GENDER AND SOCIAL MEDIA
Measuring Underrepresentation and Harassment Online

DRI

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EXECUTIVE SUMMARY

Underrepresentation and gender-based harassment against women in the public sphere is a problem on social media. However, more global research is necessary for improved evidence-based solutions. DRI's sample methodologies can help researchers introduce a gender-based element into their social media monitoring activities and introduce structure for future cross-country comparisons.

» *Recommendations:*

- More global research is needed to inform policymakers and social media companies about gender-based harassment online.
- Social media companies need to provide researchers with the data to better study this issue.
- Social media companies should track gender-based flagging requests, the company's response, and make this information publicly available.
- Users should be better informed on critically identifying sexist language for fairer online debates.
- Governments should require stricter transparency measures from social media platforms.

INTRODUCTION

How do gender and social media intersect? Why does gender matter as a category of analysis when looking into social media and democratic discourse?

Social media opens a door for citizens to engage in online democratic discourse. However, in many country contexts, women do not have the same access to social media as men do, which means their voices are not heard equally.[1] This is increasingly important given a global focus on closing the digital gender gap and enhancing development worldwide.[2]

Additionally, there are growing concerns that social media's algorithms may recommend content based on a user's gender. In this case, the recommendation algorithm would continue to reinforce existing gender discrimination and stereotypes by limiting users to a gender-based bubble of content and debates. This issue is still contested without conclusive results.[3]

Women are underrepresented in news content on social media, and they are oftentimes represented through the lens of traditionally gendered language and narratives.[4] When women are not represented, their voices and expertise become invisible. When women are represented in a biased manner, they cannot shape their own narratives.

In comparison to their male counterparts, women receive more online harassment on social media.[5] This is especially true when women are public figures including politicians, journalists, academics, activists or political bloggers. Harassment may impact an individual's own mental health and ability to continue representing female voices as a public leader.

In this publication, we will frame, define and provide tools to tackle the latter problems of underrepresentation and harassment against women in the public sphere on social media.

How exactly can researchers monitor the treatment of women on social media? To get started, this publication includes the available research on the problems, three sample methodologies to kickstart your own social media monitoring activities and preliminary solutions.

More global research is needed on these problems to develop evidence-based solutions. This publication is intended for researchers to gain knowledge on this topic and ultimately introduce a gender dimension into their monitoring activities.

1   Estelle Loiseau and Keiko Nowacka, "Can social media effectively include women's voices in decision-making processes?", OECD Development Centre, March 2015, https://www.oecd.org/dev/development-gender/DEV_socialmedia-issuespaper-March2015.pdf
2   "Bridging the Digital Divide: Include, Upskill, Innovate", *OECD*, 2018, http://www.oecd.org/internet/bridging-the-digital-gender-divide.pdf
3   Experiment on Potential Gender Biases in Social Media Algorithms, European Commission, April 2017, https://ec.europa.eu/digital-single-market/en/news/are-social-media-gender-biased-read-about-our-experiment
4   Podcast: Andrea Römmele, "Episode 3: Women in election media coverage," April 2019, in XX Factor: Women, power and the EU election, produced by Politico, https://soundcloud.com/politicoeuconfidential/xx-factor-episode-3-women-in-election-media-coverage-featuring-marietje-schaake-and-italy
5   Soraya Chemaly, There's No Comparing Male and Female Harassment Online, *Time*, September 2014, https://time.com/3305466/male-female-harassment-online/

I. UNDERSTANDING THE PROBLEM AND ITS EFFECTS

1. A NEW ARENA FOR AN AGE-OLD PROBLEM

Social media provide **new tools for malicious actors** to take advantage of the existing biases against women.

Social media companies are self-proclaimed free-speech advocates[6], and therefore **"public" figures have limited protections** when flagging unfavourable comments. For example, for public figures, Facebook will "remove attacks that are severe as well as certain attacks where the figure is directly tagged". This excludes content meant to "degrade or shame".[7] This language is vague and suggests that degrading, sexist comments are not considered. The Twitter Rules, on the other hand, do not make this public v. private distinction but leave vague language to determine "abuse".[8] **When gender discrimination is subtle rather than blatant death threats, the line is blurred and social media companies may apply enforcement policies arbitrarily.**

In an age of bots, malicious actors can flood female leaders with harassment, while **social media companies fail to respond quickly enough**. For example, one female parliamentarian has mentioned, "once, over a period of four days, I received more than 500 threats of rape on Twitter."[9]

The digital nature of social media platforms allows users to verbally attack one another from a distance with limited consequences. This barrier of anonymity allows individuals to voice sexist comments with limited public censure in comparison to an offline setting. Tracing the origin of an anonymous online attack may be difficult or impossible.

In an online space, it is possible to **disseminate doctored photos or AI altered videos** (commonly known as "deep fakes") at an exponential rate.[10] In May 2019, an altered video of U.S. Speaker of the House Nancy Pelosi slurring her words spread online, and critics argued that tech platforms failed to respond quickly enough.[11]

2. UNDERREPRESENTATION AND BIAS AGAINST WOMEN ON SOCIAL MEDIA

> *Defining Underrepresentation and Bias*
>
> Underrepresentation and bias against women online means that women are not equally represented in comparison to their male counterparts. This problem may manifest itself in several ways on social media:
>
> - Disproportionate news coverage in terms of post frequency by traditional media
> - Disproportionate use of traditionally gendered narratives and language by traditional media and individual users
> - Disproportionate representation of female users in online democratic discourse. Although, this point is difficult to research because gender disaggregated data is not available to researchers

Women's voices are **underrepresented in media and cited less frequently as experts, which undermines female politicians' credibility and ability to shape political narratives**. Women are underrepresented in traditional media – European women are "heard, read about or seen" 25% of the time while only receiving 19% representation in political news.[12] **These numbers are even lower for social media** – 24% representation in traditional media's social posts and 17% in online and Twitter political reporting.[13]

Gender-based notions of "newsworthiness" create a **different societal expectation for female politicians to fulfil, which perpetuates sexist narratives in society**.[14] A female politician's clothing choices, personal life, social role (i.e. being a mother) and her excessively or insufficiently feminine demeanour are treated as news. This overshadows real political news coverage of an individual. For example, the media sensationalized the colour of Hillary Clinton's pantsuit after various public appearances in the 2016 election.[15]

6   Kari Paul, "Zuckerberg defends Facebook as bastion of 'free expression' in speech", *The Guardian*, October 2019, https://www.theguardian.com/technology/2019/oct/17/mark-zuckerberg-facebook-free-expression-speech
7   Facebook Community Standards for Bullying and Harassment: https://www.facebook.com/communitystandards/bullying
8   Twitter Rules for Abusive Behaviour: https://help.twitter.com/en/rules-and-policies/abusive-behavior
9   "Sexism, harassment and violence against women parliamentarians," *Inter-parliamentary Union*.
10   Britt Paris and Joan Donovan "Deepfakes and Cheap Fakes", *Data and Society*, 2019, https://datasociety.net/wp-content/uploads/2019/09/DS_Deepfakes_Cheap_FakesFinal-1.pdf
11   Sarah Mervosh, "Distorted Videos of Nancy Pelosi Spread on Facebook and Twitter, Helped by Trump", *New York Times*, May 2019, https://www.nytimes.com/2019/05/24/us/politics/pelosi-doctored-video.html
12   Christina Gonzalez, "Europe's news reporting gender gap," *Politico,* 25 April 2019, https://www.politico.eu/article/europes-news-reporting-gender-gap/
13   Ibid.
14   Podcast: Andrea Römmele, "Episode 3: Women in election media coverage," April 2019, in XX Factor: Women, power and the EU election, produced by Politico, https://soundcloud.com/politicoeuconfidential/xx-factor-episode-3-women-in-election-media-coverage-featuring-marietje-schaake-and-italy
15   Max Ufberg, "The Sexism Behind Hillary Clinton Pantsuit Jokes", *Pacific Standard Magazine*, 2015, https://psmag.com/news/quit-it-with-the-hillary-pantsuit-jabs

Although more women use social media than men globally, **women in developing countries, in particular, do not have equal access to social media.**[16] This is due to barriers related to infrastructure, costs and discriminatory social norms.[17] This means that women's voices are not equally represented in online democratic discourse within a country's context and globally. In DRI's social media monitoring experiences in Libya, women seem to retreat to anonymous accounts or posting in private groups with self-censorship in public groups in order to protect their reputation or prevent harassment.[18]

3. HARASSMENT AGAINST WOMEN ON SOCIAL MEDIA

> ### *Defining Harassment*
>
> In this publication, we refer to harassment as an umbrella term for gender-based abuse, threats, etc. Although we will use the term harassment, Twitter uses the term "abuse" and Facebook uses the terms "bullying and harassment".
>
> Online harassment may be considered aggressive language attempting to intimidate the user. This ranges from implicit, sexist remarks to death threats:
>
> - Subtle comments or jokes based on traditionally gendered stereotypes
> - Direct attacks on a woman's body, age, weight or physical appearance
> - Comments threatening a woman's credibility or public voice
> - Strong threats of death, rape or physical harm

3.1. Prevalence of Harassment on Social Media

Gender-based attacks are an easy first character assassination against women[19] and these narratives are picked up and spread by news media. In some societies, blatant gendered attacks may be acceptable, while others may be coded gender language (i.e. weak, emotional, nasty) framed as character flaws.

Female politicians, journalists, academics, bloggers and activists are most at risk. These public women who "assert their views, take power, are being vocal, challenge norms or simply defend their intersecting identities are targets for cyber violence and hate speech".[20]

Although social media has been called the "political equalizer"[21] by lowering entry costs for disadvantaged female candidates and the launch of political careers, it also comes with risks. These risks are significant and should not be ignored as a problem.

A global survey of female parliamentarians by the Inter-parliamentary Union[22] found that **social media is "the number one place in which psychological violence…is perpetrated against women parliamentarians".**[23] 41.8% of female parliamentarians experienced extremely humiliating or sexually charged images of themselves spread on social media. Such images include nude photomontages, photos with disparaging comments, obscene drawings or information suggesting failed personal lives. Another global study found similar results – almost 50% of women received insulting or threatening comments about women's abilities and/or roles.[24]

Election specific studies have provided comparative evidence that female candidates are treated differently than male candidates. An analysis by the Guardian on 2016 elections in the US and Australia showed that Hillary Clinton received twice the number of abusive Tweets as Bernie Sanders and likewise for Julia Gillard and Kevin Rudd in Australia. Additionally, a majority of abusive tweets came from male users.[25] However, most election specific research focuses on the US and Europe – **elections need to be monitored globally.**[26]

16 Estelle Loiseau and Keiko Nowacka, "Can social media effectively include women's voices in decision-making processes?", *OECD Development Centre*
17 Ibid.
18 Read DRI's Libya report, here: https://www.democracy-reporting.org/libya-social-media-report/january/
19 Nino Rusidze, "Stereotypes, Character Assassination and Women in Politics". Corvinus Journal of International Affairs. 2019, https://www.researchgate.net/publication/336178092_Stereotypes_Character_Assassination_and_Women_in_Politics
20 "Cyber violence and hate speech online against women", *European Parliament: Policy Department for Citizens' Rights and Constitutional Affairs*, September 2018, https://www.europarl.europa.eu/RegData/etudes/STUD/2018/604979/IPOL_STU(2018)604979_EN.pdf
21 Thomas E. Patterson, "Social Media: Advancing Women in Politics?", W20 Germany, October 2016, http://www.w20-germany.org/fileadmin/user_upload/documents/WIP-Harvard-Facebook-Study_Oct2016.pdf
22 "Sexism, harassment and violence against women parliamentarians," *Inter-parliamentary Union.*
23 Ibid.
24 Thomas E. Patterson, "Social Media: Advancing Women in Politics?" W20 Germany.
25 Elle Hunt, Nick Evershed and Ri Lu, "From Julia Gillard to Hillary Clinton: online abuse of politicians around the world," *The Guardian*. June 27 2016, https://www.theguardian.com/technology/datablog/ng-interactive/2016/jun/27/from-julia-gillard-to-hillary-clinton-online-abuse-of-politicians-around-the-world
26 Read about DRI's gender monitoring activities in Pakistan: https://democracy-reporting.org/dri_publications/bp98-social-media-and-democracy-in-pakistan/

Nearly two-thirds of female journalists have been threatened or harassed online at least once according to a 2018 survey by the International Women's Media Foundation.[27] As a result of this harassment, many female journalists experience mental health problems and consider leaving journalism.[28] In 2016, female journalist Alexandra Pascalidou testified to the European commission about her experiences of being threatened with gang rape and sexual torture.[29]

Female academics have been the target of harassment when their findings challenge the status quo. A study by Inside Higher Ed notes that progressive academics in the fields of feminism, leadership, science, education, history, religion, race, politics, immigration, art, sociology and technology may be more at risk.[30] Despite being the victim, female academics reported receiving feedback to "tone it down", step away from social media, create multiple accounts or "be nicer". Oftentimes female academics need to use social media for their professional relationships and reputation building, so avoiding online spaces is not possible. In the high-profile case of Cambridge professor, Mary Beard, she was targeted with specifically sexist language related to her body, age and weight for her academic finding of ethnic diversity in Roman Britain.[31]

Female activists have been targeted by groups attempting to "damage their credibility as advocates" as described by the UNHCR.[32] In the case of the teenage, Swedish climate activists, Greta Thunberg, she has been the subject of many online attacks include conspiracy theories, claims that she is "mentally ill" and other misinformation.[33]

In a study on **female political bloggers, 74% reported negative experiences** in their social media use related to stalking, rape threats, death threats, and offline encounters.[34]

Being a part of the opposition group, young or of an ethnic minority increases the risk for females in the public sphere.[35] This is problematic because the representation of diverse voices strengthens political discourse and overturns traditionally based power dynamics.

3.2. Different Categories of Online Harassment

What types of harassment may women experience online? A study from Dalhousie University[36] defined four categories to classify online gender-based harassment: (a) indirect harassment (i.e. stereotypes and suggesting women are inferior), (b) information threat (i.e. threats that information will be stolen, revealed or misused), (c) sexual harassment (i.e. insulting words of anger, violence or sex) and (d) physical harassment (i.e. threats based on female biology) (*Table 1*).

27   Dr. Michelle Ferrier, "Attacks and Harassment: The Impact on Female Journalists and Their Reporting", *International Women's Media Foundation*, 2018, https://www.iwmf.org/wp-content/uploads/2018/09/Attacks-and-Harassment.pdf

28   Women journalists feel the brunt of online harassment, *Mozilla* Foundation, April 2019, https://internethealthreport.org/2019/women-journalists-feel-the-brunt-of-online-harassment/

29   Sherry Ricchiardi, "Female Journalists Fight Online Harassment", *Global Investigative Journalism Network*, September 2018, https://gijn.org/2017/09/28/scourge-of-the-profession-online-harassment-of-female-journalists/

30   George Veletsianos and Jaigris Hodson, "Social Media as a Weapon to Harass Women Academics", *Inside Higher Ed*, May 2018, https://www.insidehighered.com/views/2018/05/29/dealing-social-media-harassment-opinion

31   Sarah Boseley, Mary Beard abused on Twitter over Roman Britain's ethnic diversity, The Guardian, August 2017, https://www.theguardian.com/uk-news/2017/aug/06/mary-beard-twitter-abuse-roman-britain-ethnic-diversity

32   The impact of online violence on women human rights defenders and women's organisations, June 2018, https://www.ohchr.org/EN/HRBodies/HRC/Pages/NewsDetail.aspx?NewsID=23238&LangID=E

33   Elizabeth Weise, "Online haters are targeting Greta Thunberg with conspiracy theories and fake photos", *USA Today*, December 2019, https://eu.usatoday.com/story/news/nation/2019/10/02/climate-change-activist-greta-thunberg-targeted-online-trolls/3843196002/

34   Stine Eckert, "Fighting for recognition: Online abuse of women bloggers in Germany, Switzerland, the United Kingdom, and the United States", Wayne State University, USA, 2018, https://journals.sagepub.com/doi/10.1177/1461444816688457

35   "Sexism, harassment and violence against women parliamentarians," *Inter-parliamentary Union*.

36   Sima Sharifirad and Stan Matwin, "When a Tweet is Actually Sexist. A more Comprehensive Classification of Different Online Harassment Categories and The Challenges in NLP", *Arxiv*, February 2019, https://arxiv.org/ftp/arxiv/papers/1902/1902.10584.pdf

Table 1: Classification of Sexist Messages[37]

Classification	Description
Not Sexist	No implicit or explicitly gendered harassment or threat
Indirect Harassment	Stereotypical or traditional beliefs about the role of women
	Inferiority of women in comparison to men
	Indirectly sexist without swear words
Information Threat	Threats to women that information will be stolen
	Threats to women that information will be revealed
	Threats to women that information will be misused
Sexual Harassment	Containing insulting words, name calling, words of anger or violence
	Force toward sex
Physical Harassment	Threats based on female biology/beauty
	Considering women as sex objects
	Implying sense of ignorance or lack of attractiveness of women
	Implying physical or mental inability of women
	Using humour to describe the female body

4. THE EFFECTS OF UNDERREPRESENTATION AND HARASSMENT ON SOCIAL MEDIA

Online harassment leads to psychological distress for victims. For example, pro-choice British Labour MP, Stella Creasy, described feeling "physically sick" after being continuously bombarded with photos of aborted remains by an anti-abortion group in her constituency and online attacks.[38]

Additionally, online harassment discourages women from being active political participants. A study by the Journal of Feminist Media Studies found that **"the higher the level of media sexism, the lower the share of women candidates"**.[39] The study argues that "sexist portrayals of women stifle ambition among women who, in a less sexist media environment, would be willing to stand as political candidates".[40]

By underrepresenting women, media and social media have the power to make women invisible to the public. This furthers existing power structures where men hold the keys to high-level decision-making processes.

Society is strengthened when women participate in the political process as equals. As a result, this problem harms not only individual targets but society as a whole. **Having women in power has "concrete benefits to society and democracy"**; for example, "when women are in involved in peace treaties, they tend to last longer".[41] When women are in power, public trust in the political system increases and socio-economic development improves.[42]

37 Ibid.
38 Sarah Marsh, "Police Called after Stella Creasy targeted by anti- abortion group," *The Guardian,* September 28 2019, https://www.theguardian.com/world/2019/sep/28/labour-mp-stella-creasy-targeted-by-anti-abortion-group
39 Amanda Haraldsson and Lena Wangnerud, "The effect of media sexism on women's political ambition: evidence from a worldwide study," *Feminist Media Studies 19,* no. 4 (2018): https://doi.org/10.1080/14680777.2018.1468797
40 Ibid.
41 Amy K. Lehr and Efthimia Maria Bechrakis, "Against The Odds: Overcoming Online Harassment of Women in Politics," *Center for Strategic and International Studies*, November 8 2018, https://www.csis.org/analysis/against-odds-overcoming-online-harassment-women-politics
42 "Handbook on Promoting Women's Participation in Political Parties", *OSCE (ODIHR),* 2014, https://www.osce.org/odihr/120877?download=true

II. HOW TO INCORPORATE A GENDER DIMENSION INTO YOUR MONITORING ACTIVITIES: THREE SAMPLE METHODOLOGIES TO GET STARTED

Given the widespread nature of gender-based harassment and underrepresentation online, more comparative research is needed to create evidence-based solutions. **How can you get started?**

This section will present **three possible methodologies** that you can conduct in your own context.

These methodologies are a part of DRI's global social media monitoring work. Using these methodologies in more research will provide the opportunity for cross-country comparisons into gender-based underrepresentation and harassment.

DRI has proposed research questions with possible samples and ways to classify and analyse your data. The appropriate sample and classification codebook must be based on your own local expertise. These methodologies require a manual classification of social media posts based on your defined classification codebook.

Research Sample	Data Classification	Classification Codebook
Instead of looking at an entire ocean of data, you need to filter down your dataset to a limited pond based on what you are trying to study. Your sample is a defined dataset based on the appropriate parameters you choose (i.e. time period, social media platform, topic, accounts, etc).	The process of individually classifying each social media post, comment or re-Tweet based on a set category. For example, you could classify a Tweet as abusive or non-abusive toward women. This process may be done manually by your team or through crowdsourcing services like Amazon Mechanical Turk.	When classifying your data, you need to clearly define each coding category for replicability. For example, without a clear definition of "abusive toward women", a post may seem abusive to one person while non-abusive to someone else.

In terms of data, these methodologies assume that you have access to Facebook/Instagram and Twitter data via the companies' official data access channels (i.e. CrowdTangle and Twitter API). CrowdTangle data is limited to groups and pages, so posts or comments by private individuals are not available. The most important social media platform will depend upon your country context.

These methodologies are prepared for researchers at any level – coder or not! We have recommended a baseline methodology that can be conducted simply using Excel and provided further ideas for Python or R users.

For more information on social media monitoring, you can access the EU's Guide for Civil Society on Monitoring Social Media During Elections[43], which was written by DRI. With the financial assistance of NEF-Civitates, DRI is currently translating this into an online Digital Democracy Monitor Toolkit (available in Spring 2020) for hands-on resources on data access, sample methodologies, research ethics and more.

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43 EU Guide for Civil Society on Monitoring Social Media During Elections written by DRI:
https://democracy-reporting.org/dri_publications/guide-for-civil-society-on-monitoring-social-media-during-elections/

1. MEASURING UNDERREPRESENTATION OF WOMEN IN TRADITIONAL MEDIA'S FACEBOOK AND TWITTER ACTIVITY

Possible for:

The purpose of this analysis is to quantify how much more or less mainstream media (i.e. @BBCNews) posts about female figures (i.e. politicians, activists, etc) in comparison to their male counterparts on social media. This methodology is possible for both Facebook (CrowdTangle) and Twitter (API) as it does not require user comments.

1 RESEARCH QUESTION
- Do mainstream media sources give equal coverage to male and female figures on social media platforms?
- Do mainstream media sources focus on female leaders' clothing choices, personal life, social role (i.e. being a mother) and their excessively or insufficiently feminine demeanour more than their male counterparts?

2 SELECT YOUR RESEARCH SAMPLE
a. Generate a list of the top 5-20 news media based on your own expertise/research of your country context
b. Try to balance and label this list in regard to confounding factors (i.e. ideological leaning)
c. Limit your sample size to a particular topic (i.e. politicians) and/or political event (i.e an election)
d. Select a list of keywords to filter by to capture all posts related to your particular topic or political event (i.e. US Election 2020, Elizabeth Warren).
e. Select an appropriately wide time period for your given study.

3 GATHER YOUR DATA
- Based on your selected sample, filter down your dataset to gather the posts' text and interactions.

4 CLASSIFY YOUR DATA

Manual Coding (non-programming)

a. Identify and label posts where the key subject of a post is **(0) male (1) female (2) both (3) neither**
   i. If studying elections, label posts with a candidate's name and other relevant information.
      1. Topic of post (i.e. politician's outfit)
      2. Sentiment of post (i.e. criticizing or praising the individual)
b. Classify posts that portray leaders in a traditionally gendered way: **(0) non-gendered (1) fashion (2) personal life (3) social role (4) excessively feminine/masculine (5) insufficiently feminine/masculine**

5 ANALYSE YOUR DATA

No Coding Required

a. Calculate the total posts classified into each of the four categories. This may be visualized well through a bar graph with the categories as X and post counts as Y.
b. For Facebook, investigate the type of interactions male v. female figures receive. Do any patterns emerge regarding who receives more angry interactions versus hearts? This might provide some insights into how users treat female versus male figures.
c. Based on the additional coded features (i.e. candidates name, sentiment or topic of post), do any interesting patterns emerge?
d. Analyse post count over time to see if any unique patterns emerge regarding the type of coverage
e. Which topics are most associated with posts about female individuals versus male individuals?

Further Ideas for Researchers with Coding Capabilities

a. Researchers with programming capabilities may be able to dive deeper into the type of language used in male v. female posts.
   i. What are the most frequent words used in posts about males v. females? Try a wordcloud visual.
   ii. You can try using a structured topic modelling (STM) approach to generate general topics.
      1. With R you can use the stm package.
      2. Using Python you can run topic models with NLTK and Gensim libraries
   iii. Run a sentiment analysis on the male v. female posts

2. MEASURING HARASSMENT IN TWEETS DIRECTED AT MALE VERSUS FEMALE INDIVIDUALS

Possible for: 🐦

The purpose of this analysis is to quantify how much more or less abusive language female figures (i.e. politicians, activists, etc) receive in comparison to their male counterparts on social media. This methodology is only possible for Twitter as it requires individual users' posts which can be accessed through Twitter's API.

1 RESEARCH QUESTION

a. Are female leaders (i.e. politicians, activists) treated with disproportionate levels of harassment in comparison to their male counterparts?

2 SELECT YOUR RESEARCH SAMPLE

a. Generate a list of female individuals of interest (i.e. politicians) and a comparable list of male individuals. For example, you could select Hillary Clinton versus Bernie Sanders.
 i. If it is not possible to select an equal number of male and female individuals, you can weight your results during the analysis phase.
b. Time Period: Select an appropriately wide time period for your given study. Recommendation to include several months of an election period if possible.

3 GATHER YOUR DATA

• Gather all Tweets mentioning your specific individuals within your chosen time period

4 CLASSIFY YOUR DATA

➤➤➤➤ *Manual Coding (non-programming)*

a. Using your own contextual knowledge create your own codebook for a Tweet that is considered **(0) not harassment or (1) harassment**. If you need help defining harassment against women, see the first section of this paper for further information.
b. To add another dimension to your analysis, you can look at the gender of the Tweet sender. Gender-aggregated Tweet information is not available via the API so this would require manual coding: **(0) female sender, (1) male sender**.

➤➤➤➤ *Dictionary-based Sentiment Analysis (Python[45], R[46] or paid tools required[47])*

a. Streamline your classification process by running a dictionary-based sentiment analysis on your dataset. A dictionary provides a pre-collective set of abusive or negative words to run against your Tweets. Python dictionaries may be available in 200 languages, but the quality varies depending on the language.

5 ANALYSE YOUR DATA

➤➤➤➤ *Once your Tweets are classified, you can start your analysis.*

a. What are the top words used for each individual overall?

 • If your team has programming capabilities, try visualizing this as a word cloud!

b. Calculate the percentage of abusive words found for one politician and compare to other – is there any difference? Visualize this in a bar plot to compare!

 • If your sample ends up having more male politicians than female, you will have to weight your results when comparing.

c. Does abusive language change over time? Try plotting a line graph of abusive Tweet count (y-axis) over time (x-axis) for each individual and compare. Perhaps certain peaks of abusive words tell a story.
d. Who is responsible for the majority of harassment against women – male or female senders?

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45 Python offers the NLTK library to analyse texts. This can be used with Princeton University's lexical database called Wordnet which is available in 200 languages although the quality for each of these dictionaries varies. Additionally, there is the nltk.sentiment package within NLTK.
46 R offers the quanteda package for text analysis along with tutorials for this type of analysis. You can use the lexicoder package built within quanteda to conduct sentiment analyses in R (English, Dutch and Hebrew only).
47 Online tools to conduct a sentiment-analysis for research (non-programming - English)
 a. Linguistic Inquiry and Word Count is a paid sentiment tool
 b. SentiStrength is a free tool for academic research to estimate the strength of negative and positive sentiment for short texts

3. MEASURING THE TYPE OF GENDER-BASED HARASSMENT ON SOCIAL MEDIA

Possible for:

The purpose of this analysis is to quantify the types of abusive language female figures (i.e. politicians, activists, etc.) receive in comparison to their male counterparts on social media. This methodology is only possible for Twitter (API) as it requires individual users' posts.

1 RESEARCH QUESTION

a.   How are women being harassed on social media?

2 SELECT YOUR RESEARCH SAMPLE

a.   Generate a list of female individuals of interest (i.e. politicians, activists). For example, you could select Greta Thunberg.

b.   Time Period: Select an appropriately wide time period for your given study. Recommendation to include several months of an election period if possible.

3 GATHER YOUR DATA

•   Gather all Tweets mentioning your specific individuals within your chosen time period

4 CLASSIFY YOUR DATA

Manual Coding (non-programming)

a.   Use the categorisation used in the first section of this paper as your codebook to classify your sample of Tweets: (0) no harassment (1) indirect harassment, (2) information threat, (3) sexual harassment and (4) physical harassment.

b.   Using the above information, create a new column classifying Tweets as **(0) no harassment** and all other Tweets as **(1) harassment.**

5 ANALYSE YOUR DATA

Once your Tweets are classified, you can start your analysis.

a.   What percent of Tweets overall are abusive in any form?

b.   How many Tweets do you see in each category?

c.   What are the top words used in each category?

48   Sima Sharifirad and Stan Matwin, "When a Tweet is Actually Sexist. A more Comprehensive Classification of Different Online Harassment Categories and The Challenges in NLP", *Arvix*, February 2019, https://arxiv.org/ftp/arxiv/papers/1902/1902.10584.pdf

III.   SOLUTIONS

Little action has been taken by governments and social media companies. We need more global research to develop evidence-based solutions. Research must go beyond the episodic cases (i.e. Greta Thunberg, Hillary Clinton) to understand how this is happening across different cultures and contexts. When we identify patterns, we can provide informed solutions.

DRI's methodologies for underrepresentation and harassment may structure future studies conducted in different global contexts. More research using these methodologies will provide the opportunity for cross-country comparisons and more evidence to tackle this issue.

1.   WHAT HAS BEEN DONE?

Social media companies seem to protect female politicians from extreme cases of harassment, but there is not enough evidence of specific cases. In the 2013 case of Labour MP, Stella Creasy[49], who was threatened of rape by anti-abortion advocates, Twitter changed its rules to prevent "abuse".

Most companies have launched their own set of policies to prevent users from discriminating against women. However, these policies do not necessarily apply to female politicians as public figures. Starting in 2017, social media companies including Facebook, Twitter and YouTube began releasing transparency reports. No specific results have discussed the topic of female politicians and discrimination.

2.   WHAT SHOULD BE DONE?

Governments and CSOs should conduct more global research for evidence building.

- More research is needed on individual experiences of women in politics and how social media companies have responded to flagging requests.
- More research is needed from non-European or American perspectives.
- Social media companies and policymakers require a stronger body of evidence to act.

Social media companies should begin tracking and reporting on gender-based flagging requests.

- Companies should report on how they respond to this request and provide user response channels.
- Companies should respond quickly to this type of flagging request.

Social media companies should provide further data access to researchers.

- Researchers oftentimes do not have access to comment data where harassment against women may be occurring. Hopefully in the future, all three methodologies will be possible using Facebook data as well.
- Gender aggregated data would help researchers.

Users should be informed via media literacy and awareness campaigns.

- Social media users need to be made aware of this problem in order to critically identify cases of sexism or harassment online themselves. More informed citizens will lead to a fairer online debate.

Governments should require stricter transparency measures from social media platforms on this issue.

- Co-regulatory or regulatory structures may require social media platforms to report aggregate gender-based harassment flagging request and their response.
- This approach would force companies to act on this issue when there may not be a market-driven incentive to do so.

Have interesting findings? *If you have tried our methodologies and would like to share your research or feedback, please contact us at* digitalmonitor@democracy-reporting.org

49   "Twitter issues new rules to crack down on abuse," *The Guardian,* August 3 2013, https://www.theguardian.com/technology/2013/aug/03/twitter-rules-abuse-rape-bomb-threats