Not Your Typical Social Media Influencer: Exploring the Who, What, and Where of Islamic State Online Propaganda

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Abstract

In this research article, we examined who, how, and in what ways Islamic State magazines are being shared online. We used Babel Street software (an open-source intelligence company) and data analytics to collect publicly available information from 27 platforms using 12 magazines as the keywords. Our data revealed accounts sharing the most content to be discussing the topic from a neutral standpoint. Most (53%) discussions were intended to spread news or share academic resources (28%) about the content provided in the 12 Islamic State magazines. Approximately 6% of the 433 discussions, however, were intended to recruit for the Islamic State with 2% shared to brag to an opposing audience. Research and policy implications are discussed.

Keywords: Open source; publicly available information; Islamic State of Iraq and Syria; Islamic State of Iraq and the Levant; Online Radicalization.

1. INTRODUCTION

The purpose of the research is to explore the who, what, and where of Islamic State magazine related propaganda. Several researchers have conducted content analyses finding themes of military and religious foci, as well as finding language in magazines to be intended for both opposing and supporting audiences of prominent Islamic State magazines (Cooley, Stokes, & Gines, 2016; Latif, 2017). However, less is known about how (and in what ways) the magazines are discussed and shared across a variety of online platforms. In this article, we aim to address who discusses the magazines, what is discussed about the magazines, and where they are distributed the most, across 27 web and dark

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web platforms. To do so, we searched the Internet via web crawlers and Application Program Interfaces through Babel Street's software to pull data for mentions of the following magazines: *Dabiq, Rumiyah, Islamic State Report, Islamic State News, Al-Furqan/Al-Fursan, Kybernetiq, Hanifiyah Media, Constantinople, Dar al Islam, Istok, Al Fatihin, and Al-Naba.* To narrow our search, we then used filter terms commonly used in propaganda. This led us to a sample of 1,584 documents (i.e., online posts varying in length). Upon cleaning the data and coding out results that did not answer our research questions, we analyzed 433 documents. In sections to follow, we discuss what previous research has found pertaining to the Islamic State's use of magazines as a type of propaganda sharing online.

2. LITERATURE REVIEW

2.1 The Islamic State's use of propaganda

The Islamic State has had a tumultuous rise to power whereby they have inflicted fear through slavery and rape practices, organized attacks, lone-wolf attacks, and constant streams of propaganda. The Islamic State first began their rise as a terrorist organization after the American invasion of Iraq in 2003 (Schmid, 2015). The official announcement of the establishment of the Islamic State of Iraq was made on a jihadist website on October 15, 2006 (Shamieh & Szenes, 2015). The Islamic State differs from many other past terrorist organizations, both in their explicit use of brutality to spread their message and through their unique structure (Boyle & Mower, 2018). Many researchers have attempted to define the Islamic State's organizational structure. Some argue that the organization has top-down, centralized components fused with broad grassroot organizations that advance the Islamic State agenda (Weirman & Alexander, 2018). Other scholars like Shamieh and Szenes (2015) argue that the Islamic State has tight, central leadership, but the leaders are not embedded within their community as past organizations' leaders have been. These scholars break down the Islamic State's structure into three branches: Legislative, Executive, and Security. Each part of the structure has a specific role, with the security branch being responsible for the vital portion of their recruitment strategy, public relations and the dissemination of messages and propaganda (Shamieh & Szenes, 2015).

Since their beginning, the Islamic State has developed many types of propaganda and recruitment strategies to spread their message throughout the world. Prior to the Islamic State's rise in power, Osama bin Laden, leader of terrorist organization Al Qaeda, adopted the use of the Internet and media to spread propaganda. Al Qaeda employed media such as movies, magazines, and terror-related news bulletins (Liang, 2006). Al Qaeda also created its own media organization, as-Sahab, which developed and released videos and magazines for the terrorist network (Seib, 2008). Since the Islamic State's development, they have expanded upon Al Qaeda's strategies through the establishment of their own media organizations and targeted media tactics, often referred to as the online Caliphate or media jihad (Lakomy, 2017). Throughout the rise of social media, the Islamic State has developed a strategy that uses social media applications, videos, and magazines to achieve organizational goals. The Islamic State began their message dissemination through online blogs before migrating to Twitter as their primary platform for distributing content (Conway & Macdonald, 2019). In addition, the Islamic State created social media applications such as the "Dawn of Glad Tidings." Although this application has since been deleted, it was employed to automatically promote hashtags and links through multiple

social media sites (Nissen, 2015, p. 68). Social media applications are primarily used to connect lower-status members and recruits to higher-status members (Nissen, 2015).

The Islamic State also followed Al Qaeda's lead by developing their own media organizations. The Islamic State chose to use different organizations for their many elements of their online media strategies. In fact, in the last decade, they introduced Al Hayat Media Center, Al I'tisam, Al Furqan, and Amaq News Agency (Greene, 2015). The Islamic State has used these media organizations to spread propaganda that are both used to inflict fear and recruit supporters for the movement. The first published magazines included *The Islamic State News* and *The Islamic State Reports* in 2008 (Bunker & Bunker, 2018). Since then, the Islamic State has been consistent in their release of new magazines with around 12 known magazines spread online and new issues appearing every month (Bunker & Bunker, 2018).

2.2 The Islamic State's use of magazines

The Islamic State was not the first organization of its kind to use magazines. Unlike Al-Qaeda, the Islamic State has increased its use of social media in ways that have allowed terror to spread globally, reaching a new demographic of individuals, and has led to the Islamic State ideological stronghold that still affects society today (Novenario, 2016). This crisis has been said to be one of the "most documented and socially-mediated conflicts in history (Liang, 2015, p. 2)." Islamic State magazine issues and versions vary in content. Nevertheless, the main goals of these magazines tend to fall within the following categories: recruiting, providing updates, spreading theology, portraying political and religious legitimacy, and persuading readers to join by detailing the quality of life that becoming a member could provide (Greene, 2015).

The distribution of the various types of magazines can best be described as a pyramid structure (Shehabat & Mitew, 2018). At the top of the pyramid is the media center producing the magazines, with subsequent lower levels being comprised of individuals who take part in ensuring the material is far-reaching and distributed more broadly. These individuals include fighters and Islamic State supporters (Shehabat & Mitew, 2018). The action of spreading the propaganda is easy. Sharing can be done by sending a link to specific individuals or posting it onto multiple social media platforms, which can be amplified using applications, as described earlier (Shehabat & Mitew, 2018). Many platforms such as Twitter and Facebook have been used to distribute content. Other platforms used include lesser-known sites such as Dump.to and Justpaste.it. Justpaste.it and Dump.to are both free online sharing platforms that offer a way to distribute Islamic State magazines through encrypted means. They allow individuals to create posts anonymously, communicate through password-protected mechanisms, and share links through popular social media networks (Shehabat & Mitew, 2018).

Although the Islamic State has various forms and tactics regarding propaganda, they continue to use magazines to this day. Magazines provide an easy and low-cost means to spread information. The Internet is relatively free, the production value is much lower than videos, and magazines are shown to be more effective (Howell, 2017). The accessibility of the Internet has also spread globally over the years, leaving few individuals without access. Online magazines help the Islamic State to disperse their content widely due to the ease of them being viewed virtually anywhere, at any time, and on multiple devices (Howell, 2017). Not only does the Internet allow for the spread of content more easily and effectively, it also provides protection for the ones sharing links and other forms

of propaganda. Anonymous platforms reduce the risk of prosecution due to the inability to access the user's information (Shehabat & Mitew, 2018). Through the use of the Internet, the Islamic State is able to focus its propaganda towards a specific audience, provide various information such as instructional guides for lone wolf attacks, gain funding from supporters, and gain volunteers willing to join them (Howell, 2017). Overall, the Islamic State seeks to increase their power and influence in the form of financial or organizational support while garnering sympathy from millions of Muslims through the distribution of propaganda online (Siboni, Cohen, & Koren, 2015). This study aims to address the ways in which (and by whom) Islamic State magazine propaganda is discussed and spread across the Internet.

2.3 Related studies

Previous research has identified a need to examine information spread across online platforms rather than simply examining single platforms at a time (Weirman & Alexander, 2018). Given that the Islamic State is largely operating through a variety of social networks in their online operations, understanding the changing dynamics of these network structures is essential (Aly, Macdonald, Jarvis, & Chen, 2017). There is also a need to investigate URL sharing as links are created by the Islamic State to recruit or to be shared by supporters to aid in disseminating this organization's information widely. Two such attempts to analyze URL links are reviewed here.

First, Weirman and Alexander (2018) analyzed 240,158 URLs shared on English speaking pro-Islamic State accounts on Twitter between February 15, 2016 and May 1, 2017. The researchers found intra–platform sharing to be the most common. Specifically, 64% of the URLS were shared by other Twitter users on the platform. The authors note the re–tweet function is partially to blame for this high percentage. Further, the usage of weblinks from the same platform may vary across other web or social media sites. Thus, the researchers further investigated links to other websites finding most to be news sources (29%) and file sharing sites (26%), followed by links to non-Governmental organizations (13%), and blocked and inaccessible sites (9%). The researchers conducted a subsequent analysis on file sharing sites, finding YouTube to outrank the others with over 11,300 shares. Other popular file sharing sites included justpaste.it, archive.org, vid.me, soundcloud.com, and top4top.net. File sharing sites with video capabilities followed by image and text sharing were preferred by pro-Islamic State users. The decision to house links on Twitter as a chosen platform could be due to the news sharing focus and limited character sharing availability within tweets. However, it is likely that a variety of platforms are utilized despite their capabilities or intended functions. Thus, the significance of URL sharing by the Islamic State reveals how the organization seeks to optimize information sharing both within and across platforms for a variety of purposes (Weirman & Alexander, 2018).

Second, a study conducted by Macdonald and colleagues (2019) found Twitter to be a useful social platform for sharing information on the magazine *Rumiyah*. The research team collected tweets containing the keyword, *"Rumiyah"* between November 2016 and October 2017 which included the release of nine issues of *Rumiyah* and resulted in 11,520 links. The researchers found most of the outlinks posted to Twitter to be linked to different file sharing sites with some leading directly to PDFs of the magazine. However, many of these links also led to password protected content or websites that were no longer available. Approximately one-third of the tweets linked to news reports or knowledge

about the magazine, *Rumiyah*. Much of the news coverage did tend to amplify the intentions of the terrorist organization. Finally, the research team found the use of botnets to be employed in approximately one-third of the tweets. When investigating where the outlinks existed, data revealed 244 different host websites with the top 10 including the following: ref.gl, drive.google.com, cloud.mail.ru, justpaste.it, cldup.com, archive.org, yadi.sk, 1drv.ms, jpst.it, and dropbox.com. Researchers have noted the shift in the organization's sharing of propaganda through encrypted forms of communication after being de-platformed from sites like Twitter and YouTube (MacDonald et al., 2019).

In addition to researchers analyzing URLs posted to Twitter, Shehabat and Mitew (2018) examined encrypted, top file sharing sites in their analyses by conducting a digital ethnography. To do so, they anonymously joined such services to assess the types of content available. The researchers found justpaste.it, dump.to, and sendvid.com to be three common file sharing sites used to disseminate propaganda online. They noted that many of these encrypted sites were used to protect user identities and more safely share illegal activities online. Further, they found these sites to be used as a medium for further distribution to more popular platforms such as Facebook and Twitter. Botnets have been found to create a large bulk of these URLs, making it easy to re-post a new hyperlink across platforms once one has been removed (Shehabat & Mitew, 2018).

2.4 The current study

Given the extant research described above, the goals of the present study are to offer one of the first analyses on how propaganda is shared across online platforms while documenting how the magazines are discussed online via followers, supporters, neutral parties, and non-followers and or non-supporters. As previous research has documented how news agencies may tend to amplify terrorist content in resource sharing (Bockstette, 2008), we also seek to establish the degree to which discussions of these magazines are intended for informational sources instead of being shared for the intention to recruit or brag to enemy audiences (Macdonald, Grinnell, Kinzel, & Lorenzo-Dus, 2019). To do so, we offer analyses that aim to address: 1) the who, as in who are the individuals or organizations sharing the most on this topic, 2) the what, as in what are people discussing or sharing about the magazines, and 3) the where, as in where is this content being shared the most.

2.5 Study context

Our research focuses on the sharing of Islamic State magazines because this form of propaganda has been the most consistently used by the Islamic State (Bunker & Bunker, 2018). We include twelve magazines in our examination that vary in influence, audience, and history. The two most prominent Islamic State magazines include: *Dabiq* (2014) and *Rumiyah* (2016). Rumiyah replaced Dabiq in 2016. Other magazines were written with particular audiences in mind such as *Constantinople* or *Konstantiniyye* (e.g., Turkish men) and *Dar al Islam* (French speaking audience), *Istok* (Russian speaking audience), and *Islamic State Report* and *Islamic State News (English speaking audience)*, and *Al-Naba (Arabic language audience), and Al Fatihin* (Southeast Asia audience). One magazine, *Kybernetiq* was focused on an Internet-based audience while covering cyber, digital, and security topics. Two magazines serve more as a communication network for Arabic audiences, these include: *Hanifiyah Media* and *Al-Furqan/al-Fursan.*

3. MATERIALS AND METHODS

3.1 The sample

Data were collected via the Babel Street software using web crawlers to pull documents by magazine names as the keywords from 27 unique data sources. Documents are defined as any post online consisting of text varying in length from short posts to lengthier blog posts. The magazines included in our sample consisted of the following keywords: *Dabiq, Rumiyah, Islamic State Report, Islamic State News, Al-Furqan/Al-Fursan, Kybernetiq, Hanifiyah Media, Constantinople, Dar al Islam, Istok, Al Fatihin,* and *al-Naba/an-Naba.* In other words, any document on the Internet or dark web was pulled if it mentioned one of the above magazines between the date range of July 15, 2018 to July 15, 2019. The software system likely uses different crawlers to pull data from the Surface Web as opposed to the Deep and Dark Web. For example, the company purchases some dark web data from other sources such as REDLattice and the Intel Center's data. From the users' perspective, all of the data is incorporated into one platform where the data can be visualized and exported for further analyses. The research team selected this date range to closely monitor where content is posted over a year time frame because the Islamic State is quick to shift gears once their content is removed.

In addition to setting these criteria for a data collection pull, the team also opted to collect data from the following sources: 4chan, 5chan, Backpage, Blog posts, Consumer Reviews, Craigslist, DarkOwl, Ebay, Facebook, Flickr, Foursquare, Google+, Intel Center, LinkedIn, Message Boards, PasteBin, Periscope.tv, Reddit, REDLattice Web, Telegram, Tumblr, Twitter, Vid.me,Vimeo, Vine, VK, and YouTube. We selected as many options for data sources as data providers made available to us within the software to give the best estimate for how Islamic State magazines are distributed across online platforms. The following filter terms were then used to narrow our sample dataset: Al Baghdadi, al-Furqan, Al-hayat, Allah, Caliphate, *Dabiq,* Dominate, Domination, Enemy, Glad tidings, Hijra, Hijrah, Ihya-e khilafat, Infidel, Islamic army of Iraq, Judgement, Khilafah, Martyr, Mujahideen, Mujahidin, Murtaddin, Peshmerga, Praise allah, Punish, Safawiyyin, Superior, and Utopia. These words were selected because previous research has documented the increased use of these words from prominent Islamic State magazines (Allendorfer & Herring, 2015).

3.2 Data codification

The research team conducted a quantitative content analysis. Thus, prior to coding documents, the team developed a codebook based on past literature, taking a deductive approach to analyzing the data. The codebook included the following categories that have been found as themes in prior work: 1) recruit, 2) brag, 3) spread news, 4) academic content, and 5) sentiment (Kaczkowski, 2019). Recruiting was defined as seeking financial or personnel support to further the agenda of the Islamic State. Bragging consisted of touting military accomplishments in terms of the number of kills or power established through violence. Spreading news consisted of sharing information about the Islamic State magazines. Sharing academic content consisted of academic groups such as college institutions or professors sharing their analyses of the data as well as information about research dissemination more broadly, including published and unpublished works. Sentiment consisted of a scale ranging from 1 to 5 where the tone of the post was analyzed with 1 indicating the post trended negative (or in opposition) toward the Islamic State and

5 indicating the post trended positive (or agreement) toward the Islamic State. Codes receiving a 5 were clear supporters of the Islamic State to the extent that they were actively engaged in trying to recruit resources, people, or spread propaganda in a meaningful way. Codes receiving a 1 were clearly anti-Islamic State as such they indicated desires to arrest or put a permanent stop to Islamic State efforts.

The first four categories were dichotomous where 1 indicated yes and 0 indicated no. The fourth category, sentiment, was coded with ranges varying from 1 to 5 where 1 indicated Strongly negative (i.e., text is strongly opposed to Islamic State propaganda) to 5 strongly positive (i.e., text is strongly supportive of Islamic State propaganda).

The team also coded for the magazines mentioned, broad and specific data source categories, and language of the document. The magazines mentioned category included the twelve magazines, and a category titled, two or more magazines. This category was mutually exclusive. Thus, coders could only select one magazine or code the document to indicate that two more magazines were mentioned in the text.

The broad data source category consisted of classifying the documents into one of four types of platforms: 1) social media, 2) blogs, 3) dark web, and 4) message boards. The specific category included the full list of data sources included in our sample of data. The four broader categories encapsulated these platforms as follows: 1) Social Media (Facebook, LinkedIn, VK, YouTube, Google+, Vimeo, and Flickr), 2) Blogs (Blog posts), 3) DarkWeb Crawlers (IntelCenterVideo, IntelCenterPhoto, DarkOwl, RedLatticeWeb, IntelCenterIncident, and IntelCenterThreat) and 4) Message Boards (Boards, 4Chan, PasteBin, and 5Chan).

Language of the document included 27 languages with one category called mixed/code-switching. The languages included in our dataset are as follows: English, Indonesian, Malay, Russian, Spanish, French, Turkish, German, Italian, Romanian, Afar, Arabic, Azerbaijani, Chinese, Czech, Dutch, Finnish, Greek, Hungarian, Japanese, Korean, Portuguese, Quechua, Sango, Swedish, Unknown, Urdu, and Mixed. Babel Street uses a proprietary language software that translates in over one hundred plus languages, using products similar to Google Translate, and utilizes a team of linguists and native speakers to improve the automatic translations. Thus, the team was able to translate all documents into their native language, English, prior to coding. This also allowed the team to code for the language of the document as well as for instances where code-switching or multiple languages were in use.

A total of seven coders analyzed 1,582 documents for the five content categories. The full dataset was split seven ways and the sub datasets were randomly assigned to the coders on this project. Thus, each team member coded 226 documents. Upon filtering out noise, such as any documents that did not explicitly discuss or share content related to Islamic State magazines, the final sample contained 433 documents. Once data were coded, two coders returned to the data to check for inconsistencies in coding. One inconsistency was found in the data. Some documents were coded as discussing the "Islamic State News" or "Islamic State Report" magazines when those documents were instead discussing radio or TV news stations or reports about the Islamic State rather than the magazines of the same title. These documents were re-coded into their appropriate categories prior to conducting further analyses.

4. RESULTS

The results are presented in three parts. First, we answered the question of who is sharing the most content regarding Islamic State magazines. Second, we addressed the question of what types of content is being shared pertaining to those magazines. Third, we investigated the most common platforms on which these discussions were taking place.

4.1 The who

Of our 433 documents, 209 (48%) had author names associated with them. This is likely due to the amount of content we found on the dark web and on anonymous message boards. The content that was associated with an author name existed primarily in blog posts (64%) such as Blogspot or Wordpress, followed by social media site VK (14%) and Message Boards (10%) (see Table 1).

Table 1. Posters' Source Types		
	Frequency	Percent
Blogs	133	63.64
VK	30	14.35
Boards	21	10.05
YouTube	14	6.7
Google+	6	2.87
5Chan	2	0.96
Vimeo	2	0.96
Flickr	1	0.48
Total	209	100

We identified common threads among the content creators. Top content creators were determined by which users created the most documents within the data. For the following themes, we closely examined the top four posters. The top four posters were selected for analyses because from the fifth onward, most authors shared only 1-2 articles. These posters stood out from the rest of the sample, as there were many posters who shared 3 or fewer documents, but only 4 who shared 4 or more. Three of these posters were bloggers and posted 4, 6, and 10 of the documents in our sample, and the fourth published 7 documents on a now-defunct Google Group. Given the ethics of conducting online analyses of open source content, we do not directly identify top posters. Instead, we describe who they are in the aggregate.

1. Nearly all of the content provided by the top posters were reposts from news organizations or academic resources. There were few instances of original content.
2. Two of the top four posters had over 10,000 profile views since their inception. However, few of the documents in question garnered comments, likes, or reposts.
3. None of these posters were coded as trying to recruit or spread positive information about the Islamic State but were coded instead as spreading news or academic resources about the Islamic State.
4. The bloggers posted with great frequency, sharing multiple posts each day, although these posts varied in topic.
5. The top posters primarily shared information about *Dabiq*, *Rumiyah*, and *al-Naba*.

4.2 The what

To answer "the what" question, we coded for content sharing that previous researchers have found in their coding of tweets (e.g., to recruit, brag, share academic knowledge) as defined under Materials and Methods (Macdonald, Grinnell, Kinzel, & Lorenzo-Dus, 2019). To do so, we analyzed the 433 documents. Results are reported in Tables 2-7. Of the 433 documents, approximately 6% were intended to recruit resources or people for the Islamic State with 2% of the documents being shared to brag to an opposing audience.

Table 2: Percentage of recruitment of resources or people for the Islamic State		
	Frequency	Percent
Yes	27	6.2
No	406	93.8
Total	433	100

Table 3: Percentage of documents where posters bragged to an opposing audience		
	Frequency	Percent
Yes	10	2.3
No	423	97.7
Total	433	100

Most of our data, however, consisted of sharing magazine content to spread news (53%) (See Table 4). This category included the use of both official (i.e., well known media/news sources) and unofficial news sources (i.e., original post(s) by lay individuals). Approximately 28% of our sample shared the magazines for academic or knowledge sharing purposes (See Table 5). When it came to sentiment of the documents, the majority were coded as neutral (52%) followed by negative (28%), positive (9%), strongly negative (6.5%), and strongly positive (4.4%). As can be seen in Table 6, most of the data are neutral but there appears to be about an average split between positive (pro-Islamic State) or negative sentiment (anti–Islamic State).

Table 4: Percentage of documents to spread news, whether negative or positive, including both official and unofficial news sources		
	Frequency	Percent
Yes	228	52.7
No	205	47.3
Total	433	100

Table 5: Percentage of documents sharing academic content/knowledge on Islamic State or Islamic State related magazines	
Frequency	Percent
122	28.2
311	71.8
433	100

Table 6: Percentage of documents strongly for or against the Islamic State		
	Frequency	Percent
Strongly Positive	19	4.4
Positive	41	9.5
Neutral	225	52.0
Negative	120	27.7
Strongly Negative	28	6.5
Total	433	100

Most of the documents analyzed were in English language (73%) with Spanish, Russian, French, and German falling around 3-4%. We believe the documents were primarily in the English language given that most of the magazines were intended for a western audience, and also because the majority of the Internet is dominated by the English language (Gupta, 1997). There were approximately 15 other languages included in our data with ranges varying from 0.2 to 2.8%. Code-switching, or the use of two or more languages in a document, accounted for 0.7% of our documents (See Table 7).

Table 7: Percentage of documents in associated languages		
	Frequency	Percent
English	315	72.7
Spanish	16	3.7
Russian	15	3.5
French	14	3.2
German	13	3.0
Italian	12	2.8
Indonesian	7	1.6
Turkish	5	1.2
Romanian	5	1.2
Portuguese	4	0.9
Chinese	3	0.7

Dutch	3	0.7
Greek	3	0.7
Hungarian	3	0.7
Japanese	3	0.7
Mix/Code-Switching	3	0.7
Malay	2	0.5
Arabic	2	0.5
Czech	2	0.5
Korean	2	0.5
Quechua	1	0.2
Total	433	100

Table 8: Count and frequency of mentions, by magazine.		
	Frequency	Percent
Dabiq	326	61.51
Rumiyah	123	23.21
Al–Naba/An–Naba	28	5.28
Al–Furqan	20	3.77
Kybernetiq	8	1.51
Hanifiyah Media	8	1.51
Dar al–Islam	4	0.75
Islamic State Report	4	0.75
Islamic State News	3	0.57
Constantinople	3	0.57
Al–Risalah	3	0.57
Total	530	100

In Table 8, the total counts for 11 Islamic State magazines are represented. In 91 of our 433 documents, more than one magazine was mentioned. For these instances, we recorded the magazines that were mentioned and added them back to their respective columns to obtain an accurate count of how many times each magazine was discussed. As a result, magazine categories are not mutually exclusive. In sum, there were 530 mentions of magazines in the 433 documents, with Dabiq (61.5%) and Rumiyah (23.21%) being the most frequently mentioned magazines. In addition to the Islamic State magazines, a popular Al Qaeda magazine, *Inspire*, was also mentioned a total of 8 times across the 433 relevant documents. The majority of the documents included in our study discussed *Dabiq*

(62%) and *Rumiyah* (23%), followed by *Al-Naba/An-Naba* (5%), *Al-Furqan* (4%), *Kybernetiq* (2%), *Hanifiyah Media* (2%), *Dar al-Islam* (1%), *Islamic State Report* (1%), *Islamic State News* (.60%), *Constantinople* (.60%), and *Al-Risalah* (.60%).

4.3 The where

To answer "the where" question, we coded for the source of the content. This classification included a broader and specific category. For the broader category, we coded source into type of source (e.g., social media, dark web). For the specific category, we offered counts of the exact source of the documents. As seen in Table 9, most data came from social media (47%) and blog posts (32%), followed by dark web (12%), and message boards (8%).

Table 9: Percentage of documents classified by broad platform categories		
	Frequency	Percent
Social Media	205	47.3
Blogs	139	32.1
DarkWeb Crawler	54	12.5
Message Boards	35	8.1
Total	433	100

The top three specific categories included blog posts (32%), Facebook (18%), and LinkedIn (18%), followed by a range of 0.2% to 6.9% varying from Intel Center Threats to VK (See Table 10). To put this into context, we turn to PEW statistics on social media platform use across 38 countries. While the U.S. has a high percentage of reported social media use, middle eastern countries like Jordan and Lebanon have some of the highest percentages of social media use (Poushter, Bishop, & Chwe, 2018). When these data are disaggregated to show the percentage of social media use by the type of platform, analyses reveal that most adult social media users reportedly use WhatsApp and Facebook. Only in the U.S. was YouTube, followed by Facebook, two of the most used social media platforms. Thus, the finding that Facebook was a common platform used to discuss Islamic State magazines may in part be explained by its frequency in use across the globe (Smith & Anderson, 2018). Further, given our topic, it makes sense that blogs made up the majority of content shares, as they allow users to write about and analyze the ideas conveyed in the magazines without character and word limits. In this data, the platform, LinkedIn was also primarily used to share blog posts to the platform.

Table 10: Percentage of platform use by type		
	Frequency	Percent
Blogs	139	32.1
Facebook	76	17.6
LinkedIn	76	17.6
VK	30	6.9
IntelCenterVideo	22	5.1
Boards	21	4.8

YouTube	14	3.2
IntelCenterPhoto	12	2.8
DarkOwl	9	2.1
4Chan	9	2.1
RedLatticeWeb	8	1.8
Google+	6	1.4
PasteBin	3	0.7
5Chan	2	0.5
IntelCenterIncident	2	0.5
Vimeo	2	0.5
Flickr	1	0.2
IntelCenterThreat	1	0.2
Total	433	100

5. DISCUSSION

5.1 Summary of results

Digital communication, especially via social media networks, has increased the global interconnectivity of its users. Increased digital interconnectivity has also allowed terrorist organizations, like the Islamic State, to more effectively spread their ideology and propaganda across regions and countries (Shehabat & Mitew, 2018). Proprietors of social media platforms are currently working to create and implement effective countermeasures to reduce the presence of Islamic State actors and propaganda. Nevertheless, little is known about who shares the most content pertaining to Islamic State propaganda magazines (*the who*), the kinds of opinions online users have about Islamic State propaganda magazines (*the what*), and which social media platforms are the most utilized to spread Islamic State propaganda magazines (*the where*). Our study answers these questions using open source data.

Although previous research findings suggest that important Islamic State online figures utilize anonymous sharing portal social media platforms such as Telegram, Justpaste.it, Sendvid. com, and Dump.to and have a reportedly reduced presence on YouTube and Twitter (Shehabat & Mitew, 2018), our findings suggest that online users continue to share Islamic State related content on popular social media platforms and blogs. This is likely due the fact that most users are either sharing news and informational academic resources about Islamic State propaganda magazines (53%) and are neither trying to actively recruit (6%) for the Islamic State nor brag (2%) about the organization's terrorist activities as our findings suggest. Additionally, most of the examined content displayed neutral opinions of the Islamic State's propaganda magazines. Nevertheless, smaller percentages displayed clear pro-Islamic State and anti-Islamic State opinions. Thus, the studies reviewed as integral to our work, were more focused on following links to various

file-sharing sites used exclusively by the Islamic State (Macdonald et al., 2019; Shehabat & Mitew, 2018; Weirman & Alexander, 2018), whereas our study addressed both the pro- and anti-Islamic state attitudes and content generated about the magazines.

Complex online strategies have led to increased adoption of Islamic State ideology and Islamic State support which spreads similar to disease contagion (Ferrara, 2017). The Islamic State supporters on social media have been found to use propaganda and manipulation to infect more users and our findings show that these complex social media recruitment strategies may have yielded some percentage of supporters, however miniscule (Ferrara, 2017). Although we cannot confirm where most of the pro-Islamic State content originated from as most content was not originally generated, the spreading of pro-Islamic State content has been found to result in ideological changes in the content consumer in some instances (Ferrara, 2017). The same can be said of unofficial (i.e., content generated by lay individuals) and official news (i.e., content generated by well-known media/news agencies) since most users were found to spread Islamic State propaganda related news, and this news was often structured and presented in ways that amplified terrorist messages. Given that these messages often include extremist views and actions meant to spread fear—a primary function of terrorist groups and propaganda—mass media and news organizations also play an important role in disseminating messages meant to recruit and spread terrorist propaganda.

5.2 Research implications

Our data is reflective of other data collected from social media in that over half (53%) of the documents were news related. Although many of these news sources were neutral in position given that most of our data was coded as neutral (52%). News on the Islamic State is sometimes structured and presented in ways that amplify terrorist messages (Bockstette, 2008). These messages often include extremist views and actions meant to spread fear but may also include messages meant to recruit and to spread propaganda.

Additionally, our data likely show some indication of polarization meaning that many users shared content and interacted with others holding similar opinions about propaganda. Future research should explore whether groups tend to cluster together in views by conducting network analyses. Similarly, future studies should expand this line of research by comparing the study outcomes for other kinds of terrorist organizations. Further, as prior work has indicated the use of botnets to be present in one-third of terroristic content, future studies should code for the presence of botnets in their data (Macdonald et al., 2019). To do so, researchers can use meta-data about the users when available or they can manually look up indicators of botnets. For example, researchers can go to the user's account and check to see when the account was created, the type of profile picture used, as well as the number of posts available, and create a scale to code for certainty level as to whether the documents were posted by botnets. Botnets are typically new accounts set up with no profile picture or a non-descript profile picture and little prior content or user history (Agarwal, Al-khateeb, Galeano, & Goolsby, 2017).

Researchers should also look to identify and analyze hyperlinks used to disseminate Islamic State propaganda on both public websites and private ones where user accounts are needed to access content (Shehabat & Mitew, 2018). Additionally, future analyses should include propaganda videos and pictures as these are the most common form of propaganda to date (Zelin, 2015). Further, given that blog posts are commonly used to discuss Islamic

State magazines from both a pro- and anti-Islamic State standpoint, we believe an analysis of the comments on the resulting blogs is warranted.

5.3 Limitations

This study has limitations associated with lack of access to certain online platforms. Specifically, we were unable to include data from the platforms Twitter, Telegram, and picture- and video-based platforms—Snapchat, Instagram, and TikTok. Given that previous research has documented a rise in propaganda sharing on Twitter from 2013-2014, we suspect that we missed more recent relevant data in our analyses (Macdonald, Grinnell, Kinzel, & Lorenzo-Dus, 2019). Not having access to Telegram is also limiting as it is another messaging platform that is commonly used by the Islamic State (Shehabat & Mitew, 2018). Telegram has been found to play a vital role in recruitment and encouraging lone wolf attacks (Shehabat, Mitew, & Alzoubi, 2017). Finally, the Islamic State has been known to use photos/videos to encrypt textual information, thus it could be that we are missing a lot of material from Snapchat, Instagram, and TikTok (Zelin, 2015). These limitations may not allow us to adequately address the where question given that these platforms have been and most likely still are being regularly used by the Islamic State.

5.4 Conclusion

Based on our findings, more in-depth examinations of dark web content related to the spread of Islamic State propaganda should be conducted. We additionally caution academics to consider how they share their resources online. In some instances, in our data, Islamic State members used academic resources to "legally" spread their message. We suggest developing password-protected websites for hosting any content (i.e., propaganda) intended for data analysis and interpretation. Some pro-Islamic State content was also spread from news, thus amplifying the messages and agenda for a terrorist group although not with intention.

Future policy development should follow the model set by the Global Internet Forum to Counter Terrorism (GIFCT) in which multiple well-known social media companies united to block Islamic State posts across platforms using an automated system. These automated systems can use behavioral indications to identify and block terrorist content across platforms. GIFCT then shares the data with other platforms so that similar content can be blocked across sites. However, de-platforming often leads users to utilize less common, more secure forms of social media (Shehabat & Mitew, 2018). Therefore, in addition to de-platforming, Lee (2019) argues for the use of more informal approaches such as counter messaging through grassroot organizations. Greater attention also needs to be paid to the use of crowdsourcing funding for Islamic State initiatives (Lee, 2019). Keatinge and Keen (2019) call for awareness of this issue and collaboration with law enforcement and banks among other financial service providers to take action at preventing and removing such content online. We agree with previous researchers that in addition to addressing the symptoms (i.e., by removing terrorism content) that we must also address the cause (i.e., by targeting terrorists' attitudes, beliefs, and actions) through counter messaging strategies (Conway & Macdonald, 2019).

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