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To Check or Not to Check: Investigating the
Factors Influencing Young People's Use of Drug
Checking Services in Aotearoa New Zealand
Festivals

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Abstract

This study investigated how attitudes and social norms impact young people's use of drug checking services in Aotearoa New Zealand festivals. This study used concepts from the theory of planned behaviour to determine the differences between the people who are likely to use a drug checking service and those who are not. Drug checking is deeply rooted in a harm reduction approach, where the focus of drug safety has changed from a prosecution focus to an approach which focuses on reducing drug related harm. Internationally, drug checking services have reduced drug related harm, yet there is currently very little research in New Zealand which investigates young people's drug use and use of drug checking services in festivals. Whilst the introduction of the Drug and Substance Checking Legislation Act (2021) has enabled drug checking agencies such as Know Your Stuff New Zealand to operate at New Zealand festivals, there are still obstacles which are preventing people from utilising drug checking services. This research used an online, anonymous survey to investigate current drug and festival trends, reasons for using, or not using drugs, reasons for using, or not using drug checking services and how attitudes and social norms impact drug checking behaviour. Chi square analysis and a stepwise logistic regression were used to assess these factors. Results show that those who are more likely to use a drug checking service hold more cautious or conservative attitudes and may do so as they are less experienced with drugs and are concerned to reduce any risk of harm, should they use drugs at festivals. In contrast, those who are unlikely to use a drug checking service, have more liberal attitudes and social norms towards drug checking as they may have greater experience or more confidence in the provenance of their drugs. In order to improve drug checking services and consequently, drug checking behaviours for those who do and do not use drug checking services, there must be an increase in marketing, better accessibility and greater education surrounding drug checking services in festivals in Aotearoa New Zealand.

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Chapter One: Introduction

Drug consumption and experimentation has long been associated with youth culture in Western societies. Through the emergence of young people-oriented cultural activities (e.g., music festivals, dance music culture), there has been a rise in the consumption of drugs such as ecstasy, cocaine, methamphetamines, and other psychoactive substances (Groves, 2018). Consequently, there has been a rise in the psychological, physical, and social harms due to the associated risks of drug use. The issue of how to manage the harms associated with drug use and the context within which drugs are used by youth is therefore an issue that many Western countries are grappling with.

When approaching the issue of recreational drug use in festivals, one of the approaches gaining a lot of traction is a *harm reduction* strategy. Harm reduction refers to ‘policies and programmes that are aimed at reducing the harm from drugs, but not drug use per se’ (Ritter & Cameron 2006, p. 611). Research shows that abstinence messages are often ineffective in stopping people from using illegal drugs or drinking in ways that are deemed hazardous (Hutton, 2021). In this respect, harm reduction approaches are a realistic approach to drug use in that they accept drug use (either legal or illegal drugs) is likely to occur in any population. The target is thus not to promote abstinence but to ensure well-being is prioritised by reducing the potential for harm from any use and offering avenues for further contact and support if required (New Zealand Drug Foundation, 2021). This enables people to use drugs in a safer way by reducing risks associated with drug use (Hutton, 2021). The framework for Aotearoa New Zealand’s national drug policy is centred around minimising alcohol and drug (AOD) related harm and promoting and protecting health and wellbeing. This is broken down into four objectives which are; delaying the uptake of AOD by young people, reducing illness and injury from AOD, reducing hazardous drinking of alcohol and shifting our attitudes towards AOD (Inter-Agency Committee on Drugs, 2016). Harm reduction is a fundamental part of these objectives.

A recent innovation in drug use harm reduction is the introduction of drug checking services. Several European countries provide both on site and fixed sites drug checking services in which an individual submits a small sample of their drug to an onsite provider which will have

the contents of the drugs identified and analysed for content and purity (Butterfield et al., 2016). Countries such as the Netherlands, Switzerland, Austria, Belgium, Germany, Spain and France have implemented drug checking services as a harm reduction intervention which has resulted in beneficial change for drug users. For example, research from Austria shows that 50% of people who had their drugs tested said the results affected their consumption choices by reducing the volume of drugs they used and stopped them from taking dangerous or adulterated drugs. Furthermore, two thirds of people said they would not consume the drug and would warn their friends about the content and associated risk (Brunt et al., 2016). Alongside these drug checking sites there is often a strong partnership with stakeholders such as health promotion organisations, social support services, public health workers and the police who aim to reduce drug related harm at these events (Groves, 2018). Within New Zealand, Know Your Stuff NZ (KYSNZ) is a volunteer organisation which is supported by the New Zealand Drug Foundation which has tested thousands of recreational substances at New Zealand music festivals. In KYSNZ's 2020-2021 survey report, 76% of respondents indicated that they had an experience where a drug they took was not what they thought it was. Further, 95% of survey respondents who had used the KYSNZ service indicated that they would get their drugs tested in future (Know Your Stuff NZ, 2021).

The Problem

The implementation of, and participation in, drug checking services is dependent on the social and legal context of the country (Groves, 2018). In countries where drug taking is illegal, there is often legal ambiguity where drug checking fits in with the law. In Aotearoa New Zealand, due to the Misuse of Drugs Act (MODA), popular young people-oriented music festivals such as *Rhythm and Vines*, *Rhythm and Alps*, *Northern Bass* and *Bay Dreams* were unable to fully implement drug checking services such as KYSNZ. This act limited harm reduction services as event organisers faced risk of prosecution due to the law surrounding providing a venue for drug use to take place. Furthermore, KYSNZ was unable to operate due to laws surrounding the possession and supply of illegal substances (KYSNZ, 2021). This was problematic as it was highly likely that drugs were being used yet the only legal approach to this issue was policing and prosecution of drug use, rather than protecting the safety and wellbeing of the festival goers. A critical issue related to the prosecution-focus (rather than harm-reduction focus)

evident at music festivals was its conflict with 'duty of care' legislation. Specifically, under the Health and Safety at Work Act (2015), event organisers have a duty of care for festival goers and a legal responsibility to take all practicable steps to keep people safe at these events. Thus, festival organisers were unable to integrate drug checking services within a harm reduction approach for festival goers for fear of prosecution.

The lack of recourse to drug checking services for youth-oriented music festivals can result in serious (though clearly avoidable) harm to festival goers who chose to use drugs. Due to the prevalence of drug use within festivals, more people are vulnerable to harm due to the lack of control surrounding the contents and purity of the drugs they are taking. Consequently, there are significant levels of harm which can affect an individual physically, socially and psychologically. In Australia, there were six drug related deaths from music events from 2018 to 2019 (Groves, 2018). These deaths were due to the substances being adulterated and the consumption behaviours that took place. Adulterated substances were responsible for thirteen hospitalisations in 2018 and a further hospitalisation in 2020 in Aotearoa New Zealand. The thirteen people who were hospitalised in 2018 at a festival were due to a mix of adulterated substances and behaviours such as taking too much at once. Furthermore, the hospitalisation in 2020 was due to contaminated MDMA/Ecstasy (henceforth *MDMA*). Within the 2020-2021 festival season, hundreds of New Year's festival-goers in New Zealand reported alarming symptoms such as anxiety, panic attacks, paranoid, hallucinations, seizures, nausea and inability to sleep for days after taking chemicals sold to them as MDMA (Brown, 2021).

One of the critical issues that drug checking services provide is the identification of potentially dangerous adulterants in drugs that make their use either dangerous or deadly. The National Drug Intelligence Bureau (NDIB) confirmed that the 2020-2021 festival season has seen an increase in the detection of Eutylone which is a synthetic cathinone (NDIB, 2021). Eutylone or bath salts pose a higher level of risk in comparison to MDMA, especially in combination with alcohol. The NDIB suggests that this rise is due to Covid-19's effect on the international drug market making MDMA less available in New Zealand. Whilst KYSNZ (2021) raised a warning about the circulation of Eutylone over social media, the organisation was unable to function as a drug checking service due to the legal constraints at the time. Consequently, this resulted

in Eutylone being taken instead of or alongside MDMA which led to dangerous outcomes. Not being able to sleep was the most common side effect but other side effects were anxiety, stomach upsets, convulsions, agitation and paranoia. Two people required medical attention, one of whom was having seizures (NDIB, 2021). This illustrates that harm reduction through education on social media and policing at festivals are not enough to reduce the serious potential for harm from adulterated drugs.

In December 2020, the government of Aotearoa New Zealand introduced the Drug and Substance Checking Legislation Act into New Zealand law (Gregoire, 2021). This legislation allows agencies such as KYSNZ to operate drug testing services at events such as music festivals, advise individuals on the outcome of the test, and provide information and harm reduction advice (2021). Furthermore, agencies must allow the individual who presented the drug autonomy by giving them the option of disposing of the drug, sending it away for further testing or the agency may give the drug back to the individual. This legislation also allows for possession or supply of drugs for the purpose of performing the functions above (2021). The legalisation of drug testing is a great step toward harm reduction in Aotearoa. However, while the KYSNZ's survey highlights that current services users see the service as worthwhile, it is unclear the degree to which the wider population of youth in general are (a) likely to use a service like this, and (b) see this service (which has only just been legalised) as useful for reducing potential harm from their own drug use (KYSNZ, 2021). Further research is also needed to explore what factors might enhance or detract from festival goers' intentions to use drug testing as a form of harm reduction.

The Solution

The legalisation of drug checking services is a critical component of our harm reduction approach to drug use in Aotearoa New Zealand. However, in order for drug checking services to be successful in harm reduction, there also must be active participation by those attending the festivals in which those services are integrated. Within New Zealand, there is a gap in the literature which explores the likelihood of drug service use by the wider young adult population, and how social norms and attitudes may affect both the likelihood of recreational

drug use and the use of drug checking services at such festivals. By researching this topic, it will allow for insight into how social behaviours will impact participation in drug checking services.

Using a quantitative online survey, this research project intends to investigate the factors that influence young people's use of drug checking services in Aotearoa New Zealand. It will expand on international work in this area by integrating a focus on key concepts from the *Theory of Planned Behaviour* in order to highlight the potential influence of drug-use related social norms and attitudes on the likelihood of using drug testing services at youth-oriented music festivals.

Aims:

To investigate how attitudes and social norms influence drug checking in festivals in Aotearoa New Zealand

Objectives:

- Collect data on the trends of drug use and drug checking behaviours in Aotearoa New Zealand
- Investigate the reasons for people using or not using drugs at festivals
- Investigate the reasons for people using or not using drug checking services at festivals
- Explore whether attitudes impact drug use and drug checking behaviours
- Explore whether social norms impact drug use and drug checking behaviours

Chapter Two: Literature Review

While there is a growing body of research focussing on drug use in festivals, much of this focuses on patterns of use and harm, rather than focusing on the use of drug checking services. In this respect, the literature devoted to drug checking and reasons for using, or not using is quite limited. The focus of this literature review will be centred around the international context of drug checking behaviours, the theory of planned behaviour (ToPB) and an exploration into how factors of the theory of planned behaviour such as social norms and attitudes have influenced drug use behaviours and harm reduction initiatives. Furthermore, I will apply these factors into how they affect the utilisation of drug checking services.

What is the Purpose of Drug Checking Services, Who is Utilising Them and Why?

A key factor in harm reduction for drug use is that it often focuses on people who are unable or unwilling to stop (Valente et al., 2019). When targeting this group, the purpose of drug checking is not to eliminate harm; it is known that drug use occurs and consequently, so does drug related harm. Instead, the purpose of drug checking is to identify substances in circulation and to educate drug users of the potential harms of their drug use. By doing so there is an increase in proactive strategies to alter drug use behaviours (Measham & Turnbull, 2021). At a population-level, harm reduction can be implemented by governments through policies, programs and practices that seek to reduce health, social and economic harms to individuals, communities and societies (Rhodes & Hedrich, 2010). Drug checking services can be onsite or fixed site facilities which test small amounts of substances to determine the content and purity of the drugs tested. These services can operate at festivals, night clubs or within the community and the people who are most likely to use drug checking services are young adults who use drugs. The common demographic of people who attend festivals are between 18 to 30 years of age, middle to upper class and are more likely to be male (Bartle & Lee, 2019). The ideal outcomes of utilising drug checking services are less adulterated substances being consumed, behavioural change in drug use and overall harm reduction.

International Approaches to Drug Checking Services

Internationally, European countries are key users of drug checking implementation. Within these countries, the testing is well supported at both a local and governmental level which enables key stakeholders such as the police or health promotion services to be actively involved in the harm reduction strategy (Groves, 2018). Countries such as France, Austria and the Netherlands offer on-site or mobile services at venues where illicit drugs are sourced and consumed (e.g., music festivals) and at fixed-site services which operate from offices, outreach centres and community services (Bartle & Lee, 2019). Dutch citizens have been able to test their drugs at government funded 'Drug Information and Monitoring Systems facilities' since the 1990's (Brunt et al., 2017). Furthermore, Austria implemented a mobile drug checking service in 1997 which was supported by the Vienna and Austrian governments. Similarly, in 2001, Switzerland introduced mobile drug checking which was funded by the municipality of Zurich (Brunt, 2017). Despite this international implementation being successful in reducing drug related harm, Australian and New Zealand governments have been hesitant to implement drug checking services due to the theory that drug checking would encourage and give a 'green light' towards drug use (Rhodes & Hedrich, 2010, Murphy et al., 2011). Similarly, Brunt's (2017) findings suggest that there has been resistance from the Australian governments due to this concern but also because it may give drug users an unjustified feeling of safety about the drugs they are taking and may give drug dealers a quality control measure to promote their product. International research suggests that this is not grounds for not implementing drug checking services. Within a study in Slovenia, 85.9% of participants believe that a drug checking service does not encourage the use of drugs (Sande & Šabić, 2018). Furthermore, Benschop, Rabes and Korf's (2002) research into the difference between fixed and onsite drug checking services revealed that neither onsite or fixed site services led to the initiation of MDMA use or increased MDMA use. This aligns with Murphy et al.'s (2021) research where neither MDMA users nor participants who had ever used ecstasy reported increased intention to use MDMA when drug checking services were provided. Additionally, Day et al's (2018) research which is based in Australia suggests that 84.9% of participants were in support of onsite drug checking and that it would help users to seek help to reduce harm.

The results across the literature suggest that drug checking is a beneficial step in reducing potential drug harm. Day et al.'s (2018) research concluded that 86.5% of study participants were in support of an onsite drug checking service being available. Additionally, Murphey et al. (2021) proved that 95% of participants considered drug checking to be useful in relation to harm reduction. Similarly, Guirguis et al.'s (2020) research revealed that 95% of tweets were in favour of drug checking services with only 5% being opposed to it. Furthermore, most participants within Southey et al.'s (2020) research agreed 'a lot' (79.2%) or 'somewhat' (15.5%) that pill testing services should be provided at live music events. They also reported that most agreed 'a lot' (75.2%) and 'somewhat' (19.1%) that pill testing services could reduce drug related harm and encourage people to seek help. These statistics show that most participants across the literature consider drug checking to be a useful tool in reducing drug related harms. Although most people are in support of a drug checking service, there must be further investigation into the relationship between intention and behavioural outcomes to drug checking services. Across the literature, intention of using the service is researched at events, yet there is a gap in the research to address the behaviours that happened after the testing and the event occurred. Approximately half (54.4%) indicated that they would be highly likely and a third (32.7%) indicated that they would be somewhat likely to use a drug checking service (Day et al., 2018). Furthermore, Murphy et al. (2021) reported that MDMA users whose drug test came back negative for MDMA were significantly less likely to express intent to consume the substance. Whilst this is beneficial information, it proves intention, not behaviour; behaviour can change based on several factors such as social norms, identity, and the environment. Across the literature there were some behavioural changes reported. For example, Measham & Turnbull's (2021) study revealed that two thirds (63.8%) reported ongoing changes to their drug related behaviours after an English music festival which provided drug checking. This is positive as drug related harms decreased following the implementation of drug checking. However, there needs to be further research in this area to determine the long-term effects of drug checking and how intention and behaviour coincide.

Who is More or Less Likely to Use Drug Checking Services and Why?

When drug checking services are available, the demographic of users are predominantly, male, white and early twenties (Measham, 2019). Measham & Turnbull's (2021) participant pool was 64% male, with 86.4% identifying as white and had a mean age of 23.5 years old. Similarly, Measham's (2019) participants were 66% male with 87% self-identified as 'white' as their ethnic identity with an average age of 27.6 years old. The Welsh Emerging Drugs & Identification of Novel Substances (WEDINOS) survey had a similar statistic of gender (87% male), yet had an average age of 32 (Wedinos, 2013). This could be due to cultural differences as both the Measham & Turnbull (2021) and Measham (2019) survey were based in England, whereas the WEDINOS survey was based in Wales. This could be due to a different drug market, social norms, and cultural identities. In comparison to this, Sande & Sabic (2018) sampled 554 drug users in Slovenia and only 56.2% were men, with 48.8% being women. Similarly, Day et al. 's (2018) research in Australia had differing participant statistics with 60.5% of survey respondents were female and with 62.2% being aged 18-21 years old. This difference could also be explained by cultural differences in the drug market but also due to the governmental policies around drug use, social acceptance, and group norms.

Due to drug checking implementation being successful internationally, there are many factors which attract people to using a drug checking service. The main trend across the literature is that people are attracted to utilising a drug checking service because of safety; people have purchased substances with the intention of having fun and when their drugs are checked there is more assurance that they will be safe (Measham, 2019). This raises awareness around identifying dangerous contaminants and raises alert amongst social groups (Southey et al., 2020). Consequently, there is less risk of unexpected symptoms, overdose, or death (Groves, 2018). Secondly, drug checking services enable facilitation and interaction with stakeholders such as health and social support services, the police and education providers (Guirguis at al., 2020). Furthermore, this enables access to these services from vulnerable, hard to reach and hidden populations and connect them to support services (Morgan & Jones, 2019). Lastly, people are attracted towards drug checking to have a better understanding of the drug market and retail practices and therefore gain education around the drugs that they are consuming (Groves, 2018)

Whilst drug checking has proven to be beneficial, there are still factors which detract people from utilising a drug checking service such as police involvement, wait times, reliability/accuracy, experience, and unavailability in the field. Firstly, due to the illegal nature of drug use, participants reported not wanting a drug checking service because of fear of police accessing their data and therefore losing their anonymity (Southey et al., 2020). This was a common theme, especially in countries such as Australia where there are strict laws surrounding the possession of illicit drugs (Day et al., 2018). Secondly, wait times detract people from utilising drug checking services because they may have to wait in long lines to get their drugs tested and the waiting period for the results is too long (Sande & Šabić, 2018). Thirdly, Morgan and Jones (2019) and (Sande & Šabić, 2018) both report data that suggests concerns that drug checking technology or methods are not accurate enough to identify all components and that they may reveal false positive results which may lead to punitive outcomes, discrimination and prejudice (Guirguis et al., 2020). Fourthly, people may not utilise a drug checking service because they have used the drug before from the same dealer or have seen other friends using the drug from the same batch (Measham, 2019). Lastly, unavailability in the field prevents people from drug checking. If onsite drug checking is not available, then people would have to rely on fixed site drug checking services which may be inconvenient (Brunt, 2017). Additionally, if the drugs are purchased at the site then there is no way for the drug user to test their drugs. Therefore, when implementing drug checking in New Zealand all of these factors must be considered to ensure optimal use of the drug checking services so the harm is kept to a minimum.

In summary, drug checking seems to work in reducing harm but not everybody is utilising it as a harm reduction service. This is problematic, as harm will continue to occur due to the circulation of adulterated substances within dance scenes, festivals, and party settings. Therefore, there needs to be further research into the drivers of drug checking and how theory can be applied to explain the utilisation of harm reduction strategies.

The Theory of Planned Behaviour

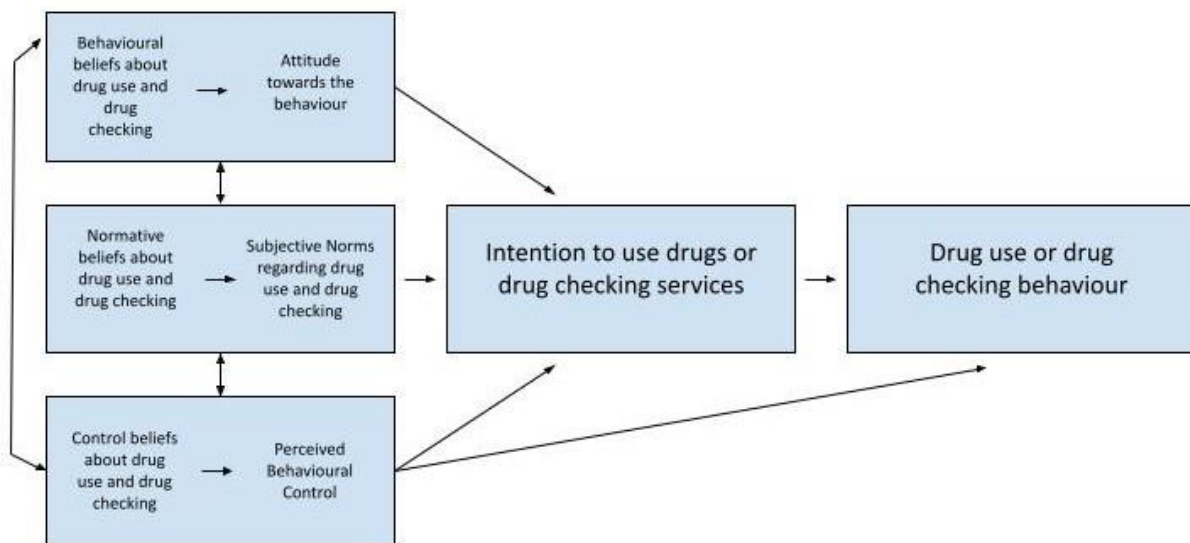
The theory of planned behaviour has been used to explain why some people might adopt health related behaviours and support harm reduction initiatives (McMillan & Conner, 2003).

Concepts within this theory such as subjective norms and attitudes have been used to explain drug use behaviours and consequently, these concepts should help to understand why people will or will not use drug checking services. Specifically, the ToPB has been used to explore drug use behaviour within music culture and festivals, yet it has not been applied to drug checking behaviour specifically.

The ToPB is a social-cognitive model which is used to better understand the psychological determinants that predict intention and behaviour (Ajzen, 1991). This theory is an expansion of the theory of reasoned action which aims to explain the relationship between attitudes and behaviours within human action (Godin & Kok, 1996). According to the ToPB, the strongest predictor of behaviour is one's intention to engage in a behaviour at a single point in time. This theory suggests that intention and subsequent behaviour is broken down into three motivational components: attitudes, subjective norms, and perceived behavioural control (PBC). Firstly, attitudes are defined as beliefs surrounding the positive or negative outcomes of engaging in a behaviour. This is the function of a person's salient belief about the likely outcome of the behaviour and a personal evaluation of the act (Conner & McMillan, 2006). Secondly, subjective norms are the beliefs about whether one's social groups accepts or condones the behaviour. Furthermore, this is weighed by the motivation to comply with each of the groups in accordance with the social pressure affiliated with the behaviour (Terry, Hogg, & White, 1999). Lastly, PCB is the belief in one's ability to engage successfully in the behaviour (Ajzen, 1991).

Figure 1

Theory of Planned Behaviour Model



Note: This model was adapted from Ajzen’s (1991) model on the theory of planned behaviour to fit the topic of this research.

Theory of Planned Behaviour, Harm Reduction Approaches, and Drug Use

Throughout literature, the ToPB has been used to predict and explain behavioural change in harm reduction strategies. Harm reduction lies at the centre of drug checking policy and implementation so concepts from the ToPB such as social norms and attitudes should be able to predict change within drug checking behaviours. Harm reduction strategies surrounding gambling, self-harm, injury prevention, diets, physical activity, and safe sex have been studied in relation to the ToPB. For example, O’Connor and Armitage (2003) revealed that attitudes, subjective norms, self-efficacy, moral norms, and anticipated affect were significantly different between people with and without history of self-harm behaviours. This shows that the application of the ToPB can be used to predict behaviours from those who fit in the two groups (O’Connor & Armitage, 2003). Similarly, Bagot et al.’s (2020) research showed that attitudes were a significant factor in harm reduction in relation to problem gambling. It revealed that gamblers who have positive attitudes to strategy engagement and had perceived behavioural control were more likely to take part in the harm reduction initiatives

(Bagot et al., 2020). In addition to this, Buckey et al.'s (2013) research on school-based injury prevention showed that there is benefit in the application of the TPB as it can aid in predicting risk-taking behaviours in relation to social norms and attitudes. Specifically, this study revealed the relevance of these factors in a school environment as social norms and attitudes are strong predictors in large cohorts of students (Buckley et al., 2013). Moreover, Zhu et al.'s (2020) research revealed that perceived behavioural control was a prominent factor in determining behavioural intention to undertake physical activity during pregnancy. This idea promotes self-autonomy and therefore creates a strengths-based approach to wellbeing (Zhu et al., 2020). By understanding the factors of the ToPB in relation to harm reduction approaches, there can be a better understanding of the way social norms and attitudes shape other health behaviours such as drug use or drug checking.

Throughout the literature, the ToPB is a recurring method of explaining drug use. Specifically, there is extensive research surrounding binge drinking and how it is influenced by attitudes, social norms, self and social identity, subjective norms, and perceived behavioural control (Basharan & Akici, 2012). However, there is less research surrounding illicit drug behaviours and furthermore, drug-related harm reduction behaviours such as drug checking.

By exploring attitudes in relation to drug use and the ToPB, there are mixed results in occurrence with the type of drug that is consumed. Attitudes and PBC were significant predictors of alcohol intentions whereas only PBC was a significant predictor to use tobacco (McMillan & Conner, 2003). Attitudes are also dependent on the situation and consequences of the drug use. For example, attitudes were more positive when cannabis use was rated as unlikely to result in dependency and more likely to make you feel good (Armitage et al., 1999). Moreover, the PCB and attitude interaction showed that controllability of MDMA use predicted stronger intentions. The attitudes that an individual has on MDMA use such as confidence in purity affects their intention (Umeh & Patel, 2004). Furthermore, they argue that those who felt confident in the procurement and use of the drug may have failed to do so if they disapproved of such behaviour. This is concurrent with the concept that people are less likely to engage in drug use behaviours when they are aware of negative side effects or impacts of the drug (Bashiran et al., 2012). Furthermore, research revealed that if a group has positive attitudes towards drinking, it is likely that more members of that group will engage

in drinking behaviours (Hogg & Smith, 2007). This shows that group attitudes and social norms have a stronger influence on drug use behaviours in comparison to individual attitudes.

Social norms have a significant role to play in relation to drug use., Terry and Hogg (1999) discovered that individuals who identified with the ingroup are more likely to engage in health behaviours in comparison to people who identified with the outgroup. Additionally, Johnston and White (2003) found that group norms in relation to social identification were the strongest predictor of binge drinking intentions in comparison to attitudes and subjective norms. Similarly, according to Bashirian et al. (2012) there is a significantly stronger relationship between adolescent drug use and having family and friends who use drugs in comparison to adolescents who do not have family or friends who use drugs. MDMA use is an established element of dance or youth culture, so there is a large social component as it is considered socially acceptable (Umeh & Patel, 2004). Both Terry and Hogg (1999) and McMillan & Conner (2006) agreed that group identity and social identification plays a significant role on the intention and behaviour of drug use in young people. Specifically, McMillan & Conner (2006) catered their research to alcohol and tobacco use in students. Hagger and Chatzisarantis (2007) indicated that social identity positively influenced attitudes, subjective norms and PBC for binge drinking. Furthermore, those who held more hedonistic and social drinker identities both intended to drink more and were more willing to binge drink (Zimmermann & Sieverding, 2011). Due to the social nature of drinking, individual personal attributes may play a less important role in binge drinking intentions in comparison to social influence (Quine et al.,1998).

Subjective norms are a strong predictor of intention and consequently behaviour. The strongest independent predictor of intentions was subjective norms when researching binge drinking culture (Todd & Mullan, 2011). Furthermore, Quine et al. (1998) noted that subjective norms tend to predict intentions for behaviours that occur in public, rather than attitudes. In relation to alcohol and cannabis use, health experts and family were shown to exert the strongest influence on alcohol subjective norms. Health experts were negatively associated with alcohol subjective norms whereas family were positively associated. People therefore felt more social pressure to not drink from health experts in comparison to pressure from family (Armitage et al., 1999). Furthermore, the impact of salient others was a significant

factor in both the intention and behaviour of drug use and out of parental, religious and educational attachment, having drug using friends was the best predictor of drug use (McMillan & Conner, 2006). Similarly, intentions to drink alcohol were predicted by their past behaviour as well as their perception of what important others think they should do (O'Callaghan et al., 1997). However, in comparison to this, Armitage et al. (1999) revealed that subjective norms were not significantly associated with intention to use cannabis, but attitudes, self-efficacy and PCB were.

Similarly, to attitudes, PBC also has differing results depending on the situation or the drug consumed. Todd and Mullan's (2011) research on binge drinking revealed that those with more positive subjective norms and attitudes and stronger PBC tended to have stronger intentions to binge drink. Similarly, studies show that there is significant interaction between attitudes and PCB. Within Umeh and Patel's (2004) research, PCB better predicted intention given more positive attitudes towards MDMA use. Also, Armitage et al. (1999) revealed that cannabis use was predicted by intention and self-efficacy and cannabis use intentions were determined by attitudes, self-efficacy, and PCB. Furthermore, McMillan and Conner (2006) revealed that the failure of PBC to predict intentions in persons who endorse cannabis use is attributable to studying a non-socially desirable behaviour. However, Todd & Mullan (2011) argued that PBC did not predict binge drinking behaviour as the behaviour can be under volitional control. This shows that whilst one can perceive or predict their behaviour, there is not a direct correlation to one's actual behaviour due to outside variables such as one's environment and social norms. Due to these mixed results, this study will not use PCB as a measure as social norms better understand drug use behaviours.

Applying Theory of Planned Behaviour to Drug Checking Behaviour

The concepts of the ToPB appear to be useful for explaining drug use behaviours, particularly in young adult populations. Therefore, this suggests that these concepts should be useful for explaining drug related behaviours such as drug checking service use. However, a brief review of the literature revealed that the ToPB and its concepts have rarely been used to explain the relationship with the utilisation for drug checking services. Two articles briefly explained the relationship and revealed all variables were associated with utilising the service at a fixed site.

For example, Davis and Rosenberg (2016) revealed that attitudes, subjective norms and PBC were significantly associated with baseline intention to pill checking. Intention to pill check at baseline significantly predicted how often participants used the strategy during the follow up. This suggests partial support for the ToPB in the implementation of harm reduction strategies among MDMA users. In addition to this, Murphy et al. (2021) proved that all three ToPB were significant predictors of intention when utilising a fixed site drug checking service. This shows that personal attitudes are more influential away from a social setting where group identity is more important. However, subjective norms were the only ToPB variable associated with intention to use an onsite drug checking service. This shows that when a person decides to use MDMA at a festival that provides onsite drug checking, their decision is significantly influenced by their social networks decision to use the service. By doing so, social norms have a strong association with intention to utilise an onsite drug checking service. Studies on other harm reduction strategies and the ToPB suggest that social norms have a strong influence on behaviours. It is likely that within social networks, behaviours and norms are mutually reinforcing (Latkin et al., 2013).

In summary, drug checking services are beneficial, but it is unclear as to why some people use or do not use them. Furthermore, there is little research surrounding the factors which impact the utilisation of drug checking services such as attitudes or social norms. Throughout the literature, the ToPB has utility in explaining why some people do and do not use harm reduction health initiatives, yet it has not been applied to drug checking behaviours specifically. Therefore, this project will apply the ToPB in exploring the key reasons for drug checking behaviour.

Chapter Three: Methodology

Rapid Review of Prior Research Methods

The research literature assessing attitudes towards drug use and drug checking indicates various methods of data collection have been used. A common method was attending festivals in person and administering anonymous questionnaires and surveys. For example, Day et al. (2018) conducted surveys at the festivals with a quantitative focus with some open-ended questions asking drug users why they had not tried to find out the purity/content of drugs previously. Similarly, Sande & Sabic (2018) provided a short two-page questionnaire which explored the participants drug use, but also the obstacles and advantages of drug checking which was provided at the festival. In addition to this, Murphy et al. (2021) orchestrated their research at festivals by providing case vignettes which discuss drug checking conditions (not provided, onsite and fixed site). After each vignette participants were asked to rate their intentions, attitudes, subjective norms and predicted behaviour change on a scale ranging from strongly disagree to strongly agree. Another method was a pre-test post-test design. A short survey was provided prior to the participant getting their drugs tested and then another survey was provided afterwards. This survey explored the users' expectations of the chemical content of the sample, their drug use patterns, motivations for drug use, the degree of usefulness of a drug checking service and their behavioural intention following the test result (Valente et al., 2019). Measham & Turnbull (2021) utilised a three electronic data collection method where they tested participants twice onsite and one online three to four months after the festival finished. This was an interesting approach as it allowed for insight into the participants intentions versus their actual behaviours.

However, there are limitations associated with these methods due to the issues with participation, generalizability, and future proofing research. Firstly, people may be reluctant to participate in the surveys due to fears of prosecution from police or festival security. Due to the nature of the surveys being based around illegal activities, there may be less participation due to fear around divulging the information (Southey et al, 2020). Secondly, the data collected in previous research is based on convenience samples and is not

representative of ethnic or gender diverse populations, such as those in Aotearoa New Zealand (Groves, 2018). As seen in the literature, the data collected is from predominantly male, middle to upper class and Anglo-American population which is not representative of the typical Aotearoa New Zealand population. A lack of generalizability is problematic as it does not offer insight into the drug use and use of drug checking services of minority groups such as the LGBTQI+ community or indigenous cultures. Therefore, by offering an online survey which is advertised on Facebook, a diverse range of people can access and participate in the research. The survey was open to all people above the age of eighteen and asks about ethnic and gender identity to gauge the demographic information of the participants. Lastly, future proofing research is of paramount importance with the rise and continuation of Covid-19 lockdowns and restrictions in Aotearoa New Zealand. By providing an online survey, there is reduced potential contact and Covid-19 spread that may be encountered with face-to-face circumstances.

To reduce limitations and to build on prior research, this project integrated ToPB concepts such as social norms and attitudes to drug checking behaviours to determine what factors impact the utilisation of the drug checking services. This project utilised an online, anonymous survey which was advertised on Facebook. Participation in the survey was 100% voluntary and was open to all populations. The survey content and structure were guided by previous research in the area. The survey will replicate Aotearoa New Zealand's Health Promotion Agency's (HPA) 'Attitudes and Behaviours towards Alcohol Survey' (Aron & Allen, 2021) in relation to drug use and incorporate information from Hutton's (2020) survey on drug checking at New Zealand festivals. Firstly, the survey asked participants about their demographic information to determine that they live in Aotearoa New Zealand. Secondly, this survey measured participants' drug use behaviours such as what drugs they use, where they have used them and why they use them. Lastly, it measured participants' attitudes towards drug use and drug checking and how social norms affect their utilisation of drug checking services. This research was based on a broad population and was unrestricted to those on festival sites due to it being hosted online. Also, it is independent of whether the festival has occurred or not, so it measured both predicted intentions and actual behaviour which enabled a wider scope of research.

Data Collection and Sampling

The data collection approach in this study consisted of an open-access, online Qualtrics survey advertised to target New Zealanders who self-identified as aged 18 and over festival attendees who are likely to use drugs of some kind (whether licit or illicit). The data was collected through advertising on Facebook (see Appendix 1 for the advert). Specifically, the survey was shared on Know Your Stuff New Zealand Facebook page and Twitter, it was also published on the personal Facebook page of the researcher. Due to the nature of the survey being online, the survey was open to anybody, but it was specifically catered towards participants from Aotearoa New Zealand. The online survey also contained a study information sheet outlining the nature of the survey, and participants rights, protections and avenues for further information and contact of researchers (see Appendix 2).

In order to ensure that the sample reflected the intended audience, the first question of the survey asked if they live in New Zealand. If the answer was no, they were directed to the end of the survey. Furthermore, if a participant answered that they were under 18 or did not attend festivals then they were also directed to the end of the survey. This ensured that the sample was (a) aged 18 and older, (b) resident in New Zealand, and (c) festival goers who were likely to encounter both drugs and drug checking services. A total of 393 individuals started the online survey. However, 3 individuals did not complete the survey and their data was removed from the study dataset. The sample therefore consisted of 390 participants who met the inclusion criteria and completed all relevant questions.

Measures

Appendix 3 contains a copy of the survey used in this study. Following is an overview of the provenance of each item used in this survey.

Demographic Information

The demographic information collected in this research was kept minimal to ensure anonymity. The information collected was a. whether the participant lives in New Zealand, their age, gender, and ethnicity. These questions were replicated from the Statistics New Zealand Census (2018) and Hutton's (2020) research to determine appropriate age brackets and ethnicity and gender identity groups. These variables were measured through a tick box selection where the participant was asked to select the box which applied to them. They were also given the option to select the option, 'Other' where they would specify their own demographic information. Further, they were able to not answer the question if desired.

The demographic information collected was only collected and analysed at the group level to protect anonymity. For example, in the attached survey, age data is collected only in aggregate group form (e.g., 18-24; 25-30; 30+). This ensures that individuals cannot be disaggregated based on their age. Further, although ethnicity data was collected, this is solely for the purposes of initial description of the survey sample (e.g., X% are NZ European) and ethnic data will not be utilised in any further analyses. This ensures that the participants in the study are not able to be identified. Further, this lack of identifiability means that there is no clear risk of criminal or civil liability or damage to their financial standing, employability, professional or personal relationships.

Festivals

To measure participants' festival attendance, three questions were asked which determined participant's previous festival attendance, the likelihood of attending a festival in the next 12 months and the festivals that were previously attended. The first question of this section asked the participants if they had attended a festival in Aotearoa New Zealand. This question was answered using a two-point response set (1) Yes and (2) No. If the participants answered (2) no, they were directed to the end of the survey. This ensured that the data was representative of the inclusion criteria.

Next, the participants were asked the likelihood of attending a festival in the next 12 months. The responses were measured on a 5-point Likert scale ranging from (1) Highly likely, (2) Likely, (3) Somewhat likely, (4) Unlikely, and (5) Highly unlikely. Responses to this item were

dichotomized in order to identify two groups. Those who selected 1 or 2, were categorised into a new variable as 'Likely to attend a festival in the next 12 months'. Those who selected 3-5 were categorised into a new variable as 'Not likely to attend a festival in the next 12 months'.

The next question was based on what festivals people had previously attended. A list was formulated from Hutton's (2020) survey with an option to specify other festivals. The participants were able to select multiple answers from a list of 9 and included answers such as 'Rhythm and Vines' and 'Bay Dreams'.

Drug use

The following questions asked about participants' drug use. The first question of this section asked participants how likely they are to use drugs when they attend festivals. The responses were measured on a 5-point Likert scale ranging from (1) Highly likely, (2) Likely, (3) Somewhat likely, (4) Unlikely, and (5) Highly unlikely. Responses to this item were dichotomized in order to identify two groups. Those who answered 1 and 2, were categorised into a new variable labelled 'Likely to use drugs at festivals' and those who answered 3-5, were categorised into a new variable labelled 'Not likely to use drugs at festivals'. There was also an answer of 'Prefer not to say.' If this answer was selected, the participant was directed to the end of the survey.

The next question asked participants about the drugs that they are likely to use at festivals. This question was replicated from Hutton's (2020) survey. The participants were asked to select which drugs they use from a list of 15 drugs, with an option to specify any drugs which were not included in the list. The participant could select multiple answers from this list and included answers such 'Alcohol' or 'LSD/Acid'.

The following two questions asked why people use drugs and festivals and what deters them from using drugs at festivals. Specifically, people were asked why people use drugs at festivals and were instructed to select as many of the 13 reasons as they felt appropriate. Three of the

answer options were derived from the New Zealand Health Promotion Agency (2016) survey on attitudes on alcohol but were adjusted to fit a drug framework. These were (1) to have fun, (3) to relax and (4) everybody else is doing it. The remaining answers (To keep me awake, rule breaking, testing limits, saves money spent on alcohol, my friends are doing it, to experiment, music enjoyment, I don't use illicit drugs as I only use legal drugs, I don't use drugs at festivals and other) were developed for the purpose of this survey.

Following this, participants were asked what deters them from using drugs at festivals and were instructed to select as many of the 11 reasons as they felt appropriate. Two of the answer options were also derived from the New Zealand Health Promotion Agency (2016) survey. These were (6) negative past experiences and (8) It may interfere with health conditions I have. The remaining answers (Illicit drug use is illegal, it might be dangerous, other might judge me poorly, it is expensive, takes a long time to recover, fear of it not being the substance you thought it was, I have responsibilities that drug use would interfere with, I only use legal drugs, nothing will deter me and other) were developed for the purpose of this survey.

Drug Checking

The next questions were centred around people's awareness and use of drug checking services in Aotearoa New Zealand. The first two questions concerned people's awareness of KYSNZ and if they had used their services before. These questions were answered using a three-point response set (1) Yes, (2) Not sure and (3) No. For the purposes of data analysis these responses were dichotomized as follows (1) 'Yes' and (2) 'Not Sure' and 'No'.

The next question assessed participants' likelihood of using a drug checking service at a festival in New Zealand. The responses were measured on a 5-point Likert scale ranging from (1) Highly likely, (2) Likely, (3) Somewhat likely, (4) Unlikely, and (5) Highly unlikely. Responses to this item were dichotomized in order to identify two main groups of analysis in this study. Specifically, those responding from 1-2 on the above scale were categorised on a new variable as *Group 1*: Those likely to use drug checking services. Those responding 3-5 on the above

scale were categorised on the new variable as *Group 2*: Those not likely to use drug checking services.

The next two questions assessed participants' reasons for using drug checking services and their reasons for not using such services. Specifically, participants were asked why they would utilise a drug checking service and instructed to select as many of the 9 reasons provided as they felt was appropriate. The responses were developed specifically for this study and included reasons such as 'It can keep me safe from potential harm' and 'Everybody is doing it'. Participants were also asked what factors deter them from using a drug checking service. Participants were asked to select as many reasons as possible which they felt appropriate, from a list of 11. Some reasons were 'Fear of being reprimanded' and 'The line was too long'. All of these reasons were developed specifically for this survey.

Attitudes

A total of 6 items assessed participants' attitudes to drug use and to drug checking services. These items were displayed as a battery and used were measured using a 5-point Likert scale ranging from (1) Strongly disagree, (2) Somewhat disagree, (3) Neither agree nor disagree, (4) Somewhat agree and (5) Strongly agree.

Statements 19a (Drug use is acceptable in festivals), 19b (Drug use at festivals is a problem) and 19c (It is okay to use drugs as long as it is not every day) were replicated from the New Zealand Health Promotion Agency survey on attitudes to alcohol (2016) but were modified to fit attitudes to drug use and drug checking in festivals. Statement 19d (My use of drugs is not affected by whether something is legal or illegal) was developed for the purpose of this research. Further, 19e (Drug checking services are a good idea) and 19f (Drug checking services reduce drug related harm) were replicated from Hutton's (2020) survey on drug checking in Aotearoa New Zealand.

Responses to each item were dichotomized in order to identify two groups of analysis in this study. Specifically, for each item those responding from 1-2 on the above scale were

categorised on a new variable as 'Disagree' for that item. Those responding 3-5 on the above scale were categorised on a new variable as 'Agree' for that item.

Social Norms

A total of 8 items assessed participants' attitudes to drug use and to drug checking services. These items were displayed as a battery and used were measured using a 5-point Likert scale ranging from (1) Strongly disagree, (2) Somewhat disagree, (3) Neither agree nor disagree, (4) Somewhat agree and (5) Strongly agree.

Statements 20a (It is cool to use drugs), 20d (My friends tend to use drugs) and 20e (If my friends use drugs, I will too) were replicated from the Aotearoa New Zealand Health Promotion Agency survey on attitudes to alcohol (2016). These statements were modified to fit recreational drug use in festivals. The remaining statements 20b (Most people at festivals use drugs), 20c (It is normal to be intoxicated at festivals), 20f (If my friends use a drug checking service, I will too), 20g (I would be more likely to use a drug checking service if it was government funded) and 20h (I would be more likely to use a drug checking service if it was run by the government) were developed for the purpose of this study.

Responses to each item were dichotomized in order to identify two groups of analysis in this study. Specifically, for each item those responding from 1-2 on the above scale were categorised on a new variable as 'Disagree' for that item. Those responding 3-5 on the above scale were categorised on a new variable as 'Agree' for that item.

Data Analysis

Chi-square analyses were used to highlight the univariate relationships between the dependent variable (i.e., likelihood to use/not use drug checking services) and each of the independent variables, including demographic, attitudinal and social norm indicators. A

three-step logistic regression of all variables identified at the univariate level as significantly associated with the dependent variable was undertaken to identify those factors most strongly associated with the dependent variable over and above the influence of other factors.

Chapter Four: Results

The sample consisted of 390 participants. Table 1 provides an overview of the sample demographic characteristics. Overall, the majority of the sample were aged 18-24, approximately half were female, and almost three quarters were NZ European. The most commonly reported festivals attended were Bay Dreams, Rhythm and Vines, and Homegrown. Specific to the number indicating drug use, approximately half of the sample reported using 1-2 illicit drugs when they attend festivals, a third reported using 3+ illicit drugs, and the remaining sample reported only using legal drugs such as alcohol or tobacco.

Table 1

Characteristics of the Sample

	N (%)
Total	390 (100)
Age	
18-24	243 (62.3)
25-29	97 (24.9)
30+	50 (12.8)
Gender	
Male	162 (41.5)
Female	219 (56.2)
Non-binary	6 (1.5)
Prefer not to say	3 (0.8)

Ethnicity	
European/NZ	311 (79.7)
Māori	51 (13.1)
Pacific Peoples	10 (2.6)
Asian	8 (2.1)
MELAA	2 (0.5)
Other	7 (1.8)
Prefer not to say	1 (0.3)
Festivals attended*	
Rhythm and Vines	174 (44.6)
Rhythm and Alps	44 (11.3)
Northern Bass	75 (19.2)
Bay Dreams	209 (53.6)
Homegrown	159 (40.8)
Electric Avenue	66 (16.9)
Joe's Farm/ The Other side	39 (10.0)
Splore	33 (8.5)
Other	154 (39.5)
Number of drugs used	
Legal drugs only	55 (14.1)
1-2 Illicit drugs	192 (49.2)
3+ Illicit drugs	143 (36.7)

*Note: Response options not exclusive so combined results will exceed 100%

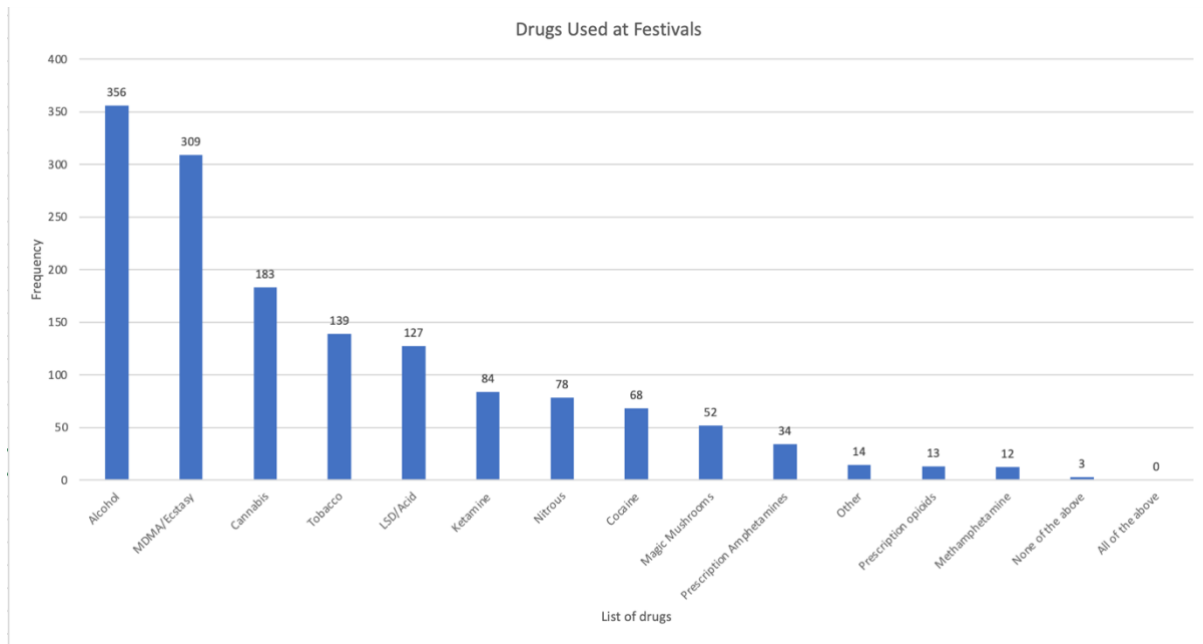
Drug Use at Festivals

Figure 1 illustrates the drugs that participants reported using at festivals in Aotearoa New Zealand. Overall, the most common drug consumed at festivals (regardless of legality) was alcohol and the next most common was MDMA. Other drugs were far less likely to be consumed. The use of Cannabis, tobacco and LSD/Acid at festivals was approximately half as

likely as the use of Alcohol or MDMA. The use of more potent recreational drugs such as Opioids, Cocaine and Methamphetamine were considerably less common at festivals.

Figure 2

Drugs Used at Festivals

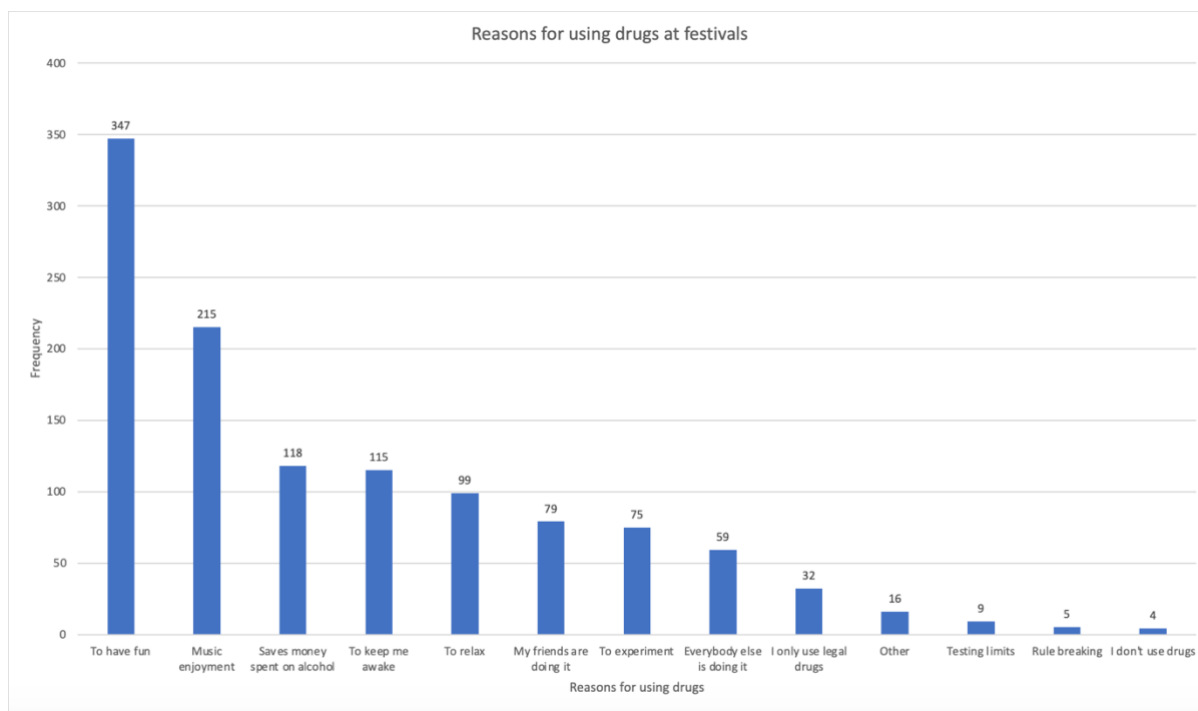


Reasons for Using Drugs at Festivals

Figure 2 shows the reasons why people use drugs at festivals in Aotearoa New Zealand. The two most common reasons indicated for using drugs at festivals were ‘To have fun’ followed by ‘music enjoyment’ (i.e., to enhance the person's enjoyment of the music). Other responses such as ‘everybody else is doing it’ and more experiential reasons such as ‘testing limits’ or ‘rule breaking’ were much less commonly endorsed as reasons to use drugs at festivals.

Figure 3

Reasons for Using Drugs at Festivals

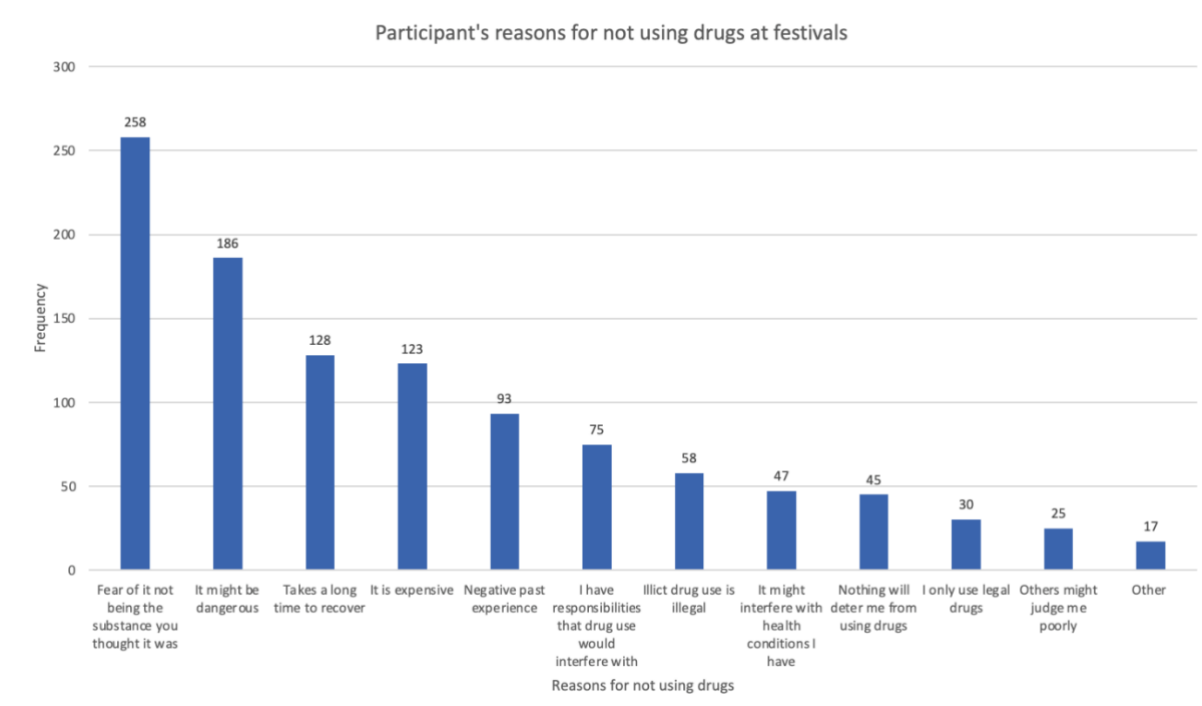


Reasons for Not Using Drugs at Festivals

Figure 3 illustrates participants' reasons for not using drugs at festivals in Aotearoa New Zealand. It is pertinent to note that there is a lower sample size in Figure 3 in comparison to the other figures in this section. This likely reflects the fact that this set of questions was focused on the subsection of respondents who may be less likely to consume drugs (i.e., it was asking 'why'). The two most common reasons for avoiding any drug use at festivals were 'Fear of the substance not being the substance you thought it was' and 'It might be dangerous.' The commonality of these two responses indicates that festival goers are potentially keen to use drugs, but the existing risk over potential adulteration of pills outweighs their drug use wishes. This is good evidence to suggest that broadening the provision of drug checking services at festivals may result in an increase in drug use among the population of current non-users. Less commonly endorsed reasons for not using drugs at festivals were 'Others might judge me poorly' and 'I only use legal drugs.'

Figure 4

Reasons for Not Using Drugs at Festivals

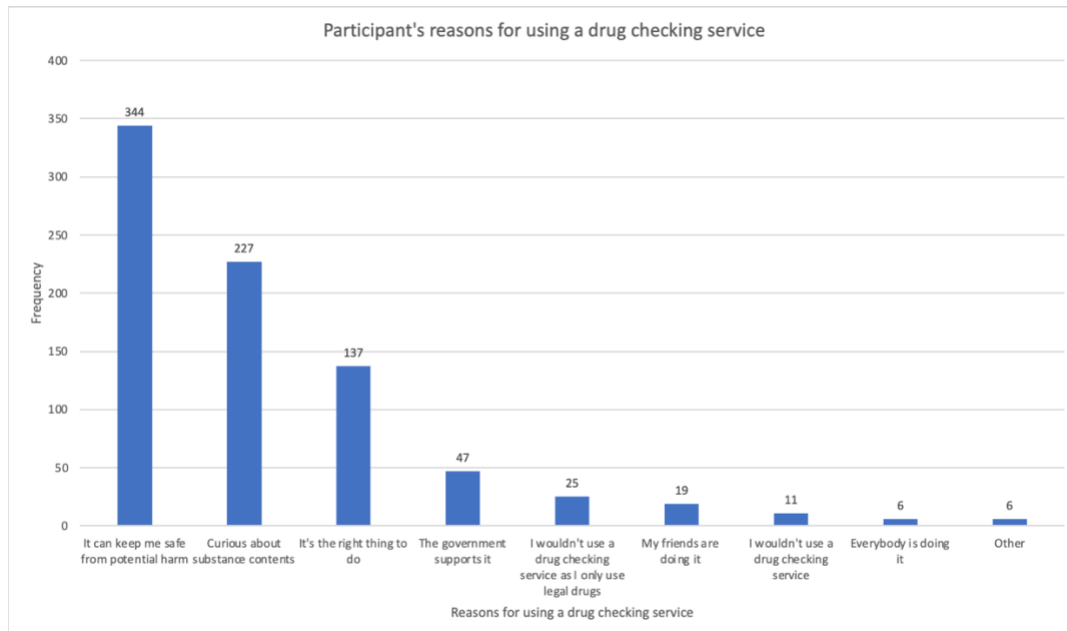


Reasons for Using Drug Checking Services at Festivals

Figure 4 illustrates participants' reasons for using a drug checking service at festivals in Aotearoa New Zealand. The two most commonly endorsed answers, which also accounted for the vast majority of the sample feedback, was 'It can keep me safe from potential harm' followed by 'Curious about substance contents.' This shows that the main reasons that people currently use drug checking services in Aotearoa New Zealand reflect their need to understand the risks associated with currently unregulated drug products and to reduce the potential for harm from their use. That lack of common endorsement of drug checking due to its commonality amongst peer groups suggests that social norms may not be a strong driver for the use of such services in this sample.

Figure 5

Reasons for Using Drug Checking Services

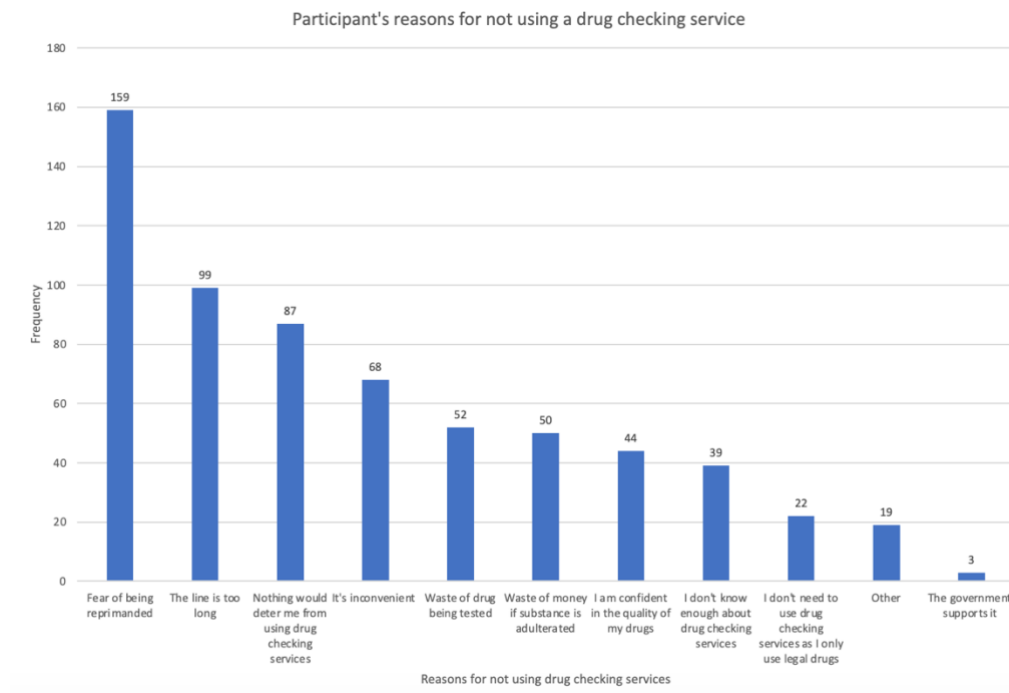


Reasons for Not Using Drug Checking Services at Festivals

Figure 5 illustrates participants' reasons for not using a drug checking service at festivals in Aotearoa New Zealand. Like Figure 3, here is a lower sample size in Figure 5 based on the target sub-sample for this question (i.e., those currently not using such services). The most common answer was 'Fear of being reprimanded' followed by 'The line is too long'. The first response suggests that the implementation of the Drug and Substance Checking Legislation Act (2021) making drug checking services legal has not been recognized yet by a number of festival goers, though once it is this may increase the number using drug checking services. However, the second response concerning the lines being too long suggests that despite the need for drug checking services such services may need to invest in more staff in order to reduce the length of lines and to cope with future demand. The least selected reason was 'The government supports it' (N=3). This suggests that a very small proportion of those not currently using drug checking services do in opposition to the notion that the government supports such a service.

Figure 6

Reasons for Not Using Drug Checking Services



The Relationship Between Drug Checking Service Use and Key Sample Characteristics

Multiple chi-square analyses were undertaken to identify the key demographic factors associated with the likelihood of people being likely or unlikely to use a drug checking service at festivals. Table 2 provides the results of these analyses.

Table 2

Likelihood of Utilising Drug Checking Services and Characteristics of Sample

Not likely to use a drug checking service	Likely to use a drug checking service
---	---------------------------------------

	N (%)	N (%)	Chi ² (df)	Phi
Total	110	277		
Age			5.30 (2)	.12
18-24	63 (57.3)	180 (65)		
25-29	26 (23.6)	68 (24.5)		
30+	21 (19.1)	29 (10.5)		
Gender			18.2 (1) ***	-.20
Male	61 (55.5)	99 (35.7)		
Female	44 (40)	174 (62.8)		
Likelihood of attending festivals			7.65 (1) **	-.141
Likely to attend festivals in next 12 months (N=302)	96 (87.3)	206 (74.4)		
Not likely to attend festivals in next 12 months (N= 86)	14 (12.7)	71 (25.6)		
Likelihood of using drugs at festivals			5.93 (1) *	-.12
Likely to use drugs (N=346)	105 (95.5)	241 (87.0)		
Not likely to use drugs (N=41)	5 (4.5)	36 (13.0)		
Number of drugs used			45.87 (2) ***	0.34
Legal drugs only	1 (0.9)	51 (18.4)		
1-2 Illicit drugs	42 (38.2)	150 (54.2)		
3+ Illicit drugs	67 (60.9)	76 (27.4)		
Knowledge of DCS			36.33 (1) ***	0.31
Aware of DCS	110 (100)	203 (73.3)		
Not aware of DCS	0	74 (26.7)		

Significance: * > p.05; ** > p.01; *** >p.001

Note: For the purpose of the analysis, two gender responses, 'non-binary' and 'prefer not to say' were excluded from the analysis due to low count numbers.

Overall, the results in Table 2 indicate that over two thirds of the current sample are likely to use drug checking services. In comparison to those who are unlikely to use drug checking services, those who are likely to use such services are female and are *less* likely to attend festivals in the next 12 months, use drugs at those festivals, and less likely to know about drug checking services. Those more likely to use drug checking services are also likely to use only 1-2 illicit drugs as opposed to those unlikely to use drug checking services of whom over 60% use 3 or more drugs. This suggests that a substantial sub-sample of people currently unlikely to use drug checking services are older males who know about but ignore such services, even though are very likely to attend festivals and to use a high number of drugs.

The Relationship Between Drug Checking Service Use and Agreement/Disagreement with Attitudes and Social Norms

Further chi-square analyses were undertaken to ascertain the relationship between likelihood to use drug testing services and agreement/disagreement with key attitudes and social norms concerning both drug use itself and the use of drug testing services. Table 3 illustrates the relationship between attitudes surrounding drug use and drug checking in festivals and how these influence their likelihood of utilising drug checking services.

Table 3

Relationship Between the Likelihood of Using Drug Checking Services and Attitudes About Drug Use and Drug Checking Services

	Not likely to use a drug checking service	Likely to use a drug checking service	Chi ² (df)	Phi
	N (%)	N (%)		
Drug use is acceptable in festivals			15.64 (1) ***	-.20
Agree	96 (87.3)	187 (67.5)		
Disagree	14 (12.7)	90 (32.5)		
Drug use at festivals is a problem			15.67 (1) ***	.20
Agree	40 (36.7)	163 (59.1)		
Disagree	69 (63.3)	113 (40.9)		
It is okay to use drugs as long as it is not everyday			15.40 (1) ***	-.20
Agree	90 (81.8)	169 (61.0)		
Disagree	20 (18.2)	108 (39.0)		
My use of drugs is not affected by whether something is legal or illegal			16.72 (1) ***	-.21
Agree	93 (84.5)	174 (63.3)		
Disagree	17 (15.5)	101 (36.7)		
Drug checking services are a good idea			2.4 (1)	-.08
Agree	108 (99.1)	264 (96.0)		
Disagree	1 (0.9)	11 (4.0)		
Drug checking services reduce drug related harm			11.11 (1) ***	-.17
Agree	108 (98.2)	241 (87.0)		
Disagree	2 (1.8)	36 (13.0)		

The results in Table 3 suggest that those who are likely to use a drug checking service appear to hold more cautious or conservative attitudes to drugs. For example, they are less likely to agree that drug use is acceptable, less likely to see regular drug use as OK, and a small number still question whether drug checking services would actually reduce harm. Further, those who are more likely to use drug checking services are more likely to see drug use at festivals as a problem and are more concerned with the legality of drug use. However, there is no difference between those likely or unlikely to use drug checking services in their attitude toward drug checking services being a good idea (almost all believe it is).

Table 4

Relationship Between the Likelihood of Using Drug Checking Services and Social Norms Concerning Drug Use and Drug Checking Services.

	Not likely to use a drug checking service	Likely to use a drug checking service	Chi ² (df)	Phi
It is cool to use drugs			17.86 (1)	.22

Agree	25 (22.7)	127 (46.0)		
Disagree	85 (77.3)	149 (54.0)		
Most people at festivals use drugs			.372 (1)	.03
Agree	90 (81.8)	232 (84.4)		
Disagree	20 (18.2)	43 (15.6)		
It is normal to be intoxicated at festivals			.076(1)	.01
Agree	99 (90.8)	254 (91.7)		
Disagree	10 (9.2)	23 (8.3)		

My friends tend to use drugs			8.48 (1) **	-.15
Agree	104 (94.5)	230 (83.3)		
Disagree	6 (5.5)	46 (16.7)		
If my friends use drugs, I will too			3.66 (1)	-0.10
Agree	56 (50.9)	111 (40.2)		
Disagree	54 (49.1)	165 (59.8)		
If my friends use a drug checking service, I will too			.841 (1)	-.05
Agree	78 (70.9)	183 (66.1)		
Disagree	32 (29.1)	94 (33.9)		
I would be more likely to use a drug checking service if it was government funded			.008 (1)	.005
Agree	67 (61.5)	171 (62.0)		
Disagree	42 (38.5)	105 (38.0)		
I would be more likely to use a drug checking service if it was run by the government			.447 (1)	.034
Agree	25 (22.7)	72 (26.0)		
Disagree	85 (77.3)	205 (74.0)		

Table 4 illustrates the relationship between social norms associated with drug use and drug checking behaviours and one's likelihood of utilising drug checking services. The results suggest that there are only two social norms that appear to influence whether someone is more or less likely to use drug checking services. Specifically, almost half of the people likely to use drug checking services agree that using drugs is cool, in comparison to around 1-in-5 of those who are unlikely to use such services. Also, while the majority of both groups indicate that their friends tend to use drugs, significantly more people in the group likely to use drug checking services disagree that their friends use drugs. There were no other significant differences in social norms that influenced the likelihood of using drug checking services.

In summary, the results from both Table 3 and Table 4 suggest that attitudes are more likely to influence drug use and drug checking behaviours in comparison to social norms. There were five statements in Table 3 which were significant and only two statements in Table 4 which were significant. This indicates that when drug checking agencies such as Know Your Stuff NZ are marketing their drug checking services, it would be more advantageous to target people's attitudes around drug use and drug checking rather than how the social climate or the person's social circle impacts their drug checking behaviours.

Key Predictors of Drug Checking Services

A stepwise logistic regression was performed to assess the impact of a number of factors on the likelihood of respondents using a drug checking service. The model contained twelve independent variables from three groups: demographic information, attitudes and social norms. The full model containing all predictors showed that only two were statistically significant. The Cox and Snell coefficient indicates that the final model was able to explain 20% of variation in the reason people are more or less likely to use drug checking services. This indicates that the model was able to distinguish between respondents who were likely or unlikely to use a drug checking service.

As shown in Table 5, only two of the independent variables made a statistically significant contribution to the model ('Number of drugs used' and 'It is cool to use drugs'). The strongest predictor of likelihood of using a drug checking service was the number of drugs participants used, recording an odds ratio of 2.07. This indicated that respondents who were more likely to use a drug checking service were more likely to use 1-2 illicit drugs in comparison to 3+ drugs. The second strongest predictor which was only 0.02 from being statistically significant was the social norm that, 'It is cool to use drugs', recording an odds ratio of 1.67. This indicated that respondents who were more likely to use drug checking services said that it was cool to use drugs.

Note: Excluded variable 'Awareness of drug checking services' as one of the cells had a cell count less than 5 so would not run in the model. Also, those individuals who only used legal drugs (i.e., alcohol and tobacco) were also excluded from the analysis.

Table 5

Stepwise Logistic Regression Illustrating the Influence of Demographic, Attitude and Social Norm Variables on Likelihood of Using Drug Checking Services

	Step 1			Step 2			Step 3		
	OR	95% CI		OR	95% CI		OR	95%CI	
		LWR	UPR		LWR	UPR		LWR	UPR
Demographic									
Gender (Ref: Female)	0.57	0.35	0.95	0.68	0.40	1.14	0.69	0.40	1.17
Likelihood of attending festivals (Ref: Likely to attend)	0.65	0.33	1.29	0.68	0.34	1.36	0.71	0.36	1.42
Likelihood of using drugs at festivals (Ref: Likely to use)	0.61	0.19	1.94	0.68	0.21	2.19	0.88	0.26	3.03
Number of drugs used (Ref: 3+ drugs)									
1-2 Illicit drugs	2.59***	1.56	4.30	2.10**	1.20	3.52	2.07*	1.19	3.58
Attitudes									
Drug use is acceptable in festivals (Ref: disagree)				0.80	0.40	1.61	0.87	0.42	1.77
Drug use at festivals is a problem (Ref: disagree)				1.50	0.86	2.50	1.36	0.80	2.32

It is okay to use drugs as long as it is not every day (Ref: disagree)	0.63	0.34	1.18	0.67	0.36	1.27
My use of drugs is not affected by whether something is legal or illegal (Ref: disagree)	0.80	0.41	1.56	0.81	0.42	1.59
Drug checking services reduce drug related harm (Ref: disagree)	0.29	0.06	1.30	0.31	0.07	1.39

Social norms

It is cool to use drugs (Ref: disagree)				1.67	0.98	3.15
My friends tend to use drugs (Ref: disagree)				0.60	0.22	1.67

Model fit

Percent of cases correctly classified	72.9%		74.8%		75.3%	
Cox & Snell R ²	0.16		0.18		0.20	
R ² Δ	-		0.02		0.02	

Key: * = p<0.05; **

Cox & Snell R²: Indicator of variance in dependent variable explained by variables in each step of the model

R² Δ: Change in the value of Cox & Snell R² for each step of the model

Chapter Five: Discussion

The aim of this study was to investigate the reasons for people using drugs and for using drug checking services in festivals in Aotearoa New Zealand. Specifically, this study aimed to apply two key concepts from the theory of planned behaviour (attitudes and social norms) to understand their potential role in influencing one's likelihood of using drugs and using a drug checking service at festivals in Aotearoa New Zealand. This study was orchestrated after the implementation of the *2020 Drug and Substance Checking Legislation Act (2021)* which allowed drug checking services such as Know Your Stuff NZ to practise drug checking in an attempt to reduce drug related harm.

The Factors Influencing Drug Use at Festivals

This study revealed that alcohol was the drug most commonly used at festivals, while MDMA and cannabis were the most commonly used illicit drugs. The popularity of MDMA and cannabis among festival attendees in Aotearoa New Zealand reflects the fact that both these drugs are also the most common illicit drugs used by the general population of Aotearoa New Zealand and therefore are more readily available (New Zealand Drug Foundation, 2021). Further, the commonality of these two drugs reflects findings in the wider research literature illustrating that MDMA and cannabis are also among the most common drugs used at festivals in Australia (Southey et al., 2020., Johnston et al, 2006), Slovenia (Sante & Sabic, 2018) and Ireland (Iver et al, 2021).

While participants in this study more commonly reported that they used drugs at festivals 'to have fun' and for 'music enjoyment', the main reason participants offered for not using drugs at festivals was the fear that the substance was not what they thought it was (i.e., either adulterated or a different drug altogether) or simply that it may be dangerous. This finding attests to the need for robust drug checking service implementation in New Zealand; many people still see drugs as potentially dangerous, yet others still use them. Drug checking services enable people to use drugs with less risk as they can be aware of what substances are in the drugs they are consuming. It should therefore be noted that implementation of

legal drug checking services may increase drug use at festivals, in the knowledge that the primary driver of reduced drug use (i.e., fears of the provenance and constituents of these drugs) can now be mitigated through a legal and onsite process.

The Basic Factors Influencing Drug Checking at Festivals

Trends internationally reveal that there are mixed results in who are using drug checking services at festivals. Measham (2019) revealed that the demographic of the drug users in their study were male, white and had an average age of 27.6. Similarly, Measham and Turnbull's (2021) participants were 64% male, 86.4% identifying as white and had an average age of 23.5 years. Sande and Sabic (2018) revealed a more even ratio between genders by revealing that 56.2% of the people who utilized a drug checking service were male and the other 48.8% being female. Similarly, Ivers et al. (2021) revealed a similar ratio with 54.2% of drug checking users identifying as male with 46.3% identifying as female. At an Australian festival in 2017, Southey et al (2020) reported that 55% of their participants were male and aged 18-21. In 2016, at the same festival, Day et al (2018) research in Australia had a similar result to this study which showed that 60.5% of the drug checkers were female, with 62.2% being ages 18-21. This may be due to the demographic similarities between Australia and New Zealand in comparison to Measham's (2019) study which was based in the United Kingdom and Sande and Sabic's (2018) study being based in Slovenia.

This study found that the two main reasons people indicated that they used drug checking services at festivals were 'to keep me safe from potential harm' and they were 'curious about contents of the drugs', while the main factors reducing likelihood of drug checking services were 'fear of being reprimanded' and 'the line is too long'. This finding indicates that harm reduction concerns are the primary factors underpinning current use in drug checking services, while more pragmatic fear over potential legal issues or simply waiting too long explain why many might not use such services. It is pertinent to note that there may be an increase in drug checking once knowledge of the Drug and Substance Checking Legislation Act (2021) becomes more common. This would reduce the fear of being reprimanded as the current legislation protects people who use drug checking services from being prosecuted.

The results within this study illustrate that the reasons which prevent people from using a drug checking service is the fear of being reprimanded and that the line is too long. Other research in the area produced similar results for reasons such as, their friends had already tried the drug and did not have a negative reaction, the waiting period was too long and the fear of loss of anonymity. Furthermore, respondents said that they would avoid the service due to fear of police presence and police being able to access the data on users (Sande & Sabic, 2018). Barrett et al.'s (2018) results show that almost all participants would not use a drug checking service if there was a possibility of arrest and majority would not use the service if it did not provide individual feedback. By targeting these reasons in drug checking implementation, specific approaches can be created to develop a programme for people who would benefit from a drug checking service yet are not using the service.

The finding in this study that the length of waiting lines is a potential reason for avoiding service use is potentially at odds with some international findings. Whilst this research did not specify how long people were willing to wait for their drugs to be checked, the participants indicated that they would not use a drug checking service if the line was too long. Barrett et al.'s (2018) research in Australia suggests that people were willing to wait an hour for test results. They also illustrated that drug checking is slightly more attractive if the results provide quantitative comprehensive results in comparison to qualitative results of key ingredients. Moreover, most people (93%) were willing to pay up to \$5 for a test, with 68% willing to pay \$10. Furthermore, Measham's (2019) research in the United Kingdom suggests that 80% of people are willing to wait up to an hour for results. As Australia and the United Kingdom have more developed drug checking programmes than that of Aotearoa New Zealand, people may be more accustomed to waiting longer for their drugs to be tested due to the proven harm reduction which drug checking provides. Furthermore, services overseas may also offer fixed sites in the community, in addition to at festivals, so people can drop off their drugs to be tested and return later that day. This is a factor of Aotearoa New Zealand's drug checking service implementation which could be developed to enable better accessibility and consequently, reduce drug related harm.

The Difference Between Those Likely and Unlikely to use Drug Checking Services at Festivals

Overall, this research was able to explore the factors that differed between two key groups: those who indicated they were likely to use a drug checking service at festivals (Group 1) and those who indicated they were unlikely to use a drug checking service (Group 2). The results of this study indicated that in comparison to Group 2, those in Group 1 were *less* likely to attend festivals, to use drugs if they did attend festivals, and to know about drug checking services at festivals. Further, those in Group 1 were *more* likely than those in Group 2 to use either legal drugs or 1-2 illicit drugs if they did use drugs at festivals. This suggests that those more likely to use drug checking services could be doing so because they are less familiar both with the use of drugs and with the provenance of their drugs. In contrast, those who are currently less likely to use drug checking services at festivals are more experienced with drugs and may be more confident with the provenance of the drugs that they are consuming.

This study revealed that factors which attract people to using drug checking services are that it can keep them safe from potential harm and people are curious about the substance's contents. There is a relative paucity of research exploring the reasons that people actually use drug checking services at festivals, so this is one of the first studies to provide insight into the reasons for service use. These results do compare favourably with one of the few international studies that explored the reasons for the use of drug checking services. Sande and Sabic (2018) found that the reasons most likely voiced for using a drug checking service at festivals in Slovenia were distrust in the quality of the substances on the market, the users wishing to get more information before using the drug, and for the purposes of risk reduction.

This study revealed that Group Two (people unlikely to use a drug checking service) are more experienced with drugs and are confident about the provenance of the drugs that they are consuming. Due to this, this group are less conservative in their use of drugs, yet are unlikely to utilise a drug checking service. Further, the results revealed that the majority of people who reported using 3+ illicit drugs were unlikely to use a drug checking service. Sande and Sabic's (2018) research in Slovenia explored this further by comparing two groups – high risk drug users and casual drug users within an online sample. The majority of the high-risk drug users indicated that they had used methadone, tranquillisers, heroin, cannabis, and cocaine in the last month. A smaller percentage used other stimulant drugs such as MDMA and amphetamines. High-risk users still perceive drug checking services to be important and

contribute to drug related risk reduction. However, there is a difference between the high-risk group and the online sample as only 32.7% of the high-risk users agreed with this statement in comparison to 47.3% in the online sample. In comparison to this, in Ivers et al.'s (2021) research in Irish festivals, the vast majority (96.3%) of the respondents reported that they would use a drug checking service as well as indicating polysubstance use.

The Role of Attitudes and Social Norms in Influencing Use of Drug Checking Services

This study highlighted that both attitudes and social norms were differentially associated with the likelihood of using drug checking services. The results revealed that in comparison to those unlikely to use drug checking services (Group 2), people who are more likely to use drug checking services (Group 1) are more conservative in their attitudes and in the social norms they express around drug use. Specifically, those in Group 1 were *less* likely to use drugs regularly, to agree that drug use is acceptable in festivals and to have friends that use drugs. Further, they were *more* likely to agree that drug use at festivals is a problem and that drug use was cool. This builds on the initial finding that Group 1 is more conservative with their drug use as they hold more conservative attitudes surrounding drug consumption surrounding the acceptability and the frequency of drug use.

Within the literature, there is very little research exploring how one's likelihood to use or not use drug checking services is affected by attitudes, however there is a common theme that drug checking services reduce drug related harm. When asking the statement, 'Drug checking services are a good idea', the vast majority of people (96.0%) who were likely to use a drug checking service agreed. Additionally, 99.1% of people who were unlikely to use a drug checking service also agreed. There was only a very small portion of respondents who disagreed with this statement in both groups. Similarly, when asked the statement, 'drug checking services reduce drug related harm', the vast majority in both groups agreed that it was they do reduce drug related harm. Again, there was a very small portion of respondents in both groups who disagreed with this statement. Sande and Sabic's (2018) main finding of user's attitudes towards drug checking service implementation is that drug checking contributes to risk reduction and providing education around harmful adulterants is very helpful. 80.2% of respondents answered 'strongly agree and agree' to the statement that drug

checking contributes to risk reduction. Additionally, high risk drug users perceived drug checking services to be important. Similarly, most respondents from Southey et al (2020) agreed 'a lot' that pill testing services could help people that use drugs to seek help and reduce drug related harm. Again, a large proportion of festival goers in Australia agreed that drug checking services could help users to seek help which would reduce drug related harm (Day., et al. 2018). Within New Zealand, there has proven to be some behavioural change from drug checking service being implemented with 95% of respondents agreeing with the statement that 'As a result of my previous visit to Know Your Stuff NZ, I am now more likely to get my drugs tested before taking them' (KYSNZ, 2021).

While the majority of people in both Groups 1 and 2 disagreed with the social norm statement that it is cool to use drugs, a greater proportion in Group 1 agreed and this may be associated with potential differences between the groups in the social value or cache they place on drug use as a symbol of popularity. Throughout the literature, there are few articles which specifically speak to the potential social cache of drug use and whether it being seen as socially valuable or 'cool' might motivate subsequent drug checking action. Within Australia, Power (2018) discovered that drug use can have social benefits such as greater emotional wellbeing, friendships, intimacy, and connection. Furthermore, Bryant and MacLean (2013) suggest that drugs can be used to alleviate boredom, build, or strengthen relationships and to have fun. The results in this study show that people who think that it is cool to use drugs are more conservative or naïve about drug use so perceive drugs to be cool. These people may be unaware of the dangers which drugs can present and therefore may see drug consumption as a socially valuable behaviour. These people are more conservative with their drug use and therefore are likely to use a drug checking service. Alternatively, the people who are using drugs more, do not see it as 'cool' as they are most likely aware that it can be harmful, they just have a more liberal approach to drug use due to experience.

When exploring social norms, the results in this study do not align with other research in the literature. Murphy et al. (2021) highlight how friends are most likely to influence the utilisation of a drug checking service, illustrating the significance of peers in influencing norms, practices and behaviours. Additionally, in a study in Australia, people's substance use at mass gatherings is particularly influenced by perceptions of friend's substance use.

Interventions to reduce substance use at mass gatherings may be enhanced by correcting misconceptions of the normative behaviours of friends (Stevens et al., 2021). Furthermore, at EDM concerts, friend's norms were associated with anticipated drinking and drug use, with a specifically strong relationship observed for drinking. Moreover, having friends who use or intend to use psychoactive substances at EDM concerts was associated with use of psychoactive substances personally (Palamar et al., 2018). In Denmark, Vallentin-Holbech (2018) discovered that pupils' perceptions of peer approval were significantly higher than pupils' personal approval in relation to alcohol and drug use in adolescents. Murphy (2021) revealed that subjective norms were the only theory of planned behaviour variable associated with intention to use an onsite drug checking service. This suggests that when a person uses MDMA at a festival which provides a drug checking service, their decision to use that service will be influenced by their social networks (Murphy, 2021). Jaensch., et al. (2018) also supported this claim by showing that a general acceptance of behaviours amongst friends affected one's drug use behaviour.

Overall, these attitudes and social norms show that those who are more likely to use drug checking services at festivals may do so primarily because they are less experienced with drug use, more cautious and conservative toward drug use, and more concerned to reduce any risk of harm should they use drugs at festivals. In contrast, those who are less likely to use drug checking services at festivals express a more liberal attitude to drug use and the need for drug checking, potentially reflecting their greater experience in drug consumption (i.e., potential lack of previous harm) and greater confidence in the supply of drugs they are using (i.e., having a reliable supplier of products). Regardless of politicisation of drug checking services, this study shows that conservative views/attitudes of drug use are a factor that promotes drug checking services. This is important to note, especially as the group who are not likely to use drug checking services have more liberal views around drug use and drug checking. Therefore, there must be development in approaches to target this group in order to reduce drug related harm.

Summary: What do These Findings Mean for Drug Checking in Aotearoa New Zealand?

Overall, the results show that those who do use drug checking services are more conservative with their drug use. These people are more likely to see drug use as cool and are less likely to have friends who use drugs. This suggests that there is somewhat naivety associated with their drug use which could make them easily influenced by social norms and attitudes to use drugs, but also by public health initiatives such as drug checking marketing. Despite there being more significant attitude statements, the social norm statements proved to be the most significant in the final model. Therefore, when implementing drug checking services in Aotearoa New Zealand, there must be a more succinct focus on marketing drug checking services to different groups in accordance with current drug trends. These results show that people are using drugs in festivals and the majority of these people are using MDMA. Despite MDMA being more common, it is still dangerous, especially with adulterated substances becoming more prominent in the Aotearoa New Zealand drug market. Know Your Stuff New Zealand released their results from the 2020-2021 season which showed that people's drugs are often not what they think they are with synthetic substances becoming more common (KYSNZ, 2021). The effect of the drugs being adulterated increases the risks associated with drug use which can often be unpredictable and very dangerous. Despite these risks, some people are not willing to test their drugs due to the fear of being reprimanded, loss of anonymity or potential wait times. Therefore, drug checking agencies such as Know Your Stuff NZ should target their marketing strategies, improve accessibility, and provide education which could be shown across social media or at the fixed or onsite testing stations.

Recommendations

How to Maintain Drug Checking for People who are Already Using the Service

Firstly, by generating marketing strategies to fit current drug trends, more specific research can be implemented and marketed to target specific groups of people. For example, this research shows that the people who are more likely to use a drug checking service use 1-2 illicit drugs within festivals. These people are likely to use MDMA so marketing initiatives should be focused on the potential adulterated substances associated with MDMA such as eutylone and the effect of these if consumed. This would raise awareness around the harms of consuming MDMA or adulterated versions of MDMA, and the risk and prevalence of

adulterated substances. Marketing strategies for this group could also present basic education on what drug checking is and how it works. Additionally, marketing strategies should also target those who are not likely to use drug checking services, such as people who use 3+ drugs. Marketing initiatives for this group should be focused on emphasising the risks associated with combining different drugs and education around debunking common misconceptions about drug checking services, such as the fear of being reprimanded.

Marketing and education initiatives surrounding drug checking service implementation should be evidence based. For example, a study in North America explored what is needed for implementing drug checking services in the context of an overdose crisis. They discovered that drug checking marketing and implementation would be more successful if the services engaged with people with lived experiences, provided relevant and up to date knowledge surrounding using drugs to inform one's own harm reduction (Wallace et al., 2020). It should be noted that it is not clear the degree to which those who are not using drug checking services are doing so because they are more familiar with drug use and the provenance of their drugs, or, whether they are still at risk of drug harms but less concerned about this risk, or whether current drug checking services are not as accessible for their purposes (i.e., lines are too long for them to wait in).

Enhancing Accessibility of Existing Drug Checking Services

The second most common reason for people not using a drug checking service is that 'the line was too long' – if this is a significant reason for people not using a drug checking service then drug checking service accessibility must be improved. This could be through adding more fixed and onsite testing stations and by increasing the staff available at these stations. This would reduce wait times and make drug checking accessible in the community and at the festivals. Consequently, this would allow harder to reach groups, such as those who live rurally or people who have limited time to have access to the drug checking services. However, with KYSNZ being one of the only licensed drug checking services in Aotearoa New Zealand, there must be more policy change at a government level which allows for increased funding in this sector. A portion of KYSNZ's funding is donation based and the staff are volunteers – this significantly decreases the accessibility and availability of drug checking services in Aotearoa

New Zealand. Whilst the Aotearoa New Zealand government provided \$800,000 worth of funding for training and educational material, this does not cover the equipment that is needed to physically test the drugs, which are valued at \$50,000 each (New Zealand Herald, 2021). By further funding drug checking services, there would be a decrease of drug related harm in festivals and an increase in harm reduction initiatives within the festivals and within the community.

Improving Education on the Legality of Drug Checking

Additionally, by increasing education in the drug checking sector, common misconceptions and attitudes can be corrected. It is pertinent to acknowledge that the most common reason that people would not access drug checking services is the fear of being reprimanded. The implementation of the Drug and Substance Checking Legislation Act (2021), prevents this from happening by allowing agencies such as Know Your Stuff New Zealand to operate drug testing services. The service advises individuals on the outcome of the test, and provides information and harm reduction advice. Furthermore, agencies allow the individual who presented the drug, autonomy, by giving them the option of disposing of the drug, sending it away for further testing or the agency can give the drug back to the individual. Police are not involved as the focus of drug checking services is harm reduction, rather than a prosecution focus. Furthermore, there must be more education throughout social media and at testing sites which illustrate what drug checking is, the process of drug checking, the risks of taking adulterated substances. There should also be a health promotion presence and public health services to assist people who require support or further education.

Harm reduction must be at the forefront of drug checking initiatives and by providing further education, improving accessibility and marketing, drug related harm can be reduced. Future interventions should be strengths focused by using reasons from Figure 4 such as, 'it can keep me safe from potential harm,', 'curious about substance contents' and 'it's the right thing to do' to shape how drug checking services should look like in Aotearoa New Zealand. By drawing on these within marketing, education, or accessibility more people may want to access drug checking services. Public health promotion campaigns could also benefit from this study through using the theory of planned behaviour to shape other public health initiatives in

Aotearoa New Zealand. Both nationally and internationally, studies have shown that using concepts from the theory of planned behaviour, such as attitudes and social norms, have had positive results in the health sector. For example, the New Zealand Health Promotion Agency researched public attitudes on public interventions to reduce alcohol related harm (Aron & Allen, 2021). Their results revealed that overall attitudes and social norms play a positive role in the implementation of health initiatives. Specifically, they discovered that by exploring attitudes surrounding the harms surrounding alcohol use that 60% of people support facilitating access to screening, brief health interventions and treatment (Aron & Allen, 2021). Additionally, within a drink driving initiative in South Africa, results show that following an educational campaign there was a positive shift in both attitudes and social norms associated with the harms of drink driving which consequently showed a change in behaviours such as finding a sober driver, staying the night, or not drinking at all (Singh Negi et al., 2020). These studies illustrate the importance of using principles from the theory of planned behaviour in health promotion outcomes. Whilst this study focused on drug use and drug checking behaviours, there is still room for growth in the health promotion sector through focusing on the application of using attitudes and social norms to create health and social changes. By developing research in this area, there can be a further understanding of the way that attitudes and social norms shape existing health behaviours and therefore, how these can be altered through marketing, education or policy change to improve overall positive outcomes.

Limitations

Self-reporting was a study limitation as there is a possibility of the participants providing invalid answers due to not answering truthfully. Self-reported answers may be exaggerated or respondents may be too embarrassed to reveal details about their drug use. As this study was based on illegal activity, respondents may make more socially acceptable or legal answers, rather than being truthful. In order to overcome this limitation, future studies could ask neutrally worded questions, make sure answer options are not leading, keep the survey anonymous and reinforce anonymity throughout the survey.

Participants were asked about drug use in the last 12 months, not about the frequency of their drug use, which may have provided valuable insight about a subgroup of the

participants. By grouping infrequent drug users with people who use drugs frequently, there may be a significant difference between people's attitudes and social norms towards drug checking services at festivals. Furthermore, the questions relating to drug checking services are dependent on people's knowledge of harmful substances, the severity of side effects and people's understanding of testing equipment. A lack of knowledge on the topic of both drug consumption and drug checking services may skew results. In order to overcome this limitation, future studies could separate frequent drug users to less-frequent drug users to determine a difference between the groups. Furthermore, future studies could provide an infographic before the survey with basic drug and drug checking education.

By utilising a self-selection approach, those who are likely to use drugs are more likely to participate. However, there may have been a number of people who were hesitant to participate due to conservative attitudes and social norms towards drug use. This may have created a bias sample of people who are willing to share their drug behaviour, not a sample of all drug users. This may create selection bias as the sample does not represent the wider population. In order to overcome this limitation, future studies could reinforce that the survey is anonymous, provide basic information about the contents of the survey and to advertise the survey on neutral platforms. This is a difficult limitation to overcome as there is very little control over who completes the survey, all that can be done is to make it available to a wide population and to provide relevant education.

Chapter Six: Conclusion

In conclusion, this study explored how attitudes and social norms impact one's drug use and their use of drug checking services in festivals in Aotearoa New Zealand. This research drew on concepts from the theory of planned behaviour to develop the factors which influence an individual's drug use and how this affects their likelihood of utilising drug checking services at festivals. Overall, the results revealed that the people who are more likely to utilise a drug checking service are likely to use 1-2 illicit drugs, are typically younger and have less friends who use drugs. These people have more conservative attitudes towards drug use and are more likely to have the attitude that 'it is cool to use drugs'. In comparison to this, those who are less likely to use a drug checking service are typically older and are more adventurous with their drug use. Their lack of drug checking could be due to their confidence in their drug consumption due to past experience or confidence in the provenance of their drugs. Despite the legalisation of drug checking services in 2021, drug related harm in festivals is still occurring and drug checking services are not being used by the groups who potentially need it the most. Therefore, there must be change that can both maintain the use of drug checking services which is already occurring, but to also enhance the accessibility of drug checking services at festivals and in the community, and to improve education on drug checking services and on the harms of consuming adulterated substances. This could be through implementing policy change which would grant more funding towards drug checking services so that they can provide optimal harm reduction interventions for festival goers in Aotearoa New Zealand.

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Appendix One: Advertising

LET'S TALK ABOUT DRUGS

We're keen to understand who uses drugs and drug testing services at festivals in Aotearoa New Zealand. We'd love to hear from you in order to see what motivates some people to use these services and what factors mean others don't use them. Whether you use or don't use these services we're simply keen to hear from you and to understand why.

- **ARE YOU OVER THE AGE OF 18?**
- **DO YOU ATTEND FESTIVALS IN AOTEAROA NEW ZEALAND?**
- **DO YOU USE DRUGS OR DRINK ALCOHOL AT THESE FESTIVALS?**

PRIVACY AND PROTECTION STATEMENT

This survey is completely voluntary. If you choose to participate in this survey, then we have put the following measures in place to protect your privacy and security of your data:

- The data collected is 100% anonymous. We do not collect names or addresses.
- Demographic information such as age, ethnicity and gender will be asked, but only so we can identify group trends. It is not compulsory to disclose this information.
- The data collected will be password protected with access granted to only myself (Kate) and my supervisor (Andy).
- Once the research is complete, the data will be erased from all databases

If you have any more questions, please contact me (Kate: katebrokenshire2@gmail.com) or my supervisor (Andy: a.j.towers@massey.ac.nz)

Appendix Three: Survey

Consent Do you agree to the above terms? By selecting Yes, you consent that you are willing to answer the questions in this survey and agree to your data being collected and processed as stated above.

Yes (1)

No (2)

Q1. Do you live in Aotearoa New Zealand?

Yes (1)

No (2)

Q2. How old are you?

Under 18 (1)

18 - 24 (2)

25 - 30 (3)

Over 30 (4)

Prefer not to say (5)

Q3 How would you describe your ethnicity?

- NZ European/Pākehā (1)
 - Māori (2)
 - Pacific Peoples (3)
 - Asian (4)
 - MELAA (Middle Eastern, Latin American, African) (5)
 - Other (please specify) (6)
-
- Prefer not to say (7)

Q4 How would you describe your gender identity?

- Woman (1)
- Man (2)
- Non-binary (3)
- Gender fluid (4)
- Other (5) _____
- Prefer not to say (6)

Q5 Have you previously attended festivals or large music events in Aotearoa New Zealand?

- Yes (1)
- No (2)

Q6 How likely are you to attend a festival or large music event in the next 12 months?

- Highly likely (1)
- Likely (2)
- Somewhat likely (3)
- Not likely (4)
- Highly unlikely (5)

Q7 What festivals or large music events have you previously attended?

- Rhythm and Vines (1)
- Rhythm and Alps (2)
- Northern Bass (3)
- Bay Dreams (4)
- Homegrown (5)
- Electric Avenue (6)
- Joe's Farm/The Otherside (7)
- Splore (8)
- Other (9) _____

Q8 How likely are you to use drugs when you go to festivals or large music events?

- Highly likely (1)
- Likely (2)
- Somewhat likely (3)
- Not likely (4)
- Highly unlikely (5)
- Prefer not to say (6)

Q9 What drugs are you likely to use at festivals or large music events?

- Alcohol (1)
- Tobacco (2)
- MDMA/Ecstasy (3)
- Cannabis (4)
- Cocaine (5)
- Methamphetamine (6)
- LSD/Acid (7)
- Magic Mushrooms (8)
- Prescription opioids e.g. Tramadol or Codeine (9)
- Ketamine (10)
- Prescription Amphetamines e.g. Adderal or Ritalin (11)
- Nitrous (12)
- All of the above (13)

- None of the above (14)
- Other (Please specify) (15)
-

Q10 Why do you use drugs at festivals or large music events?

- To have fun (1)
- To keep me awake (2)
- To relax (3)
- Everybody else is doing it (4)
- Rule breaking (5)
- Testing limits (6)
- Saves money spent on alcohol (7)
- My friends are doing it (8)
- To experiment (9)
- Music enjoyment (10)
- I don't use illicit drugs at festivals as I only use legal drugs e.g. alcohol and tobacco (13)
- Other (please specify) (11)
-

- I don't use drugs at festivals or large music events (12)

Q14 What might deter you from using drugs at festivals or large music events?

- Illicit drug use is illegal (1)
 - It might be dangerous (2)
 - Others might judge me poorly (3)
 - It is expensive (4)
 - Takes a long time to recover from (5)
 - Negative past experience (6)
 - Fear of it not being the substance you thought it was (7)
 - It might interfere with health conditions I have (8)
 - I have responsibilities that drug use would interfere with (9)
 - I only use legal drugs e.g. alcohol and tobacco (12)
 - Nothing will deter me from using drugs at festivals or large music events (11)
 - Other (please specify) (10)
-

Q11 Are you aware of drug checking services such as KnowYourStuffNZ?

- Yes (1)
- Not sure (2)
- No (3)

Q13 Have you used drug checking services such as KnowYourStuffNZ?

- Yes (1)
- Not sure (2)
- No (3)

Q14 What is the likelihood of you using a drug checking service?

- Highly likely (1)
- Likely (2)
- Somewhat likely (3)
- Unlikely (4)
- Highly unlikely (5)

Q15 Why would you utilise a drug checking service?

- It can keep me safe from potential harm (1)
- Everybody is doing it (2)
- My friends are doing it (3)
- Curious about substance contents (4)
- It's the right thing to do (5)
- The government supports it (6)

I wouldn't use a drug checking service as I only use legal drugs e.g. alcohol and tobacco (9)

I wouldn't use a drug checking service (7)

Other (please specify) (8)

Q16 What would deter you from using a drug checking service?

Waste of drug being tested (1)

Waste of money if substance is adulterated (2)

Fear of being reprimanded (3)

The line is too long (4)

It's inconvenient (5)

I'm confident in the quality of my drugs (6)

The government supports it (7)

I don't know enough about drug checking services (8)

Nothing would deter me from using drug checking services (9)

Other (please specify) (10)

I don't need to use a drug checking service as I only use legal drugs e.g. alcohol and tobacco (11)

Q19 Please tell us how much you agree or disagree with the following statements about drug use and drug checking services:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Drug use is acceptable in festivals (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug use at festivals is a problem (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is okay to use drugs, as long as it is not everyday (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My use of drugs is not affected by whether something is illegal or legal (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug checking services are a good idea (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug checking services reduce drug related harm (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 Please tell us how much you agree or disagree with the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
It is cool to use drugs (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most people at festivals use drugs (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is normal to be intoxicated at festivals (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends tend to use drugs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my friends use drugs, I will too (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my friends use a drug checking service, I will too (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to use a drug checking service if it was government funded (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to use a drug checking service if it was run by the government (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>