The Greta Effect:
Visualising Climate Protest in UK Media and the Getty Images Collections

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Abstract

Media actors, broadly conceived, act as powerful agents shaping not only what we think about, but also how we think about it. Whilst research at the site of news content (e.g. newspaper articles) has proliferated, there is little understanding about the site of news production (i.e. the role that powerful actors play in shaping news content). Here, both news content (via newspaper articles) and news production (via image banks) are examined together to seek to understand how climate protest has been visually represented.

This study focuses on the period between 2019 and 2020, a time of significant growth for climate protest through the expansion of movements including Extinction Rebellion and Fridays For Future. Historically, protest is often represented in the media through the 'protest paradigm', with protestors depicted as socially deviant. This study sought to examine if this paradigm held true for these most recent protests.

Climate protest imagery was collected from a globally-dominant image collection, Getty Images; and from the digital archives of five major UK newspapers. Secondary analysis was also undertaken of a longitudinal visual media datasource featuring three of the same UK newspapers from 2001-2009. The study shows that in 2001-2009, climate protest was typically visualised in a way which obscured the human face of protest. In contrast, in 2019-20, protesters – and particularly school strikers – were depicted in an individualised, powerful, and hopeful way. The dominant face of climate protest in 2019-20 is visually represented in the media as young and female. We conclude that the visual discourse of climate protest has shifted away from the protest paradigm to instead depict climate change as an issue of intergenerational equity.

Keywords

Protest, climate change, visual, imagery, media, journalism

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1. Introduction

Discourses in the media form an important part of how people construct meaning about an issue (Gamson and Modigliani, 1989). In the case of climate change, the media help to make sense of the complexities of climate change adaptation and mitigation and their governance; shaping not only what people think about, but also how they think about it (Schäfer and Schlichting, 2014). This is a dynamic interaction: media and audiences play an active role in negotiating representations of climate change. However, media organisations hold particular power in acting to emphasise or marginalise potential portrayals of climate change, for example through concentration of media ownership, newsroom structures, and journalistic norms (Boykoff and Boykoff, 2004; Carvalho and Burgess, 2005; O'Neill, 2013). Mediated interactions form a major constituent in the cultural politics of climate change (Boykoff, 2009).

Visual representations in the media play an understudied but influential role in shaping construction of meaning. For example, Philo, (1990) found people were skilful in constructing dominant news media tropes and content on a topical issue (the 1984-5 UK miners' strike) when given just a handful of typical news media photographs as a starting point. In empirical work examining audience perceptions of climate change imagery, multiple studies have found climate images can shape feelings of saliency (importance of the issue) as well as efficacy (being able to do something about it) (Metag et al., 2016; O'Neill et al., 2013; O'Neill and Nicholson-Cole, 2009). Climate images shape emotional responses to the issue, and even policy preferences (Leiserowitz, 2006). In an increasingly digital landscape, it is crucial to understand the way images are being used to represent climate change issues (Wang et al., 2018). This paper examines a particular type of climate imagery, that of climate protests.

1.1 The growth of climate protest

2019 was an important year for climate change protest, driven by the rise of two international social movements: Extinction Rebellion (XR) and Fridays For Future (FFF).

Fridays For Future grew from the global media attention Greta Thunberg received from her solo protest outside the Swedish parliament in August 2018. This developed into a global youth movement of school strikes, with protesters attending protests rather than school on Fridays. Greta Thunberg was named Time Magazine's Person of the Year, and was given the stage to speak to world leaders at a UN climate conference (BBC, 2020). Significant global events organised by FFF include the Global Climate Strike for Future (15 Mar 2019), which saw more than a million people demonstrating worldwide (Carrington, 2019). The Global Week for Future (20-27 Sept 2019) was likely even larger in terms of participation (Laville and Watts, 2019). In terms of demographics, a global survey of strikers at the Global Climate Strike for Future indicated that strikers were predominantly young, and that more women and girls took part than did men and boys (Wahlström et al., 2019). The movement has been described as 'unprecedented' in bringing large numbers of young people, including children, into the climate movement (Fisher, 2019: 430). This is significant, given social movement organisations have been found to be adult-dominated and to stymie youth leadership (Elliott and Earl, 2018). At the heart of the FFF movement is the issue of intergenerational justice, which emphasises the rights of younger (and future) generations, and the obligations to act on climate change of older generations (Maier, 2019).

Extinction Rebellion (XR) began with fifteen people in October 2018, and has grown to a decentralised global movement (Extinction Rebellion, 2019). The XR movement is guided by three demands of government: tell the truth and declare a climate emergency; act now, reducing greenhouse gas emissions to net zero by 2025; and create and be led by a Citizens' Assembly on climate and ecological justice (Extinction Rebellion, 2019). XR received extensive international publicity, in part due to 'radically different' tactics to those of previous environmental movements

(Gunningham, 2019: 198). Based on the American civil rights movement of the 1960s, the group used not just occasional civil disobedience but continual economic and civil disruption over a significant period of time (Gunningham, 2019). In London this involved days-long shutting down of major road bridges, causing significant disruption. This style of demonstration led to the arrest of more than a thousand protesters (Extinction Rebellion, 2019). The growth of the 'climate emergency' concept has seen the UK government declaring a climate emergency (BBC, 2019a) as well as more than 1,850 jurisdictions in 33 countries (Climate Emergency Declaration, 2021).

1.2 Picturing climate change protest

The power of image collections in shaping visual media

A growing body of scholarship builds on Foucault's concept of discourse to understand images not as neutral, static representations of the world, but rather as promoting particular ideologies and reproducing dominant social structures and processes (see Rose, 2016). Photographs are no longer understood as purely witnessing reality (Born, 2019), but are constructed objects (Rose, 2016; Sontag, 1977). If communication is understood conceptually as an ongoing loop or cycle, one can envisage three interconnected sites at which meaning-making occurs through visual imagery: production, content, and audience (Rose, 2016). In terms of climate change, more scholarly work has focused on the site of visual content; and to a lesser extent, on audience engagement with imagery. Very little research has addressed the site of visual production (O'Neill and Smith, 2014).

Image collections, also known as photo/news agencies or image banks, hold considerable power at the site of production. These image collection organisations supply stock images and editorial photography for use in advertising, media and marketing industries. Users can browse for, and then purchase, image use rights via easily-navigated digital interfaces. Machin (2004) found from interviews with photographers that generic images are most valuable, with companies focused on maximising the variety of contexts an image can be inserted into. It has been hypothesised that the prominence of image collections for editorial imagery has resulted in the narrowing the potential visual narratives about climate change in both marketing (Hansen and Machin, 2008) and editorial (O'Neill et al., 2015) coverage.

Getty Images is the largest supplier of stock images in the world (Hansen and Machin, 2008), operating in almost every country in the world and adding between 8-10 million assets each quarter (Dr Rebecca Swift, Getty images, pers. comm.). The company is most widely known for its 'Creative' or stock images for marketing or corporate purposes, but is also successful in the marketing of 'Editorial' images (used for media reporting), and shares this Editorial market with Agence France-Press (AFP), Associated Press (AP), and Reuters (Dr Rebecca Swift, Getty Images, pers. comm.). Besides Hansen and Machin's earlier work, there has been no investigation of contemporary representations of climate change, or the power of image collections in influencing visual media coverage.

Visual framing

One way in which researchers have investigated media representations of climate change is through the concept of framing. Framing theory states that it is impossible to represent the entirety of an issue: certain themes or aspects of reality will be emphasised, whilst others will be marginalised (Entman, 1993). For example, both legacy and social media in the US and UK commonly used the 'settled science' frame, but very rarely used the 'health' frame, when covering the IPCC Fifth Assessment Report (O'Neill et al., 2015). There appears to be a dominant visual media discourse of climate change, at least in WEIRD (Western, Educated, Industrialised, Rich and Democratic) nations examined to date, which has been relatively stable across the past two decades (O'Neill, 2019). In WEIRD nations at least, these visuals appear to be read and understood in similar ways (O'Neill et al.

2013; Metag et al. 2016). This limited visual scope restricts our imagination and engagement with climate change (Yusoff and Gabrys, 2011).

1.3 Visualising climate protest

Social movement researchers find that media organisations and social movements are competing for control over media narratives of the movement (Hutchins and Lester, 2006). The media is dominated by powerful interests and reinforces existing power structures, thus representing protest from the perspective of powerful interests (von Zabern and Tulloch, 2021). As a result, the more a protest challenges the status quo, the more negatively the protesters are likely to be treated by news media. This phenomenon is known as the 'Protest Paradigm' (Chan and Lee, 1984). Generally, media coverage depicts protesters as deviant and antisocial, and focuses on the clashing of protesters and police (Chan and Lee, 1984; McCarthy et al., 1996). XR and FFF are both social movements which challenge existing power structures, evidenced, for example, by the slogan 'system change, not climate change' widely used by school strikers (Kinniburgh, 2020); this raises questions about whether media organisations will support a movement which actively challenges the hegemonic structures it is built upon (von Zabern and Tulloch, 2021).

Yet, as other fields of social science, research on media representation of social movements remains dominated by textual analysis (e.g. Delicath and DeLuca, 2003; Doerr et al., 2013; Mattoni and Teune, 2014; Philipps, 2012). There are exceptions, driven by an increasing recognition of the interconnectedness of social movements and visual imagery; protest is increasingly seen as a form of performance, often embodied and symbolic (Delicath and DeLuca, 2003; McGarry et al., 2019; Wozniak et al., 2017). The importance of understanding news media images is further highlighted by broader work on media representations of climate change (i.e. not specifically on protest) which has found that there can be a profound disconnect between the narratives communicated by text and images, even within the same media article (DiFrancesco and Young, 2011). This appears to hold within protest-specific media articles, too; Corrigall-Brown and Wilkes (2012) found indigenous-state conflicts were framed differently by the text and visuals within an article. So, analysing only text excludes an important site of meaning-making within climate news.

Climate protest imagery appears to be relatively common in print coverage of climate change, averaging 12% of total coverage in a study of thirteen US, UK and Australian newspapers during 2010; though as high as 26% in the UK's *Guardian* (O'Neill, 2013). International political events such as the Conference of the Parties (COPs) have historically been a strong driver of media attention on climate change (Schäfer et al., 2013), including visual coverage: Environmental Non-Governmental Organisations (ENGOs) have been successful at creating PR and stunt-style installations at the Conference of Parties (COP) which have captured media interest (Doyle, 2007; Eide, 2012; Wessler et al., 2016; Wozniak et al., 2017). Together, these studies tentatively suggest that, historically, the protest paradigm has been present in climate protest imagery.

Protest imagery appears extremely uncommon in terms of the mental (affective) imagery people hold in their minds about climate change: Leviston et al. (2014) found just 0.3% of participant-nominated image elicitations were of climate protest. Evidence of how protest imagery affects engagement (often, in terms of salience (issue importance) or self-efficacy (feeling able to act)) is mixed, highlighting the need to "be careful with protest imagery", as is one of seven principles for climate visual communication put forward by Climate Visuals (Corner et al., 2015: 5). Leviston et al. (2014) found a very small proportion (0.4%) of people selected a 'Greenie protest' image as the most engaging when presented with a sample of climate images. Similarly, Chapman et al. (2016) tested a suite of images with German, US and UK audiences, and found images of protest and protesters attracted widespread cynicism and were some of the lowest-ranked images in their sample. O'Neill et al. (2013) found some evidence that a climate protest image depicting a mass of protestors

walking down a city street promoted self-efficacy, at least with US and UK audiences; but little evidence for the image promoting feelings of salience. Conversely, when testing a photograph of protestors outside a coal-fired power station with German, Swiss and Austrian audiences, Metag et al. (2016) found less evidence of the image promoting feelings of self-efficacy, and instead found the image promoted a sense of issue salience. These findings are, however, potentially highly dependent on cultural context; the rise of protest movements in 2019-20 may have altered affective imagery representing protests. Kilgo and Mourão (2021) found that participants' existing attitudes towards police and social movements in general had more of an effect on audience responses to protest imagery than the media frames used.

2. Methodology

This study draws from the two-step mixed-methods frame analysis described by O'Neill (2013). First, a quantitative content analysis (Bell, 2004; Bryman, 2012), followed by a critical visual discourse analysis on representative images to explore the meanings constructed by certain images (Rose, 2016). This paper answers the research question: *How is climate change protest visually represented; and has this changed over time?* To investigate representations of climate change protesters in media visual imagery, three datasets were collected: a historical longitudinal dataset of three print newspapers in the UK; five UK digital newspapers; the Getty Images editorial collection.

A sample of climate protest images was collected from the websites of five major UK newspapers representing a range of ideological positions (*The Guardian, BBC, The Telegraph, MailOnline, The Mirror*). Following Brüggemann & Engesser (2013), online articles were identified using a Google site search for the key words "climate change protest" for the date range 01/01/2019 to 31/12/2019. Collecting articles in this way has been described as 'higher level of sampling equivalence than using the different search engines' which are present on each newspaper website (Brüggemann and Engesser, 2013: 12). All articles returned by the Google search were read, but only those which met all of the following criteria were collected for analysis: a) the article was substantively about climate change protest, b) the article contained at least one image, c) the image depicted at least one person in a protest context (as the study was interested in the representations of protesters themselves, the image was only included for analysis if at least one person depicted in it was clearly partaking in a protest event, or shown in a protest context e.g. attending a demonstration, holding a sign, or otherwise being engaged in protest activity). For those articles which met the criteria, the lead image (image at the top of the webpage) was collected (or the first image which did appear on the page, if there was no lead image), along with the following metadata: newspaper, date, URL, headline, image URL, image caption, and source of image. This resulted in a total sample of 746 media images for analysis.

The second sample of images are from the Getty Images online editorial images collection. These were originally collected in June 2020 for a broader study. This broader project involved collecting 2,600 images returned from the search terms "climate change" and "climate emergency" and across both the "Best Match" and "Most Popular" filters. Steps were taken to reduce the algorithmic effects of the Getty images library, including "incognito" browsing and collecting images in a short timeframe, resulting in a snapshot of images available at the time of data collection. In the present study, a subset of this Getty Images sample originally collected was used; those which meet the criteria of a) being originally coded as depicting "protest" (see supplementary info for more) and b) depicting at least one human in a protest context (as above). This resulted in a final sample of 1089 images for analysis.

To complement the above analyses, and to investigate whether there has been a shift in the way climate protest is visualised by media organisations, the study also analysed secondary data of images from media coverage of climate change between 2001-2009. This secondary data was

originally collected by the second author (see O'Neill 2019). It was a historical longitudinal corpus of print newspaper articles from microfilm archives from five newspapers, of which only three were UK based so used in the current study (The Daily Telegraph, The Guardian, The Daily Mail). Images were included for analysis if they a) were coded for protest in the original study, b) depicted at least one person in a protest context. This resulted in a sample of 34 images, which were subject to the same quantitative coding and qualitative analysis described below. The small number of images is a result of three things. First, the Guardian is a sampled count: one in every three images was collected for the original study. Second, only three of the five newspapers originally used for O'Neill (2019) were UK-based, so included in this study. Third, protest imagery has been found to represent a very small proportion of overall climate change visual coverage for this time period (see Fig.1g and Fig 7; O'Neill, 2019).

[*Table 1 here]*

2.1 Quantitative Content Analysis

To understand and compare how climate change protesters are represented in the Getty Images collections and UK newspapers, a standardised codebook was applied to all datasets (Table 2). Acknowledging the difficulties in applying quantitative methods to understand visual imagery (Bell, 2004; Parry, 2020), the quantitative content analysis is not intended to reveal cultural or latent meaning, but represents a 'background map' to describe the denotative content of the images, and illustrate overall trends in a large dataset (Bell, 2004: 22; Rodriguez and Dimitrova, 2011; Rose, 2016). The codebook was developed using a rigorous two-step iterative process involving an extensive literature review (see for example O'Neill, (2013); Corrigall-Brown and Wilkes, (2012); Kress and Leeuwen, (2010)), and reflexive piloting (Bryman, 2012).

All images were coded for the following categories, with each code containing sub-categories: angle of gaze; presence of police; number of protesters; and presence of eye contact. For "Number of protesters", only those humans who were in focus, identifiable, and actively engaged in protest activity were counted (e.g. a police officer in uniform arresting a protester was not counted). Those images which were coded as depicting only 1-3 protesters were further coded for the following categories: gender; age; and Kress and Leeuwen's (2010) concept of social distance. Coding for gender is representative of what gender the subject presents as, and not of the gender that the subject necessarily identifies with. Both age and gender categories contained an "indeterminate" category, for where gender or age was unclear.

[*Table 2 here]*

2.2 Critical Visual Discourse Analysis

Quantitative coding, while useful for revealing overall trends, does not explore stylistic, compositional features of the image, nor the power dynamics present or how an image fits into a wider discourse. The second stage of analysis thus involved a critical visual discourse analysis of representative images, intended to investigate meanings constructed through images. The analysis draws particularly on Rose (2016; see also O'Neill 2013) and has three elements:

- Denotative content (particularly age, gender, activity of subjects)
- Stylistic features such as angle of gaze, "social distance", and other compositional features (Kress and Leeuwen, 2010: 124; Rose, 2016)
- Connotative and ideological content, including how the image relates to broader cultural meanings and socio-political context (O'Neill and Smith, 2014; Rodriguez and Dimitrova, 2011; Rose, 2016)

3. Characteristics of climate protest visual reporting

3.1 Image collections as powerful media actors shaping visual communication

Section 1.2 outlined the evidence for why this study considered image collections to be a powerful site of production for media visual narratives. This study tracked the attribution of all images in the 2019 newspaper sample in order to investigate the role of image collections in climate visual news specifically. There are two caveats to this: first, there is some discussion over what constitutes an image collection: for example, Reuters is an international news agency, of which there is Reuters Pictures, acting as an image bank, selling the rights to certain images taken by their global network of 600 photographers (Reuters, 2021). Second, in some cases, ownership of media agencies is unclear: for example, the photo agency Agence France-Press (AFP) is a separate agency to Getty Images, but the two work in partnership and have been marketing each others' images since 2003 (Getty Images, 2003). Often, images are credited as "AFP via Getty" in newspaper articles. Despite these limitations, this analysis provides a reasonable indication of the provenance of climate visuals in UK media.

The inclusion of image collections in climate visual news research is justified by this evidence; Fig. 1 demonstrates the dominance of powerful actors in the provision of climate change images to the UK news media. Overwhelmingly, images were credited to image collections, such as Getty Images, PA, or Shutterstock. Nearly a quarter (23%) of all of these images were credited to Getty Images or one of its subsidiaries, making Getty Images by far the most common source of media imagery. These findings raise important questions about how the structures and routines of news production may constrain or facilitate a more engaging visual discourse on climate change.

[*Figure 1 here: B&W, 1.5 column width*]

3.2 Media attention was driven by the protest movements

Table 1 suggests that there may have been an increase in newspaper visual coverage of climate protest between 2001-2009 and 2019, as has been found with climate change visual media coverage in general (O'Neill, 2019). During 2019, there was some visual coverage of climate protest in all months (Fig. 2). However, there was considerable variation throughout the year. Visual coverage of climate protest peaked in April and September-October. These months corresponded to major international events organised by the protest movements themselves. For example, April saw the beginning of sustained and widespread disruption by XR in London (BBC, 2019b). It was also the month of publication for the IPCC Special Report on Global Warming of 1.5^{o}C, sparking further demonstrations. In September, FFF organised the Global Week for Future, which led to international climate strike protests (Laville and Watts, 2019). And in October, XR launched their 'International Rebellion', which saw high-profile protest actions, especially in London (Extinction Rebellion, 2019).

[*Figure 2 here: B&W, full page width*]

The 2001-2009 visual dataset echoes other work (e.g. Schäfer et al., 2013), where international political events (particularly the COPs) are a strong driver of media attention on climate. In the 2001-2009 dataset, the distribution of images over months and years shows that most images were published in the lead-up to COP15 in Copenhagen during late 2009. However, this is not the case for the 2019 dataset, where media visual coverage of climate protest during the COP25 in Madrid, December 2019, were quite low.

Taken together, these findings suggest a change in the drivers of climate protest visual reporting. Previously, media attention was focussed through international political events such as COPs. However, during 2019, agenda-building efforts by the protest movements themselves appear to

have shaped the quantity of visual coverage. The type of visual imagery during 2019 was also qualitatively very different, as discussed in Section 4.

4. A visual turn in the framing of climate protest

4.1 The changing style of climate protest imagery

The quantity of climate protest imagery has certainly changed between 2001-2009 and 2019-2020. As striking, though, is the change in how climate protest is visually depicted. Section 1.3 outlines how climate protest has typically been visually represented through ENGO-created stunt-style installations, and through images of mass protests (Doyle, 2007; Eide, 2012; O'Neill, 2013; Wessler et al., 2016; Wozniak et al., 2017).

Analysis of the 2001-2009 protest imagery dataset supports this: most of the images depict major ENGO activists staging stunt-type protests at COP15 (as Wang et al., 2018; Wozniak et al., 2017). Visual discourse analysis reveals that whilst 20 of the 34 images in the sample showed only 1-3 protesters, protesters were often depersonalised. The 2001-2009 dataset shows protesters' faces often completely obscured by masks or disguises. For example, a Telegraph photograph (10 July 2009) depicts two protesters wearing whole-head masks of Barack Obama (then US president) and Dmitry Medvedev (then President of Russia). Similarly, in the Guardian (7 November 2009), a photograph depicts protesters wearing jumpsuits, hoods and goggles, with a caption describing them as 'disguised as aliens'. Even where images depict protesters without masks or disguises, protesters' faces are often obscured. An image from the Guardian (6 August 2007) shows Friends of the Earth protesters carrying flags. The image is shot from a distance, with the protesters faces unidentifiable as they are silhouetted against the sky. More images in the 2001-2009 dataset depict mid-aged or older adult protesters than young protesters. Where images did depict youth protesters, none of them appeared to be under the age of 18. The gender distribution of protesters in the 2001-2009 dataset was relatively balanced.

However, the 2019 newspaper and Getty dataset indicate that visualising climate protest in line with the protest paradigm is not common in 2019-20, suggesting a shift in the way climate protest is represented.

4.1.1 Shifting away from the protest paradigm

Section 1.3 provides an overview of the current literature on how protest movements have been historically represented. As discussed in Section 4.1, the 2001-2009 newspaper dataset gives further evidence that, historically, the protest paradigm (Chan and Lee, 1984) is used in climate protest visuals. Eight of the images depict police officers alongside protesters. Where police are shown, they are generally depicted in riot gear interacting with protesters, sometimes violently. One image (Telegraph, 17 December 2009) depicts police officers facing the camera but with faces largely obscured by their helmets, brandishing batons and clashing with a group of protesters. The protesters are facing away from the camera, and visually appear as an anonymised mass of (perhaps violent) protesters. Similarly, in the Daily Mail (14 December 2009), a large crowd of protesters is shown sitting in straight lines on a road, with police officers in riot gear standing and looking on; described in the caption as 'guarding' them. Again, the police are facing the camera, but only the backs of the activists are shown: an anonymous mass of protesters, at odds with the police officers. These images construct a contested framing of climate change, visually constructing the police and protesters as two distinct and oppositional sides (as O'Neill 2013).

The 2019 newspaper dataset depicts police in significantly more images (24% of all images) than the Getty Images sample (10%). This may be representative of media organisations actively choosing images of spectacle (Neumayer and Rossi, 2018), which suggest violent, deviant protesters, in line

with the Protest Paradigm. Typical images depicting police in the Getty and newspaper datasets either show police and protesters engaged in a stand-off, or police physically arresting or moving protesters. Both of these construct a "contested" framing of climate change, which represents two distinct sides – the formal, uniformed police officers contrasted against the casual, often colourfully dressed protesters (O'Neill, 2013). Qualitative insights offer a deeper nuance of understanding of these protest images, however.

[*Figure 3 here, colour, single column width*]

Figure 3 is a typical image from the 2019 newspaper dataset, depicting an adult protester being carried by at least four male police officers wearing fluorescent uniforms. Three features are significant here in constructing different representations of protesters and police officers.
First, the protesters is in focus, at the centre of the image, whereas the police officers are blurred, with faces obscured or not included in the frame of the image. The emphasis of Figure 3 and other police images in the dataset is on the protester, with the police officers reduced to a uniformed presence, rather than identifiable people. Second, the facial expressions of both police and protesters are indicative of a contested framing of climate protest. In contrast to other studies (e.g Corrigall-Brown and Wilkes, 2012) this dataset showed police officers likely to have neutral facial expressions; whereas protesters appeared at ease or complacent. Protesters were also often depicted as laughing, shouting or expressing anger. A stark contrast is present between visuals of 'unfeeling' police officers and 'expressive' protesters, again depersonalising the police officers.

Third, the body language of the protesters is notable. In Figure 3, the protester is lying still, not assisting the police officers in their job of (presumably) moving him. This is representative of the Non-Violent Direct Action tactics of XR, and the culture which, as one protester described it, encourages arrest as "a badge of honour" (Cox, 2019). This contributes to a portrayal of protesters not as powerless and weak, but as powerful, relaxed and in control. It is notable that the media depiction of XR protesters closely reflects the tactics and ethos of the movement, considering the relationship between media organisations and social movements is defined by a constant struggle over control of messaging to the public (Hutchins and Lester, 2006).

These factors combine to construct a depersonalised representation of 'the police', with officers represented not as individual humans worthy of empathy, but as a faceless force of authority. With the actions of police, rather than protesters, increasingly becoming the object of public scrutiny (Ruiz, 2017), this represents an interesting media portrayal of the respective roles and expectations of protesters and police officers.

These findings suggest a shift in the way protesters are visualised in their interactions with police. Whilst a contested framing is common to both media image samples, there is a difference in the way the protesters themselves are visualised. The 2019 UK newspaper images are suggestive of a more sympathetic framing of climate protesters, representing them as individuals and often reflecting the framings and aims of the protest movement itself. In addition to this change, the UK newspaper and Getty dataset indicate that there has been a change in the visual face of climate protest, in three ways, discussed below. First, climate protest is now individualised: small numbers of people are shown, with their faces clearly visible. Second, the faces depicted are predominantly young, with the most common age category as 'children' (under 18s). Third, the faces are predominantly white, and of young women and girls. This suggests a 'Greta effect' in visualising climate protest, which is discussed further below.

4.2 Individualised

The 2019 newspaper and Getty datasets both depict protesters more often in an individual way (1-3 identifiable protesters), rather than in groups (4-9 protesters) or crowds (10+ protesters) (Fig. 3). Protesters faces are also often clearly shown. This indicates a shift in the way climate protesters are visualised, away from depicting protesters as spectacle or a stunt, and towards a more human representation of protesters, giving climate protest a distinctly human face.

The 2019 newspaper dataset depicts significantly more images of 1-3 protesters ("individual" in Figure 4) than the Getty image dataset (Chi-squared test statistic of 6.504, at the 95% confidence interval). This suggests a desire by media organisations to depict a human face of climate protest, perhaps more so than Getty Images. Getty Images photographers are not encouraged to photograph protester faces clearly, in case protesters are later involved in court proceedings (Dr Rebecca Swift, Getty images, pers. comm.), but media companies are driven by norms of personalisation (Bennett and Segerberg, 2011), perhaps explaining the difference in individualised protest between UK newspapers and Getty Images shown in Figure 4. This difference or tension between the norms of media organisations and photo agencies such as Getty is an interesting area for future research. Communications practitioners suggest a key way for increasing engagement with climate imagery is to depict the personal face of climate impacts (Corner et al. 2015); yet our (albeit limited) insights from Getty indicate that there may be legal challenges to photographing peoples' faces. Future work should look to understand the role that photo agencies play as gatekeepers in the visual discourse of climate change.

[*Figure 4 here: B&W, single column width*]

4.3 Female

In terms of gender, women and girls are the protesters most often photographed in an individualised way (Figure 5a,b). The gender divide of protesters photographed in an individualised way is striking: almost half of both datasets depicting 1-3 protesters involves female protesters (Getty 46%, 2019 newspapers 49%) compared to closer to a quarter of male protesters (Getty 28%, 2019 newspapers 24%). All other images were either mixed gender, or gender could not be ascertained. Chi-squared tests reveal no significant difference between the Getty Images and the 2019 newspaper images in terms of gender of protesters, suggesting a fairly stable visual discourse of female protesters. The prominence of women and girls in the climate movement is perhaps unsurprising, given the fact that women are disproportionately affected by climate change (UNDP, 2012), and the fact that women generally have been found to express more concern over climate change than men (Pearson et al., 2017). It is also likely more women and girls took part in the FFF protests, at least (Sohn, 2019; Wahlström et al., 2019). However, the prominence of women within a protest movement does not guarantee that media coverage will reflect this: Armstrong and Boyle (2011), for example, found that media coverage of abortion protests in the US over-represented the voices of men. Indeed, women are often under-represented in media coverage, due to the media reinforcing patriarchal societal norms which place women females as subordinates in society (Armstrong and Boyle, 2011; Zoch and Turk, 1998). The discourse of climate change policies has been found to be highly gendered, with issues of justice, morality and ethics being attributed to women more than men (Swim et al., 2018). With environmental justice being a key tenet of both the FFF and XR movements, it is interesting to note that the media representations of these protests may be reproducing this gendered discourse. The finding that female protesters were represented significantly more often than male protesters in an individualised way in the image samples, therefore, is noteworthy.

[*Figure 5a,b here: B&W, full page width*]

4.4 Youthful

In terms of age, protesters depicted in an individualised way were most commonly young (Figure 4a,b). Chi-squared tests reveal no significant difference between the Getty Images and the 2019 newspaper images in terms of protesters' age. Of all images depicting 1-3 protesters in the 2019 newspaper sample, the most common age category was children (26%). The youth of protesters in these visuals is perhaps unsurprising, given the nature of climate change protests in 2019-20 being partly driven by the FFF movement which was aimed primarily at school-age children (Wahlström et al., 2019). However, children are often ignored in coverage of protests and social movements, or present but with their agency undermined and their message depoliticised (Kettrey, 2018; Vlad, 2017). Visual discourse analysis of the 2019 newspaper and Getty datasets follows, which suggest the contrary: children were not only pictured, but were pictured with agency, i.e. as powerful political actors.

[*Figure 6 here: colour, single column width*]

Figure 6 is typical of the images depicting children and youth protesters. Four compositional features are significant here. First, direct eye contact is common. This is a powerful photographic tool, forcing viewers to engage as 'witnesses' rather than 'detached consumers' (Banse, 2013; DiFrancesco and Young, 2011: 531). Given the theme of intergenerational justice which underpinned the FFF protests (von Zabern and Tulloch, 2021), this eye contact could be interpreted as almost accusatory to an adult viewer (Parry, 2020); consider Greta Thunberg's powerful "you have stolen my dreams and my childhood" speech to UN leaders (PBS NewsHour, 2019). Second, their facial expressions: focussed, serious and unflinching, presumably in shouting protest chants. Third, photographs are often shot from a close or medium distance (see Table 2). This suggests an intimate relationship between subject and viewer (Kress and Leeuwen, 2010), and a desire to connect the viewer to the protester. Combined with their facial expressions and shouting, it is also deeply confronting – the visuals are quite literally 'in your face'. Last, camera angle: child protesters were often photographed at eye level to the viewer. This suggests the (adult) photographer had to bend down to shoot the image in this way: a deliberate choice to place them on equal footing with (adult) viewers. This compositional choice is important in placing children in positions of authority and power (see Rose, 2016). When combined, these stylistic features combine to construct an image which represents these children as powerful political actors, rather than powerless victims of climate change. Children represent powerful advocates for climate change, due to their perceived 'moral purity' on the issue (Bain and Bongiorno, 2019: 3). However, this purity is typically manifest in representations of children which emphasise vulnerability and innocence, rather than power and agency (Gordon et al., 2015).

5. Discussion: the reframing of climate protest

This study has investigated how climate protesters were represented by media actors in 2019-20, in light of the increase of climate change protest driven by XR and FFF. This represents the first empirical study of editorial climate change images available through the Getty Images collections, combining these with a sample of UK newspaper images and a historical secondary dataset of media images from 2001-2009 to understand the visual discourse of climate change protest.

5.1 Influence of powerful actors in media imagery

Image collections and photo agencies are the dominant source of climate protest imagery in UK newspapers. Getty Images in particular holds significant power. The study justifies the focus on image collections in visual news research, demonstrating that there are powerful players who control large portions of news imagery. The research presented here provides a first step in uncovering how the processes of (visual) news production can influence the framings of climate change which dominate (or are obscured) in media.

5.2 Shifting away from the protest paradigm

This study has identified a shift in the way climate protest is visualised by media actors, with the protest paradigm used rarely in 2019 newspaper images and the Getty Images collections. First, the quantity of coverage in 2019 appears driven by the actions of the movement itself, rather than COPs and other international policy events, as has been found in previous research and supported by the 2001-2009 dataset (e.g. Schäfer et al., 2013). Second, images from media organisations in 2019 and the Getty Images collections often reflect the messages of the movement, rather than delegitimising them. Images rarely represent protesters as an anonymous mass or as a spectacle, but instead depict protesters in a more nuanced and individualised way, sympathetic to their messages. It is important to note that the changes outlined here (particularly the move away from masked protesters towards faces being shown) may reflect the changing style of protest over time, not just the changing representations by media. This is something that should be explored by future research. Police officers, in contrast, are often reduced to a faceless authority representing a force of the state, rather than individuals. Both XR and FFF present challenges to entrenched power structures, but are not represented using the protest paradigm, suggesting a shift.

5.3 Reframing climate protest as an issue of intergenerational justice

Rather than representing climate protest in line with the protest paradigm, findings show that UK media organisations in 2019 and the Getty Images collections often use an intergenerational justice framing of climate change: emphasising the power and agency of young protesters. Findings from 2001-2009 newspaper images show this represents a shift: historically, the climate protest movement was rarely visualised with a human face. When climate protest was visualised with human faces, they were not the faces of young women/girls. In 2019-20 visual media, however, depicted individuals are most commonly young women and often girls under 18, a group often marginalised in media coverage (Armstrong and Boyle, 2011).

Children (under 18) cannot vote in the UK, so lack political power and agency. The media often reflects this: children are generally undermined or represented only as victims in media coverage, associated with negative stories (Kettrey, 2018; Vlad, 2017). In coverage of social movements, children are often delegitimised through the "youth deficit" model: assuming children only become politically socialised through adults (Earl et al., 2017). In their analysis of German newspaper coverage of FFF strikes, von Zabern and Tulloch (2021) found textual media framing of FFF strikers often implied children were objects/extensions of adult agendas, and generally undermined the agency of school strikers. Results here show protesters, including children, depicted as empowered and powerful, suggesting a contrast between textual and visual representations, similar to DiFrancesco and Young's (2011) findings from Canadian print media. The emphasis on the power and agency of young people represents an intergenerational justice framing of climate change.

Intergenerational Justice describes how children are the ones who bear the costs of the environmental destruction that older generations were responsible for (UNICEF, 2009). The concept has been at the heart of the FFF movement, which attempts to hold political power elites responsible for climate change impacts (Cannon, 2019). Framing climate change as an issue of intergenerational justice gives power and agency to (young) protesters, and implies systemic changes and mitigation efforts are possible (von Zabern and Tulloch, 2021). This framing is powerful because it draws on the purity and innocence of children, but presents children as confrontational and active, rather than passive recipients (Bain and Bongiorno, 2019). The intergenerational justice framing of climate change has been identified in textual media in both the UK (Graham and Bell, 2020) and Germany (von Zabern and Tulloch, 2021), but is not common. In contrast, the findings presented here have shown that, visually, the intergenerational justice framing is not only present, but emphasised, in media coverage of climate change protest. This framing is also present and emphasised at the site of production: the image collections where many of the media images originate from. Indeed, images from the 2019 newspaper sample, and the Getty Images collections,

mostly emphasised the power and self-agency of protesters. Visual representations which undermined the protesters were rare. The study therefore concludes that there has been a shift in visual media framing of climate protest, away from the protest paradigm and towards an intergenerational justice framing which emphasises the power of young women and girls.

One reason for this shift may be what has been referred to as "The Greta Effect" (e.g. Nevett, 2019). This phrase refers to this climate movement's success driven in part by the rise of teenage activist Greta Thunberg; and the international renown of a young female role model in inspiring other girls to take part in protests. Indeed, familiarity with Greta Thunberg was shown to predict likelihood to engage with collective action on climate change (Sabherwal et al., 2021). It is not simply that these two datasets have many images of Greta: the prominence of images depicting young female protesters remains, even if images specifically depicting Greta Thunberg are excluded. The "Greta Effect" is therefore greater than simply the effect of Greta's own fame meaning she is often depicted in media coverage. We therefore suggest that the Greta Effect is more than just Greta – her likeness (other young female protesters) has become a visual synedoche (O'Neill 2013) for claims of intergenerational inequity in the climate movement.

While this study did not specifically analyse ethnicity of protesters, one notable observation was the lack of non-white protesters in the data. Both the Getty Images collections and media datasets very rarely depicted minority ethnic protesters in any age and gender demographic. This observation speaks to a wider necessary conversation regarding the diversity of media representations of young climate activists (see the exclusion of Ugandan activist Vanessa Nakate from an image of young activists in an Associated Press article from January 2020 (Evelyn, 2020)). This is an area that urgently needs future research to understand how the media representations of the climate movement may be rendering non-white young activists such as Vanessa Nakate 'aesthetically unappealing [and] unwelcome' (Malowa et al., 2020).

6. Conclusions, implications & future research

Two key conclusions arise from this research. First, the study has demonstrated the power and prominence of image collections such as Getty Images in constructing the visual discourse portrayed in the news media. This paper demonstrates the importance of understanding how these companies and agencies operate in shaping visual news media discourses. We therefore suggest researchers could undertake co-produced research with journalists, photojournalists and institutional actors; as a way to explore and explain the network and flows of visual news production.

Second, this study has uncovered the changing visual representation of climate protesters: away from the protest paradigm, and towards an intergenerational justice framing of climate change which emphasises the power and agency of young women and girls. These findings should be contextualised within insights from audience research, to investigate whether this shift reflects a wider shift in public attitude towards the climate movement in light of 2019-20. Indeed, predisposed attitudes towards social movements and the environmental causes may be more influential in forming audience responses than media frames (Kilgo and Mourão, 2021). Future research should investigate the impact of FFF and the Greta Effect on audience responses to climate protest imagery, and the climate movement more widely, to determine the role of FFF and the youth movement in bringing about a shift in public perceptions and to update current thinking around engagement with protest imagery (there may be a need, for example, to update practitioner-focused advice such as "be careful with protest imagery" in light of changes in protest representations (Corner et al., 2015: 5)).

While these findings are from a UK-based news media imagery study, the similarities between UK news media imagery and the global Getty Images editorial imagery suggests a fairly stable visual discourse, which may be echoed more widely. Both Extinction Rebellion and FFF were global

movements, and future research should analyse media representations of climate protest outside of the Anglosphere, to investigate the existence of this global visual discourse.

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Tables and Figures

Corpus type	Year(s)	Name	No. images	Total
Newspaper archive	2001-2009	Daily Mail	6	34
		Telegraph	13	
		Guardian	15 (sampled value)	
Digital newspapers	2019	Mail	197	746
		Telegraph	110	
		Guardian	229	
		Mirror	53	
		BBC	157	
Image Collection (Getty Images)	2020	Getty Images	1089	1089

Table 1. Details of the image dataset. Note that the Guardian 2001-2009 dataset is a sampled value; 1 in every 3 articles was collected in the original dataset.

Angle	ha	high angle
	ra	regular angle
	la	low angle
Presence of Police/Law enforcement	y	there is one or more uniformed police/law enforcement/security personnel shown
	n	no police, law enforcement, security personnel shown
Number of protesters	i	Individual: 1-3 identifiable human subjects shown in focus
	g	Group: 2-9 identifiable human subjects shown in focus
	c	Crowd: 10+ identifiable human subjects shown in focus
Presence of eye contact	y	One or more human subjects in focus in the image is making eye contact with the viewer
	n	No eye contact detected
Gender	f	Female
	m	Male
	x	Mix of male and female
	in	Indeterminate: cannot determine gender (e.g. face is not shown)
Age	c	Child: up to 18 years of age
	y	Young adult: 18-34 years of age
	mid	Mid adult: 35-50 years of age
	old	Older adult: over 50 years of age
	x	Mix: image depicts protesters of more than one age category
	in	Indeterminate: cannot determine. E.g face is not shown
Distance	c	Closeup: face and shoulders
	m	Mid-range: waist up or occupying almost full frame
	l	Long-range: person/s fill half the picture frame or less

Table 2. Image coding schema

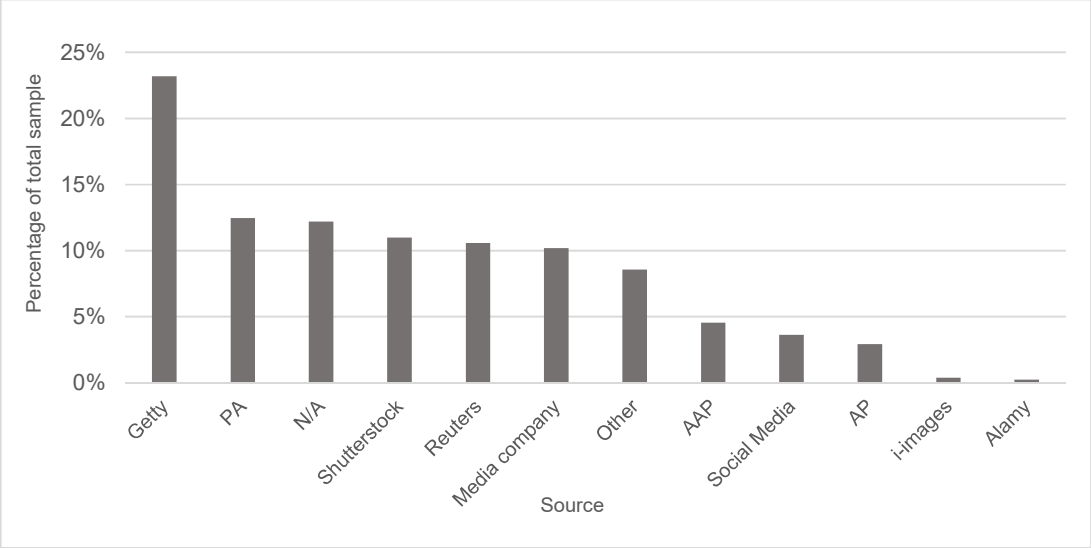

Figure 1. Percentage of images from 2019 newspaper sample (n=746) attributed to various sources. N/A refers to where no image attribution was given. Note: where possible, "parent" companies are used e.g. where an image was attributed to "AFP via Getty", then Getty is coded as the source of the image. This was determined with the information easily available online

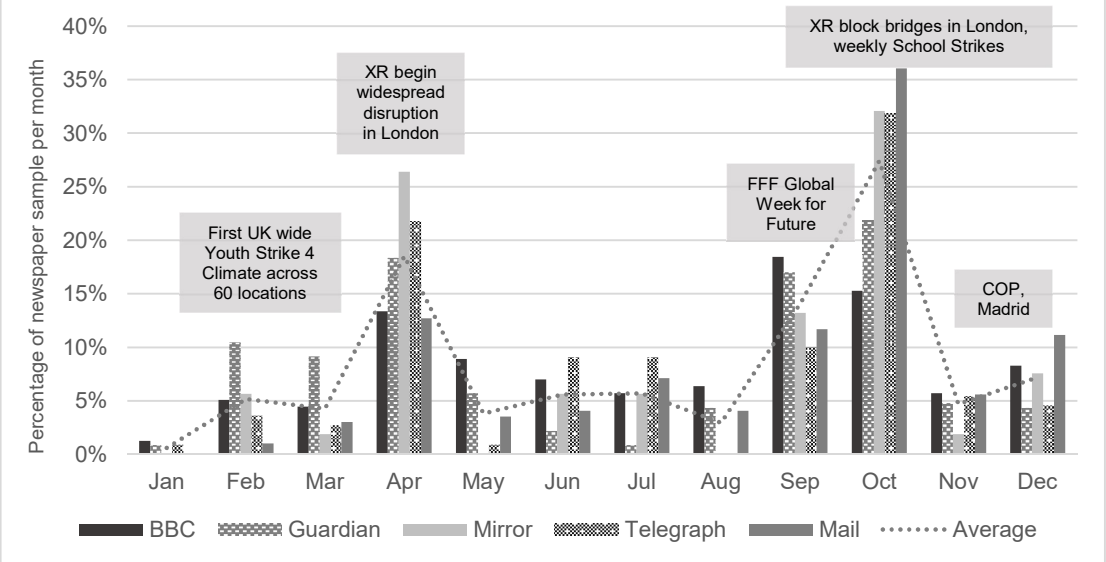

Figure 2. Distribution of articles containing a climate protest visual over the year 2019 by month, by newspaper; n=746. Y axis plots the percentage of articles for each newspaper over the year.

Figure 3. Typical image depicting police presence in the image sample. Photography by Ollie Millington. Copyright: Getty Images

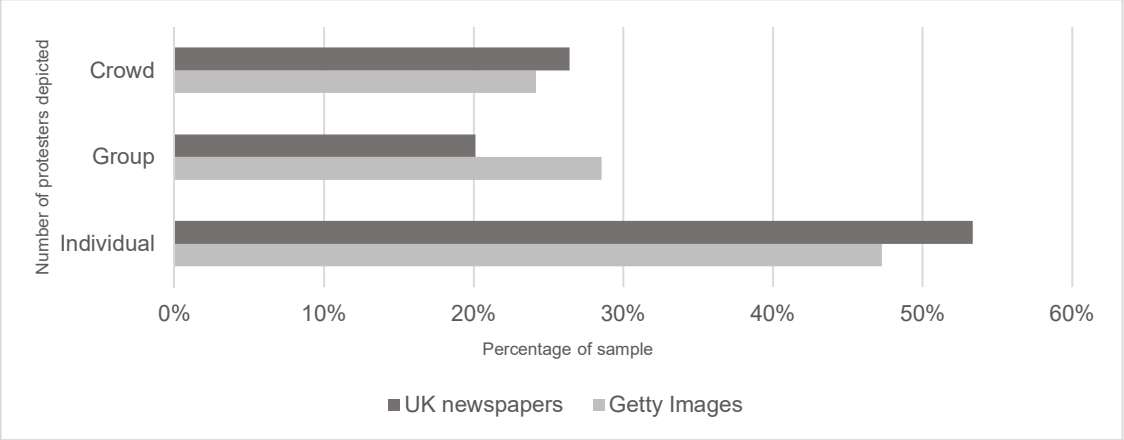

Figure 4. Number of protesters depicted by the UK 2019 newspaper image sample and Getty Images sample, as a percentage of total number of images in each sample. Crowd = 10+ protesters, group = 4-9 protesters, individual = 1-3 protesters. To be included, protesters faces must be clearly identifiable, in focus, and be engaging in a protest activity (see also Table 2).

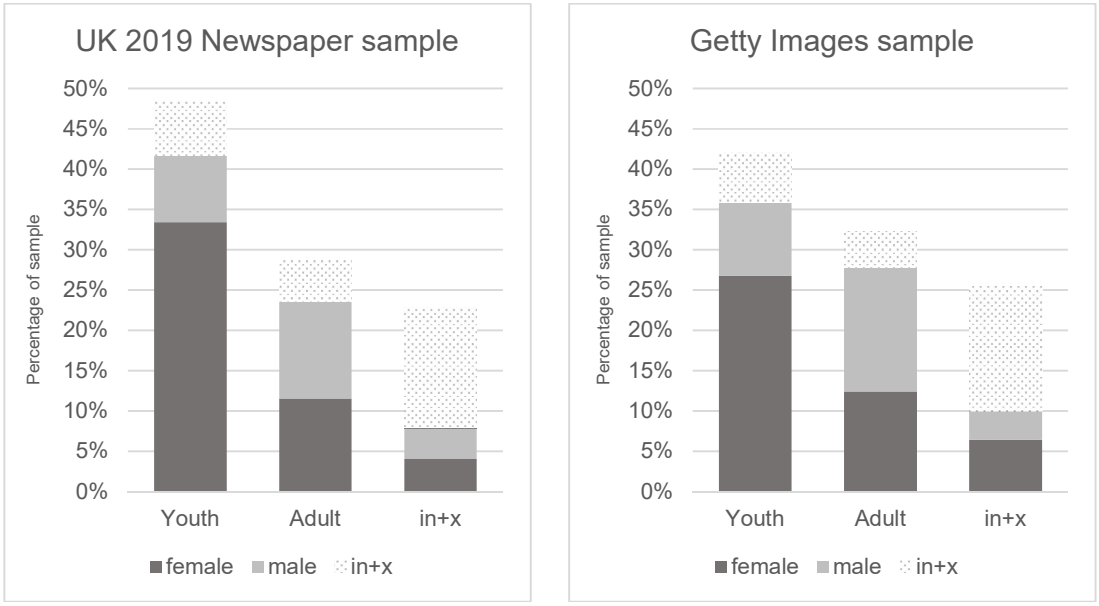

Figure 5a,b: Distribution of age and gender of protesters in a. 2019 UK newspaper dataset and b. Getty Images dataset. Only those images coded as individual (1-3 identifiable protesters). Youth represents two categories: child and youth. Adult represents two categories: mid-age adults and older adults. (see Table 2). In+x refers to images which depicted either a mixture of both categories, and images depicting protesters for whom it was unable to determine their age/gender (e.g. protesters wearing a mask) (see Table 2). Binomial statistical tests (95% confidence) show significantly more images of youth than adult, for both image samples.

Fig 6. Typical image of children in the image sample. Photograph by Jeff J Mitchell. Copyright: Getty Images