

# THE MULL HYPOTHESIS



A QUALITATIVE AND QUANTITATIVE STUDY EXPLORING THE LINK  
BETWEEN TOBACCO AND CANNABIS USE

NORTH COAST AREA HEALTH SERVICE

## Written by:

Ms. Annie Banbury, Senior Research Officer, National Cannabis Prevention and Information Centre (NCPIC), University of New South Wales, Sydney

Dr Avigdor Zask, Health Promotion Research and Evaluation Officer, North Coast Area Health Service

Dr Eric Van Beurden, Research and Evaluation Coordinator, Health Promotion Team, North Coast Area Health Service

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For further information please contact:

Health Promotion Unit  
Population Health, Planning & Performance  
North Coast Area Health Service  
PO Box 498  
Lismore NSW 2480

Phone: 0266 207500

Fax: 0266 222151

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## **Contributors to the Mull Hypothesis Project:**

- Dr Stacy Carter, Qualitative Research Expert Advisor, Values Ethics and Law in Medicine, Sydney University.
- Dr Lydon Brooks, Research Methods and Statistics, Southern Cross University

### The Cannabis Tobacco Advisory Committee:

- Dr Jan Copeland, Director, National Cannabis Prevention and Information Centre
- Ms. Leonie Jefferson, Aboriginal Research Officer
- Dr Megan Passey, Senior Lecturer, Primary Health Care Research, Northern Rivers University Dept of Rural Health
- Ms. Judith Rankin, Psychologist, Drug and Alcohol Counsellor, North Coast Area Health Service
- Dr Janelle Stirling, Associate Professor in Aboriginal Health, Northern Rivers University Department of Rural Health
- Ms. Ros Tokley, Coordinator Tobacco Action and Alcohol Team, North Coast Area Health Service
- Mr. Gerry Williams, Psychologist, North Coast Area Health Service

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- Ms. Chalita Lord, Research Officer, Health Promotion, North Coast Area Health Service

# 1. EXECUTIVE SUMMARY

Prevalence of tobacco smoking amongst men aged 25-34 years, living on the North Coast, has been shown to be higher than other parts of NSW since 1998. A possible cause for this trend is the frequent use of cannabis mixed with tobacco among young males. This increases the risk of initiation of tobacco use and subsequent nicotine dependency. It also mitigates against successful tobacco quitting.

The Mull Hypothesis Study examined the nature and extent of combined use of tobacco and cannabis. The study consisted of both qualitative and quantitative components. The qualitative component investigated users' motives for combining tobacco with cannabis (mull) and the effects derived from this custom. It also investigated circumstances which influence mull use and smoking practices. Additionally, it explored attempts to quit smoking mull and documented the strategies used during these attempts. It drew on people's personal experiences to recommend service provision and health promotion needs of this group. Grounded theory methodology was used. Semi-structured interviews took place with eleven non-indigenous male mull users aged 25 – 34 years, which explored their experiences, practices and smoking careers.

The quantitative component used univariate and multivariate techniques to analyse data concerning cannabis and tobacco use as well as other relevant covariates from the triennial National Drug Strategy Household Survey and the NSW Health Survey Program. The sample used for these analyses included both male and female cannabis users of all ages.

The research revealed that mull and tobacco-only use are highly flexible, with substance substitution frequently practised. Users have a high degree of self regulation and factors influencing substance substitution depend upon the effects sought, the circumstances of use and smoking practices employed. Many perceived benefits of smoking mull mirrored nicotine withdrawal symptoms. Both qualitative and quantitative findings indicate that cannabis used as a mull with tobacco is strongly associated with increased tobacco smoking, nicotine dependence and difficulty in quitting use of both substances.

The following recommendations are made for health promotion activities and service treatment for mull users:

1. Develop innovative smoking cessation practices and programmes that address tobacco in the context of other drug use.
2. Smoking cessation practitioners and services need to be aware of the concomitant use of tobacco and cannabis and provide appropriately designed cessation programmes.

3. GPs and other primary health care staff need further training and information on cannabis and tobacco issues, specifically regarding the importance of nicotine dependence management for mullers who want to reduce or quit. They also require up-to-date information on local cannabis clinics and referral pathways for heavy cannabis users.
4. Include information on the risk of becoming nicotine dependent through cannabis use in drug use prevention education for young people.
5. Target smoking cessation messages at tobacco users who also use cannabis. This should include information on tobacco's effect when smoked with cannabis e.g. warnings on tobacco packaging that tobacco is as harmful, or more so, if smoked with cannabis.
6. Target tobacco users who also use cannabis, with smoking cessation messages. This should include information on the effect of tobacco when smoked with cannabis, i.e. warnings on tobacco packaging that tobacco is as harmful or more so, when smoked with cannabis.
7. Target cannabis users with drug information highlighting the nature and effects of nicotine withdrawal. This could be done through existing services, resources and web-sites or through targeted campaigns.
8. National Drug Strategy Household Survey to include questions that will provide more comprehensive data regarding the use of tobacco, cannabis and cannabis and tobacco e.g. add questions about current mulling practices and time to first cigarette.
9. Conduct further research focusing on the process of quitting tobacco and cannabis with successful quitters. This will inform the development of tobacco and cannabis smoking cessation programmes.
10. Promote further research into the use of mainstream smoking cessation methods to alleviate nicotine withdrawal symptoms in tobacco smokers who use cannabis.
11. Further investigate the chemical properties and physiological and psychological effects of combined cannabis and tobacco use.

## 2. INTRODUCTION

Adverse health effects from smoking tobacco and cannabis separately have been widely documented<sup>1,2</sup>. Almost two-thirds of cannabis users combine cannabis with tobacco<sup>3</sup>. Research indicates that when the two substances are smoked together respiratory harms are significantly higher<sup>2</sup>. There is growing evidence that cannabis users can become regular users of tobacco through using a mixture of cannabis and tobacco<sup>4,5</sup>.

Public health messages for tobacco have clearly focused on the harmful effects of smoking and cessation methods. However, for cannabis, the discourse in public health has focused on its effect on mental health and illegal status<sup>6</sup>. Few public health messages have focused on the harmful effects of the tobacco and cannabis smoked together. This method of cannabis consumption is common practice amongst Australians and further understanding of the nature and extent of this relationship has been highlighted as an area needing further research. Understanding this relationship will inform health promotion strategies for prevention and intervention<sup>4,7</sup>.

This study explores the extent and nature of the link between tobacco and cannabis. It originated in 2005, after members of the North Coast Health Promotion team (NCHP), noticed that between 1997 and 2005, young males, living within the region covered by North Coast Area Health Service (NCAHS), appeared to have higher rates of smoking in comparison to those living in other Health Areas and across NSW.

### Project background

Health Promotion staff, with colleagues from the Northern Rivers University Department of Rural Health (NRUDRH) hypothesised that the higher prevalence of tobacco use is due in part to the practice of mixing cannabis with tobacco (mulling). They published their hypothesis in 2008<sup>8</sup>. They also asked staff of the NSW Health Survey Program to add questions to the survey regarding cannabis use and the practice of mulling.

The Community Communications Manager of the National Cannabis Prevention and Information Centre (NCPIC), was liaising with a member of NCHP and suggested that NCPIC may be interested in funding further research on the Mull Hypothesis. In 2009 a meeting was held involving the Director and the Communications Manager of NCPIC; the Director Health Promotion; the Research & Evaluation team (HPRE); Drug and Alcohol, and Cannabis clinic staff of NCAHS. The meeting resulted in a funding agreement between the two organisations to conduct a mixed methods study in the 2009/2010 financial year on the links between cannabis and tobacco use.

The HPRE team coordinated and ran the project with funds received from NCPIC. A Research Project Officer and an Indigenous Research Project Officer were recruited and received on-going support from the HPRE team and the Health Promotion Tobacco Action and Alcohol Team Coordinator. As part of the project, mentoring for the use of grounded

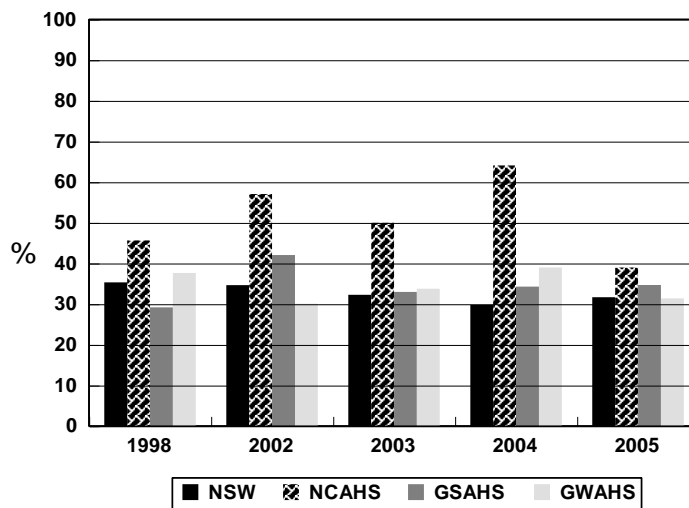
theory in the qualitative part of the project was provided by the Qualitative Research Expert Advisor, Values Ethics and Law in Medicine, Sydney University.

The Cannabis Tobacco Advisory committee was formed with representation from NCPIC, NRUDRH, Health Promotion NCAHS, and Drug and Alcohol NCAHS. The advisory committee met bi-monthly to provide support to the study. In April 2010 a workshop attended by committee members reviewed study findings and considered recommendations.

## Why research tobacco and cannabis use in the North Coast?

Results of the NSW Health Survey have shown a trend for prevalence of tobacco smoking amongst men aged 25 – 34 years living on the North Coast to be higher than in other parts of the state since 1998. The difference in smoking prevalence reached statistical significance in 2004. At this time prevalence was significantly higher for North Coast men than in any other New South Wales (NSW) Area Health Service (AHS) and for NSW in general. Consistency of the trend for elevated smoking prevalence amongst young males suggested that small survey samples of smoking respondents, when subsequently broken down into even smaller age by gender cohorts, might be masking a more enduring problem (Figure 1). Further investigation was considered important, given the importance of tobacco control.

**Figure 1: Smoking rates (%) among 25-34YO males in NSW, NCAHS and two other rural health areas (Greater Southern and Greater Western) between 1998 and 2005\***



Calculated from the Health Outcomes Information Statistical Toolkit (HOIST) 'data warehouse' for NSW Health Survey weighted to current Health Area populations.

In 2004 a number of possible causes for this higher rate were considered, with the most plausible cause being that young men are becoming dependent on tobacco through a process described as the 'reverse gateway' theory<sup>8,9</sup>. This theory suggests that young cannabis users who consume weekly, or more frequently, have an increased risk of initiation of tobacco use and subsequent nicotine dependency<sup>9</sup>.



## Aboriginal issues

Around 50% of Aboriginal and Torres Strait Islander people smoke tobacco, which is a much higher rate than for non-indigenous Australians<sup>10</sup>. Aboriginal and Torres Strait Islander people are more likely than other Australians to have used illicit drugs<sup>3</sup>. In our consultation with the local Ngayundi Aboriginal Health Council, some elders expressed their concern that yarndi (cannabis) smoking typically starts at the age of 11 or 12 in local Aboriginal communities and that the introduction to it is done by close family members. Interestingly, the elders concerned were tobacco smokers, but did not express concerns about teenagers starting to smoke tobacco early. Since the implementation of the Aboriginal component of this study was delayed, results and discussion relevant to it will be presented in a separate report later in 2010.

## Terminology

Mull is the colloquial name given to the mixture of cannabis and tobacco. Mulling refers to the activity of combining cannabis and tobacco. The mixture is often prepared in a small bowl with varying ratios of cannabis and tobacco. Once the mixture is prepared, it is smoked in a hand rolled cigarette commonly called a 'joint' or in a bong, a device where smoke passes through water before inhaling.

## Aims and objectives

### AIMS

- To determine the nature and extent of the link between tobacco dependence and cannabis use.

### OBJECTIVES :

- To record accounts of smoking careers including: 1. Initiation of tobacco and mull; 2. The circumstances and smoking practices that influence the frequency and amount smoked and 3. The nature and context of attempts to quit smoking.
- To identify smoking practices, including frequency, routes of administration and ratios of tobacco and cannabis in mull.
- To establish perceived negative and positive effects of smoking mull.
- To investigate environmental factors, such as friendship networks, employment and personal circumstances surrounding the use of mull.

## Population study

Research on cannabis use is most common amongst young people aged under 24, where initiation and peak use occurs. The qualitative arm of this study is related to the phenomenon of higher rates of smoking amongst males aged 24-35 living in the North Coast of NSW. Respondent profiles are in appendix 1. More details on the sampling are presented in the methods section.

## Ethics approval

Ethics approvals were obtained from the University of New South Wales (UNSW) and NCAHS. The NSW Aboriginal Health Medical and Research Council (AH&MRC) approved the Aboriginal component of the qualitative study.

# 3. METHODS

## Qualitative component

In October 2009 a Research Project Officer was recruited to conduct non-indigenous interviews and in December 2009 an Indigenous Research Officer was also recruited. Semi-structured interview questions were developed and these were revised and refined throughout the research process.

### Recruitment and Procedures

Recruitment of male participants aged 25 – 34 years, initially took place via NCAHS workers' networks. In November 2009 an advertisement was placed in two North Coast local papers. These advertisements generated local press and radio interest from which participants were recruited. A short screening interview took place by phone recording respondents' contact details, age, occupation, and a brief summary of their experience in using cannabis, tobacco and mull. Some theoretical sampling subsequently took place to ensure coverage of emerging themes, as well as a spread of age, employment status and geographical location of participants.

### NON-INDIGENOUS PARTICIPANTS INTERVIEWS

Ten face-to-face interviews and one telephone interview were conducted with 11 participants by the Officer during November 2009 – May 2010. Participants provided consent after being informed of the nature of the study and that the information they provided was to be kept confidential. All interviews took place in NCAHS premises and were recorded. At completion of the interview the participants were thanked and reimbursed \$50 (in a grocery voucher) as a contribution to travel and related expenses. Interviews were sent to an outside transcription service via email for transcription verbatim. Appendix 1 shows a summary of respondents' demographics. Before the start of interviewing, semi structured interview questions were developed by team members. Initially these questions focused on initiation, frequency of smoking, administration, reasons for mixing, friendships, knowledge/perception of harm, ritualisation and quitting. Following small team discussions these questions were revised to inform and probe emerging themes and concepts. Interviews were coded and no identifying information was collected. A pseudonym was allocated to each interviewee as part of the coding.

## INDIGENOUS INTERVIEWS

Recruitment to the Indigenous Research Officer post was delayed and once an officer was in post, difficulties were experienced in obtaining Indigenous interviewees. However, at the time of writing five interviews had taken place with others in the pipeline. These initial interviews already show different factors affecting mull use.

## Data Analysis

Grounded theory methodology was used during the research process. The purpose of using this methodology was to come to the research question with no preconceived ideas or categories in which to analyse the data. In this way grounded theory “serves us as a way to learn about the worlds we study and a method for developing theories to understand them”<sup>11</sup>. Interview transcriptions were coded line by line by the Senior Research Project Officer using Nvivo 8<sup>12</sup> computer package. Initial coding stayed close to the data and codes were created from respondents’ similarities and differences on processes, actions, context, strategies, issues, attitudes and emotions etc. Memos summarising each interview were written and these with interview transcriptions were circulated to the small team. Bi-monthly meetings were held to discuss the data, codes and emerging themes and concepts.

The second stage of coding developed focused codes. Focused coding synthesises and categorises the data into conceptual themes. These focused codes informed memos by detailing emerging concepts and theories. From these, a concept map was developed to provide a visual representation of categories and their relationships. Alongside this process, interviews continued with revised questions probing the emerging concepts and theories.

## Quantitative component

### Data Sources and Analysis

NCPIC provided a dataset of the triennial National Drug Strategy Household Survey (NDSHS) to NCAHS<sup>13</sup>. The R&E Officer manipulated and managed the data using SAS and exported the dataset in Excel format. HPRE staff consulted the Southern Cross University (SCU) statistician and conducted descriptive univariate analyses, followed by regression modelling using SPSS<sup>14</sup>, SAS<sup>15</sup> and MLwiN<sup>16</sup>.

Data from the NSW Health Survey Program were obtained following NSW Health data request procedures. The data were for the period from mid 2007 to the end of 2008. Surveys during this period included a set of specific questions, designed by the Mull Hypothesis research team, to shed light on cannabis/tobacco issues. Raw data as well as formats in SAS were provided. The R&E Officer manipulated and managed the data using SAS and exported the dataset in Excel format. Data were managed as above.

Variables of interest were related to smoking tobacco and cannabis. The national survey included amounts consumed daily or weekly, while the NSW survey only included smoking status variables. However, only the NSW survey included a question regarding time to first cigarette of the day, which was used as a measure of nicotine dependence. Baker et al.

concluded that “the time-to-first-cigarette item appears to tap a pattern of heavy, uninterrupted, and automatic smoking and may be a good single-item measure of nicotine dependence”<sup>17</sup>.

## Survey Sampling

The NDSHS is the leading survey of licit and illicit drug use in Australia. The 2007 survey was the ninth conducted under the auspices of the National Drug Strategy since 1985<sup>13</sup>. More than 23,000 people aged 12 years or older provided information on their drug use patterns, attitudes and behaviours. The sample was based on households, therefore homeless and institutionalised persons were not included in the survey. Both the drop and collect method and the computer-assisted telephone interview (CATI) method were used to collect information from household respondents<sup>13</sup>. Not all questions were asked of all respondents – some were asked only of respondents aged 14 years or older; some questions (a different group) were asked only of CATI respondents.

The NSW Department of Health conducts the NSW Population Health Survey (NSWHS), a telephone survey of about 12,000 people from across NSW. The survey is conducted every year between February and December to monitor health behaviours, health status as well as use of, and satisfaction, with health services. Households are contacted using list assisted random digit dialling. Up to seven calls are made to establish initial contact with a household and up to five calls are made to contact a selected respondent. One person from the household is randomly selected for inclusion in the survey. Carers or parents of children aged 0-15 years are interviewed on their behalf.

The sample is weighted to adjust for differences in the probabilities of selection among subjects, and for differences between the age and sex structure of the sample and Australian Bureau of Statistics mid-year population estimates for New South Wales. This enables calculation of prevalence estimates for the state population rather than for the respondents selected<sup>18</sup>. Only respondents aged 16 to 34 years were asked the cannabis-use questions.

Since the numbers of respondents to the cannabis use questions were limited in both surveys, the samples used for analyses of both datasets included both male and female cannabis users of all ages. In the NSWHS this meant male and female cannabis users aged 16-34, as only people in these age groups were asked the cannabis questions. When tobacco or nicotine related questions were the outcome variables, all respondents to each question were included in the analysis, i.e. tobacco smokers. Cannabis use responses were used as predictor variables when associations between cannabis use and tobacco/nicotine variables were examined.

## 4. RESULTS

### Qualitative data findings

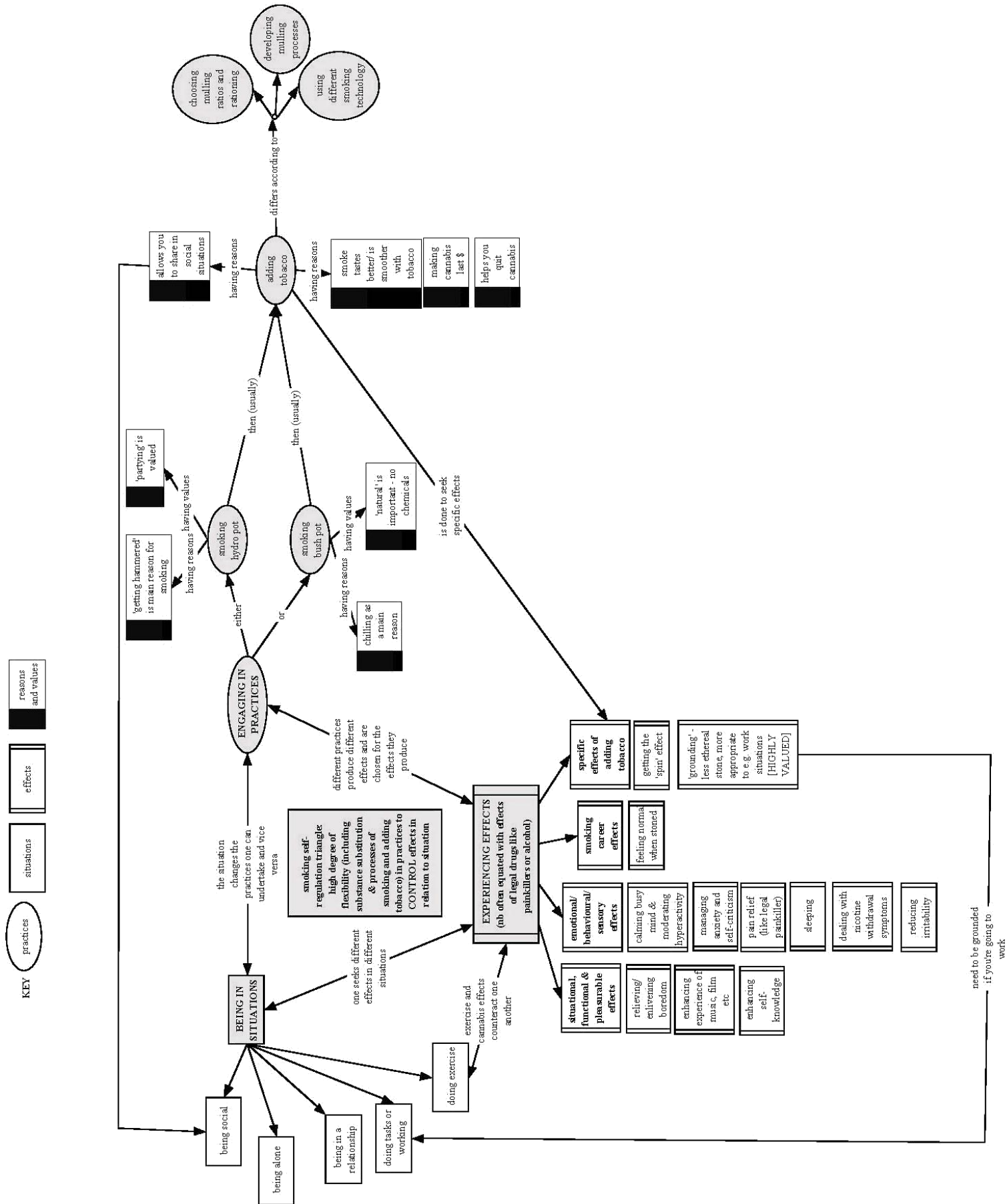
#### Overview

This section of the report will detail the main findings from the qualitative research. Findings have been categorised into the following themes:

1. The effects of adding tobacco to cannabis
2. Circumstances influencing mull use
3. Smoking practices
4. Self regulation of using mull
5. Quit attempts

A concept map (Figure 2 next page) shows the main findings and illustrates the processes and the relationships surrounding the key themes. Detailed explanation of the concept map and the findings will be provided in the text following Figure 2.

Figure 2: Concept map of main qualitative findings



## Concept map of the relationship between tobacco and cannabis

The mixing of cannabis and tobacco provides a particular effect that is different to that of smoking cannabis or tobacco separately. It is the effect produced by this ‘third substance’ that was highly valued by users and is a main focus of this study.

Figure 2 shows the relationship between tobacco and cannabis, it illustrates the fluidity of smoking, either cannabis or tobacco and describes the process of substance adaptation and substitution. In-depth explanation of each component of the map is described in the Key Findings section.

Mull users seek and experience multiple effects. The effects gained can often be similar to those from legal drugs such as alcohol, painkillers or sleeping pills. In many circumstances mull users, choose cannabis instead of legal drugs, believing there is little difference between the two because drugs can be addictive, making them no better than cannabis. The fact that cannabis is an illegal drug does not make them view the effects as any different to legal drugs. However, as evidenced by much of the discourse with these users, the emphasis is on cannabis and the effect of the nicotine is not always considered.

In the current study the effects of smoking mull, that users are seeking, have been categorised into:

1. Situational, functional and pleasurable – these included enhancing music, films, nature etc; enhancing self knowledge; and relieving boredom.
2. Emotional/behavioural/sensory – calming busy minds and hyperactivity; managing anxiety and self – criticism; pain relief; aiding sleep; aiding nicotine withdrawal; reducing irritability.
3. Smoking career – feeling normal when stoned.
4. Specific effects of adding tobacco – the ‘spin’ effect; being more ‘grounded’ when stoned.

The wide range of effects sought and the understanding on how to achieve particular effects is quite different to the type of smoking that occurs during earlier stages of a smoking career. These mature users have the knowledge and experience to obtain specific effects, through engaging in different smoking practices, depending on situations or circumstances they are in.

In different situations, users may seek certain effects. For example, smoking mull can calm an anxious or overactive mind. It can also make a task which was considered boring and repetitive less boring. Conversely, some circumstances, such as work or doing exercise, can counteract, prohibit or restrict cannabis usage.

Being in different situations can often change users' smoking. Smoking alone often differs from smoking socially in terms of the modes of smoking. At a social event it may be considered unacceptable for users to smoke a bong but acceptable to smoke a joint. Being in a relationship may change smoking and its desirability or acceptability, and in a number of respondents this prompted quit attempts.

The practice of adding tobacco to cannabis has many functions. The amount of tobacco added can change depending on the type of effect that a user is seeking. For instance, in circumstances where someone just wants to be slightly stoned they may choose to add more tobacco and/or less cannabis. These situations could include being at work or with others that are not users. Social situations where mull is shared with a number of people may mean that more tobacco is added to enable more people to take part.

As well as adapting the amount of tobacco, users may choose a different mode of smoking to enable specific effects. For example, a bong maybe used to deliver a strong effect using a minimum amount of cannabis. Alternatively if a mild effect is sought, that would counteract nicotine withdrawal symptoms, then a user may smoke a joint with lots of tobacco and little cannabis, or if in circumstances where cannabis could not be smoked, then they may choose to smoke a cigarette. A situation where the supply of cannabis has dried up may prompt a smoker who normally smokes bush grown cannabis to change his smoking to hydroponically grown cannabis.

The above description shows the fluidity of smoking tobacco and cannabis and that users self regulate with a high degree of flexibility and substance substitution. Smoking patterns depend on effects sought, being in situations and smoking practices. In practice respondents seek to control the effects of mull in relation to situations they are in and in this way are able to embed smoking mull into their lives whilst holding down their jobs and bringing up their families. This skill in manipulation of smoking emerges after years of experiencing the effects and knowing how to manipulate them.



## Key findings

### Effects of Adding Tobacco to Cannabis

Tobacco is added to cannabis to form a mull mix. Interviewees utilised this mix to produce a range of effects which can be categorised as:

1. Emotional/Behavioural and Sensory
2. Situational, Functional & Pleasurable
3. Smoking Career Stages
4. Specific effects of adding tobacco

### Emotional/Behavioural/Sensory Effects

The emotional/behaviour or sensory effects were all used to counteract negative experiences/symptoms experienced by users.

#### MANAGING ANXIETY AND SELF-CRITICISM/RELAXATION AND STRESS RELIEF

The primary function that all respondents cited for smoking mull was for relaxation and stress relief. Without exception this role was highly valued by all respondents. Smoking mull was used in a similar way to how people unwind with a glass of wine or beer.

*"I think I stop stressing so much and just go through it.....if I'm stoned that sort of part of my brain seems to shut off .....I think it relieves the stress, I don't worry near as much as I do if I'm stoned yeah, I don't worry" ..... Darren*

*"It distracts you from dealing with yourself or dealing with what's going on in your life" ..... Stan*

#### CALMING BUSY MIND & MODERATING HYPERACTIVITY

Smoking mull was used as a coping strategy to block out any unwanted thoughts or problems in their lives. It enabled users to calm their 'busy' minds and forget about things. For some, they found it helped them to moderate their hyperactivity.

*"I stop thinking about all the other little things that are ticking on in my head and just get what I need to be done so I think I function a lot better. .... Darren*

*I feel as though I'm ADDH, or whatever it is, hyperactive, if I'm not on the mull".  
..... Shay*

## REDUCING IRRITABILITY AND ANGER

Mull smoking was used to help control irritability and anger. Most interviewees knew that smoking mull was their main coping strategy for dealing with the stresses and strains of life - without it they became more irritable - a smoke calmed them down. This was particularly prevalent in the stories of those who lived with children. The ability to suppress irritability and anger was highly valued by respondents.

*“But if I’m not on the mull then I find that I am a lot tenser, the fuse is a lot shorter”. . . . . Shay*

## PAIN RELIEF

Smoking mull was used for pain relief. It was chosen as an alternative to taking prescribed medicine. Cannabis was perceived as a mild pain relief and less harmful than legal painkillers. Interestingly, although tobacco is perceived as harmful, in the respondents’ minds, the benefits of smoking cannabis outweighed any harm caused by the tobacco.

*“Also with me if I get too much pain I have to smoke ‘cause it really takes it off instead of being on painkillers. I can go to the Doctor with my problem in my back and say, “Can you give me some Morphine like Oxycontin” and he’ll do it; he will write me the prescription. But it’s really addictive and it’s really full on, like on your body and it’s an intense drug compared to cannabis. Like if you compare Morphine to cannabis, even though this is legal through the pharmacy although one is illegal, but still, if I look at the qualities of, the negatives and the positives of the drug, I much prefer to smoke cannabis than taking painkillers, you know what I mean?” . . . . . Eric*

## SLEEP DIFFICULTIES

A common use of smoking mull was to control sleep difficulties. Some of these difficulties occurred whilst trying to quit smoking mull, others during times of high usage. Some respondents described waking up during the night and having a smoke to enable them to get back to sleep. Again for some there was an acknowledgement that they choose to use cannabis rather than sleeping pills to alleviate sleep problems.

*“I can get really stoned that I think I’m stoned enough to sleep now. I suffer from insomnia really badly so it’s another thing that helps me sleep. . . . . I suppose it’s no different to the sleeping pills I take”. . . . . Darren*

## NICOTINE WITHDRAWAL SYMPTOMS

It was a common perception that by using tobacco with cannabis, the tobacco increased the frequency of smoking because of nicotine cravings. The increase could be either in smoking mull or tobacco only. However, the effect of the nicotine cravings was not obvious to all mull smokers.

*"I feel that it pushes it along a little bit more but it's like a hidden," "How can I put it, yeah, it makes me want to smoke pot but it's really a nicotine addiction that I've got I feel sometimes" ..... John*

This appeared to be most acutely felt by those who smoked mull but not tobacco only. Some reported smoking mull to satisfy nicotine cravings.

*".....but smoking it with tobacco, definitely the more you smoke the more your body wants the nicotine. Because I was smoking it with tobacco, without tobacco for so many years each, it's pretty easy to see that with the tobacco that it's really the tobacco that makes you really want, it's the tobacco is the addiction, really. So if you smoke spliffs with tobacco the more spliffs you want to have, yeah".  
..... Eric*

This is illustrated with one respondent who normally did not buy tobacco purposively to limit his tobacco intake and would smoke pure cannabis when at home. However when a friend left tobacco at his house he started to use it with cannabis, when asked why, he felt it was to satisfy his nicotine cravings.

## SITUATIONAL, FUNCTIONAL & PLEASURABLE EFFECTS

Some effects of smoking mull can be categorised as situational - they had a specific function, such as enhancing self-knowledge and these effects were often more pleasurable than those described previously.

### ENHANCING EXPERIENCES

Smoking mull to change one's mindset and enhance experiences of music, film and other pleasurable activities was valued by interviewees. Smoking mull often happened when respondents were already in a pleasurable situation, such as a day at the beach, listening to music, watching movies etc, smoking mull enhanced the experience.

*"Altered reality is, everything is nicer, you know?.....The colours are nicer, the sun's nicer, can lie on, let's say nature spot, if it's a beach or if it's just the bush with a creek or something, the feeling of the water is different and everything is much more gentle, I suppose". ..... Eric*

## RELIEVING BOREDOM

Some interviewees talked about using cannabis to experience a buzz, making life a bit more edgy and exciting. At times, using cannabis to get a buzz and using it for coping with life's challenges becomes blurred. One interviewee, who was unemployed, believes that everyone needs to use a substance, and he could not imagine how anyone would get through life without something. He chose mull, whilst others choose alcohol.

*"I know a lot of people that smoke tobacco and I could never see them giving up until it virtually kills them. It's like a way of getting through life, especially if you're an average person. You haven't got the million dollars in the bank or you're either aimless. The average person just...don't think could get through life without smoking cigarettes, or mull, or drinking". . . . . Shay*

## ENHANCING SELF-KNOWLEDGE

Another positive effect reported by interviewees is the way mull can be used to help to enhance self knowledge, and self evaluate actions. Interviewees reported that whilst being stoned they thought about their actions and the consequences of those actions for others. They believed it helped them work towards becoming a 'better' person and to make sense the world around them. This discourse has more spiritual overtones.

*"It sort of seems to open up my consciousness and help me be aware of where I'm at in the time and what I've been doing. So sometimes now I can have a smoke and then think, "Shit, what have I been doing?" Like, I've been maybe working too much or being deceptive or bad in some ways and being mean to some sort of people, possibly or just drinking too much. Usually, it's bad things that I see that I'm doing....." . . . . . Gordon*

*"It just sort of puts perspective on, for me, puts perspective on the ridiculous nature of everything that can be going on in the world. It's a broad, sort of, statement, but pot I think really, it sort of, somehow for me opens up things to the absurdity of politics..." . . . . . Vince*

## Smoking Career Stages and Effects

All interviewees had been smoking mull for between 10 – 20 years. This had produced some cumulative effects of smoking.

### FEELING NORMAL

For those that have been chronic mull smokers for years, their normal state of mind is being stoned, therefore their smoking makes them feel normal again. Being straight is not something that they are used to. This phenomenon was often referred to “levelling” oneself out. This long term state of feeling normal whilst being stoned also effects the user’s perception of their identity. Shay stated that during quitting, once you have got over the physical side effects of withdrawal, you need to be able to “accept who you are” i.e. someone who smokes cannabis has a certain identity; a non-conformist; someone who is a bit different from Joe Bloggs and so by giving up there is a self-acceptance of conforming to mainstream life and living within the boundaries imposed by government. This feeling of conforming does not always sit well with some of the interviewees.

*“I’d call it levelling myself back out and it would bring me back down and level me out.” ..... Darren*

*“.....it keeps me at a level where I’m not as stoned but I’m still stoned enough to just function completely normally”. ..... Shay*

## Specific Effects of Adding Tobacco

Specific effects were sought by adding tobacco to cannabis.

### FEELING "GROUNDED" WHILST STONED

Respondents reported that a different effect was experienced when tobacco was added to cannabis as opposed to smoking pure cannabis. The effect of smoking pure cannabis was described as high, ethereal and floaty. Most respondents reported with these effects they were unable to function well in their lives. However by adding tobacco, the effect was more grounding, less high and they felt more in control –this was most highly valued. Some respondents reported that by adding tobacco the effect of being stoned was reached more quickly, which is likely to be caused by nicotine reaching the brain within seconds of being smoked.

**Interviewer:** “And you don’t really, or you haven’t ever really enjoyed smoking joints when they are just pure?”

*“No, not really. Well, see it’s good. You get high but it is a different high. It’s more of a, it’s a higher high. Which should be better, but it’s like a clearer high*

*and... I don't know, me and I guess a lot of people, like, that when it's mixed with tobacco. Not the actual just smoking of it but the feeling you get afterwards. It's more of a stone. Like, more of a relaxed sort of a smacked out sort of a feeling. Whereas, when you smoke it straight, it seems to be a higher vibration thing, which sounds great. It's like, why wouldn't you want to do that? But I guess it's a different drug when it's mixed with the tobacco". ..... Gordon*

Most respondents perceived tobacco as damaging for their health and some described it as “disgusting” and “evil”. Even with such strong negative opinions of tobacco, the effect of it within their mull mix was highly valued and perpetuated use.

*“So you have this thing about tobacco that it really pulls you back to the ground; that's the drug, that nicotine, pulls you back, settles you. Cannabis, depends on the strength and stuff, but overall, they call it high 'cause it pulls you high. So when you mix them together you kind of get a different type of high which is more heavy I suppose, it's like you not necessarily feel more heavy but it's like you don't go out too much”. ..... Eric*

*“.....It (pure cannabis) tastes much nicer, sweeter and more lovely and also generally speaking will make you cough..... You know, you can withdraw into, I don't know if you do or not, but you can, sort of, go off on your own little, sort of, thing. Yeah, yeah, exactly and I think that when you spin it, it doesn't quite do that as much as if you're having it straight”. ..... Vince*

**Interviewer:** “So other interviewees have described it as if you smoke spin or mull then it's more grounding, whereas if you have a pure joint it's more, kind of, ethereal. Would you describe it ...”

*“That's brilliant, yeah. That's, that's, yeah:.*

**Interviewer:** Would that suit it?

*“Absolutely. That's exactly the thing. That's well, well said. I, it, you can control the situation.” ..... Vince*

## THE 'SPIN' EFFECT

The spin effect is described as the rush or high that respondents experienced when smoking mull. Some respondents accredited the spin effect to the tobacco. Most would adapt their smoking to ensure they gained the strongest hit. 'Spin or 'Spinning' (See Smoking Practices) was often used instead of the term 'mull' or to describe the process of combining tobacco and cannabis.

*"...the effects on me is that it just, it spins your head and disorientates you briefly; not for long, maybe for a minute or so. And the effect of the pot is, kicks in afterwards" ..... Vince*

## Being in and Navigating Situations

Different situations affected interviewees mull smoking. Most respondents are very experienced smokers with significant number of years in their smoking career. They are able to manipulate their smoking pattern to achieve a desired effect depending on their circumstances. Smoking mull patterns change as people navigate or are in different situations.

## LIVING ON THE NORTH COAST

There is acceptability about using cannabis on the North Coast that has developed over the last 30 years. It is known as the growing region for NSW and there is a general feeling that the availability of cannabis on the North Coast has affected people's smoking patterns. As we will discuss, for those that moved here, the effect was to change their smoking to the North Coast norm - using mull instead of straight cannabis.

## BEING SOCIAL

Smoking mull is used by interviewees to enhance a social situation and is a distinct bonding agent that gives users a shared identity; something to talk about and a valued item that can be physically shared with each other. The cultural norm on the North Coast is to mix cannabis with tobacco. When tobacco isn't added, it is common for others not to want to share the smoke, because smoking pure cannabis is considered too harsh on the throat and causes coughing. Using mull during socialising was commonplace. Most respondents were within friendship groups where smoking was a normalised activity. Whilst not all friends within the group necessarily smoked mull, there was a general acceptability of smoking mull. To most users it is important that they are able to share their smoking and consequently users conform to localised patterns of use.

Interviewees who had lived in New Zealand reported a different cultural norm for smoking cannabis. In New Zealand cannabis and tobacco are smoked separately and rarely mixed. This difference in smoking defines a New Zealand cannabis smoker as different to those in the North Coast of NSW where it is more common to mix with tobacco. For interviewees that

had moved from New Zealand, smoking pure cannabis was seen as a healthier way of smoking because tobacco is perceived as harmful, addictive and full of chemicals.

*"I thought it was pretty disgusting really to mix it; I didn't understand there were reasons for it. I thought their reasons weren't justified". . . . . Stan*

However, when they moved to Australia to live on the North Coast of NSW nobody would share their pure cannabis joints and they felt excluded from the smokers group. Smoking mull joints became an important vehicle in feeling included in and belonging to a group (like a currency) and although this went against their beliefs and practices, they adapted their smoking to fit into their new cultural norm. One interviewee had moved from his country of initiating smoking mull, to New Zealand where only pure cannabis was smoked and then to Australia – each time he had adapted his smoking to the cultural norm of the country.

"In New Zealand, it's really strange, even the most heavy cigarette smoker would not mix cigarettes with Ganja; culturally they smoke it just pure".

**Interviewer: " So what happened when you first started making joints in New Zealand and you were mixing the two?"**

*"Well then, I find myself not having people to share, cause it's also a social thing, okay? So then, you can't really share because they go, "Blaah! What's that? Then they start a light and then you cough your lungs out 'cause it's so strong, and smoke a cigarette next to it [laughter] and eventually I got used to it. I suppose it's a culture thing. And then coming back here and had the same thing but opposite. I was running spliffs but no one was sharing with me because it was too harsh for them, and then basically giving back up to smoke with cigarettes again". . . . . Eric*

For most respondents, smoking mull was a part of their social fabric. In some circles of friends it can be the common activity that holds friendship groups together. In some cases, once the common activity stops, so do the friendships.

*"Even now there's always people in these groups that, if you smoke, then everyone sort of knows each other and you do it together and everything and when you stop that all breaks apart. It holds everyone together, in a way. So I like that aspect of it as well, yeah." . . . . . Gordon*



Only one interviewee was a lone smoker, all others smoked with friends and felt that friends affected their smoking. Smoking mull is used as a socialising tool – an interviewee described that he didn't feel that he would be able to strike up a conversation with someone he didn't know but he would, if they were both smoking mull. Smoking mull gives a common shared activity; it opens up new friendships and easily defines a social group as to whether you have something in common with them. Like much literature on smoking cigarettes, smokers are a club, Vince describes how he has better conversations with smokers outside the pub ("an outlawed gang") since the new smoke free policies have alienated them. They are now fewer in number and the ban ensures they must only take part in the activity in a designated area. Smoking areas were described as a place where you "have instant friends".

#### **BEING INFLUENCED OR EFFECTED BY OTHERS**

Within stories of initiation, friends featured heavily. All interviewees started smoking cannabis and/or cigarettes with friends. For those who didn't like smoking on initiation, they often persisted with it because all their friends were smoking. Their friends' effect on smoking habits is still prevalent years later.

*".....well when you're by yourself you go out just when you feel like it, but every so often when you're with someone else that smokes and they go out, you get the urge or you get a waft of the smoke, you'd be like Oh". ..... Jeremy*

A number of interviewees were heavily influenced by family members. One was introduced to cannabis by his uncle, who he viewed as very functional in bringing up his family (as opposed to his own parents who were problem drinkers). He felt smoking cannabis was preferable to alcohol. When he was aged 15, his uncle provided him with cannabis to sell. Another was influenced by his older brothers who smoked and two interviewees were given their cigarettes by their mothers (hoping that it would put them off) – one of these openly smoked cannabis in the family household, which initiated his interest in it.

Most described how difficult it was to quit smoking mull and hang out with friends who were still smoking. Interviewees reported that they or their friends most often relapsed during nights out drinking with friends.

#### **DOING TASKS OR WORKING**

Smoking mull helped interviewees with focusing their mind and completing tasks or working. They reported that mull focused and aided concentration – blocking any unwanted thoughts, and extending their attention span.

*"I make sure I smoke 'cause it will centre me 'cause I have a very short attention span, It's not a downer for me it's a sort of a motivator. Once I start I'll start cleaning, I'll clean the whole house, I won't just clean that little bit of crap that was on the floor that I was picking up, it'd start me off, I'd wash up then and clean*

*the kitchen and start on the next room. So it was a definite motivator, it's a definite motivator for me". ..... Shay*

Mull smoking was not uncommon whilst doing specific tasks or work. However, the pattern and practice of smoking changed depending on the task. Users self regulate the ratios of tobacco and cannabis depending on the task that needs completing and the effect they wish to attain. For example smoking mull to aid concentration and focus when writing or doing paperwork.

*"....when I smoke a little it really helps me do things. For instance, if I need to do paperwork, if I get wacked out I can't do paperwork. But if I just have a small buzz out of the cannabis, it really helps me, I can sit there and I can do the paperwork and I can actually do it quite well and for a long time, for a good few hours". ..... Eric*

More common were reports that work restricted their smoking. One interviewee wanted to get a permit to work in the mines so he gave up smoking mull. The quit attempt lasted for 6 months prior to taking a drug test. During this time he was careful not to inhale second hand smoke. When he didn't get the ticket he resumed smoking mull. Interestingly he felt that smoking mull was widespread across trade occupations and that compulsory drug testing would prohibit many people working in trades from smoking cannabis. Others felt that being stoned when working was unacceptable.

*".....I'd never smoke pot at work, I always waited until I got home. So my vice at work was to smoke cigarettes 'cause it's like, "Oh shit," you'd really like a cone right now but have a cigarette instead. It was just my ethical standard in myself". ..... John*

Those that were not entitled to any benefits or pensions, having come from overseas, felt that because they had to work, this had restricted their smoking patterns because they needed to be able to function at work.

## **SMOKING ALONE**

Some respondents reported a difference in smoking alone and smoking with others. Amount smoked and the mode of smoking often changed. For example smoking mull through bongs may be someone's preferred method of smoking alone, however this would change to smoking a joint if in a social situation where bongs were not acceptable. Smoking alone often gave the respondents the opportunity to zone out completely. One interviewee describes how smoking mull enables him to take time out from his tasks and he physically goes to another place to smoke.

## RELATIONSHIPS

Being in a relationship with a partner who didn't like them smoking mull had a significant impact on interviewees' smoking practices in the early days of the relationship. Within a relationship it became an activity that could or would be curtailed to please others, such as a new girlfriend. It was prominent that quit attempts were often triggered by a new girlfriend who did not like mull smoking. Once the relationship ended, smoking mull resumed. Others who were in long-term relationships discussed how smoking mull was a source of tension between them and their partner but felt less inclined to make a quit attempt. This links with the Theory of Reasoned Action, which provides insight into the effect of friendship networks and significant others on health behaviour.

*"She's against the whole drug thing, totally [laugh]. I can't even really joke about it with her. She's just...[laugh] and I sort of go with that because I reckon that's a good thing". .....* Gordon

*"I quit pot when I was 17 for 3 months".*

**Interviewer: "Is that just pot and not cigarettes?"**

*"Yeah. There was a girlfriend, because of a girlfriend". .....* John

## DOING EXERCISE

Exercise was reported as an activity that slows down people's smoking habits. Smoking mull and doing exercise are perceived as counteracting one another. Exercise featured in respondents' discussion on ways of cutting down or quitting smoking mull.

*".....exercise gets me off pot, slows it down or whatever".*

**Interviewer: "So it keeps you occupied?"**

*"Yeah".*

**Interviewer: "And the exercise, what does that do to you to slow the pot down?"**

*"Just I know that I can't exercise if I'm stoned".*

**Interviewer: "Okay".**

*"I just can't, I do it wrong and harm myself and I don't exercise for long or wholeheartedly". .....* John

**BEING AROUND ALCOHOL**

Alcohol plays a key role in increasing and sustaining use in the story of smoking mull, either by adding to the effects of the mull, triggering relapse when attempting to quit or being used to aid quitting mull. Most interviewees described how well smoking mull and drinking went together. Drinking is considered to exacerbate the need to smoke and the effects of using alcohol are seen as destructive to oneself and to others.

*"The alcohol gives me the drive and the weed gives me this whole other distortion of what's really going on and this whole different reality just appears and anything seems like a great idea, really. Yeah, I've woken up in the morning and just yeah, been in a state of shock and fear in terms of what I've done. I can't believe it [laugh], some things I've done" ..... Gordon*

Alcohol loosens inhibitions and this was particularly prevalent with stories of initiation. Interviewees recalled anti-smoking messages that they had encountered during their teen years and some had taken these on board and had decided not to smoke cigarettes. However this resolve had failed when they had been drinking, their inhibitions dissolved and they became open to experimenting with cigarettes.

*"..... I was a total anti smoker but I sort of got alcohol and then I started drinking and then I started smoking."*

**Interviewer: "So actually, you were anti..."**

*"Totally. Still to this day, I can't eat food if they're smoking cigarettes next to me..... The smell, I won't even allow them in the house, inside"*

**Interviewer: "So what was it about that time that you were at your mate's house that it all changed?"**

*"Probably just drinking alcohol. Once you're a bit drunk and just sort of let go a bit more. Wasn't peer pressure or anything like that."*

**Interviewer: "Can you remember how that actually happened?"**

*"I was blind drunk, everyone, some of me mates pulled out some durries and they hold the packet out to me, and I just grab one out, they looked at me a bit strange and like yeah, just tried it just for something to try." ..... Martin*

Alcohol also played a key role in relapse of quit attempts. It often triggered the desire to start smoking (either cigarettes or mull). A number of interviewees described that as soon as they start drinking they want to smoke. Binge smoking mull and cigarettes was commonplace on a night out where they were drinking. Often this was followed by a period of abstinence from smoking mull.

*"It increases your smoking and it makes you want to smoke, but if your quitting cannabis and you're drinking and you got to pay for durries and you're already a smoker, well it's not a bad way to get off cannabis. But yeah, it pretty much ups any smoking, cannabis and cigarettes. Cigarettes straight away but eventually cannabis." ..... Jeremy*

*"A lot more cigarette smoking on weekends and same with pot, yeah, because they go hand-in-hand with beers for me when drinking. It, sort of, it's probably something that a lot people say, but it's true, if I drink, drink I tend to smoke. Yeah, smoke pot and cigarettes." ..... Vince*

## Smoking Mull Practices

Interviewees described many different practices when smoking mull. These practices included the type of cannabis smoked, reasons for adding tobacco and differing modes of smoking, ratios of mix and process to make the mull mix.

### TYPE OF CANNABIS

There are predominantly two types of cannabis that were available to interviewees, hydroponically grown cannabis, and bush grown cannabis. Both types of cannabis were easily accessible for users to buy. It was suggested by some respondents that access to outdoor grown cannabis is easy, living on the North Coast as opposed to living in the city, where they felt that people would most likely have access to hydroponically grown cannabis.

A few interviewees noted that in very recent times it was getting harder to access cannabis due to the police clampdown. Interviewees often indicated a clear preference as to the type of cannabis they like to smoke. For most it was the ability to choose whether they smoked natural or hydroponically grown cannabis that was the biggest difference between living on the North Coast or elsewhere.

### HYDROPONIC CANNABIS

Hydroponically (hydro) grown cannabis is grown indoors under lights. Interviewees describe the effect of hydro as being stronger and producing a more intense stoned feeling. All interviewees had at some point in their smoking career smoked hydro. Some found its effects

too strong because it knocked them out and they lost their ability to function, which was highly valued.

*"I can usually focus and do things, but if it's a hydro weed, I find it's like being smacked with a hammer and you don't want to get back up, you just sit there and it wipes you out." ..... Darren*

Those who preferred to smoke hydro did so because they liked being really stoned or chose it as a way of regulating their smoking. By smoking stronger cannabis, they didn't have to smoke as much and therefore limited the damage to lungs. One interviewee used the analogy of hydro being like a good bottle of red wine and bush like a bad bottle of red wine. The preference for hydro came from perceiving it as being stronger.

*"Yeah, 'cause it's more expensive. It's like drinking a good bottle of red or a bad bottle of red; it's just there's a difference. Yeah, definitely, so a lot of its hydroponic and that's grown in people's houses so wherever that comes from you would never know" ..... John*

## **BUSH CANNABIS**

Bush is cannabis grown outside and users had the expectation that it was grown without chemicals to aid growth. Those interviewees who preferred to smoke bush, describe the effects as being gentler and felt more throughout the whole body rather than being concentrated in the brain. The discourse used around bush featured words such as 'natural', 'green' and 'cleaner'. Smoking bush cannabis without tobacco was considered to be the healthiest way of smoking, however it was not the preferred method. As discussed previously the tobacco in the mull/spin mix provided a different effect, compared with smoking cannabis straight.

## **INDOOR/OUTDOOR CANNABIS**

One interviewee, who lives in the Murwillumbah area where anecdotal evidence suggests large quantities of cannabis are grown, described a new growing technique where cannabis plants are started off using hydroponics, and then transferred to the bush to grow into mature plants. These plants have the strength of hydroponically grown plants mixed with the growing techniques of natural plants where little or no chemicals are used. He calls these an indoor/outdoor plant that have been developed because of smokers concerns about the amount of chemicals that are used during the hydroponic process and in response to the success of police in detecting hydro grown plants. He believes the plants produce stronger effects than bush but are "healthier".

*"But the thing is; now you're able to get clones and grow 'em under lights for a little while, grow 'em under lights for 4 weeks or whatever you want to grow 'em to and then put them outdoors. And you're able to flush 'em a lot cleaner now,*

*the hydroponics with all the chemicals in them and that, that's the annoying little thing that was getting most people off, is having the chemicals in the drugs. But now that they're all flushing a lot better or just growing 'em until they're a certain size then just putting them outdoors, so you're getting a good quality smoke but growing outdoors. So it's virtually an indoor/outdoor plant we've grown without the chemicals." ..... Shay*

#### COMPARING BUSH TO HYDRO

Reasons for not smoking hydro included the perception that it was grown with lots of chemicals. The ingestion of these chemicals was thought to be bad for one's health. Although smoking anything was realised to be damaging for one's health, there was a cost benefit analysis that took place with the result that the benefit of getting stoned outweighed the concern of damage to oneself. However, a prevalent belief was that the harm can be limited by not smoking hydro which is perceived to be stronger and potentially more harmful because it is grown with chemicals.

The idea that cannabis should be grown naturally was an ideal that was highly valued by a number of interviewees. These interviewees had smoked both hydro and bush and had experienced severe withdrawal symptoms from hydro which they had not experienced when trying to quit bush. Experience from regular smoking of hydro followed by a shift to smoking just bush, made them aware of the differences between the two substances. It was commonly agreed that although hydro had stronger effects and people felt more stoned initially, the effects wore off quicker than bush. Consequently those who smoked hydro would smoke more frequently because they felt themselves 'straighten up' quicker. Presumably this would be in the interest of the growers in terms of developing a plant that would last for a shorter period ensuring that a larger quantity of cannabis would be consumed. This is also consistent with interviewees' belief that hydro is more addictive.

*"From when I tried to stop smoking that, and those nightmares that went on for months and it wasn't long after that I went onto the bush and stopped for a while and there was no problem. There was problems, but no nightmare problems and no shaking. When I stopped with the hydro, I'd shake and couldn't sleep and it was really intense, the chemicals in that hydro and whatever and the way it's grown." ..... Gordon*

There was also a belief that hydro had a greater effect on one's mental health. Users reported becoming more withdrawn and antisocial.

*"I've noticed with myself when I've smoked natural stuff for some time, and then I go and have some hydroponics, and just what it does to my mind and what it does to my emotions. And I look at that and I go wow, this is, and it smashes my*

*head, really goes strongly to my head, and rather than seeping into your whole body as a natural stone" ..... Stan*

## **Reasons for adding tobacco**

Interviewees cited a number of reasons as to why tobacco was added to cannabis:

### **SPREADING IT OUT**

The most common reason was to make the cannabis to last as long as possible. Tobacco was mixed with cannabis to make a mull mix. Careful consideration was given to the ratio mix of tobacco and cannabis depending on the amount of cannabis available for the time span it needed to last.

### **MAKING A SMOOTHER SMOKE**

Tobacco was added to help the mull mix burn more easily. Smoking pure cannabis was reported as being harsh on the throat and caused severe coughing. By adding the tobacco the mull was smoother to smoke and coughing was minimised.

### **BEING ABLE TO SHARE**

As discussed in *Being Social*, being able to share cannabis within a social situation was important to users. The cultural norm of smoking in the North Coast is to add tobacco. Consequently, interviewees had adapted their smoking so that others would share the experience of smoking with them.

**Interviewer: "So what happened when you first started making joints in New Zealand and you were mixing the two?"**

*"Well then, I find myself not having people to share, cause it's also a social thing, okay? So then, you can't really share because they go, "Blaah! What's that?" ..... Eric*

### **TASTE**

Tobacco can be added to alter the taste of the mull mix. For some interviewees, adding tobacco improved the taste of the smoking experience but for others, adding cannabis masked the taste of the tobacco - they wanted to smoke but didn't like the taste of cigarettes.



## AIDING QUITTING

Tobacco was added to mull as a way of aiding a quit attempt. Increasing the amount of tobacco whilst decreasing the amount of cannabis in the mull mix was a commonly used strategy to ween oneself off cannabis. During quit attempts it was common that both cigarette and alcohol consumption increased.

*Made more of the tobacco use rather than the mull. I think it just sort of, to take the edge off. I still feel like in my brain in my brain I'm still getting a hit, but it's more of the tobacco hit than the mull hit. .... Martin*

## CONTROLLING DOSAGE

Adapting the ratios of tobacco and cannabis allows users to create a desired effect. The strength of the smoke can be altered by adding more or less tobacco. Tailored cigarettes can be used as an easily identifiable measure to add to cannabis. Interviewees reported differing preferences in the ratios of tobacco and cannabis. This ratio was also altered depending on the task or situation and the desired effect required. One interviewee came from Victoria and commented on cultural norms of different areas in the amount of tobacco added to the mix. When he first moved to the North Coast he put more tobacco in his mix because he was used to the amount of cannabis on a stick in Victoria which was smaller compared to those on the North Coast. He reported that people commented on the difference in ratios and guessed he was from the South.

## DIFFERENT SMOKING TECHNOLOGIES

### Mode - bongs, bucket bongs, joints, pipes, cans

Interviewees had tried many different methods of smoking mull. These included bongs, joints, pipes, cans and bucket bongs. The most commonly used methods were bongs and joints. Bongs were described as the most efficient use of cannabis to produce the fastest, most intense hit. Most interviewees who smoked bongs preferred to smoke hydro, indicating they had adapted their smoking to provide the most efficient method of producing the strongest effects. An even stronger correlation appeared with people who preferred to smoke joints choosing to smoke bush. In general, joints were viewed as more sociable and not so intense.

*"It's not, like if you smoke a joint you know you're slowly going through the whole joint and it's more of a relaxed, like doing it's more of a relaxed thing, what you're doing. Whereas smoking a bong is really intense. You light it up and you're like, "Suck really hard," and boom it's gone in and you just want to do that. It becomes a process and you want that hit and it's so easy. It's just a quick hit like that." .... Gordon*

Both bong and joints could be smoked with mull or just cannabis however a pipe was most likely to be smoked with just cannabis or hash and no tobacco. Interestingly, few people reported using a pipe. Whether this was because it couldn't be smoked without tobacco (and therefore not produce a more grounding stonedness) or for some other reason is unclear. There was a high level of adaptation of mode of smoking depending on situations. Social and private smoking varied - for those that preferred bong whilst smoking alone a bong was used. However, this often changed during a social situation, where in some circumstances (particularly when non-smokers were present) it was seen as more acceptable to smoke joints.

*"I do smoke joints if I'm out at a party or something, it's just easier, not likely to get caught so much carrying a cigarette around than a big bong [laughs] and they are kind of more socially acceptable at parties when everyone's had a few drinks." ..... John*

#### **RATIO MIX OF TOBACCO**

There was a high level of awareness regarding the amount of tobacco that was added to the mull mix. Rolling tobacco and ready made cigarettes were used in the mull mix. One interviewee found the use of ready made cigarettes helped him know the exact amount of tobacco he was putting in his mix.

*"It's sort of like a measured tobacco, a piece of tobacco, whereas rollies, you've virtually got to weigh it up to see how much is there and it's a waste of time. You want to just chop them straight into your mix and throw that in, okay that's what I wanted, one cigarette into that amount, beauty." ..... Shay*

The ratios of tobacco to mull may have changed during their smoking career and most had settled into a mix that enabled them to attain the desired effect. However, there was adaptation of the mix depending on the amount of cannabis and how long it had to last, the situation they were in and the effect that they wanted to achieve. For some, the method of smoking was very precise.

*"It was like have two or three cones, light up a ciggie and have half of it, then have the third one, and then finish off the other half of the ciggie at the end of the session" ..... Martin*

By adding more tobacco, the mull mix became less potent, therefore it was common during a quit attempt for interviewees to increase the amount of tobacco in their mull mix whilst decreasing the amount of cannabis.

## Self regulation

All interviewees started smoking cannabis in their teenage years typically around the ages of 15 and 16 years. Smoking habits and practices of interviewees had changed significantly over the years. Following initiation there came a period of time (typically late teens to early twenties) when smoking mull became a major part of their life. People were more financially independent and their mull use was more frequent and less controlled. Respondents reported that during this period in their lives they often chose a mode of smoking that was most efficient at producing a highly stoned effect. The use of bongs and bucket bongs were more prevalent at these times - efficient at using less cannabis and producing the greatest hit. Tobacco is often used in bong to provide and aid burning of the cannabis. Being younger and requiring an effect that completely "smashes you" was prevalent.

At the time of interview, 10 to 20 years later respondents' smoking practices had evolved. For some, smoking practices had been adapted to ones they considered 'healthier'. For instance, smoking bush grown cannabis as opposed to smoking hydroponically grown cannabis, using bongs or joints instead of bucket bongs, or using joints instead of bongs.

Most interviewees have self imposed rules about when, where and how much they smoked. This enabled them to function well within their lives. Self regulation could happen in the following ways:

- Allowing oneself to smoke only at a certain time of day.
- Allowing oneself to smoke only after completing certain tasks.
- Allowing oneself to smoke outside work hours.
- Not buying tobacco in order to limit its use when smoking privately.
- Restricting the number of smokes in a day.

These self imposed "rules" would be flexible and all interviewees have learnt to manipulate and self-regulate their smoking so that a desired effect is attained in response to particular situations and circumstances. This flexibility of use leads to a great deal of substance substitution, in which tobacco played an important role.

A common theme throughout the interviews was people's inability to self regulate their smoking when drinking alcohol. Often when they started drinking they would feel like smoking (anything) and would often smoke larger quantities than they normally would or would smoke substances that they wouldn't smoke if sober.

*"When I'd drink, I'd smoke a cigarette. Even now, if I get really drunk, I could possibly have a cigarette. Where, if I'm straight, I couldn't. I'd be sick" ..Gordon*

## Substitution of Substances

The substitution of substances and adaptation of smoking lies at the very centre of how these experienced smokers use mull, cigarettes and other substances e.g. alcohol in their lives. There is a fluid movement and constant adaptation of smoking depending on the situation they are in and effect they require and type of practices they are engaged in.

*"I'm working as a builder, so lots of chainsaws, power tools, this and this and that, I don't always smoke; depends what part of the job. For instance, if I need to do lots of calculations and things like that, like full measuring to the millimetre I don't smoke. If it's like the sub floor is down for instance, I just nail decking floors, and it's like thousands of nails, [laughs] it's really helping actually to smoke a spliff and then you can just continue to bang." ..... Eric*

Interviewees may have a preferred substance and mode of smoking however this would be adapted if they were in circumstances where the preferred substance couldn't be obtained or the mode was inappropriate. Smoking was also adapted depending on the desired effect. The need to smoke something overtook any preference. This illustrates the complex nature of the extent and link that mull smokers have with tobacco.

*"Not until I moved up here and then, occasionally people would do it without tobacco. I almost wouldn't smoke it but I did, because it's like what it was. It's like, "Okay, well there's no tobacco. I guess it's better than nothing at all." ..... Gordon*

Substitution of cigarettes for mull was common - particularly at times where it was felt that smoking mull was unacceptable. One interviewee was very clear that he didn't smoke cannabis before or whilst at work. He felt that ethically it would be wrong to be stoned at work. However when stressed and he wanted to smoke mull he would smoke a cigarette instead. He found that his cigarette consumption increased. Another interviewee only smoked cigarettes if he was in circumstances where he couldn't smoke mull.

*"I don't smoke cigarettes at all when I've got mull around me. Unless I go for a drive or something, sort of like I just did then, I had cones and then when I came down here I just had a cigarette to sort of...it sort of just gives you a little bit extra I guess, of a buzz, keeps the buzz going a little bit extra until you get back to your bong I guess" ..... Shay*

**Interviewer: "So you'd smoke the tobacco through a bong?"**

*"Yeah."*

**Interviewer: "Is that how you still smoke it now?"**

*"Yeah, every now and again, yeah."*

**Interviewer: "So you never smoke a cigarette?"**

*"No."*

**Interviewer: "So it's a cannabis substitute for you?"**

*"Yeah."*

**Inr: "How often would it be that you would smoke the tobacco through the bong?"**

*"When I've run out of the mull." ..... Martin*

There is a sense of a knowingness of what is acceptable in social circles. This is influenced by the knowledge that smoking cannabis is illegal, even though it is commonplace within friendship groups. One interviewee preferred to smoke bongs but in a social situation he was more likely to smoke joints.

*"I do smoke joints if I'm out at a party or something, it's just easier, not likely to get caught so much carrying a cigarette around than a big bong [laughs] and they are kind of more socially acceptable at parties when everyone's had a few drinks." ..... John*

Common examples of substitution:

- Substitute tobacco for when there is no cannabis or in a situation where smoking cannabis is unacceptable e.g. work, shops
- Substitute preferred form of cannabis dependent on availability e.g. preferred cannabis is hydro but only bush was available, this would be used.
- Substitute alcohol and tobacco for mull during quit attempts.

## REVERSE GATEWAY THEORY

Smoking careers among respondents started by regularly using the following:

- Mull (5)
- Cannabis only (3)
- Tobacco (3)

Five interviewees had started their smoking career with mull. Equally as common were those that had tried a cigarette, but did not become a regular cigarette smoker. These people all then started smoking mull which led some of them to become a regular tobacco only smoker.

*"I smoked pot before I ever smoked a cigarette.....I do think having regularly had pot with tobacco in it that it has contributed to me becoming a regular cigarette smoker." ..... Darren*

Those who started smoking cannabis straight, eventually came to smoking mull either because they had begun smoking cigarettes (for most the onset came when they were drunk and around friends who smoked cigarettes) or because they were in friendship groups who would only smoke mull and they wanted to share smoking joints or bongs with them. Once they had started smoking mull this led them to become a regular smoker of tobacco.

When some respondents thought about the issue they felt that smoking mull does produce nicotine withdrawal cravings and this increases the amount of mull smoked. They were aware they wanted a nicotine hit rather than the effect of the cannabis. This was often referred to as "pushing" their smoking along. This was particularly prevalent amongst those who didn't want to smoke tobacco only.

*"I never had this urge to, "I really need a spliff now, I can't move" but I did have it for cigarettes. And since I started to smoke cigarettes, tobacco mixed with Ganja again, suddenly I start to feel this urge, "Oh I need a spliff" or something, you know?" ..... Eric*

Reasons cited why interviewees didn't want to smoke tobacco on its own included their dislike of the taste and their perception of tobacco as harmful.

## TOBACCO SMOKING CESSATION MESSAGES

Smoking cessation or anti-smoking messages were recalled - particularly those that were encountered during their youth. Some of these interviewees believed it had shaped their smoking habits. There was an understanding that tobacco was harmful. However these messages did not, and still do not, explicitly include that tobacco is just as harmful when

smoked with cannabis. These messages were not translated into smoking other substances and they became tobacco-only specific rather than pertaining to mull as well.

*“Maybe because you’re told how bad cigarettes are for you these days and you don’t quite hear about pot giving you cancer or anything so I think maybe a lot less people are reluctant to smoke cigarettes because they’re so negatively publicised .....*”

**Interviewer: “But you didn’t equate smoking a mull mixture the same as smoking a cigarette?”**

*“Not when I was a teenager. I do now and see it’s got the same; I’m putting the same thing in but back then no not at all. I think the perception’s different, smoking cigarettes outright is, everyone knows that it’s bad for you. Whereas I don’t think that’s reinforced with cannabis.” .....* Darren

The only smoking cessation message that was recalled and had included mull had not resonated with the respondent.

*“I have seen ads on TV about smoking mull, there’s a kid playing footy and he’s slow and all that, but I find that I sort of feel normal on it. I can still function normally and do everything normal that I would do.” .....* Martin

As mentioned earlier, this illustrates that many of these long term users feel “normal” when they have smoked mull and don’t perceive their actions are affected by it. For these people it was more likely to be the knowledge of the negative effect of smoking on their body that was a greater trigger.

#### **PERCEPTION OF SMOKING**

To most interviewees, smoking mull differs from smoking cigarettes. During interviews constant clarification on what substance (mull or tobacco) was being referred to was needed. In general everyday language, the term smoking is used to describe tobacco only smoking. This is illustrated by one interviewee who was diagnosed with throat cancer. He was advised to give up smoking and immediately gave up smoking tobacco only but still smoked mull. This pattern of smoking lasted for 3 – 4 months until it was found to be a misdiagnosis and he returned to smoking tobacco and continued smoking mull.

**Interviewer: “You got wrongly diagnosed with Cancer of the throat?”**

*“Day before my 21<sup>st</sup> Birthday..... I went home, had one cigarette and stopped for three months. Got the all clear and went home and said, “yeah I want to spark up” but I didn’t for about two weeks.”*

**Interviewer: So that would have been quite a big motivator wasn’t it?**

*“Yeah but I kept smoking the cannabis.”*

**Interviewer: “Did you just smoke it in a bong neat or...?”**

*“No still with the tobacco in it, just not cigarettes.” ..... Jeremy*

A recurrent theme throughout the interviews was that smoking cannabis in someway masked respondents’ perception that they were tobacco smokers. At the forefront of their perception was that they were mull smokers and this was a separate group to cigarette smokers. Adding to this ambiguity is that the majority of respondents only smoked bong and did not smoke cigarettes – therefore tobacco use was only when smoking mull.

*“Oh, yeah, it’s a lead on to smoking cigarettes ‘cause you’re smoking nicotine but you’re kind of going, “Oh I’m just smoking pot,” but you’re not and ‘cause cigarettes are legal it’s not so much on your mind.” ..... Gordon*

#### **DEFINING SMOKING - WHO IS A SMOKER?**

Who is a smoker was fluid within the minds of the interviewees. To most interviewees, a smoker is someone who primarily smokes cigarettes - it doesn't necessarily mean a mull smoker. It also is related to the amount you smoke. So for instance, you couldn't call yourself a non-smoker if you smoked 20 bong a day - however if you smoked mull occasionally you may frame yourself as a non-smoker.

**Int “If someone was to ask you, if I was doing a survey in a street and I said, “Are you a smoker?” What would you say?**

*“Yeah, I’d say, No. But if you were clear, and if you said do you smoke at all, I’d say, Yeah” ..... John*



## PERCEPTIONS OF TOBACCO AND CANNABIS

Tobacco was perceived as more harmful than cannabis. Tobacco was considered more dangerous because of the amount of chemicals used during the manufacturing process.

*“just think tobacco is also a lot more dangerous than mull” ..... Shay*

In general respondents were more likely to view cannabis as being a natural and greener substance. This discourse was particularly prevalent with those users who preferred to smoke bush grown cannabis.

## QUITTING

Quitting mull or cigarettes had been attempted by all respondents at various stages of their smoking career. Most had had numerous attempts of quitting either mull or tobacco or both substances. At times there was difficulty in recalling the exact substance respondents had been trying to quit at a particular time.

## MOTIVATIONAL FACTORS FOR QUITTING MULL

A range of motivating factors for a quit attempt came into play when respondents had experienced negative effects of smoking mull and/or navigating situations where smoking mull was proving difficult.

## HEALTH

The cited negative effects of smoking mull were mainly around health issues - both mental and physical. Mental health issues included depression, feeling paranoid and wanting to be more mentally alert. Physical effects mentioned included lung problems, cancer and potential dangers during pregnancy.

*“It was severe depression and I’d heard pot can affect depression and I got told it was because of my other drug uses at the time so it contributed to my depression so I decided to quit everything and lead a clean life.” ..... Darren*

*“A lot of friends around me have gone paranoid schizophrenic from it.” ..... John*

## CONTROLLING LIFE

Disliking how much smoking mull can control one’s life, i.e. feeling the need to smoke before doing anything or feeling stressed when supplies ran dry, was a strong motivational factor in quitting with those who were heavy consumers.

*".....just the dependence on it, just being sort of a slave to something that I'd rather be free " Shay*

*"I think because it was just ruling my life to such an extent."*

**Interviewer: "Ruling or ruining?"**

*"Both [laugh]. I was saying ruling, but both. Because I just had to smoke to do anything. Even if I was stoned and I wanted to have a shower, I'd still have another bong before I had the shower. Anything at all, it was like, have a bong first. Every time I went in the car, I'd have to even take it with me and then stop at traffic lights and have a bong. It got to the point where I was even doing it when I was driving. I was just getting sick of it. I didn't want to do it anymore." .....* Gordon

## **NEW RELATIONSHIP**

Interestingly, being in a new relationship with someone who did not want them smoking cannabis was a big motivator for respondents. The onset of a new relationship and the desire to please their partner was a trigger for a number of respondents. However when those relationships stopped, they would resume smoking mull. For those in longer-term relationships, who expressed that their partners did not like them smoking, this was not such a powerful trigger.

*"Yeah. There was a girlfriend, because of a girlfriend."*

**She didn't like it?**

*"Didn't like the pot, smoked cigarettes herself but just didn't like pot so I quit for three months" .....* John

*"No, because she's really against it. She's against the whole drug thing, totally [laugh]. I can't even really joke about it with her. She's just...[laugh] and I sort of go with that because I reckon that's a good thing." .....* Gordon

## EXERCISE/SPORT/WANTING TO BE FIT

Being able to exercise and become fit or play sport also contributed to quit attempts. Respondents who were motivated by this felt that exercise and smoking did not go well together and that exercise would help decrease the amount they smoked.

*"... 'cause that's my aim is to exercise and get out of smoking pot, but yeah, exercise. Try and get a job, really, I've been trying to get a job for ages. Work and exercise gets me off pot, slows it down or whatever. Just I know that I can't exercise if I'm stoned.....I just can't, I do it wrong and harm myself and I don't exercise for long or whole-heartedly." ..... John*

*"I can do without it (smoking) by being more active" ..... Vince*

## WORK

Work played an important role in either restricting respondents' use of mull, triggering a quit attempt and/or causing the substitution phenomenon. As discussed above under the heading 'Self-regulation', work was a place where some felt they were unable to be stoned and consequently would turn to cigarettes when feeling stressed or experiencing nicotine withdrawal symptoms. Workplace drug testing policies triggered a quit attempt and it was felt that wider use of drug testing within the workplace would affect usage.

**Int "Have you got other mates that are aware that their employers drug test?"**

*"Not all employers. The mines do"*

**Interviewer: "None of the tradie sort of employers do?"**

*"No."*

**Interviewer: "What do you think would happen if they started doing that?"**

*"They'd probably lose all their workers, definitely." ..... Jeremy*

## MATURING

Some respondents were aware that they had been smoking cannabis for a long time and that it was time that they stopped. Having nothing to show for what they had been doing was an issue. During their youth they had been "living in the moment" but as they matured and they thought about future intentions, smoking mull and/or tobacco, particularly in large quantities was something they did not want to continue.

*“Yeah, yeah, no, smoke the shit too long and long enough, coming to a time, starting to think about the future a little bit, what I want to do, don’t want to sit around smoking for the rest of my life or, you know, do some stuff” ..... Tony*

#### **REHAB/MERIT PROGRAMME**

Being part of a ‘Merit Programme’ or in rehabilitation had involuntarily made some respondents stop smoking. However, these quit attempts only lasted as long as the programme. The knowledge they gained by being part of the programme was important, but as soon as they were no longer part of it they relapsed into smoking mull again.

#### **SHORT TERM QUITTING**

Some respondents had intentions of quitting for a short period of time in order to allow themselves to return to smoking less frequently, using a decreased amount. The long term goal was not to quit smoking mull or cigarettes but to reduce the amount of mull and cigarettes smoked.

*“I’ve been saying for a long time now I need to stop again, but you know, not as in quit but as in stop it, nine months or something like that. Then don’t just get back into it as hard, just have the odd one once a month, something like that.”  
..... Jeremy*

#### **QUIT ATTEMPTS**

Most of the respondents did not prepare for quitting. It was a common theme to find people made quit attempts after a drought in supply. It was not a planned quit attempt and consequently respondents could go from smoking large quantities to nothing causing severe withdrawal effects.

For those who sought help from health professionals, a GP was the most commonly visited professional. Help sought from the GP was for withdrawal symptoms but what was offered proved to be very limited. It mostly consisted of advice to quit smoking mull without any additional support. One GP told the respondent to return once they had finally stopped smoking the mull. Two respondents were offered Valium (Diazepam) to help with their quit attempt. No referral to drug and alcohol services was made and there was no mention of local cannabis clinics.

Most respondents had contemplated using nicotine patches. The most favoured method of quitting was by just stopping use completely. Most, considered the idea of nicotine patches and Quitline as something only for cigarette smokers and not particularly relevant to those who smoked mull.

*"I guess I've never really like the thought of ideas of patches and that, but I guess if it was really, someone was really chronic, you know really knew, that that's what they'll, was keeping them on the shit, they were, I guess that's an option too, that could possibly help some people. I probably wouldn't use it myself, 'cause I've never really been a big smoker, a cigarette smoker, just with the tobacco, just mainly with the weed. Umm, but yeah, I don't know, so ... " .... Tony*

#### QUITTING MULL SYMPTOMS

Respondents who experienced most severe withdrawal effects had all been trying to quit smoking hydro cannabis. Withdrawal symptoms could be experienced for as long as 3 months. Some respondents felt that there were little effect of withdrawing from bush but for hydro cannabis the effects most commonly cited were:

- Aggression
- Short-temperedness
- Stomach cramps and chronic constipation
- Hot and cold sweats
- Night terrors
- Pain
- Nicotine cravings
- Loss of appetite
- Sleeplessness
- Tension, uptightness
- Hyperactive brain

Some respondents these experienced withdrawal symptoms that were so severe they were unable to continue their quit attempt.

*"First couple of weeks are pretty aggressive and couldn't sleep, hot and cold sweats. Within four weeks, I had really bad gut cramps like constipation and stuff like that for a good probably three months off and on, before it all stopped. You don't really dream much when you smoke, but when you first quit I was having the worst nightmares. It was pretty full on." ..... Jeremy*

**Interviewer:** “So you went from smoking how many bongs in a day do you reckon?”

*“Maybe 40, yeah that’s average I guess.”*

**Interviewer:** “And stopped?”

*“Yeah, and so shaking, shaking pretty badly. I couldn’t really eat at all, stomach cramps. I had to be having heaps of showers, just anything to survive really, anything to get through the next moment; moment by moment.” ..... Gordon*

Alcohol played an important role in strategies to deal with the withdrawal effects. Most cited increasing alcohol use and an increase in the amount of cigarettes they smoked. Alcohol was seen as dulling some withdrawal symptoms such as tension, uptightness and sleeplessness.

#### **STRATEGIES FOR QUITTING/DECREASING USE OF MULL**

There is a complex relationship between tobacco and cannabis. Often the respondents talk about tobacco and mull interchangeably when discussing quitting. Interviewer questions needed to be very specific when asking how respondents tried to give up or cut back on cannabis or tobacco. The strategy most often cited was to keep yourself busy - the more free time people had the more mull they were likely to smoke - work became one of the key regulators in people's smoking habits. Other ideas included:

- Delay your first smoke of the day
- Plan your day more so you are able to distract yourself - keep busy
- Work
- Exercise
- Plan a programme for quitting
- Move from smoking cones to joints and from mull to straight cannabis
- Cold Turkey
- Throw all paraphernalia away
- Change routine
- Change social scene for a while - avoid situations where people are smoking mull
- Cut back on the times you don't enjoy the smoke
- Don't have a smoke on you when you are doing something active
- Find alternative ways to relax e.g. meditating, reading, swimming, giving yourself space to be by yourself.

## Quantitative data findings

### Sample

The 2007 NDSHS dataset had 23,356 cases. Only 766 respondents (3.3%) reported having used cannabis in the 'last week'. Less than one in five respondents (4144, or 17.7%) were current tobacco smokers.

The NSWHS had data on cannabis from mid 2007, and the data received by NCAHS for this project were collected until the end of 2008. The dataset had 23,474 cases. Only respondents aged 16-34 were asked the cannabis questions (n=3,880, 16.5%). Only 284 and 581 respondents (7.3% of 16-34YO respondents) reported to have daily or occasionally used cannabis. However, 2/3 of respondents to the cannabis-use question ("Which of the following best describes your marijuana, grass or hashish smoking status?") answered with: "Tried a few times in the past", which is vague as it can include people who tried 2-3 times in the previous year as well as people who tried cannabis a few times but not for decades.

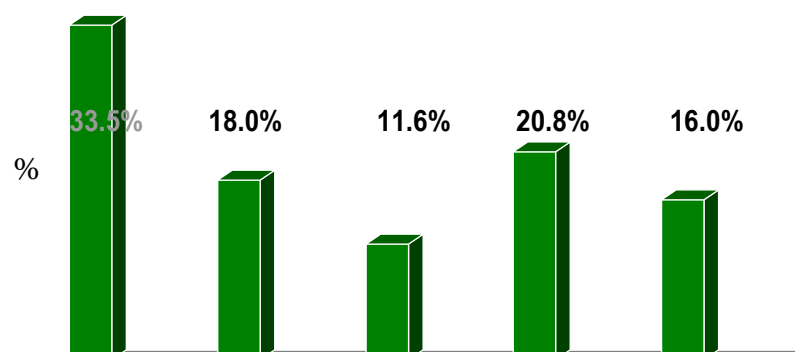
### Tobacco Smoking Prevalence

While smoking prevalence was different between the two surveys, in both surveys the prevalence of tobacco smoking was similar among cannabis users and non-users (17.7%,  $\chi^2=1.86$ ,  $p=0.17$  & 12.2%  $\chi^2=0.006$ ,  $p=0.9$  for NDSHS and NSWHS respectively).

### Cannabis use frequency and status

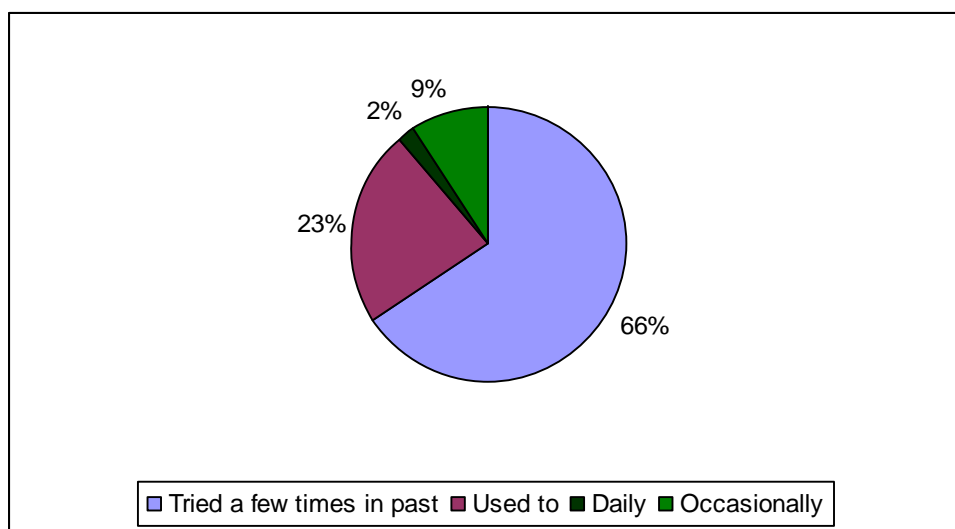
Less than one in ten NDSHS respondents reported to have used cannabis in the 'last 12 months' (n=1864, 8.0%). A third (33.4%) of the 1864 respondents who used cannabis in the year preceding the survey, used it once or twice, 18.0% used it every few months, 11.6% used it monthly, 21.0% used it at least weekly, and 16.0% used it daily. See figure 3.

**Figure 3:** Distribution (%) of cannabis-use frequency in the last 12 months (n=1864): NDSHS 2007



The NSWHS data on cannabis use was less specific with categories on using status rather than frequency or amount. About 2/3 of respondents (64.9%) reported having tried a few times in the past. This category is very uninformative, and since it was not defined in time, it is impossible to know whether respondents were current or past irregular users. Out of all respondents to this question (n=2566, only respondents aged 16-34 (both genders) were asked the cannabis questions in the NSWHS), 9% defined themselves as occasional users, and only 2% as daily users. (See figure 4)

**Figure 4: Cannabis-use status of respondent aged 16 to 34 (n=2566): NSWHS 2007/08**



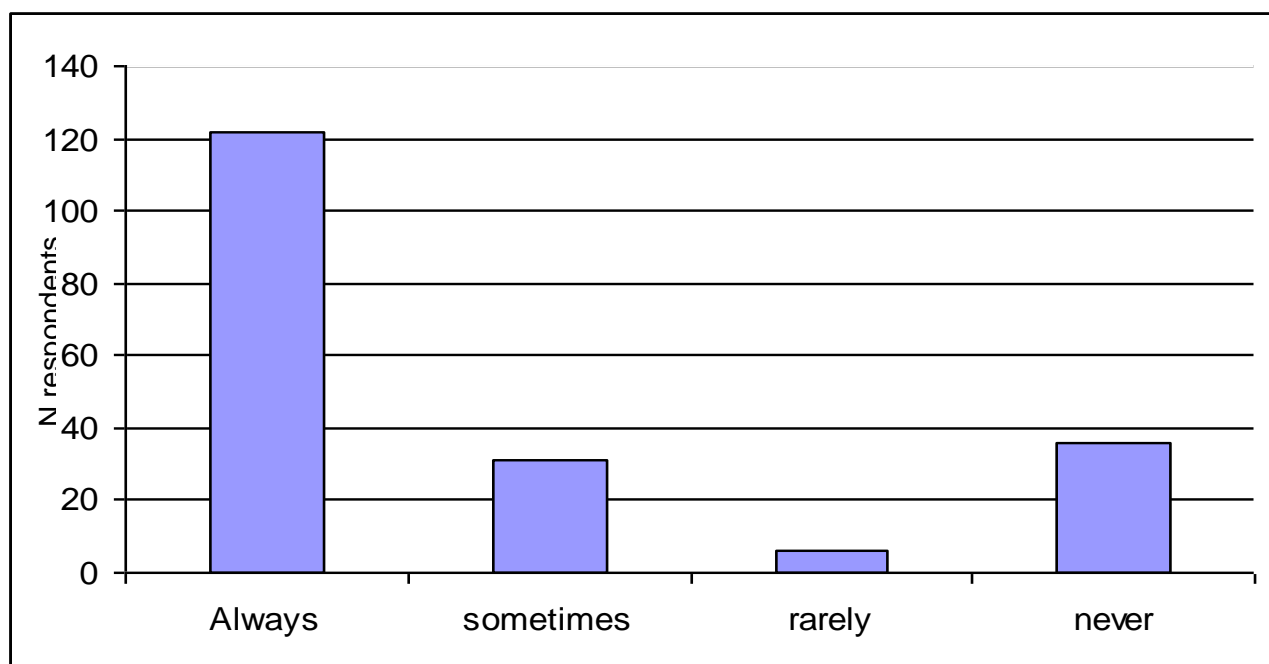
### MULLING PRACTICES

There was no question about current mulling/mixing practices in the NDSHS, but there was a question asking whether respondents who used cannabis, had ever mixed it with tobacco. The NSW Health Survey included a question on mulling cannabis with tobacco.

In the NDSHS about 2/3 of respondents who used cannabis (64.6%) answered 'yes', and 35.4% answered 'no' to 'ever mixed cannabis with tobacco'. In the NSWHS, 62.6% reported they always mull, 15.9% sometimes mull, 3.1% rarely mull, and 18.5% never mull. (See figure 5)



Figure 5: Reported mulling frequency (n=195): NSWHS 2007/08



#### ASSOCIATIONS BETWEEN CANNABIS AND TOBACCO VARIABLES

There was a significant, large and positive correlation between the reported amount of tobacco smoked and the log of the number of reported cannabis units used ( $r=0.77$ ). Log transforming the number of cannabis units was needed as the variable was highly skewed. Note that the graphs of the relationship between cannabis use and failure or success of quitting tobacco, reported later in this report, also resemble a logarithmic function (see Figure 8). Amounts of cannabis smoked were only reported in the NDSHS.

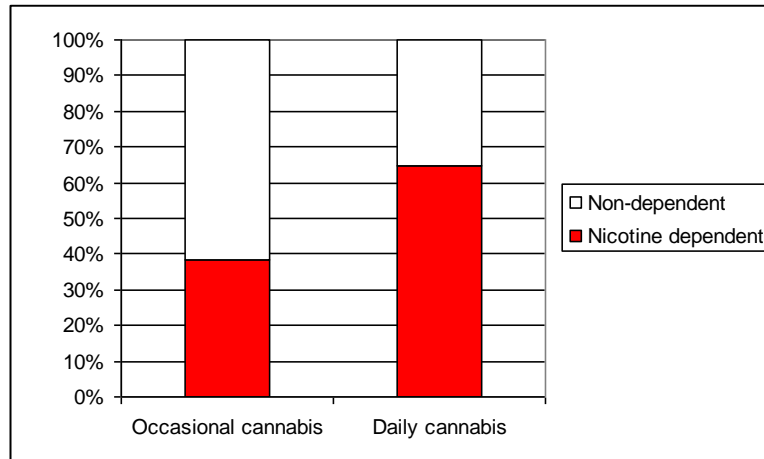
In the NSWHS, where only smoking status variables were available, the non-parametric Spearman correlation was used. A small but significant correlation was found between tobacco smoking status and mulling frequency (spearman  $\rho=0.29$ ,  $p=0.014$ ). A stronger significant correlation was found between tobacco smoking status and cannabis use status ( $\rho=0.538$ ,  $p<0.0001$ ).

In the NDSHS, a logistic regression model was fitted to test for a significant effect of frequency of cannabis use on respondents' likelihood to be daily or occasional tobacco smokers. Respondents, who smoked cannabis daily or between daily and weekly, were significantly more likely to be daily tobacco smokers ( $p<0.0001$ ) when the model was adjusted for age and household income.

A similar analysis was conducted using the NSWHS data. First, a  $\chi^2$  test of independence was used to compare the numbers of daily and occasional cannabis users who are nicotine dependent. The outcome variable was whether the respondent smoked their first cigarette within 30 minutes of waking up<sup>17</sup>. This showed that daily cannabis users are significantly

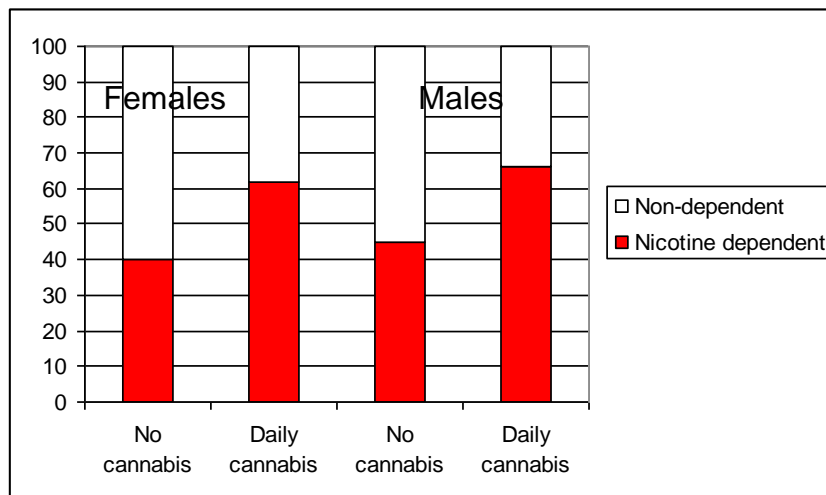
more likely to be nicotine dependent ( $\chi^2=8.3$ ,  $df=1$ ,  $p=0.004$ ) with around 2/3 (64.9%) of daily cannabis users, compared to only 38.5% of occasional cannabis smokers being nicotine dependent. (See figure 6)

**Figure 6: Percentage of cannabis users who were nicotine dependent by reported cannabis use frequency (n=284): NSWHS 2007/08**



Further analysis was done on the set of all respondents to the nicotine dependence question, with adjustment for the effects of gender, age and employment status (the only available proxy for socio economic status (SES)). A logistic regression model was fitted with the outcome variable of whether the respondent smoked their first cigarette within 30 minutes of waking up<sup>17</sup>. Among these tobacco smokers, daily cannabis smokers were significantly more likely to be nicotine dependent ( $p=0.012$ ) in comparison to those who do not smoke cannabis daily. There was no difference between occasional cannabis smokers (who smoked cannabis less than daily) and other tobacco smokers who do not smoke cannabis at all. Male cannabis smokers were more likely to be nicotine dependent, and the dependence rate increased with age. Unemployed people were also more likely to be nicotine dependent. Figure 7 and table 1 present the probability of being nicotine dependent among males and female respondents, when adjusted for employment status.

**Figure 7: Likelihood (%) of tobacco smokers being nicotine dependent predicted from their cannabis use: NSWHS 2007/08**



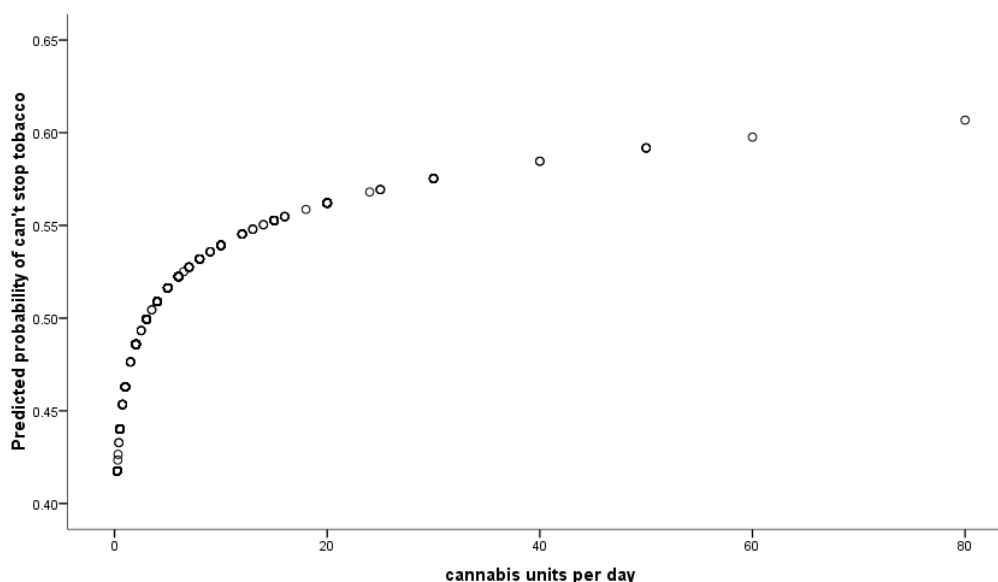
**Table 1: Likelihood (%) of tobacco smokers being nicotine dependent predicted from their cannabis use by gender.**

	Females		Males	
	No cannabis	Daily cannabis	No cannabis	Daily cannabis
% Nicotine dependent	40.2	61.8	45.0	66.3

The NDSHS included questions about respondents' tobacco smoking quit attempts. One question asked whether respondents had tried to quit or reduce their tobacco smoking in the previous 12 months but had been unable to do so. Another asked whether in the previous 12 months, they had a successful quit attempt that lasted a month or more. Logistic regression models were fitted to test whether respondents' cannabis use had an effect on their reported failure and/or success in relation to quitting tobacco.

The number of cannabis units consumed daily was associated with a significantly raised likelihood that a respondent who had tried to quit tobacco smoking had been unable to do so ( $p=0.019$ ). Figure 8 shows the characteristics of this relationship.

**Figure 8: Predicted probability of having had difficulties in quitting or reducing tobacco smoking in previous 12 months on the basis of the number of cannabis units used daily: NDSHS 2007\***

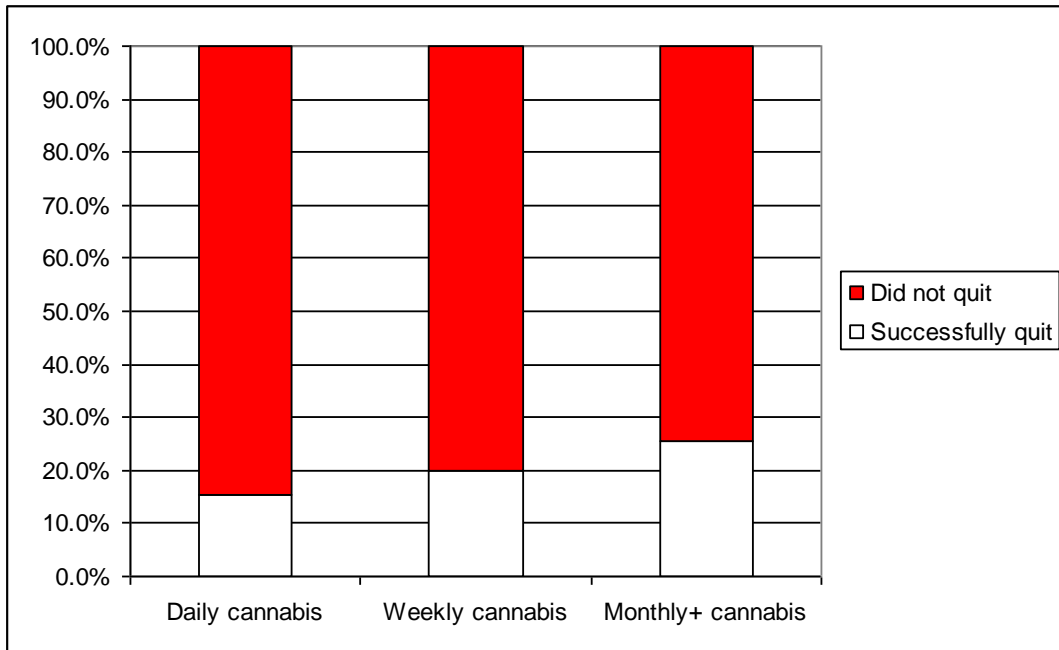


\* Model based on all tobacco smokers who responded to this question ( $n=4,435$ )

Conversely, the proportion of tobacco smokers who had at least one successful quit attempt lasting a month or more, was lower among those who use cannabis daily compared to those who use cannabis weekly or less ( $p=0.002$ ). The model was adjusted for household income.

Gender and age were not significant predictors and were consequently excluded from the model. (Figure 9).

**Figure 9: Predicted probability of tobacco smokers\* reporting a successful quit attempt in previous year, on the basis of their cannabis use frequency: NDSHS 2007**



\*All tobacco users who responded to this question (n=1,864). Those who reported not using cannabis in previous 12 months are included in the Monthly+ Cannabis category as there was no difference between infrequent cannabis users and non-users.

**Other project deliverables**

The NCAHS HPRE designed an online survey for the NCPIC website. This survey will be used to collect data from cannabis users who visit the NCPIC website regarding their use of cannabis and tobacco including quit attempts of either or both substances. Mull Hypothesis advisory committee members contributed to the survey instrument design and the HPRE Officer liaised with NCPIC’s staff regarding its formatting. It is now ready for uploading. See Appendix 2 for a flowchart of the survey questions.

## 5. DISCUSSION

This study has explored many aspects of the cannabis tobacco nexus, some of which have received little attention to date. The findings shed new light on the complexity, variability and contextual dependence of both cannabis and tobacco use. More importantly, they do so for the use of mull, the substance which this study clearly identifies as separate from either cannabis or tobacco in the minds of respondents. The following discussion is a critical reflection of general findings distilled from our research.

The practice of substance substitution occurs frequently during quit attempts and in situations where smoking mull is not acceptable or cannabis is not available<sup>6</sup>. Respondents reported frequent substance substitution when quitting or decreasing use of one substance, causing an increase in the use of the other substance. Higher reported substance substitution when cannabis was not available<sup>7</sup>. This intrinsic practice of substance substitution provides a complex picture when illustrating smoking practices. Amos et al. reported that respondents often found it difficult to separate the smoking of mull and tobacco<sup>4</sup>. In our qualitative study respondents were often asked to clarify which substance they were discussing. Frequently, during recounting quit attempts, they had difficulty recalling which substance they were trying to quit at a particular time.

This interlinking of cannabis and tobacco smoking also relates to a user's perception of smoking. As noted in previous research not all cannabis smokers perceive themselves as a tobacco smoker and in some cases, when asked, they may deny they are a smoker, believing that the question only pertains to cigarette smokers<sup>5,7,19</sup>. This has important implications for the targeting of smoking cessation campaigns. Some respondents cite smoking cessation messages as reasons why they don't smoke cigarettes but they have not interpreted these messages as applying to mull. This issue could be masking higher rates of smoking within the population if mull users deny they are smokers.

The messages may not be generalised to mull because most perceive smoking cannabis more positively than tobacco. Descriptions such as "green" and "natural" are ascribed to cannabis where tobacco is viewed as "addictive" and "full of chemicals". Respondents to the qualitative study attribute the effects sought when smoking mull, primarily to cannabis. On the other hand, their perception of tobacco is far more negative, and there is a much higher awareness of its addictive properties. Therefore, the priority substance that these users want to quit is tobacco. These views are similar to those found in younger smokers by Amos et al<sup>4</sup>.

The interlinking of smoking also means that it is difficult to distinguish which substance is creating which effect. The emotional/behavioural/sensory effects sought by respondents, which they perceive to be supplied by smoking mull, appear to mirror the withdrawal symptoms of nicotine. (Table 2)

**Table 2: How reasons for smoking mull appear to mirror nicotine withdrawal symptoms**

<b>Effects of Mull – Emotional/behavioural/sensory effects</b>	<b>Nicotine Withdrawal Symptoms - (QUIT)<sup>20</sup></b>
To calm busy mind & moderate hyperactivity	Restlessness and/or difficult concentrating
Manage anxiety and self-criticism	Feeling depressed or anxious
Pain relief	Headache, ear ache, disturbed bowel
Aid sleep	Changed sleeping patterns
Reduce irritability	Irritability or frustration

It is important that not only users are aware of the mirroring of nicotine withdrawal symptoms and perceived benefits of smoking mull, but also clinicians such as GPs, drug and alcohol workers and other primary care staff. Both Copeland et al. and Winstock et al.<sup>21, 22</sup> detail the assessment and management of cannabis use disorders in primary care and including the use of nicotine replacement therapy to manage nicotine withdrawal symptoms.

Evidence of the reverse gateway theory was found in the qualitative findings and whilst there were some limitations to the datasets provided for analysis, the quantitative findings are consistent with this theory and present one of the first detailed cases in its support. Data for both males and females and for all age groups available were used in the analyses. In both datasets, more frequent use of cannabis was associated with more frequent use of tobacco. In the NDSHS, where amounts of substances used were available, there was a strong positive correlation between amount of cannabis and tobacco smoked, indicating that heavier cannabis smokers are also heavier tobacco users. Daily cannabis use was found to be a significant predictor of increased likelihood of nicotine dependence in the NSWHS.

The quantitative findings regarding the negative effect of cannabis use on quitting tobacco are consistent with the qualitative findings that respondents were unsure which substance they were attempting to quit. The quantitative findings clearly point to cannabis increasing tobacco smoking and nicotine dependence. It is interesting to see in the qualitative findings, how much of that effect is obscured and confused by respondents' perceptions and narratives about cannabis and tobacco. Respondents do not always recognise their nicotine dependence and related symptoms, which may be the result of their dualistic view of the two substances (bad tobacco, good cannabis). Similarly, when talking about quitting, there was a noticeable confusion about which substance they are quitting and how, and a marked disregard of main-stream tobacco cessation information, services and products.

The findings shed new light on the understanding of the relationship between cannabis and tobacco with providing valuable insights into developing future strategies in tobacco cessation and cannabis treatment. The clear-cut quantitative findings can be used to inform future health promotion campaigns about the links between cannabis use and tobacco dependence aimed at both current users and youth who have not yet commenced using either substance. The qualitative findings are very informative regarding how to address mull users' perceptions and attitudes to tobacco smoking and quitting.

## 6. SUMMARY AND RECOMMENDATIONS

This study examined the nature and the extent of combined use of tobacco and cannabis. It investigated the relationship between tobacco and cannabis use, the users' perception of this relationship and the nature of attempts to quit.

Findings indicate that tobacco and cannabis is a complex issue with users regularly substituting substances for one another depending on circumstances and the effects sought. Quit attempts can be complicated by the interlocking relationship and the fact that mainstream tobacco cessation messages are not always interpreted as applying to use of tobacco when combined with cannabis in mull.

On considering the findings the following recommendations are made:

- In accordance with previous research this study has shown that substance substitution is common place for cannabis and tobacco users. Currently health promotion programmes treat tobacco and other drugs as separate issues. There is a need to address cannabis use, mulling and cessation within tobacco control health promotion programmes and mainstream smoking cessation services.

### **RECOMMENDATION 1**

Develop innovative smoking cessation practice and programmes that address tobacco in the context of other drug use.

### **RECOMMENDATION 2**

Smoking cessation practitioners and services need to be aware of the concomitant use of tobacco and cannabis and provide appropriately designed cessation programmes.

- This study builds on previous research regarding the 'reverse gateway theory', which purports that nicotine dependence can be developed through combined use of cannabis and tobacco. Drug education for young people needs to incorporate and highlight the risk of nicotine dependency through the use of cannabis/tobacco mixes.

### **RECOMMENDATION 3**

Young people's drug education should include information on the risk of becoming nicotine dependent through cannabis use.

- Smoking cessation messages relating to tobacco use were recalled and understood by users. However, these messages were not interpreted as applying to smoking mull. Similar to our findings, other studies have highlighted the denial of tobacco use by some cannabis users<sup>19</sup>. Smoking cessation messages need to target mull smokers within their campaigns, highlighting any tobacco use, even if just with cannabis means one is a smoker.

#### **RECOMMENDATION 4**

Target smoking cessation messages at tobacco users who also use cannabis. This should include information on tobacco's effect when smoked with cannabis e.g. warnings on tobacco packaging that tobacco is as harmful, or more so, if smoked with cannabis.

- The National Drug Strategy Household Survey provided some useful data, but is missing important questions that would provide a better picture of cannabis and tobacco use.

#### **RECOMMENDATION 5**

National Drug Strategy Household Survey to include questions that will provide more comprehensive data regarding the use of tobacco, cannabis and cannabis and tobacco e.g. add questions about current mulling practices and time to first cigarette.

- The motivations for smoking tobacco and cannabis together are varied. Users attribute the positive effects of smoking mull to cannabis and pay little attention to the fact that these effects are counteracting nicotine withdrawal symptoms. Further research is needed within the context of treatment regarding, harm reduction strategies such as using NRT to alleviate nicotine withdrawal symptoms for cannabis users.

#### **RECOMMENDATION 6**

Drug information campaigns highlighting the effects of nicotine withdrawal symptoms should be targeted at cannabis users.

#### **RECOMMENDATION 7**

Further research should be undertaken into the use of mainstream smoking cessation methods to alleviate nicotine withdrawal symptoms in tobacco smokers who use cannabis.



- Our qualitative study participants reported that the effects of smoking mull are different to smoking cannabis and tobacco alone. The properties of this “third” substance need to be fully investigated in order to understand its physiological and psychological impact.

#### **RECOMMENDATION 8**

Further research should be conducted into the chemical properties and physiological and psychological effects of cannabis and tobacco combined.

- Mull users were most likely to seek help for cannabis related issues including cessation from GPs. There was little knowledge of management or best practice in helping to alleviate withdrawal of symptoms. Furthermore, information and referral mechanisms to local cannabis clinics were little known.

#### **RECOMMENDATION 9**

GPs and other primary health care staff need further training and information on cannabis and tobacco issues, specifically regarding the importance of nicotine dependence management for mullers who want to reduce or quit. They also require up-to-date information on local cannabis clinics and referral pathways for heavy cannabis users.

- This study undertook some initial investigation into the nature and context of quitting mull. While it highlighted important aspects of the motivations, methods used and cues for relapse, many further questions remain unanswered

#### **RECOMMENDATION 10**

Conduct further research focusing on the process of quitting tobacco and cannabis with successful quitters. This will inform the development of tobacco and cannabis smoking cessation programmes.

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## 8. APPENDICES

### Appendix 1: Qualitative study respondents' profiles

- Brian, 23, single, unemployed
- Darren, 29, single, writer/student
- Eric, 27, living with partner and children, builder
- Gordon, 33, in relationship, chef
- Jeremy, 32, single, tradesman
- John, 25, living with partner, nurse
- Martin, 22, living with partner and children, chef
- Stan, age unknown, single, labourer
- Shay, 39, living with children, unemployed
- Tony, 26, single, tradesman
- Vince, 32, single, unemployed

**Respondents' names have been changed to ensure confidentiality**

# Appendix 2: Flowchart of the on-line survey instrument questions

