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Characterizing Blunt Use among Twitter Users: Racial/Ethnic Differences in Use Patterns and Characteristics

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Abstract

Background—Young adult Twitter users are exposed to and often participate in tweets that promote risky behaviors, such as blunt use. Blunts are hollowed out cigars or cigarillos that are filled with marijuana.

Objectives—The current study was designed to determine the use patterns and characteristics of African American, Hispanic and White young adult Twitter users who reported past month blunt use.

Methods—Young adults ($N = 753$, 74% male) who reported past month blunt use were recruited via Twitter to participate in a brief anonymous online survey about their blunt use.

Results—Findings revealed that African American young adults initiated blunt smoking at an earlier age (14.8 years), reported more days of blunt smoking in the past month (23.2 days) and smoked more blunts in the past month (27.2 blunts) than their Hispanic (16.5 years, 19.7 days, and 15.4 blunts) and White (18.1 years, 15.8 days, and 22.2 blunts) counterparts, $p < .01$. African American young adults were more likely than their White counterparts to report physical craving as an obstacle to quitting blunt smoking. Several racial/ethnic differences were also found on attitudes about blunt use and reasons for initiating and continuing to smoke blunts.

Conclusions—Findings suggest that blunt use patterns and attitudes about blunt use vary by race/ethnicity. Understanding racial/ethnic differences in blunt use patterns and characteristics offers opportunities to tailor future interventions and enhance outcomes among African American, Hispanic and White young adults.

Twitter, a free social media platform that enables users to send and read short 140-character messages called “tweets”, is a popular site among young adults (Smith & Brenner, 2013).

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According to recent data from the Pew Research Center, 36% of online adults between the ages of 18-29 use Twitter (Greenwood, Perrin, & Duggan, 2016). Twitter is typically used to share news and personal experiences, interests and opinions. Adolescents and young adults often use Twitter to engage in discussions regarding their thoughts around risky behaviors, such as marijuana use. For instance, a recent study (Thompson et al., 2015) found 36,969 marijuana-related tweets between 2012-2013 from adolescent Twitter users. Of those tweets, 42.9% disclosed personal marijuana use and 65.6% discussed positive perceptions regarding marijuana use. Several other studies have assessed marijuana-related tweets among Twitter users (e.g., Cavazos-Rehg et al., 2015; Cavazos-Rehg, et al., 2014; Cavazos-Rehg et al., 2016), but very few examine the actual use patterns and characteristics of Twitter users who report using marijuana. The current study was designed to address this gap by assessing the use patterns and characteristics of racially/ethnically diverse Twitter users who reported smoking marijuana via blunts (i.e., hollowed out cigars or cigarillos that are filled with marijuana) in the past month.

In recent content analyses of over 7 million marijuana-related tweets, approximately 17% of tweets mentioned blunt use (Cavazos-Rehg et al., 2015). In addition, in an analysis of 2,590 tweets from a popular pro-marijuana Twitter page (@stillblazingtho), nearly 10% of tweets mentioned blunts (Cavazos-Rehg et al., 2014). Further, approximately 83% of tweets about little cigars and cigarillos (LCCs) mentioned the dual use of LCCs and marijuana, primarily via blunts (Kostygina et al., 2016). The large number of tweets that promote and encourage blunts reflects the prevalence of blunt smoking among young adult marijuana users in the United States. Among past-year marijuana users, approximately 50% of young adults between the ages of 18-25 reported consuming marijuana through blunts in the past year (Fairman, 2015). Blunt smoking has been associated with a higher prevalence of cannabis use disorders relative to smokers who consumed marijuana in other methods, such as joints (Fairman, 2015; Timberlake, 2009). Further, the LCCs commonly used to make blunts (e.g., Dutch Masters Palma, Swisher Sweets) expose marijuana smokers to nicotine (Peters et al., 2016) and other harmful chemicals in tobacco smoke if they combine marijuana with tobacco (Koszowski, Rosenberry, Kanu et al., 2015; Pickworth, Rosenberry, & Koszowski, 2016). Blunt use has also been associated with current alcohol, e-cigarette and other illicit drug use (Camenga et al., 2014; Cohn et al., 2016; Corral et al., 2013). The large number of positive conversations about blunt use on Twitter coupled with the association between blunt use and adverse health outcomes highlights the need for additional research that will inform prevention and treatment interventions for blunt smokers.

Several racial/ethnic differences have also been found in the prevalence rates and characteristics of blunt users. For instance, African American adults are more likely to report past month blunt smoking than other racial/ethnic groups (8.3% versus 3.3% among Hispanics and 2.5% among White adults) (Montgomery & Mantey, in press), which is likely influenced by the aggressive marketing campaigns for LCCs in African American communities, especially in neighborhoods with a large young adult population (Cantrell et al., 2013). In addition, a recent study (Montgomery & Mantey, in press) found racial/ethnic differences in correlates of blunt use (e.g., gender, overall health status) among African American, Hispanic and White adults. Similarly, Cavazos-Rehg et al. (2015) found that the majority of influential tweeters (i.e., Twitter users who have a high number of followers) of

marijuana related content were African American. Further, a large proportion of followers of a popular pro-marijuana Twitter page were African American (42.5%) and Hispanic (11.9%) (Cavazos-Rehg et al., 2014). These studies highlight the need to also examine beliefs about blunt use by race/ethnicity to determine if there are any differences that should be considered in prevention and treatment messages. The specific use patterns (e.g., number of blunts smoked per day) and characteristics (e.g., obstacles to quitting blunt smoking) of young adult Twitter users who report blunt use remains unknown. The current study was designed to address this gap by assessing blunt use patterns and characteristics of young adult Twitter users, and to also determine if racial differences exist in these patterns and characteristics among African American, Hispanic and White young adults. Gaining a stronger understanding of the actual blunt use patterns and characteristics of Twitter users will be helpful in targeting online and offline prevention and treatment messages and interventions for young adults.

METHODS

Study Sample and Data Collection

Participants in this study were young adults between the ages of 18-35 who reported smoking at least one blunt in the past month. Participants were recruited via promoted tweets on Twitter to participate in an anonymous online survey. Promoted tweets are paid ads that Twitter inserts into a user's timeline or at the top of a search page. The ad was run between May 3 and June 30, 2016. The ad targeted individuals who used certain keywords (e.g., marijuana, blunt, weed) in their search queries or in recent tweets that they wrote or engaged with (e.g., liking another Twitter users' tweet that contained a relevant keyword). The ad included a picture of a blunt and an invitation to participate in an anonymous online survey. Potential participants were invited to click on the survey link in the ad to receive a brief description about the study along with a printable version of the University of Cincinnati Institutional Review Board approved informed consent form. The potential participants were then invited to answer screening questions via Qualtrics to determine their eligibility for the study (i.e., between the ages of 18-35 and smoked at least one blunt in the past month). If eligible and interested, participants then completed an anonymous 10-15 minute online survey designed to provide an understanding of the patterns and psychosocial correlates of blunt use. The Qualtrics survey was set to allow one entry per Internet Protocol (IP) address to prevent participants from completing the survey multiple times on the same computer. IP addresses were stored in a separate file unlinked to survey responses and destroyed immediately following the study. Identifiable research information (e.g., IP address) was protected by a Certificate of Confidentiality from the National Institutes of Health.

The online survey was accessed by 1,651 Twitter users and 1,022 people provided consent to determine their eligibility to complete the survey. Of those, 840 (82.2%) participants met eligibility criteria. Of the 840 eligible participants, 819 (97.5%) participants completed the survey and 775 (94.6%) of the responses were valid. Validity checks excluded data from participants who provided discrepant (e.g., current age is younger than the age that is endorsed on the "age at first blunt use" item) or invalid (e.g., the first response was endorsed

on every survey item) data on survey items. For the current study, we used valid data from the 753 participants who self-reported as being African American, White or Hispanic. Participants (4.6%) who reported being both Hispanic and White were categorized as “Hispanic” in the current study. Data from Asian American ($n = 19$) and Native Americans ($n = 6$) were excluded from the analyses due to small sample sizes.

Measures

Participants completed items designed to characterize their age, race, gender, education level, past month employment status, and other past month alcohol and drug use. Several items from the National Survey on Drug Use and Health (NSDUH; Substance Abuse and Mental Health Services Administration, 2013) were used to assess frequency of blunt use (e.g., number of days of past month blunt smoking) and age at first blunt use. Participants also answered questions regarding their general beliefs about blunt use, as well as the initiation, maintenance and cessation of blunt use (listed in Table 1). The blunt use items were adapted from a marijuana survey used in a study of youth and young adults between the ages of 17-35 in New York City (Ream et al., 2006).

Data Analysis

Descriptive statistics and chi-square analyses were used to characterize the sample and compare demographic variables across the three racial/ethnic groups. Logistic regression (LR) models examined the relationship between race (i.e., African American versus White; Hispanic versus White) and the responses to the six items (i.e., yes/no responses) assessing beliefs about blunt use, as well as the initiation, maintenance and cessation of blunt use. An analysis of variance (ANOVA) model was conducted to examine racial/ethnic differences in the age at first blunt use, number of blunts smoked in the past month, number of days smoked a blunt in the past month and the number of days smoked a cigar without marijuana in the past month. Race was included as the independent variable and blunt use items (continuous and categorical [yes/no]) were the dependent variables in all LR and ANOVA models. When significant differences were found in the overall ANOVA model, post-hoc analyses were conducted to determine which racial/ethnic groups were statistically different from each other. To control for multiple comparisons but allow for meaningful patterns to emerge from the data, significance level was set at .01. Analyses were conducted via the Statistical Package for the Social Sciences (SPSS) Version 22.

RESULTS

Sample Characteristics

The sample included 181 (24%) African American, Non-Hispanic, 455 (61%) White, Non-Hispanic (hereafter referred to as African American and White) and 117 (16%) Hispanic young adults. Overall, the sample consisted of individuals who were predominately male (74%), high school graduates (53.3%), employed part time (33.9%), and used alcohol in the past month (58.0%). The average age of the sample was 21.3 years ($SD = 3.2$). All participants were U.S. Twitter users. There were no statistically significant differences in demographic characteristics by race.

Racial/Ethnic Differences in Blunt Use Beliefs and History among Twitter Users

As shown in Table 1, African American young adults (52.8%) were more likely to report getting “very high” from blunt smoking compared to their White (34.6%) counterparts (Odds Ratio [OR]: 1.13). African American (63.4%) young adults were more likely to report smoking blunts individually or not having a strong preference compared to their White (48.3%) counterparts (OR = 1.23). When asked about the reasons they started smoking blunts, Hispanic (15.4%) adults were less likely than Whites (23.7%) to endorse boredom as their response (OR: 0.58). African American (7.7%) and Hispanic (4.3%) young adults were also less likely than their White (14.5%) counterparts to endorse medicinal purposes as a reason for initiating blunt use (OR: 0.49 and OR: 0.26, respectively). When asked why they continued to smoke blunts, African American (7.7%) and Hispanic (8.5%) young adults endorsed medicinal purposes at a lower rate compared to White (18.7%) young adults (OR: 0.37 and OR: 0.41, respectively). African Americans (59.2%) were more likely than White (48.1%) young adults to endorse stress relief as a major reason why they continue to smoke blunts (OR = 1.32). When asked about obstacles to quitting blunt smoking, African Americans (36.3%) were more likely to report physical craving as an obstacle relative to White (18.9%) young adults (OR: 1.45). When assessing age at first blunt use and frequency of blunt use, African Americans, compared to White and Hispanic young adults, reported initiating blunt use at an earlier age (14.8 versus 18.1 and 16.5 years, respectively), a larger number of blunts smoked in the past month (23.2 versus 15.8 and 19.7 days, respectively) and more days of past month blunt smoking (27.2 versus 22.2 and 15.4 blunts), $p < .01$.

DISCUSSION

Discussions about marijuana and LCC use are popular on Twitter. Although several studies have assessed the content of tweets that discuss marijuana and LCCs (Cavazos-Rehg et al., 2015; Kostygina et al., 2016), very few examine the actual use patterns and characteristics of Twitter users who report current blunt use. This study was designed to address this gap by examining the frequency and initiation of blunt use among African American, Hispanic and White Twitter users, as well as general beliefs about blunt use. Findings revealed that African Americans reported smoking blunts at an earlier age and more frequently than their Hispanic and White counterparts. Further, several racial/ethnic differences were found in general beliefs about blunt use and in the initiation, maintenance and cessation of blunt use.

Consistent with existing literature (Schauer et al., 2016), African Americans reported a higher number of blunts smoked in the past month and a higher number of blunt smoking days in the past month than their Hispanic and White counterparts. Heavy blunt use (i.e., 21-30 days in the past month; Fairman, 2015) among African American young adults is likely influenced by the aggressive marketing of LCCs in the African American community (Cantrell et al., 2013). Further, over half of the African Americans in the current study reported getting “very high” from blunts (52.8%) and smoking blunts to relieve stress (59.2%). African Americans often experience a disproportionate level of stressors relative to other racial/ethnic groups (Dutta, Sastry, Dillard et al., 2016), such as racial discrimination (English, Lambert, Evans et al., 2014) and financial stress (Estrada-Martinez, Caldwell, Bauermeister, et al., 2012). It is plausible that the subjective high experienced from smoking

blunts provides a temporary escape from the disproportionate levels of stress that are experienced among African Americans. Moreover, other studies have cited benefits of blunts that are likely attractive to many marijuana users, such as the ability of a blunt to hold a larger quantity of marijuana than joints and pipes (Mariani et al., 2011). Given that a greater proportion of African American young adults tweet pro-marijuana related content relative to the Twitter average of pro-marijuana tweets (Cavazos-Rehg et al., 2015), Twitter might serve as an effective platform to reach this population.

Findings from this study revealed racial/ethnic differences in general beliefs about blunt use and the initiation, maintenance and cessation of blunt use. Of particular importance, African Americans were more likely than White young adults to report physical craving as an obstacle to quitting blunt smoking. The high rates of physical craving might be at least partially explained by African Americans' (14.6% prefer smoking alone, 36.6% prefer smoking with at least one other person) smoking preferences relative to their White (7.6% prefer smoking alone, 51.7% prefer smoking with at least one other person) counterparts. Studies suggest that smoking blunts in a group rather than alone promotes equal sharing of blunts and moderate consumption, and is thereby associated with a decreased chance of becoming addicted (e.g., physical craving; Dunlap, Johnson, Benoit et al., 2005). Therefore, a high prevalence of physical cravings might be partially attributed to the clinical profile (e.g., smoking alone, getting "very high" from blunts, smoking more blunts in the past month relative to White counterparts) of African American blunt smokers. Future studies and interventions should be designed to understand and help reduce physical cravings for blunts among young African American adults. Hispanic young adults were less likely than White young adults to cite boredom and medicinal purposes as a reason to initiate or continue blunt use. Overall, Hispanic and White young adults have similar beliefs regarding blunt use; however, it is important to note that most followers of the popular pro-marijuana Twitter page (@stillblazingtho) were Hispanic young adults and @stillblazingtho was in the top 30% of all Twitter pages followed by Hispanic young adults. This finding suggests that young Hispanic adults on Twitter are exposed to pro-marijuana related tweets, which has the potential to influence use patterns and beliefs about blunt use (e.g., Gutierrez & Cooper, 2016).

This study has several strengths, such as the use of Twitter to recruit a diverse sample of young adult marijuana smokers and the examination of racial/ethnic differences in the frequency of and attitudes about blunt use. However, a few limitations should be noted. First, the use of a convenience sample limits the ability to generalize the findings to the national population. Second, findings from this study are not generalizable to other racial/ethnic groups. Future studies should include a larger number of Asian Americans, Native Americans/Alaska Natives, Native Hawaiians/Pacific Islanders, Middle Easterners/North Africans and mixed race individuals. Third, findings from this study are based on self-reported anonymous data, in which individuals may have under or over-reported their blunt use and/or misrepresented themselves in order to participate in the study. However, it is important to note that participants were not required to provide any identifying information (except for the IP address that was strictly used to prevent multiple entries from the same computer and was stored in a separate location from the survey data) in the survey. Fourth, it is also important to not only note the heterogeneity across racial/ethnic groups but also

within racial/ethnic groups. For instance, studies have found differences in the prevalence and predictors of substance use among African Americans and Caribbean Blacks (Lacey et al., 2016) and in substance use treatment outcomes among Cuban American, Mexican American, Puerto Ricans and other Hispanic Americans (Chartier et al., 2015). Future studies should determine if the current findings also differ within racial/ethnic subgroups.

Despite these limitations, this study has several clinical and research implications. First, findings from this study suggest that the actual blunt use patterns among Twitter users is consistent with the large number of marijuana and LCC related tweets found in previous studies (Cavazos-Rehg et al., 2015; Kostygina et al., 2016). Given that discussions about marijuana use are already taking place on Twitter, findings from the current study provides ideas for messages that may be used to counter pro-marijuana and LCC tweets. For instance, African American young adults were more likely than their White counterparts to report stress relief as a reason why they continue to smoke blunts. Tweets that focus on stress management techniques could possibly help counter the use of blunts among African Americans to relieve stress. Second, this study provides information about attitudes regarding blunt use overall and among racial/ethnic groups on Twitter. Understanding racial/ethnic differences in beliefs about blunt use will inform the refinement and development of prevention and treatment interventions for African American, Hispanic and White young adults and provide future directions for blunt use research. For example, White young adults were more likely than African Americans or Hispanics to report using blunts for medicinal purposes. Therefore, clinicians and researchers might help White blunt users identify effective ways to cope with and treat medical conditions that do not involve recreational marijuana use. Third, findings from this study also provide preliminary evidence for the use of promoted tweets in the successful recruitment of a fairly diverse sample of Twitter users over a short period of time. Additional research is needed to examine the effectiveness of promoted tweets in recruiting other substance-using populations. Findings from the study may contribute to a better understanding of racial/ethnic health disparities that are found in the marijuana and tobacco field, especially in the dual use of these substances via blunts. Further, this study provides support for the use of Twitter to understand, and possibly prevent and treat blunt use among African American, Hispanic and White young adults.

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Table 1

Use Patterns and Characteristics of African American, Hispanic and White Young Adult Blunt Smokers on Twitter

	African American (n = 181)	Hispanic (n = 117)	White (n = 455)	Overall (n = 753)	Analyses (Odds Ratios)	
					African American ¹	Hispanic ¹
How high do you get from blunts?						
Very high	52.8	34.5	34.6	38.8	1.13 (1.05-2.16)	0.34 (0.21-1.53)
Don't get high/moderately high	47.2	65.6	63.6	61.2	–	–
How do you prefer to smoke blunts?						
Individually	14.6	8.4	7.6	9.4	2.70 (1.36-3.45) *	1.10 (0.45-2.71)
Don't have a strong preference	48.8	39.8	40.7	42.2	1.69 (1.08-2.65) *	0.98 (0.59-1.62)
With at least one other person	36.6	51.8	51.7	48.2	–	–
Why did you start smoking blunts?²						
Boredom	22.7	15.4	23.7	22.2	0.94 (0.63-1.42)	0.58 (0.34-1.01) *
Stress relief	34.3	35.9	36.3	35.7	0.92 (0.64-1.32)	0.98 (0.65-1.50)
Medicinal purposes	7.7	4.3	14.5	11.3	0.49 (0.27-0.90) *	0.26 (0.10-0.67) *
Need to show independence	2.8	1.7	3.5	3.1	0.78(0.28-2.16)	0.48 (0.11-2.11)
Low perception of harm	16.0	12.8	16.7	15.9	0.95(0.60-1.52)	0.73(0.40-1.33)
Curiosity	37.0	35.9	33.8	34.9	1.15(0.80-1.65)	1.10 (0.72-1.67)
Media Influence	8.3	6.8	6.2	6.8	1.38 (0.72-2.64)	1.12 (0.50-2.53)
Your family or friends smoke blunts	38.1	36.8	45.7	42.5	0.73 (0.51-1.04)	0.69(0.45-1.05)
Other	6.6	8.5	7.0	7.2	0.94(0.47-1.87)	1.24 (0.59-2.59)
Why do you continue to smoke blunts?²						
Your family or friends smoke blunts	24.3	25.6	33.2	29.9	0.65(0.44-0.96)	0.69 (0.44-1.09)
Boredom	23.8	17.9	24.4	23.2	0.96(0.65-1.45)	0.68(0.40-1.14)
Easily accessible	21.5	19.7	28.4	25.4	0.69(0.46-1.05)	0.62(0.38-1.02)
Stress relief	59.2	40.2	48.1	45.8	1.32 (1.13-1.86) *	0.72(0.48-1.09)
Medicinal purposes	7.7	8.5	18.7	14.5	0.37(0.20-0.66) *	0.41(0.20-0.81) *
Popular culture endorses marijuana use	5.0	5.1	9.5	7.7	0.50(0.24-1.05)	0.52(0.22-1.25)
Low perception of harm	13.8	9.4	17.4	15.3	0.76(0.47-1.24)	0.49(0.25-0.96)

	African American (<i>n</i> = 181)	Hispanic (<i>n</i> = 117)	White (<i>n</i> = 455)	Overall (<i>n</i> = 753)	Analyses (Odds Ratios)	
					African American ¹	Hispanic ¹
Curiosity	5.0	1.7	5.7	4.9	0.86(0.40-1.89)	0.29(0.07-1.23)
To relax	47.5	55.6	53.0	52.1	0.80(0.57-1.13)	1.11(0.74-1.67)
Other	11.0	12.8	9.9	10.6	1.13(0.65-1.98)	1.34(0.72-2.50)
Which of the following are important enough to make you want to stop smoking blunts?²						
Legal concerns	27.6	35.0	34.7	33.1	0.72(0.49-1.05)	1.01(0.66-1.55)
Health effects	34.3	39.3	29.2	32.0	1.26(0.87-1.82)	1.57(1.03-2.39)
Cost	23.8	20.5	29.0	26.4	0.76(0.51-1.14)	0.63(0.39-1.03)
Family and friends asking you to stop smoking	19.3	21.4	22.2	21.4	0.84(0.55-1.29)	0.95(0.58-1.56)
Nothing is important enough to make me stop	12.2	10.3	10.8	11.0	1.14(0.67-1.96)	0.95(0.49-1.85)
Other	6.6	4.3	4.8	5.2	1.39(0.68-2.89)	0.79(0.88-2.37)
What are some of the obstacles to quitting blunt smoking?²						
Your family or friends reactions	12.7	16.2	16.0	15.3	0.76(0.46-1.26)	1.02(0.59-1.76)
Physical craving	36.3	16.2	18.9	18.9	1.45 (1.19-3.21) *	0.83(0.48-1.43)
Self-image	7.7	8.5	7.5	7.7	1.038(0.54-1.98)	1.16(0.55-2.42)
Loss of sense of independence	5.0	10.3	7.9	7.6	0.61(0.29-1.30)	1.33(0.67-2.65)
Other	18.2	23.1	23.7	22.3	0.72(0.47-1.11)	0.96(0.60-1.56)
	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>F</i>	<i>p</i>
Age when you first smoked a blunt	14.8 (2.1)	16.5 (2.3)	18.1 (2.9)	16.5 (2.5)	12.72	<.01
Number of blunts smoked in the past month	27.2 (4.3)	15.4 (4.3)	22.2 (4.5)	21.6 (4.0)	6.42	<.01
Number of days smoked a blunt in the past month	23.2 (5.3)	19.7 (3.3)	15.8 (2.1)	19.6 (4.7)	5.48	<.01
Number of days smoked a cigar without marijuana	8.0 (4.7)	6.2 (5.9)	6.2 (6.4)	6.8 (5.4)	0.16	0.85

Notes.

* $p < .01$.¹ Referent category is White.² Referent category is no. For example, individuals who did not endorse the "boredom" response represent the referent category for individuals who did endorse the "boredom" response.