



Public Perception of Gun Violence-related Headline Accuracy and the Credibility of **Media Sources**

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ABSTRACT

The present study sought to determine the extent to which the message or messenger is more important for news media portrayal of gun violence prevention. Exploratory analyses also examined factors related to Fox News and MSNBC credibility. Participants (N = 3,500) were US adults matched to the 2010 US Census on several demographic variables. Two mock headlines were presented: "Gun violence is result of mental health problems" and "Storing firearms in a safe can help prevent suicides." Headlines were reported to be from either Fox News or MSNBC. Participants then rated accuracy of the headline and credibility of the news source. Headline content did not predict perceived accuracy of the headline. Perceived credibility of the messenger was associated with perceived accuracy for both mock headlines. Exploratory analyses indicated several demographic factors related to Fox News and MSNBC credibility. Regardless of the content of a headline, the degree to which participants perceived it as accurate was associated with how credible they believed the source to be. These findings highlight the importance of credible media portrayal of accurate information on gun violence prevention.

KEYWORDS

Firearms; Media; Suicide; Gun Violence; Randomization

Approximately half of all suicides in the United States (U.S.) in 2018 occurred using a firearm, a proportion that is far greater than the next highest suicide method (suffocation), which accounted for 28.6% of suicide deaths (Centers for Disease Control and Prevention, 2020). Notably, firearms are highly lethal when used for a suicide attempt and the majority of those who die by suicide using a firearm die during their first suicide attempt (Anestis, 2016; Spicer, & Miller, 2000). Therefore, given the high lethality of firearms when used in suicide attempts, greater information about how to reach firearm owners about firearm suicide prevention methods is an important avenue for suicide prevention.

Despite the fact that firearm suicides account for the majority of gun violence deaths in the U.S., much of the focus on gun violence in the media is on mass shootings and the occurrence of these events is often attributed to mental health problems (Metzl, & MacLeish, 2015). While the majority of individuals with mental health diagnoses are not violent, the notion of mental health playing a primary role in gun violence is perpetuated by the media (Swanson et al., 2015). In a study examining media trends between 1995 and 2014, results indicated that news stories in the second decade of the study period were more likely to mention mass shootings by people with mental illness (McGinty et al., 2016). Further, violence was the most common topic mentioned in conjunction with mental health across the entire study period (McGinty et al., 2016). Thus, it is clear that the media portrays a message that violent behavior, specifically violent firearm behavior, can be attributed to mental health difficulties, and the rate at which the media is doing so is increasing.

Although statistics surrounding firearm suicide in the U.S. are concerning, there are several tools that can be implemented to help with firearm suicide prevention. One useful tool in suicide prevention is means safety. Means safety refers to efforts that render a specific method for suicide less lethal or which limit its availability for a suicide attempt and this approach is particularly useful when a suicide method is widely available and highly lethal (Farmer, & Rohde, 1980; Sarchiapone et al., 2011). Notably, means safety has been shown to be effective in a variety of cultural contexts and for a variety of suicide attempt methods, including for pesticide poisoning in Sri Lanka and firearms within the Israel Defense Force (Gunnell et al., 2007; Shelef et al., 2016). Thus, means safety appears to offer a meaningful contribution to suicide prevention efforts.

Despite the fact we have effective tools for firearm suicide prevention, there are still many questions to be answered with regard to how to best implement and disseminate those tools. In recent years, research as begun to focus on how the message and messenger surrounding firearms suicide prevention strategies impact the effectiveness of firearm suicide prevention techniques. A study by Crifasi et al. (2018) found that firearm owners believe the groups who would do the best at providing safe storage practices information are law enforcement, hunting or outdoor groups, active-duty military, and the National Rifle Association. A follow-up study by Anestis et al. (2021) found similar results, such that law enforcement, current military personnel, and military veterans were perceived as most credible for messages regarding safe firearm storage to prevent suicide as well as for the prevention of homicide and unintentional deaths

by firearm. Notably, neither of these studies examined the extent to which the same message delivered by different messengers impacts the perceived credibility of the message. Research has also indicated that culturally competent firearms messaging is associated with a greater likelihood of people taking steps to limit firearm access (Marino et al., 2018). Additionally, these results were stronger among individuals who were more politically conservative, living in more rural areas, and were stronger supporters of gun rights (Marino et al., 2018). This is particularly important given that these groups are associated with increased risk for firearm suicide and may be harder to reach regarding safe storage messaging. Given the findings regarding the importance of who the messenger is and what the message says, it appears vital that efforts be made to experimentally test the impact of various messages and messengers on firearm beliefs and behaviors.

An important gap in the firearm suicide prevention literature thus appears to be the degree to which specific media sources may serve as particularly effective messengers. A substantial amount of information comes from our day-to-day consumption of news media and we know little about the ways in which this relates to firearm suicide messaging; however, there is much extant literature examining the association between political affiliation and what news source is viewed as trustworthy. Research has indicated that Republicans trust far fewer news networks relative to Democrats and that the sources that are trusted are essentially reversed, such that the sources which Republicans perceive as the most trustworthy are perceived as the least trustworthy to Democrats and vice versa (Jurkowitz et al., 2021). Among data collected in January 2020, only one source (Fox News) was used by over 1/3 of Republicans for past week election information, whereas five sources (CNN, NBC News, ABC News, CBS News, and MSNBC) were used by over 1/3 of Democrats for past week election information (Jurkowitz et al., 2021). Nearly 2/3 of Republicans reported that Fox News is a trusted news source whereas 2/3 of Democrats reported that CNN was a trusted news source (Jurkowitz et al., 2021). These statistics are consistent with previous research indicating that Conservatives are more likely to find Fox News to be credible and Liberals are more likely to find CNN to be credible (Jurkowitz et al., 2021).

One theory that may help explain the relationship between political affiliation and trusted news source is Consistency Theory. Consistency Theory posits that an individual's preference is for their internal processes (i.e. beliefs, attitudes, values) to match external evidence and that a mismatch between the two is uncomfortable (Simon et al., 2004). In the context of news media, this may lead people to seek the news outlet which they know will provide information consistent with their belief and as such results in Republicans and Democrats seeking different news media outlets.

The purpose of this study was to examine the content and context of media messaging surrounding gun violence to see whether the message or the messenger is more important. All participants were shown the same two mock headlines ("Gun violence is the result of mental health problems" [gun violence headline] and "Storing firearms in a safe can help prevent suicides" [firearm suicide headline]); however, the source of the headline was randomized (Fox News or MSNBC). Therefore, half of the participants were randomized to see the gun violence

headline presented by Fox News and the firearm suicide headline presented from MSNBC and the other half saw the gun violence headline presented by MSNBC and the firearm suicide headline presented from Fox News. Based on previous work, we expected that perceived credibility of the source would predict how accurate individuals perceived the message to be and that the message itself would not be associated with perceived headline accuracy. Specifically, if an individual rated MSNBC as credible, we expected that they would rate the headline presented by MSNBC as highly accurate, regardless of whether it was the gun violence headline or the firearm suicide headline. We expected similar results for Fox News, such that a higher credibility rating for Fox News would be associated with greater perceived headline accuracy regardless of which headline was presented. For both the gun violence headline and the firearm suicide headline, we did not expect that the headline condition would be associated with the perceived accuracy of the headline. We anticipated these findings to be consistent even after accounting for other demographic factors that might influence views on these issues, such as age, gender, and income. We then sought to replicate these analyses within the subsample of firearm owners to determine if the results were similar. After conducting the primary analyses, we conducted exploratory analyses to determine what demographic factors were associated with perceived credibility of the different news sources. These secondary analyses can help provide a better understanding of who is most likely to maintain positive views about specific news sources and thus how best to reach those individuals with accurate messaging on issues like safe firearm storage. Results consistent with our hypotheses would suggest that, when it comes to delivery of gun violence related messaging from the media, what is most important is who is delivering the message. This would suggest that it is important to get gun violence related messages delivered by outlets with greater credibility with firearm owners, as this may be another potential avenue for means safety messaging to be delivered. Given the reach of mass media, infusing credible news outlets with accurate messaging could have the potential to dramatically increase the scale of efforts to shift cultural norms around safe firearm storage and accurate understanding of the role of mental illness in gun violence. These results would further indicate greater connections between media groups and researchers, despite possible political differences, may need to be a focus for researchers to ensure our messages are reaching those who need to hear them.

Method

Regulatory approval was received and consent was obtained from all participants. Participants (N = 3,500) were U.S. adults recruited online via Qualtrics Panels. Quota sampling was used, and participants were matched to the 2010 U.S. Census such that sampling quotas simultaneously accounted for sex, age, race, income, and education (Table 1).

Demographic variables

Demographic variables, including age, race, gender, income, and firearm ownership, were assessed with items created by the study team. These items have been used in multiple other data collection efforts and included in peer-reviewed publications.

Table 1. Sample demographic characteristics.

	N (%)
Age	
M (SD)	45.52 (17.94)
Range	18– 91
Sex	
Male	1,695 (48.4%)
Female	1,802 (51.5%)
Race/Ethnicity	
White	2,326 (66.5%)
American Indian/Alaskan Native	135 (3.9%)
Asian	369 (10.5%)
Black/African American	502 (14.3%)
Native Hawaiian/Pacific Islander	37 (1.1%)
Other	206 (5.9%)
Firearm Owner	
Yes	1,133 (32.4%)
No	2,367 (67.6%)

Population density

Participants' zip codes were used to assess population density. The Population Density by Zip website (https://dashboards.securedatakit.com/public/dashboard/5b8fe700-531b-416b-9cf5-3ee9b93a2353) was used to determine population density based on participants' zip codes.

Headlines and news sources

Two mock headlines were presented: "Gun violence is result of mental health problems" and "Storing firearms in a safe can help prevent suicides." Headlines were reported to be from either Fox News or MSNBC. These headlines were created such that one echoes a common media refrain that is not consistently supported by evidence (Gun violence is result of mental health problems) and one highlights an evidence-based idea that is not frequently covered in the media (Storing firearms in a safe can help prevent suicides). This allowed for us to present two headlines of varying empirical support and media presence. The headlines were intentionally kept simplistic given the novel nature of the present study as keeping the headlines simple helped to examine our research question more directly. After viewing the headline, participants were asked about the accuracy of the headline and credibility of the news source on a fourpoint Likert scale. Participants were randomized to one of two groups. The first group was told the headline, "Gun violence is result of mental health problems" came from Fox News, and that the headline, "Storing firearms in a safe can help prevent suicides" came from MSNBC. The second group was told the headline, "Gun violence is result of mental health problems" came from MSNBC and that the headline, "Storing firearms in a safe can help prevent suicides" came from Fox News.

Data analytic plan

Primary analyses were conducted to examine the extent to which the source and the message were associated with perceived accuracy of the headline after controlling for age, race, and income. These analyses were then replicated among the subsample of firearm owners. Secondary analyses were then conducted to examine what factors were predictive of perceived credibility of Fox News and MSNBC, respectively. These analyses were also replicated among the subsample of

firearm owners. To investigate the extent to which headline message and source were related to perceived accuracy, two ANCOVAs were conducted – one for each headline. We then ran these ANCOVAs again within the subsample of firearm owners. To examine what factors were related to perceived credibility of Fox News and MSNBC, two regression analyses were conducted, with the credibility of each network serving as the DV in one regression. These regressions were then replicated among the subsample of firearm owners to determine if these were similar or different when specific to firearm owners.

Results

Primary analyses - full sample

ANCOVA results for the primary analyses are presented in Table 2. Consistent with hypotheses, after adjusting for age, race, and income, results indicated that randomization condition (network purported to have delivered each headline) did not significantly predict perceived credibility of the headline. Additionally, as hypothesized, for both headlines, perceived credibility of the messenger significantly predicted accuracy for both the gun violence (F = 1740.54, p < .001, $pq^2 = .33$) and suicide headline (F = 2618.35, p < .001, $pq^2 = .43$).

Primary analyses - subsample of firearm owners

When conducted only among firearm owners, results were similar for the suicide headline, such that perceived credibility of the messenger significantly predicted accuracy of the headline $(F=735.44 , p<.001, _p\eta^2=.40)$, whereas the randomization condition did not $(F=.362, p=.55, _p\eta^2=.00)$. In contrast, results for the gun violence headline indicated that both the perceived credibility of the messenger $(F=467.9, p<.001, _p\eta^2=.29)$ and randomization condition $(F=5.62, p<.001, _p\eta^2=.005)$ significantly predicted headline accuracy. Specifically, results indicated that firearm owners rated the headline as more accurate when presented by MSNBC relative to Fox News.

Secondary analyses - full sample

The secondary analyses regression results are presented in Table 3. Results indicated individuals rating Fox News as more credible were less likely to be Asian relative to White (B=-.071, p < .001), and more likely to own a firearm (B = .092, p < .01). Rating MSNBC as more credible was associated with younger age (B = > -049 ., p = .013) and greater educational attainment (B = .061 , p < .001). Additionally, those who rated MSNBC as more credible were more likely to live in an urban area relative to a rural area (B = .048, p = .021).

Secondary analyses – subsample of firearm owners

Among firearm owners, results indicated that those rating Fox News as more credible had greater educational attainment (B = .077, p = .005) and those who rated MSNBC as more credible were younger (B=-.01, p < .001) and less likely to identify as a race classified as Other relative to White (B=-.449, p = .006).

Table 2. ANCOVA results predicting accuracy of the headlines.

	Mental health headline			Suicide headline		
	F	р	_p η ²	F	р	_p η ²
Age	0.12	73	00	2.84	09	00
Sex	0.00	99	00	2.70	10	00
Income	1.28	26	00	7.19	01	00
Credibility of Messenger	1,740.50	<.01	33	2,622.27	<.01	43
Randomization Condition	0.68	41	00	24	63	00
Condition	n	Mean	SD	n	Mean	SD
Fox News	1,739	2.42	0.96	1,744	2.63	0.98
MSNBC	1,744	2.42	0.95	1,738	2.71	0.95
Condition		EMM	SE		EMM	SE
Fox News		2.43	0.02		2.66	0.02
MSNBC		2.41	0.02		2.68	0.02
Among only those who repo	rted ownin	g a firea	rm			
Age	0.77	38	00	1.40	24	00
Sex	0.49	49	00	0.91	34	00
Income	07	79	00	1.07	30	00
Credibility of the Messenger	467.90	<.01	29	735.44	<.01	40
Randomization Condition	5.62	02	01	36	55	00
Condition	n	Mean	SD	n	Mean	SD
Fox News	576	2.42	1.02	550	2.77	0.97
MSNBC	551	2.43	0.98	575	2.78	98
Condition		EMM	SE		EMM	SE
Fox News		2.36	0.04		2.76	0.03
MSNBC		2.48	0.04		2.79	0.03

EMM = Estimated Marginal Mean; Mental health headline refers to "Gun Violence is a Mental Health Issue" and suicide headline refers to "Storing a firearm in a gun safe can help prevent suicide".

Table 3. Linear regression results examining variables that predict credibility for

	Fox News Credibility				MSNBC Credibility			
	β	р	95% Cl Lower	95% CI Upper	β	р	95% CI Upper	95% Cl Lower
Age Educational Attainment	022 025	270 199	003 010	001 050	049 061	013 <.001	005 031	001 090
Income Firearm Sex Rurality	017 092 028	402 <.001 136	006 120 128	016 269 017	016 017 020	445 355 280	007 108 032	015 039 111
Metropolitan Rural	005	821	095	075	022	277	037	130
Urban Race	009	679	101	066	048	021	014	178
American Indian/ Alaskan Native	001	948	185	173	022	214	287	064
Asian	071	<.001	347	111	029	123	207	025
Black Hawaiian/ Pacific Islander	018 004	347 805	159 363	056 282	015 015	393 391	151 456	059 178
Other	035	057	297	004	025	171	251	045

Discussion

The general public's understanding of gun violence is not consistently aligned with data and this situation may partly result from ineffective and inaccurate messaging from the media. This study aimed to examine the extent to which perceived accuracy of a headline related to gun violence depends upon the perceived credibility of the source. Our results indicated within the full sample that, regardless of the content of a headline, the degree to which participants perceived it as accurate was robustly associated with how credible they believed the source to be. If, for

instance, they perceived Fox News as credible, then whichever headline they were told was published by Fox News was likely to be perceived as accurate as well.

When examined within only the subset of participants who owned firearms, similar results emerged for the suicide headline; however, for the gun violence headline, randomization condition was also predictive of perceived accuracy. Notably, the effect size of this finding was quite small and, given the large sample size, this finding may be spurious. Given this, we caution against drawing strong conclusions based on these findings; however, these results may suggest that, for firearm owners, the mental health headline is perceived as more accurate when presented from MSNBC rather than Fox News. Although it is difficult to know why this finding emerged, it may be related to the frequency at which these topics occur on the two news sources. For example, when searching "gun violence mental health" on MSNBC.com, approximately 1,000 stories appear, whereas on FoxNews.com, nearly 7,000 stories appear. It may be that, when this headline is presented from MSNBC, it is perceived as more accurate because it is outside the normal rhetoric of the outlet and as such is perceived to be of greater accuracy relative to a news source that spends substantially more time on the topic.

These findings overall highlight the importance of credible voices serving as vehicles for accurate information on gun violence, a point consistent with emerging research on messaging related to safe firearm storage (Anestis et al., 2021). Our primary findings, focused specifically on gun violence, align well with other highly politicized public health issues, including but not limited to behaviors like mask wearing during the pandemic. In a polarized nation, individuals may hold extreme positions on issues related to safety that are either divorced from data or which are simply supported with cherry picked data voiced by preferred messengers already known to be a part of an individual's sociopolitical community. The willingness of such messengers to promote truly datadriven information is thus paramount, as this may represent the most – or even only – effective vehicle for effecting scalable change. Our results speak to a moment in time in which truth on vital issues stems at times not from a foundation of shared facts, but rather from the declared reality of an individual's chosen media outlet and social network. This is obviously unfortunate in the sense that it speaks to substantial vulnerability to misinformation; however, it also speaks to an open-mindedness to the truth if promoted by the right source. In other words, these findings certainly are not cause for celebration, but they do open a door to a potential solution. Finding ways in which we can prompt media outlets to report accurate information surrounding gun violence prevention might be an important strategy for encouraging safe firearm behavior. One possible solution may be incentivizing accuracy in journalism. For example, one company (Civil) previously incentivized accurate journalism by providing journalists cryptocurrency when they wrote accurate news pieces (Harrison, & Leopold, 2021). Although no such company exists today, a similar mechanism might be an important way to promote accurate information.

Our secondary results, although preliminary and exploratory, offer additional value in that they provide a general sense of which individuals are most likely to be swayed on this issue by particular sources. Having such information - ideally developed through additional studies better positioned to comprehensively

assess other indicators of an individual's identity – can assist in allocating resources toward messaging most likely to resonate with a high priority audience. For example, knowing that those who own firearms are more likely to trust Fox News suggests that finding ways in which we can engage with this news source to help increase messaging surrounding safe firearm procedures is of particular importance.

Limitations are worth noting. We examined only headlines and our study was only able to consider these questions from the perspective of online journalism. Furthermore, self reported accuracy of the headline may not translate to sustained beliefs or firearm storage behaviors. Additionally, although our headlines were specific to gun violence, we cannot determine that our results are specific to gun violence as opposed to public health messaging more broadly. That being said, our goal was not to highlight that the requirements for effective messaging on gun violence are unique to this specific phenomenon, but rather to simply test this question specifically with respect to gun violence rather than extrapolating from results related to other public health issues. Additionally, the headlines created were simplistic and thus not necessarily representative of headlines in the media. Further, these headlines were of different content (suicide vs gun violence broadly) and accuracy. Future research should examine the role of the headline and source using more realistic headlines and headlines that have similar content to determine if results are consistent. Finally, we were unable to determine the association between political affiliation and study results due to the research team neglecting to include items assessing political affiliation in the

Nonetheless, we believe these findings highlight an important public health consideration for gun violence prevention: shifts in societal beliefs may hinge in part on the willingness of influential media sources to adopt data-driven messaging. These results highlight previous research on the importance of credible messengers related to firearm storage and suggest that facilitating credible messengers for safe firearm storage extends beyond direct discussions and may also be important for large scale messaging from news media sources.

Notes

1. Primary analyses were also run excluding individuals who reported that they looked up the headlines. Results remained consistent with these individuals excluded such that randomization condition did not predict accuracy; however, perceived source credibility for boththe gun violence (F = 491.41, p <.001, $_p\eta 2$ = .35) and suicide headline (F = 697.82, p <.001, $_p\eta 2$ = .44).

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Data availability statement

Data may be made available upon request.

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