



# Examining How Regular Users of Marijuana Communicate with Their Children About Marijuana Use: Lessons Learned from Facebook and Instagram Recruitment

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Accepted: 30 April 2023 / Published online: 20 May 2023

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## Abstract

Regular use of marijuana during adolescence is linked to academic underachievement, mental health problems, and delinquency. There are concerns that increased use of marijuana among adults, especially among caregivers, may increase rates of youth marijuana use. The current qualitative study used content analysis to examine what messages caregivers convey to their children about marijuana use, whether caregivers perceive barriers to such communication, whether they disclose their own use, and level of interest in supports or caregiving resources. Participants were recruited through paid Facebook and Instagram ads. Several methods were employed to achieve a gender-balanced and diverse sample of caregivers with youth aged 8–16 years, living in states with legalized marijuana, and who reported regular marijuana use ( $N = 70$ ). Caregivers completed an online questionnaire including open- and closed-ended responses about their communication with their children. Results indicated that most caregivers conveyed largely positive messages about marijuana to their children, including marijuana as medicine, natural, and conditionally acceptable to use. Negative messages included caregivers instructing their teen not to use marijuana and that marijuana use is bad and/or unhealthy for children/teens. The majority of caregivers disclosed their own use to their children, and generally did not endorse barriers to communication. Approximately half of caregivers identified a desire for more tangible and applicable communication skills based on scientific evidence to facilitate conversations with their children about marijuana. Implications are discussed for future preventive interventions for those who regularly use marijuana and are caregivers of teens.

**Keywords** Caregiver marijuana use · Parent–child communication · Social media recruitment

## Highlights

- Marijuana-using caregivers presented positive attitudes and beliefs about marijuana.
- Marijuana-using caregivers wanted more scientific information about how to parent in marijuana-positive environments.
- Facebook recruiting was fast and cost-effective for collecting data on marijuana-using caregivers.
- Facebook recruiting was flexible for collecting diverse samples of caregivers.

The legalization and/or decriminalization of marijuana has occurred in all but six states (Alabama, Idaho, Kansas,

South Carolina, Tennessee, Wyoming) in the United States as of 2021 (Kelly et al., 2021; National Conference of State Legislatures, 2021). Increasing marijuana availability and decreasing penalties for engaging in use have contributed to growing concerns regarding increased marijuana use among both adults and adolescents. Early marijuana initiation (usually defined as any use prior to age 15; Substance Abuse and Mental Health Services Administration [SAMHSA], 2019a, 2019b) and chronic use during adolescence has been linked to increased risk for academic underachievement and school dropout, increased risk for depressive symptoms, and cognitive impairments (e.g.,

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below average IQ). Additionally, early and/or chronic users of marijuana are found to be at elevated risk for developing psychosis-related disorders, such as schizophrenia and/or marijuana use disorders (defined as a problematic pattern of marijuana use leading to disruptions in functioning marked by two or more of the following for 1 year: impaired control, social impairment, risky behavior, or physiological adaptation) (American Psychiatric Association, 2013; Flory et al., 2004; Paige & Colder, 2020; SAMHSA, 2019a, 2019b; Volkow et al., 2014; Washburn & Capaldi, 2014).

Marijuana is the most commonly used substance among adolescents, after alcohol. Recent data from the Monitoring the Future study indicated that 6.5% of 8th graders, 16.6% of 10th graders, and 21.1% of 12th graders reported past-30-day marijuana use (Johnston et al., 2021), and between 2014 and 2017 there was a documented 10% increase in past-30-day marijuana use for those ages 12 and up (mostly strongly attributed to those 18 years of age and older) (Hughes et al., 2015; SAMHSA, 2018). Additionally, this increase in adolescent marijuana use persisted between 2017 and 2019 (Johnston et al., 2018; 2021; SAMHSA, 2019a, 2019b). Not surprisingly, marijuana use among adults who are caregivers has also increased (Goodwin et al., 2018; Smith, 2018), therefore increasing the risk of their adolescent children using marijuana (Washington State Department of Health, 2017). Extant research has documented that caregiver marijuana use is a strong predictor of child marijuana use (Bailey et al., 2016; Kerr et al., 2015). For example, in 2018, data from Washington State showed that 18% of youth aged 12–18 who live with a daily marijuana user reported their own use, compared to only 5% of those who do not live with a daily user (Washington State Department of Health, 2018).

Caregiver marijuana use is one of the strongest predictors of child use of marijuana (Bailey et al., 2016; Stone et al., 2012). However, caregivers who use substances can still be instrumental in preventing or delaying youth substance use initiation, such as strengthening protective factors (e.g., prosocial opportunities) and reducing risks (e.g., antisocial peer influence), and clearly communicating values and/or expectations regarding substance use (Jackson & Dickinson, 2003). For example, using the Smoke-free Kids intervention with 671 primarily White families, Jackson & Dickinson demonstrated that consistent anti-smoking messaging reduced the likelihood of child cigarette use, mitigating some of the risk conferred by having a caregiver who smoked (Jackson & Dickinson, 2003, 2006). From these findings they suggest that caregivers who use marijuana may similarly be able to use anti-marijuana-use messages to protect their children from initiating marijuana use during adolescence (Jackson & Dickinson, 2006). Other existing interventions (e.g., Guiding Good Choices) have also been

shown to be effective at reducing the risk of teen marijuana use despite caregiver substance use status with diverse samples of teens in elementary and middle schools by emphasizing positive caregiving strategies such as direct communication, child monitoring, and norm setting (Haggerty et al., 2006; 2015; Spoth et al., 2001).

Following the 2012 marijuana legalization in Washington State, only a few studies have examined caregiver attitudes about caregiving practices in a legal marijuana context. Two focus group studies reported that caregivers who use marijuana expressed concern with presenting “do as I say, not as I do” messages to their children and reported general uncertainty about how much to share about personal use, past or present (Eisenberg et al., 2019; Skinner et al., 2017). Both nonuser and user caregivers were concerned with becoming bad role models; however, current-user caregivers expressed a need to disclose personal use to protect their children from accidental consumption and/or gain legitimacy with their children when instructing them to abstain. A third focus group study of 282 caregivers found that those who had used marijuana in the past year were less likely to find harm-focused anti-marijuana public health messages acceptable compared to their non-using counterparts (Hanson et al., 2018). These findings indicate that caregivers may have difficulty knowing what to say to convey their concerns about youth marijuana use or what (if anything) to say about their own use, and furthermore may feel unprepared to convey strong anti-marijuana messages to their children because such messages may not align with their own beliefs and actions. All three studies were conducted close to the timing of legalization, when the marijuana points of sale were just opening in Washington State. Marijuana markets have undergone tremendous changes since that time, now offering a far greater variety of products than initially, many of which may appeal to youth (e.g., chocolates and other candies). At the time of this study Washington State had endorsed legalization for 8 years, and a dramatic increase in marijuana use, it is important to revisit how caregivers communicate with their children about marijuana, and what messages they are conveying now.

Results from this qualitative study are likely to have intervention implications for policymakers, parents/caregivers, and educators. Marijuana-using caregivers may be the most important group to target for intervention due to the increased risk of substance use for their children. Yet, little is known about their needs, such as to what degree caregivers find it difficult to communicate with their children about marijuana use and whether existing marijuana prevention programs (which rely on effective communication between caregivers and children) are adequate at addressing the specific needs that caregivers who use marijuana may have (e.g., Haggerty et al., 2006; 2015; 2007;

Spoth et al., 2001). In previous studies, caregivers who used marijuana tended to present marijuana-positive attitudes and “good reasons” to use marijuana, whereas caregivers who smoke cigarettes often present anti-smoking messages (health risks, difficult to quit, etc.) to their teens (Hanson et al., 2018). For this reason, it may be imperative to tailor family-based programs to present more acceptable messaging that caregivers feel closely aligns with their own value set. Therefore, family-focused prevention efforts will need to appeal to caregivers who use marijuana and provide them with youth-focused marijuana abstinence messages and the necessary skills to deliver them to their children.

## Current Study

The current study sought to fill the gaps in existing literature about how caregivers who use marijuana communicate to their children about marijuana use. Qualitative methods were chosen to capture communication in the way that caregivers convey it. Specifically, this study was guided by four main research questions: (a) what messages do caregivers who use marijuana communicate to their children about marijuana use, (b) whether they perceive barriers to communication with their children related to their own use, (c) whether they tend to disclose their use to their children, and (d) what resources and supports do caregivers who use marijuana need in order to facilitate effective communication with their teens about marijuana use. Findings from this study could inform family-focused intervention efforts with caregivers who use marijuana, whose children are at an increased risk for marijuana use. Additionally, a secondary aim of the current study included investigating approaches to using online social media platforms to recruit diverse study participants in order to obtain generalizable and valid data. The current study built on the success of the feasibility pilot study in recruiting caregivers to a self-directed intervention (Oesterle et al., 2018).

## Methods

### Recruitment

The study was advertised on Facebook and Instagram using Facebook’s paid ad algorithm. The study created six separate advertisement ad campaigns (C1 – C6), each depicting a caregiver with a middle school-aged child; gender and race varied from ad to ad. Facebook’s algorithm optimizes which ads are shown based on click rate responses. The ads included descriptive language that would interest a caregiver, such as “What is it like to parent in the age of legal marijuana? Let us know!” and all advertised a \$30

incentive. Clicking on the ads redirected potential participants to the study website. The site stated that caregivers play an important role in guiding teens toward healthy behavior and protecting them from engaging in problem behavior. Caregivers were told that “by completing an online survey, you will help contribute to improving caregiver programs, and reducing the risk of teen substance use.” Other information included sources of funding, frequently asked questions, pictures and biographies of the research team, as well as a link to check one’s eligibility. Facebook’s ad algorithm was set to target individuals who were over 18 years of age, lived in a state where recreational marijuana use was legal and available for purchase (Alaska, California, Colorado, Washington DC, Illinois, Maine, Massachusetts, Michigan, Nevada, Oregon, and Washington), and were caregivers of youth. Ad budgets were set to \$50 a day.

### Data Collection Procedures

#### Eligibility Criteria

Once participants clicked the survey link, they were directed to a five-question eligibility screener powered by SurveyMonkey. In order to participate, respondents had to endorse that they (a) were over age 18, (b) were a caregiver to a child aged 8–16, (c) lived in a state with legalized marijuana (participants selected their state from a drop-down menu), (d) had ever used marijuana, and (e) had used marijuana more than 6 times in the past year (to be considered regular users). Once deemed eligible, participants were gated into the rest of the survey, and, upon submission, considered complete. In both waves of data collection, participants clicked on a link to the survey and were presented with the consent form as the first page. They had the option of agreeing to participate in the study or refuse. If they clicked “Agree”, they were guided through the rest of the survey. If they clicked “Refuse” they were thanked for their participation and the survey ended there. Participants were informed that the survey would take approximately 30 min to complete. Those who were ineligible were thanked for their participation and dismissed from the survey. All study procedures were approved by the University of Washington Institutional Review Board.

#### Wave 1 Recruitment

We began the first wave of data collection in February 2020. In Wave 1, participants were offered the \$30 incentive as an Amazon credit emailed to them. No other identifying information was collected apart from an email address. We were concerned that caregivers who used marijuana would be reluctant to participate in the study and

devised an approach that kept the survey as anonymous as possible (e.g., mailing address verification for incentive), thus diminishing confidentiality issues and increasing the likelihood of respondent participation.

The first ad campaign (C1) ran for 1 week on Facebook and Instagram, and let Facebook determine ad placement based on Facebook's algorithm for success. The campaign specifically targeted caregivers of teens who endorsed an interest in legalized marijuana (e.g., by liking a page that endorsed legalization). During the C1 campaign, our ads reached 24,256 people and had 588 link clicks; 50 surveys were taken, 25 of which were complete. Of the 25 completed surveys, 17 were from female respondents. While we expected to have more female participants, our goal was to keep the respondent pool as gender balanced as possible. After consulting with the IRB, we targeted the subsequent campaign (C2) to be directed at men by changing the target audience in the Facebook algorithm. The C2 campaign used five of the original eight ads, eliminating three that featured women. We ran this campaign for 4 days, reaching 10,087 individuals and generating 160 link clicks. C2 produced 51 more surveys taken, 34 of which were complete. C2 was successful at increasing male participation: of the 34 completed surveys, 20 were male participants and 14 were female.

In the course of data cleaning, we became aware of many surveys that used almost identical emails (e.g., *jane-doe1@gmail.com*, *janedoe2@gmail.com*) and became concerned that individuals were taking the survey more than once. While SurveyMonkey allows a restriction that did not allow a survey to be taken more than once on the same device, individuals could log onto another device (e.g., home and work computers) and complete multiple surveys. Further, multiple surveys were registered to IP addresses (collected by SurveyMonkey) that did not match the states in which the participants said they lived. Because of these abnormalities, it was decided that these data could not be used.

## Wave 2 Recruitment

In light of doubts about the validity of the data in Wave 1, Wave 2 took a different approach to participant recruitment. After consultation with the IRB, we changed the language on the website and in the survey to require participants to provide a mailing address. To ensure one survey per person, we changed the incentive from an Amazon gift card to a \$30 check sent through the mail. Wave 2 of data collection began with a new campaign (C3) in March 2020 using the same original eight ads, again targeting individuals with marijuana interests. In 1 day, C3 reached 5,332 people, had 124 clicks, and six completed surveys. Data monitoring showed that most respondents were heavy marijuana users.

Because of this, we decided to no longer limit our audience to those who expressed an interest in marijuana. The next campaign (C4) eliminated that restriction in the Facebook algorithm. C4 was active for 11 days and reached 47,080 people, and resulted in 689 clicks and 58 completed surveys. Participants who completed the survey were predominantly female and White, so as a final push, we decided to change the parameters of the ad campaign to achieve more diversity.

Late in March 2020 we launched two new campaigns: C5 targeted men and C6 targeted individuals with interest in multiculturalism. (While Facebook's ad algorithm allows targeting by gender, it does not allow targeting by race/ethnicity.) Instead, C6 targeted participants by "multicultural affinity": African American, Asian American, and Hispanic. Facebook did not provide a multicultural affinity for Native American, so we included an interest in Native American culture. These two campaigns reached 16,132 and 15,264 people, with 234 and 179 clicks, respectively. This resulted in 21 new completed surveys; of these, 13 were men and 13 were people of color. Wave 2 ran for a total of 2 weeks and resulted in 181 surveys, 85 of which were complete.

During data cleaning, we identified six participants who completed the survey twice (had the same name and mailing address), and nine cases where the IP address did not place the respondent in the state in which they said they lived. Eliminating these cases left 70 surveys that were used in the final sample. Several of the caregivers reported the ages of their children to be as young as 8 and as old as 16. Because of the study's interest in caregivers of youth broadly, it was decided to keep these cases.

## Costs

In Wave 1, advertisements ran for 13 days at up to \$50 per day for a total of \$244.28 in ad costs. We recruited 59 individuals at a cost of \$4.14 per participant. In Wave 2, advertisements ran for 14 days for a total of \$388.52. We recruited 85 individuals for a total ad cost of \$4.57 per participant. If accounting only for the "usable" data ( $N = 70$ ), recruitment costs were \$5.55 per participant in Wave 2. Adding incentives and mailing costs, total participant costs were \$36.10 per person in Wave 2.

## Participants

The final sample of participants consisted of 70 caregivers who reported regular use of marijuana (6+ times in the past year) and had children aged 8–16 years ( $M = 12.5$ ). Table 1 lists demographic characteristics of the sample. Participants represented 51 women, 17 men, and 2 non-binary individuals. Most caregivers identified as Non-Hispanic White.

**Table 1** Demographic information

		N	%
Sex of caregiver	Male	17	24.29
	Female	51	72.86
	Non-binary	2	2.86
Age of caregiver	25–29	7	10.00
	30–34	16	22.86
	35–39	20	28.57
	40–44	15	21.43
	45–49	6	8.57
	50–54	1	1.43
	55–59	4	5.71
	60+	1	1.43
Ethnicity of caregiver	White	53	75.71
	Black	7	10.44
	Asian	4	5.97
	Native	3	4.47
	Abstained	3	4.28
Hispanic	Yes	6	8.96
	No	61	91.04
	Abstained	3	4.28
State of residence	California	18	25.71
	Colorado	3	4.29
	Illinois	12	17.14
	Maine	2	2.86
	Massachusetts	3	4.29
	Michigan	20	28.57
	Nevada	2	2.86
	Oregon	3	4.29
	Washington	7	10.00
	Geographic location	Farm	2
Country		6	8.82
Small city		23	33.82
Medium city		12	17.65
Large city		13	19.12
Very large city		12	17.65
Abstained		2	2.85
Education		GED	10
	HS diploma	12	17.14
	Technical/vocational	21	30.00
	2-year degree	15	21.43
	4-year degree	9	12.86
	Graduate degree	3	4.29
Marital status	Married	24	34.29
	Living w/ partner	23	33.82
	In relationship but not cohabitating	5	7.35
	Casually dating	2	2.59
	Single	14	19.1

**Table 1** (continued)

		N	%
Past-month marijuana use	Abstained	2	2.85
	Never	2	2.86
	< 1× a week	1	1.43
	Once a week	4	5.71
	Several times a week	12	17.13
Sex of child	1–2 times a day	24	34.29
	3+ times a day	27	38.57
	Female	30	43.48
	Male	36	52.17
Age of child	Non-binary	3	4.35
	Abstained	1	1.42
	8	1	1.43
	10	1	1.43
	11	16	22.86
	12	15	21.43
	13	18	25.71
	14	16	22.86
	15	1	1.43
	16	2	2.86

We had respondents from nine states, the most represented being Michigan, California, and Illinois. Caregiver ages ranged from 25 to 60+, but the majority were between ages 30 and 49. Caregivers reported a wide range of educational backgrounds, ranging from graduate degrees to some high school/GED experience. About half of the caregivers reported having female children. The majority of caregivers reported daily or near daily (“several times a week”) marijuana use.

## Measures

Participants reported their age, gender, education, state of residence, marital status, geographic location, ethnicity, child age, and child gender. Caregivers were asked whether they had talked with their child about marijuana use and who initiated the conversation. Current findings are limited to open-ended questions to the caregivers concerning discussions of marijuana with their children: (a) What did you say to your child about marijuana? How did the conversation go? How did your child react? (b) What are the 3 things that make talking to your child about marijuana difficult? Caregivers were then asked if they thought caregivers should disclose personal marijuana use to their children, and if so, to describe the nature of the conversation: (c) Can you describe what you said [about your own use] and how the conversation went for you and your child? And (if no) (d) Can you tell us why not, and share your thoughts on why

caregivers should or shouldn't tell their teens about their own marijuana use? Finally, caregivers were asked (e) Where do you get information when you have questions about how to talk with your child about drugs and alcohol? And (f) Would you like resources, and (if yes) what would be helpful? These items were developed specifically for this study.

## Analysis

The initial data was compiled, cleaned, and entered into Dedoose v8.0, a platform designed for qualitative information analysis (SocioCultural Research Consultants, 2018). Wave 1 data were used to develop a core set of codes to apply to Wave 2 data. Responses to author developed open-ended questions were analyzed using an inductive thematic content analysis process (Braun & Clarke, 2006). Participant responses were coded independently by three of the authors, using the Wave 1 data to generate codes and establish inter-coder reliability. Codes were assigned and reviewed collectively until consensus was reached. Finally, researchers independently reviewed responses once more to consolidate codes into initial themes via collapsing and merging similar codes. These finalized themes were then applied to Wave 2 responses to ensure accurate representation of the information contained in the participants' data. Again, data were independently coded by three coders; inconsistencies in coding were flagged and reviewed until consensus was reached.

## Results

### What Are Caregivers Communicating to Their Children?

To address our first research question, caregivers were asked to describe what they have said to their child about marijuana. A number of themes emerged from this question that were grouped generally into messages that endorsed marijuana use ( $N = 54$ ) and messages that opposed use ( $N = 20$ ). Fourteen caregivers reported messages in both categories. Three prominent marijuana endorsement themes became apparent: marijuana as medicine, marijuana as generally "not bad," and marijuana use is conditionally acceptable. Opposition to use included instructions that youth should not use marijuana and that marijuana use was "bad" or "unhealthy."

### Marijuana Endorsement

Using marijuana for medical purposes was the singular most common theme represented by the caregivers in this sample.

Forty-one percent ( $N = 29$ ) of all respondents mentioned marijuana in association with medicinal properties in their conversations with their children. Specifically, the word "medicine" was used by 19 caregivers in reference to marijuana. For example, "I explained to him that it's mommy's medicine" and "marijuana [is] a very important medicine to many people" were common key notions expressed by many of the caregivers. Caregivers also cited general health benefits such as, "I explained the medical needs and benefits of marijuana" and "I told them that the reason I use it is to help my anxiety." A small subset of caregivers ( $N = 3$ ) referenced marijuana as an acceptable alternative to pharmaceuticals: "my alternative to prescription meds" and "instead of the pills." Two caregivers referred to marijuana as a substance one does not use for "fun" or "relaxation," implying nonmedical applications for marijuana use are not ok. One caregiver stated they use "not for fun or to look cool" but rather for a heart condition.

Another marijuana endorsement presented marijuana as positive, natural, or better than other substances. Caregivers in this category (17% of caregivers) used terms such as "not as bad as," as "natural," and as "a plant." Some caregivers mentioned natural qualities of marijuana, such as "it's a flower that is naturally grown and all the benefits that come from it." Caregivers also made comparisons with other substances, such as "marijuana is safer than alcohol. I would rather have her smoke pot than drink" or "I told her that out of alcohol, tobacco, and marijuana that I believe marijuana is the safest."

Finally, caregivers conveyed to their children that marijuana use is acceptable when certain conditions have been met. Moderate use, responsible use, use in accordance with state law, and/or engaging in the behavior at home and/or discreetly were mentioned conditions. Far fewer caregivers endorsed current use as acceptable for their children ( $N = 2$ ; 3%) compared to caregivers advising risk mitigation tactics or minimal age requirements prior to initiation ( $N = 13$ ; 19%). A typical response in this category included: "We talk about legal age to experience it and try to show that it's only positive in certain circumstances and she needs to be old and mature enough to make that decision" or "If they choose to that's fine but only at a certain age."

### Opposition to Marijuana

Twenty-four percent of caregivers directly stated to their children to not use marijuana ( $N = 17$ ). Caregivers supplied other alternative activities to consuming marijuana or provided activities for children to engage in (i.e., work) as supporting evidence, such as "I told my son he's young, you should be out playing with your friends, siblings, playing your video games, not sitting around." General statements concerning the "unhealthy" consequences of marijuana use

were also common among responses included in this category. For example, one caregiver stated, “[Marijuana] is very bad and unhealthy and it makes families break apart from each other and other unhealthy stuff.” Further, some ( $N = 12$ ; 17%) impressed guidelines (i.e., only at home, in appropriate amounts, at a certain age, with discretion, etc.) and/or consequences (i.e., grounding, family discussion, diminished brain development, adverse life outcomes, etc.) for adolescent substance use. For example, “We also have had talks about how his brain development and how he could damage it by putting substances in his body, especially if he does it before he’s 26.”

### Are Caregivers Disclosing Their Own Marijuana Use?

Most caregivers in this study (77%;  $N = 54$ ) disclosed their personal marijuana use. Twenty-five of these caregivers cited psychological and/or physical health benefits as a reason for their use, such as “I suffer from depression and anxiety” and “That although we as caregivers smoke it is more of a pain remedy than just to smoke to have fun.” Fewer caregivers (10%;  $N = 7$ ) disclosed that they engage in marijuana use primarily for relaxation.

Caregivers also disclosed their own use to protect their children from inadvertently consuming it, such as “I use edibles and she understands not to eat the gummies I get” and “We asked the children if they found anything marijuana related in the house to immediately bring to one of us and when they would find things... we would reward them with an activity of their choice.” Some caregivers presented their own use as a normal behavior, including “I told her that smoking pot runs in the family” or “My kids have always known and seen everyone around her smoke pot.”

### Do Marijuana-Using Caregivers Perceive Barriers to Communicating With Their Children Related to Their Own Use?

#### Having the Conversation

A large majority of the sample reported that they have engaged in conversations about marijuana with their children (91%;  $N = 64$ ) and most reported that the caregiver initiated these conversations (66%;  $N = 46$ ). Some caregivers reported multiple conversations (19%;  $N = 13$ ) to facilitate open and honest communication, such as “I have been talking to my son about marijuana for many years, so it’s not an awkward topic for us” and “this topic in my life is much more than one talk.”

Only half of all caregivers chose to comment on the success of their conversation (43%;  $N = 30$ ), with 24 caregivers reporting that the conversation was positive in nature. One caregiver stated that their daughter “was totally

ok with the conversation she engaged and asked questions and decided it’s not for her.” Some caregivers indicated their child expressed curiosity and/or interest in marijuana, such as “He was curious and receptive and interested in how the medicinal benefits would play out as he viewed it as strictly a recreational drug” and “I didn’t want to make marijuana into something taboo or shameful so we casually started talking about it and my child reacted with curiosity and acceptance.” Only four respondents (6%) indicated their conversations were not successful. One caregiver said “He got upset and slam the door.” Two caregivers (3%) were unsure how to feel about the success of their conversation.

### Barriers Preventing Communication Between Marijuana-Using Caregivers and Child

Since most caregivers had communicated with their children about marijuana and most disclosed their own use, only a small portion of the sample reported barriers to communication. Only 10% of caregivers ( $N = 7$ ) did not disclose their marijuana use. Fear of being negatively judged, fear of being seen as condoning marijuana use, and fear of introducing marijuana-related topics too soon were reasons for choosing not to disclose their use. For example, one caregiver stated, “Don’t want them to judge me I guess” and another noted “We live in a small town and do not want them looked down on because of it. So not many of even our close friends know.” Caregivers cited the potential of becoming a “bad influence,” being seen as condoning their child’s behavior if they were to broach the subject of their own marijuana use, or feeling “like a hypocrite.” Finally, one caregiver stated that “Caregivers probably shouldn’t tell their kids if the child doesn’t have the capacity to understand that marijuana used medically is not the same as recreationally.”

### What Additional Resources Do Caregivers Need?

Approximately half (55%;  $N = 39$ ) of the caregivers in the sample said they are interested in caregiving resources (e.g., handouts, classes, treatment), whereas 34% of caregivers ( $N = 24$ ) indicated they did not need additional caregiving resources (“I feel we are pretty open and have a good plan of raising my kids”) and the rest expressed ambivalence (“Not sure in our case [because] we feel confident in our ability to parent”). Caregivers who did not want additional resources cited not having enough time (50%;  $N = 12$ ) and fear of negative experience and/or violation of privacy (29%;  $N = 7$ ).

Caregivers who wanted additional resources expressed a desire for peer-to-peer support and/or some sort of programming that included professional help and guidance

with tangible community resources (30%;  $N = 12$ ), resources to help them communicate better with their children (23%;  $N = 9$ ), scientifically reliable information and sources for marijuana information (15%;  $N = 6$ ), and the need to reduce stigma associated with marijuana use (12%;  $N = 5$ ). Caregivers said that they would like “A community of caregivers who use marijuana who can offer firsthand experience and knowledge” and to learn “how to talk to your kids when you’re an active user.” Specifically, caregivers were curious about ways to elicit marijuana perceptions from their teens: “I have a great relationship with him but I would love to hear his thoughts about the subject... How do I get him to tell me his thoughts?” Lastly, caregivers were actively looking for unbiased empirical data (“I like to use statistics and other research-based evidence. There is very little available regarding marijuana”), including information about the range of effects and uses of marijuana (i.e., “effects of hybrid, Indica, and sativa” or “Proper education of this medicine”), developmental effects (i.e., “Something that explains how it affects them developmentally”), and legality (i.e., “Why legal in some places yet illegal in other places”) that could help reduce stigma (i.e., “It would be extremely helpful if we could STOP comparing and associating marijuana with harmful drugs like tobacco and alcohol”). Some modalities of delivery suggested as potentially helpful were web delivery, caregiver support groups, and tangible pamphlets heavily emphasizing reliable data about marijuana.

## Discussion

### Caregiving in a Legal Marijuana Context

As more U.S. adults, and more caregivers, live in states that have legalized the use of marijuana for adults, it is important to understand how caregivers who legally use marijuana communicate about it with their children. The current study examined caregiver-child communication among caregivers who regularly used marijuana using qualitative methods. Caregivers were recruited through Facebook and Instagram, an innovative and cost-effective recruitment strategy. Unlike caregivers interviewed almost a decade earlier in previous focus group studies (Eisenberg et al., 2019), caregivers in the current study were not conflicted about revealing their own use. Results indicated that 77% of marijuana-using caregivers were open with their children about their own use and initiated conversations at high rates with their children about marijuana. Caregivers conveyed messages, many of which portray marijuana positively, although not necessarily appropriate for adolescent use. At the same time, some caregivers reported fears of stigma and negative reaction from the community in reaction to their

own use, and over half of the caregivers expressed a desire for resources to communicate more effectively with their child. Peer-to-peer caregiver groups, professional-led groups, and community resources were the most popular resources requested, indicating an openness to preventive interventions to strengthen caregiving skills.

Existing preventive interventions use positive caregiving strategies, such as clear communication, child monitoring, and norm setting, which have been shown to be effective at reducing the risk of teen marijuana use (Haggerty et al., 2006; 2015; Spoth et al., 2001). Such strategies can still be effective at reducing the risk of teen substance use, even among caregivers who use substances themselves. For example, Denise Dickinson’s studies testing interventions with caregivers who use cigarettes (Jackson & Dickinson, 2003, 2006) found that consistent anti-smoking messaging reduced the likelihood of child cigarette use, mitigating some of the risk conferred by having a caregiver who smoked. This suggests that caregivers who use marijuana may similarly be able to use anti-marijuana use messages to protect their children from initiating marijuana use during adolescence (Jackson & Dickinson, 2006).

Prevention programs aimed at caregivers and their children rely heavily on teaching and supporting caregivers’ communicating anti-substance-use messages and guidelines to their teens. However, these programs must be adapted to accommodate caregivers who use marijuana, whose children are at an increased risk. Specifically, results from this study offer suggestions about ways to adapt existing programs, including (a) empowering caregivers to provide consistent guidelines about their children not using marijuana, even if the caregiver has already disclosed his or her own use; (b) drawing a clear distinction between marijuana use that is medicinal in nature from recreational use; (c) providing caregivers with science-based information about the risks of marijuana use for adolescents vs. for adults, including highlighting brain development as deterrent to use, the effects of marijuana on the body, brain, and long-term effects of use; and finally (d) working to reduce stigma for adults who use marijuana legally. Programs may need to be mindful about marijuana-using caregivers’ positive attitudes toward marijuana use. Approaches for prevention that promote caregiver abstinence are not likely to be acceptable for this population and may deter caregivers from engaging and using information disseminated by such programs.

### Recommendations for Using Social Media to Recruit Caregivers

Using social media platforms to recruit participants is an innovative and low-cost way to potentially reach a wide range of individuals, including caregivers. The current study successfully built on previous experience using Facebook



for recruitment (Oesterle et al., 2018), and gained several important insights. First, we confirmed that the use of Facebook ads to recruit caregivers, including caregivers who use marijuana, is feasible and efficient. In both waves of our data collection, we reached our recruitment goals ahead of schedule, recruiting 144 caregivers in 27 days. This approach is flexible. Spending more on ads increases ad reach, and it is likely that recruitment could progress even faster. Second, recruiting caregivers who used marijuana was feasible through Facebook, both with or without specifically targeting the population of those who expressed an interest in marijuana-related Facebook content. It is unclear how Facebook's ad algorithm could be used to recruit moderate users of marijuana. Third, we were successful at modifying the ad algorithm to boost diversity in the sample. Limiting the audience targeted by the ads based on demographics and interests was an effective strategy to include more fathers and non-White participants. While we never changed the eligibility criteria, this demographic-targeted advertising still helped us reach our goals of greater gender and racial representation. Fourth, our experience with attempting to collect anonymous data suggests that such data may be of lower quality (e.g., multiple responses from the same individuals with changing details from one survey to the next), especially when small samples are being recruited. We recommend that future studies using social media to recruit participants take precautions in the form of rigorous data cleaning, or using confidential rather than anonymous recruitment approaches. In our case, sending payment in the form of checks in the mail (rather than to an anonymous email address) dramatically increased the quality of the data. Mailing checks, while more cumbersome, ensured that no one person was sent more than one incentive; it further allowed us to validate each participant's home state.

### Strengths, Limitations, and Future Directions

The current study brings to the forefront an important issue facing caregivers who are legal users of marijuana in today's society. Whereas moderate marijuana use among adults has not been linked to widespread problem behavior, early and persistent teen use is associated with serious adverse outcomes for teens (Volkow et al., 2014). The strengths of the current study include caregivers' candid reflections on their communication with their children about marijuana and specific messages they convey. Using a qualitative approach allowed us to directly convey the caregivers' language. The ease of use and cost-effectiveness of using social media to recruit caregivers can be important for future studies in this area. For example, targeted advertisements can be used to streamline recruitment processes for certain populations such as marijuana users or those with multicultural affinity. However, people who

abstain from social media or do not have access to technology were hypothetically disproportionately under-represented in this sample, and this may limit generalizability. It is worth noting that, as Facebook users tend to be older, White, and female (Ribeiro et al. 2020), without specifically targeting fathers and individuals of color, very little diversity in the sample would have been achieved. This could limit the generalizability of the responses and misrepresent caregiver messages about marijuana. Additional limitations include a small sample composed mostly of heavy users or marijuana using at least once a day in the past month. It is possible that caregivers who use only occasionally (less than once per month) are less likely to be open with their children about their use or convey different messages. Finally, although the study took measures to ensure the validity of responses (i.e., comparing IP addresses, checks vs. gift-cards, payment receipts, exclusionary criteria prior to admittance, and Facebook advertisements), it is possible that not all responses were genuine. In particular, we relied on Facebook's algorithm to determine that participants were caregivers, but there was no way to independently verify this, nor the age of their children. These limitations are common to cross-sectional studies that rely on participants' responses. However, our conclusions were strengthened by the consistency in the responses across participants, suggesting that the group was homogenous.

Future studies examining the effectiveness of caregiving practices to prevent teen marijuana use should concurrently investigate caregivers' and teens' attitudes about marijuana as well as their rates of use. Better understanding the link between caregivers' attitudes toward marijuana and child marijuana use could help elicit more specific contextual information to aid in the development of targeted caregiving programming for prevention. For example, understanding how caregivers communicate about other topics may be beneficial to examine concurrently to examine if communication styles differ depending on topics discussed. This could provide a more complete picture about how marijuana-using caregivers are communicating about marijuana, and, further still, if harm reduction strategies demonstrated in the current study are working. Additionally, a better understanding of the risks and benefits of marijuana use for children and adults will contribute to the growing body of literature and indirectly speak to the caregivers' desires for more readily available unbiased and empirical sources. Recent shifts in policy may allow for more comprehensive investigations into marijuana use. Caregivers who use marijuana are looking to public health messages and caregiving programs for up-to-date scientific information about how to talk to their children and how to balance their own needs (e.g., use for perceived medical reasons) with the health and safety of their children.

**Funding** This work was supported by a research grant from Alcohol and Drug Abuse Institute at the University of Washington. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funding agency.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare no competing interests.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All activities associated with this study were approved by the University of Washington Institutional Review Board.

**Informed Consent** Informed consent was obtained for all participants in the study.

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