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Social Media and Large Carnivores: Sharing Biased News on Attacks on Humans

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The Internet and social media have profoundly changed the way the public receives and transmits news. The ability of the web to quickly disperse information both geographically and temporally allows social media to reach a much wider audience compared to traditional mass media. A powerful role is played by sharing, as millions of people routinely share news on social media platforms, influencing each other by transmitting their mood and feelings to others through emotional contagion. Thus, social media has become crucial in driving public perception and opinion. Humans have an instinctive fear of large carnivores, but such a negative attitude may be amplified by news media presentations and their diffusion on social media. Here, we investigated how reports of predator attacks on humans published in online newspapers spread on social media. By means of multi-model inference, we explored the contribution of four factors in driving the number of total shares (NTS) of news reports on social media: the graphic/sensationalistic content, the presence of images, the species, as well as the newspaper coverage. According to our results, the information delivered by social media is highly biased toward a graphic/sensationalistic view of predators. Thus, such negative coverage might lead to an unjustified and amplified fear in the public with consequent lower tolerance toward predators and decrease in the support for conservation plans. However, because social media represents a powerful communication tool, its role might be reversed to positive if used appropriately. Thus, constant engagement of scientists on social media would be needed to both disseminate more accurate information on large carnivores and stem the tide of misinformation before its widespread diffusion, a crucial step for effective predator conservation.

Keywords: emotional contagion, human-wildlife conflict, media reports, attacks on humans, Twitter, Facebook, sensationalism

"If searching for news was the most important development of the last decade, sharing news may be among the most important of the next"

(Olmstead et al., 2011).

INTRODUCTION

The Internet and social media (SM) such as Facebook and Twitter have profoundly changed the way the public receives and transmits news. The ability of the web to quickly disperse information both geographically and temporally allows SM to reach a much wider audience compared to traditional mass media (Papworth et al., 2015), and even very localized events can be broadcast worldwide. Moreover, the effect of making news available anytime and anywhere has been strengthened by the ascent of smartphones and mobile connectivity (Purcell et al., 2010; Couldry, 2012), and the omnipresent virtual world is emerging as a prevalent and easy-access source of news reports (Olmstead et al., 2011).

By becoming involved in the process of spreading news, the general public has been converted from passive reader to active producer (Nov et al., 2010; Szabo and Huberman, 2010; Rutsaert et al., 2013). People can now actively personalize, filter, and react to reports, turning the news into a social experience (Purcell et al., 2010). As a consequence, society is undergoing a real revolution based on this novel communication landscape, in which media companies, firms, and many other organizations have embraced SM to keep close ties with their audience (Kietzmann et al., 2011; Hermida et al., 2012; Osatuyi, 2013). Today, most newspapers not only own a website, but also a page on one or more SM platforms, where they can publish and spread their news reports extremely fast (Farhi, 2009; Hermida et al., 2012; Ju et al., 2014).

In this context, a powerful role is played by internet sharing. Indeed, millions of people routinely share news on SM platforms (Purcell et al., 2010), which has become crucial in supporting news production and diffusion (Lee and Ma, 2012), but also in driving public opinion (Olmstead et al., 2011). When sharing content, people can influence each other by transmitting their mood and feelings to others through emotional contagion (Bösch et al., 2018) and, in this sense, SM has the potential power to generate a massive-scale contagion (Kramer et al., 2014). An et al. (2011) highlighted the power of social recommendation, which significantly increases the audience of media sources. Furthermore, it has been shown that, when newspaper content is characterized by awe, anxiety, and anger, it is positively linked to online virality (Berger and Milkman, 2012) and that emotionally charged tweets are retweeted more quickly and more often than neutral ones (Stieglitz and Dang-Xuan, 2013).

Human-large carnivore conflict is the major barrier to the conservation of these species and attacks on humans represent the most extreme form of such conflict. It is well-recognized that human acceptance of large carnivores plays a crucial role in the fate of these species (Ripple et al., 2014) and acceptance highly depends on the real or perceived risk that these species pose to human safety (Decker et al., 2002; Knopff et al., 2016). Thus, violent and sensationalistic content (so-called graphic content), may increase predator risk perception leaving the public gripped by unwarranted fear (Altheide, 1997; Zillmann et al., 2004; Schafer, 2011; Bornatowski et al., 2019), thus exacerbating human conflict with these species.

In modern times, predator attacks on humans are rare events but they are often overplayed by the media (Penteriani et al., 2016). A single attack may be reported by dozens of different newspapers, causing the public to be inundated with such information and, consequently, to overestimate the frequency of and increase concerns for such statistically low-risk events (Sunstein, 2002). People form their perception of risk by relying on the information conveyed by the media rather than on direct personal experience, and media reports can lead to a social amplification or attenuation of risk according to the way in which the events are framed (Kasperson and Kasperson, 1996; Schafer, 2011). For example, almost half of the media reports describing predator attacks on humans published in international newspapers include graphic content, which may lead to amplifying the fear of predators in the public (Bombieri et al., 2018). Because of SM, such graphic reports now have the potential to be quickly shared and spread by readers all around the world, increasing the negative impact of graphic information through emotional contagion (Kramer et al., 2014; Ferrara and Yang, 2015). In addition, spreading and amplifying negative messages about predators through SM could eventually cause the failure of coexistence efforts implemented by conservation policies (Bornatowski et al., 2019). Additionally, according to Papworth et al. (2015), the presence of illustrations in online news reports significantly increases their likelihood of being shared or liked on Facebook and Twitter, as were reports focused on charismatic mammals. Wu et al. (2018) also found that a larger number of pictures was associated with a higher readership count.

Here, we investigated how reports on predator attacks on humans published in online newspapers spread on SM. Specifically, we hypothesized that: (1) reports containing graphic information are more frequently shared on SM than non-graphic reports; (2) reports containing images are more frequently shared than reports with no images; (3) the number of total shares (NTS, i.e., number of times a report was shared on SM) varies according to the species considered; and (4) a wider newspaper audience corresponds to a higher NTS on SM.

METHODS

Here we updated the dataset used by Bombieri et al. (2018 $n = 1{,}584$ media reports published between January 2005 and July 2016), by searching for media reports on large carnivore attacks on humans published online from August 2016 to December 2017 and by recording new variables. The final database contained 1,774 reports on large carnivore attacks on humans.

The reports concerned attacks by 10 terrestrial predator species, i.e., gray wolf (*Canis lupus* Linnaeus, 1758), coyote (*C. latrans* Say, 1823), cougar [*Puma concolor* (Linnaeus, 1771)], lion

Abbreviations: SM, Social Media; NTS, Number of Total Shares.

(*Panthera leo* Linnaeus, 1758), tiger (*P. tigris* Linnaeus, 1758), leopard (*P. pardus* Linnaeus, 1758), both Eurasian and North American brown bear/grizzly (*Ursus arctos arctos* Linnaeus, 1758 and *U. a. horribilis* Ord, 1815), black bear (*U. americanus* Pallas, 1780) polar bear (*U. maritimus* Phipps, 1774), and sloth bear (*Melursus ursinus* Shaw, 1791), as well as 3 generic aquatic predator taxa, i.e., "sharks," "crocodiles" and "alligators." In fact, for the latter groups, the exact species was not mentioned in the majority of newspapers. However, in the case of alligators, thanks to the information on the geographical area in which the attacks occurred, we were able to identify the species, i.e., the American alligator [*Alligator mississippiensis* (Daudin, 1801)] as it is the only one living in that region.

The report search was conducted on Google by using a combination of the 13 different species or taxa and the word "attack" followed by one of the years between 2005 and 2017 (e.g., "lion attack 2005" or "shark attack 2017"), determined a total of 169 keyword combinations (i.e., 10 species/taxa x 13 years). To simulate people's news searches on the internet, we collected attack news on the first five pages of Google (when no more articles on attacks were shown) or up to the 10th Google page if news reports about attacks on humans were still present on the fifth page.

For each report we recorded the NTS on social media (e.g., Facebook, Twitter, G+, Reddit, Pinterest) as shown on the report webpage. This information was collected from January to March 2018. We considered this approach to be reliable given that, on average, the NTS of reports on SM reach a plateau after 30 days from their online publication (Papworth et al., 2015). When the NTS on social media exceeded 999, the reports' webpage did not show the exact number, but instead reported a range (e.g., 1,000–1,499 or 1,500–2,499). In such cases, we recorded the lowest number shown. Furthermore, we recorded the presence or absence of images of the predator and/or people involved in the attack.

We used the category "report content" with two possible levels: (a) "non-graphic," if no graphic/sensationalistic elements were present in the title, sub-heading and/or images, or (b) "graphic," if the report contained at least one graphic/sensationalistic element. Following Bombieri et al. (2018), we considered as graphic those titles and subtitles including words such as "horror," "horrific," "nightmare," "man-eating," "badly," "scary," "terrifying," "terrorizes," "blood," "bloody," "gruesome," "eaten," and "jaws," as well as explicit mention of the injured part of the body (e.g., "*'He's eating my brains', recalls bear attack survivor*"). However, just specific mention of bodily injuries, e.g., "*Man sustains leg injuries after alligator attack*," was not considered graphic. We considered images, i.e., drawings, pictures or video, as being graphic if they (1) explicitly showed the predator's teeth and claws, (2) showed the attack, and/or (3) included details of injured body parts or people clearly displaying their injuries, as well as deceased individuals. Images of the animal in normal postures, such as a walking wolf, a sleeping leopard, a sunbathing alligator, a swimming shark, or a mother bear with cubs, were regarded as non-graphic. Some examples of graphic and non-graphic titles, subtitles, and images are presented in **Figure 1**.

We also collected information about the newspapers in which the reports were published, i.e., (1) name of the journal, (2) geographical area, and (3) type of distribution/audience, i.e., local, national or worldwide. We classified newspapers as local, national, or worldwide on the basis of the World Press Trends 2016 Report (Milosevic, 2016) and cross-checking this on the newspapers' webpage. On the basis of the distribution range of the predator species under study, we classified newspaper geographical areas (i.e., publication area of the newspaper), defining the following regions: Europe, Asia, Africa, North America (USA and Canada), Central/South America, Oceania; the Arctic (i.e., Greenland and Svalbard) and Russia were merged and considered as a single geographical area named "Russia + Arctic." Some reports were published in newspapers (e.g., LiveLeak, The Conversation, USA Today) which did not belong to a specific area and, therefore, we have included them in an additional category called "undefined." We use the same defined areas to classify large carnivore attack distribution, i.e., where the attack occurred (**Figure 2**).

Data Analysis

To determine how media reports of predator attacks on humans spread on SM, a statistical hypothesis testing framework was adopted. The null hypothesis was that there was no association between NTS and: (*i*) the "report content" (i.e., graphic or non-graphic), (*ii*) the presence or absence of images, (*iii*) the species considered, and (*iv*) the newspaper coverage (i.e., local, national or worldwide). We modeled the NTS by specifying a Poisson error distribution and a log link function. Since all initial models were highly over-dispersed (Over-dispersion statistics $> 5{,}000$; Zuur et al., 2009), we set a negative binomial error distribution model and included newspaper area as a random effect.

Because the presence or absence of images and report content were highly and positively correlated ($\Pr(>|z|) = 2.84\ e^{-8}$) as were species and report content (Logistic GLM, Type II Wald Chi Squared Test: Species $\chi^2_{12} = 31.54$, $p = 0.002$; Cox and Snell's pseudo $R^2 = 0.079$), we built two different sets of negative binomial GLMMs. In the first set of models, we tested the effect of report content as well as that of newspaper type by including NTS as the response variable, the report content, newspaper type and their interaction as fixed factors, and newspaper area as a random factor. In the second set of models, we assessed whether the NTS varied with the presence or absence of images, among the species considered ($n = 13$) and newspaper type. Again, we included NTS as the response variable, presence or absence of images, species and newspaper type as fixed factors, while newspaper area was set as a random factor. The best competing model or set of models was chosen based on corrected Akaike criterion for finite sample size (AICc; Hurvich and Tsai, 1989). We considered as equally competitive those models with ΔAICc < 2 (Burnham and Anderson, 2002). Values of weighted AICc, indicating the probability that the model selected was the best among the competing candidates, were calculated as well. All analyses were performed in R 3.4.3 (R Core Team, 2017) using the package "glmmAMDB" (Fournier et al., 2012; Skaug et al., 2013) for model construction and the package "MuMIn" (Bartón, 2013) for model selection.

FIGURE 1 | Some examples of graphic vs. non-graphic titles or subtitles, as well as graphic vs. non-graphic images of predators/people involved in attacks, which were presented in the collected media reports. [Photo credits: **Supplemental Table 2**].

RESULTS

Out of the 1,774 collected reports, 429 displayed the NTS on their webpage. Such reports were published in 155 different online newspapers and the majority of them were published in national newspapers (49%, $n = 210$), followed by local (29.8%, $n = 128$) and worldwide newspapers (21.2%, $n = 91$).

Most media reports were published in North American newspapers (59%, $n = 253$), followed by European (19.6%, $n = 84$) and Asian (14.7%, $n = 63$) ones. A small portion came from African (2.6%, $n = 11$) and "Russian + Arctic" newspapers (2.1%, $n = 9$). Only one report was published in an Oceanic newspaper whereas no reports were published in Central/South America (**Figure 2B**). For 1.9% of the reports ($n = 8$), geographical area was categorized as undefined. The scenario differs slightly when considering the geographical area in which the attacks occurred (**Figure 2B**), with European newspapers only reporting cases that took place in other parts of the world.

The reports mainly focused on brown bears (16.1 %, $n = 69$) and leopards (14.9%, $n = 64$), followed by black bears (12.4%, $n = 53$), alligators (10.7%, $n = 46$), crocodiles (10.5%, $n = 45$), sharks (8.2%, $n = 35$), coyotes (7.2%, $n = 31$), cougars (5.8 %, $n = 25$), polar bears (4.2%, $n = 18$), lions (3.7%, $n = 16$), wolves (2.8%, $n = 12$), tigers (1.9%, $n = 8$), and sloth bears (1.6%, $n = 7$). Nearly half of the reports included graphic elements (43.1%, $n = 171$). Images were present in 75.3% ($n = 323$) of the reports.

In the first set of competing models, the model with the lowest AICc included only the variable report content (**Table 1**). Specifically, graphic reports were shared significantly more often on SM than non-graphic reports (**Figure 3A**), whereas newspaper type had no effect on the NTS (**Figure 3B**). However, national and worldwide newspaper reports were more shared if they included graphic content, while there was no difference in NTS between graphic and non-graphic reports at a local scale (**Figure 3C**).

In the second set of competing models, the model with the lowest AICc included the variables presence or absence of images and species (**Table 2**), i.e., the former variable played a major role in explaining the NTS, with reports containing images being shared more frequently than reports without them. In this model, species also had an important role in determining the NTS (**Figure 4B**, **Table 2**). Specifically, lion, shark, and alligator were the most frequently shared species (**Figure 4B**). For most of the species, graphic reports were more shared than non-graphic reports, but for other species, such as shark, black bear and alligator, the spread of graphic and non-graphic reports did not differ (**Figure 4C**).

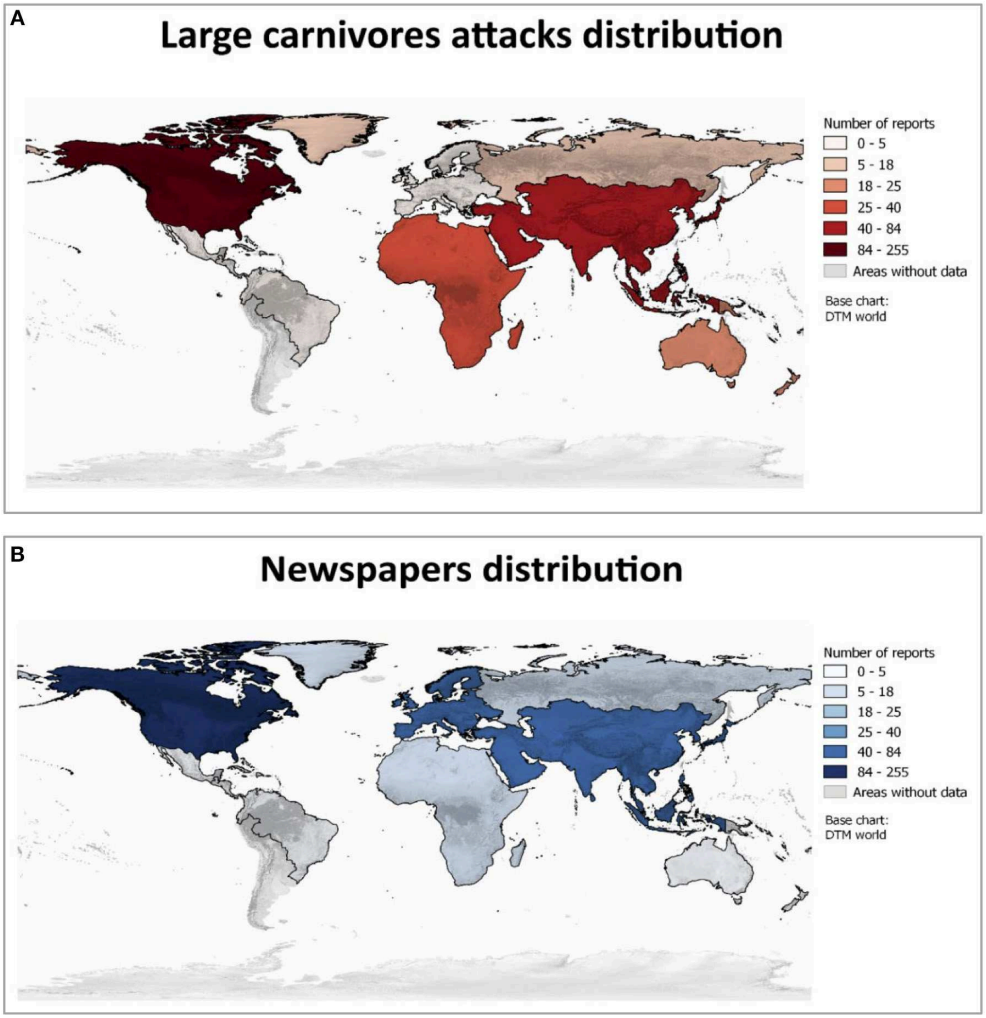

FIGURE 2 | Worldwide* overview of the distribution of the collected reports showing the geographical areas of: **(A)** large carnivore attacks on humans; and **(B)** the newspapers in which the reports were published. This information is shown for the subset of reports for which information on the number of shares on social media was available ($n = 429$). In Europe we can observe a difference between the two maps, which can be explained by the fact that reports published in European newspapers only described events that occurred in other parts of the world. Because the online research of reports describing large carnivore attacks on humans was conducted in the English language, the area of North America is overrepresented. *We had no report for Antarctica and for the southern part of South America (i.e., Bolivia, Paraguay, Uruguay, Chile, and Argentine) as well as for Iceland.

DISCUSSION

Our findings confirm that reports containing graphic elements were shared more frequently on SM than non-graphic ones (**Figure 3A**). Indeed, NTS for these sensationalistic reports is higher than for reports presenting facts more objectively, i.e., without adding sensationalistic components. Moreover, our results suggest that, when one or more images were present, reports were more frequently shared (**Figure 4A**). Thus, images are crucial in capturing the attention of readers, motivating them to share the news on SM.

We also found differences in NTS between species, which could reflect cultural and social factors. Specifically, lion, shark, and alligator were the most frequently shared species (**Figure 4B**), although shark and alligator did not show marked difference between the graphic and non-graphic diffusion of news (**Figure 4C**). Our findings show that reports about sharks and alligators seem to have great resonance regardless of the way in which the news was framed. This might be explained by a lower empathy for animal groups that are phylogenetically distant to humans (Ingham et al., 2015) and inhabit unfamiliar human environments (Bornatowski et al., 2019), where there is a deep-rooted fear of these species (Campbell and Smith, 1993; Giblett, 2009). Conversely, a strong difference between graphic and non-graphic reports was shown for lion attacks, for which graphic reports were significantly more shared (**Figure 4C**). Moreover, the lion was the species with the highest NTS. This may be

TABLE 1 | Comparison of the competing models built to analyze the influence of report content (i.e., graphic or non-graphic), and newspaper type (i.e., local, national or worldwide) on the diffusion of the reports on social media.

Competing models		Estimated β ± s.e.	p-value	AICc	ΔAICc	Weighted AICc
Report content				4948.89	0.00	0.53
	Intercept	6.82 ± 0.56				
	Report content[a]	−0.76 ± 0.25	0.002			
Report content * type				4949.62	0.73	0.37
	Intercept	7.56 ± 0.69				
	Report content[a] *type[b]	1.42 ± 0.60	0.027			
	Report content[a] *type[c]	1.52 ± 0.72	0.036			
Report content + type				4952.56	3.66	0.09
Null model				4956.36	7.46	0.02
Type				4958.88	9.99	0.01

[a] *Reference category: graphic content.*
[b] *Level: national.*
[c] *Level: worldwide.*
Reports regarded attacks on humans by 13 different large carnivores around the world. Here, we considered report content, newspaper type, and their interaction as predictive variables. Competing model values of AICc, ΔAICc, and Weighted AICc are shown from the best (lowest AICc value) to the worse model (highest AICc value).

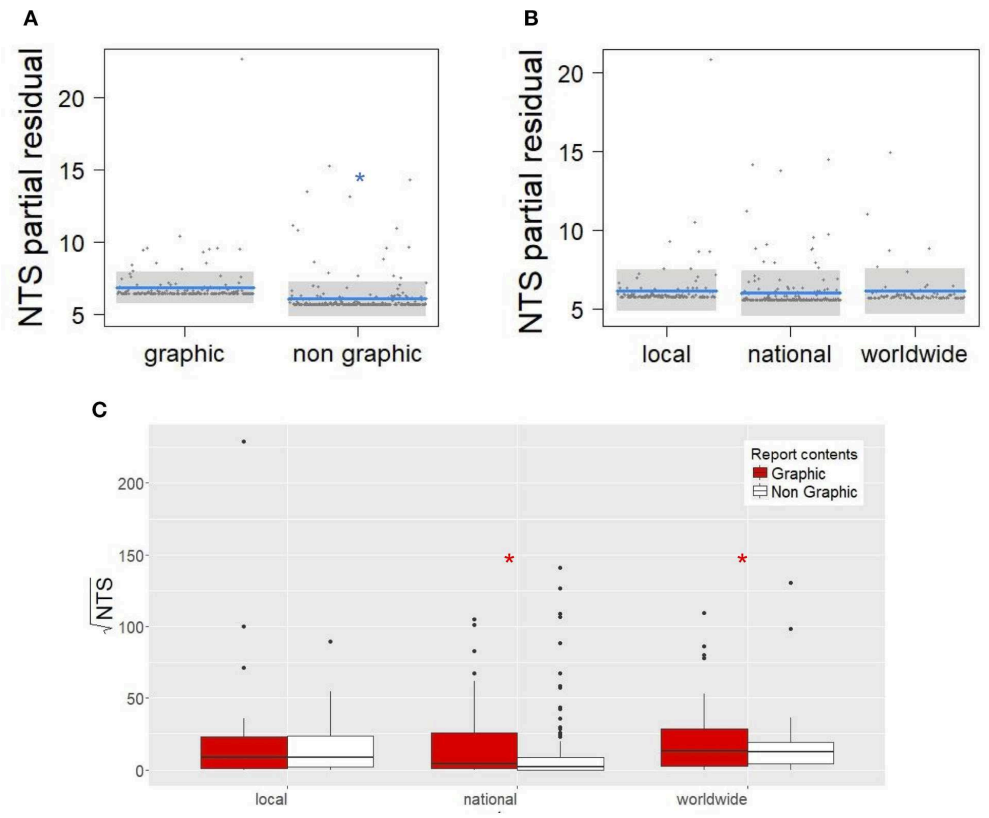

FIGURE 3 | Comparison between: **(A)** graphic and non-graphic reports; and **(B)** type of newspaper over the number of total shares (NTS) partial residuals. Graphic reports were significantly more shared than non-graphic ones ($p = 0.002$), whereas there were no significant differences between reports published in local, national or worldwide newspapers (local vs. national: $p = 0.52$; local vs. worldwide: $p = 0.76$; national vs. worldwide: $p = 0.99$). The boxplots **(C)** show a comparison between graphic (red) and non-graphic (white) reports over the square rooted NTS for each type of distribution/audience. *Significant differences (exact estimated parameters and *p*-values are in **Table 1**).

due to not only the iconic value of this species, but also a possible artifact due to the small sample size of reports for lions ($n = 16$).

Interestingly, the type of newspaper did not affect the NTS. Indeed, this variable was always excluded in the first set of competitive models, and it had low importance in the second

TABLE 2 | Comparison of the competing models built to analyze diffusion of the reports on social media regarding attacks on humans by 13 different large carnivores around the world.

Competing Models	Estimated β ± s.e.	*p*-value	AICc	ΔAICc	Weighted AICc
Images + species			4918.74	0.00	0.52
Intercept	5.68 ± 0.36				
Image presence	2.28 ± 0.32	$1.6\ e^{-12}$			
Black bear	−1.02 ± 0.50	0.04073			
Cougar	−1.67 ± 0.60	0.00503			
Coyote	−1.52 ± 0.58	0.00931			
Crocodile	−1.74 ± 0.49	0.00039			
Brown bear	−0.91 ± 0.49	0.06073			
Leopard	−2.39 ± 0.49	$9.4\ e^{-07}$			
Lion	0.11 ± 0.71	0.87394			
Polar bear	−2.26 ± 0.66	0.00056			
Shark	−0.25 ± 0.57	0.66073			
Sloth bear	−1.04 ± 0.97	0.28395			
Tiger	−1.19 ± 0.92	0.19834			
Wolf	−2.02 ± 0.76	0.00778			
Images + species + type			4918.51	0.17	0.48
Images			4931.39	13.05	0.00
Images + type			4933.46	15.12	0.00
Species			4947.34	29.00	0.00
Species + type			4950.85	32.51	0.00
Null model			4955.96	37.62	0.00
Type			4958.48	40.14	0.00

Here, we considered presence or absence of images, species and newspaper type as predictive variables. Competing models values of AICc, ΔAICc and Weighted AICc are shown from the best (lowest AICc value) to the worse model (highest AICc value).

set (**Table 2**), suggesting that newspaper visibility does not necessarily influence the spread of news on SM. Instead, even those events that are only covered by local newspapers can spread widely on SM, indicating that, regardless of the source, SM has the power to disseminate information at a global scale. Even though the NTS was roughly the same at the three scales considered (**Figure 3B**), at national and worldwide scales it was significantly higher for graphic reports (**Figure 3C**). The fact that local reports are more commonly read by local readers (Takhteyev et al., 2012), might suggest that living in proximity of the attack occurrence will more likely induce a reader to share the attack news on SM, regardless of its graphic or non-graphic content. Conversely, at a broader scale (i.e., national or worldwide), only a news report that contains explicit graphic content is likely to upset a distant reader, thus inducing them to share it on SM.

We conducted the online reports search in English, since this is the most common spoken language worldwide. However, this might lead to a bias in NTS, because in geographical areas where English is not widely spoken, English language articles might receive less attention (lower NTS). Future studies could extend this approach and include media reports published in other widely spoken languages, such as Spanish or Chinese. It is also worth noting that our study design did not allow distinguishing between the underlying motivations of each individual share event on SM. Indeed, we had no access to the content of individual posts on SM but only to the number of total shares (NTS) available in the newspaper's webpage. Therefore, whereas we treated all SM sharing about a news article as being in agreement with the article's message, some readers may also share news with the intent of criticizing its content as being inaccurate or sensationalistic.

The Internet and SM are emerging as influential news reference sources, where people inform themselves, learn, and form their perception of the world, becoming major drivers in shaping public opinion. Graphic reports represent a considerable percentage (43.1%) of the total of shared reports, and they were also the most frequently shared reports on SM, suggesting that people are potentially being flooded by content that heightens their anxieties and fears. Furthermore, the use of violent and disturbing texts and/or images increases the likelihood that an event remains imprinted in our memory (Harrell, 2000). This, in turn, negatively conditions our perception of risk (Myers, 2004), especially if accompanied by visual communications (Harrell, 2000). This bias in exposure to graphic and sensationalistic content can generate unwarranted fear and prejudice against predators, increasing human-large carnivore conflicts and, consequently, lowering public support for predator conservation policies.

Humans have an instinctive fear of large carnivores (Kruuk, 2002), and such a negative attitude may be reinforced by news media presentations (Bombieri et al., 2018) and their spread on SM. Even if attacks provoked by large carnivores have been rising in the last few decades, they still remain rare events (Penteriani et al., 2016) and the probability of having an encounter is very low, making the concern they raise disproportionate.

According to our results, the information that is spread on SM is biased toward a graphic and sensationalistic view of predators. Indeed, SM is driving social amplification of the perceived risk and lower public tolerance for predators, thus potentially affecting large carnivore conservation and management efforts. This is consistent with the large body of experimental research showing that media attention is negatively skewed toward negative events (e.g., Trussler and Soroka, 2014), even despite survey evidence which suggests that the general public does not enjoy negatively framed news (e.g., West, 2001). The psychology of impression formation has shown that individuals seem to have a propensity to weigh negative information more heavily than positive information (e.g., Vonk, 1996), possibly for evolutionarily processes, for which it might be advantageous to prioritize negative over positive information (Soroka, 2014). Since humans tend to be mildly optimistic, negative information is further away from their expectations than is positive information. In turn, this makes negative information more aberrant and consequently more useful and interesting (e.g., Skowronski and Carlston, 1989), and thus media content may simply reflect this tendency.

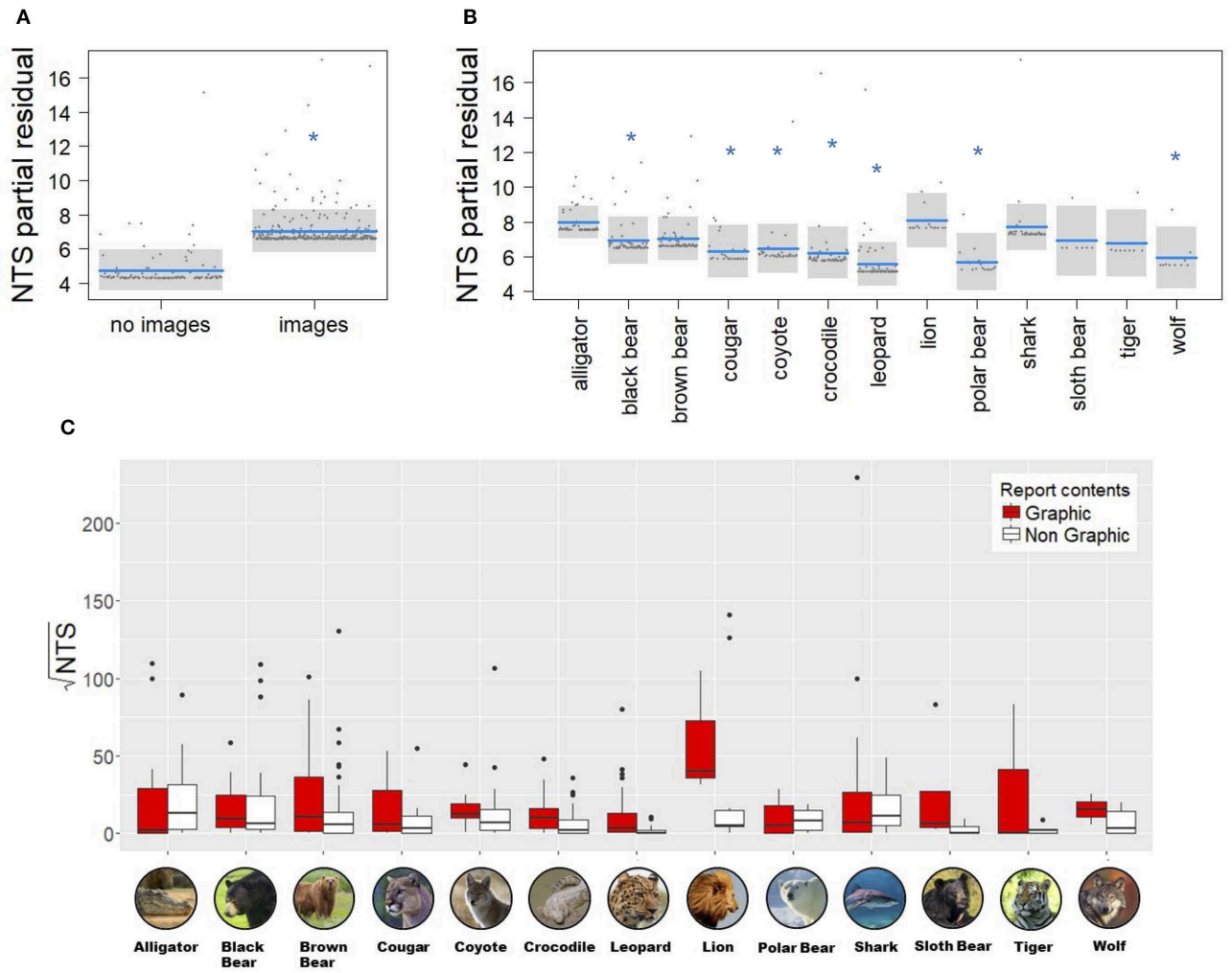

FIGURE 4 | Comparison between: **(A)** presence and absence of images in media reports; and **(B)** species over the number of total shares (NTS) partial residuals. Reports that included one or more images were more frequently shared than reports without images. There were also differences between species over the NTS. Specifically, reports regarding alligator, brown bear, lion, shark, sloth bear and tiger were more shared on social media. The boxplots in **(C)** show comparisons between graphic (red) and non-graphic (white) reports over the square rooted NTS for each species. A strong difference between graphic and non-graphic reports is observed for lions, for which graphic reports were significantly more shared, while for sharks and alligators there were no marked differences. *Significant differences (exact estimated parameters and *p*-values are in **Table 2**). [Photo credits: **Supplementary Table 2**].

However, because SM represents a powerful communication tool, its role may change if used appropriately. Constant engagement of scientists on SM may contribute to both disseminate more accurate information on large carnivores and stem the tide of misinformation before its widespread diffusion, a crucial step for effective predator conservation. As a consequence, potential strategies to improve human coexistence with predators need to include the use of SM to increase public support for conservation actions. Precisely because of its great ability to reach the public, SM offers opportunities for easy exchange and connectivity between scientists and the public (Papworth et al., 2015), not just for the fast circulation of messages, but also to grab the attention of people that rely on SM to keep themselves informed of recent events. Papworth et al. (2015) stated that the news media is the fourth sector in the conservation process, together with scientists, policy makers, and the public. By highlighting the tendency of SM to filter and spread news reports that dramatize attack events by using graphic content, we argue that, among all the media and communication tools, SM is probably the most powerful and, as such, it should be proactively employed by scientists and conservationists as their main tool to share and spread accurate information to the public at large.

DATA AVAILABILITY STATEMENT

All datasets generated for this study are included in the **Supplementary Table 1**.

ETHICS STATEMENT

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

VN and EC initiated and conceived the study. VN, VP, and GB collected online reports. VN implemented and prepared the final dataset. VN and EC performed the statistical analysis and prepared the figures with the help of SM. VN wrote the manuscript with the help of GB, VP, CC, EC, and SM. EC, GB, SS, CC, SM, PP, and VP commented on the manuscript draft.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fevo.2020.00071/full#supplementary-material

Supplementary Table 1 | Dataset used for the analyses. The dataset includes information and the total number of shares (NTS) of the news reports collected from international newspapers between 2005 and 2017.

Supplementary Table 2 | License information regarding the photos used in **Figures 1**, **4**. Credits, types of license and other details are specified for each of the photos used.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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