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State Patty's Day: College Student Drinking and Local Crime Increased on a Student-constructed Holiday

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Abstract

College student alcohol consumption is a major concern, and is known to increase during the celebration of special events. This study examined a student-constructed holiday, State Patty's Day, at a university with a dominant drinking culture using three sources of data – coded data from Facebook groups, daily web surveys from first-year students ($N=227$, 51% male, age 18 to 20; 27.3% Hispanic/Latino; of non-Hispanic/Latino, 26.9% of sample European American/White, 19.4% Asian American/Hawaiian/Pacific Islander, 15.9% African American/Black, 10.6% more than one race), and criminal offense data from police records. Results indicated that messages about State Patty's Day on Facebook focused on drinking and social aspects of the holiday, such as the social context of drinking, a sense of belonging to a larger community, and the social norms of drinking. These messages were rarely about consequences and rarely negative. On State Patty's Day, 51% of students consumed alcohol, compared to 29% across other sampled weekend days. Students consumed more drinks ($M=8.2$ [$SD=5.3$] drinks per State Patty's Day drinker) and were more likely to engage in heavy drinking on State Patty's Day, after controlling for gender, drinking motives, and weekend, demonstrating the event-specific spike in heavy drinking

associated with this holiday. The impact of this student-constructed holiday went beyond individual drinking behavior; alcohol-specific and other crime also peaked on State Patty's Day and the day after. Event-specific prevention strategies may be particularly important in addressing these spontaneous, quickly-constructed, and dynamic events.

Keywords

Holidays; Alcohol; College students; Event-level analysis; Heavy drinking

College student alcohol use is known to increase during the celebration of special events such as 21st birthdays (Rutledge, Park, & Sher, 2008; Smith, Bogle, Talbott, Grant, & Castillo, 2006), football games (Neal & Fromme, 2007b), Spring Break (Grekin, Sher, & Krull, 2007; Patrick, Morgan, Maggs, & Lefkowitz, 2011), and holidays like Halloween and New Year's Eve (Del Boca, Darkes, Greenbaum, & Goldman, 2004; Glindemann, Wiegand, & Geller, 2007). These event-specific increases in risk behavior have recently received increasing research attention in an effort to understand the public health consequences and to identify opportunities for intervention (Neighbors et al., 2007). Although event-specific risks are well-documented, we know of no other studies that have specifically examined student-constructed holidays that serve as spontaneous and idiosyncratic event-specific risks. In 2007, Saint Patrick's Day occurred during Spring Break at a large state university with a dominant drinking culture. In response, students constructed and advertised a new party-focused holiday, State Patty's Day, spreading information about the event within about 6 weeks via word of mouth, campus newspapers, and the social networking website Facebook. The rapid, student-constructed nature of this holiday, as well as its creation primarily as a drinking holiday (in contrast to many other holidays with multiple purposes, like Halloween which involves costumes and trick-or-treating) may make alcohol use of particular concern on this date.

In this paper, we use three distinct sources of data to understand students' portrayal of the holiday through Facebook, the extent of drinking on State Patty's Day relative to other days, and the community consequences of the created holiday. The inclusion of three sources of data allows us to examine the construction of the holiday as well as the holiday's effects at both the individual and community levels.

College Students and Alcohol Use

College student drinking is a serious health problem linked to high rates of unintentional injury, alcohol poisoning, and driving under the influence (Beck et al., 2010; Hingson, Zha, & Weitzman, 2009). Almost half of all college students report having consumed 5 or more drinks on at least one occasion in the past month (Hingson et al., 2009). One instance of heavy drinking can result in injury or death. Because student celebratory drinking can be extreme (Rutledge et al., 2008) and therefore increases the risk of acute consequences, it is critical to identify and understand events when students drink more heavily than usual.

Frequent and heavy drinking during college may be part of exploration in a number of domains, including risky behaviors, that occurs during emerging adulthood, or approximately ages 18 to 25 (Arnett, 2000, 2005). Exploration of risky behaviors occurs in part because of the increased freedom of this period of development (Arnett, 2000; Schulenberg & Maggs, 2002), and the desire for diverse new experiences (Arnett, 2005). In addition, university culture may place a heavy emphasis on drinking, partying, sports, and fun, which can contribute to a culture of heavy drinking (Sperber, 2000). During college, alcohol use serves a social function (Borsari & Carey, 2001; Schulenberg & Maggs, 2002),

and college students may see special events like holidays and celebrations as a heightened opportunity for forming or maintaining friendships.

Peers and Social Networking Websites During College

Peers may influence drinking through a number of different mechanisms, including exposure to the social context of drinking, an overall sense of belonging to part of a group, and perceived norms of drinking. First, engaging in alcohol use during college serves as a context for many social activities (Borsari & Carey, 2001; Schulenberg & Maggs, 2002; Sperber, 2000), and thus, college students may see drinking as a way to make social connections. College students whose friends drink more tend to drink more themselves (Rose, 1999; see Borsari & Carey, 2001 for a review). Second, alcohol use may serve as a way for college students to explore their identity (Borsari & Carey, 2001; Schulenberg & Maggs, 2002) which may contribute to a sense of belonging to a larger community. Third, college students overestimate how much alcohol other students consume, and these perceived social norms are linked to their own alcohol use (Baer & Carney, 1993; Miley & Frank, 2006; Nagoshi, 1999; Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006; Thombs, Wolcott, & Farkash, 1997). These three types of influence may contribute to how peers affect college students' drinking behavior.

Historically, peer influence on alcohol use has occurred through direct social interactions (Borsari & Carey, 2001). However, it is possible that recently developed technology serves as another way to receive influential messages about drinking, even from peers one has never met. The influx of social networking websites in the past decade introduces another channel through which peers outside of students' face-to-face social circles may influence each others' behavior. Messages received through social networking may mirror the three types of peer influence described previously, by conveying information about the social context of drinking, a sense of belonging to a larger community, and social norms of drinking.

One such social networking website, Facebook, was founded in 2004 and originally limited to college students (though now anyone can join). As of February, 2011, there were more than 500 million active users (<http://www.facebook.com/press/info.php?statistics>). Facebook users create profiles and then make connections with friends. Individuals can use Facebook for a number of purposes, mostly involving social interaction with others such as updating their status (a short description of their current activities), sharing photos, and messaging with friends. One way to interact is to set up a group through which the group founder can make announcements and members can share posts. Students at one university set up such a group in 2007 to disseminate information about State Patty's Day.

The majority of college students have Facebook accounts (Hargittai, 2008; Junco & Cole-Avent, 2008). Estimates vary widely across studies, with college students reporting spending between 10 and 120 minutes a day on Facebook (Ellison, Steinfield, & Lampe, 2007; Heiberger & Harper, 2008; Pempek, Yermolayeva, & Calvert, 2009). Communicating with friends is one of the most common reasons that students report using Facebook, although students also report other uses, including finding out about social events (Pempek et al., 2009). Evidence suggests that college students who use Facebook more tend to have more social capital (i.e., resources derived through social networks) and to spend more time socializing (Ellison et al., 2007; Heiberger & Harper, 2008; Valenzuela, Park, & Kee, 2009).

Marketers have demonstrated that word of mouth is an accessible form of advertising, recently turning their attention to using the internet, and social networking websites in particular, for such campaigns (Trusov, Bucklin, & Pauwels, 2009). For instance, ratings of movies or books on review or retail websites relate to increased movie ticket and book sales

(Chevalier & Mayzlin, 2006; Liu, 2006). Much as marketers might use social networking websites to spread information, college students can use Facebook in a similar way. The first aim of this paper is to focus on the dissemination of information about the formation of a particular event, State Patty's Day, through Facebook groups. We were particularly interested in understanding what students wrote about State Patty's Day. We examined the content of writing about State Patty's Day to determine the extent to which it conveyed messages about the social context of drinking, a sense of belonging to a larger community, and social norms of drinking behavior. In addition, given the potential consequences of drinking, we examined messages about negative consequences. We also examined how positively or negatively students portrayed State Patty's Day and how supportive they were of the event. These messages about State Patty's Day on Facebook had the potential to influence students' behavior because they may affect students' (already biased) perceptions of others' alcohol use, and the acceptability and/or desirability of alcohol use in this social setting.

College Student Celebratory Drinking

Research has demonstrated that alcohol use differs by environmental and situational factors. For instance, college student drinking follows a weekly pattern, peaking on Thursdays through Saturdays (Del Boca et al., 2004; Glindemann et al., 2007; Neal & Fromme, 2007a). Drinking also increases during celebrations of special events like football games (Neal & Fromme, 2007b), Spring Break (Grekin et al., 2007; Lee, Maggs, & Rankin, 2006), and holidays (Del Boca et al., 2004; Glindemann et al., 2007). Spring Break and many of the traditionally studied holidays (e.g., New Year's Eve and Thanksgiving) occur during college breaks (Del Boca et al., 2004). Some research, though, does show increased drinking during in residence holidays like Halloween and St. Patrick's Day in certain contexts. For instance, students who dress in costume on Halloween have higher BAC levels than those who do not wear costumes (Glindemann et al., 2007), suggesting that preparing to celebrate is linked to the amount of alcohol consumed. In fact, students cite celebration as one of the most common reasons for drinking (Roche & Watt, 1999). Thus, student celebratory drinking is of particular concern.

Also, in contrast to traditional holidays, students *created* State Patty's Day as a day for celebration with other college students. The fact that students can create such a holiday may be of particular concern because it increases the potential for high risk drinking days, and given rapid creation, provides officials with less time to respond. Thus, to examine the impact of State Patty's Day on alcohol use, in our second aim we used daily web-based surveys to determine whether student drinking and heavy drinking increased on State Patty's Day compared to other weekend days.

Drinking behaviors differ not only by environmental and situational factors like holidays, but also by individual differences. In the current study we controlled for two such individual differences: gender and drinking motives. Gender is a strong predictor of drinking, with male college students consuming more alcohol than female college students do (Patrick, Maggs, & Osgood, 2010; Wilsnack & Wilsnack, 2002). Another important individual difference is drinking motives, with motives to experience positive effects of alcohol consumption serving as strong proximal predictors of alcohol use and heavy drinking (Baer, 2002; Cooper, Frone, Russell, & Mudar, 1995; Kuntsche, Knibbe, Engels, & Gmel, 2007; Mohr et al., 2005). Mohr et al. (2001) outline two primary types of interpersonal motives for drinking: drinking to enhance positive experiences and drinking to cope with negative interpersonal exchanges. Drinking for fun or social reasons, a motive for enhancing positive experiences, and drinking to relax or cope with stress, a motive for coping with negative exchanges, are both frequently linked with alcohol consumption (Baer, 2002; Kuntsche et

al., 2007). Given their known association with student alcohol use, we included gender, fun/social motives, and relaxation/coping motives as covariates to examine the unique impact of State Patty's Day on alcohol use and heavy drinking beyond individual characteristics.

Community Impact of College Student Drinking

In addition to effects at the individual level, college student alcohol use can have negative secondhand effects on the local community (Wechsler, Lee, Hall, Wagenaar, & Lee, 2002). Beyond extreme consequences like alcohol-specific crashes, communities near universities with high rates of heavy drinking may experience a wide range of consequences of student alcohol use, such as property damage, noise, and disturbances (Wechsler et al., 2002).

Crimes linked to alcohol use may include alcohol-specific violations, such as driving under the influence of alcohol, or may include other crimes that could occur with or without concurrent alcohol use, such as vandalism. Research on alcohol-specific crime has demonstrated clear between-persons links, in that people who drink more are cited more frequently for alcohol-specific crime like driving under the influence of alcohol (Clapp, Shillington, Lange, & Voas, 2003; Neal & Fromme, 2007a; Paschall, 2003). These behaviors also can occur with specific celebrations; Lewis, Neighbors, Lee, and Oster-Aaland (2008) found that 16% of students drove shortly after having two or more drinks on their 21st birthday. By definition, there are within-person links between alcohol-specific crimes and alcohol use; alcohol-specific offenses such as driving under the influence can only occur when people consume alcohol.

There is also evidence of links between alcohol use and other types of crime. In terms of between-persons differences, college students who drink more are more likely to use illegal drugs and commit acts of coercive sex (Clapp et al., 2003; Neal & Fromme, 2007a; Paschall, 2003). Research using both retrospective self-report and police report data suggests that some delinquent acts, including violence, vandalism, traffic incidents, car theft, property crime, and graffiti are linked with alcohol use (Felson, Savolainen, Aaltonen, & Moustgaard, 2008; Palk, Davey, & Freeman, 2007). Less work has examined within-person differences, or whether people are more likely to be involved in other crimes on days that they drink. However, one within-person study suggests links between alcohol use and other criminal acts, in that college students are more likely to engage in vandalism on days they drink more than they normally drink (Neal & Fromme, 2007a).

Limited past work has addressed whether there are community-level events that relate to spikes in criminal offenses. This research suggests that homicide, disorderly conduct, and violent crime increase on certain major holidays (Cohn & Rotton, 2003; Lester, 1979; Rotton & Cohn, 2004). One study in a college town suggested that crime on holidays traditionally associated with alcohol use (e.g., New Year's, St. Patrick's Day) did not differ from non-holiday, non-football Saturdays (Merlo, Hong, & Cottler, 2010). However, the majority of holidays in that study occurred during university breaks, when many students were away. In addition, that study focused on arrests, but many offenses associated with drinking holidays (e.g., throwing objects, vandalism) may not result in arrest, at least not immediately. In the third aim of the current study, we examined the effect of State Patty's Day, a student-constructed holiday that occurred during the academic year, on local criminal offenses. Like Merlo et al. (2010), we used community-level reports from police records, but we focused on criminal offenses, examining whether offenses increased on State Patty's Day compared to other days in the same semester. We examined both alcohol-specific offenses (e.g., DUI) and other offenses (e.g., criminal mischief). We expected increases in both types of offenses, given that even non-alcohol offenses often are linked to individuals' alcohol use (Felson et al., 2008; Neal & Fromme, 2007a).

In summary, we had three specific aims. First, we used data from Facebook groups to examine how college students wrote about State Patty's Day on a social networking website. Second, we used daily web-based data from college students to demonstrate the effects of State Patty's Day on individuals' drinking behaviors, controlling for gender and drinking motives. Third, we used local crime data to describe community-level effects of the holiday. By using these three distinct data sources, we avoided relying exclusively on students' self-reported drinking, and could examine the holiday's effects beyond individual participants.

Method

State Patty's Day occurred in a college town with about 80,000 permanent residents and about 44,000 university students. Students' social life predominantly occurs on campus and in the surrounding town because the town is not located near any major cities. There are a number of bars and restaurants in walking distance of campus. The university is a large, state university that requires campus residence for all first year students who are under age 21, not veterans, and not living with an adult relative. During the academic year of data collection, the student composition was about 80% European American/White, 12% ethnic/racial minority, and 7% international students. As at many large universities, student alcohol use is an issue of major concern and action within the university and larger community.

The three aims described in this study pertain to the same community, but they are three distinct sources of data (posts in State Patty's Day Facebook groups; participants in the web-based survey data collection; criminal offenses reported during a 2 month period). We describe the methods for each separately.

Aim 1: Facebook Groups About State Patty's Day

Data—We searched for public groups on Facebook that contained all possible three word combinations of the following terms: 1) State, Saint, St.; 2) Patty, Patty's, Paddy, Paddy's, Patrick, Patrick's; Pat, Pat's, Paddies, Patties, Pattie's; 3) Day. We originally performed searches in 2008 and updated them in 2009. For all groups that referred to State Patty's Day (or, without using the exact name, alternative Saint Patrick's Day at the same university) we recorded all text from the group description (i.e., summary on the front page of the group that explains purpose of the group) and wall posts (individual posts by group members commenting on the group or responding to other members' comments). We treated each group description or wall post as a distinct unit of data, and thus coded each one separately. For reliability purposes, we included all coded data that referred to State Patty's Day 2007, 2008, or 2009, or a total of 494 units. However, here we report only those groups and wall posts that referred to the first State Patty's Day, which occurred in 2007, resulting in 248 units of data. We chose to report only on 2007 data because our self-report and crime data are based on State Patty's Day in 2007, and we wanted all three data sources to refer to the same time frame.

Coding—We developed the content coding system for the Facebook data in two ways. First, undergraduate students who were not coders read through the group descriptions and wall posts, and created lists of major topics addressed in the data. Because the data concern the creation of a new holiday, it was difficult to predict the topics that students would discuss in this forum, and we wanted to ensure that we included all topics present in the data. Second, we categorized these topics into three major categories, based on possible messages from peer influence: social context of drinking, sense of belonging to larger community, and social norms of drinking. In addition, although it did not arise in the original content-generated list of topics, we added physical/behavioral consequences of alcohol use given the frequent occurrence of such outcomes from drinking and their

importance for individual health (e.g., hangovers, passing out, injury; Hingson et al., 2009; White & Labouvie, 1989).

Three undergraduate students trained and supervised by the fourth author coded all group descriptions and wall posts. Coders independently coded each entry, and then met weekly with the fourth author to discuss any discrepancies. Thus, final data are based on the resolutions of these group meetings rather than individual coders' ratings. Categories were not mutually exclusive; each group description or wall post could be coded into multiple categories. We calculated kappas for each pair of coders. Table 1 presents, for each code, the mean kappa across these three pairs. The average kappa across all three coders and all codes was .79.

In addition to coding the content of the Facebook data, we also coded the positive and negative valence of the posts, using procedures similar to past work (Lefkowitz, 2005). We wanted to examine not only what students said, but how they portrayed it. Coders rated positive and negative portrayals using separate scales, because it is possible to portray little to no positivity or negativity, as well as to portray meaningful amounts of both positivity and negativity within one message. Coders were instructed to rate the response based on the *writer's portrayal*, rather than to evaluate whether they thought something was positive or negative. For instance, throwing up because of drunkenness was not automatically coded as negative unless the writer portrayed it in a negative way. Positive portrayals included things like excitement, joy, looking forward to the holiday, and thanking the holiday creators. Negative portrayals included things like complaining or saying the holiday was dumb. Both positive and negative portrayal used the following scales: 1 (none), 2 (a little), 3 (some), 4 (pretty much), 5 (a lot). Intraclass correlations across the three coders were .83 for positive and .83 for negative.

A separate team of three coders (including the fourth and fifth authors) coded each group description and wall post to determine what year(s) it referred to. They were not mutually exclusive in that each entry could be coded as more than one year. The current paper includes all posts that mentioned State Patty's Day 2007 but excludes posts that only mentioned State Patty's Day in subsequent years. Reliability on whether a post referred to 2007 was acceptable (kappas = .76 to .82). All discrepancies were resolved by discussion of all three coders.

Aim 2: First Year Student Daily Online Surveys

Participants and procedures—Participants in the current analyses were part of a larger study of college student alcohol use and sexual behavior. Eligible students were first year, second semester students, 18 – 20 years old (all below the legal drinking age in the United States), graduated from high school the previous spring, and were U.S. citizens or permanent residents. Using a stratified random sampling procedure with replacement to achieve diversity in race, ethnicity, and gender, we sent targeted students e-mail invitations. They had about two weeks to complete the web-based baseline survey, which took students about 35 minutes to complete. The day after they completed the baseline survey, they received a link to the first of up to 14 consecutive daily web-based surveys, which took about 8 minutes to complete each day. They received daily email reminders with links to their daily web-based surveys. Participants received a \$5 pre-incentive with the initial mailed invitation to participate, \$25 for the baseline survey, \$3 for each daily survey, and up to an \$8 bonus for completing the daily surveys (up to \$80 total). Students indicated their informed consent with an electronic signature. All data collection occurred during February, March, and April of 2007.

Of the 330 invited students, 69% provided baseline and at least one daily survey ($N = 227$; 51% male; $M = 18.8$ years old, $SD = 0.4$). A total of 2992 days were available for analysis (94% of the 3178 possible person days). Based on self-reports, 27.3% of students identified as Hispanic/Latino. Of non-Hispanic/Latino students, 26.9% of the sample identified as European American/White, 19.4% as Asian American/Hawaiian/Pacific Islander, 15.9% as African American/Black, and 10.6% as more than one race.

Measures—The Importance of Consequences of Drinking (ICOD, Maggs, 1993) in the baseline survey assessed between-persons differences in *Fun/Social* motives for alcohol use (5 items, $\alpha = .91$, e.g., “have a good time”) and *Relaxation/Coping* motives (4 items, $\alpha = .88$, e.g., “help you unwind”). Participants rated each item on a scale ranging from 0 (not important to me) to 4 (very important to me). The reliability is comparable to that reported in prior college samples (Lee et al., 2006). Mean scores were 1.75 ($SD = 1.19$) for fun/social motives, and 1.01 ($SD = 0.99$) for relaxation/coping motives.

Based on past research that suggests that student alcohol use peaks on Thursdays through Saturdays (Del Boca et al., 2004; Glindemann et al., 2007; Neal & Fromme, 2007a), we coded *Weekend Days* as Thursdays, Fridays, and Saturdays. We coded Friday, March 2, 2007 as *State Patty’s Day*.

We assessed *Alcohol Use* on each of 14 days as the number of standard drinks consumed the prior day (“from the time you woke up until you went to sleep”) on a drop down menu ranging from 0 to 25+ drinks. Students read the following definition of a drink: “half an ounce of absolute alcohol, for example: 12 ounce can or glass of beer or cooler, 5 ounce glass of wine, drink containing 1 shot of liquor.” We coded *heavy drinking* as having 4 or more drinks for women, and 5 or more drinks for men, using guidelines for gender-specific binge drinking (Wechsler, Dowdall, Davenport, & Rimm, 1995).

Aim 3: Criminal Offenses

The local police department provided criminal offense data corresponding to a two month period during daily data collection (2/1/07 through 3/31/07) and included any incidents that occurred on campus or in the town where the campus is located. Individuals described in the incidents were students, local residents, and non-residents. Offense data are more inclusive than arrest data because they refer to incidents that involved the police, whether or not an arrest occurred (e.g., a call about vandalism where the perpetrator was not found). We defined a day to include any incident that occurred during the 24 hour period between 5:00 a.m. on that date, and 5:00 a.m. the following date. For instance, we coded any incidents that occurred between 5:00 a.m. on March 2 and 5:00 a.m. on March 3 as occurring on State Patty’s Day. We defined days in this way because incidents between 12:00 a.m. and 5:00 a.m. on any particular date were more likely to be a result of drinking that began the prior evening, and individuals involved in incidents between 12:00 a.m. and 5:00 a.m. were unlikely to have gone to bed since the prior day.

The police department removed identifying information and then provided us with a file with the following data for each incident: incident numbers, dates, times, reason for the original call (e.g., loud music), incident description (e.g., disorderly conduct), and location. We used the incident numbers to combine multiple incidents by the same person at the same time into one offense. For instance, one offense could have two or more associated descriptions or incidents (e.g., one original offense “DUI” was associated with 5 incidents for one person: possession of intoxicating beverage, 3 distinct DUI charges, and a traffic violation). After combining the multiple incidents into offenses, we coded each offense as being alcohol-specific if it fell into any of the following categories: DUI, minor operating vehicle with any alcohol in system, misrepresentation of age to obtain alcohol, furnishing

alcohol, alcohol overdose, liquor code violation, open container, public drunkenness, purchase/possession/consumption/transportation of alcohol, and restriction on alcoholic beverage (open container in motor vehicle). In instances of multiple incidents for one offense, we coded the offense as alcohol-specific if one or more incidents were alcohol-specific (e.g., the five charge example above would be coded as alcohol-specific because of the DUI and possession, even though a traffic violation occurring independently would be coded as other). We then categorized all offenses as either alcohol-specific or other.

Results

Aim 1: Facebook Groups About State Patty's Day

Our first aim was to examine how college students wrote about State Patty's Day on a social networking website. There were 17 groups with 477 wall posts that focused on State Patty's Day. Of these, 65% ($n = 11$) of groups and 50% ($n = 237$) of wall posts referred to the 2007 holiday. For the remainder of this paper, we refer to only those groups and posts that referred to the 2007 holiday.

By far, the most popular Facebook group (192 wall posts about 2007) was "The Official Group to Move St. Patrick's Day 2007." Created January 19, 2007, it had 1000 members within 3 days and over 4000 members in 25 days. Examples of some of the other Facebook groups that referred to State Patty's Day 2007 include "State Patty's Day DID ME DIRTY!" (12 wall posts about 2007), "STATE PATTY'S DAY, Pt. 2: MARCH 1st, 2008" (9 wall posts), "Official group to designate March 2nd 'STATE' patty's day every year" (7 wall posts), "My school moved a holiday. What did yours do?" (4 wall posts), "BRING STATE PATTY'S DAY TO [TOWN NAME] ON MARCH 2!!" (2 wall posts), "State Patty's Day '09—3rd Time's a Charm" (1 wall post), "State Patty's Day '07 – and by STATE, I mean [University name] bitches!" (0 wall posts) and "[University abbreviation] we're better than U." (0 wall posts).

Table 1 presents the frequency of each code across all group descriptions and wall posts. In terms of the social context of drinking, the most common topic students discussed was bars (19% of all group descriptions and wall posts), including specific bars for celebrating, bar specials, and hours of operation. For instance, one wall post said, "maybe this is just me, but could [someone] post a list somewhere on here of the bars that ARE still supporting? It might make it easier, once the booze sets in, to have something to reference..." Another wall post said, "[bar name] got their beer delivered and they are ready for tomorrow. they will be opening at 12 with green beer ready to be served!" Discussed less frequently in this category was partying (specific references to partying or going out, such as to a fraternity house, an apartment party, or a bar, 4%). Overall, though, more than 20% of the group descriptions and wall posts about State Patty's Day referred to the social context of drinking.

In terms of sense of belonging to a larger community, the most commonly discussed topic was the sale of State Patty's Day merchandise, such as clothing and shot glasses (17%). For instance, one wall post said, "tell the bars or some stores down town to make tee shirts.. i know a bunch of ppl who would buy them to support this glorious event." Also frequently discussed was the holiday nature of State Patty's Day (15%), which included debating the date for the holiday, whether it was important to honor St. Patrick, and whether the holiday was sacrilegious. There were also more general discussions about the day as a holiday or celebration. For instance, one wall post stated, "Just take tomorrow for what it is: a Celebration YOU ALL helped create. All I and my friends did was put up a facebook group and you all joined and had the say of the people... You made STATE PAT's a reality, and I can never ever express enough respect to you guys for doing so." As another example, a wall post read, "DEAR STATE, thanks for creating a holiday where we can black out by

noon, love the students.” Also mentioned in more than 10% of descriptions/posts was the university, which included school spirit/pride, and the administration’s reaction to the holiday. The group description for the largest group said, “So, [university president name] and the rest of the Administration think they can take away our St. Patty’s Day? Move everything back a week and the holiday will just go away? We think not! St. Pat’s isn’t a day... It’s a way of life.” As another example, one post said, “I dont think [university name] administration appreciates our movement... i’ve heard rumors that they are putting pressure on bar owners to cancel any planned celebrations..” Another stated, “I think we should be moving up to number one party school in the country after successfully moving a holiday. Lets see Texas do that!!!” Mentioned less frequently in this category was media attention (8%). Overall though, like social context, sense of belonging frequently occurred in writing about State Patty’s Day on Facebook.

In the category of social norms of drinking, alcohol use and/or drinking occurred frequently (15%), including getting drunk. One wall post stated, “Is anyone else nearly as excited as I am that Friday will be a day purely made by US for DRINKING!?!?? Cuz I cant wait! :-)” and another stated, “i can’t wait!! im [planning] on being drunk all day.” Within this category, safety and/or responsible behavior was mentioned very infrequently (1%). One instance was the group description for the largest group: “We wanted to publicly state that our intention is not to rally thousands of students to drink all day. The purpose of this group was, is, and will remain to be that of keeping alive the spirit that is Saint Patty’s Day. Though events that coincide with the celebrations are of course inevitable, it is more than possible to enjoy ourselves while still celebrating safely.” Law enforcement was also mentioned infrequently. Thus, the dominant social norms messages were about alcohol use and drinking rather than safety or responsibility.

We also were interested in descriptions/posts that addressed issues of physical/behavioral consequences of drinking, but these occurred very infrequently. Six descriptions/posts (2%) mentioned physical/behavioral consequences, most frequently hangovers.

Finally, we examined the positive and negative valence of the Facebook data. On average, Facebook group descriptions and wall posts were rated as a little positive ($M = 2.10$, $SD = 1.52$). For instance, two entries that were rated high in positive were: “About time someone stepped up to save a National Holiday from being forgotten,” and “Complete, complete, complete fucking success. Bravo my friends, bravo.” Descriptions and posts were rated on average as not at all negative ($M = 1.04$, $SD = 0.31$). Although very few responses were rated negatively, a few were, such as, “This is blasphemy on a biblical scale!” and “I just got back from the most miserable day of work. I was so hungover that I had to throw up twice in the bathroom. It did me dirty.” It is worth noting that some responses, though describing events that others might consider negative, were portrayed in a way that we did not rate as negative because we evaluated the writer’s perspective. For instance, “1 broken nose/1 bruised elbow/1 lost shoe/st. patty’s day...FUCKING PRICELESS!” and “[Name removed] ... i take issue with that... but its true... i DO enjoy the afternoon blackout...”

Aim 2: First Year Student Daily Online Surveys

Our second aim was to use daily web-based data from college students to demonstrate the effects of State Patty’s Day on individuals’ drinking behaviors, controlling for gender and drinking motives. On State Patty’s Day, more than half of participants (51%) consumed alcohol compared to 29% across other sampled weekend days. Among those students who drank on State Patty’s Day, they consumed on average large quantities of alcohol ($M = 8.2$ drinks per State Patty’s Day drinker, $SD = 5.3$), about two more drinks than did students consuming alcohol on other weekend days (TR/F/SA, $M = 6.3$ drinks per weekend drinking day, $SD = 4.0$). Among students who drank on State Patty’s Day, 78% engaged in heavy

drinking that day. In contrast, on non-State Patty's Day weekend days that participants drank, 69% were heavy drinking days.

We used a non-linear multi-level model (MLM) with a Poisson distribution (Raudenbush & Bryk, 2002) for the outcome variable number of drinks because it is a count variable with many zeroes. We used a logistic MLM for the dichotomous outcome heavy drinking. The two daily outcome measures (Level 1) were nested within individuals (Level 2). The models included between-persons (Level 2) predictors of gender and drinking motives (i.e., fun/social and relaxation/coping) and within-person (Level 1) predictors of weekend days and State Patty's Day. MLM accounts for nesting of measurement occasions within people and allows for inclusion of data from all available measurement occasions, even if a participant is missing data on some occasions, due to greater flexibility of handling missing data than other analyses of repeated measures data (Kenny, Kashy & Bolger, 1998).

Results from the MLMs indicated that between-persons (at Level 2), students with higher fun/social motives consumed more alcohol on average and were more likely to engage in heavy drinking than other students (γ_{02} , Table 2). Gender and relaxation/coping motives did not uniquely predict the number of drinks consumed or heavy drinking. Turning to the within-person (Level 1) aspect of the analysis, because the likelihood of drinking was quite low on weekdays, students consumed many more drinks and were far more likely to engage in heavy drinking on weekend days than on weekdays (γ_{10} , 12.6 times as many drinks and 21.2 times greater odds of heavy drinking). As hypothesized, State Patty's Day was associated with even greater alcohol use than other weekend days (γ_{20}), with students consuming 2.3 times more drinks and having 3.8 times greater odds of heavy drinking on State Patty's Day.

Aim 3: Criminal Offenses

Our third aim was to use local crime data to describe community-level effects of the holiday. Figure 1 presents all alcohol-specific and other offenses for each day across approximately two months. The figure shows that crime generally peaked on the weekends, and that there were more total offenses on State Patty's Day than on any other day in the two month period. On State Patty's Day, there were 34 alcohol-specific and 53 other offenses. On an average weekend day during this period (Thursday, Friday, or Saturday), there were 11.6 alcohol-specific offenses, and 30.3 other offenses.

Of alcohol-specific offenses on State Patty's Day, 26% were multiple offenses. Thus, reported percentages add to more than 100%. Of the alcohol-specific offenses on State Patty's Day, the most common was public drunkenness (47% of all alcohol-related offenses). The next most common was purchase/possession/consumption/transportation of alcoholic beverage (44%). Other State Patty's Day alcohol-related offenses included DUI (24%), alcohol overdose (9%), and open container violation (3%). Note that many of these were multiple offenses, so they could include other offenses like disorderly conduct or false ID (including carrying a false ID or showing one to a law enforcement officer).

Among State Patty's Day offenses that were not alcohol-specific, the most common was disorderly conduct (58%), which included descriptions such as throwing items (e.g., bottles, snowballs), loud music, loud noises, public urination, and fighting. The next most common was criminal mischief (15%), followed by theft (11%). All remaining other offenses occurred <10% of the time, and included false ID, possession of marijuana or paraphernalia, harassment, and assault. It is important to note that although State Patty's Day had more total offenses and more alcohol-specific offenses than any other day in the two month period, the day after State Patty's Day there were 63 non-alcohol offenses, more than on State Patty's Day (or any other day). The bulk of this increase appeared to come from

criminal mischief offenses (32% of other offenses on this Saturday), including damage to vehicles and buildings.

Discussion

In three separate sources of data, we examined how students wrote about State Patty's Day on a social networking website, the effects of State Patty's Day on individuals' drinking behaviors, and community-level crime on the holiday. Messages about State Patty's Day on Facebook focused on social aspects of the holiday, and were rarely negative. Surveyed first year students were more likely to drink, were more likely to engage in heavy drinking, and consumed more alcohol on State Patty's Day than on other weekend days, even after controlling for gender and drinking motives. The impact of this student-constructed holiday went beyond individual drinking behavior, as local crime peaked on State Patty's Day and the day after.

Dissemination of Information Through Facebook

Students' discussions on Facebook about the holiday covered all three examined mechanisms of peer influence, and rarely portrayed the holiday in a negative way. First, messages about bars were one of the most frequent types of messages, thus focusing on a social context of drinking. Alcohol use in college serves as a context of many social activities (Schulenberg & Maggs, 2002; Sperber, 2000), and students' messages about State Patty's Day fit within this portrayal of alcohol use for socializing.

Second, more than half of the messages on Facebook concerned a sense of belonging to a larger community. For instance, 17% of wall posts concerned how to buy t-shirts and other merchandise that would help students identify with other students celebrating the event. A number of other posts focused on the holiday nature of State Patty's Day (e.g., how students created this day of celebration), school spirit/pride, or the administration's reaction to the university. Given that alcohol may serve as a channel for identity exploration (Borsari & Carey, 2001), students who read these messages and wanted to feel a sense of belonging may have celebrated as a way of channeling their own identity exploration.

Third, messages focused on the social norms of drinking, with frequent discussion of alcohol and getting drunk, but with very few mentions of safety. We did not collect data on the influence of these messages on students' actual behavior. However, it is possible that these messages impacted students' actual alcohol use on State Patty's Day and contributed to the high rates of drinking and heavy drinking on that day. In general students perceive that their peers consume more alcohol than they actually do, and perceiving that peers drink more is associated with increased drinking (Baer & Carney, 1993). Although the percent of students who drank on State Patty's Day was high, there were many students who did not drink on State Patty's Day and likely many who drank responsibly. However, the messages on Facebook did not reflect this range of behavior, because very few messages on Facebook described abstinence or safe behavior. If in advance of the event most of the messages that students received were about heavy drinking, then, much like perceived peer norms, this information may have impacted students' own drinking behaviors. Because we did not examine the actual effects of the messages, it is not clear whether the influence of messages on social networking websites are more similar to actual friends or to other forms of media, like television, where individuals may not have personal relationships with the source of the message. It would be important to address this question in future research.

Much like marketers can use social networking for word of mouth marketing (Trusov et al., 2009), students may, more and more, turn to social networking to spread and receive information about social events, including those that involve alcohol. In addition, unlike

face-to-face interactions, it is easier to disguise one's true identity on social networking sites, and evidence suggests, for instance, that people sometimes lie about their identities online (Whitty, 2002). Thus, bar owners or employees could potentially use Facebook to advertise specials in posts without presenting the information as an advertisement (e.g., writing as though they are also students). This information from other students or establishments could reinforce students' perceptions of the social norms of drinking and a larger community that values alcohol use. The use of social networking websites to disseminate information about alcohol-focused events is not limited to college students or to the United States. Recent press attention highlights the use of Facebook in France to plan *apéros géants*, large drinking parties in public locations. A recent such event with about 10,000 attendees led to the death of a young man who consumed a large amount of alcohol and fell off a bridge (Rosenberg, 2010).

Although individuals of any age could construct a party-focused holiday, some features of emerging adulthood make such an event more likely. First, emerging adulthood is a period of heightened identity exploration and a desire for autonomy (Arnett, 2000; Borsari & Carey, 2001; Schulenberg & Maggs, 2002), coupled with a need for interdependence (Settersten, in press). This need for both autonomy from one's family of origin and connection to others may lead emerging adults to seek out opportunities to feel part of a group of similar others. Second, in terms of the holiday's alcohol focus, heavy drinking increases after high school graduation, peaking during emerging adulthood (Johnston, O'Malley, Bachman, & Schulenberg, 2009; O'Malley & Johnston, 2002). Third, the social nature of alcohol use is particularly salient in emerging adulthood. Choosing to drink to have a good time with friends peaks at age 20, with 80% of 20 year olds reporting this social motive for alcohol use (Patrick & Schulenberg, 2011). This developmental co-occurrence of desiring both autonomy and interdependence, combined with rates of heavy drinking and the motivation to drink in order to have a good time with friends, likely fueled the appeal of State Patty's Day. As evidenced by Facebook posts, many student messages about the holiday focused on a sense of belonging to a larger community of people from the same university celebrating the same event on the same day. For these students, this larger community may support their developmentally-appropriate desire to feel both autonomous from their family of origin and connected to others.

College Student Drinking Behavior

In a sample separate from the Facebook data, we demonstrated that students consumed more than twice as many drinks on State Patty's Day than on other weekend days, and had almost four times greater odds of heavy drinking on State Patty's Day than on other weekend days. These effects existed after controlling for known predictors of alcohol use like gender and drinking motives, and the person's typical consumption of alcohol on weekend days. The high rates of heavy drinking suggest that many students put themselves at risk for injury, blackouts, and other negative consequences on State Patty's Day. Rates of drinking and heavy drinking were comparable to or higher than those reported for other holidays and celebrations in prior studies, except for 21st birthdays (Del Boca et al., 2004; Glindemann et al., 2007; Lee et al., 2006; Neal & Fromme, 2007b; Rutledge et al., 2008). Thus, this study demonstrated that even in a short 6-week time frame from creation to celebration, students constructed a new holiday with high rates of alcohol use and heavy drinking.

Community Impact of State Patty's Day

The impact of State Patty's Day went beyond individuals' drinking behavior. The surrounding community saw secondary effects of State Patty's Day, with a spike in alcohol-specific and other offenses. This finding suggests that in addition to the impact on individuals' own safety, there is also impact on community members in terms of risks such

as unsafe drivers on the road (as evidenced by DUIs), property damage, and public nuisance. Past work demonstrates that individuals who drink more are more likely to be involved in criminal acts (Clapp et al., 2003; Felson et al., 2008; Neal & Fromme, 2007a; Paschall, 2003). In addition, students are more likely to commit vandalism on days they drink more than they normally do compared to other days (Neal & Fromme, 2007a). Our data demonstrate that these links with criminal behavior extend beyond the individual, such that there was a community-level impact of a heavy student drinking day. Some research with general population data has shown similar effects of major holidays on crime (Cohn & Rotton, 2003; Rotton & Cohn, 2004). Although other research on college students did not demonstrate differences between holidays and non-football Saturdays (Merlo et al., 2010), our findings suggest that there is a link. The data in the current study are from a college town, where college students make up about one third of the local population. In such a town, a student-constructed holiday can clearly have a significant impact on the local community. These effects are almost certainly unintended – when students set out to create a drinking holiday, they most likely did not plan to cause property damage or disturb residents of nearby neighborhoods. Given these potential secondary effects of student drinking, it should not only be the university that is concerned about future student-constructed holidays. Community members – including local business owners – also have an important stake in such events.

It is possible that criminal offenses increased on State Patty's Day in part because the local police anticipated the event and increased their workforce on that date. Even so, this response suggests that this student-constructed holiday cost the community not only disturbance, but also tax dollars. The cost to the police force continued into the day after State Patty's Day when other offenses peaked. In particular, criminal mischief offenses peaked the day after State Patty's Day, suggesting that many offenses, such as damage to buildings and vehicles, may have been noticed and reported the next day. Brower and Carroll (2007) found similar findings in another college town, with vandalism reports peaking in the morning and early afternoon. The dominant drinking culture of this and other college towns (Sperber, 2000) can lead to not only alcohol-specific criminal offenses, but other types of criminal offenses that cost the community money. Thus, the potential dangers of these experiences go beyond the individual and into the surrounding community. In the case of State Patty's day, the impact of this student-constructed holiday extended even beyond this single day/weekend. In the years since 2007, students at this university have repeated the celebration of this student-constructed holiday, with increasing counter-measures from the university, law enforcement, and larger community.

Implications, Limitations, and Conclusion

Students' ability to quickly construct holidays focused on high levels of alcohol consumption poses significant challenges for college administrators, university health care providers, police, and prevention scientists who aim to promote student and community safety and health. The development of interventions for such event-specific risks therefore requires rapid response from year to year. University and local law enforcement personnel need to stay informed of all aspects of student life and activity so that they can identify student-constructed holidays and other potential peak drinking events in time to respond. Event-specific prevention strategies (Neighbors et al., 2007) are particularly important in addressing these spontaneous, quickly constructed dynamic events. In addition, ongoing campus strategies, such as offering alcohol-free alternative activities on weekends, have the potential to reduce alcohol use and consequences (Patrick et al., 2010). Prevention scientists should also consider using the internet and other new media to disseminate information about safety and responsible behavior, modeling students' dissemination of the holiday through these media.

This study had some limitations. Although we had high rates of completion of daily survey data, not all students contacted responded to the survey, and not all students completed all 14 days of daily data. Therefore, we cannot generalize to the student population at large, and there could be systematic biases between those who did and did not respond. We included only first year students in this study, and results may differ for older students, particularly those students age 21 or older, who can legally go to bars or restaurants to drink. Because our three sources of data were separate, we cannot determine whether participants in our sample accessed information about SPD on Facebook or how Facebook posts may influence individuals' drinking behaviors. In addition, due to the dynamic nature of Facebook, it is possible that some posts were deleted before we could record them.

This study assessed alcohol use at one college campus and criminal offenses in the surrounding town. Our results demonstrate an impact on the community via an increase in alcohol-specific and other offenses. Future studies could also examine the impact of these events on individual drinking behavior in the larger community. That is, do student-constructed holidays result in increased alcohol use only among students, or do community members also participate in these events? A nationally representative study would not be possible for this type of local holiday. However, future studies should consider similarly constructed drinking-oriented holidays using both quantitative and qualitative methods. In addition, our study examined only public sources of social networking, but we know nothing about individuals' social networking time use. With 13 groups with membership totaling over 4000 members and less than 250 posts, there are clearly many students who are silent consumers of such media. Understanding their experiences with social media around alcohol use and student-constructed holidays is important. Finally, a future study could compare the process of dissemination of information through social networking websites, phone calls, newspaper articles, and other sources. Understanding how students disseminate this information might help prevention scientists in developing programming that uses similar techniques.

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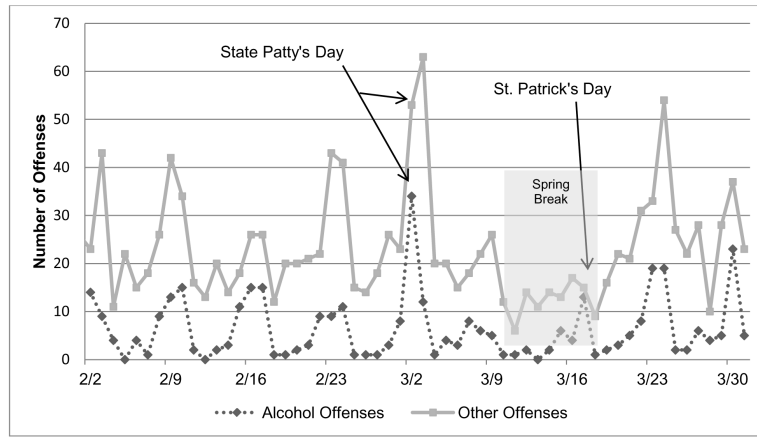


Figure 1. Number of alcohol-specific and other offenses by date. Dates listed (e.g., 2/2, 2/9) indicate Fridays, and thus the midpoints of weekends.

Table 1

Content of Facebook Group Descriptions and Wall Posts

Code	<i>N</i>	% of all posts	Interrater Reliability (kappa)
<i>Social context of drinking</i>	51	21	
Bars	46	19	.96
Partying	9	4	.57
<i>Sense of belonging to larger community</i>	133	54	
Merchandise	43	17	.97
Holiday	37	15	.70
University	33	13	.77
Media attention	19	8	.84
<i>Social norms of drinking</i>	43	17	
Alcohol/drinking	38	15	.86
Safety/responsible behavior	3	1	.66
Law enforcement/police	2	<1	.83
<i>Consequences</i>			
Physical/behavioral consequences	6	2	.69

N=248 total group descriptions and wall posts. *N*s for the main categories (e.g., “Social context of drinking”) are sums of any responses in that category, minus any duplicates (e.g., a post that was coded as both bars and partying). Note that main categories add to less than 248 because some wall posts could not be coded into any of the categories presented.

Table 2

Predicting Number of Drinks and Heavy Drinking as a Function of State Patty's Day

	Number of Drinks Event Rate Ratio [CI]	Heavy Drinking Odds Ratio [CI]
Average Drinking over 14 Days, β_0		
Intercept, γ_0	0.06 [0.04, 0.09] ***	0.01 [.005, .012] ***
Male Gender, γ_{01}	1.01 [0.68, 1.52]	0.84 [0.52, 1.37]
Fun/Social Motives, γ_{02}	2.22 [1.74, 2.82] ***	2.32 [1.79, 3.00] ***
Relaxation/Coping Motives, γ_{03}	1.01 [0.78, 1.29]	0.97 [0.71, 1.33]
Average Increment on Weekend Days, β_1		
Intercept, γ_{10}	12.60 [9.24, 17.18] ***	21.19 [14.1, 32.0] ***
Average Increment on State Patty's Day, β_2		
Intercept, γ_{20}	2.28 [1.79, 2.89] ***	3.77 [2.28, 6.22] ***

**
 $p < .01$,***
 $p < .001$.

Note. Level 1 $N = 2992$ person days, Level 2 $N = 227$ people. β coefficients (Level 1) are defined for each person (not presented in table). γ coefficients (Level 2) are aggregate estimates across the sample. A Poisson distribution was used for the outcome number of drinks, and a Bernoulli distribution was used for the outcome heavy drinking. In both, intercepts were estimated as randomly varying across persons; slopes were estimated as fixed.

Level 1: Number of Drinks_{it} = $\beta_{0i} + \beta_{1i}$ (Weekend Days) + β_{2i} (State Patty's Day) + r_{it}

Level 2: $\beta_{0i} = \gamma_{00} + \gamma_{01}$ (Gender) + γ_{02} (Fun/Social Motives) + γ_{03} (Relaxation/Coping Motives) + U_{0i} ; $\beta_{1i} = \gamma_{10}$ $\beta_{2i} = \gamma_{20}$