Twitter as a Tool to Warn Others about Sobriety Checkpoints: A Pilot Observational Study

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Abstract

Anecdotal evidence suggests that young people use the website Twitter as a tool to warn drivers about the locations of sobriety checkpoints. Researchers investigated this claim by independently analyzing the website's content regarding a sample of 10 sobriety checkpoints that were conducted in cities throughout the United States during the weekend of August 26, 2011. Researchers discovered that Twitter content either described one's experience driving through a checkpoint or acted as a warning to others regarding the exact location of a checkpoint. In the study's sample, there was over six times as many warnings as compared to experiences posted on Twitter. The warnings, 81 in total, reached an audience of over 64,000 people. The majority of warnings were made by males and by young people between the ages of 20 to 29 years old. Implications, limitations, and suggestions for future research are described.

Key Words: *Checkpoint; alcohol; driving under the influence; media; social*

Introduction

A major public health concern in the United States is young people who drive under the influence of alcohol. In 2009 alone, there were 4,597 alcohol-related driving fatalities among 20 to 24 year old drivers, which accounted for 35 percent of all driver fatalities of that age range for that year.[1] In 2002, Hingson et al reported that roughly 27 percent of college students and 20 percent of non-college students ages 18 to 24 years had driven under the influence of alcohol within the past 30-days.[2]

One method used by police to prevent alcohol-related crashes among young people is sobriety checkpoints.[3] Sobriety checkpoints are roadblocks in which police officers stop vehicles to determine a driver's level of alcohol impairment. The two major goals of sobriety checkpoints are to apprehend drunk drivers and to enhance the perceived risk that drivers have in terms of getting arrested for driving while under the influence.[4,5] Research studies indicated that sobriety checkpoints are very effective in preventing alcohol-related crashes and associated deaths and injuries.[6-8]

Recent news articles suggested that young people are using the social media website Twitter as a tool to warn drivers about the locations of sobriety checkpoints.[9,10] Police believe that such warnings through Twitter may encourage young people to drive under the influence, resulting in possible harm to themselves or others.[9,10] Twitter is the ninth most visited website on the internet[11] and has over 200 million members from across the world.[12] Members include individuals, businesses, and organizations.

Twitter members share information with each other by posting "tweets" on the website. A tweet is a piece of information that is limited to 140 characters or less in length and is read by a member's "followers," which are members of Twitter who desire to read the posting member's tweets.[13] The content of a tweet is at the discretion of the Twitter member. For instance, tweets can contain stories, ideas, opinions, news, etc. Individual Twitter members become followers of other Twitter members by simply opting to receive those members' tweets. The number of a member's followers is listed on that member's own webpage on Twitter. Each member's webpage also contains each tweet that they post. Although it is implied that a member's followers receive each tweet that is posted, there is no way of detecting how many followers actually read each tweet. Members of Twitter also have the option to tweet or read other members' tweets via cell phone.[13]

Given the popularity of Twitter and the prevalence of young adults in the United States who drive under the influence, the authors of this paper designed a content analysis in order to gain a better understanding of the presence and characteristics of tweets that warn drivers about sobriety checkpoints. Specifically, the study aimed to answer the following research questions: (1) What are the demographics of those who tweet about checkpoints? (2) What is the content of tweets regarding sobriety checkpoints? (3) How many people are warned about checkpoints from tweets?

Methods

The authors focused the study around the weekend of August 26, 2011. This weekend was chosen for the study because it was probable that sobriety checkpoints were conducted during that time, as the date fell within the National Highway Traffic Safety Administration's "2011 National Impaired Driving Crackdown" campaign. During the campaign, police units from over 30 states planned to conduct sobriety checkpoints from August 19th through September 5th in various cities and towns.[14]

On August 28, basic search engines were used to locate online news reports that described what cities conducted sobriety checkpoints during the weekend of August 26. The search included the following terms in various combinations: August, 26, 27, 28, 2011, DUI, DWI, sobriety, checkpoints, and arrests. The abbreviation DUI stands for "driving under the influence" and the abbreviation DWI stands for "driving while intoxicated." Both abbreviations were used as search terms since different states and cities have different preferences between the terms. A convenience sample of 10 cities was generated from the search for online news articles: Los Angeles, Denver, Kansas City, Cleveland, Tampa, Greensboro, Hunstville, Chattanooga, Wilmington, and State College. These particular cities were chosen for the study's sample in order to analyze tweets from across the nation, as opposed to tweets from just one region of the United States.

On August 28, Twitter's website was searched using its "Advanced Search" option. This search option allows people to locate tweets by specific terms and by location from where the tweets were sent to the website. The website was searched to locate tweets

about sobriety checkpoints within the sample of cities. The search included the following terms in various combinations: DUI, DWI, sobriety, checkpoint, check point. Tweets were searched within a 25 mile radius of each city within the study's sample. Only tweets that were related to sobriety checkpoints during August 26, 27, and 28 were included in the study. The authors analyzed tweets that concerned a single checkpoint within each city, as certain cities conducted multiple checkpoints during the weekend of August 26.

Tweets that resulted from the search terms were copied and printed onto a document. Two independent reviewers read and categorized each tweet into one of two categories: Experience or Warning. Tweets in the Experience category were an explanation of one's experience driving through a sobriety checkpoint. Tweets in this category did not appear in any way warn others about a checkpoint. Tweets in the Warning category were explicit warnings about the exact location of sobriety checkpoints of interest to the study. Discrepancies between the two reviewers were resolved by an independent third reviewer.

The two reviewers also independently estimated the study's sample of Twitter member demographics (age, sex, and race) based upon member photos and usernames. These demographics were not estimated if the member's photo was not posted, did not include a person, or included numerous people. Inter-rater agreement exceeded 90 percent. Again, discrepancies between the two reviewers were resolved by an independent third reviewer. Simple descriptive statistics were used to describe demographics of Twitter members, tweets, and followers.

Results

Twitter member demographics

Of the Twitter members who posted tweets, 55 (59%) were estimated to be male and 32 (37%) were estimated to be female. The far majority of tweets (73%) were posted by young people estimated to be 20 to 29 years old. Half of the Twitter members who posted tweets were Black, 33% were White, and 4% were of some other race or races (Table 1). Eight of the tweets were posted by a variety of organizations or businesses. The businesses included a news station, radio station, winery, record production company, used electronics store, and lawyers. The lawyers specialized in defending people arrested for

drunk driving. The only non-business organization that posted tweets was the Kansas City Check Point organization, which has a website dedicated to informing drivers about the locations and times of checkpoints located in Kansas City, Missouri.

Tweet content

Tweets were categorized based on their content as being Experience or Warning (Table 2). Tweets in the Experience category were an explanation of the experience that one had while passing through a sobriety checkpoint. Tweets in this category did not warn others about the location of a checkpoint. On the other hand, tweets in the Warning category explicitly warned others about the exact location of a sobriety checkpoint.

Tweets and followers

There were a total of 94 tweets, 13 (14%) being Experience and 81 (86%) being Warning tweets. The Twitter members in the study's sample varied in the number of followers, ranging from 26 to 11,309 ($M =$ 726.6, $SD = 1,592.1$, $Mdn = 299.5$). The number of followers who received Warning tweets was summed from each city, revealing that during the weekend of August 26, over 64,000 people were sent Warning tweets through Twitter concerning 10 individual sobriety checkpoints from 10 cities across the nation (Table 3).

Discussion

To the authors' knowledge, this study was the first to formally investigate the presence and characteristics of tweets on Twitter regarding sobriety checkpoints. The study's results indicated that there is a definite presence of tweets that warn followers concerning the whereabouts of checkpoints being conducted in cities throughout the United States. As confirmation to anecdotal reports,[9,10] tweets about sobriety checkpoints were most often sent by young people in this study. The results also indicated that a larger proportion of males than females sent tweets to warn others about sobriety checkpoints. This finding correlates with national crime reports that indicate more males than females are arrested each year for driving under the influence. For example, in 2009, there were 651,424 males arrested for driving under the influence, as compared to 190,445 females arrested.[15]

Based from the study's results, the authors have suggestions for future research. First, the results

indicated that people are being warned through Twitter about checkpoints; however, these results could not conclude positive or negative effects on those warned. Therefore, it was unknown if warnings about checkpoints through Twitter encourage followers to drive drunk or instead enhance risk perception of apprehension for drunk driving, which is a major factor for conducting sobriety checkpoints and publicizing the checkpoints through media outlets.[4,5,16-18]

If the latter is true, then perhaps warnings through Twitter are a blessing in disguise for police authorities. Future research should investigate these effects on people warned about checkpoints through Twitter. It is also worth mentioning that since tweets are meant to warn drivers about the locations of checkpoints, it can be assumed that some of the warnings are being received by members of Twitter who opt to accept tweets via cell phone. This suggests that Twitter members may be "tweeting and driving." Research indicated that texting and driving, which would seem similar to tweeting and driving, is extremely dangerous,[19,20] thus the authors suggest that future studies investigate the potential prevalence of tweeting and driving and its related safety issues.

We acknowledge several limitations to this study. First, the study's results come from a convenience sample that is not representative of all checkpoints conducted during the study's timeframe. As such, the study's results are not generalizable to all checkpoints. Second, demographic information about Twitter members who posted tweets were based on the estimation of researchers, meaning that the demographics shown in the study's results may not be completely accurate. To help reduce error with age estimations, researchers placed each Twitter member in 10-year categories (e.g., 20-29 years old) as compared to smaller age ranges, (e.g., 20-24 years old, 25-29 years old). Regardless, age estimations are still highly susceptible to error.

Therefore, readers should be weary in making any inferences based upon the sample's demographic information. Third, it can be assumed that not all followers live in the same city of the Twitter members who posted tweets. Moreover, it is possible that not all Twitter followers were near a computer or do not opt to receive tweets via cell phone. Thus, it can be assumed that not all followers would be affected by a Warning tweet or would not have received the Warning tweets during the time of the sobriety checkpoints. Fourth, it is possible that the search terms used for the study did not retrieve all

tweets regarding sobriety checkpoints within the study's sample of cities.

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Table 1. Demographics of Twitter members in sample

Characteristic	No. of Tweets (%)
Age	
20-29	63 (73.3)
30-39	10 (11.6)
40-49	2 (2.3)
NA[a]	11 (12.8)
Sex	
Male	51 (59.3)
Female	32 (37.2)
NA[a]	3 (3.5)
Race	
White	28 (32.6)
Black	43 (50.0)
Other	3 (3.5)
NA[a]	12 (13.9)
Organizations	8 (8.5)

[a]NA = not available

Table 2. Description and examples of tweet content

Category	Description	Sample Tweets
Experience	Tweets are an explanation of one's experience driving through a sobriety checkpoint.	Just passed a dwi check point…almost pissed in my pants
		Just hanging out in a long line of cars, waiting on a DUI checkpoint instead of being home 20 minutes ago.
		goin through that sobriety checkpoint lastnight...roughhh
		First DUI check point. Passed with flying colors.
Warning	Tweets are a warning to all of one's followers on Twitter regarding the location of a sobriety checkpoint.	Checkpoint on Spring Garden & Aycock. F the Police. And be careful.
		LAPD DUI checkpoint at Fountain/Sunset. Be safe.
		There is a DUI Checkpoint on Raymond and Lee Rd in Maple Heights. Be careful!
		DUI checkpoint I25 and 20th tonight. (Friday). Spread the word! Be safe, don't drive drunk Denver...

Table 3. Number of tweets and warned Twitter audience per city checkpoint

City & State	Pop. of City	No. of Tweets		Warned Audience
		Experience	**Warning**	
Los Angeles, CA	3,831,868	3	16	20,932
Denver, CO	610,345	0	6	13,840
Kansas City, MO	482,299	2	5	8,229
Cleveland, OH	396,815	3	26	8,612
Tampa, FL	343,890	0	4	2,148
Greensboro, NC	255,124	1	16	7,874
Hunstville, AL	179,652	0	3	429
Chattanooga, TN	171,350	0	2	435
Wilmington, DE	73,069	3	3	1,771
State College, PA	39,898	1	0	0
Total	*6,384,310*	*13*	*81*	*64,270*