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Characterizing Twitter chatter about temporary alcohol abstinence during "Dry January"

Alex M. Russell [ID][1,*], **Ben N. Montemayor**[2], **Shawn C. Chiang**[2], **Plangkat J. Milaham**[3],
Adam E. Barry[2], **Hsien-Chang Lin**[4], **Brandon G. Bergman**[1], **Philip M. Massey**[5]

[1]Recovery Research Institute, Massachusetts General Hospital and Harvard Medical School, 151 Merrimac St., Floor 4, Boston, MA 02114, United States
[2]Department of Health Behavior, Texas A&M University, College Station, TX 77843, United States
[3]Department of Health, Human Performance and Recreation, University of Arkansas, Fayetteville, AR 72701, United States
[4]Department of Applied Health Science, School of Public Health, Indiana University, Bloomington, IN 47405, United States
[5]Department of Community Health Sciences, University of California, Los Angeles, Los Angeles, CA 90095, United States

*Corresponding author. Recovery Research Institute, Massachusetts General Hospital, 151 Merrimac Street, 4th Floor, Boston, MA 02114, United States.
E-mail: arussell11@mgh.harvard.edu

Abstract

With roots as a public health campaign in the United Kingdom, "Dry January" is a temporary alcohol abstinence initiative encouraging participants to abstain from alcohol use during the month of January. Dry January has become a cultural phenomenon, gaining increasing news media attention and social media engagement. Given the utility of capturing naturalistic discussions around health topics on social media, we examined Twitter chatter about Dry January and associated temporary abstinence experiences. Public tweets were collected containing the search terms "dry january" or "dryjanuary" posted between 15 December and 15 February across 3 years (2020–2). A random subsample stratified by year ($n = 3145$) was pulled for manual content analysis by trained coders. Final codebook accounted for user sentiment toward Dry January, user account type, and themes related to Dry January participation. Engagement metadata (e.g. likes) were also collected. Though user sentiment was mixed, most tweets expressed positive or neutral sentiment toward Dry January (74.7%). Common themes included encouragement and support for Dry January participation (14.1%), experimentation with and promotion of nonalcoholic drinks (14.0%), and benefits derived from Dry January participation (10.4%). While there is promise in the movement to promote positive alcohol-related behavior change, increased efforts to deliver the campaign within a public health context are needed. Health communication campaigns designed to inform participants about evidence-based treatment and recovery support services proven to help people quit or cut down on their drinking are likely to maximize benefits.

Keywords: alcohol; drinking; social media; Twitter; Dry January

Introduction

"Dry January" is a temporary, month-long voluntary alcohol abstinence campaign initiated by Alcohol Change UK in 2013, in which participants are encouraged to abstain from alcohol use during the month of January using the organization's tools and resources (Alcohol Change UK 2022a, 2022b). Upon officially signing up for Dry January on the Alcohol Change UK website, participants can receive additional Dry January support by downloading the free Try Dry app. The platform includes resources to track calories and money saved by going alcohol-free in January and enabling the participant to opt into daily coaching e-mails (Alcohol Change UK 2022c). Official participation among Britons (as indicated by signing up on the Alcohol Change UK website) has risen rapidly since its inception, increasing from 4000 official participants in 2013 to 130 000 in 2021—a 32-fold increase (de Visser et al. 2017, Alcohol Change UK 2022a).

Evaluations of Dry January to date have largely focused on the experiences of officially registered Dry January participants in the UK (de Visser et al. 2016, 2017, de Visser and Piper 2020). Results from a prospective longitudinal study of 857 Dry January participants who officially registered on the Alcohol Change UK website indicated participation in, and successful completion of, Dry January (i.e. alcohol abstinence

for the entire month) was significantly associated with reductions in alcohol consumption and increases in drink-refusal self-efficacy at 6-month follow-up (de Visser et al. 2016). A prospective cohort study compared registered Dry January participants to UK adult drinkers who did not attempt to abstain from alcohol during January, controlling for baseline differences in sex, age, education, income, ethnicity, and alcohol intake, noting Dry January participants reported beneficial changes in physical health, psychological well-being, and reductions in drinking not observed among other adult drinkers (de Visser and Piper 2020). However, recent work by Case et al. (2021) found increased Dry January participation over a 4-year period in the UK was not associated with large population-level decreases in alcohol use. Thus, the short- and long-term effects of Dry January participation and completion on alcohol-related outcomes are unclear and warrant further investigation (Hamilton and Gilmore 2016).

Additionally, Dry January has become somewhat of a cultural phenomenon, gaining increasing news media attention (Forbes 2021, CNN 2022), social media engagement, and Dry January-focused promotions from the alcohol industry (e.g. recipes for mocktails or marketing of zero alcohol products; Miller et al. 2022). Recent surveys indicate an estimated 6.5 million Britons planned to give up alcohol during the month of

January in 2021, suggesting the vast majority of Dry January participants (98%) may actually be temporary abstainers who do not officially register for the initiative via Alcohol Change UK (2021). Along these lines, Dry January has also become a global phenomenon as millions of individuals outside the UK have opted to go alcohol-free in January, including an estimated 15%–19% of American adults (Insider 2022, Morning Consult 2022). Yet, little is known about the experiences of "unofficial" Dry January participants' (i.e. those who do not register via Alcohol Change UK), which may constitute the vast majority of persons who attempt temporary abstinence in January.

Data from social media platforms (e.g. Twitter) are increasingly utilized to examine discussions around public health topics (Eysenbach 2011, Colditz et al. 2018)—including alcohol use (Cavazos-Rehg et al. 2015, Riordan et al. 2019, Russell et al. 2022a) —and can offer valuable insights with real-world implications on public health promotion. Given the utility of capturing naturalistic discussions around health topics on social media, we examined Twitter chatter about Dry January across 3 separate years (2020–2) to determine the extent to which individuals were discussing Dry January and their associated experiences on the platform. Our theoretical underpinning was primarily based on the Health Belief Model, which asserts that health behavior is influenced by personal beliefs or perceptions about a particular health issue (e.g. alcohol-associated health issues) and strategies available to address the issue (Rosenstock 1974). In the context of alcohol use and personal efforts to abstain from drinking during Dry January, those most likely to participate in and complete the month long challenge would be those with positive beliefs about Dry January participation, who perceive greater value or usefulness in abstaining from alcohol during Dry January, and who perceive fewer barriers to abstain from alcohol during Dry January. Informed by this theoretical perspective, we sought to examine the following in this exploratory study: (i) overall sentiment toward Dry January, (ii) user account types responsible for posting Dry January content, (iii) reported benefits associated with Dry January participation and completion, and (iv) barriers to Dry January participation and reasons for unsuccessful attempts.

Materials and methods

Data collection

Data were collected through Academic Research access to the Twitter Application Programming Interface (API) v2 using Python 3.9. All public tweets—including metadata (e.g. number of likes, retweets, replies)—containing the search terms "dry january" or "dryjanuary" posted between 15 December and 15 February were collected across 3 separate years (15 December 2019 to February 2020, 15 December 2020 to February 2021, and 15 December 2021 to February 2022). We elected to include the 2 weeks before and after January to allow for the analysis of tweets leading up to, during, and post-Dry January. Upon data acquisition, retweets, non-English tweets, and duplicate tweets were removed from the data set. This resulted in a full corpus of 157 280 tweets. Similar to prior Twitter content analysis studies (Sidani et al. 2020, Russell et al. 2022a) and to enhance feasibility of the human annotation process, a 2% random subsample stratified by year was pulled for subsequent manual annotation of tweets by trained coders ($n = 3145$). Of these 3145 tweets, 245 were excluded because of lack of relevance to Dry January leaving a final analytic sample of 2900 tweets. All study procedures were vetted and deemed exempt by the lead author's IRB prior to data collection.

Codebook development and coding procedures

To facilitate manual content coding procedures, tweets were exported into a spreadsheet noting: tweet text, date, URL to the original tweet, username and bio associated with the account responsible for posting the tweet, and engagement metadata (number of likes, retweets, replies, and quote tweets). Using a directed approach to qualitative content analysis (i.e. starting with relevant theory and research findings as a guidance for initial coding; Hsieh and Shannon 2005), codebook development was based in part on adaptation from prior studies examining alcohol-related content on social media (e.g. sentiment, user type, humor; Cavazos-Rehg et al. 2015), in addition to developing original content codes grounded in the Health Belief Model as well as prior Dry January literature (e.g. encouragement and support, benefits/barriers mentioned; Rosenstock 1974, Yeomans 2019, de Visser and Nicholls 2020, de Visser and Piper 2020). For example, evidence suggests that the vast majority of alcohol-related social media posts positively portray alcohol, often incorporating humor to normalize heavy drinking behaviors and to downplay alcohol-related negative consequences (Cavazos-Rehg et al. 2015, Russell et al. 2021, 2022a). With regard to prior studies examining Dry January participation, there is evidence that opting to receive additional encouragement and support (e.g. reading supportive e-mails from Alcohol Change UK during Dry January) is associated with successfully completing the challenge to abstain from alcohol during the month of January (de Visser and Nicholls 2020), which is linked to physical and psychological health benefits (de Visser and Piper 2020).

Once the initial codebook was produced, the lead author and three other senior authors on the project each pilot coded a random sample of 25 tweets, discussed coding discrepancies and concerns with coding variables, and refined the codebook until consensus was reached on the final definitions. Exemplar tweets for each coding variable were incorporated into the final codebook. Next, two coders with prior experience annotating alcohol-related social media content were trained and subsequently employed pilot coding procedures on the same subset of 25 pilot tweets. Once a strong level of agreement between the two trained coders was established during this pilot coding process, coding on the final data set began. The first 200 tweets of the final data set were independently double-coded, and differences in coding were discussed and adjudicated. For these first 200 tweets, interrater reliability was sufficient with Cohen's Kappa coefficients ranging from 0.77 to 1.00 (average Cohen's $\kappa = 0.88$ across all coding variables included in the study); thus, the remaining 2700 tweets were split evenly between the two trained coders.

Measures

Tweets were first screened for relevance (i.e. presented content directly related to Dry January). Tweets meeting inclusion criteria were included in subsequent content analysis. Coding variables included in the content analysis accounted for user sentiment toward Dry January, tweet and user account type, and themes related to Dry January participation.

Sentiment

User sentiment toward Dry January was not mutually exclusive and could be classified as either or both positive/neutral sentiment (i.e. Dry January was associated with positive opinions, emotions, or contexts, or Tweet was not opinionated or was a question about unbiased information) or negative sentiment (i.e. Dry January was associated with negative opinions, emotions, or contexts). The decision to collapse positive and neutral sentiment into a single-coding category was made during the pilot coding phase to offset potential interrater reliability issues.

Humor

The presence of humor (i.e. containing content likely to be humorous to the intended audience) was coded as a dichotomous variable (yes/no).

Tweet and user account type

Two binary variables captured whether tweets (yes/no) were commercial (selling, marketing, or advertising alcohol products) or news (news headlines or stories related to DJ, alcohol, or alcohol products). A user account variable delineated the account type responsible for posting a particular tweet (individual, alcohol industry, news organization, public health organization/entity, other).

Themes related to Dry January

The presence of several themes related to Dry January were coded as dichotomous variables (yes/no) and were treated as not mutually exclusive, including the provision of encouragement and support for those participating in Dry January (e.g. tips, suggestions, resources) and experimentation with nonalcoholic drinks during Dry January (e.g. recipes for "mocktails," marketing of zero alcohol products). We also coded for mentions of barriers to/benefits from temporary abstinence during Dry January. Potential benefits included physical (e.g. weight loss, improved sleep, having more energy), psychological and emotional (e.g. increased happiness, reduced stress, anxiety, or depression), financial (e.g. saving money), learning opportunity/examining relationship with alcohol, and increased long-term intention to reduce drinking or abstain from drinking. Potential barriers included physical (e.g. headaches, withdrawal symptoms), and psychological and emotional (e.g. decreased happiness, increased stress, anxiety, or depression). While we originally intended on assessing social benefits (e.g. more time spent with family) and social barriers (e.g. missing out on social events or feeling uncomfortable if not drinking at social events), our interrater reliability coefficients for these coding variables were inadequate. Detailed descriptions of coding variables and exemplar tweets are provided in Table 1.

Analysis

After human coders annotated all tweets according to codebook definitions, we calculated frequencies and percentages to quantitatively describe the prevalence of coding variables within the data. We also identified and paraphrased exemplars of coding variables and themes to help qualitatively define codes and themes and contextualize findings. Themes were synthesized into descriptive narratives. Furthermore, we calculated cross-tabulations for the presence of coding themes by user account type and used chi-square tests to assess for statistically significant differences. In addition, we examined tweet engagement (i.e. count of likes and retweets) by coding themes using negative binomial regressions given the overdispersion of the engagement variables (likes: $M = 13.02$, $SD = 141.83$; retweets: $M = 1.05$, $SD = 17.74$). Exemplar tweets have been paraphrased and all identifying information (e.g. username) has been removed to prevent identification of individual users responsible for particular posts. Any rephrasing of tweet text content has been indicated using brackets within quoted tweets.

Results

A total of 2900 tweets were deemed relevant to Dry January and included in subsequent content analysis (Fig. 1).

Tweet and user account type

Commercial tweets selling, marketing, or advertising alcohol products represented one in six tweets (16.8%), whereas news tweets featuring headlines or news stories related to Dry January, alcohol, or alcohol products were featured slightly less (7.4%). In terms of user account types, individual users were most often responsible for posting Dry January-related content on Twitter (70.3%), whereas the alcohol industry (7.6%), news organizations (2.7%), and public health organizations (2.6%) contributed a relatively smaller proportion of Dry January-related posts. The presence of tweet themes by user account type is reported in Table 2 and described below.

Sentiment

The majority of tweets expressed positive or neutral sentiment toward Dry January (74.7%), though about one out of four (26.7%) tweets expressed negative sentiment toward the temporary alcohol abstinence initiative with individual account type (32.4%) reporting the highest percentage of negative sentiment. Of the 775 tweets featuring negative sentiment toward Dry January, 205 (26.5%) also incorporated humor. For example, many individuals made mention of having had negative experiences while participating in Dry January (e.g. "What the hell was I thinking? [Dry January was not] my best idea"; "I can feel Dry January [slowly but surely eroding my soul]"), whereas others directed sarcasm toward those discussing potential or active participation in Dry January (e.g. "I'm looking forward to all the [jokes about Dry January]. My sister just [had a good one]: 'I'm doing dry January' [lol]"; "Drinking game: Every time someone says they're [doing] Dry January, I'm taking a shot").

Themes related to Dry January

Several a priori Dry January-related themes relevant to the exploratory aims of the study were present within the data, including: (i) "encouragement and support for participation in Dry January," (ii) "experimentation with and promotion of nonalcoholic drinks," (iii) "successful completion of and benefits derived from Dry January participation," and (iv) "barriers to Dry January participation and unsuccessful attempts at Dry January." We describe each of these themes in greater detail and provide examples below.

Encouragement and support for participation in Dry January

A majority of tweets (67%) from public health organization accounts provided encouragement and support for participation in Dry January, whereas few tweets from individuals

Table 1. Definitions for categorical coding variables, descriptive statistics, and exemplar Tweets ($n = 2900$).

| Variable (κ)	N(%)	Definition	Example content
User sentiment [not mutually exclusive]			
Positive or neutral ($\kappa = 0.83$)	2165 (74.7%)	Dry January is associated with positive opinions, emotions, or contexts, or Tweet is not opinionated or is a question about unbiased information	• Positive: "[It's been a good] Dry January" • Neutral: "Is [anyone] trying Dry January?"
Negative ($\kappa = 0.86$)	775 (26.7%)	Dry January is associated with negative opinions, emotions, or contexts	• "Dry January is [dumb]. I want beer"
Tweet type [not mutually exclusive]			
Commercial ($\kappa = 0.89$)	488 (16.8%)	Selling, marketing, or advertising alcohol products	• "Heineken 0.0 releases 12-packs in support of Dry January [URL]"
News ($\kappa = 0.80$)	215 (7.4%)	News headlines or stories related to Dry January, alcohol, and/or alcohol products	• "Dry January: I quit drinking. Over time, my brain made it easier. - The Washington Post [URL]"
Tweet themes [not mutually exclusive]			
Encouragement and support ($\kappa = 0.95$)	409 (14.1%)	Tweet designed to encourage those participating or thinking of participating in Dry January, or to offer tips, suggestions, or additional resources (e.g. mobile applications) for help with Dry January participation	• "#DryJanuary is the one month challenge held every year in the UK to help millions reset their relationship with alcohol. After a heavy festive period, why not try out Dry Jan, for this new year's resolution? For more information visit. . .[URL]"
Experimentation with and promotion of nonalcoholic drinks ($\kappa = 0.83$)	406 (14.0%)	Tweet mentions nonalcoholic drink substitutes (e.g. recipes for " mocktails," marketing of zero alcohol products)	• "Looking for a good mocktail for #dryjanuary? Look no further! [URL]"
Barriers to/benefits from temporary abstinence [not mutually exclusive]			
Benefits from temporary abstinence ($\kappa = 0.98$)	301 (10.4%)	Mentions a physical, psychological, or financial benefit from participation in Dry January	
Physical ($\kappa = 1.00$)	270 (9.3%)	Physical benefits experienced as a result of temporary abstinence from alcohol (e.g. weight loss, improved sleep, having more energy, feeling better, absence of hangovers, etc.)	• "[Finished] first week of dry January. . .[also have] been working out. Wow I am a productivity machine. [I completed a lot this week that I had put off for a long time]. Sleeping well, feeling happy and energetic. My [way of life] wasn't [helping me at all] :/"
Psychological and emotional ($\kappa = 0.77$)	120 (4.1%)	Psychological or mental health benefits experienced as a result of temporary abstinence from alcohol (e.g. increased happiness; reduced stress, anxiety, and/or depression)	• ". . .On day 26 of dry January. . .I have complete mental clarity. . .I don't think I've [ever] felt this good about myself. . ."
Financial benefits ($\kappa = 0.93$)	97 (3.3%)	Tweet references an experience of improved personal finances as a result of temporary abstinence from alcohol (e.g. saving money, not wasting money on alcohol)	• "[Probably not] shocking to [anyone] but since doing dry January, I have [significantly] more money at the end of the month than [usual]"
Learning opportunity/examining relationship with alcohol ($\kappa = 0.81$)	124 (4.3%)	Tweet mentions attempt at temporary abstinence helped with learning about one's relationship with alcohol or the role of drinking in their lives, or the desire to further examine one's relationship with alcohol	• "Realized that my relationship with alcohol was truly destroying [everything - my body, my mind], my mood, and my desire to improve myself. #DryJanuary (early) results [without a] filter. . ."
Increased long-term intention to reduce drinking or abstain from drinking ($\kappa = 0.92$)	123 (4.2%)	Tweet discusses that attempts at temporary abstinence resulted in the individual wanting to reduce future drinking levels, permanently cut down on alcohol use, or abstain entirely	• "I think my dry January [will] turn into a dry 2022 and I am [really] excited to see how my body looks and feels by the end of it"
Barriers to temporary abstinence	34 (1.2%)	Mentions a physical, or psychological barrier to participation in Dry January	
Physical ($\kappa = 1.00$)	14 (0.5%)	Negative physical effects experienced as a result of temporary abstinence from alcohol (e.g. difficulty sleeping, headaches, withdrawal symptoms, etc.)	• "Day 1 of dry January [and having trouble sleeping] . . . "
Psychological and emotional ($\kappa = 0.77$)	6 (0.2%)	Negative psychological or mental health effects experienced as a result of temporary abstinence from alcohol (decreased happiness; increased stress, anxiety, and/or depression)	• "[Two days into] #DryJanuary and [I am unhappy and struggle to] get out of bed in the morning. Aren't I [supposed to] have more energy and enthusiasm for life?. . ."
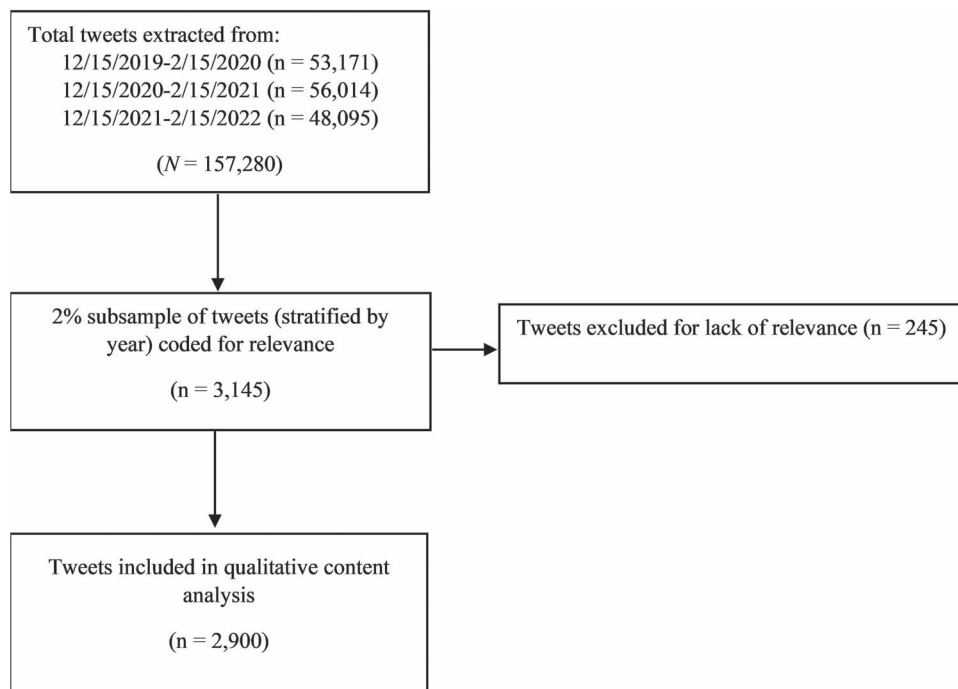
Figure 1. Systematic process for selection of tweets included in final content analysis.

Table 2. Dry January themes present in tweets by user account type ($n = 2900$).

Sentiment	Individual		Alcohol industry		News organization		Public health organization/entity		Other		P-value
	N	%	N	%	N	%	N	%	N	%	
Pro/neutral	1403	68.8%	167	75.6%	73	93.6%	76	100.0%	446	91.6%	<.0001
Negative	661	32.4%	57	25.8%	8	10.3%	4	5.3%	45	9.2%	<.0001
Tweet themes											
Encouragement and support	116	5.7%	22	10.0%	20	25.6%	51	67.1%	200	41.1%	<.0001
Experimentation with and promotion of nonalcoholic drinks	117	5.7%	111	50.2%	27	34.6%	11	14.5%	140	28.8%	<.0001
Any benefits	110	5.5%	9	4.1%	27	35.5%	52	68.4%	103	21.3%	<.0001
Any barriers	27	1.3%	2	0.9%	2	2.6%	0	0.0%	3	0.6%	—

(6%) or alcohol industry (10%) did so. Among all tweets encouraging or offering support for participation in Dry January (14.1%), a common subtheme was encouragement for individuals to sign up for the challenge on the Alcohol Change UK website and to download the free Try Dry mobile application (e.g. "#DryJanuary is the one month challenge held every year in the UK to help millions reset their relationship with alcohol. After a heavy festive period, why not try out Dry Jan, for this new year's resolution? For more information visit…[URL]"). There were also a number of reminders for those actively participating in Dry January to persist with their abstinence efforts during January (e.g. "Those [participating] in #DryJanuary, [great job! Here's a [brief] reminder as to why you should keep going! [URL]").

Experimentation with and promotion of nonalcoholic drinks

Another common theme was mentioning nonalcoholic drink substitutes (14.0%), often with the suggestion that consumption of these beverages could help to facilitate successful temporary abstinence during Dry January. Alcohol industry accounts commonly marketed their zero alcohol products in the context of Dry January participation, with 50% of all posts from alcohol industry related to this theme (e.g. "@[username] Happy #DryJanuary! Check out [URL] to claim your limited-edition 31-pack of Heineken 0.0 and get ideas for making the most of your dry run"). Additionally, a sizable portion of tweets from news organization (35%) and public health organizations (14%) also promoted experimentation with nonalcoholic drink substitutes. Some of these tweets included recipes for nonalcoholic "mocktails" (e.g. "Looking for a good mocktail for #dryjanuary? Look no further! [URL]").

Successful completion of, and benefits from, Dry January participation

Numerous tweets referenced ongoing (25.4%) or successfully completed (4.3%) attempts at abstaining from alcohol during Dry January. Benefits from Dry January participation or completion were reported in about one in 10 tweets (10.4%).

However, many tweets citing benefits from participating in Dry January were posted by news organizations (35.5%) and public health organizations or entities (68.4%) (e.g. "Are you [participating in] #DryJanuary this year? There are [tons of] benefits from going #AlcoholFree, [including saving] money, [sleeping] better, and [having] more energy"). Among tweets posted by individuals ($n = 2038$), only 5.5% mentioned any benefit from Dry January participation. Tweets referencing a potential or experienced benefit most commonly reported physical benefits (9.3%), followed by psychological and emotional (4.1%), and financial (3.3%).

Physical benefits described included weight loss (e.g. "[Having almost completed] dry January I've certainly [lost weight] cutting out the booze"), as well as improved sleep and increased energy (e.g. "[Finished] first week of dry January...[also have] been working out. Wow I am a productivity machine. [I completed a lot this week that I had put off for a long time]. Sleeping well, feeling happy and energetic. My [way of life] wasn't [helping me at all] :/").

Psychological and emotional benefits portrayed included increased mental clarity and well-being (e.g. " ...On day 26 of dry January...I have complete mental clarity...I don't think I've [ever] felt this good about myself..."). Financial benefits experienced during Dry January focused on saving money that would have otherwise been spent on alcohol (e.g. "[Probably not] shocking to [anyone] but since doing dry January, I have [significantly] more money at the end of the month than [usual]").

Additionally, a small proportion of tweets (4.3%) discussed how temporary abstinence during Dry January helped with learning about one's relationship with alcohol or the role of drinking in their lives (e.g. "Realized that my relationship with alcohol was truly destroying [everything - my body, my mind], my mood, and my desire to improve myself. #DryJanuary (early) results [without a] filter ... "). Moreover, some tweets (4.2%) referenced Dry January contributing to increased desire to reduce long-term drinking levels (e.g. "I think my dry January [will] turn into a dry 2022 and I am [really] excited to see how my body looks and feels by the end of it").

Barriers to Dry January participation and unsuccessful attempts at Dry January

Physical (0.5%) and psychological and emotional (0.2%)—though experienced by some Dry January participants—were rarely mentioned in tweets regardless of user account type. Physical barriers included trouble sleeping or other negative physical symptoms, like headaches (e.g. "Day 1 of dry January [and having trouble sleeping] ... "; "Waking up with a bit of a headache this morning [which is a reminder of] why I am starting dry January today...").

Of the 2900 tweets included in the final sample, 367 (12.7%) tweets made reference to successful or unsuccessful completion of Dry January. Of these tweets, almost two out of every three tweets ($n = 241$; 65.7%) referenced an unsuccessful Dry January attempt. Tweets referencing an unsuccessful attempt at Dry January often used humor and sarcasm to make light of an unsuccessful attempt to abstain (e.g. "[Dry January went well, but it was a long 18 hours!]"). Many tweets related to unsuccessful attempts at Dry January highlighted current socio-political life stressors (e.g. lockdown and social distancing associated with the COVID-19 pandemic, attack on the U.S. Capitol on 6 January 2021) as reasons

to return to drinking as a way to cope with these stressors (e.g. "Lockdown [coming]. Dry January [is out of the question] ... "; "[Dry January] ... With what's [going on] in this country? [Not a chance!]"). Socio-political events across the globe (e.g. the UK's departure from the European Union, inauguration of U.S. President Joe Biden on 20 January 2021) were also highlighted as celebratory reasons for prematurely ending or taking a temporary break from Dry January (e.g. "Anyone else [planning to do] dry January with the exception of Inauguration Day ... ?").

Engagement of Dry January tweets

Table 3 summarizes engagement tweets by themes identified, controlling for the number of followers of the account (log-transformed). Exponentials of βs were reported to facilitate interpretation. Tweets posted by individuals were more likely to receive more likes compared with tweets posted by alcohol industry ($\text{Exp}(\beta) = 0.66$, $P < .001$), news organizations ($\text{Exp}(\beta) = 0.05$, $P < .0001$), public health organizations ($\text{Exp}(\beta) = 0.11$, $P < .0001$), or others ($\text{Exp}(\beta) = 0.19$, $P < .0001$). Regarding retweets, tweets posted by individuals were less likely to be retweeted more times compared with tweets from alcohol industry ($\text{Exp}(\beta) = 3.29$, $P < .0001$), but no differences were observed between tweets from an individual, public health organization, and other user types.

We also found that tweets with positive/neutral sentiment ($\text{Exp}(\beta) = 0.73$, $P < .0001$), and with themes of offering encouragement and support ($\text{Exp}(\beta) = 0.38$, $P < .0001$), promoting nonalcoholic drinks ($\text{Exp}(\beta) = 0.32$, $P < .0001$), or mentioning any benefits of Dry January participation ($\text{Exp}(\beta) = 0.33$, $P < .0001$) were negatively associated with receiving more likes on Twitter. Conversely, tweets with negative sentiment ($\text{Exp}(\beta) = 1.30$, $P < .001$) and tweets that used humor ($\text{Exp}(\beta) = 1.45$, $P < .0001$) were positively associated with receiving more likes on Twitter.

Discussion

This study characterized Twitter chatter concerning the temporary alcohol abstinence initiative, Dry January. Results indicated mixed feelings about Dry January and varied engagement with Dry January content on Twitter among the general public. While their presence on Twitter related to Dry January was minimal, public health organizations and news organizations tended to express more positive sentiments, focusing on potential benefits associated with Dry January participation and completion. Similarly, alcohol industry Twitter accounts expressed support for Dry January and used the trending challenge as a means through which to market their zero-alcohol products. While some individuals represented in our sample of tweets mentioned participating in and successfully completing Dry January, experiencing several benefits associated with temporary abstinence, others refused to participate or had difficulty while attempting Dry January and expressed their negative experiences on Twitter.

Overall, the majority of tweets in our sample were classified as having positive or neutral sentiment toward Dry January; however, this sentiment was less pronounced among individual user accounts. Prior research examining alcohol-related content on social media has demonstrated that the vast majority of content portrays drinking in a positive manner, often times glamorizing heavy drinking behaviors (Cavazos-Rehg et al. 2015, Russell et al. 2021, 2022a). Moreover, prior

Table 3. Negative binomial regression results by themes of tweets ($n = 2900$).

Variable/theme	Likes				Retweets			
	β	SE	Exp(β)	P-value	β	SE	Exp(β)	P-value
User type								
Individual (Ref)	—	—	—	—	—	—	—	—
Alcohol industry	−0.41	0.12	0.66	<.001	1.19	0.21	3.29	<.0001
News organization	−3.00	0.21	0.05	<.0001	−1.78	0.37	0.17	<.0001
Public health organization/entity	−2.18	0.22	0.11	<.0001	0.33	0.34	1.40	.332
Other	−1.65	0.09	0.19	<.0001	−0.16	0.17	0.85	.353
Sentiment								
Positive/neutral	−0.31	0.08	0.73	<.0001	−0.04	0.14	0.97	.806
Negative	0.26	0.08	1.30	<.001	0.00	0.14	1.00	.988
Tweet themes								
Encouragement and support	−0.97	0.10	0.38	<.0001	0.01	0.17	1.01	.964
Experimentation with and promotion of nonalcoholic drinks	−1.15	0.10	0.32	<.0001	−0.29	0.18	0.75	.122
Tweet type								
Commercial	−0.33	0.09	0.72	<.001	0.56	0.16	1.75	<.001
News	−2.50	0.15	0.08	<.0001	−1.24	0.25	0.29	<.0001
Humor	0.37	0.10	1.45	<.0001	−0.11	0.19	0.89	.546
Benefits								
Any benefits	−0.10	0.12	0.33	<.0001	−0.55	0.21	0.58	.008
Physical	−1.11	0.12	0.33	<.0001	−0.54	0.22	0.58	**.014**
Psychological and emotional	−1.51	0.18	0.22	<.0001	−0.57	0.31	0.56	.066

β, estimated coefficient; SE, standard error of β; bold values denote statistical significance at the $p < 0.05$ level.

work has shown that negative alcohol-related consequences are seldom presented in alcohol-related social media content; rather, posts emphasize rewarding appeal characteristics, such as achievement, social camaraderie, positive emotional experiences, and rarely, if ever, advocate for moderation (Barry et al. 2018a, 2018b). When alcohol-related consequences are depicted in social media content, they are often coupled with humor that serves to downplay their severity (Russell et al. 2021). Our findings highlight parallels from previous literature in that individual tweets often expressed pro-drinking sentiments and directed sarcasm toward those participating in Dry January (e.g. claiming to be taking a shot of liquor each time they encountered a post about someone else doing Dry January). On the other hand, much of the content portraying positive or neutral sentiment toward Dry January was contributed by news organization accounts and the alcohol industry, which utilized the initiative to heavily market zero-alcohol and mocktail product lines.

Dry January was initiated as a public health campaign in the United Kingdom by Alcohol Change UK (2022a). Throughout our evaluation period, Alcohol Change UK maintained a strong presence on Twitter, encouraging people to sign up for the challenge on their website and to download the Try Dry mobile application offering additional support to registrants. However, the broader cultural narrative about Dry January and the "sober curious" movement may be overshadowing Alcohol Change UK's efforts, making it difficult to distinguish between the original, well-articulated, public health campaign and more broadly articulated cultural trends. This also contributes to difficulties in discerning whether individuals contributing to online communication about Dry January are official registrants utilizing resources offered by Alcohol Change UK (a supportive intervention being empirically studied; de Visser et al. 2016, 2017, de Visser and Piper 2020), or are those who are unofficially participating in what has now become somewhat of a global cultural phenomenon.

In other words, many claiming to be participating in Dry January on Twitter may be unaware of the original public health campaign and associated Alcohol Change UK resources shown to enhance individuals' chances of being able to reduce drinking during the month of January compared with those who did not register and did not have access to the abstinence-supportive resources (de Visser and Piper 2020). As a result, persons attempting to abstain from alcohol during the month of January may be doing so on their own without support outside of online engagement from personal and public social media contacts.

While some individuals who were actively participating in or had completed Dry January posted about benefits experienced (e.g. losing weight, feeling better, saving money, reflecting on their relationship with alcohol), common topics of discussion were related to reasons for not participating in Dry January, difficulty attempting Dry January, and unsuccessful attempts at Dry January. Those who expressed a willingness to abstain from alcohol during January sometimes had difficulty doing so and eventually started drinking again during the month. This echoes findings from de Visser and Piper (2020), noting only 30.2% of respondents attempting to abstain from alcohol during January—but who did not officially register via Alcohol Change UK and receive the associated support intervention—completed the challenge. Yet, 69.8% of those who did officially register via Alcohol Change UK completed the challenge. Promoting participation in Dry January without also promoting official registration via Alcohol Change UK or other evidence-based resources to help people quit or cut down on drinking may have limited or even harmful effects. Increased social media communication efforts leading up to, during, and post-Dry January could be made by additional national and international public health agencies to share evidence-based treatment and recovery support services proven to help people quit or cut down on their drinking (e.g. behavioral therapies provided by a licensed therapist; mutual

help groups, such as Alcoholics Anonymous; medications to help people quit or cut down on their drinking; Witkiewitz et al. 2019).

In the United States, for example, organizations like the National Institute on Alcohol Abuse and Alcoholism (NIAAA) might design and test health communication campaigns designed to be delivered in the context of the trending Dry January challenge. These campaigns would inform people at various stages of drinking-related change (e.g. contemplation, preparation, action, etc.; Prochaska et al. 1992) of the many evidence-based alcohol treatment options and recovery support services proven to support individuals in their efforts to quit or cut down on their drinking. NIAAA can also share in-house resources for navigating these sometimes complex decisions about alcohol-related behavior change, as well as information on how to access various local in-person and online evidence-based alcohol treatment and recovery support services (e.g. National Institute on Alcohol Abuse and Alcoholism 2022a, 2022b). Otherwise, individuals who are actively making efforts to quit or cut down on their drinking during Dry January without the necessary supports may be less likely to succeed in meeting their drinking reduction goals, which, in turn, may reduce their self-efficacy and ultimately limit future efforts to quit or cut down on drinking. In their efforts to disseminate evidence-based resources to healthcare professionals, public health agencies like NIAAA could also encourage clinicians to speak to their patients about whether they plan to abstain from alcohol during the month of January, directing those that plan to participate in Dry January to additional resources for supporting these attempts. Additionally, increased efforts to support those who struggle with recurrence of alcohol use during January and to enhance provision of ongoing support for those whose efforts to reduce drinking extend beyond January are warranted.

Finally, further examination is needed to better understand whether Dry January's sole focus on abstinence might limit the campaign's reach. Many individuals who meet diagnostic criteria for alcohol use disorder (AUD) report not being ready to stop using alcohol entirely when explaining why they did not seek help for their alcohol problem (Substance Abuse and Mental Health Services Administration 2020). Moreover, most people who engage in harmful drinking either do not meet AUD criteria or meet criteria for mild AUD (i.e. reported only two to three symptoms based on DSM-5 diagnostic criteria; Tucker et al. 2020, Witkiewitz and Tucker 2020). Individuals not meeting criteria for AUD or with mild AUD may be less motivated for approaches focused on total abstinence, including Dry January, but may be more open to non-abstinence-based efforts to reduce alcohol consumption. Thus, public health campaigns that encourage salutary changes in alcohol consumption may be able to engage more individuals with harmful and hazardous drinking through a broader appeal to those interested in cutting down on drinking, as well as those aiming for abstinence, during the month of January (Henssler et al. 2021). For instance, individuals might not be interested in abstaining entirely during the month of January, but may be interested in limiting total alcohol consumption, abstaining on certain days or in certain situations, reducing heavy drinking days, or lowering drinking risk levels [e.g. World Health Organization's (WHO) sex-specific limits for grams of alcohol consumed per day; Hasin et al. 2017, Witkiewitz et al. 2018]. Those successful in reducing

alcohol consumption during January outside of abstaining entirely may experience net benefits they otherwise would not have achieved. Ultimately, reductions in WHO drinking risk levels are associated with enhancements in physical health and quality of life (Witkiewitz et al. 2018). Person-centered approaches to goal setting for Dry January campaigns may help maximize individual and societal-level benefits.

Limitations

This study has several limitations. First, our findings are based on social media data collected from Twitter. Findings are not generalizable to populations of non-Twitter users, general Dry January participants (officially registered or not), or to other social media platforms. Future assessment-based investigations among the general public exploring knowledge and perceptions of Dry January are warranted. Such studies may provide additional insights (e.g. concerning barriers to and facilitators of Dry January participation; social norms and stigma concerning the temporary alcohol abstinence initiative) that could serve to inform future Dry January-related health communication efforts. Moreover, Twitter data used in the present study do not speak to the effectiveness for Dry January participation and completion to produce changes in alcohol-related outcomes. Additionally, in this study, we analyzed a small random subsample (2%) of posts from the full corpus of Dry January-related tweets ($N = 222, 917$). This decision was made to enhance feasibility for manual annotation of tweets by our human coders. In another study (Russell et al. 2022b), we applied natural language processing (NLP) techniques to analyze the full corpus of tweets. There are certainly many advantages to applying NLP and other big data analytics to social media content, including the ability to rapidly and affordably analyze large scale social media data to supplement public health surveillance efforts. For example, in Russell et al. (2022b), we analyzed themes across multiple years (2020–2) of Dry January tweets and detected unique themes in 2021 related to individuals' experiences with alcohol during the midst of the COVID-19 pandemic. However, in the present study, we opted for a manual content analysis informed by prior research—as opposed to automated methods—to complement our previous findings by allowing for a more nuanced interpretation and contextualization of the data. Finally, manual annotation of categorical coding variables is subjective in nature. To mitigate this limitation, we employed an iterative process to codebook development, trained coders with a sample of pilot tweets, and ensured a high level of interrater reliability within the first 200 independently double-coded tweets included in the final data set before proceeding to splitting the remaining tweets between the two annotators.

Conclusions

Dry January has become a trending global phenomenon garnering increased participation and discussion on social media. While Dry January has roots as a public health campaign in the UK, online communication and participation in Dry January is now a global phenomenon. Our results assert sentiments toward the trending challenge are mixed, limiting potential benefits associated with the campaign for the general public. Participants report struggles abstaining during January and often fail to receive appropriate support to navigate these attempts. While there is promise in this movement to promote

positive alcohol-related behavior change, increased efforts to deliver the campaign within a public health context is needed. Health communication campaigns designed to inform potential participants about evidence-based treatment and recovery support services proven to help people quit or cut down on their drinking are likely to maximize individual and societal-level benefits.

Author contributions

Alex M. Russell (Conceptualization-Lead, Funding acquisition-Equal, Investigation-Lead, Methodology-Equal, Project administration-Equal, Writing—original draft-Lead), Ben N. Montemayor (Conceptualization-Equal, Data curation-Equal, Investigation-Equal, Methodology-Equal, Project administration-Equal, Writing—original draft-Supporting, Writing—review & editing-Equal), Shawn C. Chiang (Data curation-Lead, Formal analysis-Lead, Investigation-Equal, Methodology-Equal, Project administration-Equal, Software-Lead, Writing—original draft-Supporting, Writing—review & editing-Equal), Plangkat J. Milaham (Data curation-Equal, Project administration-Equal, Writing—review & editing-Equal), Adam E. Barry (Conceptualization-Equal, Investigation-Equal, Methodology-Equal, Resources-Equal, Supervision-Equal, Writing—review & editing-Equal), Hsien-Chang Lin (Conceptualization-Equal, Methodology-Equal, Writing—review & editing-Equal), Brandon G. Bergman (Writing—review & editing-Equal), and Philip M. Massey (Conceptualization-Equal, Data curation-Equal, Investigation-Equal, Methodology-Equal, Project administration-Equal, Resources-Equal, Writing—review & editing-Equal)

Supplementary data

Supplementary data is available at *Alcohol and Alcoholism Journal* online.

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Data availability

The data underlying this article cannot be shared publicly because of ethical/privacy reasons. Deidentified data will be shared on reasonable request to the corresponding author.

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