam	1 (0.01%)	0 (0%)

Table 2*Panel Analysis: News Attention to Terrorist Organizations in the US*

Parameter	Model 1a	Model 1b	Model 1c	Model 1d
	Fixed Effects model		Taylor-Hausman Estimation	
	β coefficient (Driscoll Kraay SEs)		β coefficient (Cluster robust SEs)	
Global Fatalities _{<i>t-180,i</i>}	.05 (.01)***		.05 (.01)***	
Regional Fatalities _{<i>t-30,i</i>}	-.0 (.01)	-.0 (.01)	-.0 (.01)	-.0 (.01)
Tourist/Civilian Targets _{<i>t-180,i</i>}		.05 (.01)***		.05 (.01)***
Previous Media Attention _{<i>t-7,i</i>}	.16 (.01)***	.17 (.01)***	.16 (.03)***	.17 (.03)***
Islam _{<i>i</i>}			-.04 (.1)	-.01 (.08)
Size _{<i>i</i>}			-.03 (.09)	-.01 (.06)
Designation _{<i>i</i>}			.27 (.3)	.17 (.25)
Intercept	.12 (.0)***	.12 (.0)***	.12 (.04)**	.12 (.03)***
R^2	.16	.16	not applicable	not applicable
BIC	-6,035	-5,950	not applicable	not applicable
N	31,980	31,980	31,980	31,980

Note. Panel analysis for the US. Models 1a, 1b describe fixed effects models with corresponding β estimates (Driscoll Kraay SEs). Models 1c, 1d describe Hausman-Taylor estimations with corresponding β estimates (cluster robust SEs).

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3*Panel Analysis: News Attention to Terrorist Organizations in the UK*

Parameter	Model 2a	Model 2b	Model 2c	Model 2d
	Fixed Effects model		Taylor-Hausman Estimation	
	β coefficient (Driscoll Kraay SEs)		β coefficient (Cluster robust SEs)	
Global Fatalities _{<i>t-180,i</i>}	.12 (.02)***		.12 (.04)**	
Regional Fatalities _{<i>t-30,i</i>}	.02 (.01)	.01 (.01)	.02 (.01)*	.01 (.01)*
Tourist/Civilian Targets _{<i>t-180,i</i>}		.11 (.02)***		.11 (.03)**
Previous Media Attention _{<i>t-7,i</i>}	.09 (.03)**	.11 (.03)**	.09 (.03)***	.11 (.02)***
Islam _{<i>i</i>}			-.05 (.09)	-.04 (.07)
Size _{<i>i</i>}			.03 (.03)	.03 (.03)
Designation _{<i>i</i>}			.18 (.15)	.16 (.13)
Intercept	.12 (.0)***	.12 (.0)***	.12 (.03)***	.12 (.03)***
R^2	.12	.1	not applicable	not applicable
BIC	3,138	3,691	not applicable	not applicable
N	31,980	31,980	31,980	31,980

Note. Panel analysis for the UK. Models 2a, 2b describe fixed effects model with corresponding β estimates (Driscoll Kraay SEs). Models 2c, 2d describe Hausman-Taylor estimations with corresponding β estimates (cluster robust SEs).

* $p < .05$, ** $p < .01$, *** $p < .001$.