

BRIEF REPORT

Shooter Mental Illness Status and Language Use in Online Articles About Mass Shootings

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Studies of a variety of media have found a negative slant in portrayals of individuals with mental illness. These portrayals may contribute to harmful public stigma. As consumers shift focus to online sources of news, it is important to understand whether negative portrayals are also found online. The current study analyzed language use and other coverage choices in online articles ($N = 811$) about mass shooting events as a function of the mental illness status of the shooter. Regression analyses controlling for relevant crime characteristics showed that less angry language was used and more positive details about the shooter were included when the shooter had a mental illness. The number of victim fatalities, location of and motive for the crime, and shooter age were also related to language use and coverage choices. Whereas the current results do not align with prior findings of overtly negative media portrayals of individuals with mental illnesses, it is not clear whether this reflects a modern improvement in media portrayals or whether it is perhaps a more subtle sign of continued bias toward associating mental illness with dangerousness and lack of responsibility for committing violent acts. Future work should focus on the impact of online information sources on public attitudes and stigma toward individuals with mental illness.

Keywords: media coverage, stigma, mental illness, mass shooting

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Mass shootings are shocking and difficult to understand. It is common for media personalities and the general public to speculate as to motive. These speculations often include hypotheses about the shooter's mental health, likely because of negative stereotypes about those with mental illness. Prior

research demonstrates that the general public tends to regard individuals with mental illnesses as an outgroup and associate them with violent and erratic behavior (Corrigan & Shapiro, 2010), despite the fact that only 3–5% of violent acts are attributable to individuals with mental illnesses (U.S. Department of Health and Human Services, 2017). Negative stereotypes about people with mental illness are influenced by many aspects of culture, including the cultural norms that are used to define thoughts and behaviors as abnormal and cultural values that guide beliefs about individuals with mental illness (see Abdullah & Brown, 2011 for a comprehensive review). By their nature, media depictions of individuals with mental illness can be vectors for conveying these cultural definitions and beliefs about mental illness to the public and thus may themselves influence public stereotypes (McGinty, Goldman, Pescosolido, & Barry, 2015). Around the world, studies have found that mental illness is portrayed negatively in newspapers (Corrigan et al., 2005; McGinty, Webster, Jarlenski, & Barry, 2014), movies (Goodwin, 2014), and TV (Wahl, 2003; but see also Henson, Chapman, McLeod, Johnson, & Hickie, 2010).

In the digital era, consumers are increasingly using online and mobile content as their source of news (Pew Research Center, 2016). Given the significant, harmful impact stigma can have on individuals with mental illnesses (Corrigan, Kerr, & Knudsen,

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2005), it is important to understand whether online sources also depict people with mental illness in negatively valenced ways. Thus, the aim of the current project was to examine the relationship between mental health status of an accused mass shooter and a number of writing characteristics (i.e., language use) and coverage choices (e.g., inclusion of positive or negative background information) found in online articles about mass shootings. In particular, we were interested in determining whether more stigmatizing language, more sensationalized tone, and more negative person descriptors were used in articles when the shooter had a mental illness compared with when the shooter did not.

Method

Sample and Data Collection

Mass shootings (a shooting with three or more victims, regardless of fatalities and excluding the shooter; [Stanford Libraries, 2018](#)) listed in the Stanford Mass Shootings in America database for the calendar year 2015 ($N = 67$) were considered for inclusion. This year was selected because it was the latest completed year in the Stanford database when data collection began. Seven articles were excluded because of a gang-related motive, and a further seven were excluded because they were committed by multiple individuals. Mental illness was never suggested as a motive for any of these 14 crimes. Online articles about the remaining 53 shootings were collected by searching Google, the most frequently used search engine ([Net Market Share, 2017](#)), for the shooter's name in combination with the word shooting (e.g., "John Doe" + "shooting"). To most accurately mirror typical Internet user search patterns, all articles on the first page of results were copied into Word documents for later coding because the second page and beyond get less than 5% of Internet traffic ([Chitika Online Advertising Network, 2018](#)). Articles were not screened based on quality or potential bias. Links in the Stanford database were also copied when still accessible. Of 918 article links examined, 107 were no longer found (i.e., Stanford database links), article duplicates, or about mass shootings generally rather than specific to one crime. Thus, 811 articles were coded for all predictor and outcome variables. It is worth noting that 94% ($n = 759$) of these articles were from sources that also have other media outlets, whereas only 6% ($n = 52$) were from purely online sources.

Content Analysis

Predictor and outcome variables were selected based on prior work that found that homicide-suicides were considered newsworthy if they included extreme violence or personal tragedy, had someone to blame, and by characteristics of the victims and offenders ([Flynn, Gask, & Shaw, 2015](#)). The same work also found that homicide-suicides were reported using offender stereotypes and details about the offender's personality and mental illness status and contained speculation that the incident was motivated by mental illness.

Predictor Variables

The Stanford database coded for a number of variables related to the shooters and the crimes. Of these, we used shooter age,

location of the shooting, motive, number of victim fatalities, victim type, and shooter connection to the scene as predictor variables, with some recoding to accommodate χ^2 analyses. Shooter age was recoded by median split as ≤ 31 or ≥ 32 , location as public or private, motive as unknown or disagreement with others, fatalities by median split as 0–2 or ≥ 3 , victim type as known to shooter or stranger or both, and connection to the scene as none or connection. Median splits were used for these variables to maintain consistency of analyses across predictor variables.

Mental illness (MI) status (i.e., MI or No-MI) was coded for all shooters by searching articles for indications of mental illness and mentions of psychiatric diagnoses or use of psychiatric services. Shooter race, recoded as White and non-White based on the Stanford database, was considered as a potential confounding variable affecting writing characteristics and coverage choices ([Chiricos & Eschholz, 2002](#); [Frisby, 2017](#)).

Outcome Variables

Several details (i.e., a mugshot, negative shooter history, positive shooter history, victim history, and mention of shooter history of substance abuse) that could be included (or not) in articles were dichotomously coded and used as outcome variables. Negative shooter history included story details regarding prior behavior (e.g., ". . . was known for angrily confronting people over everything . . ." and "On . . . Facebook page, numerous posts rail against religion.") or crimes (e.g., ". . . stole a woman's car when he was 14 and led police on a chase before he wrecked . . ."), including behaviors leading up to the mass shooting (e.g., "So after getting boozed up . . . didn't go to his job on Friday evening . . ."). Positive shooter history included story details describing the shooter as being pleasant, good, or without a history of crime (e.g., ". . . He was so nice, . . . never saw cops come to the house, never heard a fight . . ." and "he had glowing references from former military personnel and employers.").

Linguistic Inquiry and Word Count (LIWC; [Pennebaker, Booth, Boyd, & Francis, 2015](#)) software was used to analyze the text of the articles. In addition to analyzing for the standardized LIWC categories of anxious, angry, sad, and positive emotion language, three custom dictionaries were created by the team for MI stigma (e.g., headcase), sensationalized tone (e.g., massacre), and negative person descriptors (e.g., weirdo). The custom dictionaries were created by discussion within the team, after initial drafts were compiled by examining stigmatizing language found in other sources ([Khoo, 2017](#); [Rose, Thornicroft, Pinfold, & Kassam, 2007](#)). Words were retained in the dictionaries if the team agreed they had no plausibly neutral or positive uses. For example, the term *nutjob* was retained because it is by nature pejorative and thus would not be used in a neutral or positive manner in an article. After agreement by all team members, the final dictionaries were formatted according to LIWC guidelines.

Statistical Analyses

Preliminary χ^2 analyses were used to determine whether MI and race categories were related to any other predictor variables or to each other. Next, χ^2 analyses and independent t tests were used to determine whether MI, race, and the other predictor variables related to them were related to coverage details. Finally, a series of

hierarchical regression analyses were used to determine whether MI and race categories were significant predictors of coverage variables after controlling for the effects of the other predictor variables to which they were related.

Results

Shooter Demographics

Of 53 shooters, 27 (51%) had no indication of mental illness (No-MI), 15 (29%) definitely had a mental illness, and 11 (21%) had some indication of a mental illness. The latter two groups were combined into one category (MI) for the purposes of statistical analyses. Thus, analyses compared 27 shooters with no indication of mental illness with 26 shooters with at least some indication of mental illness.

In terms of other demographics, 30 shooters (57%) were non-White, and all were male. The mean age of all shooters was 33.11 years ($SD = 11.35$ years). The mean number of victim fatalities per shooter was 2.89 ($SD = 2.10$, range = 0–9). Geographically, 43% of shootings ($n = 23$) occurred in the Southeast, 21% ($n = 11$) in the Midwest, 19% ($n = 10$) in the Southwest, 9% ($n = 5$) in the Northeast, and 8% ($n = 4$) in the West.

Relationships Among Predictor Variables

Mental health status was significantly related to number of victim fatalities, $t(51) = -2.16$, $p < .05$, location where the crime was committed, $\chi^2(1) = 4.64$, $p < .05$, and the motive behind the crime, $\chi^2(1) = 50.79$, $p < .001$. The MI group had more fatalities, committed crimes more often in public, and more often had unknown motives than the No-MI group. Race was significantly related to number of victim fatalities, $t(51) = 2.28$, $p < .05$, and age, $t(51) = 2.52$, $p < .05$. White shooters had more fatalities and were older than non-White shooters. MI status and race were not significantly related to each other, $\chi^2(1) = 0.91$, $p = .34$.

Preliminary Relationships Between Predictor and Outcome Variables

Supplemental Table 1 displays the test statistics comparing demographic groups on coverage details, and **Supplemental Table 2** contains the relevant descriptive statistics. Articles about shooters in the MI group, as opposed to the No-MI group, more often included negative and positive background on the shooter, used more sensationalized language and negative person descriptors, and used less angry language. Articles about non-White, as opposed to White, shooters included more negative and positive background on the shooter, more often reported substance use history, used more sensationalized and sad language, and less often included background about victims. Articles about older, as opposed to younger, shooters more often included negative and positive background on the shooter, used more sensationalized and anxious language, and more often included background about the victims. Articles about crimes in public, as opposed to private, places more often included negative background on the shooter, more often reported substance use history, used more anxious and positive emotion language, and less often included background about the victims. Articles with unknown, as opposed to disagree-

ment with others, motives more often reported substance use history, used more angry language, and less often included background about the victims. Finally, articles with more, as opposed to fewer, victim fatalities more often included negative and positive background on the shooter, more often reported substance use history, used more stigmatizing and sensationalized language, used more negative person descriptors, and more often included background about victims.

Regression Analyses

Table 1 displays results of four regression analyses (A–D), variables for which were selected based on relationships in the preliminary analyses. After controlling for victim fatalities, location of the crime, and age of the shooter, MI and race categories did not predict the use of sensationalized language (A) nor the inclusion of negative background on the shooter (C). After controlling for motive, more angry language was used for No-MI shooters (B). Finally, after controlling victim fatalities and age of the shooter, MI category predicted the inclusion of positive background on the shooter, but race category did not (D).

Discussion

These results do not align precisely with prior findings of negative mental illness stereotype portrayals in media (Corrigan et al., 2005; Goodwin, 2014; Wahl, 2003). Preliminary analyses did indicate some relationships between MI group and coverage variables; however, these relationships were either incongruent with findings of negative portrayals of those with mental illnesses in prior research (i.e., more positive background and less angry language about MI group shooters) or did not persist in more sophisticated regression analyses (i.e., more negative background, more negative person descriptors, and more sensationalized language about MI group shooters) that controlled for characteristics of the crime (i.e., number of victim fatalities, location of the crime, motive, age of the shooter) that were also related to coverage variables.

The present findings may reflect changes in the quality of media coverage of mental illness (Pirkis et al., 2008), particularly considering that the majority of articles (94%) were from sources that also transmit via print and TV (e.g., the Los Angeles Times, ABC News, etc.). For example, the finding that more positive background about the shooter was included for those in the MI group may suggest sympathetic attempts to humanize and individualize persons with mental illness. However, articles about shooters with and without mental illness included stigmatizing language equally often, suggesting that news writers persist in discussing mental health in relation to mass shootings, even when mental health is not relevant. This is in direct opposition to efforts to improve media portrayals of mental illness, such as the guidelines provided by the American Psychiatric Association (n.d.), which specifically warn against bringing mental illness up when it is not relevant to the story.

An alternate interpretation is that the current data reflect more subtle endorsement of biases toward associating mental illness with violence. Consider that angry language was used less often in the MI group, despite the facts that more was used when motive was unknown and the MI group more often had unknown motives.

Table 1
Regression Analyses A Through D

Variables	Categories	B	SE	Beta	t	p value	ΔR^2
A: Sensationalized language							
Step 1	Constant	.10	.03		3.19	<.01	.05
	Victim fatalities	.02	.00	.17	4.53	<.001	
	Location	-.02	.02	-.06	-1.62	.11	
Step 2	Age	.03	.02	.09	2.29	<.05	<.01
	Mental illness status	.00	.02	.00	.05	.96	
	Race	-.02	.02	-.05	-1.21	.23	
B: Angry language							
Step 1	Constant	1.73	.07		25.80	<.001	.01
	Motive	-.24	.07	-.13	-3.28	<.01	
Step 2	Mental illness status	-.30	.07	-.17	-4.06	<.001	.03
C: Negative background on shooter							
Step 1	Constant	-.46	.37	1.61	.21	.63	
	Victim fatalities	.16	.04	16.51	<.001	1.17	
	Location	-.86	.19	21.61	<.001	.42	
	Age	.43	.19	5.19	<.05	1.54	
Step 2	Mental illness status	.09	.19	.23	.63	1.10	
	Race	-.26	.19	1.93	.17	.77	
D: Positive background on shooter							
Step 1	Constant	-2.98	.33	84.51	<.001	.05	
	Victim fatalities	.17	.05	12.91	<.001	1.19	
	Age	.42	.23	3.23	.07	1.52	
Step 2	Mental illness status	.58	.24	5.83	<.05	1.79	
	Race	-.38	.24	2.54	.11	.69	

This pattern of results may suggest that mental illness is seen as sufficient motive for committing a mass shooting. Results from Anglin, Link, and Phelan (2006) showing that greater belief in the dangerousness of individuals with mental illness went hand in hand with lowered belief in their responsibility for committing violent acts support this latter interpretation, although this link was demonstrated only in African-American participants. Future research should explicitly explore the relationship between beliefs of dangerousness and responsibility for violent acts in individuals with versus without mental illness.

Both of these interpretations may have merit, given that improvements in coverage do not equate to ideal representations and even those who have noted these improvements maintain there is further to go (Pirkis et al., 2008). One clear finding is that crime characteristics that may be related to MI status may also impact coverage. Number of victim fatalities was one such important factor, in that inclusion of this variable altered the relationship of MI status with other variables (e.g., MI status no longer predicted sensationalized language but still predicted inclusion of positive background on the shooter). Future studies should consider the influence of additional crime characteristics when attempting to isolate the potential effects of MI status on media representations. In addition, future studies may consider examining the impact of coverage on readers' perceptions of people with mental illness.

Study limitations include the probability that the precise data set is unreproducible because of Google algorithms tailoring content to user's previous searches and other criteria, that our custom LIWC dictionaries have not appeared in prior research, and that only articles related to crimes committed in 2015 were examined. The first two limitations can be addressed in the future by sharing data and dictionaries with any interested parties. The third limitation does restrict conclusions as to the impact of media guidelines

on reporting because such conclusions would require pre-/post-guidelines analyses. As the political climate around mass shootings continues to evolve, future studies may want to replicate the variables examined in the present study to examine the durability of these findings across other years and track any changes in depictions over time. Despite these limitations, the results contribute to the literature by suggesting that Internet articles about mass shootings are subtly, if at all, influenced by the potential mental health status of the shooter and that characteristics of the crime should be accounted for when attempting to account for differences in coverage and language choices.

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