

# Assigning Responsibility for Preventing the Spread of Misinformation Online: Some Findings on Gender Differences

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## Abstract

*“Fake News” gained major attention throughout all types of media such as print media, broadcast news, and the Internet. This paper utilizes data from a survey of Internet users to compare the perceptions of females and males of the responsibility in preventing the spread of fake news. Those held responsible for taking additional control include public, government, and social media sites. Most respondents (91%) think that made up news stories hinder Americans. Also, most Americans agree that all three players should be more responsible -public (76%), government (73%), networking sites (76%). The results of a regression analysis followed by a t-test revealed that there is no statistically significant gender difference among the means. However, females are more likely to attribute the primary responsibility to the social media sites, when males are more likely to perceive the government as the primary responsible.*

**Keywords:** Social media; fake online news; gender; misinformation

## Introduction

The media used by Americans to get their news has been evolving since the creation of the internet. Consumers of news are relying less and less on traditional sources such as print, radio and television and more and more on the internet. The Pew Research Center (2008) reported that 40% of the respondents stated that they get most of their news about national and international issues from the internet compared to 35% from newspapers. Today even a greater proportion of adults rely upon the internet. In their August 2017 report, Pew Research has stated that 43% of Americans say that they often get their news from online sources compared to 50% who often get their news for television. Perhaps even more surprisingly, in that same study Pew found that 67% of Americans got at least some news from social media (Pew Research, 2017).

Increasingly social media platforms such as YouTube, Twitter and Facebook and others have become information sources through which certain individuals and groups have employed to disseminate misinformation with the intent of swaying public opinion of several important political issues. Myer (2018) reported on a study of fake news by Soroush Vosoughi, a data scientist at MIT who has studied fake news since 2013 and who led this study, tracked approximately 126,000 contested news stories on Twitter’s platform from its beginning to 2018. Those stories were tweeted by 3 million users, over 10 years. The researcher concluded that a false story is much more likely to go viral than a real story. It was also found that a false news story could reach 1,500 people six times quicker, on average, than a true story.

Certainly, fake news stories have been shown to have a significant impact on American citizens' political opinions (Brewer et al., 2013). Two thirds of Americans think that the mainstream media publishes fake news (Burkhardt, 2017 and Weedon et al, 2017). They also reported on a Harvard-Harris poll that revealed that 53% of Democrats, 80% of Republicans, and 60% of Independent voters believe that news media publish stories that are not true. During the 2016 presidential campaign the term "Fake News" has become a more popular buzzword. Considerable volumes of political news are uploaded and shared daily through social media sites and others online news outlets. It is worthwhile to take a closer look at this phenomenon, especially since about 4 in 10 Americans obtain their news online (Mitchell et al., 2016). This ratio is even higher (50%) for younger adults ages 18-29. During the early days of the Trump administration, surveys revealed that 89% of democrats say the news media criticism keeps leaders in line, while only 42% of Republicans feel the same (Barther & Mitchell, 2017). It was reported that in a recent study, 62% of adults in the USA get their news from social media, and the most popular fake news stories were shared through Facebook (Allcott & Gentzkow, 2017). A survey in the United Kingdom (digiday.com, 2/7/2017), found that only 4% of those surveyed were able to correctly identify a story by the headline, and that men identified more stories correctly as true or false. The site digiday.com/uk reported that 49% of Brits surveyed are confident that they can distinguish between fake news and real news stories. According to a survey by the Pew Research Center (Barthel et al., 2016), 84% of Americans surveyed are confident in recognizing a made-up news. This same survey found that 16% shared a political news that they later found out was made up, and 14% shared a news knowing that it was made up. The purpose of this paper is to utilize data from a survey of Internet users to compare the perceptions of females and males of the responsibility in preventing the spread of fake news. The main actors who should take additional responsibility include public, government, and social networking sites.

## **Methodology**

### ***Data.***

In December 2016, the Pew Research Center (<http://www.pewinternet.org>) conducted phone interviews in the United States. The sample interviewed was selected based on the U.S. Census Bureau's 2014 American Community Survey, population density, and the decennial census. For the purpose of this paper, seven variables were selected as being of interest to the researchers. Three outcome variables relate to the perception of who should take more responsibility to counter this trend: members of the public, government, or social networking sites such as Facebook and Twitter. Three demographic variables were also selected, they are gender, ethnicity, and party affiliation. Many researchers consider these three variables as relevant in a political context. Next, all records with missing values were eliminated. Finally, the dataset was reduced to 769 records. Table 1 provides a snapshot of the final dataset used in this study.

Table 1. Data by gender, ethnicity, and party affiliation

	Black			Hispanic			White			Totals
	D	I	R	D	I	R	D	I	R	
<b>Female</b>	42	7	0	23	17	10	98	90	115	402 (52%)
<b>Male</b>	23	10	0	20	17	8	66	123	100	367 (48%)
<b>Totals</b>	65 (9%)	17 (2%)	0 (0%)	43 (6%)	34 (4%)	18 (2%)	164 (21%)	213 (28%)	215 (28%)	769 (100%)

Party affiliation: Republican (**R**); Democrat (**D**); Independent (**I**)

Table 1 above shows zero (0%) for Black Republicans. This could be due to the sampling methodology adopted and doesn't necessarily reflect the status of the US population. In addition, most of the sample is White Americans (77%), with 11% and 12% for Black and Hispanic Americans respectively. Also, females make up the majority (52%) of the respondents in this sample.

**Analysis and Results**

Table 2 reports the number of respondents (n out N) who attributed a great deal to a fair amount of responsibility to the public, 76% (n = 582 out of N = 769). For each combination of ethnicity, political affiliation, and gender, two quantities –the number of respondents (N) and the frequency (n)-- are needed to estimate the population proportion of those who attribute an amount of responsibility to the public in each category. For example, among the Female respondents, Black Democrats 81% (34 out of 42) attribute a great deal to a fair amount of responsibility to the public; among the Male respondents, Black Democrats 70% (16 out of 23) attribute a great deal to a fair amount of responsibility to the public.

Table 2. Public responsibility by ethnicity, political affiliation, and gender

	Female						Male					
	D		I		R		D		I		R	
	n	N	n	N	N	N	n	N	n	N	n	N
<b>Black</b>	34 (81%)	42	6 (86%)	7	0 (0%)	0	16 (70%)	23	7 (70%)	10	0 (0%)	0
<b>Hispanic</b>	18 (78%)	23	13 (76%)	17	6 (60%)	10	11 (55%)	20	14 (82%)	17	6 (75%)	8
<b>White</b>	77 (79%)	98	80 (89%)	90	89 (77%)	115	53 (80%)	66	84 (68%)	123	68 (68%)	100

Table 3 reports the number of respondents (n out N) who attributed a great deal to a fair amount of responsibility to the government, 73% (n = 562 out of N = 769). For each combination of ethnicity, political affiliation, and gender, two quantities –the number of respondents (N) and the frequency (n)-- are needed

to estimate the population proportion of those who attribute an amount of responsibility to the government in each category. For example, among the Female respondents, Black Democrats 69% (29 out of 42) attribute a great deal to a fair amount of responsibility to the government; among the Male respondents, Black Democrats 83%% (19 out of 23) attribute a great deal to a fair amount of responsibility to the government.

Table 3. Government responsibility by ethnicity, political affiliation, and gender

	Female						Male					
	D		I		R		D		I		R	
	n	N	n	N	N	N	n	N	n	N	N	N
<b>Black</b>	29 (69%)	42	6 (86%)	7	0 (0%)	0	19 (83%)	23	7 (70%)	10	0 (0%)	0
<b>Hispanic</b>	19 (83%)	23	13 (76%)	17	6 (60%)	10	12 (60%)	20	14 (82%)	17	6 (75%)	8
<b>White</b>	79 (81%)	98	67 (74%)	90	91 (79%)	115	45 (68%)	66	82 (67%)	123	67 (67%)	100

Table 4 reports the number of respondents (n out N) who attributed a great deal to a fair amount of responsibility to the social media sites, 76% (n = 581 out of N = 769). For each combination of ethnicity, political affiliation, and gender, two quantities –the number of respondents (N) and the frequency (n)-- are needed to estimate the population proportion of those who attribute an amount of responsibility to the social media sites in each category. For example, among the Female respondents, Black Democrats 71% (30 out of 42) attribute a great deal to a fair amount of responsibility to the social media sites; among the Male respondents, Black Democrats 70%% (16 out of 23) attribute a great deal to a fair amount of responsibility to the social media sites.

Table 4. Social media sites responsibility by ethnicity, political affiliation, and gender

	Female						Male					
	D		I		R		D		I		R	
	n	N	n	N	N	N	n	N	n	N	n	N
<b>Black</b>	30 (71%)	42	4 (57%)	7	0 (0%)	0	16 (70%)	23	8 (80%)	10	0 (0%)	0
<b>Hispanic</b>	18 (78%)	23	17 (100%)	17	8 (80%)	10	10 (50%)	20	13 (76%)	17	6 (75%)	8
<b>White</b>	86 (88%)	98	72 (80%)	90	89 (77%)	115	53 (80%)	66	87 (71%)	123	64 (64%)	100

The dimensions of each one of Tables 2 thru 4 are determined by the number of independent variables (or factors) and the number of categories (or factor levels) per variable. With three categories of ethnicity

(Black, Hispanic, White), three categories of political affiliation (Democrat, Independent, Republican), and two categories of gender (Female, Male), we obtain  $3 \times 3 \times 2 = 18$  cells. To analyse the data, we built a regression model with categorical independent variables. Also, we used a dummy-variable coding for the categories corresponding to ethnicity, political affiliation, and gender. The reference categories are ethnicity (White), political affiliation (Republican), and gender (Male). The resulting model can be written as:  $P_i = b_0 + b_1\text{Black} + b_2\text{Hispanic} + b_3\text{Democrat} + b_4\text{Independent} + b_5\text{Female}$

Where  $P_i$  is the probability of assigning a level of responsibility controlling for ethnicity, political affiliation, and gender. The parameter  $b_0$  is the intercept, and the remaining coefficients ( $b_1 \dots b_5$ ) represent the effects of race, political affiliation, and gender.

A regression analysis run on the data of Table 2 regarding the public responsibility, provided the following:  $P_{pb} = 0.541 - 0.259\text{Black} - 0.57\text{Hispanic} + 0.270\text{Democrat} + 0.319\text{Independent} + 0.064\text{Female}$  (I)

A regression analysis run on the data of Table 3 regarding the government responsibility, provided the following:

$$P_{gov} = 0.520 - 0.214\text{Black} + 0.001\text{Hispanic} + 0.270\text{Democrat} + 0.291\text{Independent} + 0.040\text{Female} \quad \text{(II)}$$

A regression analysis run on the data of Table 4 regarding the social media responsibility, provided the following:

$$P_{sm} = 0.559 - 0.303\text{Black} - 0.001\text{Hispanic} + 0.235\text{Democrat} + 0.280\text{Independent} + 0.073\text{Female} \quad \text{(III)}$$

### Discussion

The results shown above reflect the marginal effects of the categorical variables representing ethnicity, party affiliation, and gender on the dependent variable  $P_i$  representing the probability of assigning responsibility to the public, the government, and the social media sites. For example, when all variables take the value zero (i.e. Males white republican), the probability values are  $P_{pb} = 0.541$ ,  $P_{gov} = 0.520$ , and  $P_{sm} = 0.559$ . On the other-hand for females (i.e. Females white republican), the probability values are  $P_{pb} = 0.605$ ,  $P_{gov} = 0.560$ , and  $P_{sm} = 0.632$ . Being a female increases the probability of assigning responsibility to the public by 0.064, to the government by 0.040, and to the social media by 0.073. Table 5 summarizes the

Table 5. The Probability of assigning responsibility by gender

	Female			Male		
	Public	Government	Social Media	Public	Government	Social Media
Black, Democrat	0.616	0.616	0.564	0.552	0.576	0.491
Hispanic, Democrat	0.305	0.831	0.866	0.241	0.791	0.793
White, Democrat	0.875	0.830	0.867	0.811	0.790	0.794
Black, Independent	0.665	0.637	0.609	0.601	0.597	0.536
Hispanic, Independent	0.354	0.852	0.911	0.290	0.812	0.838
White, Independent	0.924	0.851	0.912	0.860	0.811	0.839
Black, Republican	0.346	0.346	0.329	0.282	0.306	0.256

Hispanic, Republican	0.035	0.561	0.631	-0.029	0.521	0.558
White, Republican	0.605	0.560	0.632	0.541	0.520	0.559

probability values resulting from the three regression equations I, II, and III. To further the analysis, we run a series of T-Tests (2-tailed) on the data of Table 5. Based on the probability of Table 5, on average females (53%) were more likely to assign responsibility to the public than males (46%). However the probability means were not significantly different. In the same manner, for the government responsibility, females (67%) were more likely to assign responsibility to the government than males (64%), but the probability means were not significantly different. The same conclusion holds for the responsibility of social media, where females (70%) were more likely to assign responsibility to social media than males (63%), but the probability means were not significantly different. In addition, for both genders the lowest probability of assigning responsibility is to the public. However, the highest probability for assigning responsibility is to social media for females, and to the government for males.

The findings from the data of this survey revealed that Americans are concerned with the negative impact of fake news, and agree that the three players, the public, the government, and the social media sites should be responsible for combatting the dissemination of fake news. Therefore, any strategy to combat the spread of misinformation should involve the three players and consider the fact that females and males hold the same perceptions regarding the responsibility for preventing fake news. The public cannot police itself, there is a need for the social media sites to introduce additional tools to filter-out and block sources of misinformation. In addition, the government might introduce and promote new guidelines that could serve as a warning to the sources of fake news, without hindering the public’s right to free speech.

**References**

Allcott, H, & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, V31 (2).

Barthel and Mitchell. (2017). American’s attitudes about the news media deeply divided along partisan lines. *Pew Research Center*, May 10, 2017.

Barthel, M., Mitchell, A., & Holcomb, J. (2016). Many Americans believe that fake news is sowing confusion. *Pew Research Center*, December 15, 2016.

Brewer, P. R., Young, D. G., & Morreale, M. (2013). The impact of real news about “Fake News”: Intertextual processes and political satire. *International Journal of Public Opinion Research*, V25 (3).

Burkhardt, J. M. (2017). Combating fake news in the digital age. *Library Technology Reports*, V53 (8).

CNN: June 28, 2017: Faking a Time magazine is the most Trump ever.

<http://www.cnn.com/2017/06/28/politics/trump-time-magazine/>

Digiday.com: February 7, 2017: Demographic divides: The global state of fake news in 5 charts.

<https://digiday.com/uk/demographic-divides-global-state-fake-news-5-charts/>

Himma-Kadakas, M. (2017). Alternative facts and fake news entering journalistic content production cycle. *Cosmopolitan Civil Societies Journal*, V9 (2).

Mitchell, A., Gottfried, J, Barthel, M., & Shearer, E. (2016). Pathways to news. Pew Research Center, July 7, 2016.

Myer, R. (2018). The Grim Conclusions of the Largest-Ever Study of Fake News: Falsehoods almost always beat out the truth on Twitter, penetrating further, faster, and deeper into the social network than accurate information.

<https://www.theatlantic.com/technology/archive/2018/03/largest-study-ever-fake-news-mit-twitter/555104/>

Newsweek: May 24, 2017: Over two thirds of Americans think that the media publishes fake news.

<http://www.newsweek.com/fake-news-mainstream-media-614968>

Pew Research Center (2008). Internet overtakes newspapers as news outlet.

<http://www.people-press.org/2008/12/23/internet-overtakes-newspapers-as-news-outlet/>

Pew Research Center (2017). Key trends in social and digital news media.

<http://www.org/fact-tank/2017/10/04/key-trends-in-social-and-digital-news-media/>

Weedon, J, Nuland, W & Stamos, A. (2107). Information operations and Facebook.

<https://fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf>

Zhang, H., Abdul Alim, MD., & Li, X. (2016). Misinformation in online social networks: Detect them all with a limited budget. *ACM Transactions on Information Systems*, V34 (3).