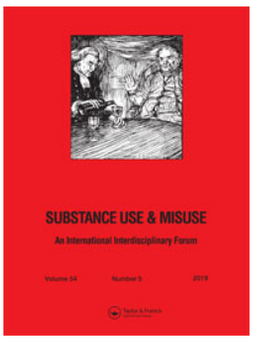

Substance Use & Misuse

ISSN: 1082-6084 (Print) 1532-2491 (Online) Journal homepage: https://www.tandfonline.com/loi/isum20

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To cite this article: Veronica E. Graham & Alan R. Clough (2019) "Need Everyone Helping to Keep Off Because Everyone Helping to Keep On" – Reducing Harms from Cannabis use in Remote Indigenous Australian Communities Involves More Than Just Users, Substance Use & Misuse, 54:5, 699-712, DOI: 10.1080/10826084.2018.1504078

To link to this article: https://doi.org/10.1080/10826084.2018.1504078

Published online: 22 Feb 2019.

SUBSTANCE USE & MISUSE
2019, VOL. 54, NO. 5, 699–712
https://doi.org/10.1080/10826084.2018.1504078

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ORIGINAL ARTICLE

"Need Everyone Helping to Keep Off Because Everyone Helping to Keep On" – Reducing Harms from Cannabis use in Remote Indigenous Australian Communities Involves More Than Just Users

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ABSTRACT

Background: Heavy cannabis use in remote Indigenous Australian communities potentially contributes to existing health disparities. Community members' perceptions of cannabis harms will support harm-minimization in these settings. *Objective*: To describe perceived cannabis harms reported by a cohort of Indigenous Australians living in small, isolated communities as an indication of their existing resources for change. *Method:* Inductive thematic analysis of 407 semi-structured interviews with participants in a cohort study in three remote communities in Cape York in far north Queensland (Australia) revealed major areas of concern about cannabis. Three attitudinal categories were defined according to reported cannabis impacts and urgency for change: 1- "LOW CONCERN" said cannabis was a low priority community issue; 2- "SOME CONCERN" tolerated cannabis use but identified personal or community-level concerns; and 3- "HIGH CONCERN" expressed strong aversion to cannabis and identified serious personal or community-level harms. The characteristics and the patterns of concerns were summarized across the groups. *Results*: "Category 1- LOW CONCERN" ($n = 107$), mostly current users, emphasized personal "financial impacts" and "stress." "Category 2 – SOME CONCERN" ($n = 141$) perceived community level impacts warranting systematic action, particularly on "employment"; and "Category 3 – HIGH CONCERN" ($n = 159$), most of the never users, emphasized concerns for families and youth. Irrespective of use history, the cohort reported financial and abstinence-related stress, overlapping alcohol issues and generally endorsed alleviating impacts on children and youth. *Conclusion*: Nearly ubiquitous experience with cannabis harms and impacts in this cohort suggests resources for harm reduction including family and cultural obligation, stress relief, financial management, and engagement are available across all community members, not just users.

KEYWORDS
Cannabis; Indigenous Australians; vulnerable populations; social support

Introduction

This paper examines qualitative data collected during a harm and demand-reduction intervention targeting cannabis use in remote Indigenous communities in Cape York in far north Queensland, Australia. Very high rates of heavy cannabis use and dependence have been documented over two decades in remote Australian Aboriginal and Torres Strait Islander (Indigenous) communities (Bohanna & Clough, 2012; Clough, Guyula, Yunupingu, & Burns, 2002; Lee, Conigrave, Patton, & Clough, 2009; Lee et al., 2009). In the general population, heavy and prolonged cannabis use is linked with cannabis use disorder and withdrawal syndrome (Copeland, Clement, & Swift, 2014; Copeland & Pokorski, 2016). Consistent with the wider literature describing the risks of heavy cannabis use (Copeland & Swift, 2009; Copeland et al., 2014; Degenhardt & Hall, 2012), there is evidence that depression (Lee, Clough, Jaragba, Conigrave, & Patton, 2008), psychosis (Hunter et al., 2011) and low birth weight (Brown et al., 2016) are associated with cannabis use in Indigenous populations living in very remote regions of Australia (Brown et al., 2016; Clough, 2005; Clough et al., 2005; Hunter et al., 2011; Lee et al., 2008). Despite concerns voiced by local community residents, particularly for the impacts of cannabis on youth and mental health (Robertson-Mcmahon & Dowie, 2008), cannabis use and misuse

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Supplemental data for this article can be accessed here.

in these communities have been relatively neglected by policy makers and service providers (Clough, 2013; Lee et al., 2009). Extreme isolation, small populations, and unique social and cultural contexts of remote Indigenous Australian communities make it difficult to design and implement suitable responses.

For individuals in the general population seeking treatment, cognitive-behavioral and motivational enhancement therapy (Copeland et al., 2014) and contingency management (Copeland & Swift, 2009), with treatment for concurrent substance misuse (Banbury et al., 2013; Copeland & Swift, 2009), can support cannabis cessation. In contrast with tobacco smoking, where a focus on individual behavior (Marley et al., 2014), supported in health clinics (Eades, Sanson-Fisher, & Panaretto, 2013), could be effective when oriented towards groups and families (McCalman et al., 2012; Munro & Allan, 2011), few studies have addressed cannabis demand and harm reduction or treatment strategies for Indigenous Australians (Bohanna, Bird, Copeland, Roberts, & Clough, 2014; Lee et al., 2008). To plan for harm reduction approaches and treatments in such settings, improved understandings of the specific social and attitudinal context of substance misuse are essential (Pawson, 2006; Poland, Frohlich, & Cargo, 2009). As part of the evaluation of an intervention study, this article explored perceptions of cannabis that were conveyed by participants in semi-structured interviews in a large sample of Indigenous Australians living in three very remote communities in far north Queensland.

Method

Overview, rationale, and aims

The data presented here come from semi-structured interviews conducted at the baseline phase of a community-level intervention program in three participating remote Indigenous communities in Cape York, far north of Queensland. Consultation with communities throughout the region in 2007–2008 built trust with key stakeholders and established permissions for the intervention and the evaluation study (Robertson-Mcmahon & Dowie, 2008). A large cohort of participants aged 15–45 was recruited and interviewed at each site in 2010–2011. Interviews recorded prevalence and patterns of cannabis use and provided an opportunity for researchers to engage with local people to discuss cannabis in their communities. All communities have a low score on an "Index of Relative Socio-economic Disadvantage" indicating relatively greater disadvantage compared with the rest of Australia (Australian Bureau of Statistics, 2011). Anecdotal information compiled during consultation suggested that the overwhelming majority of community residents across the region had some knowledge or direct experience of the local impacts of widespread cannabis use and many had been affected in some way. The level of awareness and the type of concern appeared to vary across individuals, families and the local community as a whole. Understanding variations in awareness and concern across this social spectrum may reveal latent attitudes or active social resources for harm and demand reduction approaches specific to these settings.

This study aimed to inform theory-based evaluation of cannabis harm and demand reduction strategies by answering two key questions: "Was local will for cannabis demand and harm reduction demonstrated?" and "What resources were identified for harm and demand reduction in the local social context of the study communities?" Accordingly, the objectives were to:

1. Summarize concerns about cannabis use and the perception of harms and impacts for individuals, families, or communities communicated during interviews;
2. Categorize study participants into groups which reflect latent attitudes to cannabis based on themes derived in (1);
3. Examine concerns across the range of attitudes to cannabis as indicators of active social resources that may be mobilized for harm reduction and to reduce demand.

Setting

The Cape York region in far north Queensland covers ~211,000 km^2, an area almost the size of the United Kingdom (UK). The Cape York population is just a fraction (0.05%) of the UK's however, with just 23,000 people outside its major regional center (Cairns; 157,000 people). In Cape York's remote communities, 11,700 Aboriginal and/or Torres Strait Islanders live in 12 small, locally-governed communities with populations ranging from <200 to 2500 people. English is widely spoken, usually as a second language (or a creole). Connections to land and sea country remain very strong (Smith, 2005). Vehicle access is via unsealed roads, which may be closed for several months in the tropical wet season.

Unique traditional cultural practices are maintained with relationships between individuals tightly

circumscribed, regulated by cultural rules, and expectations across long-established family and clan groups (Horton & Australian Institute of Aboriginal Torres Strait Islander Studies, 1994). Housing typically accommodates more people than its construction is designed to support (Australian Institute of Health and Welfare, 2014) and there are few opportunities locally for mainstream employment. Cultural and family obligations mean that "all" resources are shared (Peterson, 1993), particularly desirable ones like drugs and alcohol, as is the money to purchase them (Clough et al., 2002). Cannabis is shared among users, usually mixed with tobacco (Clough et al., 2006). It is seldom consumed privately, but shared in groups with individuals taking turns to inhale smoke from hand-made 'bongs' (Clough et al., 2004).

The possession, consumption and carriage of alcohol was locally prohibited in all three communities as alcohol became tightly restricted between 2002 and 2008 across Cape York (Clough et al., 2014; Margolis, Ypinazar, Muller, & Clough 2011). Cannabis use appeared to surge from 2002 onwards, perhaps in response to these alcohol controls (Clough, 2013). At census in 2011, the three communities had a combined Indigenous population of 2190, with 1274 of these aged 15–49 years (Australian Bureau of Statistics, 2016). This age group was targeted for recruitment to the study as it includes the more-vulnerable, younger people who would have been exposed to any increased opportunities to take up cannabis use since 2002.

Participant recruitment and data

The three study communities were selected because they broadly represented the contemporary settlement pattern for Indigenous people in Cape York. One is located near a small mining town, another on Cape York's wet tropical east coast and the third on the west coast in drier tropical savannah country.

Teams of 3–5 research staff visiting from Cairns, some 800–1000 km distant by road conducted interviews between May 2010 and September 2012 over three visits of five days duration. Opportunistic recruitment occurred outside the community primary healthcare center, grocery store or in the street, at work places, and homes, usually with the paid assistance of a local cultural broker.

Semi-structured interviews

Interviewers applied a conversational, plain-English approach developed to work successfully across cultural and language barriers in these settings (Lee et al., 2009). In semi-structured interviews (usually from 10–30 min duration), participants who had used cannabis at any time were asked whether they currently used cannabis and what they liked and disliked about it; attempts or desire to quit; what makes it hard to quit and the amount of money they typically spent on cannabis (Martin & Copeland, 2008). Open-ended questions elicited information from "all" participants regarding perceived issues or concerns about cannabis use.

Data analysis

Hand-written interviewer records (de-identified) were transcribed to a secure spread-sheet then imported into Nvivo 11®. Data analysis followed four steps.

i) Inductive content analysis of qualitative information

Steps in the inductive analytic process, detailed in Supplementary Table S1, follow Thomas's (2006) inductive technique. Using a sub-sample of data for 50, randomly selected participants, the first author completed one round of open coding guided by the study questions. The first author then organized the set of ideas ideas into over 20 categories, assigned to nodes. This set of nodes was supplied to the second author as a frame to code the same content in the 50 sources and a coding comparison produced interrater reliability scores of greater than 0.7 at all nodes. After discussion and adjustment of the initial coding frame, the first author analyzed information for a further 20 participants, yielding no new themes. The authors collapsed and reorganized the categories to produce a reduced set of agreed-upon nodes, re-reading the data through two successive rounds of coding. The final themes were summarized and key examples were collated from the transcribed text.

ii) Deductive content analysis

The first author employed the themes generated in the section "Inductive content analysis of qualitative information" in a deductive content analysis across all of the interviews.

iii) Classification

The first author prepared a rubric describing attitudinal categories according to the themes generated in the section "Inductive content analysis of qualitative information" (Supplementary Table S2). Each participant's individual characteristics were included to contextualize their responses.

Three attitudinal categories were defined from this analysis:

LOW CONCERN ($n = 107$) participants primarily described their own experiences of "financial impacts"

and "stress" with little attention to community-level impacts.

SOME CONCERN ($n = 141$) participants mainly perceived community level impacts that warranted systematic action, particularly impacts on "employment."

HIGH CONCERN ($n = 159$) participants reported strong aversion to cannabis and emphasized concerns for "families" and "youth."

iv) Summative content analysis

Lastly, summative content analysis (Hsieh & Shannon, 2005) was used to enumerate participants classified to each attitudinal category. A matrix coding query in NVivo assembled the final themes (as nodes) by attitudinal category (as attributes). Final allocation of all participants to one attitudinal category was agreed by both authors guided by the coding rubric, included as Supplementary Table S2 (with examples of its application) in the Supplementary file.

Ethics approval

The Human Research Ethics Committees of the University and the Cairns and Hinterland Health Services District provided ethical approvals.

Results

The sample

A total of 407 participants provided the qualitative information used in this study. Described in Table 1, the 407 participants included 221 (54%) males and 186 (46%) females, equivalent to 35% (= 407/1172) of the estimated total community populations aged 17–51. Males were older (median age = 29 years) than females (median age = 26 years) ($|z| = 2.41$, $p = .016$, Wilcoxon rank sum test), reflecting the anticipated difficulties of recruiting the younger, dis-engaged males to this kind of study. Those who had ever used cannabis comprised 97% ($n = 104$) of LOW CONCERN, 94% ($n = 132$) of SOME CONCERN, and 38% ($n = 60$) of HIGH CONCERN. Those who reported recently using cannabis comprised more than 80% of those with any history of cannabis use in LOW CONCERN, around half (55%) in SOME CONCERN, and just 10% in HIGH CONCERN (data not shown).

Table 1. Characteristics of 407 participants compared across three categories reflecting attitudes and concerns towards cannabis use in three Cape York communities, far north Queensland, Australia, 2010–2012.

		Category 1 $n = 107$	Category 2 $n = 141$	Category 3 $n = 159$	Total $n = 407$
Gender	Male	72 (67%)	93 (66%)	56 (35%)	221 (54%)
		35 (33%)	48 (34%)	103 (65%)	186 (46%)
Age group	17–24	55 (51%)	68 (48%)	69 (43%)	192 (47%)
	25–34	34 (32%)	38 (27%)	45 (28%)	117 (29%)
	35–51	18 (17%)	35 (25%)	45 (28%)	98 (24%)
Cannabis	Never used cannabis.	3 (3%)	9 (6%)	99 (62%)	111 (27%)
	Used cannabis.	104 (97%)	132 (94%)	60 (38%)	296 (63%)

LOW CONCERN participants were predominantly male recent users, though some former and never users were included. Recent users with no intentions to quit were allocated to LOW CONCERN unless they emphatically described harms at the community level. SOME CONCERN comprised roughly equal proportions of recent and former users and a diversity of age and gender groups. HIGH CONCERN included participants who gave emphatic and detailed descriptions of cannabis harms or expressed a very strong aversion to cannabis. This category mainly comprised of females who had never used cannabis.

Qualitative findings

Inductive thematic coding was guided by overarching questions of whether local will and resources for cannabis harm and demand reduction were demonstrated. The analysis yielded three key themes:

- Theme 1 – "Cannabis use harms my community;"
- Theme 2 – "It is hard to quit cannabis in the community;" and
- Theme 3 – "Wanting to quit and coping with stress from cravings."

Theme 1- Cannabis use harms my community

Of 407 interviews that contained coded qualitative material, 324 contained material assigned to the theme "Cannabis use in the community is associated with harms." Participants described harms across four apparent subthemes of: "Users stress for cannabis;" "Cannabis costs a lot of money;" "Cannabis makes people sick;" and "Worry for young users."

i) Users stress for cannabis

Across concern categories and use status, participants reported "stress" or "stressing out" as a behavior associated with craving for cannabis. This young woman described users short temper and aggression (to "lose it" or "go off their head") as a result of withdrawal, or being "stressed out for gunja".

> "Some people lose it when they don't have gunja. Most of them get stressed out for gunja and go off their head". Female, early 20's, former cannabis user (HIGH CONCERN).

Those participants categorized as HIGH CONCERN seldom discussed managing stress. Rather, participants described "stress" of withdrawal and associated behaviors as a key harm. Participants described mood effects, aggression, and violent or coercive behavior among users during periods of abstinence. Two quotes below illustrate concerns about violence:

> "A lot of young kids are angry and they can be violent when there's none around. Hard to get out here". Female in her 30's, never used cannabis (HIGH CONCERN).

> "See a lot of violence at the clinic as a result of gunja". Female, early 40's, never used cannabis (HIGH CONCERN).

This young woman described her partner's behavior when craving cannabis ("stresses out a lot") and coercion to source his cannabis, possibly using her family connections:

> "Partner is not easy to talk to. Stresses out a lot. Pregnant and have to go get [cannabis] for him". Female in her 20's, never used cannabis (HIGH CONCERN).

ii) Cannabis costs a lot of money

Any mention that cannabis was expensive or a "waste of money" was assigned to this subtheme. Quantitative estimates of expenditure indicated median weekly spending of individual current users was around $50, but was as high as $300. Among 407 participants, median individual spending was $50/week, whilst the median personal income in the study communities was $289 per week at the time of data collection (Australian Bureau of Statistics, 2011). This current user lamented the high cost of cannabis:

> "Started collecting bags this year. Ten bags - $500 - spent $1000 on that silly thing this year". Male, in his 30's, cannabis user (SOME CONCERN).

LOW CONCERN participants seldom connected financial impacts to other concerns apart from high cost making cannabis harder to access. This young male made a typical observation that cannabis was expensive and mixing it with tobacco diluted the cannabis:

> "Spend too much money on it, with too much tobacco, don't taste the [cannabis]. Especially when you've got no money, the other boys are tight with it".

Male, late teens, cannabis user. LOW CONCERN.

"Other boys are tight with it" refers to friends and family being unwilling to share limited supplies.

Participants reporting SOME or HIGH CONCERN described financial impacts combined with user stress and spending. This younger user described his own pressuring of others to help access cannabis when he had no money:

> "[I don't like that I] waste a lot of money. It's all about cash, that thing getting expensive. No money for [cannabis], stressed out go ask my cousin brother. [I worry because I get] angry, cranky with my girlfriend for her to go ask her family. [My concerns are] … been living in [another community], fighting, and stressing out when there's no [cannabis]. Look for credit and if there's none, get wild with the dealer". Male, early 20's, cannabis user (SOME CONCERN).

The above quote describes not only this user's personal stress, but community level tensions as a result of limited supply. The link to financial stress is clearly articulated in the reference to anger or "getting wild" with local dealers if they refuse to supply cannabis on credit.

Participants with HIGH CONCERN, usually non-users, reported diversion of family financial resources to purchase cannabis. For example:

> "Never really liked it. Waste of time and money; [worry] for my brother - he's a heavy smoker with two [children]. My niece comes over and sees my kids bikes. My brother can spend all his money on it and it's only $150–200 for a bike but they can't afford it". Female, late 20's, former cannabis user (HIGH CONCERN).

In the following two extracts, a woman and a man who had never used cannabis described the connection between money and pressure on families at the community level:

> "Money issues - lot of people asking for loans. Small kids 13 and up starting – different [to before]; argue with parents or other siblings over money. Gunja has gotten worse - now nearly everyone - smokers don't have jobs - put pressure on family stressing". Female, late 30's, never used cannabis (HIGH CONCERN).

> "Causes domestic violence when one partner is spending too much and not putting the children first". Male in his 30's, never used cannabis (HIGH CONCERN).

The following participant's comments echo themes of money for children and domestic violence as well as cannabis involvement in prostitution (mentioned in two interviews):

> "Sex for gunja happens. Young girls, older men … threats for domestic violence. Kids money goes to men for drugs". Female in her 20's, former cannabis user (HIGH CONCERN).

Financial impacts were also mentioned in the context of cannabis use preventing or interrupting employment. For example:

> "Gunja is a big problem. Can't apply for any jobs. That thing slows [them] down". Male, late teens, never used cannabis (HIGH CONCERN).

> "That thing slows them down" refers to cannabis as a barrier to applying for mine work because the mining industry requires regular drug testing.

iii) Cannabis makes people sick

Participants in the LOW CONCERN category did not usually associate cannabis with mental health impacts, tending to report that they liked cannabis' and that they managed stress in various ways. Across participants reporting SOME or HIGH CONCERN, issues such as paranoia, anxiety, depression or, less often, suicide attempts and memory loss appeared in the interviews. For example, a young current user described the perceived association of cannabis with mental ill health:

> "Depression, stressing out when I can't get it. Six or seven people in the community with mental illness. People get mentally ill either from gunja or black magic. People smoke by themselves - can cause mental health problems". Male, late teens, cannabis user (SOME CONCERN).

The above quote demonstrates an attribution of mental ill health to spiritual or superstitious beliefs. Nevertheless, participants vividly describe discrete, specific symptoms such as "seeing things," "hearing things," and "paranoia".

Below, a mature woman and a young man with HIGH CONCERN described cannabis implication in suicide and psychosis:

> "… heard people can hallucinate from it, hate the smell. I tell anyone smoking it to go away. Partner doesn't smoke was given gunja without knowing several years ago and became psychotic". Female, early 40's, never used cannabis (HIGH CONCERN).

> "Been around a lot of smokers. Bad for your health, most of my cousins smoke. One of my cousins just drifts away when he smokes. An auntie tried to commit suicide, other problems too but gunja must have some effect on the emotions". Male, early 20's, never used cannabis (HIGH CONCERN).

The quotes above demonstrate the perception that cannabis use exacerbated existing mental health vulnerability.

Less frequently identified, some participants also made general statements about health, specifically referring to impacts on the lungs. The negative pressure devices used to inhale cannabis smoke are constructed from bottomless, plastic soft-drink bottles submerged in a larger container of water. Using this method, all the smoke from several milligrams of plant material is forced into the lungs under a light pressure. Shared among all users in the session, the water may or may not be cleaned from day-to-day, and the plastic surfaces accumulate black-brown, residue or "resin" from plant oils and soot. This man referred specifically to the potential health impacts of using this method:

> "Health, killing our insides sharing one bottle". Male in his 30's, cannabis user (HIGH CONCERN).

While this former user described cleaning the equipment as a harm-minimization strategy:

> "Now just clean the bottles when my family smokes as don't want them smoking from dirty water". Female, in her 20's, former cannabis user (LOW CONCERN).

iv) Worry for young users

Higher prevalence among youth was perceived as a relatively new phenomenon and particularly problematic for many concerned participants.

> "It's out of control. In the eighties only men [smoked cannabis]. Today teenagers are smoking". Female, in her 30's, never used cannabis (HIGH CONCERN).

Participants across the categories reported disproportionate impact on young users or specific concerns about youth cannabis use compared to use among older people. In the following quotes, participants expressed concern for use among youth with implications for the broader community and culture:

> "Bad for young people, stops them going bush to hunt. Instead they just sit in rooms and smoke. Don't help out with the housework". Female, late 20's, cannabis user (SOME CONCERN).

Cannabis was viewed as having a damaging effect on youth prospects and engagement, with wider cultural implications. For example in the quote below, a woman expressed particular concern for youth and placed responsibility on non-using local dealers:

> "This needs to be stopped for the young ones. Older ones giving it to the young ones. Ones that don't smoke are selling it". Female, in her 30's, former cannabis user (HIGH CONCERN).

Young people were perceived as more likely to be involved in very heavy use and less likely to manage

stress and financial impacts. This current user's statement provides an example:

> "Young kids smoking and can't handle it, they stress out. The older smokers handle it better". Female, late 30's, cannabis user (SOME CONCERN).

Participants expressing low concern sometimes perceived cannabis stress as a youth problem, for example this man's perception of stress among youth using cannabis and, conversely, that older users like himself can manage their own use.

> "See a lot of young people around here get stressed for gunja. If they are then that's their own problem". Male, in his 30's, cannabis user (LOW CONCERN).

Theme 2–It is hard to quit cannabis in the community.

This theme described the barriers to demand reduction with two main sub-themes. The sub-theme "People like cannabis or need it to stay calm" described the desire to use cannabis because it is pleasurable or has perceived benefits. "Cannabis is hard to avoid in the community" described constant cue exposure, high supply, high prevalence of use, normalization of use in communal spaces, peer pressure, and reported boredom in the community.

i) *People like cannabis or need it to stay calm*

Many current and some former users described enjoying the effects of cannabis. Two current users with LOW CONCERN described only the good effects of cannabis, as follows:

> "Cannabis makes me healthier. Makes me eat more. Feel relaxed and chill". Male, late 20's, cannabis user (LOW CONCERN).

> "Makes you high and makes you laugh … just hang out, not stressful. It keeps you happy". Female in her teens, cannabis user (LOW CONCERN).

Sometimes participants described how they managed their use to avoid negative impacts. For example:

> "Don't like smoking too much. Good place sometimes [if you] keep it low, smoke little by little so you don't get into trouble". Male, early 20's, cannabis user (SOME CONCERN).

This man expressed strong concerns for individual and community level harms, and despite being in an active quit attempt at the time of interview, he described cannabis as a relaxing, social drug that reduced stress:

> "Like the feeling. Smoking with family and friends is a good feeling. De-stress - makes you happy". Male, in his 30's, cannabis user (HIGH CONCERN).

Participants in LOW and SOME CONCERN categories acknowledged cannabis as a means to manage more serious distress or regulating anger. For example:

> "Family been broken up and I used it to cope". Female, in her 20's, cannabis user (LOW CONCERN).

> "[Cannabis] puts you back in place, takes stress away from arguments". Male, in his 40's, cannabis user (LOW CONCERN).

> "Used to it calming me down. Forget how to calm myself down". Male, in his 20's, cannabis user (SOME CONCERN).

The two quotes above describe using cannabis as a means for self-regulation. It is unclear as to whether the initial anger is related to withdrawal stress.

Some current users described cannabis as an alternative or coping means when tobacco or alcohol were not available, like this man who said he used cannabis to ease cravings for tobacco:

> "Makes me stay calm; takes my worry away from not having cigarettes; Laugh, crack some jokes". Male, in his 20's, former cannabis user (HIGH CONCERN).

Or this man, who used cannabis in place of alcohol or "grog", which posed a greater risk for him becoming violent:

> "[Cannabis] helps with [my] alcohol problem, found [cannabis] better than drinking, have to stay off grog, I get too angry. Cannabis calms [me]. Use [cannabis] instead of drinking". Male, in his 30's, cannabis user (SOME CONCERN).

ii) Cannabis is hard to avoid in the community

In the excerpt below, a cannabis user described cue exposure in the community environment when "friends all smoking and offer it" and an obligation to share substances and money to buy cannabis:

> "Smoke when tired, makes working around home more interesting. Don't smoke when going to work. Used to be worried about how much I was using, but have cut down … Hard to give up because of the habit, friends all smoking and offer it. Liked rehab because it was a simple life, could budget because family weren't always asking for money like when in the community. People stress out when they can't get it". Male, early 40's, cannabis user (LOW CONCERN).

For the participant quoted above, drug rehabilitation ("rehab") in the regional center some 800 km away from the community (usually offered for alcohol problems), represented respite from community-related stress including better control of his financial resources. This very young participant who had never used cannabis described community level impacts:

> "Friends hassle a bit, but don't feel pressured, all friends in [community] except one smoke, some people go off and stress". Male, in his teens, never used cannabis (SOME CONCERN).

Despite his resilience, the participant quoted above described normalization of cannabis use and peer pressure among adolescent boys to use cannabis ("friends hassle a bit").

Theme 3–Wanting to quit and coping with stress from craving.

Three subthemes were allocated within this theme, which generally described drivers of cannabis cessation and the local resources that influenced or supported quitting. "Wanting to quit, wanting others to quit" grouped general statements about the desire or need for cannabis cessation. This included current users who said that they wanted to quit and statements from any participants endorsing the need for demand reduction measures. "Quitting for family and culture" describes important social resources that drive cessation or abstinence. "Staying occupied" describes engagement in work and other meaningful activities as a key resource driving the decision to quit or sustaining abstinence.

i) Wanting to quit, wanting others to quit. A proportion of the people interviewed described active quit attempts or having made a decision to quit. This man in his twenties described a typical use history starting in adolescence but three weeks abstinence at the time of interview:

> "[Quit] three weeks ago, never going back to smoking. [Used from] 14 – 25 years [of age], very heavy. Feel a bit better now, it was hard at first". Male, in his 20's, cannabis user (SOME CONCERN).

The HIGH CONCERN category included most participants who had tried cannabis only once or never tried it. This young woman described complete intolerance for cannabis smell and effects:

> "Seen gunja, seen people use it. Really don't like the smell. Usually walk away when I smell it. Don't like to hang with people that smoke gunja". Female, early 20's, never used cannabis (HIGH CONCERN).

Participants in the LOW CONCERN category were usually current users who expressed little desire to quit for health or intrinsic reasons, but they did sometimes describe other people wanting them to quit as a concern about their own cannabis use. For example, this current user described a perceived social sanction by women to protect children:

> "[I worry about my smoking because] women don't want you around with the kids". Male, in his 40's, cannabis user (LOW CONCERN).

While this young man said he thought he would be a better role model to his infant son if he could quit:

> "Sometimes I think to give up for my son (*2* months old). Want to be a role model, getting the kids right". Male, in his teens, current cannabis user (LOW CONCERN).

ii) Quitting for family and culture

Social relationships and responsibilities underpinned a desire to quit and supported abstinence for many current and former users. This current user described wishing that her son did not use cannabis in spite of her own use:

> "[My] youngest is 18, [he] smokes [cannabis]. If he lived with me I would've stopped him". Female, early 40's, cannabis user (LOW CONCERN).

Participants categorized to LOW CONCERN rarely expressed concerns for family, youth or their cultural obligations. However, the idea that children should not be exposed to use appeared to be universal, e.g.

> "Should give up when you have kids". Male, in his teens, cannabis user.
>
> " … don't like kids getting involved".

Male, in his 20's, cannabis user. Both LOW CONCERN.

This recent user described a current quit attempt, the impact of his use on his family and how that influenced his thinking as well as providing a physical break from friends and family using cannabis:

> "Didn't like what it was doing to the family, too much money was getting spent on gunja, wanted a good job. My children are very happy about me stopping. Feel good about the decision, I stay away from people that are smoking gunja". Male, in his 30's, cannabis user (SOME CONCERN).

Below, a current user described culture as a resource driving a sense of responsibility to quit:

> "Stops you continuing the culture, need to look up to elders who don't smoke. Do it to fit in, but really want to quit and be a role model". Male, in his 20's, cannabis user (SOME CONCERN).

Likewise, a former user in the HIGH CONCERN category described parenting responsibilities as her principal reason for quitting:

> "Future of my child; didn't want him to see that I was a druggie; caused problems in personal relationships". Female, late 30's, former cannabis user (HIGH CONCERN).

And this young woman described being motivated to avoid all substance misuse, alluding to responsibilities as a prospective parent:

> "People smoke too much gunja here – should be stopped - [I'm] six months pregnant and don't want to ruin my life with tobacco or gunja". Female, in her teens, never used cannabis (HIGH CONCERN).

In the following excerpt, a mother described denormalizing cannabis use in front of children or "kids old enough to understand:"

> "I don't like people smoking around my kids when I'm out, like at my cousin's house; school age kids, old enough to understand". Female, early 30's, never used cannabis (HIGH CONCERN).

This young man described his father as a strong role model, supporting abstinence from cannabis:

> "Others find it hard [to quit]. I go fishing with dad and he makes us do a lot of hard work". Male, late teens, cannabis user (SOME CONCERN).

Below, a man described substance misuse as incompatible with culture, placing responsibility on local Indigenous dealers:

> "Gunja, even alcohol, not our culture. Dealers, if they could see what they're doing, killing their own people". Male, late 20's, never used cannabis (HIGH CONCERN).

iii) Staying occupied

Participants described engagement in work, education, or other activities as reducing or managing cravings for cannabis, for example:

> "There needs to be more help in the community to stop gunja use and other problems like anger. Not working at the moment but don't need it or smoke it when I'm ringing (working with cattle) ". Male, in his 20's, cannabis user (LOW CONCERN).

Current users who wanted to quit or cut down were usually classified to SOME CONCERN. This group frequently mentioned work and specifically drug testing policies as facilitating abstinence for themselves and others. For example:

> "Cut down for three years when working at [mine]. Haven't smoked over the past three months [because of] random drug testing at work". Male, in his 20's, cannabis user (SOME CONCERN).

Working and being on outstations or cattle stations was also viewed as strong cessation support. For example:

> "Need more support and information. Cousin brother asked me how I ride so well. He was riding stoned. I said you must do it when you're 'clean'. Take my advice. I got first place in a bull riding competition - I couldn't have done it if I was on gunja. I want to take young kids to work with horses to get away from gunja. I used to ride rodeo - there was no gunja because the focus was sport. Young kids on the streets - need to get them off the street. Calf-riding would keep kids away from gunja". Male, late 20's, former cannabis user (SOME CONCERN).

Participants in the HIGH CONCERN category focused on work and engagement of youth as well as strong role models for reducing cannabis uptake and ongoing demand. Selected excerpts demonstrate these ideas:

> "Not much for the kids. Used to be really family-oriented. Used to be a movie theatre, blue light discos. If they grow up and see aunties doing it they'll think it's normal". Female, late 30's, former cannabis user (HIGH CONCERN).

> "Program out at Katherine, stockman training. Good for the young fellas, there should be more things in the schools". Male, in his 30's, never used cannabis (HIGH CONCERN).

Discussion

This novel qualitative study identified perceived contributors to cannabis use and harm, as well as potential levers for local change in a remote Indigenous context in Australia. In response to the first study question "Was local will for cannabis demand and harm reduction demonstrated?" — participants reported a range of harmful impacts associated with cannabis use and two attitudinal categories described concern about cannabis use, affirming local will for change. In response to the second study question "What resources were identified for harm and demand reduction in the local social context of the study communities?" — resources that could support abstinence included staying occupied and giving up for work or family, suggesting social resources available to address the issues cannabis has created for these communities.

Cannabis use impact on Indigenous communities in this region

Residents clearly described a burden of stress associated with cannabis. Stress or "stressing out" was a direct consequence of withdrawal and craving while the financial impacts contributed indirect stress. Users and non-users described mental health symptoms associated with withdrawal and intoxication. The conflict in friendship groups and couples, sometimes with

physical violence, was perceived as a particular burden on families and youth. Young users were widely considered to manage cannabis stress poorly and be most disadvantaged for employment prospects and the cultural future of the community.

Reasoning for cessation or abstinence suggests potent social resources for cessation

Few users described cannabis cessation as simple. Widespread cue exposures underpinned and reinforced by community-level, structural factors, and the community environment posed significant barriers to cannabis cessation, even for motivated quitters. Participants described their reasoning behind total abstinence, quit attempts and successful cessation and the strategies used to overcome cravings. Parenting responsibilities, including pregnancy were important motivators. Above all, users and non-users reported or recommended "staying occupied," which described "engagement in meaningful activities, services, and work." Youth boredom and lack of engagement was viewed as feeding high use, in turn viewed as leading to further disengagement. Work was viewed as an important resource for motivating and sustaining cessation, as were parenting responsibilities.

Attitudes across the cohort

The attitudes and motivation of the individual participants mediated the resources available to support demand reduction. The majority of participants reported feeling that cannabis issues should be addressed.

Participants reporting LOW CONCERN were more often male and almost all current users. Even in this category, users acknowledged desirable limits to cannabis behaviors such as prioritizing spending scarce cash on groceries, not using cannabis at work and keeping cannabis away from children.

SOME CONCERN participants comprised the largest section of the sample, both former and current users of both genders who spoke frankly about serious harm, but nevertheless, reported tolerance for cannabis use. Most likely to describe work and engagement in community life as supporting abstinence, this group also described family as a demand-reduction resource.

HIGH CONCERN participants reported a strong aversion to cannabis, potentially a strong demand-reduction resource in itself. These participants, mostly women who had never used cannabis but also experienced users who had resolved their harmful use, encouraged partners and children to avoid cannabis, and sustained cannabis-free homes. These participants were the most likely to highlight neglect of parenting responsibilities because of cannabis. They also voiced concerns about youth disengagement and the need for diversion strategies, such as providing cannabis-free spaces.

Significance

Of most interest, we believe, is that participants in this cohort seldom reported having no opinion or experience with cannabis with most people expressing some concerns. It was unsurprising to find more males in LOW CONCERN and more mature females or people who had never used cannabis in HIGH CONCERN. It is interesting however that nearly everyone apparently had some direct experience with cannabis' effects. For example, most people who had never used cannabis were in HIGH CONCERN and nearly all had some direct experience of cannabis harms. Former users in this category expressed deep personal understandings of the difficulties of cessation. These findings suggest highly relevant social resources among non-users consistent with recommendations in the literature for addressing substance misuse beyond interventions with individual users (Alexander, 2012; Tootle, Ziegler, & Singer, 2015).

This broad exposure to cannabis and its effects across the whole community probably differs from situations in the broader Australian population and in other regions with lower rates of use (Australian Institute of Health and Welfare, 2014) and less severe social disadvantage. The information reported here suggests potential strategies and possible social resources available in these communities to inform whole of community and family intervention approaches to cannabis harm reduction, outlined below.

Resources and recommendations

Brief clinical intervention, cognitive behavioral therapies or raising awareness alone are unlikely to reduce cannabis demand and harms in a sustainable way in these populations in the short term. It is widely acknowledged in the face of mounting evidence that individual level interventions are insufficient to address substance misuse in Indigenous communities in Australia (Bohanna et al., 2014; Johnston et al., 2013; Lee et al., 2008). We heard few suggestions that health clinics or schools should play a significant role, suggesting that participants considered these either inappropriate or inadequately resourced for cannabis

demand reduction. Participants receiving interventions or treatments tend to be defined by the service that will deliver the strategy e.g. "workplaces," "school," and "ante-natal clinic" (Bohanna et al., 2014; Graham, Campbell, West, & Clough, 2017). However, the evidence presented indicates that patterns in the use of and attitudes towards cannabis across the community are not drawn along these institutional lines. We recommend that the diversity of experiences with cannabis, documented here, be taken into consideration when developing targeted strategies to produce specific social resources in these settings.

Stress was widely reported across attitudinal categories as a direct result of cannabis abstinence, as was its relationship with financial management and cue exposure. High stress is an important determinant of Indigenous health, underpinned by structural factors such as inadequate housing, racism and historical trauma (King, Smith, & Gracey, 2009; Kirmayer, Gone, & Moses, 2014; Paradies, 2006) that are not amenable to discrete intervention strategies. Nevertheless, current users are likely to benefit from stress management opportunities specifically directed to relief from cannabis withdrawal. Local rehabilitation support similar to the outpatient models proposed for alcohol (Brett et al., 2017) may be effective. Anecdotal evidence suggests that access to reliable transport to support stimulating activities on country could be valuable as providing respite from cue exposure and stress during quit attempts. Non-users often share houses with users, managing cannabis-free spaces, and social activities may influence use patterns, e.g. relief from cue exposure, preventing others use around children, applying strategies to discourage youth uptake. Cannabis-free spaces in private housing could possibly be supported with community-wide incentives, in a similar manner to strategies that are being developed to address tobacco use (Stevenson et al., 2017).

Powerful resources will reside in people's sense of responsibility to children and young people, as observed in relation to other substances such as tobacco (Gould et al., 2013). Participants discussed strong cultural and family obligations suggesting enhanced capacity and opportunity to fulfill these roles may reduce demand for cannabis. Such recommendations are consistent with observed links between positive social connections and enculturation on reduced psychosocial stress and resilience to ill health including suicide and alcohol misuse (Allen et al., 2014; Hopkins, 2013). Similar mechanisms may operate for cannabis such that sustaining social connectedness as well as role modeling alternative behaviors are possibly important for those most at risk of uptake or continued use (Lee et al., 2008). Strategies and funding arrangements that will enable local people to enact, develop and sustain existing resources are strongly encouraged.

Limitations and strengths

The sample sizes in this qualitative study were large. This permitted the examination of a wide range of experiences even though the study was conducted in just three communities in one Australian region. Results, therefore, should be generalized to other populations with caution. This was a pragmatic study, taking advantage of one of the largest surveys of substance misuse conducted among severely marginalized and disadvantaged populations in Australia. No specific theoretical lens was applied to this analysis. Importantly, we offered no information about the service-level context, which is a critical consideration for any harm reduction program design. Direct engagement with the residents and participants in a particular community, a strength of this study, is essential to design or adapt local components to reduce cannabis use along with other harmful substance use. The main strength of the study is that it demonstrated, for the first time, common attitudinal patterns in three culturally diverse and geographically separate communities.

Conclusion

The impacts and concerns about cannabis appear to be region-wide in these communities in north Queensland, not localized pockets of intense harm. In the context of limited access to transport and very limited employment opportunities, concentrating resources into diversion and engagement activities led by local people may reduce cannabis demand and harm might, be concentrated with advantage into diversion and engagement activities led by local people. The following quote from a young male participant sums up the importance of community level thinking and action and the unique structural barriers to behavior change in these small isolated communities where all residents share the harms created by substance misuse:

> "Need everyone helping to keep off because everyone helping to keep on". Male, late 20's, cannabis user.

Attitudes to cannabis ranging from general or equivocal consciousness of harms through to strong aversions imply a variety of potentially valuable social resources for harm and demand reduction. In such small and isolated communities where everyone knows each other and people's houses are densely occupied, social resources to support change may be available

from across the population. Thinking in terms of how a cross-section of people will respond to the resources that become available during implementation may assist program designers to target strategies more precisely and more comprehensively engage local agency. This straightforward qualitative approach begins to point to the participants in this context who seem more likely to respond to program resources, with some insight into why and how. Our analysis frames the available information to distinguish broad trends in participant reasoning, thus opening up the data for fresh approaches to cannabis demand reduction in these, and similar, Indigenous populations.

Acknowledgements

The authors sincerely thank the interview participants for sharing their stories and the three study communities, who must remain anonymous, for their warm welcome. Community leaders and service providers are acknowledged for their cooperation and guidance. Members of the research team are acknowledged for their contributions during the project - Data collection: Yana O'Brien, Beatrice Lawrence, Winston Paul, Jan Robertson, Ray Genn, Michelle Fitts, Susan Jacups, Bernadette Rogerson, Brett Walsh, Lomas Amini, Eddie Buli, Jo Jarden, Celia Demarchi, and India Bohanna. Thanks to Melissa Kirk for support with data processing. Thanks to Mick Dowie, Garry Hunter, John 'Stretch' Harris, and Kevin Goan of the Queensland Police Service for their support to establish the study.

Disclosure statement

The authors declare that they have no conflict of interest. The authors alone are responsible for the content and writing of the article.

Funding

This research was supported by project grant #601002 from the National Health and Medical Research Council of Australia (NHMRC). Alan Clough holds an NHMRC Career Development Award (#1046773).

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