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Displays of dabbing marijuana extracts on YouTube

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Abstract

Background—Dabbing involves heating marijuana extracts to a high temperature and inhaling the vapor. Little is known about this new method of using marijuana. YouTube, the most popular platform for sharing online videos, may be a go-to resource for individuals interested in learning about dabbing. Our objective was to explore the content of dabbing-related videos on YouTube.

Methods—We searched for dabbing related videos on YouTube using the search terms “dabbing” and “dabs” on January 22, 2015. For each term, videos were sorted by relevance and view count. A sample of 116 dabbing videos were viewed and coded for content.

Results—The 116 videos (published by 75 unique channels) had a total of 9,545,482 views. Most (76%) of the channels had a specific focus on marijuana and 23% were located in California. 89% of the videos showed at least one person dabbing, and 61% of these showed someone dabbing repeatedly. Most dabbers were male (67%) and many appeared to be >25 years old (42%). Approximately 34% of the videos contained a product review, 28% provided instructions on dabbing or other educational information, and 21% contained at least a brief cautionary message. Over half (54%) of the videos referenced medical marijuana, and only 20% of the videos had an age restriction.

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Contributors: Ms. Krauss led the acquisition of the data, analyses, interpretation of results and manuscript writing.

Ms. Sowles participated in data analysis and critical revision of the manuscript.

Ms. Mylvaganam participated in data analysis, interpretation of results, and drafting the manuscript.

Ms. Zewdie participated in data analysis, interpretation of results, and drafting the manuscript.

Dr. Bierut contributed to interpretation of results and critical revisions to the manuscript.

Dr. Cavazos-Rehg provided mentoring on all aspects of the project, including the study design, acquisition of the data, analyses, interpretation of results, and revisions to the manuscript.

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Conclusions—Dabbing-related videos are easily found and can be readily viewed on YouTube. As marijuana use becomes more accepted by the general population, the popularity of dabbing-related videos could increase, potentially normalizing this potent form of marijuana use.

Keywords

marijuana smoking; social media; cannabis; cannabis extract; dab; dabbling

1. Introduction

Dabbing is a way of ingesting marijuana that involves heating concentrated forms of marijuana (called marijuana extracts) to high temperatures, and inhaling the resulting vapor. These extracts, also referred to as wax, shatter, or oil, are usually created through extracting resins from marijuana plants with liquid butane, then evaporating the butane (Mehmedic et al., 2010). This process leaves behind a substance containing high concentrations of delta-9-tetrahydrocannabinol (THC), the psychoactive (mind-altering) ingredient in marijuana. Thus, only a small amount is needed to reach the desired “high”. A “dab” refers to a dose of the extract that is heated using a torch on a hot surface, usually a “nail”, allowing the users to then inhale the vapor. Informal reports suggest that these extracts conservatively have THC concentrations of 20% to 25%, but can reach THC concentrations upwards of 80% (Mehmedic et al., 2010). In contrast, the THC content via traditional marijuana consumption (i.e., smoking the dried flowers/leaves) is substantially lower at around 10% (Mehmedic et al., 2010). Thus, dabbing could be a preferred method among medical marijuana patients who want an immediate effect without smoking buds/plant-based material or among recreational users who seek an intense and/or immediate high.

Marijuana use among youth and young adults has remained steady in recent years, with 19% of young adults aged 18-25 and 7% of youth aged 12-17 reporting current marijuana use in 2013 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). However, current national surveys do not capture prevalence of use of marijuana extracts. Media outlets suggest that dabbing has recently increased in popularity (Black, 2014; Mosko and Miller, 2014). Accordingly, searches for “dabbing” on Google have increased substantially since 2013 (Google Trends, 2015). Yet, only two known scientific papers have examined dabbing. Murphy et al. (2015) reported that some cannabis users from the Baby Boom generation were exploring the use of cannabis extracts as a replacement or supplement to smoking marijuana. Loflin and Earleywine (2014) found that although many users reported dabbing for medicinal purposes, more than half of the participants who used dabs did not identify as “medicinal users”. The authors also found that dabbing was associated with higher rates of both marijuana tolerance and withdrawal, suggesting that dabbing may increase the risk for dependence (Loflin and Earleywine, 2014). Such findings stress potential risks associated with dabbing, but the scant research precludes any definitive conclusions.

Social media use is common, especially among young people. In fact, most young adults aged 18-29 (89%) in the U.S. have profiles on at least one social media platform (Duggan et al., 2015). Young people often communicate about their marijuana use on social media sites, or “follow” accounts that promote marijuana use (Cavazos-Rehg et al., 2014; Cavazos-Rehg

et al., 2015; Morgan et al., 2010). Such networking on social media that promote substance use could impact the norms and behaviors of young people. For example, exposure to pictures of friends drinking on social media has been positively associated with alcohol use and pro-alcohol attitudes (Huang et al., 2014; Litt and Stock, 2011).

With over one billion registered users worldwide, YouTube is the most-popular online video community (YouTube, 2015c). YouTube is free to use; registered users can upload videos, and anyone, regardless of having a YouTube account, can search videos related to their topic of interest. A large proportion of users are young, with 31% between the ages of 16 and 24 years (Mander, 2014). Recent reports show that YouTube reaches more 18-34 year olds than any single cable TV network, and is rated as the top place to watch content among millennials (Guimaraes, 2014). Researchers have begun to study risky health behaviors portrayed on YouTube. Much of the substance use research using YouTube videos has focused on the messages shown in tobacco-related videos (Carroll et al., 2013; Elkin et al., 2010; Forsyth and Malone, 2010; Freeman and Chapman, 2007). For example, there is more pro-tobacco than anti-tobacco content in smoking-related YouTube videos, and indirect tobacco advertising is included in smoking-related videos (Elkin et al., 2010; Forsyth and Malone, 2010; Freeman and Chapman, 2007). In a comparison of cigarette versus hookah videos, hookah videos were more likely to portray tobacco use positively and less likely to mention negative consequences (Carroll et al., 2013). YouTube has also been used to study the effects of salvia, a hallucinogen that was gaining popularity in young people but had little prior documentation (Lange et al., 2010; Paterline and Albo, 2013). A more recent study reported that YouTube videos about alcohol intoxication were viewed often, but rarely depicted negative consequences (Primack et al., 2015).

Given that YouTube is the most popular platform for online video sharing and dabbing is a new trend in marijuana use, we expect that YouTube will be the go-to resource for individuals interested in learning more. YouTube videos are easily accessible and potentially far-reaching, and because of this, it is important to understand the types of messages being shared. This exploratory study takes the first step in examining the dabbing-related content on this platform, and adds to the limited research on this topic to date.

2. Method

2.1. Sampling and data collection

We conducted an initial YouTube search on January 22, 2015 to find videos related to dabbing using the search terms “dabbing” and “dabs”. For each search term we used two different sorting methods to find the videos: (1) relevance, the default search method which captures videos most relevant to the search query as determined by YouTube's internal algorithm, and (2) view count, which captures the most commonly viewed videos. For each search term and sorting method, we recorded the first 40 videos, representing the first two pages of search results (20 per page). This corresponds with prior YouTube studies that examined the first 20 to 50 videos from each search (Primack et al., 2015; Freeman and Chapman, 2007; Forsyth and Malone, 2010; Carroll et al., 2013). Although market research suggests that most people do not scroll past the first page of internet search results (Chitika Insights, 2013), we included a second page of search results to enhance our sample to

examine this relatively undocumented behavior. Thus, the initial sample included 160 videos in total. We removed 30 duplicate videos, resulting in a final sample of 130 videos.

2.2. General characteristics of the videos and channels

For each video, we recorded the title, web address, published date, view count, and video length. Two months later, on March 22, 2015, we again recorded the number of views for each video to determine the number of new views during that time period. We also documented whether the video was restricted to viewers age 18 years and above. YouTube places age restrictions on videos that do not violate its policies but contain messages that might not be appropriate for all audiences (Google, 2015; YouTube, 2015a). YouTube relies on viewers to identify content that may be inappropriate, then these “flagged” videos are assessed by YouTube staff and given an age-restriction when necessary (YouTube, 2015b).

For each channel (i.e., YouTube account) that published the videos, we recorded the channel name, total number of views, total number of subscribers, the date the channel joined YouTube, and text describing the channel found on each channel's “About” page. We recorded the geographic location of the channel when it was either voluntarily mentioned on the “About” page, or mentioned in the video itself or video description. Each channel was coded for whether it was focused on marijuana, as expressed in the channel title, “About” page or the content of most videos. We also recorded whether the use of medical marijuana was mentioned on the “About” page of the channel profile, indicating that any marijuana videos published by this channel would be in reference to medical marijuana.

2.3. Qualitative classification of video content

To develop a codebook for content analysis, research team members first watched approximately 40 videos to identify the most recurring and relevant themes. After the codebook was developed and each code clearly defined, a total of five researchers watched and coded the 130 videos. Each video was assigned to two different coders using a random digit generator, and each video was viewed in its entirety. Videos that were not about dabbing, were not in English, or could not be viewed were excluded.

2.3.1. Characteristics of the people dabbing—First, we identified whether a person(s) was shown dabbing in the video. If a person was shown dabbing, additional codes were recorded to describe those people dabbing. We identified whether the user(s) appeared to be new to dabbing (i.e., first time dabbers) or an experienced dabbler, shown either by their ease in manipulating the dabbing equipment or their ability to dab multiple times in a row or large amounts of extract at once. Finally, we also coded the dabbler's gender and perceived age (< 25 years, >25 years).

2.3.2. Characteristics of the dabbing session—Next we identified the type of equipment used to dab, including a rig, vape pen, or some other more uncommon method (i.e., a water bottle with a hot knife and plate). A rig, the conventional equipment for dabbing, is a glass piece, similar to a bong that uses a “nail” (glass, quartz, or titanium piece) in place of a bowl to smoke marijuana extracts (High Times Magazine, 2013). Vape pens, traditionally designed for use with nicotine-based e-juice, can also be used to smoke

marijuana extracts. We documented whether dabs were performed repeatedly by someone in the video. We coded whether the person dabbing also used or mentioned using other types of marijuana. Finally, we ascertained whether the person used alcohol or tobacco in addition to marijuana in the video.

2.3.3. Messages included in the videos—For all videos, we classified four categories of messages that were conveyed: 1) educational information, 2) product reviews, promotions, or recommendations, 3) cautionary messages, and 4) medical marijuana use. These messages were not mutually exclusive and need not be the main focus of the video.

Educational videos included those that were instructional, providing step-by-step directions on how to dab or how to make products (e.g., wax, shatter), and those that taught background information about dabbing or the intricacies of dabbing. Product reviews, promotions, or recommendations involved mentioning specific marijuana-related product(s) or store(s) where marijuana-related products could be purchased, along with an opinion about the product(s)/store(s). Cautionary messages included at least some brief warning about dabbing, such as injury prevention or negative side effects. Finally, we coded for the mention of using medical marijuana in the video itself or in the text description of the video (since many times viewers might not check the channel description). In some cases, the user mentioned getting “medicated” in the video. This use of the term was included in this code because, although this may also be a slang term for getting high, we could not be certain that they simply meant that they were getting high and were not actually a medical marijuana user.

Each video was viewed and coded by two of the five researchers. Regarding reliability, the median Krippendorff's alpha across codes was 0.75 (range 0.47 to 1.0; the low of 0.47 was for the use of some other method of dabbing, which had low prevalence in the sample) (Hayes and Krippendorff, 2007). Discrepancies in assigned codes were discussed, and a consensus was reached among the coders.

3. Results

3.1. Video characteristics (Table 1)

Among the 130 videos, 14 were excluded because they were not about dabbing marijuana (10), not in English (1), or were unavailable for viewing (3). This left 116 videos for analysis. On January 22, 2015 the 116 dabbing-related videos had a median of 26,852 views, and a total of 9,545,482 views across all videos. Between January 22 and March 22, the videos had a median of 3,027 new views (range 47 to 132,466); the new total across all videos was 9,761,644 views. Median length of the videos was 5.6 minutes. Finally, only 23 (20%) of the videos were restricted to YouTube users age 18 years and above.

3.2. Channel characteristics (Table 2)

The 116 dabbing videos were published by 75 channels (i.e., some channels published more than one video). Most (57/75, 76%) of the channels had a specific focus on marijuana, evident in the channel name, the text describing the channel, or the type of videos published by the channel. We could not identify the geographic location for approximately half

(n=38/75, 51%) of the channels, but 23% (17/75) were from California, 8% (6/75) were from Colorado, and 5% (4/75) were from Washington. Thirty-three percent (25/75) of the channel profiles noted that the channel was about the use of medical marijuana.

3.3. Characteristics of the people dabbing and of the dabbing session (Figure 1)

Figures 1 and 2 show the qualitative classifications of the 116 videos along with some example screenshots and/or dialogue from the videos. The large majority (103, 89%) of the videos showed someone dabbing (Figure 1). The dabbler appeared to be experienced in most videos (86, 83%), while first time dabbing or inexperienced dabbers were shown in 7 videos (7%). Among the videos that did not show someone dabbing (13, 11%), it was apparent that 15% (2) had recently used marijuana (i.e., person mentioned that he/she was currently high and/or had just finished using marijuana). Other videos that did not show someone dabbing included discussions about dabbing, reviews or educational videos about dabbing, or news stories.

Regarding demographics of the dabbers, most of the videos (69, 67%) showed male dabbers only; female dabbers were shown in 14 (14%) of the videos, both males and females were shown in 7 (7%) videos, and gender could not be determined in 13 (13%) of the videos (mostly due to only hands, not faces or bodies, being shown in the video). Finally, nearly half (43, 42%) of the videos showed a dabbler who appeared >25 years old, 20 (19%) showed a dabbler who appeared ≤25 years, 10 (10%) videos showed a mix of ages of dabbers, and age was too difficult to estimate in 30 (29%) of the videos.

Among the videos that showed someone dabbing, most used a rig, the most conventional method of dabbing (96, 93%). However, a few used a vape pen, a more portable and discrete method (7, 7%). Fewer used some other method (5, 5%). Nearly two-thirds (63, 61%) showed a person dabbing repeatedly, and the number of dabs performed by the same person ranged from 2 to 50. Other types of marijuana (e.g., joints, buds, bowls) were mentioned, shown, and/or used in over one-third (36, 35%) of the videos that depicted someone dabbing. Alcohol was also used in 6 videos (6%), and tobacco was used in 3 videos (3%).

3.4. Messages included in the videos (Figure 2)

Among all 116 videos (Figure 2), 40 (34%) contained a product review, promotion, or recommendation about a specific marijuana product or store. Approximately 28% (33) were educational videos that either provided step-by-step instructions on how to dab/how to make products like wax/shatter, or taught background information about dabbing or gave more information about the intricacies of dabbing. Only 21% (24) contained some kind of warning about dabbing, such as preventing explosions, injury, or negative side effects. Twenty-six videos (22%) specifically mentioned medical marijuana or getting “medicated”, either in the video itself or in the brief text description of the video. When taking into account whether the video mentioned medical marijuana or getting “medicated” and whether the channel profile mentioned medical marijuana, 63 videos (54%) were considered related to medical marijuana.

We compared characteristics of the people dabbing, the dabbing session, and messages conveyed in videos with ≥100,000 views (n=21) against videos with <100,000 views (n=95)

to determine if the most popular videos differed qualitatively from the other videos. No significant differences were observed for any of the qualitative video classifications (all $p > .05$). In addition, we compared the above characteristics by age-restriction. More age-restricted videos had 100,000 views (6/23, 35%) than those that were not age-restricted (12/92, 13%) ($p = .014$). Among those where someone was shown dabbing, a greater proportion of age-restricted videos showed someone dabbing repeatedly (19/21, 90%) versus videos that were not age-restricted (44/81, 54%) ($p = .002$). No other significant differences were found.

4. Discussion

We sought to better understand the extent that YouTube is used for viewing videos about dabbing given that it is the most-popular online video community. YouTube facilitates an online resource for free and easy access to videos about dabbing. The dabbing videos included in our analyses had a total of nearly 10 million views, and had higher view counts (median near 27,000) than most YouTube videos (53% of YouTube videos have fewer than 500 views) (Frommer and Angelova, 2009). These trends suggest a widespread interest in dabbing among many YouTube users. While the median number of views for the dabbing videos was not as high as videos about other substance use like cigarettes (median over 600,000 views) or alcohol (median over 130,000 views; Carroll et al., 2013; Primack et al., 2015), dabbing has recently emerged as a seemingly trendy form of marijuana use. In fact, we only found two other scientific papers examining this form of marijuana use (Loflin and Earleywine, 2014; Murphy et al., 2015). As the general public becomes increasingly accepting towards marijuana legalization, more individuals may be curious about using marijuana in this alternative and trendy way and search YouTube for information.

Most of the videos in our study tended to depict “experienced” dabbers in the act of dabbing. While the impact of watching others display substance abuse behaviors on social media is not yet known, there is consensus that substance abuse occurs within communities where it is more readily observed (Buu et al., 2009; Tucker et al., 2013). Moreover, young people are greatly influenced by their peers and the media (Allen et al., 2012; Whaley et al., 2014). As such, there is potential that the videos in our study normalize dabbing. Specifically, it could be that watching individuals (who are skilled at) dabbing on YouTube promotes this behavior and/or shifts attitudes about dabbing towards use for individuals who are contemplating initiation. Thus, while dabbing appears to be a lesser-known way of ingesting marijuana, it may be that YouTube videos about dabbing are helping to generate more interest in this behavior.

Our findings additionally signal that YouTube is a go-to resource for individuals who are seeking out information about dabbing. Specifically, many of the videos contained educational and/or instructional guidance about dabbing such as how-to dab for novice dabbers, step-by-step tutorials for making wax, shatter, or dabbing contraptions at home. Furthermore, product reviews or recommendations on what dabbing-related products one should utilize was common. This is similar to results from a content analysis of hookah-related YouTube videos, and highlights the word-of-mouth type of advertisement that has become popular on social media (Carroll et al., 2013; Trusov et al., 2009). Although

cautionary messages about dabbing were also observed in some videos, this was less prevalent than content that encouraged or helped facilitate dabbing behaviors.

Because marijuana extracts have a much higher THC concentration than traditional flower forms of marijuana (Mehmedic et al., 2010), the depiction of people dabbing repeatedly in over half of the videos is worrisome. The number of dabs performed by one person ranged from 2 to 50. Given that only a small amount of marijuana extract should be needed to produce the desired effect, it is likely that many of the users have built up a tolerance, as was reported by Loflin and Earleywine (2014). Furthermore, some of the videos featured heavy use in the form of challenges to dab many times or to dab very large amounts (e.g., “10 Biggest Dabs on YouTube Compilation and 22 Gram World Record Attempt”, “Biggest Dab Gauntlet on YouTube - XXXX Takes 31 Dabs in a Row”). Videos that portray large or multiple dabs could lead to a normative attitude that one should be able to tolerate an increased amount, thus causing users to push their limits to new levels of use. This is especially alarming since the short- and long-term effects of dabbing have not yet been examined.

Over half of the videos made references to their marijuana use being for medicinal purposes, either in the channel profile, the text description of the video, or mentioned in the video itself. However, the individuals in the video often stated that they were getting “medicated”, and this was coded as medicinal use even though getting “medicated” appears to be synonymous with getting “high”. In addition, individuals in the videos only mentioned medicinal use in a negligible way, not making it a primary focus of the video. Specifically, even though the users may be using marijuana extracts as medicine, the process of dabbing, the type of products used, and the resulting high seemed to be more prominent in the videos than its medicinal benefits.

A small proportion of videos that we accessed (1 out of 5) were restricted to viewers aged 18 years or above. This age-verification measure does not match with the legal age in states where recreational marijuana use is legal (21 years). Furthermore, restrictions can appear variable since viewers must flag the video for inappropriate content before it is reviewed by YouTube and given an age-restriction. Even when an age-restriction is present, it is not effective for preventing underage individuals from viewing these videos because no *proof* of age was necessary for videos to be subsequently viewed. We similarly found that marijuana-related social networking occurs on Twitter, even among underage individuals (Cavazos et al., 2015). In addition, studies that examined underage access to tobacco and alcohol online content have likewise observed that even the most effective commercial internet filters do not prevent underage access to online messages about these substances (Forsyth et al., 2013; Grana and Ling, 2014; Jones et al., 2014; Primack et al., 2012).

Limitations should be considered when interpreting our results. We used a small number of search keywords (“dabbing” and “dabs”). It is possible that the content of the videos might differ somewhat if we also included keywords such as “cannabis extracts”. In addition, we used videos from a search at only one point in time. However, we checked the status of these videos two months later and noted increases in the number of views by a median of a few thousand. We speculate that the popularity of dabbing videos will increase as the interest in

this trendy alternative form of marijuana grows. Demographic characteristics of the dabbers were sometimes difficult to determine. Finally, our results cannot be generalized to others who dab marijuana concentrates; those people who choose to upload their experiences or advice about dabbing for others to view could be more experienced or differ in other ways from the average user who dabs marijuana concentrates.

Despite these limitations, our study provides new insight into the messages in YouTube videos about the emergent and under-studied use of marijuana extracts. In general, dabbing-related videos were easily found and could be readily viewed on YouTube. Many of the videos portray experienced users and repeated dabbing. Many also instruct the viewer on how to dab or make wax/shatter/oil and provide recommendations on dabbing products. More research is needed to determine the impact such videos have on the attitudes and marijuana use behaviors of viewers. Marijuana use is becoming more accepted by the general population (Doherty et al., 2015; Okaneku et al., 2015), and these types of videos on popular social media platforms where youth and young adults frequent could increase in popularity as individuals become interested in using marijuana in an alternative way. Accordingly, there is the potential for the normalization of this newer and more potent form of marijuana use to occur. Survey items to measure the prevalence of use of marijuana extracts in this way should be added to existing substance use surveillance systems in order to track trends in its use and future research on the effects of marijuana should include consequences from this highly concentrated form of THC administration.

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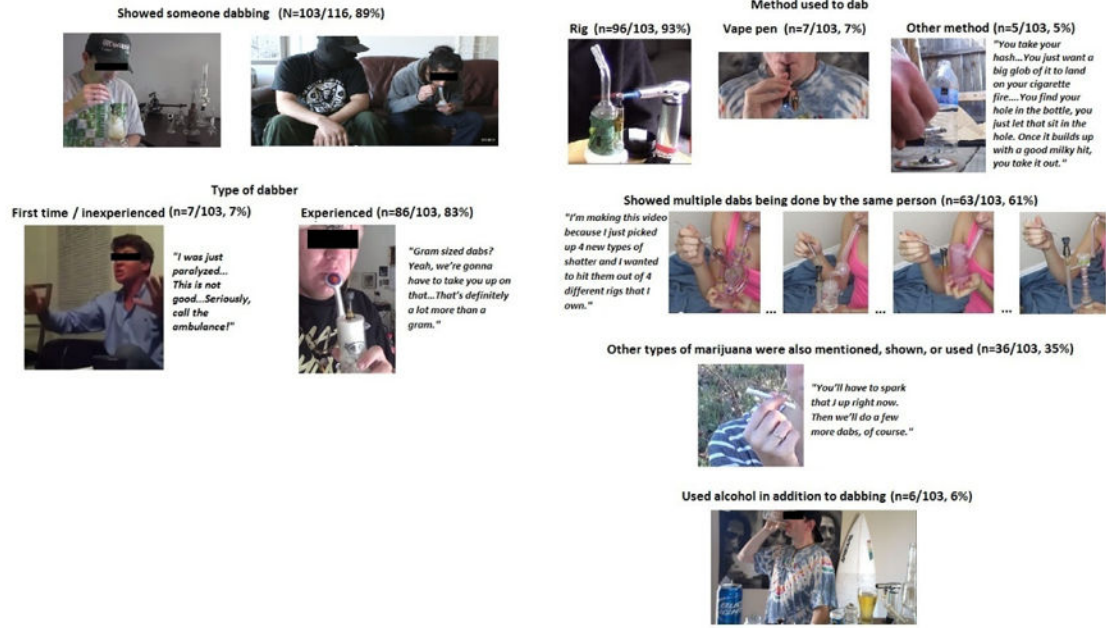
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Highlights

- We studied the content of YouTube videos relating to dabbing marijuana extracts.
- Most of the videos did not have an age restriction.
- Many of the videos showed someone dabbing repeatedly.
- Less than 1/4 of the videos contained a cautionary message about dabbing.
- YouTube videos about dabbing are easily accessed and could normalize this potent form of marijuana use.

Characteristics of the person dabbing

Characteristics of the dabbing session



Note: In 10 videos, we could not determine whether the dabbler(s) were inexperienced or experienced.

Figure 1. Characteristics of videos that portrayed someone dabbing (N=103/116)

Messages conveyed in videos

Contained product review, promotion, or recommendation (n=40/116, 34%)



"Today we're checking out the OG wax from GreenDragon Collective...The OG smell really comes through...You can see it's really like clear. That kind of lets you know is prepared really well...Overall this is some really really good wax."

Educational video (n=33/116, 28%)

How to dab



"This is my tutorial video on dabbing and concentrates"

How to make a product (e.g., shatter, wax)



"I've met a lot of people who want to learn about dabbing. I put up this basics video as a good place to start. Please pass it around, especially to friends and family who are just beginning to dabble with dabbing."

Contained warning about dabbing (n=24/116, 21%)



"Any torch that you buy -- you need to read every single instruction on it. You need to be careful of where you point the flame. Do not be a dumbass and set yourself on fire..."

Mentioned medical marijuana (n=26/116, 22%) *

REMINDER:
The following video was made for educational purposes by adult medical marijuana patients in California. If you are underage or live somewhere where marijuana and/or medical marijuana are illegal, **DO NOT** try this at home.

* When also considering whether medical marijuana was mentioned in the channel profile (as opposed to just the video itself), 63 (54%) videos were related to medical marijuana.

Figure 2. Messages conveyed in dabbing-related videos (N=116)

Table 1
Characteristics of videos about dabbing (N=116)

Video characteristic	Median (range)	Total across videos
Number of views	26,852 (84 to 1,748,837)	9,545,482
Video length (minutes)	5.6 (0.2 to 140.3)	-
Age restriction n (%)	23 (20%)	-

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Table 2
Characteristics of channels that published videos about dabbing (N=75)

Channel characteristic	n (%)	
Location		
Arizona	2	(3%)
California	17	(23%)
Colorado	6	(8%)
Florida	1	(1%)
Oregon	2	(3%)
Washington	4	(5%)
Outside the US	5	(7%)
Unknown	38	(51%)
Specific focus on marijuana	57	(76%)
Mentions medical marijuana in channel description	25	(33%)
	Median (range)	Total across channels
Number of subscribers	2,095 (6 to 5,589,269)	7,469,432
Total number of channel views	410,758 (4,890 to 683,189,280)	989,241,844
Amount of time on YouTube (years)	4.2 (0.3 to 9.3)	-