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Australian police diversion for cannabis offences: Assessing program outcomes and cost-effectiveness

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Monograph Series No. 66

Funded by the National Drug Law Enforcement Research Fund
An Initiative of the National Drug Strategy

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Produced by the National Drug Law Enforcement Research Fund (NDLERF)
GPO Box 1936, Canberra, Australian Capital Territory 2601

ISSN: 1449-7476

The research on which this report is based was funded by the National Drug Law Enforcement Research Fund, an initiative of the National Drug Strategy.

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Acknowledgements

The National Drug Law Enforcement Research Fund (NDLERF) funded this project.

The investigators wish to acknowledge the advice and insight provided by members of the Project Reference Group (PRG) over the course of the research.

The membership of the PRG included:

- Monica Boyle—NDLERF, Australian Institute of Criminology
- Bridgette Chapman—Tasmania Police
- Penny Cheverall—New South Wales Police
- Sarah Mayes—Queensland Police
- Megan Salih—South Australia Police
- Sarah Wardley—Victoria Police
- Stephen Pritchard—Victoria Police
- Patricia Ward—New South Wales Police

The investigators also wish to thank all the stakeholders who helped advertise and recruit for the online survey; and all the participants who were willing to take part in the survey. Thank you also to Matthew O'Reilly, research assistant and PhD candidate at the National Drug and Alcohol Research Centre, for help in putting together the survey.

This research was conducted at the National Drug and Alcohol Research Centre (NDARC) at the University of New South Wales. NDARC is supported by funding from the Commonwealth Government under the Substance Misuse Prevention and Service Improvements Grants Fund.

The opinions expressed in this publication are those of the authors and are not necessarily those of the National Drug Law Enforcement Research Fund or the members of the PRG.

Executive summary

Drug diversion programs are one of the most used policy interventions in responding to drug and drug-related offenders in Australia (Hughes & Ritter 2008). Recent evidence suggests that diverted drug offenders now account for 24 percent of clients in Australian alcohol and other drug treatment (Australian Institute of Health and Welfare 2014b). In Australia, drug diversion is defined as the broad array of police and court programs used to refer detected drug offenders either away from the criminal justice system and/or into drug education/treatment. The irony is that despite more than 14 years of operation (across all states and territories), increasing popularity and multiple evaluations, many important questions remain. The gaps in knowledge are particularly evident for police diversion for minor cannabis use/possession offences.

These gaps, both conceptual and methodological, are the consequences of:

- a focus on evaluating impacts of court diversion rather than police diversion;
- a focus on evaluating impacts on offending while neglecting other important outcome domains;
- the failure to assess economic implications; and
- systemic problems in assembling comparator groups to assess whether diverted offenders actually perform better than their non-diverted counterparts (Wundersitz 2007; Hughes & Ritter 2008; Bright & Matire 2012).

This project attempts to fill some gaps by using a national purpose-built online survey (the cannabis diversion survey). This assessed impacts of diversion on multiple outcome domains and recruited four groups of cannabis use/possess offenders who had been detected by Australian police (including those diverted and charged).

The survey was completed by 998 minor cannabis use/possess offenders across Australia in 2014. Using the survey data, this study sought to address important questions about cannabis diversion programs, including:

- What is the extent of the impact of diversion across offending, health and social domains?
- Are there any differences between alternate forms (caution, warnings and expiation) of diversion in terms of costs and outcomes?
- What is the cost-effectiveness of diversion relative to a traditional criminal justice system (CJS) response?

Aims

This study aimed to address some of these questions by:

- comparing outcomes including reported change in cannabis use, recidivism, employment status, and health status for cannabis use/possess offenders who have received one of four criminal justice responses:
  - cautions which seek to divert offenders into education and/or treatment programs;
  - expiation which seeks to divert offenders away from the CJS;
  - warnings; and
  - criminal charges;
- comparing the cost-effectiveness of the three alternative forms of police cannabis diversion with the traditional CJS response; and
- assessing the feasibility of using internet surveys as a method for assessing outcomes and cost-effectiveness of police (or other) diversion programs.

Key findings

The sample (n=998) was predominantly male and young, similar to that of other research in this area (Crime Research Centre 2007; Baker & Goh 2004). The charged and expiation groups were somewhat older. Overall the sample was a high-frequency cannabis using group, with considerable levels of dependence and other health-related problems. Many (27%) were still at secondary school and 80 percent were single.

The respondents were mostly males (86.6%) with no differences found across the groups but significant differences in the average age:

- the expiation group was on average the oldest at 22.1 years;
- the charged group was slightly younger at 21.8 years; and
- those who were warned or cautioned were the youngest.

Among the whole sample, 48 percent were employed; of the remainder, 11 percent were either unemployed (2.7%) or looking for work (8.4%); and a third of the sample was studying (32.9%). Across the groups:

- the charged group was more likely to be employed either full-time or part-time (62.1%); and
- 38 percent and 35 percent of the caution and warning groups respectively were students, likely reflecting their younger ages.

Although there was no statistical difference as to whether different police intervention methods would be used in urban versus rural/remote locations, it was more likely for those in rural/remote areas to be charged.

Drug use and criminal behaviours

To attempt to address the key objective as to whether or not police interventions made a difference and whether there were any differences between the diversion and charge groups, questions were asked about pre- and post-drug use and pre- and post-criminal behaviours.

Pre-police intervention, at least 50 percent of each group stated that they consumed cannabis at least once a day but there was no statistical difference across the groups. Similarly there was no reported difference across the groups in the rates of cannabis dependence with most (72.6%) respondents being classified as having nil or negligible dependence. However, 16.9 percent of the sample were categorised as mildly dependent, while 10.8 percent were moderately to severely dependent.

Post-intervention, three of the four groups (charge, caution and warning) were found to have a small decrease in days of cannabis use. However, there were no statistical differences between the groups. The only significant predictor of change in cannabis use was the dependency score—those who were more dependent were less likely to decrease their use. Other factors such as age, sex, education, employment, prior criminal record or current criminal behaviours, age of onset of use did not predict change of use between the groups in multiple regression analyses. The charge group had a decreased number of illicit drugs reportedly used in the previous month; this was different from all diversion groups.

Eighty-eight percent of the whole sample reported having no prior criminal conviction. However, the groups did differ in their pre-existing criminal behaviours:

- 85.5 percent of the expiation group, 92.3 percent of the caution group and 95 percent of the warning group reported no prior criminal conviction. In contrast, only 70.3 percent of the charge group reported no prior conviction. These differences were statistically significant.

Self-reported engagement in crime in the last month, excluding cannabis use, was assessed pre- and post-intervention.

- Of the sample, 23.9 percent (p=0.06) reported committing an offence in the month before their police intervention with this decreasing to 17.9 percent post-intervention (defined as engagement in violent crime, fraud, property crime, and for-profit dealing).
- There was no significant differences pre to post-intervention across groups.

Across all groups, the likelihood of subsequent criminal behaviours post-intervention was conditional on whether there had been previous offending behaviour.

- Those who had not previously offended had rates of offending post-intervention ranging from 2.4 percent (caution group) to 6.5 percent (charge group) while those who reported offending in the month prior to the intervention had reoffending rates from 22.6 percent (warning group) to 34.7 percent (charge group).

Comparing the characteristics of those who continued to offend after encountering police with those who did not, this study found that the reoffenders were statistically more likely to use cannabis daily (before and after the encounter); to be dependent on cannabis; to use multiple other illicit drugs (after the encounter); to have completed only Year 10 at school; to be unemployed; and to have multiple health diagnoses.

This would suggest that those who continue to reoffend may be substantially different from those who do not, and may have more complex needs.

Social behaviours

Across the whole sample, 29.6 percent reported having experienced relationship problems since their police encounter.

- Those who were charged were statistically more likely to report relationship problems since their police encounter: 49.7 percent compared with 10–28.3 percent of diversion groups;
- The relationship problem most commonly noted was with family (21.7%), compared with problems with partners (12.8%) and for problems with friends (10.7%). Again the charge group reported proportionally more problems with family, at 40.5 percent, compared with 4.2–20.2 percent for the other groups.

Over the sample as a whole, 10.9 percent reported changing their employment status following their police encounter.

- Those in the charge group were significantly more likely to report an employment status change (21.5% compared with 8.7–10% for all diversion groups). Those in the charge group were also more likely to report that their change was related to their drug charge: 47.6 percent compared with 22.4–33 percent for the diversion groups (approaching significance).
- A total of 43 percent reported having applied for one or more jobs since their police intervention and, of those, 39.7 percent reported being asked if they had a criminal record.
- Overall, 12.5 percent reported having been denied a job due to a cannabis offence and 9.9 percent reported having lost a job due to their cannabis-related offence.
- Those in the charge group were 2.2 to 9.8 times more likely than those in the diversion groups to report they had been denied a job and 2.1 to 3.7 times more likely to report they had lost a job.

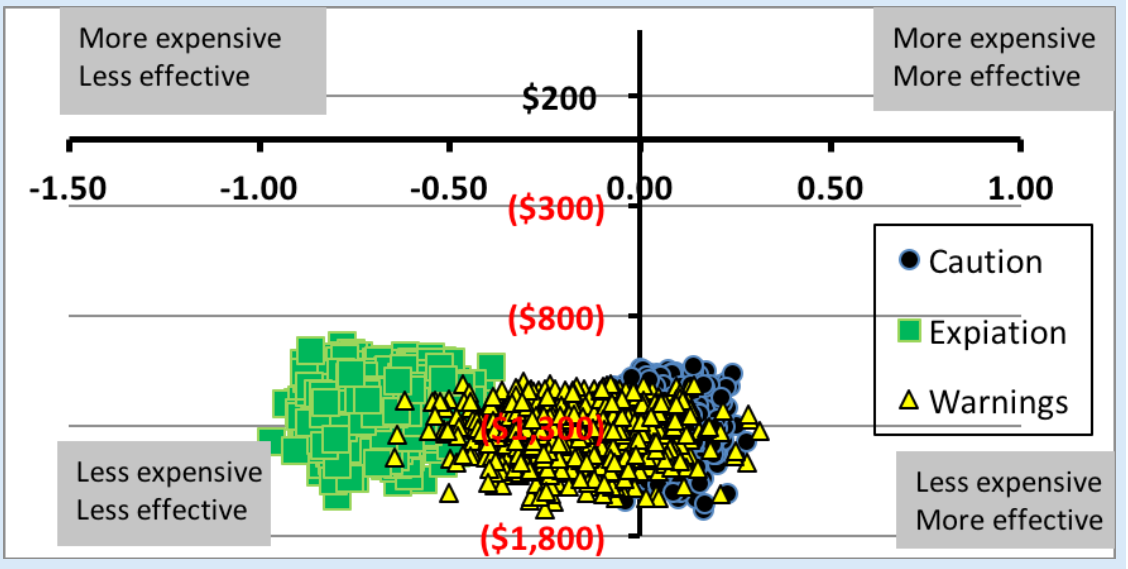
Costs and cost-effectiveness analysis (CEA)

Comparing the average costs, the most expensive average cost was for the group that was charged, reflecting additional police and court activities ($1,918, 95% Confidence Interval (CI) $942–$2,912), followed by:

- caution group ($318, 95% CI $289–$246.7);
- expiation group ($264, 95% CI $220–$306.3); and
- warning group, with the lowest average cost ($122).

The costs and outcomes were combined in the incremental cost-effectiveness ratio (ICER) and the results plotted on the cost-effectiveness plane. The ICER is the relative difference in costs and outcomes between the charge group and each of the diversion groups. The cost-effectiveness plane is presented for the change in number of illicit drugs where there is a statistical difference across groups. As there was no statistical difference across the groups in the change in cannabis use, the cost-effectiveness analysis reflects only the difference in costs.

Figure 1 Cost-effectiveness plane: Comparing relative costs and the change in the number of illicit drugs used



The interpretation of the cost-effectiveness plane plots in Figure 1 is as follows:

- where the points are all in the less costly and less effective quadrant (south-west) as with the expiation group, the expiation group was relatively less expensive than the charge group but it was also less effective at decreasing the number of illicit drugs used in the previous month; and
- where the scatter plot crosses the y-axis, as in the caution and warning groups, there was no difference in the number of illicit drugs used relative to the charge group. But these options were both less expensive than the costs incurred by the charge group—that is, the charge group was more expensive for relatively little additional benefit.

Discussion and policy implications

This study sought to address a number of important questions about cannabis diversion programs, including: What is the true extent of the impact of diversion across offending, health and social domains? Are there any differences between alternate forms of diversion in terms of costs and outcomes? What is the cost-effectiveness of diversion relative to a traditional criminal justice system (CJS) response?

This research indicates that those who were diverted reduced their drug use and offending, and improved across multiple social domains. However, while compared to a traditional criminal justice response the diversion groups did not result in significantly different changes in drug use or offending, there were significant positive impacts on social consequences, employment prospects, relationships with family, partners and friends and perceptions of improved police legitimacy in the diversion groups.

This research adds to the work by Payne et al. (2008) in demonstrating that those who had no prior criminal engagement tended not to offend after a police encounter and those who did have prior offences also tended not to reoffend. It also demonstrates that the subset which did reoffend had significantly more complex needs (ie they were more likely to be dependent on cannabis, unemployed, have lower education, and have more health problems). This suggests that there may be an opportunity to increase the effectiveness and intensiveness of the therapeutic response for some diverted offenders. A more intensive diversion response may cost more (Hughes et al. 2014) than the average costs reported here. However, as the costs in this study demonstrated, the costs for the charge group were six to 15 times more than those attributed to the diversion groups, leaving considerable scope for increase.

The absence of significant change in drug use or offending from diversion versus charge may make it appear that diversion does not work and that the police should return to charging all offenders. This interpretation should be cautioned against. The net outcome was that diversion might be less harmful than a traditional criminal justice response in that it appeared to ameliorate the adverse social consequences of a criminal record. This amelioration is not necessarily surprising from a criminological perspective (Polk et al. 2005) but is somewhat counter to the traditional stated objectives of drug diversion programs, which emphasise reductions in drug use and offending. Diversion was also much less expensive.

These results provide additional evidence for continuing diversion programs since charging offenders was likely to result in adverse consequences and was more expensive. The full report explores additional data, and a number of additional implications of the findings.

Introduction

Background and rationale

Drug diversion programs are one of the most used policy interventions for responding to drug and drug-related offenders in Australia (Hughes & Ritter 2008). In the Australian context drug diversion is defined as the broad array of programs provided by police and courts that refer detected drug offenders either away from the criminal justice system, and/or into drug education/treatment. The irony is that despite more than 12 years of operation (across all states and territories), increasing popularity and multiple evaluations, many important questions have yet to be resolved, such as:

- What is the true extent of the impact of diversion across offending, health and social domains?
- Are there any differences between alternate forms of diversion in terms of costs and outcomes?
- What is the cost-effectiveness of diversion relative to a traditional criminal justice system response?
- How can governments and criminal justice agencies maximise desired outputs from their scarce resources?

Of key concern is that police diversion is one of the areas with the greatest gaps in knowledge. These gaps are increasingly problematic as they stymie opportunities to understand the true benefits of police diversion programs and avenues for policy improvement. They also provide easy grounds for criticising the worth of such programs.

Drug diversion and the centrality of police drug diversion

Diverting drug offenders away from the traditional CJS response is by no means a new initiative in Australia. Police have long had discretion over enforcing (or not) drug laws (Spooner et al. 2004). As part of the National Drug Strategy objective of harm minimisation, emphasis has long been on prioritising action against drug traffickers, rather than drug users (Morrison & Burdon 2000). Diverting drug and drug-related offenders has become increasingly mainstream and formalised following the 1999 adoption of the Council of Australian Government's Illicit Drug Diversion Initiative (IDDI)—a national agreement to provide diversion for minor drug offenders via both the police and courts (Hughes 2009). For example, the number of programs that diverted drug and drug-related offenders in Australia increased from only seven pre-1999 to 51 by 2008 with the largest share of the new programs having therapeutic goals, namely to address the causes of drug use and/or offending (Hughes & Ritter 2008).

Recent analyses of data from the Alcohol and Other Drug Treatment Services National Minimum Data Set revealed that in the 10 years to 2012–13, the number of treatment episodes provided to clients referred from drug diversion programs more than doubled, whereas numbers of treatment episodes for other clients were relatively constant (AIHW 2014a). This meant that by 2012–13 there were 28,025 episodes provided to those referred from drug diversion programs, accounting for 17 percent of all treatment episodes provided by alcohol and other drug (AOD) treatment agencies (or 24% [n=24,069] of AOD treatment clients). Although this data excludes some forms of drug diversion, such as any offenders expiated or cautioned but not referred to AOD treatment, it illustrates the large expansion of drug diversion in Australia, particularly therapeutic forms (AIHW 2014a).

Interest in, and expansion of, drug diversion was driven by multiple factors including domestic and international concern about the lack of effectiveness of traditional CJS responses in dealing with drug-related crime (Spooner et al. 2001; Bull 2003); the provision of a large amount of ring-fenced federal funding through the National Illicit Drugs Strategy ($325 million); and a high level of commitment by key stakeholders (Hughes 2007). Whatever the cause, the mainstreaming of diversion has been heralded by a number of eminent commentators, including retired Police Commissioner Mal Hyde (Hyde 2013) as 'one of the most significant turning points for police' and the former Health Minister, the Hon. Neal Blewett (Blewett 2013) as among the most innovative policy decisions of the decade.

As outlined by Hughes and Ritter (2008) the Australian system of drug diversion is now diverse and multi-faceted. There are multiple referral agencies (most notably police and courts); multiple types of offenders (from minor drug offenders to serious drug-related offenders), and a continuum of responses ranging from a simple one-off police caution for cannabis possession through to 24 months of intensive assessment, treatment and social support for a drug dependent repeat offender in a drug court.

Figure 2 : Drug diversion continuum

Source: Hughes and Ritter (2008)

Within this continuum, police drug diversion programs continue to have a critical role as the frontline diversion mechanism through targeting minor drug offenders. Police drug diversion programs make it possible to target the largest number of offenders in a manner that is less resource intensive than processing via either the court (Baker & Goh 2004) or drug court. They also provide the opportunity for early intervention: that is to intervene before offending/drug dependence is entrenched.

The evidence base and key gaps

A substantial body of research suggests that drug diversion programs can reduce drug use and/or harmful use (Crime Research Centre 2007), improve physical health, mental health and wellbeing (KPMG 2014) and relationships with significant others, reduce incidence of reoffending (Bright & Matire 2012; KPMG 2014), increase time to re-offending and decrease likelihood of imprisonment (Payne et al. 2008), reduce utilisation of CJS resources (Baker & Goh 2004) and increase cost-effectiveness of responding to drug-related offenders (Shanahan et al. 2004). While the national and international evidence base is plentiful and rigorous with respect to drug court programs, -there is a dearth of research into police drug diversion programs. This gap in knowledge, caused by fewer studies and methodological and conceptual weaknesses, is well documented (Wundersitz 2007; Hughes & Ritter 2008; Bright & Matire 2012).

The strongest evidence to date on police drug diversion concerns the impacts on recidivism (typically measured using administrative police data). For example, Payne and colleagues (2008) at the Australian Institute of Criminology (AIC) conducted a Commonwealth-funded evaluation of police diversion programs in Australia. This national study, which assessed the criminal histories and recidivism of offenders diverted through police diversion programs, demonstrated that most diverted offenders did not have a recorded criminal history nor did they return to the CJS (Payne et al. 2008). Specifically, between 70 and 86 percent of first-time offenders (defined in terms of those who had a recorded criminal offence) did not return to the justice system within 18 months. Similarly, between 53 and 66 percent of offenders with prior criminal histories committed fewer offences after their diversion than in the corresponding period before. This study only assessed change in offending among offenders who had received a diversion.

The lack of a comparator group of offenders not diverted is a key concern. For example, the evaluation of the Commonwealth-funded police-level IDDI conducted by Payne and colleagues at the AIC had possibly the best opportunity so far to assess recidivism from diversion projects for possess/use offences in Australia, but in order to garner support for the evaluation:

> …it was agreed that the AIC would not pursue the identification of independent jurisdictional comparison or control groups. Instead, the study would attempt to measure individual-level change by assessing differences in pre- and post-diversion offending records (Payne et al. 2008).

This left unanswered the question as to whether those diverted actually showed less recidivism than those not diverted. Studies of other related diversion programs, most notably youth diversion, illustrated that more definitive evidence could be gathered.

A recent meta-review of youth diversion programs included more than 60 police and court studies with comparison groups (Wilson & Hoge 2013). It was able to definitively demonstrate that diverted offenders had much lower rates of reoffending than non-diverted offenders (thereby reinforcing the worth of the programs). They were also able to identify key moderator variables (including characteristics of offenders, nature of interventions and aspects of program delivery) and strategies for future improvement.

McSweeney et al. (2016), assessed the impact of the NSW Magistrates Early Referral Into Treatment (MERIT) diversion program on offending in the 12 months following exposure to the intervention. The research employed an experimental group of 1,017 defendants who exited the MERIT program in 2008 as well as a comparison group of 1,017 offenders identified as drug misusers sentenced in non-MERIT courts. Using complex statistical methods it was demonstrated that there was an overall reduction in the rate of reconviction and offence seriousness from pre- to post-intervention. For example, the MERIT group showed a 58.2 percent reduction in offence seriousness post-intervention (McSweeney et al. 2016). However, there was also a 55.7 percent reduction in offence seriousness in the comparison group resulting in no significant difference between those diverted through the MERIT group versus those sentenced through the normal courts. A key limitation is that this study focused only on offending, not on other outcome domains of potential importance including drug use and employment, or the overall cost of responding to the criminal justice system. This leaves unanswered whether the MERIT program is still more cost-effective than a traditional CJS response.

Of equal concern is that evaluators of Australian police drug diversion programs have tended to focus on offending alone, neglecting other important outcomes. The focus on recidivism alone is short-sighted for many reasons including low offending rates for minor offenders and the likelihood of missing changes in other important domains. The latter is particularly important when considering police diversion for cannabis users, as Australian states and territories have employed a diverse set of responses, which have multiple and potentially variable benefits across a range of health and social domains.

This failure to quantify outcomes across multiple domains is clearly acknowledged in the AIC recidivism study which states: ‘further longitudinal research is needed to combine both criminal justice and health outcomes so that a more comprehensive evaluation of police drug diversion can be undertaken’ (Payne et al. 2008). Similarly Wundersitz (2007), in her review of police drug diversion programs and their efficacy, states: ‘Most of the studies of police drug diversions made some attempt to assess the program’s impact on reoffending but only one, Queensland’s Police Drug Diversion Program (Hales et al. 2003), presented empirical data on changes in participants’ drug use and health and wellbeing.’

Unfortunately, the two Australian studies that have taken a more holistic approach to examining outcomes suggest that police diversion can impact on a host of domains (Ali et al. 1999; Hales et al. 2004). In 1999, Ali et al. used an interstate comparison to assess the social impacts of diverting cannabis offenders through the cannabis expiation notice scheme in South Australia versus the traditional CJS response in Western Australia (1999). Impacts were compared for 68 offenders in both groups and there was no difference in drug use between diverted and convicted offenders. However, diverted offenders were much less likely to report negative employment consequences arising from a cannabis offence apprehension (2% vs 32%) such as loss of a job or missing out on a job opportunity; less likely to report accommodation problems (0% vs 16%); and less likely to report relationship problems (5% vs 20%). Non-diverted offenders were also less trusting of police (49% compared with 18%) and more fearful of them (43% compared with 15%). The Hales et al. evaluation of Queensland's police diversion program sought to prospectively measure a wide range of temporal changes in drug use, employment, physical health/risk-taking behaviours, mental health and social functioning of diverted cannabis clients in the six months post-intervention (2004). A total of 224 diverted clients were recruited, with 77 percent retained in the study at six months (n=172). This study found that from baseline to six months among the diverted group, regular cannabis use decreased from 95 percent to 74 percent; the proportion unemployed was reduced (28% to 23%); and there was a reduction in drug-dealing from 14.4 to 4.7 percent. Mental health scores also improved to within the normal non-patient adult population. This study is instructive as it indicates that for diverted clients, changes in non-offending domains may be as, if not more, substantial than offending domains. More generally, both studies reinforce the notion that current studies may be greatly underestimating the benefits of police drug-diversion programs.

A final concern is that to date, at least among the published literature, no economic evaluations have been conducted of police drug diversion programs. Two studies have assessed the costs of operating cannabis diversion programs and potential cost savings (Brooks et al. 1999; Baker and Goh 2004). Baker and Goh examined the potential time and resource savings to the CJS resulting from the introduction of the New South Wales cannabis cautioning scheme (2004). They estimated that each year the scheme saved more than 6,000 police hours and resulted in 880 fewer people being convicted in court. This translated to an estimated cost-saving over the first three years of more than one million dollars. Yet, as acknowledged by the authors themselves, this study did not undertake a full cost-benefit or cost-effectiveness analysis. It did not, for example, take into account the potential benefits to the offenders in terms of improved health, or potential savings that might accrue in reducing drug offending. Nor did it assess any comparative benefits or cost-savings for a comparator group.

More recently as part of an evaluation of the ACT drug diversion system Hughes et al. (2014) assessed the use of resources and the cost per referral for different police diversion programs. It is important to note this was not a full cost-effectiveness analysis as data on outcomes was unavailable. Nevertheless this study revealed the cost of referring a drug offender to police diversion could vary considerably from $1,067 to $2,215 per offender (Hughes et al. 2014). Equally important, the cost of a traditional CJS response was $1,640 to $1,900 suggesting that some forms of police diversion could be more expensive than the standard CJS response. Such research shows the real necessity is to conduct a cost-effectiveness evaluation to assess the relative costs and outcomes of police diversion programs.

The continued absence of such evidence means in addition to missing out on knowing the resources needed to achieve, on average, a given outcome, the opportunity to identify efficiency improvements is forgone. Evidence of cost-effectiveness of police diversion is particularly pertinent now, as constraints on resources have tightened. While the drug court research has demonstrated that the cost-effectiveness of drug courts is highly affected by the ratio of completers to non-completers and the level of use of sanctions (Lind et al. 2002), what is cost-effective for police diversion is likely to be very different. With the current evidence there is no way of assessing whether any improvement in outcomes outweighs the costs of the program or how cost-effectiveness may vary from one program to another and whether (or how) it could be improved.

The research to date has thus suffered from a number of conceptual and methodological challenges which have stymied the ability to assess the full extent of outcomes from police drug diversion programs. Equally importantly, it reduces capacity to compare outcomes across and between programs and to assess the cost-effectiveness of diversion versus a traditional CJS response. These conceptual and methodological barriers are not insurmountable but they do demand a good understanding of the limitations of the approaches employed to date.

Many of the studies have employed administrative data (eg police records) but existing administrative data have a number of deficits. For example, although the Commonwealth Department of Health and Ageing commissioned the Australian Institute of Health and Welfare to assess the effectiveness of drug diversion programs in rural and remote Australia, it found no data to assess any of the outcomes of interest: recidivism, drug use, social functioning or sentencing. This is despite being given access to the complete IDDI National Minimum Data Set. As the institute noted 'while some information is available about the inputs and outputs of the IDDI, there is limited information about the outcomes of the Initiative' (AIHW 2008: xi).

A recent evaluation of the ACT drug diversion system confirmed many gaps in outcome domains of interest (Hughes et al. 2014) and outlined data that should be collected to enable meaningful assessment. The ACT Government has committed to collecting such data (ACT Health Directorate 2014); however, it will be at least another 24 months before it will be possible to comprehensively assess across multiple domains. While it is feasible in some jurisdictions to link data for evaluation, and has been used by McSweeney for analysing pre-sentence forms of drug diversion (McSweeney et al. 2016) such methods are not feasible for analysing police drug diversion until all the domains of interest have been identified and captured (something this current study tries to address).

The other (less) frequently adopted analytical approach has used prospective studies (with interrupted time series). While this offers the potential to collect information across multiple domains, to follow up change over time, and to compare impacts across multiple groups (eg diverted and non-diverted offenders) to date these studies have struggled. One such study was that of Hales et al. (2004). As noted above, while they had some success in examining impacts of police drug diversion across multiple domains, recruiting a comparison group to compare with the 224 diverted offenders was less fruitful. They aimed for a sample of 50, but only recruited 15 offenders (7 of whom were retained at 6 months). Two other attempted prospective diversion outcome evaluations in Victoria and Tasmania were even less productive. They sought to attain 350 and 75 offenders each, but only reached 13 and 10 for phase one of the recruitment (Health Outcomes International 2002), leading Wundersitz (2007) to conclude:

> Use of an interrupted time series design to measure changes in behaviour over time was often hampered by low success rates in recruiting participants and high attrition rates during the course of interviews, with the probability of response bias due to the likelihood that only the most successful participants were retained in the study.

The real stumbling block has proven to be recruitment. How do you gain access to multiple populations—diverted and non-diverted cannabis users? Equally importantly, how do you access those who are not required to attend a program? For example, the fact that expiations and cautions, as well as warnings, may be issued on the street by police makes traditional methods of recruitment problematic and expensive. Indeed, it appears the greater recruitment capacity of the Hales et al. Queensland evaluation was mostly due to the fact that all offenders were required to attend an AOD assessment thus providing a designated point of recruitment (something that was lacking in Victoria or Tasmania). Recruitment and evaluation becomes even more complex across Australia where there are multiple models across a large geographical area.

This project attempts to fill some of the gaps by using a national online survey. This allows access to all the various populations of those who have been detected by police (including those diverted and charged) in possession of a small amount of cannabis. It also allows for an assessment of a full range of outcome domains.

Project objectives

- To compare outcomes including reported change in cannabis use, recidivism, employment status, and health status for cannabis use/possess offenders who have received one of four criminal justice responses:
  - cautions which seek to divert offenders into education and/or treatment programs;
  - expiation which seeks to divert offenders away from the CJS through payment of a civil fine;
  - warnings; and
  - criminal charges.
- To compare the cost-effectiveness of these alternative forms of police cannabis diversion and the traditional CJS response.
- To assess the feasibility of using internet surveys as a method for assessing outcomes from, and cost-effectiveness of, police (or other) diversion programs.

Australian police diversion programs for cannabis offences

A brief summary of the police diversion programs as they apply in the various Australian jurisdictions to cannabis use/possession offences is in Table 1. Additional detail can be found in *Appendix A*. For details of these and other police and court diversion programs for drug offences see Hughes & Ritter 2008 and Wundersitz 2007.

Table 1 shows the diversion programs for cannabis offences vary by jurisdiction. However, this study categorises four methods used by police to deal with those who were detected for cannabis possession or use.

- Cannabis cautions which seek to divert offenders into education and/or treatment programs and reduce (harmful) use and offending through typically providing offenders an 'on the street' formal caution (sometimes referred to as a warning) with an option or a requirement for assessment of treatment need. Cannabis cautions typically involve confiscating cannabis with no criminal record recorded if offenders comply.
- Cannabis expiations (also called civil fines) which seek to divert offenders away from the CJS, and prevent adverse social harms from a criminal conviction including reduced employment prospects through the option to pay an expiation notice. Again expiation involves confiscating the cannabis, and no criminal record if the fine is paid.
- Non-drug specific warnings (typically but not exclusively reserved for young offenders) which seek to divert offenders away from the CJS and avoid formal CJS involvement for minor offenders. Warnings typically involve a simple warning where no record is made of the person's name but the cannabis is confiscated.
- Criminal charges which seek to sanction offenders through the traditional criminal justice system. A criminal charge typically involves police confiscating the cannabis and issuing a summons to appear in court. The summons can be issued on the street or at a police station. Offenders are then required to attend court and enter a plea (guilty or not guilty). If found guilty, the offender may receive a criminal record and may be required to pay a fine and/or imprisoned.

For ease of reference from this point forward these programs are identified as: caution, expiation, warning and charge. They are referred to specifically in relation to their application for cannabis offenders, and for offences pertaining to cannabis use or possession, not supply.

Table 1 A summary overview of Australian diversion programs for cannabis possession/use offences by jurisdiction as of 2014

	Name of program	Type of diversion program	Criteria for inclusion^	Required actions by offender	Required actions by police^^
ACT	Simple Cannabis Offence Notice (SCON)	Expiation	50 grams of cannabis or two non-hydroponic plants	Pay a $100 fine within 60 days If do not pay the fine they may be charged/ summonsed to court or required to attend PED	Explain the infringement notice, obtain agreement Record why a PED was not issued
	Police and Early Intervention and Diversion program (PED)	Caution	25 grams or less of dried cannabis or two non-hydroponic plants Must not have more than two previous diversions	Must attend an assessment and education session with a drug service If do not comply may be charged/summonsed to court	PED takes precedence over SCON if applicable Notify the Alcohol and Drug Service of the referral
NSW	NSW Cannabis Cautioning Scheme	Caution	Police have discretion over whether to issue caution or formally charge 15 grams or less of dried cannabis or smoking implements Drugs must be for personal use	For a first offence it is optional to contact Alcohol and Drug Information Service (ADIS) For a second and final caution it is mandatory to contact ADIS; noncompliance is recorded and may be taken into consideration by a magistrate at further offence	Issue formal caution notice
NT	Cannabis Expiation Notice Scheme	Expiation	Up to 50 grams of dried cannabis; or one gram of hash oil, or 10 grams of hash or seed, or two non-hydroponic plants Those under the age of 17 or using cannabis around schools will be prosecuted	Pay a fine of $200 within 28 days otherwise they may face a criminal charge or a debt to the state	
	Illicit Drug Pre-Court Diversion Program (NTIDPCDP)	Caution	Up to 50 grams of dried cannabis	Attend an assessment and a one-hour education session Noncompliance will result in a summons issued	
QLD	Police Drug Diversion Program (PDDP)	Caution	Up to 50 grams of cannabis, or a smoking implement Can only be offered once	If accept the offer, must attend an assessment and education session Noncompliance may result in being required to attend court	Make an appointment for the offender with the closest Drug Diversion Assessment Program (DDAP)

Table 1 A summary overview of Australian diversion programs for cannabis possession/use offences by jurisdiction as of 2014

	Name of program	Type of diversion program	Criteria for inclusion^	Required actions by offender	Required actions by police^^
SA	Cannabis Expiation Notice scheme (CEN)	Expiation	Fines of $150 for possession of <25g cannabis or <5g resin, smoking or consuming cannabis not in a public place, or the possession of equipment for use in connection with smoking or consuming cannabis. Fine of $300 for the possession of 25–100g cannabis, 5–20g resin or a single plant (not hydroponically grown)	Payment of fine must occur within prescribed period Fines can be paid by instalment or offenders may elect to perform community service Failure to pay results in a reminder and additional fees, further failure to pay results in a notice to court and a conviction leading to a fine and court costs	
TAS	Illicit Drug Diversion Initiative (IDDI)	Caution/ diversion	Available for a range of drugs and drug offences Cannabis personal use drug quantity (2 plants or <50 grams) or related drug paraphernalia Offender must not exceed three drug events within 10 years	Must make appointment for counselling/ treatment within three working days, and attend within seven or 21 days Noncompliance results in charges	Issued at the discretion of police
VIC	Cannabis Caution Program	Caution	Have 50 grams or less of cannabis Eligible for maximum of two drug cautions	Attend for assessment within five working days and treatment within 28 days	Provide education brochure with referral information for optional cannabis education session once consent obtained, police call Drug Diversion Appointment line to make an appointment for an assessment
WA	Cannabis Intervention Requirement (CIR)	Caution^^^	Offender found in possession or using no more than 10 grams of cannabis and/ or a smoking implement Adults may receive only one CIR; while youth may receive two	Attend a one-to-one therapeutic intervention of approximately 60 to 90 minutes duration within 60 days of offence May be criminal charges if do not comply	

^ Consistent with the Illicit Drug Diversion Initiative agreement most cannabis caution programs have a number of consistent eligibility criteria: they require that drugs are for personal use only, that the offender admits offence or guilt and that do not have concurrent offences or prior convictions for violent and/or sexual offences. For full details see *Appendix A*

^^ All programs require the cannabis to be seized, lodged and information to be recorded

^^^ Western Australia classifies the Cannabis Intervention Requirement (CIR) program as expiation. However, given the definition of cautioning used herein which includes those programs that seek to divert offenders into education and/or treatment programs; the CIR was defined as a caution for this research

Methods

This study used a national online survey to assess the outcomes and cost-effectiveness of cannabis diversion programs versus a traditional criminal justice response. It used a self-selected sample of recently detected cannabis use/possess offenders from across Australia. This approach was deliberately different to those adopted in previous analyses in an effort to overcome some of the challenges of previous research (including difficulties in compiling comparison groups and in assessing a broad range of outcomes and costs). It also built on the skills of the research team in evaluating diversion programs, online survey design, constructing comparison groups, conducting cost-effectiveness analyses etc. This section outlines the development of the survey, the eligibility criteria, the methods of recruitment and the approach taken to assess the costs, outcomes and cost-effectiveness. It also reflects on the strengths and limitations of the approach taken.

The survey

Development

The online 'cannabis diversion survey' was purpose-built for this research. It included questions on the two key outcome measures (drug use: cannabis and other drug use; and self-reported offending). Pre- and post-intervention questions were included for both variables. Other outcome domains were also assessed (albeit about a single point in time only) including:

- impact on employment eg future employment prospects;
- relationships with significant others eg conflict with family members; and
- perceptions of police legitimacy eg trust in police.

It also asked about a broad array of demographic and drug use characteristics. The final range of domains and measures is outlined in Table 2.

Where possible, questions were sourced from other relevant survey tools and research, and/or adapted from these questions for the specific purpose of this study. The questions on cannabis use (frequency and quantity), age of onset, other drug use, employment, education, age, gender and location of residence were sourced from the National Drug Strategy Household Survey (AIHW 2014b). Questions on dependence were sourced from the Severity of Dependence Scale or SDS (Gossop et al. 1995; Dawe et al. 2002) and on health diagnoses from National Drug Strategy Household Survey (AIHW 2014b).

Questions on self-reported crime were sourced from the Opioid Treatment Index or OTI (Darke et al. 1991) with one adaptation. The original OTI questionnaire asks about involvement in four different types of crime: property crime, fraud, violent offences and for-profit dealing (specifically selling drugs to someone). Following discussions with the project reference group, a question about involvement in social (not-for-profit) supply was included. The questionnaire thus included two different measures of supply: one asking about supply of drugs to friends or acquaintances for little or no monetary benefit and a second question asking about supply for monetary gain. All of the main analyses on impacts of cannabis diversion on crime were examined using the original OTI definition (ie crime involving property crime, fraud, violent offences and for-profit dealing). This ensured that validated measures were used for the crime analyses.

Table 2 Outcome domains, demographics and drug use and offending characteristics included in the cannabis diversion survey	
Domains and measures	**Source**
Pre/post outcome domains	
Cannabis use: Frequency & quantity	(AIHW 2014b)
Other drug/s use: Last 12 months use	(AIHW 2014b)
Self-reported offending: Incidence/frequency/type	(Darke et al. 1991)
Other outcome domains	
Employment	(Lenton et al. 1999)
Relationships with significant others	(Lenton et al. 1999)
Perceptions of police legitimacy	(Lenton et al. 1999)
Cannabis use	
Age of first use of cannabis	(AIHW 2014b)
Severity of dependence score	(Gossop et al. 1995; Dawe et al. 2002)
Perceptions of safety of cannabis	(Lenton et al. 1999)
Health	
Perceived health status	(AIHW 2014b)
Health diagnoses	(AIHW 2014b)
Demographics	
Age	(AIHW 2014b)
Gender	(AIHW 2014b)
Education: secondary & tertiary	(AIHW 2014b)
Employment	(AIHW 2014b)
Income	(AIHW 2014b)
Marital status	(AIHW 2014b)
Living situation	(AIHW 2014b)
Criminal history	
Criminal conviction: number & type	Developed by team
Frequency of being stopped by police	Developed by team
Location of police encounter	
State/territory	(AIHW 2014b)
Rural vs regional	(AIHW 2014b)

Previous research was used to source information on the impacts of a police encounter on employment, relationships with significant others, perceived legitimacy of and trust in police, and perceptions of the safety of cannabis. This earlier research also looked at the social impacts of a cannabis expiation notice versus a criminal conviction for a minor cannabis offence (Lenton et al. 1999). This research was conducted in the late 1990s but remains the main study to have explored social impacts of police interventions for cannabis offences. Drawing from this previous work, questions were asked on the impact of the police encounter on employment (to the best of the respondent's knowledge). Questions explicitly explored:

- whether respondents had lost a job or been denied a job due to their cannabis-related criminal offence;
- the number of jobs applied for since the cannabis arrest/offence; and
- the number of times asked by a prospective employer about whether they had a criminal record.

Impact on relationships was assessed through questions on whether respondents had had any relationship problems with their partner, friends and/or family (disputes, break-ups or fallings out) since the cannabis encounter; and if so, the type of encounter and extent to which the individual cannabis offender perceived the problems as attributable to the police encounter versus other unrelated factors. This again replicated the approach of Lenton et al. (1999).

Police legitimacy was explored through five questions, including measures of whether 'police deserve respect for maintaining law and order' and whether 'police pick and choose how they enforce drug laws' as well as a broad question on the respondent's general attitude to police: favourable or unfavourable.

For the cost-effectiveness component it was important that the survey obtained detailed information about the police interventions received. This included assessment of the type of police intervention received, the steps involved (eg was the offender dealt with on the street or transferred to the police station), and the offender's response to any optional elements (eg if referred to treatment, did they attend) and any consequences of not complying. All such questions were purpose built. A challenge was to make the questions sufficiently general for a national audience but also specific enough to assess the measures used and the costs. For example, the question employed to identify the specific intervention received (regardless of state) was:

- I was charged or given a summons to appear in court (police stopped you and seized your cannabis and you were required to attend court).
- I was given a cannabis caution (police stopped you and seized your cannabis, a caution was issued, and you may have been given the option to attend an assessment, education or treatment session; you were NOT required to attend court).
- I was issued with a civil fine (police stopped you and seized your cannabis and you were issued with a fine; you were NOT required to attend court).
- I was given a warning (police stopped you and seized your cannabis but no permanent record of offence was made; you were NOT required to attend court).

Once a selection of one of the above was made, there were subsequent questions drilling down into the specifics. For example, those who selected that they were charged were asked how long they were detained at the police station (if they were transferred there); whether they made a plea/were found guilty; whether they received a recorded conviction; and what type and the amount of any penalty received. Specific questions were asked for each of the interventions.

The survey was revised following piloting with n=10 people, and consultation with the Project Reference Group of law enforcement advisors from across Australia. The survey was hosted on the UNSW KeySurvey website with a unique URL to increase ease of recruitment (www.cannabisdiversionsurvey.com.au). Multiple responses could not be completed from the same device. This method decreased the likelihood that the same respondent would complete more than one survey response (Mallick et al. 2007) or re-enter the survey after having been screened out. To protect participant privacy the survey was anonymous.

Eligibility criteria

A number of inclusion criteria were established for participation in the survey:

- aged 17 and over;
- had been detected by police for a cannabis use/possession offence in the last three to nine months; and
- had the encounter with police in Australia.

The requirement for detection by police in the last three to six months was particularly important to enable sufficient time to pass to allow assessment of impacts pre- and post-intervention by police; and to increase the likelihood of accurate recall. Eligibility criteria were explained in all advertising material and the consent form. Screens were also employed in the survey to cross-check all three eligibility criteria. For example, respondents were redirected out of the survey if their encounter with police for a cannabis use/possession offence did not occur during the relevant time period.

A few other eligibility criteria for cannabis diversion programs were not assessed. No assessment was made or restrictions placed on the quantity of drug possessed by the offender as these amounts vary considerably by jurisdiction (eg 15 grams or less in New South Wales to 50 grams or less in Queensland, the Northern Territory and the Australian Capital Territory, and up to 100 grams in South Australia). Also, concurrent offences were not directly assessed although respondents were asked about crimes committed in the previous month.

Recruitment

The survey was promoted through:.

- a project-specific page created on Facebook and advertising on Facebook via this page and the National Drug and Alcohol Research Centre (NDARC) Facebook page;
- the forums and websites of 30 user groups and agencies from across Australia (peak AOD groups, youth sites, police and health, local councils and treatment agencies);
- a range of mainstream and social media, namely NDARC and the Drug Policy Modelling Program (DPMP) Twitter accounts and a press release and subsequent media interviews.

Such strategies sought to target all states and territories, and urban and rural communities as well as multiple audiences. The method employed built upon those used by DPMP with previous online surveys (Hughes et al. 2010; Lancaster et al. 2013; Hughes et al. 2015).

Online recruitment ran for four months: from mid-July 2015 to mid-November 2015. From a list of those who completed the survey and chose to provide contact details, five names were randomly drawn and sent a $200 music voucher.

Assessing costs

As one of the key objectives of this evaluation was to assess the cost-effectiveness of achieving the identified outcomes, it was necessary to assess the resources used for each of the police interventions and any subsequent activities. Only health and criminal justice system costs related to the intervention for the cannabis offence were included. Methods for assessing resource utilisation and costs ranged from micro-costing to top-down allocation. Micro-costing involves measuring all resources utilised (such as consumables, time spent, and number of police officers involved in every activity) and then attaching the relevant cost to that activity. Macro-costing uses financial information to calculate an average cost per activity. The former requires a considerable amount of detailed information and the availability of the appropriate unit prices. Obtaining these data was not feasible for this evaluation conducted across multiple states and territories. The latter option would give a very crude estimate of costs and not reflect the variation of activities within each intervention (Drummond et al. 2007).

This study uses a combination of costing methods. Where information exists, either through that gathered in the survey, or from other sources (as described below) individual activities were costed, and where detailed information was not available, unit average costs were used for the various activities. The costs were applied at the individual level and then summed according to the police intervention. Costs were estimated for police activities, treatment, assessment, education services, court, and any penalties determined by the courts. Subsequent actions (eg placed in police cells, calling helplines, assessments, attending educational sessions, treatment, court, and imprisonment) were counted and costed according to information provided by each respondent on the relevant activity. Additional details are provided below.

All costs are reported in 2014 Australian dollars, and adjusted where necessary, in line with the Consumer Price Index (ABS, 2015b).

Police

The main sources of expenditures related to policing activities were derived from the following sources:

The survey questions

As discussed, once the respondent selected the type of police intervention, specific questions were asked about their encounter. Questions relevant to assessing police resources included: whether they were transported to a police station; how long they were at the police station; were they placed in police cells; and whether they pleaded guilty at court.

A survey of police officers

This survey of 100 police officers in three local area commands in New South Wales (an inner urban, an outer urban, and a regional area) was conducted previously by Shanahan and Ritter (Shanahan 2011; Shanahan et al. 2014). The surveys were anonymous and completed by officers at a range of levels. This survey asked that officers indicate the average time and number of officers/personnel involved in various activities related to proceeding with issuing cannabis cautions, issuing a summons, or laying charges with someone who had been detected with a small amount of cannabis. Separate questions related to adults and juveniles. Police were asked to provide information on specific activities including time spent conducting identity checks, issuing summonses, writing and issuing cautions, transporting offenders to the police station if relevant, completing necessary data entry, securing cannabis, any additional paperwork, contacting parents/guardian if relevant, preparing and attending court for both a guilty plea and defended appearances. Once the average times for each activity were determined (which included accounting for the number of officers involved in each activity) the times were allocated to each respondent based on their response, then the components were summed.

Report on Government Services (Australian Productivity Commission 2014)

An hourly cost for police time was estimated as follows. The real recurrent police expenditure from the Report on Government Services (Australian Productivity Commission 2014) was apportioned across full-time equivalents, and divided by the average number of hours worked per year. This value was then adjusted for the 2014 Australian dollar (ABS 2015b). The average cost per hour was then applied to the estimated times for the various activities.

Charging

As well as the police time taken to confirm identity, weigh and secure cannabis, and complete necessary paperwork, additional police time was allocated if a summons (notice to appear/field notice) was issued at the time of detection, or whether the police transported the person to the police station. The time in the police station, time in cells, and court appearances were included depending on responses. Those placed in cells were assumed to have had a bail hearing. Subsequent court and police costs for court hearings were varied depending on whether the respondent stated they pleaded guilty or not. For those found guilty, any penalty such as time in prison, supervised bond, and community service were also included as were treatment costs for those directed by the court to undertake treatment. The average length of time for a bond or community service for an illicit drug possession offence was sourced from the New South Wales 2013 Court Report (BOCSAR 2013). Fines paid were recorded and reported separately.

Cannabis cautions

As with those offenders who were charged, the costs for those who were cautioned are comprised of average police time allocated based on where the caution was issued and the subsequent activities as reported. The police time for those who were issued a caution on the street varied by age, and whether the respondent was issued a caution at the time of detection or whether the respondent had been transferred to the police station. The costs for those who were taken to the police station, in addition to the cost of the time for detection, and conveying the offender to police station, included the cost of the time while at the police station as reported by survey respondents.

Other costs were included that related to cautioning, as applicable, according to the responses. Survey respondents were asked about whether they called a telephone helpline or attended an educational session, assessment, or treatment. Further information was sought on time spent on any of these activities, who was involved in providing them, and what, if any, were the consequences should the respondent not have undertaken these activities.

Resource implications and costs of the telephone counselling, assessment education and treatment were obtained from a range of sources: assessment costs (Hughes et al. 2014) treatment costs (Ngui & Shanahan, 2010); and telephone counselling (Urbis Keys Young, 2002). Consequences of noncompliance are based on self-report and costed as described above.

Warnings

As with the other interventions, the allocation of police time is based on self-report, with costs varying by whether a warning was given without a name being recorded, the name was recorded, and if the person was transferred to the police station.

Table 3 Unit costs/sources

Costs	Values 2014 AUD	References
Average cost per minute of police time	1.22	(Australian Productivity Commission 2014; ABS 2015b)
Magistrates' court hearing	593.37	(Australian Productivity Commission 2014; ABS 2015b)
Day in prison	228.61	(Australian Productivity Commission 2014; ABS 2015b)
Supervised bond/day	14.39	(Queensland Audit Office 2013–14)
Community service	23.22	(Australian Productivity Commission 2014)
Help line per minute	3.88	(Ubis Keys Young 2002)
Assessment and education/per session	1,686.28	(Hughes et al. 2014)

Analyses

Chi square and ANOVA were used to assess differences in demographic variables and other characteristics across the four groups. As well as providing descriptive information, this helped with selecting covariates for subsequent analyses. Web-based surveys as a method for collecting unbiased (representative population) data have several issues, in particular under-coverage and self-selection bias (Bethlehem 2010). The non-random method of sampling for this survey may have resulted in such biases. For example, self-selection may affect the responses when individuals choose to respond to the survey based on their characteristics. Statistical techniques, such as instrumental variables (IV) and propensity score matching, which were originally planned, turned out not to be feasible. The former was not undertaken as only 15 percent of the sample answered the question on participation in political activities, which was included to ascertain whether one group was more or less likely to participate in such surveys. Propensity score matching was not used as the low numbers in one of the groups (expiation) meant that the useable sample for analyses would be greatly limited.

The analyses of the two main outcomes of interest (pre- to post-intervention change in cannabis use and illicit drugs used), and pre- to post-change in self-reported crime were analysed with linear and multinomial regression analyses. As cost data are not usually normally distributed, the average cost for each group and 95 percent confidence levels were assessed through the non-parametric bootstrapping method (Fenwick et al. 2006). In addition, a Generalised Linear Model was used to assess the impact of various characteristics and demographics on the costs (Wooldridge 2009). This information was factored into the estimation of the cost-effectiveness analyses.

Cost-effectiveness analysis

A cost-effectiveness analysis is a method of economic evaluation that addresses productive efficiency, that is, whether the outcome is being achieved at the lowest possible cost. Once all resources were costed, an estimated cost was obtained for each individual and an average cost estimated for each type of diversion program. This was used, along with a measure of effectiveness, to assess the cost-effectiveness of the various programs by estimating the incremental cost-effectiveness ratio (ICER). The proposed outcome method for use in the ICER was the change in the number of days cannabis was used and the number of other illicit drugs used pre- to post-intervention.

The ICER is simply the difference in average cost for intervention A, compared with the base intervention B, divided by the difference in their outcomes [ICER=(cost A minus cost B)/(outcome A minus outcome B)]. In this study, the costs and outcomes for each intervention are compared with that of 'charged for possession or use'.

Online surveys

One objective of this study was to reflect on the utility of online surveys for evaluating diversion programs. The specific strengths and limitations of these are considered in the discussion and conclusion section, although some specific comments are made here.

The use of online surveys for drug research has grown rapidly in recent years (Hughes et al. 2010; Lancaster et al. 2013; Barratt et al. 2015; Hughes et al. 2015; Lenton et al. 2015). Key advantages of the online method are the ability to recruit large samples; recruit samples in a cost-effective and convenient way (covering, where desired, a large geographical area such as rural and remote Australia; AIHW 2008); increase the accuracy of responses; and obtain higher response rates than face-to-face and mail surveys (McCabe 2004). Seventy-nine percent of all Australian households have access to the internet at home; and more than 90 percent of these are aged between 15 and 44 years, and report having used the internet in the past 12 months (ABS 2015a). This suggests the internet is a viable method of access.

Key challenges as outlined by Barratt and colleagues (2015) are that the external validity of results arising from (online) purposive samples remains unknown. The samples obtained from online surveys can also differ somewhat. For example Barratt and colleagues found that compared with ecstasy users recruited through purposeful methods (the National Drug Strategy Household Strategy—NDSHS), ecstasy users recruited through an online survey were younger, better educated and more likely to report concurrent use of a range of stimulant and hallucinogenic drugs (ie 'party drugs'). On the other hand Topp et al. (2004) compared a purposive sample of regular ecstasy users interviewed face-to-face with two probability samples of regular and recent ecstasy users derived from the NDSHS. They found substantial concordance in both demographics and drug use across the samples. It is possible the online environment may make people more likely to report drug use than they would in other settings (Ramo et al. 2010).

Research into the strengths and limitations of using online surveys for accessing drug users is ongoing. However, given the potential biases, it is important to test the representativeness of survey samples. For example, Barratt et al. note that 'one way to test the representativeness of purposive samples is to compare their characteristics with carefully matched probability samples, where such samples exist' (2015: 11–12). Comparisons with other groups are in the results section.

Results

This section starts with an overview of the sample attained using the cannabis diversion survey, including the response rate, the sample demographics and drug use characteristics. It also looks at how comparable this sample was to other relevant populations of drug users, police detainees and the general population. It then examines the sample by the police intervention, and reports the proportions for each and any pertinent differences between the groups. Finally, it presents an analysis of the outcomes, costs, and the cost-effectiveness of cannabis diversion versus a traditional criminal justice response (a criminal charge). To increase readability additional analysis is in *Appendix B* and noted where relevant.

The overall sample

Response rate

All did not pass the requisite screening questions. A total of 4,634 people consented to participate in the study after seeing the participant information statement and inclusion criteria (required age, offence and relevant timeframe for the offence). Of these, 1,890 (40.8%) were excluded as their encounter with police was outside the three to nine months prior to completing the survey; 3.4 percent as their age was less than 17 years; and 0.2 percent as the encounter did not occur in Australia. Finally 12 (<1%) were excluded for multiple nonsensical responses and 1,567 respondents were excluded as they started but did not complete the survey. While some of these responses may be relevant to the study they were excluded because most completed only a few questions. This included several of the convenors of websites and forums who started the survey in order to verify it before posting information about it on their own website/forum. The final sample analysed was 998 people (Table 4).

Table 4 Survey sample

Variable	N	% of total
Excluded:		
• as was not stopped by police for cannabis in the 3–9 months prior to undertaking the survey	1,890	40.8%
• as aged <17 years of age	158	3.4%
• as cannabis offence did not occur in Australia	9	0.2%
• did not complete the survey	1567	33.8%
• for nonsensical answers**	12	0.3%
Analysed	998	21.5%
Total	4,634	

** Those who were excluded answered multiple questions in a nonsensical fashion. Examples include: one person who reported 8,110 prior convictions, consuming 700 cones and joints per day, and using every drug listed in the past month and was 18 years of age. Another reported 69 prior convictions, using 30 cannabis cones per day, commencing cannabis use at age four, being 18 years of age and having health diagnoses for eating disorder, PTSD, depression, anxiety, diabetes, heart disease, high blood pressure, AIDS, Crones, STD, cancer, non-cancer pain etc

This completion rate (22%) was lower than survey completion rates from other online surveys. For example in a systematic review of online surveys employed for health research, Amon et al. (2014) found completion rates of 37 percent to 71.9 percent. Considering drug research specifically, Hughes et al. (2010) online survey on impacts of news media reporting on youth attitudes to drugs had a completion rate of 72 percent and Lancaster et al. (2013) online survey on youth attitudes to drug policy had a completion rate of 56–70 percent. Finally, Lenton et al. (2015) online survey of cannabis growers found 66 percent completed their survey. That said, 61 percent of this study's survey respondents who met the inclusion criteria completed the survey.

Jurisdictional and rural/regional breakdown

Considerable effort was made to recruit throughout Australia through the PRG, social media and other online recruitment methods. Table 5 shows that, with the notable exception of New South Wales and Victoria, the distribution of recruitment approximately reflects the population distribution across the country. This lack of representativeness in two states was noted midway through recruitment and extra effort was expended recruiting in Victoria with little success, leaving New South Wales over-represented and Victoria under-represented.

Table 5 State/territory where the police intervention occurred

Jurisdiction	N	Sample %	Distribution of the national population^ %
ACT	19	1.9	1.6
NSW	401	40.2	32.0
NT	9	0.9	1.0
QLD	210	21.0	20.1
SA	85	8.5	7.2
TAS	15	1.5	2.2
VIC	156	15.6	24.9
WA	103	10.3	11.0

^(ABS, 2015a)

Recruiting via the internet meant that recruitment was not limited to those in urban areas. It has been demonstrated elsewhere that a disproportionate number of diversions occur in a rural or remote area (AIHW 2008) relative to population living in these areas. This makes it interesting to examine where police encounters occurred in this study's sample. Table 6 shows that, across the whole sample, the study was able to recruit from those in rural and remote areas. Of those who responded, a higher proportion of police encounters occurred in small and other rural locations and remote areas (20.7%) relative to the overall population in those areas (11.8%), perhaps reflecting higher cannabis use in these areas.

Table 6 Distribution of police intervention and urban/rural location

Location	Our sample	National population*	Cannabis recent use, 14+**
Major city	66.0%	64.0%	9.8%
Large rural ***	13.2%	19.7%	10.1%
Small and other rural ***	16.2%	9.5%	12.0%
Remote ***	4.5%	2.3%	13.6%

* (ABS 2015a) chapter 3

** (AIHW 2011) 2013 NDSHS Table 8.1

***Inner regional = large rural; outer regional = small and other rural; remote and very remote = remote

Demographics

The sample ranged in age from 17 to 75 years (Table 7). Overall, it was young, with a mean age of 20.3 years with 85.3 percent aged between 17 and 22. The sample was largely male (86.2%) and single (79.9%) with 19 percent married or in a de facto relationship. As with the lower response rate from Victoria, the low response rate by females was noted midway through recruitment, but attempts to redress this, using targeted advertising on Facebook, did little to increase the response rate by females.

Table 7 Basis demographics		
Sample characteristics	**Frequency**	**%/range**
Gender (male)	860	86.2 %
Age^	20.3	range 17–75
Marital status		
• single	797	79.9%
• divorced, separated or widowed	11	1.1%
• married, de facto or living with life partner	190	19.0%
Highest year of school attained		
• did not go to school	3	0.3%
• Year 10 or below	140	14.0%
• Year 11 or equivalent	201	20.1%
• Year 12 or equivalent	654	65.5%
Still at school		
• yes	269	27.0%
• no	726	72.7%
• missing	3	0.3%

^ missing =5

Reflecting the young age of the respondents, a substantial minority (27%) were still undertaking their secondary schooling, with most of the sample having completed Year 12 or equivalent (65.5%). Just over half of the sample reported having a higher qualification (56.4%) with the most common qualification a trade or non-trade certificate (31.8%); 14.4 percent reported having an academic degree and 10.1 percent a diploma. Among the sub-sample who had finished secondary school (726), the rates of attaining a higher qualification were higher (64.9%, compared with 56.4% for the whole sample).

Among the whole sample, 48 percent reported being employed (23% full-time, 21% part-time and 4% self-employed); 11 percent were either unemployed (2.7%) or looking for work (8.4%). A third reported they were studying (32.9%). Among the sub-sample who had completed secondary school (n=726), rates of employment were higher (59%) with only 19 percent still studying and 13.3 percent unemployed/looking for work (see Table 8).

Table 8 Employment status				
	Total sample (n=998)		**Secondary school completers only (n=726)**	
	Frequency	**%**	**Frequency**	**%**
Employed	477	48	425	59
Student	328	33	138	19
Unemployed/looking for work	111	11	98	13
Home duties/retired/volunteer/unable to work	33	3	31	4
Other	49	5	34	5

The weekly income, for the 894 respondents who completed this question, was $478 a week (standard deviation or SD of $463.55), with a median of $350 per week. For those who were still studying (n=228), the mean weekly income was $181.91 a week, while for those who were not currently studying (n=663) the mean was $576.32 (SD $462.48).

Comparisons with other populations

Before examining the data by type of intervention, this study's sample was compared with other samples. First, data from the 2009 Drug Use Monitoring in Australia (DUMA) program, which was the most recent year available (Sweeney & Payne 2012) was compared with the Ecstasy Drug Reporting System (EDRS) data for 2013. The DUMA collects drug use information among people recently apprehended and detained by police at nine police stations across the country (Sweeney & Payne 2012). The EDRS collects drug use information from regular stimulant users who are defined as people who use ecstasy or other stimulants at least monthly (Sindicich & Burns 2014). The EDRS is conducted annually in major capital cities across the country. One limitation to comparing both the DUMA and the EDRS data with this sample is that both of them sample in urban areas and do not target rural populations.

This study's sample was considerably younger than that of the 2009 DUMA sample of police detainees, and was younger than the 2013 EDRS sample (see Table 9). It was more likely to be male than the EDRS sample, and despite being younger, was more educated. Overall, the sample appears more similar in demographics to the EDRS rather than the DUMA sample.

The definitions of prior history with the criminal justice system vary between the three samples, but it would appear that this study's sample (with 12.8% ever having had a prior conviction) has less of a criminal history than both the DUMA group (51% charged in the past 12 months) and EDRS group (11% charged in the past 12 months).

Table 9 Comparisons of demographics to other populations

	Study sample	DUMA (2009)	EDRS (2013)
Age (mean, range)	20.3 (17–75)	31 (18–80)	23 (16–53)
Sex (% male)	86.2%	83.4%	67%
Completed Year 12	65.5%	19% (Year 11 or 12)	75%
Higher educational qualifications	56.4%	22%	44%
Employment			
• full-time	23%	29%.	26%
• part-time	20.7%	11%	N/A
• studying	32.9%	3%	30%
• unemployed	11.1%	60%	16%
Prior criminal justice system history^	12.8% have prior conviction	51% charged in last 12 months	11% charged in last 12 months

^Note different definitions

Drug use in this study's sample was compared with that reported by the EDRS and the NDSHS. The DUMA is not comparable in this case as it reports drug use via urinalysis: that is whether people have used drugs in the last 24–48 hours, rather than self-reported drug use in the last month or year. The NDSHS provides a purposeful sample of drug use among the general Australian population aged 14 and over (AIHW 2014b) with 100 percent reporting using cannabis in the previous month (Table 10). While only the last column of Table 10 is directly comparable in timeframe, it is apparent that this study's sample reports much higher rates of drug use than the general population as sampled through the 2013 NDSHS.

Table 10 Comparisons of drug use to that of other populations (%)

Drug type	Study sample Self-report past month use	EDRS 2013 Self-report last six months use	NDSHS 2013# Past year age 14+	NDSHS 2013^ Past month age 20–29
Cannabis	100	85	10.3	20.8
Alcohol	72.5	97	78.2	
Tobacco	69.2	77	15.8^^	
Pharmaceuticals (tranquilisers, prescription meds etc)	14.4	32	4.7	
Ecstasy	28.7	100	2.5	2.4
Hallucinogens (LSD)	19.6	43	1.3	
Meth/amphetamine	9.7	49	2.1	2.1
Cocaine	8.8	36	2.1	1.5
NPS	6.7	37	0.4	
Ketamine	6.4	19	0.3	
GHB	2.2	6	<0.1	
Heroin	1.1	4	0.1	

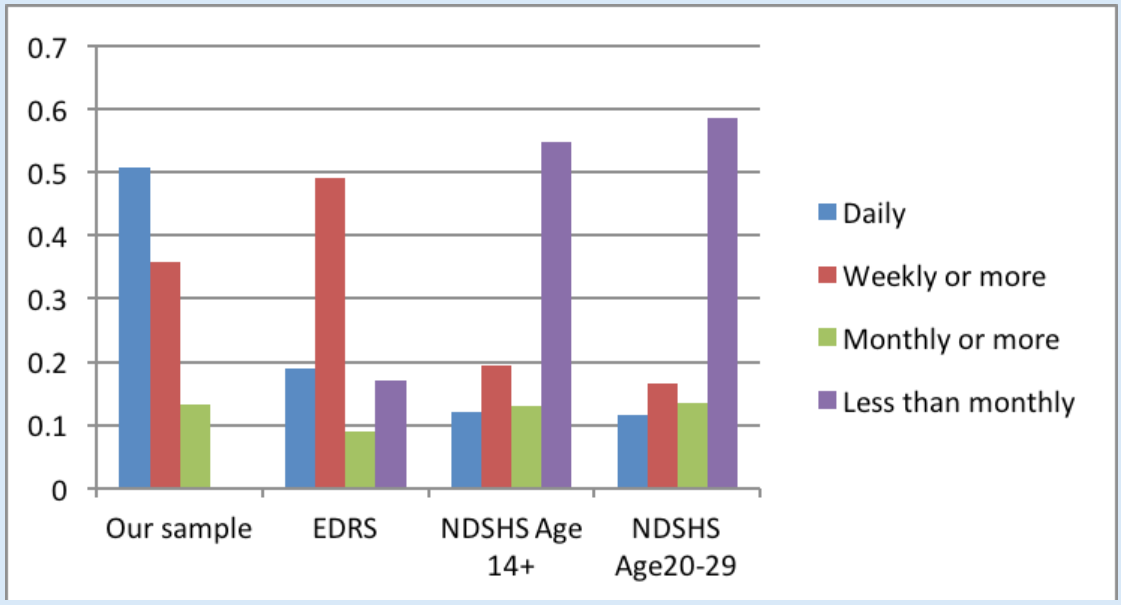
#NDSHS Table 5.5

^ past month self-report

^^NDSHS Table 7.2: Tobacco smoking status, people aged 14 years or older

Figure 3 further illustrates the high frequency of cannabis use in this study's sample compared with the EDRS and NDSHS samples; 50 percent of this sample reports using cannabis every day, compared with between 10 and 20 percent of the other samples. Few (13%) report consuming cannabis less frequently than once a week, compared with 26% percent of the EDRS sample and about 70% percent of the NDSHS population sample.

Figure 3 Cannabis use frequency comparisons



Based on these demographics, this study's sample appeared to be more similar to a high frequency drug-using population than a police detainee sample. Compared with the police detainee sample, they were younger, more educated and had a higher tendency to be employed or studying. They were also largely without a recorded criminal history and had a greater preference for stimulants compared with opiates. The two exceptions are: first, this study's sample was more likely to be male than the typical drug using population; and second, this study's sample was a much more regular and frequent cannabis consuming population.

Sample by police intervention

Proportion recruited to each police intervention

As described above, respondents were asked to indicate which type of encounter they had with police (charge, caution, expiation, or a warning)—see Table 11. Almost three-quarters of the respondents were adults, with 25.9 percent reporting their age as 17. Overall, 195 (19.5%) individuals were charged by police with 85.1 percent of charges going to adults.

Table 11 Police interventions

	Adult		Juvenile		Total	
	N	%	N	%	N	%
Charge	166	16.6	29	2.9	195	19.5
Caution^	437	43.8	177	17.7	614	61.5
Expiation	53	5.3	16	1.6	69	6.9
Informal warning	84	8.4	36	3.6	120	12.0
Total	740	74.1	258	25.9	998	100

^ 259 of those classified here as having received a caution indicated they had received a warning, however, further analysis suggested they had actually received a formal caution, not an informal warning as defined in the questionnaire

Of the 614 (61.5%) cautions issued, 259 were originally classified as warnings; however, further investigation indicated that they were likely to have received cautions as per this study's definitions. The initial definition of warning was 'stopped by police with cannabis or cannabis implements seized but no permanent record of offence was made and the person was not required to attend court'. This appeared to be interpreted differently by some respondents. Of those initially classified as having received a warning, 240 further indicated their details were recorded by police, and 19 reported that they were transferred to the police station; these were re-classified as having received a caution not an informal warning. This left 120 responders indicating that police did not record their personal details. Sixty-nine (6.9%) respondents were issued with an expiation notice, reflecting that expiations are only issued in three of the smaller jurisdictions (Australian Capital Territory, South Australia and the Northern Territory). Western Australia classifies its Cannabis Intervention Requirement (CIR) program as expiation. However, given the definition of cautioning used here which includes those programs that seek to divert offenders into education and/or treatment programs; the CIR was defined as a 'caution' for this research.

The following section contains additional detail on each of the interventions.

Charge group

- Of the respondents who reported being charged by police for a cannabis possession/use offence, slightly less than half (47.2%) of these were given a summons (without transport to the police station) to appear in court. Of those who were taken to the police station, again slightly less than half (N=50) were placed in the police cells (see Table 12);
- A large majority (90.7%) subsequently pleaded guilty, or were found guilty in court. A majority of those who were guilty did not receive a criminal conviction (51.4%), while 39 percent received a fine averaging $850. Seven individuals received a prison sentence.

Table 12 Details on activities for charge group

Group who were charged by police (n=195)	N	%/$
Given summons to appear in court on street	**92**	**47.2%**
Taken to police station	103	52.8%
Placed in police cells (% of those taken to police station)	50	48.5%
Guilty or not guilty to cannabis offence		
Guilty	177	90.7%
• pleaded guilty	152	
• found guilty	25	
Found not guilty/or have not had court date (n=3)	18	9.2%
Outcomes for those found guilty (n=177)^		
Received a criminal conviction	91	51.4%
Bond	30	16.9%
Community service	15	8.5%
Prison sentence	7	4.0%
Fine	69	39.0%
• average fine $ (SD)	$850	$1,327
• median fine $	$500	

^ Individuals may have received multiple outcomes

Cautions

In this sample, cautions for cannabis possession/use were issued primarily on the street or in the location where the offence occurred (84.4%), with 15.6 percent of respondents being transferred to the police station. As expected, given each jurisdiction has different requirements, not all individuals issued with a caution or diversion notice were required to undertake a subsequent activity.

In this sub-sample for which data already existed (see Table 13), 50.6 percent indicated they were not required to undertake any activity to finalise their caution. However, 7.6 percent reported they were meant to call a helpline; 36 percent to undertake an educational session, and 5.8 percent an assessment. As reported in Table 13 the reported completion rates ranged from 34.5 percent to 80.6 percent. However, the numbers that reported consequences of not completing their activities were small.

Table 13: Details on activities for caution group		
Activity required for caution (N=344)	**N**	**%**
Required to call helpline	**26**	**7.6**
Call helpline (yes)	9	34.6
Consequences of not calling		
• **fine**	**3**	
• none	14	
Required to attend education session	124	36.0%
Attended education session (yes)	107	86.2
Consequences of not attending education		
• attend court	**3**	
• fine	4	
• other	1	
• none	12	
Required to attend assessment	20	5.8
Attended assessment (yes)	14	70.0%
Consequences of not attending assessment		
• attend court	2	
• fine	5	
• other	1	
• none	4	
No activity required	174	50.6

Expiation

Eighty-seven percent of the 69 respondents who received a cannabis expiation notice reported paying the fine. Of those who did not pay, two reported losing their driver's licence, one was required to attend court, and three were additionally fined.

Table 14 Details on activities for expiation group		
Expiation group (N=69)	**Frequency**	**%**
Respondent paid the civil fine	60	87
Consequences of not paying		
• lose driver's licence	2	
• attend court	1	
• fine	3	
• other	1	
• none	3	

Warning

The additional information collected on the warning group was used to subsequently classify respondents into receiving an informal warning group (N=120), or based on whether their details recorded or they were transferred to the police station as having received a caution/diversion notice (259).

Demographics: Are there differences between the police intervention groups?

No difference was found across the groups in gender (86.6% male) but there were significant differences in the average age across the groups. The expiation group was the oldest on average, at 22.13 years of age. The charged group was slightly younger at 21.69 years with those warned or cautioned being younger at 19.87 and 19.69 years respectively. There were also differences in marital status; a larger proportion of the caution group were single (82.2%) with the other three groups having similar but lower proportions.

The charged group was more likely to be employed either full-time or part-time (62.1%) with the other groups having similar proportions. Likely reflecting their younger ages, 38.8 percent and 35 percent of the caution and warning groups respectively were students. This was confirmed with 32.7 percent and 28.6 percent of these two groups reporting they were still at secondary school, while only 10.8 percent of those in the charge group reported being at school (not shown). The highest average weekly incomes at $609 and $559 were for the expiation and charge groups respectively.

Table 15 Demographics by police intervention group

	Charged (N=195)	Caution (N=614)	Expiation (N=69)	Warning (N=120)	Total (N=998)	p value
Average age (SD)	21.96 (6.9)	19.69 (4.7)	22.13 (7.8)	19.87 (4.73)	20.33 (5.5)	<0.000
Gender (male)	172 (88.7%)	527 (86.3%)	57 (82.6%)	104 (87.4%)	860 (86.6%)	0.468
Marital status						0.009
• single	148 (75.9%)	505 (82.2%)	53 (76.8%)	91 (75.8%)	797 (79.9%)	
• divorced/separated/ widowed	6 (3.1%)	1 (0.2%)	2 (2.9%)	2 (1.7%)	11 (1.1%)	
• married/de facto	41 (21.0%)	108 (17.6%)	14 (20.3%)	27 (22.5%)	190 (19.0%)	
Employment status						<0.000
• full-time/part-time paid	121 (62.1%)	267 (43.5%)	34 (49.3%)	55 (45.8%)	477 (47.8%)	
• unemployed/seeking work	23 (11.8%)	62 (10.1%)	14 (20.3%)	12 (10.0%)	111 (11.1%)	
• student	30 (15.4%)	238 (38.8%)	18 (26.1%)	42 (35.0%)	328 (32.9%)	
• seeking work (retired, homemaker, volunteer)	21 (10.8%)	47 (7.7%)	3 (4.3%)	11 (9.2%)	82 (8.2%)	
Educational status						
• currently in school (no)	174 (89.2%)	412 (67.3%)	55 (79.7%)	85 (71.4%)	726 (73.0%)	<0.000
• Year 12 or equivalent (yes)	116 (59.5%)	406 (66.1%)	50 (72.5%)	82 (68.3%)	654 (65.5%)	<0.000
Average weekly income (SD)	$559 (456)	$424 (439)	$497 (410)	$609 (574)	$478 (464)	<0.000
% answering income question	91%	89%	93%	89%	90%	
Location						0.271
• urban	114 (58.5%)	414 (67.4%)	46 (66.7%)	85 (70.8%)	659 (66%)	
• rural	58 (29.7%)	137 (22.3%)	15 (21.7%)	26 (21.7%)	236 (23.6%)	
• remote/other rural	23 (11.8%)	63 (10.3%)	8 (11.6%)	9 (7.5%)	103 (10.3%)	

No statistical difference was evident to indicate whether different police intervention methods would be used in urban, rural or remote locations. When the groups were collapsed into two groups (urban/non-urban), the difference then approaches significance (p=0.08). Of those who received a charge, 41.5 percent were in a rural/remote location compared with 29.2 percent to 33 percent who received a diversion.

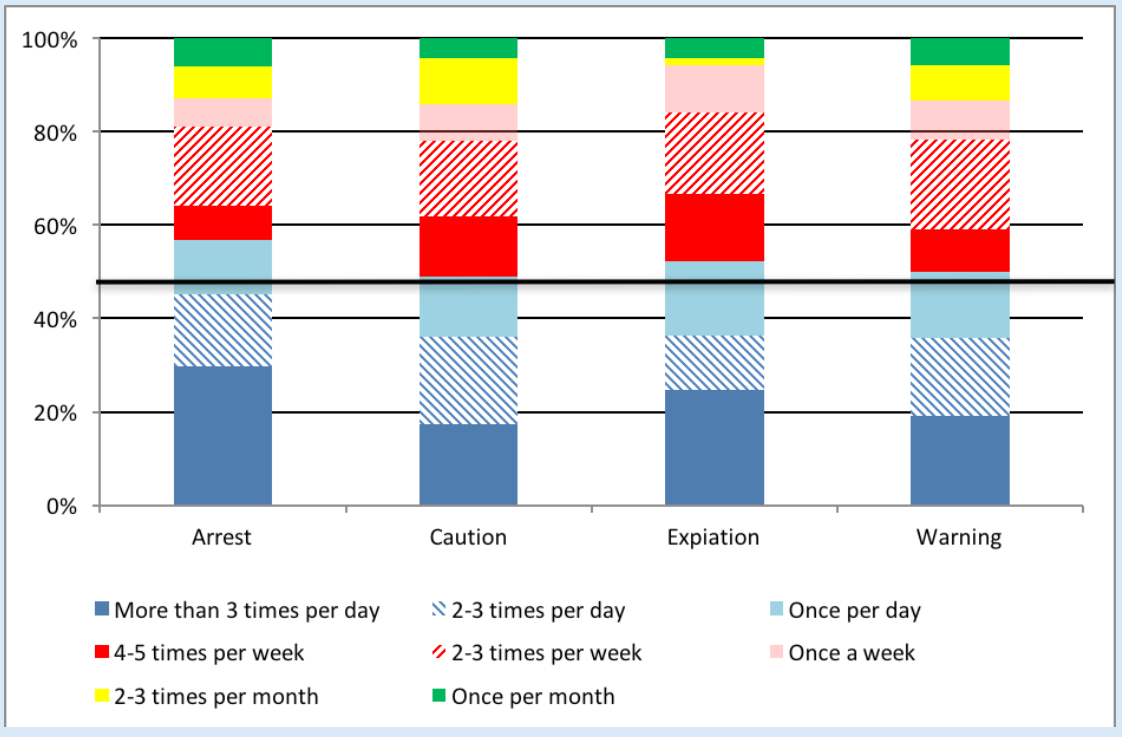
In summary, the caution and warning groups are younger, more likely to still be at school and have lower weekly incomes. The charge and expiation groups are older, more likely to report a higher income. The charge group, despite having less education, was more likely to be employed. That said this study did not assess the type of employment.

Outcome domains

Drug use

As illustrated previously (Figure 3), 50.8 percent of the whole sample consumed cannabis at least daily prior to their most recent police intervention. Figure 4 breaks down the self-reported cannabis use by group. This shows that about half of all groups reported consuming cannabis one or more times a day (blue colours). The arrest group and expiation group appeared somewhat more likely to report daily use at 56.9 percent and 52.5 percent respectively, compared with 48.9 percent and 50 percent for the caution and warning group. The arrest and expiation groups were also more likely to report using cannabis more than three times a day at 27.9 percent and 24.6 percent respectively, versus 17.3 percent of the caution group and 19.2 percent of the warning group. However, there were no statistically significant differences across the groups—five to 15 percent consumed cannabis less frequently than once a week before the police intervention. None of the differences across groups were statistically significant (see additional tables in *Appendix B*).

Figure 4 Self-reported cannabis use pre-intervention by group



The average age of first cannabis use was similar across all groups at 15.31 (SD 2.2) years of age (see Table 16). Taking into account differences in the ages of the groups this means that the charge and expiation group had been using cannabis an average of 6.6 and 6.8 years compared with 4.4 and 4.6 years for the caution and warning groups respectively. This was a statistically significant difference.

Overall, the sample reported using few illicit drugs other than cannabis pre-intervention. For example, they reported using an average of 0.8 other illicit drugs in the past month (with the main drugs used being ecstasy and hallucinogens). Before intervention the caution and expiation groups appeared somewhat less likely to report using other illicit drugs in the last month. However this was not statistically significant. That said, pre-intervention the charge group was significantly more likely to report the use of methamphetamine in the previous month (17.9%) compared with 7.3–10.1 percent for the diversion groups ($p<0.001$).

When asked about using licit as well as illicit drugs (other than cannabis) the sample reported using an average of 2.5 drugs in the past month. The two most commonly used substances were alcohol and tobacco. There were no significant differences across the groups.

Examining the post-intervention drug use, there was a small reduction in reported use of all substances. However, there was no significant difference across groups. However, differences were evident in the change between pre- and post-intervention periods within each group (Table 16: 4a–4c); the charge group has a statistically significant decrease in days of cannabis use, in the number of illicit drugs (other than cannabis) used and in the number of all drugs used. The cannabis caution group has a statistically significant decrease in the number of days of cannabis use, but no change in other illicit drugs or the number of all drugs used. No significant changes were found in the expiation group, while the warning group has a significant decrease in cannabis use days and has a small but not significant decrease in the number of illicit drugs used.

Comparing across the groups there was no difference in change in cannabis use days from pre- to post-intervention (Table 16: 5a). However, there was a significant difference in change pre- to post-intervention in the number of illicit and all drugs used (Table 16: 5b–c) with the charge group achieving a larger decrease.

In summary, from pre- to post-intervention, cannabis use days decreased in three of four groups (no change in expiation group) and there was a decrease in the use of other drugs within the charge group.

Table 16 Overview of drug use by intervention group

	Charged (195) Mean (SD)		Caution (614) Mean (SD)		Expiation (69) Mean (SD)		Warning (120) Mean (SD)		Total (998) Mean (SD)		p value
1a Age first used cannabis	15.28	(2.54)	15.33	(1.89)	15.33	(4.07)	15.27	(1.72)	15.3	(2.22)	0.984
1b Average number of years using cannabis	6.57	(6.30)	4.36	(4.63)	6.80	(6.16)	4.60	(4.49)	4.98	(5.18)	0.001
Pre-intervention											
2a Days cannabis used/week in past month	4.85	(2.65)	4.56	(2.63)	4.86	(2.48)	4.54	(2.67)	4.63	(2.63)	0.481
2b No. of illicit drugs used in past month except cannabis	1.02	(1.51)	0.77	(1.32)	0.67	(1.21)	0.93	(1.43)	0.83	(1.37)	0.099
2c No. of all drugs used in past month except cannabis	2.78	(2.45)	2.46	(2.09)	2.23	(1.98)	2.45	(2.10)	2.50	(2.16)	0.019
Post-intervention											
3a Days cannabis used/week in past month	4.50	(2.89)	4.27	(2.79)	4.91	(2.94)	3.99	(2.89)	4.32	(2.82)	0.481
3b No. of illicit drugs used in past month except cannabis	0.59	(1.03)	0.78	(1.25)	0.57	(1.25)	0.80	(1.44)	0.73	(1.24)	0.176
3c No. of all drugs used in past month except cannabis	2.23	(1.74)	2.50	(1.82)	2.30	(2.10)	2.36	(2.33)	2.42	(1.90)	0.301

Table 16 Overview of drug use by intervention group

	Charged (195) Mean (SD)	Caution (614) Mean (SD)	Expiation (69) Mean (SD)	Warning (120) Mean (SD)	Total (998) Mean (SD)	p value
Change in use pre- to post-intervention within group						
4a Change in cannabis use	-0.35 (2.37)	-0.29 (1.98)	0.05 (1.37)	-0.54 (2.16)	-0.31 (2.05)	
p value	0.041	<0.000	0.784	0.007	< 0.000	
4b Change in no. of all drugs used except cannabis						
p value	<0.000	0.429	0.59	0.62	0.099	
4c Change in no. of illicit drugs used except cannabis	-0.43 (1.24)	0.00163 (1.02)	-0.10 (0.86)	-0.133 (1.29)	-0.11 (1.10)	
p value	<0.000	0.968	0.331	0.260	0.003	
Change in use pre- to post-intervention across the groups						
5a Change in cannabis use	-0.35 (2.37)	-0.29 (1.98)	0.05 (1.37)	-0.54 (2.16)	-0.31 (2.05)	0.290
5b Change in no. of illicit drugs used except cannabis	-0.56 (1.82)	0.05 (1.49)	0.07 (1.12)	-0.09 (2.03)	-0.09 (1.63)	<0.000
5c Change in no. of all drugs used except cannabis	-0.43 (1.24)	0.00163 (1.02)	-0.10 (0.86)	-0.133 (1.29)	-0.11 (1.10)	<0.000

Criminal behaviours

As outlined earlier, the impacts of cannabis diversion on engaging in other forms of crime were assessed using the Opiate Treatment Index (OTI). This includes four different types of self-reported crime: property crime, fraud, violent offences and for-profit dealing. Some data on self-reported impacts for not-for-profit dealing are also included (and noted where applicable). However, the primary measure used in all analyses was the original OTI definition (ie excluding not-for-profit dealing). This ensures that all analyses were made using a validated tool of criminal involvement.

For the sample as a whole 87.9 percent reported having no prior criminal conviction; that is, few had a prior criminal record (see Table 17) but the groups did differ in terms of pre-existing criminal behaviours. For example, only 7.7 percent of the caution group and five percent of the warning group reported having a prior criminal conviction. In contrast, 29.7 percent of the charge group and 14.5 percent of the expiation group reported having a prior criminal conviction. These differences were statistically significant. The low level of prior criminal convictions among the diverted groups, particularly among the caution group, was consistent with the eligibility criteria for the diversion programs. In some jurisdictions, but not all, a prior offence would preclude the issuing of a cannabis caution; particularly if the offence was a violent, sexual or serious drug offence.

Of those with priors (n=121), those who were charged or given an expiation notice were more likely to have priors for non-drug offences than those in the other groups. For example, among this sub-sample, those charged were 3.1 to five times more likely to report having a previous non-drug offence than the caution and warning groups.

This study also examined the frequency of individuals being stopped by the police. The sample as a whole reported being stopped by police an average of 1.4 times in the last three to nine months. However, there were some small differences across the groups. In particular, charge group members were stopped 1.5 times compared with 1.3–1.4 times for the diversion groups.

Table 17 History of prior convictions and police contact

	Charged (195) % (N)	Caution (614) % (N)	Expiation (69) % (N)	Warning (120) % (N)	Total (998) % (N)	p value
Prior convictions						
• no prior conviction	70.3% (137)	92.3% (567)	85.5% (59)	95.0% (114)	87.9% (877)	<0.000
• 1 or 2 prior convictions	14.5% (28)	5.4% (33)	7.2% (5)	3.3% (4)	7% (70)	
• 3+ prior convictions	15.4% (30)	2.3% (14)	7.2% (5)	1.7% (2)	5.1% (51)	
Type of priors (for those with a prior; n=121)						
• cannabis offence	17.9% (35)	2.9% (18)	8.7% (6)	0.0% (0)	5.9% (59)	
• other drug offence	8.7% (17)	1.8% (11)	2% (2)	0.8% (1)	3.1% (31)	
• other offence	21.0% (41)	6.7% (41)	14.5% (10)	4.2% (5)	9.7% (97)	
Stopped by police						0.05
Mean no. of times stopped by police in past 3–9 months for cannabis (SD)	1.5 (0.85)	1.3 (0.67)	1.3 (0.69)	1.4 (0.85)	1.4 (0.74)	

That said, as noted above, the main measure used in this study to assess change in criminal behaviour was self-reported engagement in crime in the last month excluding cannabis use. For the sample as a whole, 23.9 percent reported 'any involvement' in crime (defined here as violence, fraud, property crime or for-profit dealing) in the month preceding their police encounter. The charge group was somewhat more likely to report any incidence of crime: 32.8 percent compared with 17.4 percent–23.9 percent for the diversion groups (approaching significance). Thus, the charge group was 1.4 to 1.9 times more likely to report an incidence of criminal behaviour prior to their police encounter. The caution group was also somewhat more likely to report incidence of crime pre-encounter than the two other diversion groups.

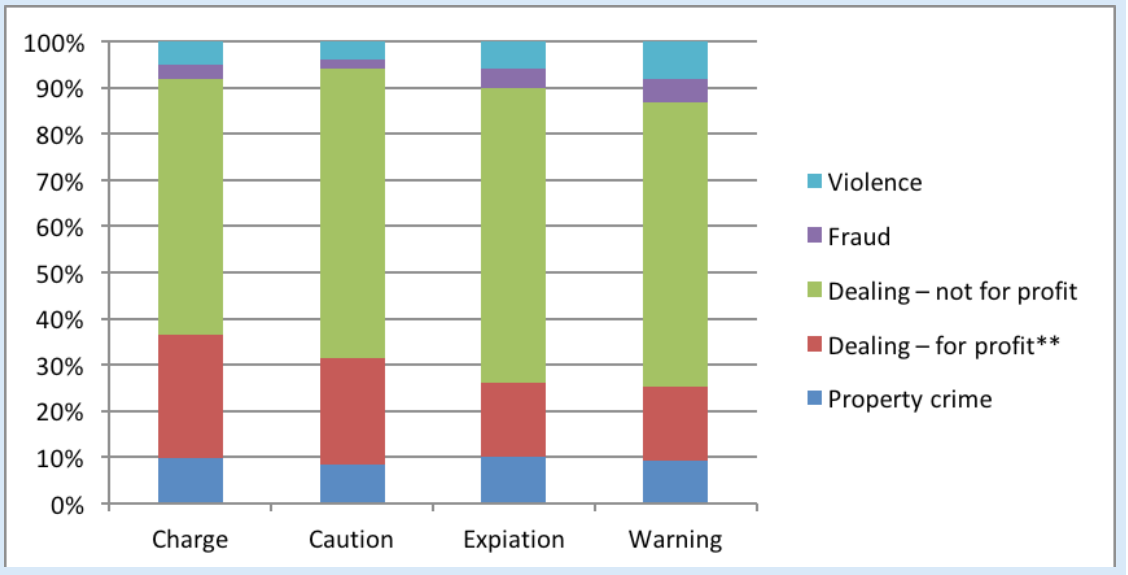
Incidence of self-reported crime pre-intervention was higher when not-for-profit dealing was included. A total of 54.4 percent of the whole sample reported any involvement in crime in the month preceding their police encounter (defined here as violence, fraud, property crime, for-profit dealing and not-for-profit dealing). However, there were far fewer differences between the groups.

Table 18 Incidence of self-reported criminal behaviour: Pre-intervention

	Charged (195) % (N)	Caution (614) % (N)	Expiation (69) % (N)	Warning (120) % (N)	Total (998) % (N)	p value
Incidence of crime (violence, fraud, property crime for for-profit dealing)						0.06
Yes	32.8% (64)	23.0% (141)	17.4% (12)	18.3% (22)	23.9% (239)	
No	67.2% (131)	77.0% (473)	82.6% (57)	81.7% (98)	76.1% (759)	
Incidence of crime including not-for-profit dealing						0.271
Yes	60.5% (118)	Yes	60.5% (118)	Yes	60.5% (118)	Yes
No	39.5% (77)	No	39.5% (77)	No	39.5% (77)	No

The main type of crime among the whole sample who reported criminal engagement in the last month (n=543) was 'not-for-profit dealing' (51.1%) followed by 'for-profit dealing' (19.0%) and 'property crime' (7.4%). Very few reported fraud (2.3%) or violent offences (4.0%). There was only one significant difference in type of crime across the groups, namely that the charge group was 1.4 to 2.3 times more likely to report 'for-profit dealing' than the diversion groups. Caution group members were more likely to report 'for-profit dealing' than the other diversion groups: 18.6 percent compared with 11.6 percent for expiation and 13.3 percent for warning group (a 1.4–1.6 fold difference). See Figure 5.

Figure 5 Type of self-reported crime: Pre-intervention among sub-sample who reported crime (n=543)



** significantly different at 0.001% level

Those who reported a prior criminal history or who reported engaging in crime before their police encounter differed from those who did not in a number of significant ways. First, they were less educated, as indicated by lower levels of completing Year 12 or equivalent. Second, they were more likely to be regular cannabis users and more likely to report using other illicit drugs (see Table 19).

Self-reported offending post-intervention

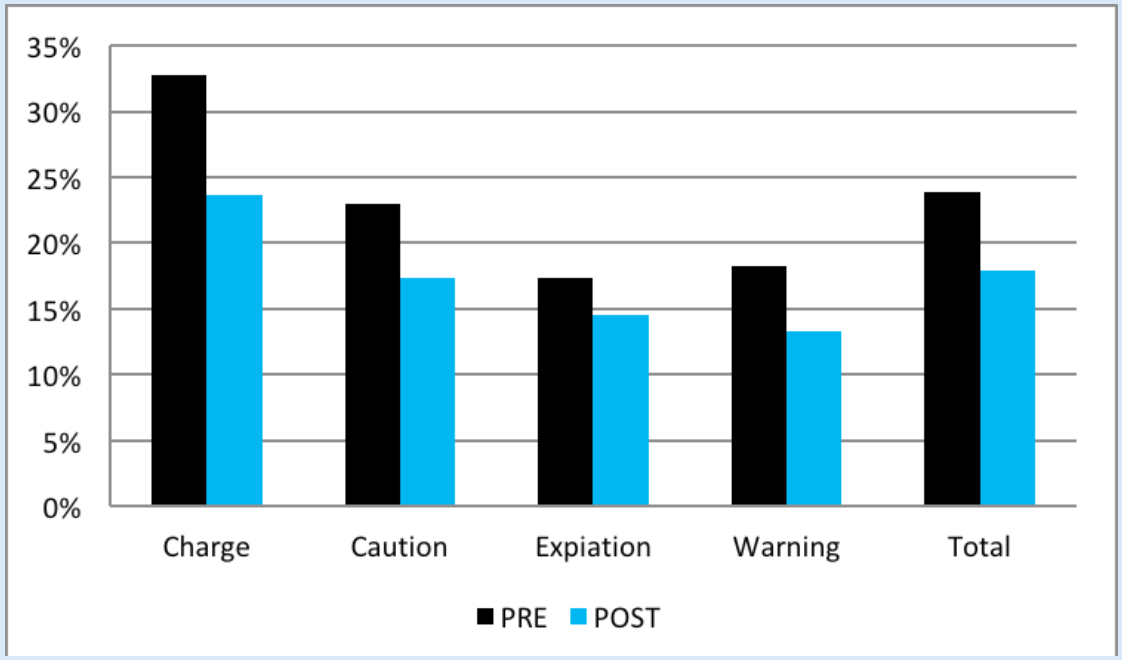
This study examined self-reported offending post-intervention, differences across the police interventions, as well as differences between those with and without a reported history of offending in the month preceding the intervention. Consistent with the OTI this study focuses specifically on change in offending excluding 'not-for-profit dealing' (that is: violence, fraud, property crime or for-profit dealing). Further analyses are available in *Appendix B*.

For the sample as a whole, after the police encounter less than a fifth of the sample (17.9%) reported any incidence of crime post-intervention (see Figure 5). Such measures suggest that the incidence of crime reduced from pre- to post-intervention. Among those who did offend, 14.4 percent reported one crime; 2.3 percent two; 0.6 percent three, and 0.6 percent four.

Table 19 Characteristics of cannabis use/possess offenders with and without a criminal record history or self-reported history of engagement in crime

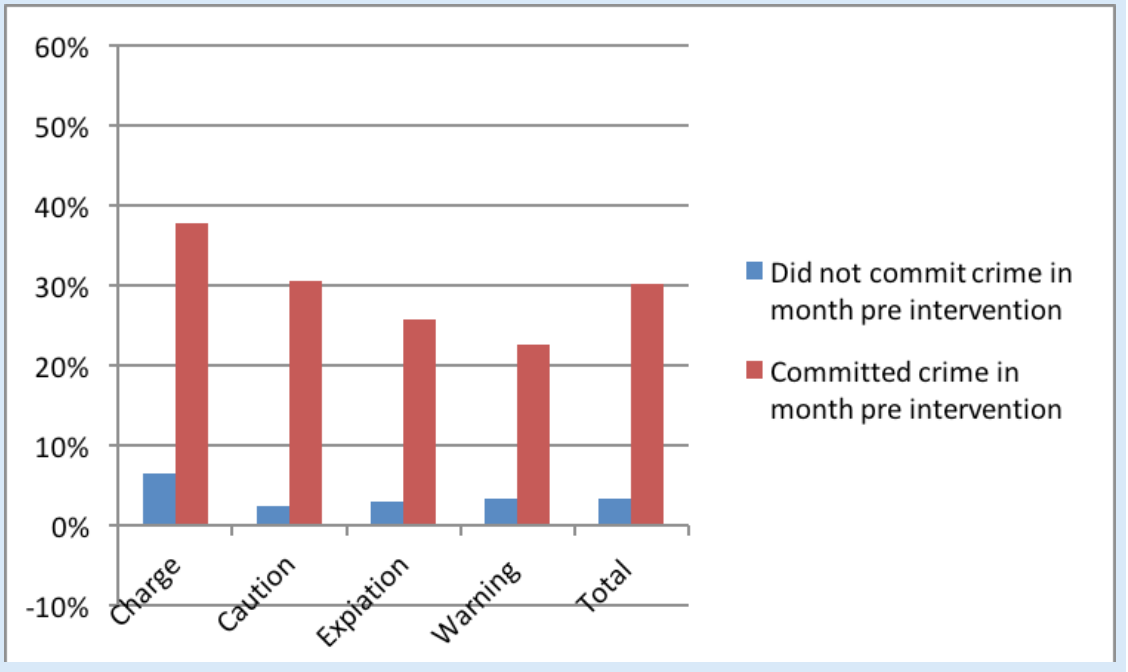
Prior criminal record (ever)	YES N=128	NO N=870	P value
Gender: male	84.4%	86.9%	0.399
Marital status: single	69.5%	81.4%	0.001
School completion: Year 12 or equivalent	35.2%	70.0%	0.001
Cannabis use: daily	75.8%	47.1%	0.001
Cannabis dependence	16.4%	10.0%	0.025
Use of other illicit drugs (excluding cannabis)	45.3%	38.6%	0.001
Self-reported criminal offending in the last month	**N=239**	**N=759**	
Gender: male	82.7%	87.8%	0.074
Marital status: single	76.6%	80.9%	0.129
School completion: Year 12 or equivalent	54.0%	69.2%	0.001
Cannabis use: daily	63.6%	46.8%	0.001
Cannabis dependence	15.9%	9.2%	0.004
Use of other illicit drugs (excluding cannabis)	58.6%	33.5%	0.001

Figure 6 Incidence of crime pre- and post-intervention by police



Looking only at those who did not report previous offending, very few (3.3%) reported offending post police intervention (ie 96.7% did not offend). Rates of offending among the charge group were somewhat higher (6.5%) compared with that reported by the diverted groups (2.4–3.4%). But this was not a statistically significant difference (see Figure 7).

Figure 7 Crime post-police encounter by pre-encounter criminal behaviours



Note: Excludes not-for-profit dealing

Among those who had reported previous offending, most again did not report any incidence of offending after the police intervention, with 69.8 percent not offending. While there was no significant difference across the groups, the charge group at 34.7 percent was the most likely to report subsequent criminal offending compared with 22.6–30.5 percent of the diversion groups. Among the diversion groups the caution group appeared most likely to report subsequent offending. This was consistent with the higher incidence of offending pre-police intervention.

Those who continued to offend after their police encounter were statistically more likely to: use cannabis daily (before and after the encounter); be dependent on cannabis; use multiple other illicit drugs (after the encounter); have completed only Year 10 at school; be unemployed, and have multiple health diagnoses (see Table 20). This would suggest that the group who continues to reoffend might be substantially different and have needs that are more complex.

In conclusion, most of the sample did not report having a pre-existing criminal record but about a quarter reported engaging in serious criminal behaviour. The charge and expiation groups were significantly more likely to report both types of criminal behaviours, namely having a prior criminal record and having committed crime in the month preceding the police intervention. Post-intervention there was an overall reduction in self-reported offending (defined using the OTI questions: violence, fraud, property crime and for-profit dealing) for the sample as a whole from 23.9 percent to less than a fifth of the sample (17.9%), a 25 percent reduction. When not-for-profit supply is included, there is a 19.5 percent reduction in self-reported offending from pre- to post-intervention. There were no statistically significant differences in the change in offending across the groups as all groups showed evidence of a reduction in reported offending. Overall, this suggests that both diversion and charge may reduce offending to the same extent. However, once taking into account pre-existing differences, those charged continued to offend at a higher rate than any of the diversion groups.

Table 20 Characteristics of those who continued to offend after their police encounter (of those who reported previous offending*)			
Variable	YES: continued offending n=164	NO: did not reoffend n=379	P value
Gender: male	82.2%	88.9%	0.097
School completion: Year 10 or less	23.7%	11.9%	0.001
Employment: unemployed	30.3%	20.3%	0.036
Cannabis use: daily	69.5%	51.2%	0.001
Cannabis dependence	16.5%	11.1%	0.058
Use of other illicit drugs post (excluding cannabis)	56.7%	40.6%	0.001
Health diagnosis: more than one reported	43.9%	29%	0.003

* Includes both for profit and not-for-profit offending

Social behaviours and attitudes

The following three sections examine the impacts of the police encounter as they pertain to a number of different social behaviours (relationship problems and employment) and general attitudes to police. It is important to recall that all three outcome domains are assessed at only one point in time and therefore are not adjusted for pre-existing characteristics. The first issue examined is whether diversionary options lead to less disruption to relationships with significant others.

Relationship problems

Of the whole sample, 29.6 percent reported having experienced relationship problems (such as disputes, break-ups or fall-outs) since their police encounter. Significant differences were evident across the groups. In particular, those who were charged were much more likely (49.7%) to report relationship problems compared with the diversion groups (10.0–28.3%). Among the subset of diversion groups the caution group was also 1.6 to 2.8 times more likely to report relationship problems: 28.3 percent compared with 17.4 percent for the expiation and 10 percent for the warning groups.

The primary relationship problem noted in the whole sample was with family members (21.7%) compared with 12.8 percent who reported problems with partners and 10.7 percent with friends. The charge group reported proportionally more problems with family: 40.5 percent compared with 4.2–20.2 percent for the other groups.

This study also examined the extent to which participants attributed any relationship problems to the actual police encounter. Across the sample as a whole, roughly two-thirds said that problems with partners and friends were related to the police encounter. Participants were more likely to attribute the police encounter to problems with family, with only 18 percent stating the problems with family were unrelated to the police encounter.

Clear differences in the pattern of attribution emerged across the groups. Considering only problems with partners, the charge group was significantly more likely to attribute their problems to the police encounter (55.3% of charge group, compared with 30% of caution group, 25% of expiation group and 16.7% of warning group said that their problems with partners were very related to the police encounter).

The pattern of attribution differed somewhat for problems with family members. Of those in the caution group who indicated they had problems 25 percent said their problems with family were unrelated to the police encounter and only 49.2 percent said they were very related. This differed to the charge group, among which only 8.9 percent said their problems with family members were unrelated to the police encounter, and 69.6 percent said they were very related. These differences were statistically significant.

In summary, just under a third of the entire sample (29.6%) reported that they experienced relationship problems after their police encounter for their cannabis use/possess offence. Across the groups, charge group members were much more likely to state they experienced relationship problems post-police encounter, particularly with family and their partner, and to attribute these problems to the police encounter. The second most likely group to report relationship problems was the caution group but here the relationship problems were often deemed unrelated to the police encounter. Recognising the limitation that these assessments were based only on the perspective of the cannabis use/possess offender (not the family, partner or friends), this provides some tentative evidence for the hypothesis that diversion may result in fewer adverse interpersonal problems and help to maintain important ties with significant others.

Table 21 Incidence and nature of relationship problems

	Charged (195)	Caution (614)	Expiation (69)	Warning (120)	Total (998)	p value
Relationship problems post-encounter						
Yes	97 (49.7%)	174 (28.3%)	12 (17.4%)	12 (10.0%)	295 (29.6%)	<0.000
With whom was the problem(s) (could select more than one; N=295)						
Partner	38 (19.5%)	80 (13.0%)	4 (5.8%)	6 (5.0%)	128 (12.8%)	0.01
Family	79 (40.5%)	124 (20.2%)	9 (13.0%)	5 (4.2%)	217 (21.7%)	0.00
Friends	33 (16.9%)	65 (10.6%)	5 (7.2%)	4 (3.3%)	107 (10.7%)	0.01
To what extent were the problems with your partner related to your police encounter (N=128)						
Unrelated	9 (23.7%)	31 (38.8%)	2 (50.0%)	5 (83.3%)	47 (36.7%)	0.03
Somewhat related	8 (21.1%)	25 (31.3%)	1 (25.0%)	0 (0.0%)	34 (26.6%)	
Very related	21 (55.3%)	24 (30.0%)	1 (25.0%)	1 (16.7%)	47 (36.7%)	
To what extent were the problems with your family related to your police encounter (N=217)						
Unrelated	7 (8.9%)	31 (25.0%)	1 (11.1%)	0 (0.0%)	39 (18.0%)	0.046
Somewhat related	17 (21.5%)	32 (25.8%)	3 (33.3%)	1 (20.0%)	53 (24.4%)	
Very related	55 (69.6%)	61 (49.2%)	5 (55.6%)	4 (80.0%)	125 (57.6%)	
To what extent were the problems with your friends related to your police encounter (N=107)						
Unrelated	6 (16.2%)	26 (40.0%)	1 (20.0%)	3 (75.0%)	36 (33.6%)	0.07
Somewhat related	5 (15.2%)	15 (23.1%)	1 (20.0%)	0 (0.0%)	21 (19.6%)	
Very related	22 (66.7%)	24 (36.9%)	3 (60.0%)	1 (25.0%)	50 (46.7%)	

Employment problems

This section explores whether diversion may reduce the likelihood of adverse effects on employment seeking or job retention—specifically whether there was a perception of barriers to employment as a result of a criminal record. A number of challenges exist to assessing employment impacts of a police encounter/criminal record. For example, similar to the assessment of relationship problems, employment impacts were based only on the participant's perceptions—they do not include the employer's perspective. This leaves the assessment open to potential bias.

The ability of prospective employers to attain criminal record information varies widely (Australian Human Rights Commission 2012), depending on the field of work (not assessed in the survey). For example, in Australia professions and trades for which criminal records are more likely to be examined include teaching and any professions working with children, police, corrections officers, lawyers, doctors, nurses, bouncers and security officers, transport operators, taxi drivers, gaming and racing, and pawnbrokers (AHRC 2012). Attaining criminal record information also depends on the specific type of position (and extent to which a criminal record is relevant), state/territory laws and other factors including whether or not individuals choose to comply with any requests for providing their criminal records. That said, in theory recipients of a charge may experience greater adverse employment impacts compared with recipients of diversion, which rarely results in a criminal records. This was largely supported by this study's survey respondents.

The univariate analysis, which does not adjust for age or current school status, indicates that only a minority (10.9%) reported an employment status change since their police encounter. Consistent with expectations, those in the charge group were significantly more likely to report an employment status change (21.5% compared with 8.7%–10% for the diversion groups) making them 2.2–2.5 times more likely to have reported an employment status change. Therefore the focus was explicitly on the impacts for those who had been charged. Some who had been charged said their employment change was positive, indicating that they had acquired jobs after their police encounter:

> Gained employment after my charge.

> Got a job working almost full-time now I don't do illegal stuff and I'm making good cash.

However, the majority who had been charged reported adverse employment impacts. For example in the following quotes some indicated they had lost their job due to their boss learning about their arrest/charge, while others indicated their job was terminated due to needing a day off to attend court:

> My job enrolment was terminated within days of the manager finding out.

> I lost my job due to having the day off for court, resulting in me being fired.

This study explored the extent to which participants who reported an employment change (n=109) attributed this change to their police encounter (as opposed to other factors). Only 11.9 percent of those charged said it was unrelated to their police encounter while 47.6 percent said that the change in their employment status was directly related to their police encounter. In contrast, 34.7 to 50 percent of those who were diverted, and reported an employment change, said it was unrelated to their police encounter (this meant they were 2.9 to 4.2 times more likely than the charge group to say any change was unrelated to their police encounter) and so, of borderline significance (see Table 22).

For the sample as a whole 43 percent reported having applied for one or more jobs since their police intervention and 39.7 percent were asked by prospective employers if they had a criminal record. Looking at all the groups, charge group participants were slightly less likely to have applied for a job (47.2% compared with 54.2%–56.5% for the diversion groups). However, members of the charge group were significantly more likely to state that they were asked if they had a criminal record: 51.5 percent compared with 30.4 percent to 37.5 percent for the diversion groups.

This study also assessed more general employment impacts of cannabis-related offences. It is important to note that this was not limited to the most recent police encounter. A minority of the sample reported they had ever been denied a job (12.5%) or lost a job (9.9%) due to their cannabis-related offence. But the charge group were 2.2 to 9.8 times more likely to report they had been denied a job and 2.1 to 3.7 times more likely to report they had lost a job. For example 32.3 percent of the charge group reported they had been denied a job, compared with 14.5 percent for the expiation group and 3.3 percent to 7.8 percent for the warning and caution group respectively (Figure 8). The warning and caution groups were also less likely to report having been denied a job than the expiation group.

In summary, approximately 10.9 percent of the group reported an employment change following their police intervention. The charge group were much more likely to report that due to their cannabis related offence:

- their employment status had changed;
- their change was related to their drug charge;
- they were asked about whether they had a criminal record; and
- they had been denied a job or lost a job.

The expiation group were also somewhat more likely to report they had been denied a job than the caution or warning group.

Analysis of everyone who reported being denied a job, regardless of whether charged or diverted, indicated that the likelihood of being denied a job was unrelated to the frequency of cannabis use or cannabis dependence. However, those denied a job were more likely to have more than one prior conviction (84.8%, compared with 54.2%; p=0.023), to be from rural areas (44%, compared with 33.3%; p=0.015), to be aged over the age of 20 (41.6% compared with 25.7%; p=0.001) and to have not completed Year 12 at school (58.4% compared with 66.8%, p=0.001).

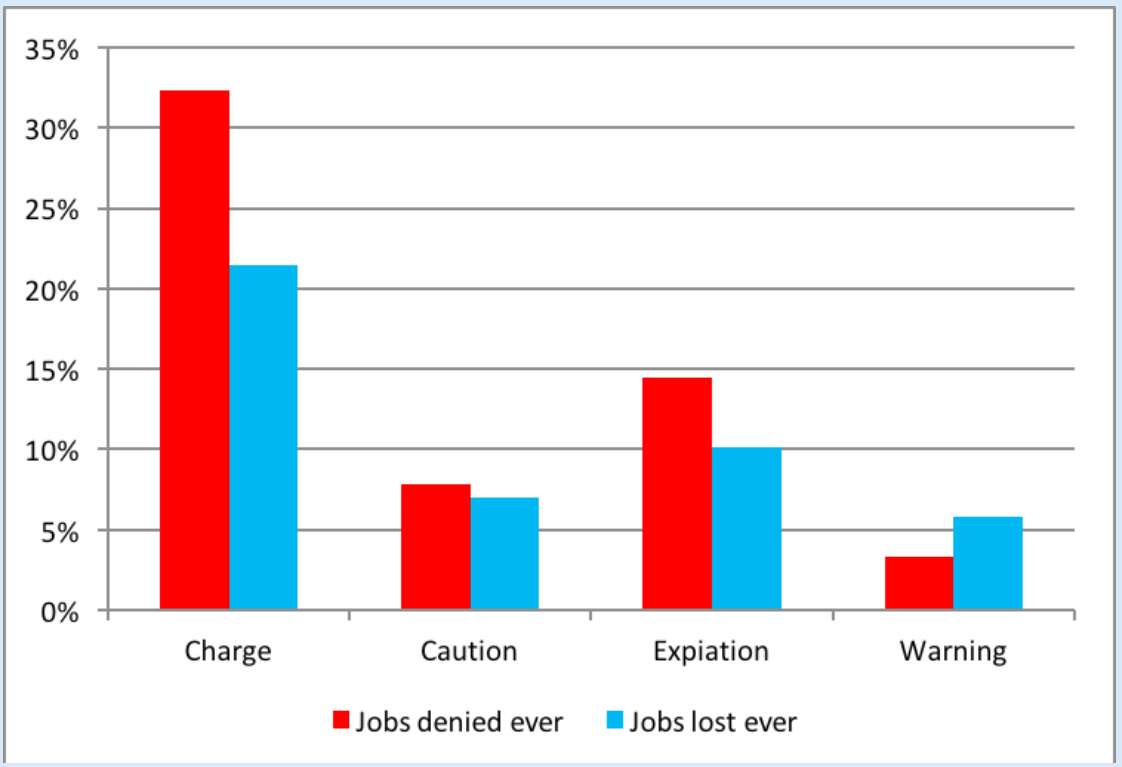
These data suggest that direct adverse employment impacts were not common. However, those charged were significantly more likely to report adverse employment effects; particularly being denied a job or losing a current job. Limitations of this analysis are that assessments were based on individual views and recall, not those of the prospective employers, and it is not known what type of job this study's participants were applying for or other details of individual employment history. Nevertheless, this supports the hypothesis that diversion may improve employment prospects and/or ameliorate adverse employment consequences from provision of a criminal charge for cannabis use/possession.

Table 22 Employment problems

	Charged	Caution	Expiation	Warning	Total	p value
Has employment status changed post encounter (N=998)						
Yes	21.5% (42)	8.0% (49)	6.7% (6)	10.0% (12)	10.9% (109)	<0.000
Was the employment status change related to your police encounter (N=109)						
Unrelated	11.9% (5)	34.7% (17)	50.0% (3)	41.7% (5)	27.5% (30)	0.05
Related	47.6% (20)	22.4% (11)	33.3% (2)	33.3%(4)	33.9% (37)	
Unclear	40.5% (17)	42.9% (21)	16.7% (1)	25.0% (3)	38.5% (42)	
Number of jobs applied for since the police encounter (N=998)						
None	47.2% (96)	56.4% (346)	56.5% (39)	54.2% (65)	54.3% (542)	0.49
1–2	21.0% (41)	18.4% (113)	17.4% (12)	21.7% (26)	19.2% (192)	
3+	27.7% (54)	22.6% (139)	24.6% (17)	23.3% (28)	23.8% (238)	
Don't know	4.1% (8)	2.6% (16)	1.4% (1)	0.8% (1)	2.6% (26)	
Has a prospective employer ever asked if you have a criminal record (N=458)						
No	44.7% (46)	60.6% (163)	60.0% (18)	69.6% (39)	58.1% (266)	0.04
Yes	51.5% (53)	37.5% (101)	36.7% (11)	30.4% (17)	39.7% (182)	
Don't know	3.9% (4)	1.9% (5)	3.3% (1)	0.0% (0)	2.2% (10)	
Have you ever been denied a job because of your cannabis offence (N=998)						
Yes	32.3% (63)	7.8% (48)	14.5% (10)	3.3% (4)	12.5% (125)	<0.000
No	40.5% (79)	67.4% (414)	69.6% (48)	74.2% (89)	63.1% (630)	
Don't know	12.8% (25)	8.5% (52)	4.3% (3)	3.3% (4)	8.4% (84)	
Not applicable	14.4% (28)	16.3% (100)	11.6% (8)	19.2% (23)	15.9% (159)	

Table 22 Employment problems						
	Charged	Caution	Expiation	Warning	Total	p value
Have you ever lost a job because of your cannabis offence (N=998)						
Yes	21.5% (42)	7.0% (43)	10.1% (7)	5.8% (7)	9.9% (99)	<0.000*
No	62.1% (121)	79.3% (487)	81.2% (56)	80.8% (97)	76.3% (761)	
Don't know	5.6% (11)	2.9% (18)	1.4% (1)	0.8% (1)	3.1% (31)	
Not applicable	10.8% (21)	10.7% (66)	7.2% (5)	12.5% (15)	10.7% (107)	

Figure 8 Reported impact on employment of a prior cannabis-related criminal offence



Perception of police legitimacy

Respondents' perceptions of police legitimacy were examined to see whether those diverted were more likely to perceive police as having an important role to play in enforcing the law and warranting respect from society. Only 21.3 percent of the whole sample said the police had legitimacy (using a summed measure of police legitimacy).

Qualitative feedback from respondents provided some insight into what was driving the lack of respect for police. Many respondents, perhaps unsurprisingly, disagreed with cannabis use being a criminal offence:

> I believe police resources would be better spent looking for actual serious crimes than pestering people with a harmless plant.

> I was caught breaking the law, which I accepted responsibility for. I have no issues with the police as they were just doing their job enforcing the law. I just disagree with the prohibition laws surrounding medical/ recreational cannabis.

However, respondents were also critical of some of police processes used. For example a number of respondents suggested cannabis was weighed in situ or that they were not treated with respect:

> The police were very friendly and understanding; however the processes they went through were dodgy, such as weighing the Marijuana while still in the bowl. It came up as 23 grams when in fact all we had were two.

> I feel as though I was unfairly treated by the police. I was spoken down to, and treated like a second class citizen for my possession of Cannabis. I find it hard to maintain respect for people that constantly look down upon us all.

Table 23 Perceptions of police legitimacy

	Charged (195)	Caution (614)	Expiation (69)	Warning (120)	Total (998)	p value
Police have legitimacy: Summed score						
No	73.8% (144)	57.5% (353)	58.0% (40)	62.5% (75)	61.3% (612)	0.05
Unsure	11.3% (22)	18.6% (114)	20.3% (14)	20.0% (24)	17.4% (174)	
Yes	14.9% (29)	23.9% (147)	21.7% (15)	17.5% (21)	21.2% (212)	
Police legitimacy: Individual indices						
Police have a duty to enforce the law						<0.000
No	71.8% (140)	76.2% (468)	72.5% (50)	75.0% (90)	74.9% (748)	
Unsure	3.1% (6)	5.2% (32)	10.1% (7)	9.2% (11)	5.6% (56)	
Yes	25.1% (49)	18.6% (114)	17.4% (12)	15.8% (19)	19.4% (194)	
Police deserve respect						0.09
No	68.7% (134)	75.4% (463)	63.8% (44)	76.7% (92)	73.4% (733)	
Unsure	6.2% (12)	5.7% (35)	13.0% (9)	5.8% (7)	6.3% (63)	
Yes	25.1% (49)	18.9% (116)	23.2% (16)	17.5% (21)	20.2% (202)	
Police abuse power						0.02
No	3.6% (7)	7.3% (45)	5.8% (4)	5.0% (6)	6.2% (62)	
Unsure	2.6% (5)	6.0% (37)	5.8% (4)	11.7% (14)	6.0% (60)	
Yes	93.8% (183)	86.6% (532)	88.4% (61)	83.3% (100)	87.8% (876)	
Police have too much power						0.04
No	9.2% (18)	16.6% (102)	14.5% (10)	14.2% (17)	14.7% (147)	
Unsure	10.3% (20)	16.1% (99)	15.9% (11)	13.3% (16)	14.6% (146)	
Yes	80.5% (157)	67.3% (413)	69.6% (48)	72.5% (87)	70.6% (705)	
Police are arbitrary in their enforcement of the drug laws						0.26
No	14.9% (29)	18.2% (112)	18.8% (13)	10.8% (13)	16.7% (167)	
Unsure	9.7% (19)	12.1% (74)	15.9% (11)	10.8% (13)	11.7% (117)	
Yes	75.4% (147)	69.7% (428)	65.2% (45)	78.3% (94)	71.5% (714)	

Consistent with the hypothesis, attitudes did differ significantly among those who were charged versus those who were diverted. In particular those charged had the least favourable perceptions of police legitimacy (14.9%) followed by the warning group (17.5%). The expiation and caution groups had higher perceptions of police legitimacy (21.7% and 23.9% respectively). Some offenders reported that this may have had very real impacts on their future willingness to help or respond to the police:

> I lost all faith and trust in the police force that day along with other bad experiences I have had with them, I surely won't be reaching to dial 000 if I ever have an emergency on my hands.

> Police were very relaxed and treated me well. I have gained respect for Law Enforcement after the stop.

Examining individual questions provided some insights into the perceptions of police legitimacy. For the whole sample about a fifth said police deserved respect (20.2%) or have a duty to enforce the law (19.4%). These two measures had the highest police support from this study's sample of cannabis use/possess offenders. Almost three quarters said police had too much power (70.6%) or were arbitrary in their enforcement of the drug laws (71.5%); only 14.6% to 16.7% disagreed with these statements. There were again significant differences across the four groups in terms of two indices: police abuse of power, and police having too much power. For both indices, the charge group was more likely to attest that police abused power or had too much power. For example 80.5 percent of the charge group said police had too much power, compared with 67.3 percent to 72.5 percent of the diversion groups. This suggests the charge group was 1.1 to 1.2 times more likely to say police had too much power.

In summary the entire sample of cannabis use/possess offenders had low perceptions of police legitimacy. However, comparing across the groups, the charge group had lower levels of perceived legitimacy, were more likely to contend that police had too much power, and that they abused that power. Conversely, all of the diversion groups had higher perceptions of police legitimacy, albeit the warning group had somewhat lower levels of perceived legitimacy than the caution and expiation groups. This supports the hypothesis that diversion may heighten perceptions of police legitimacy.

Health status and levels of dependence

Self-reported health status as reported post-intervention was similar across the groups (not shown) with 59.9 percent reporting excellent or very good health status, and 31.0% percent reporting good health status (see Table 24). The reported health status was similar to that in the NDSHS for those who consumed cannabis and were aged 18 and over. The strategy has a median age of 30 while this study's sample has an average age of 20.3 (median 19 years of age). The younger population could be expected to be healthier.

Table 24 Self-reported health status (%)

	Study sample %	NDSHS 2013^ % those who report cannabis use, age 18+
Excellent	18.7	17.2
Very good	41.2	38.2
Good	31.0%	32.1
Fair	7.2	10.6
Poor	1.9	2.0%

^Table S5.7: Self-assessed health status, health conditions and psychological distress, by cannabis use, people aged 18 years or older, 2007 to 2013

Close to 70 percent of the sample reported no medical diagnosis. Again, reflecting the younger age of the sample, comparisons between this study and the NDSHS indicate that as expected, this study's sample has lower rates of cardiovascular disease and diabetes (Table 25). But at 20.6 percent of the sample, the rates of mental health illness were notably higher than in the strategy.

The numbers were low in the sample of those who reported having a diagnoses, often posited as conditions for which medical cannabis was useful such as infectious disease–HIV/AIDs, hepatitis, cancer, multiple scleroses, migraine/seizure/Tourette's, or chronic non-cancer pain (Ben Amar 2006; Hazekamp & Grotenhermen 2010).

Table 25 Self-reported diagnoses

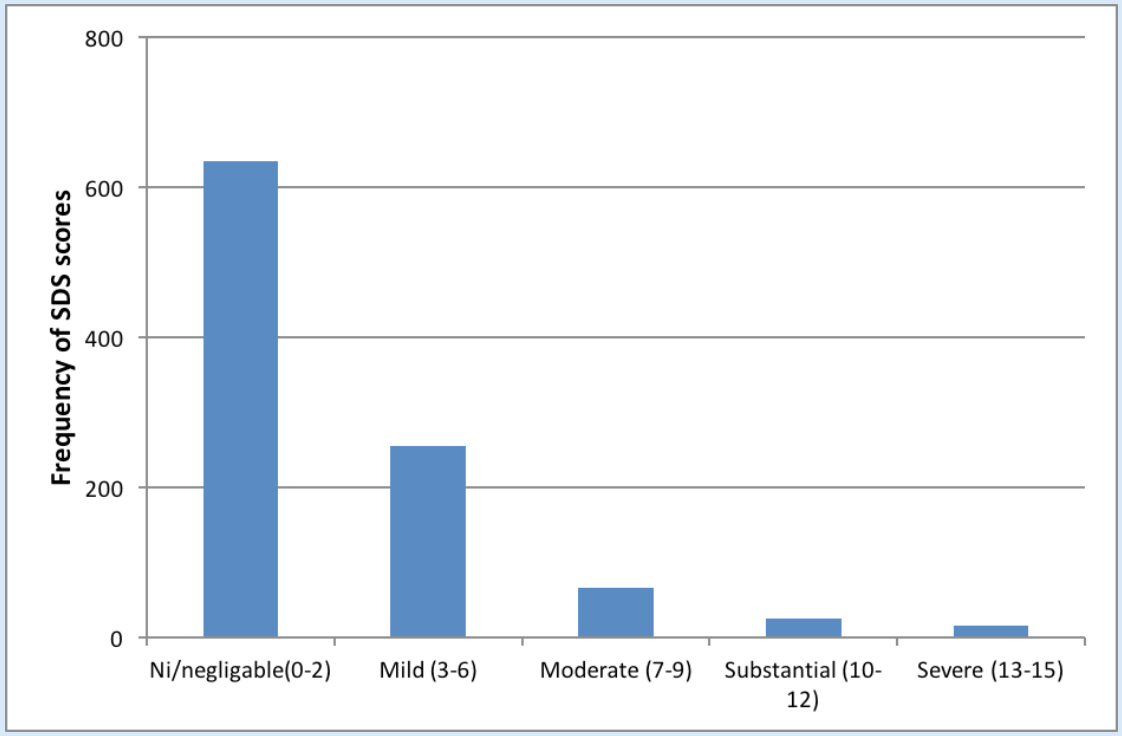
	Study sample		NDSHS 2013^
	N	%	%
Mental health	204	20.6	13.9
Respiratory	43	4.3	9.5
Infectious diseases	22	2.2	N/A
Cardio vascular	10	1.0%	20.4
Chronic non-cancer pain	9	0.9	10.0%
Migraine/seizure/Tourette's	4	0.4	N/A
Multiple scleroses/cerebral palsy	4	0.4	N/A
Gastrointestinal diseases	3	0.3	N/A
Cancer	3	0.3	N/A
Diabetes	2	0.2	6.3
No. reported medical diagnosis	685	69.3	N/A

^Table S5.7: Self-assessed health status, health conditions and psychological distress, by cannabis use, people aged 18 years or older, 2007 to 2013 (percent)

The Severity of Dependence Score (SDS) was used to assess dependence on cannabis (Gossop et al. 1995; Dawe et al. 2002). This scale asks respondents five questions including whether they feel their cannabis use is out of control; whether they worry about their cannabis use, and if they feel it would be hard to stop. The scores were grouped from nil/negligible (score 0 to 2) to severe dependence (score 13–15; Copeland et al. 2009). There was no significance difference across the groups in the rates of cannabis dependence (not shown). Figure 8 demonstrates that most of individuals (72.6%) are in the nil or negligible dependence category and 16.9 percent in the mild category with 10.8 percent in the moderate to severe category. There was no difference in the distribution of the scores between adults and juveniles.

In summary, most of the sample reported being in good to excellent heath although 20.6 percent reported some form of mental health problem, and 27.7 percent were scored has having some form of cannabis dependence.

Figure 9 Distribution of the severity of dependence scores



Costs and cost-effectiveness

As one of the key objectives of this evaluation was to assess the cost-effectiveness of achieving the identified outcomes, it was first necessary to assess the resources used for each of the police interventions and any subsequent activities. This final section reports on costs and relative cost-effectiveness.

Once the costs were estimated, they were summed by group. The group that was charged had the largest mean cost ($1,918, 95% CI $942–$2,912), with the second most expensive being the caution group (see Table 26). These were followed by the expiation group and then the warning group. The mean cost for the charge group was six to 15 times more than that of the diversion groups.

Table 26 Mean cost by intervention group

	Mean^ ($)	95% Confidence Interval ($)	
Charge	1,918	941	2,895
Caution	318	289	347
Expiation	264	221	306
Warning	123	121.5	124
All	604	467.7	1,950

^ As the data was highly skewed, the means and 95% confidence intervals were estimated with non-parametric bootstrapping with 5000 resamples.

The difference in costs between the four intervention groups was further evaluated using regression analyses. This employed a generalised linear model (with identity link and a Gaussian distribution) due to heteroscedasticity in the error variance of the cost data (Wooldridge 2009). Other distributions were tested with the Gaussian distribution resulting in the best statistical model.

Try Earlier models included several demographic variables and behavioural characteristics hypothesised to impact on costs, including: a history of prior convictions; self-reported criminal activity in the month prior to detection; age; being a juvenile; location (urban/rural) of offence; sex; and marital status; none of these variables approached statistical significance. For the costs, the only variable significant in explaining the differences between the costs in any model was the type of intervention.

Although the costs and outcomes were not compared across jurisdictions, for those who received a caution in low intensity programs (ie such has having the caution issued in the location where the cannabis was detected), the mean cost was $240 per person (SD $246), compared with $381 ($426) for the higher intensity programs.

Table 27 Regression analysis of costs

	Coefficient	Standard error	P>z	95% Confidence Interval	
Caution	-1,603.6	498.3	0.001	-2,580.3	-626.9
Civil penalty	-1,666.6	499.5	0.001	-2,645.5	-687.6
Warning	-1,798.3	497.9	0.000	-2,774.2	-822.4
Age	1.0	1.6	0.518	-2.1	4.2
Gender	-9.3	10.4	0.372	-29.8	11.1
Prior conviction	19.7	32.9	0.549	-44.8	84.2
Constant	1,910.6	502.3	<0.000	926.2	2,895.0
AIC					13.98
BIC					6,259.49

As previously demonstrated in the univariate analyses, cannabis use days decreased in three of the four groups (no change in the expiation group) and there was a decrease in the use of other drugs within the charge group. Regression analyses were used to explore the impact of individual characteristics on these drug use outcomes. It was hypothesised, that in addition to the type of police intervention, the respondent's age, prior criminal history, and the number of medical diagnoses—the severity of dependence score might explain differences in outcomes and cost-effectiveness between the interventions.

Although there were changes in days of cannabis use before and after three interventions, there was no difference in the change in days of cannabis use across the intervention groups (Table 28). After exploring variables hypothesised to impact on cannabis use, the only significant predictor of change across the sample in the linear regression analysis was the Severity of Dependence Scale (SDS) where the higher the score, the more likely to be dependent and the less likelihood of change in the number of days of cannabis use.

Table 28: Regression analysis of change in cannabis use days before and after intervention

	Coefficient	Standard error	P>t	95% confidence interval	
Caution	0.09	0.17	0.591	-0.24	0.43
Expiation	0.37	0.29	0.194	-0.19	0.93
Warnings	-0.20	0.24	0.395	-0.67	0.27
Age	0.02	0.01	0.102	0.00	0.04
SDS (score)	-0.07	0.02	0.001	-0.11	-0.03
Months since stopped	-0.03	0.03	0.309	-0.09	0.03
Constant	-0.42	0.34	0.206	-1.08	0.23

When this analysis was repeated with the change in the number of drug types used pre- to post-intervention as the dependent variable, the only significant explanatory variables were the interventions. There was a larger decrease in the number of other drugs used by those in the charge group (base) compared with all diversion groups (Table 29)

Table 29 Difference in the number of other illicit drugs used pre- to post-intervention

	Coefficient	Standard Error	P>t		95% confidence interval
Caution	0.42	0.09	<0.000	0.24	0.60
Expiation	0.32	0.15	0.038	0.02	0.62
Warnings	0.29	0.13	0.026	0.03	0.54
Age	0.00	0.01	0.908	-0.01	0.01
SDS (score)	-0.01	0.01	0.568	-0.03	0.02
Months since stopped	0.01	0.02	0.684	-0.02	0.04
Constant	-0.42	0.18	0.018	-0.78	-0.07

Cost-effectiveness analysis

The difference was calculated between the costs and outcomes for each of the police diversion methods relative to those of the charge group. Bootstrapping methods with 1,000 repetitions were also used to estimate the 95 percent confidence intervals. The cost-effectiveness results for the outcome—change in the number of illicit drugs used pre- to post-intervention—are presented on a cost-effectiveness plane in Figure 10. Before discussing the actual results, it is worth discussing the cost-effectiveness plane in general. The four quadrants of effectiveness plane are typically described by their geographical location ie the north-east (more costly and more effective relative to the base), north-west (more costly and less effective), south-west (less costly and less effective) and south-east (less costly and more effective). When the results are in the south-east quadrant, then the comparator is said to be cost-effective relative to the base. In this study, the base is 'being charged' by the police and the comparators are the three diversion programs. If results are distributed within the north-west quadrant, the base intervention is said to be cost-effective. If the results are entirely in the north-east or south-west quadrants, or scattered across the axis then interpretation is more difficult.

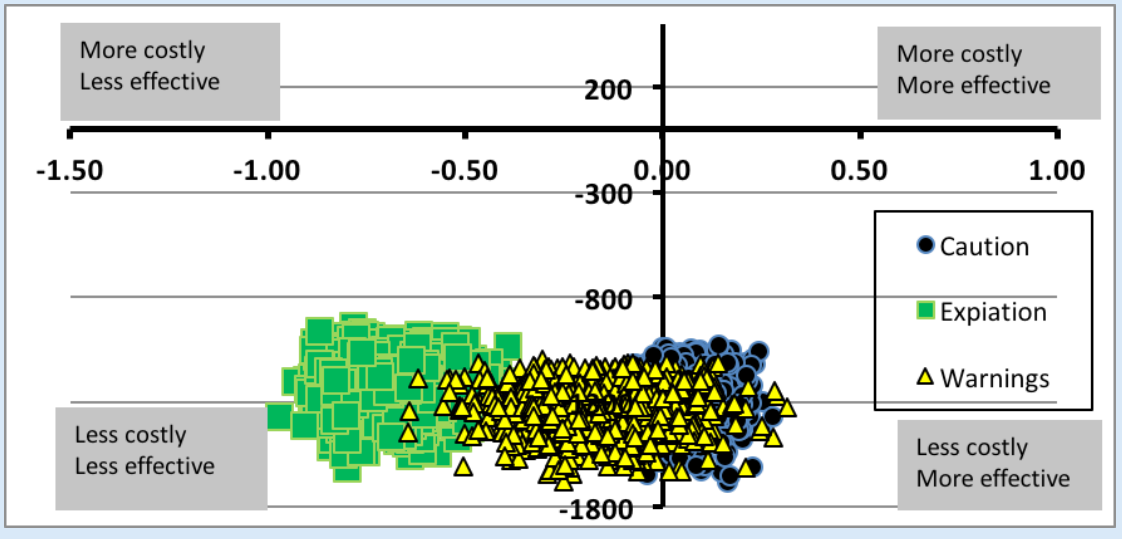
As indicated above, the base case is being charged by the police thus all diversion costs and outcomes in the cost-effectiveness plane are presented in comparison to those of the charge group. In Figure 10 the difference in costs and outcomes between the charge group and each of the diversion groups are presented with the outcome being the 'change in the number of illicit drugs used pre-to post-intervention. Each of the three data series is discussed separately. Reflecting earlier findings, the costs related to charging individuals for cannabis possession/use offences are clearly more expensive compared with that for all diversion programs, therefore all results can be found in the bottom half of the figure.

The results for expiation show all the green squares in the south-west quadrant. This indicates that expiation is less effective than charging at decreasing the number of other illicit drugs used in the past month, but is considerably less expensive.

The results for the warning programs—the scatter of dots crossing the the y-axis—indicate that there are no real differences between warning and charging in decreasing the number of other illicit drugs used. But again, warning is less expensive.

Similar to the warning groups, no statistical difference exists in the change group (yellow triangles) in the number of illicit drugs used between the charge and the caution group. But again caution is less expensive than being charged.

Figure 10 Cost-effectiveness plane: Change in number of illicit drugs used



The cost-effectiveness plane is presented only for the change in number of illicit drugs where there is a statistical difference across groups. As there was no statistical difference across the groups in the change in cannabis use, the cost-effectiveness analysis becomes solely about the difference in costs.

In summary, the charge group is more costly than the diversion groups, and the diversion groups are as effective in decreasing cannabis use and the number of illicit drugs used—therefore, all else being equal, it costs more to achieve the same outcome by using a criminal charge.

Discussion and conclusions

This research sought to add to the literature by addressing a number of questions about cannabis diversion programs, including the extent to which diversion impacts upon offending, health and social domains. It also tried to start addressing questions about the cost-effectiveness of diversion programs relative to a traditional criminal justice system response. It aimed to test the feasibility of using online surveys to assess outcomes and cost-effectiveness of diversion programs.

Previous studies examining police diversion programs have tended to either use before-and-after administrative data or to recruit prospective samples of participants undergoing police diversion, for example (Hales et al. 2004; Payne et al. 2008). But either by design or through an inability to recruit participants, such studies have lacked a comparison group of offenders who were not diverted; and so insights into whether diversion offers benefits over and above a traditional criminal justice response were generally missing. This is something the study explicitly sought to address. While recognised that well-conducted random controlled trials result in the strongest level of evidence, in the absence of such trials for police diversion, this study used a novel approach of recruiting participants via the internet. This study was not interventionist as it did not provide the intervention, but rather it sought to recruit a sample of individuals who had had one of four types of encounter with police as a result of using or possessing a small amount of cannabis. Once recruited they were asked to complete a survey which included questions about their drug use and criminal behaviours both before and after encountering police. It also asked a wide range of other questions exploring personal and social implications of their police encounter. There are limitations to this method of research that will be discussed further, but it is important to point out that inclusion of four different interventions facilitated comparisons across groups, directly addressing one of the concerns of pre-post designs as articulated by Payne et al (2008).

> There is one potential concern with using pre- and post-test comparisons. Should the diversion programs have involved minor first-time offenders, the pre-diversion offending rate will be low, if not non-existent. Any post-diversion offending may be taken as an increase in the offending rate, but how this compares with the normal offending growth rates of a typical population sample will remain untested (18).

In considering the results and implications, it is important to keep the context and methods of the study in mind. The sample does not, nor was it meant to represent the wider population of Australian cannabis users, but rather to reflect those who were 17 years of age or over who had been detected by Australian police agencies for a cannabis possession/use offence. So does it represent this study's population of interest? It is known from other Australian studies that those who were detected with cannabis offences are primarily male and young: 78.7 percent of New South Wales cannabis cautions were issued to males (Baker & Goh 2004); 84 percent of cannabis expiation notices in Western Australia were issued to males (Crime Research Centre 2007); and 81 percent of all national diversion clients referred to AOD treatment in 2012–13 were male (AIHW 2014a). In terms of age, 74 percent of New South Wales cannabis cautions issued were to those between the ages of 18 and 29 (Baker & Goh 2004); 81 percent under the age of 35 in Western Australia (Crime Research Centre 2007), and 61 percent of all national diversion clients were aged under the age of 30 (AIHW 2014a). This study's sample was also young (mean age of 20.3, range 17–75) and predominantly male (86.7%) making it not dissimilar to that of other studies. While it cannot be stated with certainty that the sample was representative, the similarity in age, gender, and the fact that fewer juveniles received a charge, gives the data some face validity.

This study moves beyond the basic characteristics of age and gender of cannabis diversion offenders. It includes details such as their level of cannabis use; level of dependence; mental health and other health problems; levels of education; employment; income and attitudes towards police. There are a number of revealing and potentially important insights. The first of these was that, on average, respondents were consuming cannabis regularly (50% report using at least once a day); had used cannabis for an average of

four to six years and many had evidence of dependence. The rates of moderate or severe dependence at 10.8 percent may appear low given this high rate of daily use but this probably reflects the subjective nature of the SDS which includes questions such as: did you ever think your use of cannabis was out of control; did you worry about your use of cannabis; and did you wish you could stop? Many daily users do not think their cannabis use is of concern or out of control.

These high rates of use (50% using at least daily) were much higher than the 12.8 percent of recent users in the 2013 NDSHS (AIHW 2014b). This study's sample also reported high rates of mental health and behavioural problems.

A second clear finding was that most cannabis use/possess offenders encountering Australian police are relatively well-educated and/or still completing their studies and employed. Further, most cannabis use/possess offenders encountering Australian police did not have a prior criminal record or a history of self-reported offending. This study's finding of low criminal offending (12.1%) is not dissimilar to the findings of analyses of national data by Payne et al (2008). However, it added to this analysis by assessing self-reported offending which may not normally come to the attention of police. The level of reported offending by the sample was higher than the level of reported prior criminal records. But, excluding not-for-profit supply of cannabis, most cannabis use/possess offenders reported no history of offending in the previous month.

To attempt to address the key objective as to whether or not police interventions made a difference and whether there were any differences between the diversion and charge groups, questions were asked about pre- and post-drug use and criminal behaviours. Three (charge, caution and warning) of the four groups were found to have a small decrease in days of cannabis use. However, there were no statistical differences between the groups. The charge group had a decrease in the number of illicit drugs reportedly used in the previous month; this was different from all diversion groups. The only significant predictor of change in cannabis use was the dependency score—those who were more dependent were less likely to decrease their use. Other factors such as age, sex, education, employment, prior criminal record or current criminal behaviours, and age of onset of use did not predict change of use between the groups in multiple regression analyses.

In terms of offending, the findings were complex reflecting in part the considerable heterogeneity across the cannabis use/possess population. Self-reported offending (defined using the OTI as violence, fraud, property crime and for-profit supply) across the whole sample, decreased from 23.9 percent reporting offending in the month prior to detection to 17.9 percent after detection. Moreover, most (96.7%) cannabis use/possess offenders who did not report a prior history of engagement in other 'serious' crime did not report crime after the police encounter. Only a minority of those who reported a prior history of engagement in other serious crime subsequently offended after a police encounter (30.2%) with no statistically significant differences between the charge and diverted groups. These results were similar to that of Payne and colleagues who demonstrated that most diverted offenders did not have criminal histories nor did they return to the criminal justice system (2008).

The data in this study also illustrate that those sanctioned through the traditional criminal justice system achieved a similar reduction in their level of offending to those in the diversion groups. This might be counter to expectations, but is important as it provides additional evidence that the decision to not impose a criminal charge does not increase engagement in serious offending.

Those who did continue to offend post-police encounter, although not a large proportion of the sample, appeared to have a complex set of needs. They were more likely to still be consuming cannabis daily, have a higher level of dependence, be less educated and unemployed, and report multiple health diagnoses. While a simple caution or warning may not be expected to resolve these complex needs, a criminal charge is also unlikely to do this and may even exacerbate them (O'Callaghan et al. 2004; Hamilton 2010). It is important to note that it is not known, based on this survey, why these offenders were charged rather than diverted. People who were charged may have previously exhausted their chances for diversion, or they may have been rendered illegible for diversion because of their offending histories or histories of mental illness or attitude to police. To explore this, additional qualitative research would be needed.

Diversion appears to be associated with more positive social outcomes when compared with the charge group in the social domains assessed in this study. Those who were diverted report fewer barriers to attaining or retaining employment, less conflict with family, partners and friends, and improved perceptions of legitimacy of the police. Such findings replicate but also extend those from the previous study that examined social impacts of police diversion. For example, this study's findings showed that 49.7 percent of the charge group reported relationship problems compared with 10–28.3 percent of diversion groups; and 32.3 percent of the charge group reported they were denied a job versus 14.5 percent of the expiation group and 3.3–7.8 percent of the caution/warning group. Lenton and colleagues found 20 percent of those charged reported a relationship problem versus zero percent for the diverted group, and 32 percent reported a negative employment consequence arising from a cannabis offence apprehension versus two percent (Lenton et al. 1999). Both this study and theirs also indicate that diverted offenders had higher perceptions of police legitimacy than those who were given a traditional criminal justice response.

The mean cost for the charge group at $1,918 (95% CI $941–$2,894) was significantly higher than the others. They were $122 for the warning group; $264 (95% CI $220–$306) for the expiation group and $318 (95% CI $289–346) for the caution group. None of the hypothesised potential confounders explained any of the differences in costs between the groups. This is further reflected in the results of the cost-effectiveness analyses where the charge group is more expensive for little or no gain in improved outcomes.

The costs were based on events as reported by the respondents, combined with data from previous surveys of police activities and unit costs. Included are the costs of police time on the street with the offender, in the police station, in court and for necessary recordkeeping; court costs; costs of penalties; costs of assessment, educational sessions and treatment when it occurred, plus any subsequent costs related to follow-up for those respondents who reported non-compliance and subsequent penalties. Applying unit costs to self-reported activities may result in the full costs of the intervention not being captured but the detailed questions around the activities of their intervention appeared to be well-answered across all the interventions, possibly minimising this effect. The cost for the warning group had little variation. Only costed were those simple encounters that resulted in no permanent record or follow-up activities for the respondents.

Another question this study set out to address was whether or not online surveys are a feasible tool for evaluating drug diversion programs. This research demonstrated that it was possible to recruit detected offenders, including those who had been charged and not charged, and to obtain a large amount of potentially meaningful information from them about their police encounter and behaviours, including some pre- and post-assessments. While some of the responses were false (and excluded from the analyses), most did appear to be truthful. The limitations are that this method is highly susceptible to recruitment methods. This study had widespread promotional support from relevant organisations across Australia. It also used targeted social media advertising. Despite this, one large jurisdiction (New South Wales) was over-represented and another (Victoria) was under-represented. The sample age may also have been slightly younger than the overall charged and diverted population in Australia, but this may reflect the recruitment methods.

More generally, the final sample was smaller than anticipated. Had this study's criteria been less strict about when the offence occurred, relative to completing the survey, the sample might have been larger—1,900 respondents were excluded because their offence was either prior to the nine months or more recent than three months from when they conducted the survey.

Although some evidence suggests that individuals are willing to respond openly online, important questions for evaluating diversion programs also appeared to be perplexing when asked online, as opposed to in a face-to-face or telephone interview. An example of this was in the interpretation of the definition of the groups as it was apparent during analysis that many who said that that they had received a 'warning' had actually received a much more formal response. Face-to-face or telephone interviewing would have provided the opportunity to clarify this important point. Similarly, although the question regarding the quantity of cannabis that was used on any day cannabis was consumed was the same as that used in the NDSHS, respondents did not answer these questions well. This resulted in unusable data for this variable.

In summary, this method was feasible and beneficial for populations that could not be reached any other way. However, future research should consider incorporating some interaction either via email or telephone as well as a longitudinal follow-up of at least a sub-sample of respondents. This would enable a stronger evaluation of post-intervention behaviours and would permit additional qualitative interviews about important issues of causality.

Limitations

Several potential limitations have already been highlighted including self-reported drug use and criminal behaviours, and collecting pre- and post-data at a single time point. Using self-report data was intended as a move away from the use of administrative data, and as an effort to try to recruit comparison groups. The collection of pre- and post-intervention data at a single time point was pragmatic given this was in part using experimental methods. The collection of data, such as the social factors at a single point in time, also does not permit exploration of the causality.

It was not the intent of this study to compare across jurisdictions, nor to tease out differences in cannabis caution programs across the country. However, it is clear there are considerable differences in how these programs operate—from issuing a caution on first offence through to requiring assessment or attendance at a cannabis education program.

A limitation of this work was the lack of randomisation. This was intentional, based on recruitment problems in previous research. It was this study's intention to use statistical techniques, such as instrumental variables or propensity score matching to account for potential differences in the non-random groups. The former was not undertaken as there was no variation in the responses to the questions for this purpose. Propensity score matching was not implemented because of the low response in one of the groups (expiation) which meant that the useable sample for analysis would have been greatly limited. Generalised least models methods and logistic regressions were subsequently used to explore differences across the groups.

As discussed elsewhere, probably due to multiple names being commonly and variably used for similar activities (diversion, caution and warning), it was clear that some individuals who selected warning actually received more than a simple warning as defined in the survey. These people were reclassified into the caution group.

The cost-effectiveness analysis was conducted from the perspective of the intervention within both the criminal justice and health care sectors. It did not include any broader criminal justice, health or social welfare costs. Nor did it reflect the actual costs in individual jurisdictions, as constant unit costs were applied for all jurisdictions. These decisions were pragmatic for collecting resource-use information from the participants, and not wanting to include additional survey questions. This is one reason why the average costs may not reflect the actual experiences in individual jurisdictions. It may also be due to the variation in intensity across programs, particularly for the cannabis caution group—meaning that the average cost may not reflect all jurisdictions.

Policy implications

A striking finding from the analysis was that the population was a much more high frequency cannabis using group than expected, with considerable levels of dependence, and other health-related problems. The frequency of cannabis use and levels of dependence were important factors shaping the likelihood of subsequent cannabis use and offending. The findings also suggest that the population of detected and diverted cannabis offenders may differ to that envisaged by police and policymakers. For example, cannabis diversion was introduced as a means of targeting experimental cannabis users (Hughes 2009). The fact that the detected cannabis users had been using for an average of four to six years and that about half were daily users indicates that the population may be somewhat more entrenched in their cannabis use than previously understood.

This suggests that there may be an opportunity to increase the intensiveness of the therapeutic response for those who need such an intervention. While this research was not designed to assess this issue, nor did it recruit sufficient respondents, there may be potential to explore a stepped approach for repeat offenders or to mandate an assessment of treatment needs as is done in some diversion programs. However, a more intensive response may cost more money. For example, evaluation of the Australian Capital Territory drug diversion system showed that full costs of a diversion for a cannabis offender through the expiation scheme was $1,337 compared with $2,173 for diversion to a mandatory treatment assessment and optional additional treatment (Hughes et al. 2014). It may also be worth considering the objective: is reducing adverse social consequences from a criminal charge a sufficient policy benefit? Particularly, when evidence suggests that by doing so, most people do not start offending or reoffend, and that the cost is minimal.

The absence of significant changes in drug use or offending behaviours between diversion versus charge may be interpreted as—'diversion' does not work hence police should return to charging all offenders—an interpretation which should be cautioned against. These results add to the evidence that, when compared with a traditional criminal justice response, diversion offers benefits. In particular, they suggest that diversion saves police time and court time, and so is less expensive for the criminal justice system. It may also reduce some of the adverse social consequences of providing a criminal record, including loss of a current job or barriers to attaining new employment.

These findings suggest that the biggest impact of diversion may not be the change in drug use or offending, but in ameliorating the adverse social consequences of a criminal record. This is not surprising from a criminological perspective (Polk et al. 2005) but it is counter to the traditional stated objectives of drug diversion programs that emphasise reducing drug use and offending.

A further important observation, is that although not statistically significant, someone detected with a small amount of cannabis in an urban setting was less likely (17%) to receive a charge compared with those in rural and remote settings (24%). From the National Drug Strategy Household Survey (AIHW 2014b) it is known that the rate of cannabis use is lower in major urban areas (9.8%) than in rural and remote areas (10.6% to 13.6%). This suggests that there may be some scope to improve consistency of policing practices and/or resolve ongoing issues of access to/providing cannabis diversion options in rural and remote Australia (AIHW 2008).

In conclusion, this research sought to examine the outcomes and cost-effectiveness of Australian cannabis diversion programs. By considering impacts on drug use, offending and social domains, it shows that diversion does not necessarily reduce drug use. However, it is associated with reductions in offending and a reduction in adverse social outcomes, such as impact on employment. It also reinforces that cannabis diversion is much less expensive than a traditional criminal justice response. While providing some pointers towards potential modification and improvement (particularly to target the higher than expected cannabis using population), this research also provides important support for one of the core policies employed in Australian in responding to drug offenders—the police diversion of minor cannabis offenders.

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Appendix A: Jurisdictional descriptions of cannabis diversion programs

Note: these descriptions pertain only to cannabis offences

Australian Capital Territory

The Australian Capital Territory has two programs for those found possessing a small amount of cannabis: an expiation program (Simple Cannabis Offence Notice—SCON) and a caution program (Police Early Diversion program—PED). Both target youth and adults. Although there have been recent changes to the program, the descriptions here refer to the program as it was operating while the survey was ongoing.

The PED program was introduced in December 2001. According to 2010 police directives, the program is meant to be the first line program: 'before a SCON may be issued, the case officer must first determine if the offender qualifies for the Drug Diversion Program. If the Drug Diversion Program can be utilised it will take preference over the issue of a SCON' (Hughes 2014). It involves police:

- issuing a Drug Diversion Caution Notice which involves a referral to ACT Health for assessment and education, counselling or other treatment as appropriate. The threshold amount is 25 grams of dried cannabis or two non-hydroponic plants (ACT Government);
- recording the incident on PROMIS, clearing the offence as 'Drug Diversion';
- entering all details of the diversion into the SupportLink referral network (which notifies the diversion assessors in the Alcohol and Drug Service [ADS] of the referral);
- ensuring the offender (or for a young offender, the parent or guardian) signs the Drug Diversion Caution Notice; and
- lodging the drug seizure.

Once the offender receives the caution notice they must attend an assessment and education session provided by a drug and alcohol counsellor, with the Alcohol and Drug Service. Upon notification of the referral the diversion assessors contact the offender to set up an appointment. Referral to treatment may result. Attendance at the assessment session is noted and this information is provided to the referring police officer. If the offender fails to comply, they may be charged and/or summonsed to court.

Other eligibility criteria for PED are that the offender must be willing to admit to the offence, consent to the diversion (and to attend one assessment and one treatment session), not have previously participated in the drug diversion program on more than two occasions, not have committed their offence in circumstances involving violence, and the apprehending officer must be satisfied that the drugs were for personal use.

The Simple Cannabis Offence Notice (SCON) Scheme was established in 1989 via the *Drugs of Dependence Act 1989*, with a $100 fine issued by police, payable within 60 days for cannabis possession or cultivation. Since October 2013 the threshold amount (maximum) for a SCON has been 50 grams cannabis or two non-hydroponic plants.

The process in this instance is that the police will:

- explain the terms and conditions of the infringement;
- ensure the person, and in the case of a young person, the parent or guardian agree to these conditions, including payment within 60 days at a designated shopfront;
- distribute copies of the SCON to the offender and Illicit Drug Diversion Officer (IDDO);
- enter the incident into PROMIS, and clear the offence by 'SCON';
- record in PROMIS the reason why a drug diversion was not issued; and
- lodge the drug seizure.

Those who do not pay their fine are referred back to the police and may be required to attend a court hearing which could result in a criminal conviction and additional penalties—the dominant response if an offender is sent to court is a fine of $100. Alternatively, they may be given the option to receive a PED instead.

New South Wales

The NSW Cannabis Cautioning Scheme has been in place since 2000. Only adults are eligible. Police can exercise their discretion as to whether to issue a caution or formally charge offenders if the person has 15 grams or less of dried cannabis or smoking implements in their possession. The cannabis must be deemed for personal use. Those in possession of cannabis resin or plants are not allowed to receive a caution. Seeds are also excluded where they make up the bulk of the seizure. The offender must admit guilt and not have any concurrent offences, prior convictions or history of violent or sexual offences. People are eligible for a maximum of two cannabis cautions.

The Cannabis Cautioning Scheme is meant to assist offenders to consider the legal and health ramifications of their cannabis use and seek treatment and support. Steps include that police:

- determine eligibility;
- issue a formal caution notice, which provides a contact telephone number for the Alcohol and Drug Information Service (ADIS)—a dedicated, confidential service;
- seize the drug (where relevant) and lodge it; and
- enter the details of the offence into the COPS database—details are recorded but no charges are laid.

For a first offence it is optional for a cannabis offender to contact ADIS. People who receive a second and final caution are required to contact ADIS for a mandatory education session about their cannabis use. This must occur within 14 days of receiving the cannabis caution (Hughes & Ritter 2008).

If the offender makes contact with ADIS, this results in an education session over the telephone, an attempt to assess the offender's use, and whether treatment would be suitable. The NSW Police Drug and Alcohol Coordination is informed monthly as to which offenders have contacted ADIS. If the offender fails to comply, the COPs entry is updated to indicate non-compliance with the second caution. No further action is taken at this time, however, a magistrate could consider this non-compliance when determining sentences for other offences.

In New South Wales, under the *Young Offenders Act 1997*, police can warn, caution or initiate a youth justice conference for young people found with half a small quantity of cannabis (that is, 15 grams or less). The young offender must admit guilt and the cannabis must be for personal use. Cautioning is the most common police response and involves a formal meeting with the offender and his or her parent or guardian. During the meeting, police provide information on the effects of cannabis. Police can also refer young offenders to local drug treatment services, but cannot make them attend.

Northern Territory

Two diversion programs are provided in the Northern Territory for cannabis offenders—an expiation scheme (for adults only) and caution scheme (for youth and adults).

The cannabis expiation scheme started in 1996. Under this scheme people 17 years of age and over found in possession of up to 50 grams of marijuana, one gram of hash oil, 10 grams of hash or cannabis seed, or two non-hydroponic plants can be fined 1.7 penalty units (in 2013 one penalty unit equalled $130.) They have 28 days to pay the fine rather than face a criminal charge. If the amount specified on the infringement notice is paid in full by the date specified on the notice, there will be no further action (Misuse of *Drug Act 2006*; Section 20 B). If the penalty is not paid recovery may occur through the courts. Failure usually results in a debt to the state but no conviction (Hughes et al 2014).

Those under the age of 17 found in possession of cannabis or using cannabis around schools will be prosecuted in the courts. The caution scheme, Northern Territory Illicit Drug Pre-court Diversion Program, started in 2002. Under the scheme youth or adults found in possession of up to 50 grams of marijuana can be referred for assessment and a one-hour education session. Further treatment is optional. Non-compliance will be reported and a summons issued (Hughes & Ritter 2008). Eligible offenders must have no prior convictions for violent offences or drug offences.

Queensland

The Police Drug Diversion program (PDDP) is a legislated diversion program that enables police to offer eligible persons, apprehended for a minor drugs offence, with an opportunity to attend and complete a Drug Diversion Assessment Program (DDAP) with an approved Queensland Health service provider, instead of having to go through the court process. A minor drugs offence includes the possession of not more than 50 grams of cannabis or an object that is used for, or has been used for, smoking cannabis. The PDDP is offered to eligible adults and children, but can only be offered once. If the offender rejects the offer or does not attend the program, no further offer will be made.

Eligibility must be assessed by police prior to offering diversion. Offenders must admit the offence in a recorded interview and not have concurrent offences or prior convictions for offences involving violence. It is mandatory for police to offer the program to all eligible offenders. Once the offer of diversion is accepted, police make the appointment with the closest available DDAP provider. Details are recorded and the offender must sign the form.

The DDAP is an assessment and education session that takes around two hours and may lead to additional voluntary treatment opportunities. Information provided to the DDAP provider is confidential and will not be passed on to police.

If the offender does not attend and complete the DDAP, the provider will notify police of the failure to attend. Those who fail to attend commit an offence of 'contravening the direction of a police officer' under provisions of the *Police Powers and Responsibilities Act 2000* and may be required to attend court.

South Australia

Two diversion programs are provided in South Australia for cannabis offenders—an expiation scheme (for adults only) and drug diversion scheme (for youth only aged between 10 and 18 years).

Under the *Controlled Substances Amendment Act 1984* South Australia has had a Cannabis Expiation Notice (CEN) scheme since 1987. This is open to those aged 18 and over. The current threshold quantity for possession for the CEN is an amount less than or equal to 100 grams of cannabis, or less than or equal to 20 grams of cannabis resin (Hughes et al. 2014). The possession of one non-hydroponic cannabis plant is also an expiable offence.

The CEN fines are $150 for possession of <25g cannabis or <5g resin, smoking or consuming cannabis not in a public place, or the possession of equipment for use in connection with smoking or consuming cannabis. For the possession of 25–100g cannabis, 5–20g resin or a single plant (not hydroponically grown) the fine is $300. Each expiation notice also attracts a Victims of Crime compensation fund levy. The smoking or consumption of cannabis in a public place or a prescribed area is not an expiable offence and an offence under the *Controlled Substances Act 1984*.

The payment of the fine is required within a prescribed period. According to the Act, offenders can apply to pay fines in instalments or to perform community service. There are no limits to the number of CENs which an individual can receive, nor do they require an admission of guilt. Failure to pay results in a reminder notice and an additional fee. Subsequent failure results in the SA Police electronically transferring a certificate of enforcement to the Courts Administration Authority informing the court of the summary offence. The court clerk processes and issues an order of enforcement indicating that the offender will have been convicted by the court. This results in an automatic conviction for the original offence plus a fine equivalent to the unpaid expiation fee and additional costs.

The diversion scheme, the Police Drug Diversion Initiative (PDDI), started in 2001. For offences involving cannabis use and possession (up to 50 grams) youth (<18 years of age) are diverted under the PDDI for assessment, to address their drug use as an alternative to the juvenile justice process. Consent of a parent/guardian is required for the youth to receive the diversion cannabis caution. This caution process provides for a referral to assessment and, where appropriate, up to eight treatment sessions. There are no limits to the number of diversions, the individual is not required to admit guilt, and the police do not have discretion over whether to divert or not. If a diversion is not complied with, the matter will be dealt with using the process available within the justice system. For a youth this includes a formal caution, family conference or youth court. The primary focus of PDDI is to divert illicit drug users into assessment and treatment—this is consistent with the principles of the National Drug Strategy 2010–2015.

Tasmania

The Illicit Drug Diversion Initiative (IDDI) has been operating in Tasmania since February 2000, following a Council of Australian Governments (COAG) agreement to develop a nationally consistent drug diversion program.

The IDDI is a health-based diversion program that targets adult minor drug offenders. A drug caution/diversion notice is issued at the discretion of a police officer for low level and/or first-time users of cannabis, and other illicit drugs. The offender must admit the offence/s and agree to be involved in the diversion program. The Tasmanian program has three tiers:

Level 1 Caution—first-time cannabis related offence/s.

Level 2 Diversion—second-time cannabis related offences. This approach requires the offender to contact the Alcohol and Drug Service (ADS) in the Tasmanian Department of Health and Human Services to schedule an appointment for a brief intervention session. From the offence date, the offender has three days to schedule the appointment and 21 days to comply. Non-compliance results in the offender being charged with the offence/s.

Level 3 Diversion—third time cannabis or other illicit/licit drug-related offence/s. This approach requires the offender to contact the ADS to schedule an appointment for assessment, brief intervention and treatment. From the offence date, the offender has three days to schedule an appointment and seven days to comply. Non-compliance results in the offender being charged with the offence/s.

Eligibility for the program is defined by a number of criteria, including that the offender must not exceed three drug events within a ten-year timeframe. Drug events are defined as any drug incident involving police (caution/diversion, conviction or court appearance). When an offender is no longer deemed eligible for a diversionary approach in the timeframe, any subsequent minor drug offending will result in charges.

Since April 2011, minor drug offenders under 18 years of age have been dealt with under the *Youth Justice Act 1997* by an informal or formal caution, community conference, or charge. Prior to this date, youths were issued with a drug caution or diversion under the program. In 2014, changes to the *Youth Justice Act 1997* enabled an undertaking (such as referral to ADS) to be mandated under a formal caution.

Victoria

Victoria has one program for cannabis offenders: the Cannabis Cautioning Program which has operated since 1997 (rolled out state-wide on 1 September, 1998). It is available to those who are aged 18 years and older and who have 50 grams of cannabis or less in their possession (those who are less than 18 years receive a child caution). Also, in order to be eligible for either program, the offender must admit to the offence, consent to the diversion, and not be involved in any other offence at the time. Individuals are eligible for a maximum of two drug cautions in any combination, that is, two cannabis cautions, two drug diversions or one of each.

Once the police detect a person with 50 grams of cannabis or less, the steps are:

- arrest and confirm identity, assess eligibility and obtain consent;
- seize the cannabis (cannabis is retained for 28 days prior to destruction);
- provide the educational brochure with referral information for optional cannabis education session (Cautious with Cannabis); and
- complete and submit other relevant paperwork.

Information on the back of the caution notice informs the offender of the opportunity to attend a non-compulsory two-hour education session. These sessions are open to anyone (friends, family) who wishes to attend, whether or not they are referred by the police.

For those who are eligible for the drug diversion, and accept the offer to attend, the police call the drug diversion appointment line to make an appointment for an assessment. Assessment should occur within five working days of the arrest, and treatment within 28 days.

Youths who are 10 years of age or older receive a child caution. To be eligible they may have up to 50 grams of dried leaf, stems, stalks and/or seeds; there must be no other offence involved and they must not have had more than one previous cannabis caution or drug diversion.

Western Australia

Western Australia has one cannabis diversion program. In August 2011, the Cannabis Intervention Requirement (CIR) replaced the new Cannabis Infringement Notice scheme. The CIR may be issued by police to those found in possession of or using no more than 10 grams of cannabis and/or a smoking implement. The CIR does not apply to cannabis plants, resin, hash oil or other cannabis derivatives. An adult may receive only one CIR (may have received one as a juvenile) while those aged 14 to 17 may receive two. An adult detected a second time will be prosecuted through the courts, while a young person who is detected a third time will be dealt with by the *Young Offenders Act 1994*. Individuals who, as an adult, have been convicted previously of a minor cannabis offence, would be ineligible to receive a CIR.

A person who receives a CIR must book and complete a Cannabis Intervention Session (CIS) within 28 days or elect to attend court. Failure to complete the CIS may lead to prosecution through the courts or a referral to the Juvenile Justice Team (Drug and Alcohol Office 2015).

The CIS is a one-to-one therapeutic intervention with a trained drug and alcohol counsellor which lasts about an hour. After completing the CIS, the person receives a completion certificate, a copy of which is sent to the WA Police.

Appendix B: Additional data

Table B1 Detailed drug use pre-intervention						
		Cannabis pre-intervention p=0.89				
		Charge	Caution	Expiation	Warning	Total
More than 3 times a day	N	58	106	17	23	204
	%	29.7	17.3	24.6	19.2	20.4
2–3 times a day	N	30	116	8	20	174
	%	15.4	18.9	11.6	16.7	17.4
Once a day	N	23	78	11	17	129
	%	11.8	12.7	15.9	14.2	12.9
4–5 times a week	N	14	80	10	11	115
	%	7.2	13.0	14.5	9.2	11.5
2–3 times a week	N	33	99	12	23	167
	%	16.9	16.1	17.4	19.2	16.7
Once a week	N	12	48	7	10	77
	%	6.2	7.8	10.1	8.3	7.7
2–3 times a month	N	13	60	1	9	83
	%	6.7	9.8	1.4	7.5	8.3
Once a month	N	12	27	3	7	49
	%	6.2	4.4	4.3	5.8	4.9
Total	N	195	614	69	120	998
	%	100	100	100	100	100

Table B2 Detailed drug use post-intervention						
		Cannabis post-intervention p=0.88				
		Charge	Caution	Expiation	Warning	Total
More than 3 times a day	N	50	111	19	19	199
	%	25.6	18.1	27.5	15.8	19.9
2–3 times a day	N	28	104	10	16	158
	%	14.4	16.9	14.5	13.3	15.8
Once a day	N	25	72	11	18	126
	%	12.8	11.7	15.9	15.0	12.6
4–5 times a week	N	19	60	5	8	92
	%	9.7	9.8	7.2	6.7	9.2
2–3 times a week	N	20	95	10	21	146
	%	10.3	15.5	14.5	17.5	14.6
Once a week	N	9	65	8	11	93
	%	4.6	10.6	11.6	9.2	9.3
2–3 times a month	N	13	49	4	11	77
	%	6.7	8.0	5.8	9.2	7.7
Once a month	N	15	31	2	7	55
	%	7.7	5.0	2.9	5.8	5.5
No cannabis use in past month	N	16	27	0	9	52
	%	8.2	4.4	0.0	7.5	5.2
Total	N	195	614	69	120	998
	%	100	100	100	100	100

Table B3 Self-reported criminal behaviour: Pre-intervention						
	Arrest	Caution	Civil fine	Warning	Total	p value
Incidence of crime including not-for-profit dealing						0.271
Yes	60.5% (118)	53.4% (328)	50.7% (35)	51.7% (62)	54.4% (543)	
No	39.5% (77)	46.6% (286)	49.3% (34)	48.3% (58)	45.6% (455)	
Incidence of crime excluding not-for-profit dealing						0.06*
Yes	32.8% (64)	23.0% (141)	17.4% (12)	18.3% (22)	23.9% (239)	
No	67.2% (131)	77.0% (473)	82.6% (57)	81.7% (98)	76.1% (759)	
Type of crime						
Property crime	9.7% (19)	6.7% (41)	7.2% (5)	7.5% (9)	7.4% (74)	0.566
Dealing—for profit	26.7% (52)	18.6% (114)	11.6% (8)	13.3% (16)	19.0% (190)	0.006*
Dealing—not-for-profit	55.4% (108)	50.3% (309)	46.4% (32)	50.8% (61)	51.1% (510)	0.532
Fraud	3.1% (6)	1.6% (10)	2.9% (2)	4.2% (5)	2.3% (23)	0.293
Violence	5.1% (10)	3.1% (19)	4.3% (3)	6.7% (8)	4.0% (40)	0.241
Frequency of crime (for sub-sample reporting any crime)—dealing only, as other samples too small						
Dealing—not-for-profit (n=510)						<0.001*
Once a week or less	50.9% (55)	70.2% (217)	78.1% (25)	75.4% (46)	67.3% (343)	
More than once a week	49.1% (53)	29.8% (92)	21.9% (7)	24.6% (15)	32.7% (167)	
Dealing—for profit (n=190)						0.001*
Once a week or less	32.7% (17)	63.2% (72)	87.5% (7)	62.5% (10)	55.8% (106)	
More than once a week	67.3% (35)	36.8% (42)	12.5% (1)	37.5% (6)	44.2% (84)	

Among the subset of people who reported 'dealing for profit' (n=510) or 'dealing not-for-profit' (n=190) the frequency of their criminal activity by group, before the police encounter, were compared. This comparison was not possible for the other crimes as the frequency of the behaviour was too low. This comparison showed that for both, behaviours tended to occur once a week or less. However, the charge group had more frequent 'dealing for profit' and more frequent 'dealing not-for-profit'. The charge group were 1.6 to 2.2 times more likely to report not-for-profit dealing on a daily or more than weekly basis and 1.8 to 5.3 times more likely to report for-profit dealing on a daily or more than weekly basis.

Table B4 Frequency of not-for-profit dealing						
	Charge (N)	Caution (N)	Expiation (N)	Warning (N)	Total (N)	p value
Dealing—not-for-profit (n=510)						<0.001*
Once a week or less	50.9% (55)	70.2% (217)	78.1% (25)	75.4% (46)	67.3% (343)	
More than once a week	49.1% (53)	29.8% (92)	21.9% (7)	24.6% (15)	32.7% (167)	
Dealing—for profit (n=190)						0.001*
Once a week or less	32.7% (17)	63.2% (72)	87.5% (7)	62.5% (10)	55.8% (106)	
More than once a week	67.3% (35)	36.8% (42)	12.5% (1)	37.5% (6)	44.2% (84)	

*Frequency of crime for sub-sample reporting any crime—dealing only, as other samples too small

Table B5 Self-reported criminal behaviour post-intervention						
	Charge	Caution	Expiation	Warning	Total	p value
Incidence of crime including not-for-profit dealing						0.861
Yes	44.6% (87)	43.5% (267)	47.8% (33)	41.7% (50)	43.8% (437)	
No	55.4% (108)	56.5% (347)	52.2% (36)	58.3% (70)	56.2% (561)	
Incidence of crime excluding not-for-profit dealing						0.085
Yes	23.6% (46)	17.4% (107)	14.5% (10)	13.3% (16)	17.9% (179)	
No	76.4% (149)	82.6% (507)	85.5% (59)	86.7% (104)	82.1% (819)	
Incidence of crime excluding ALL dealing						0.873
Yes	6.7% (13)	5.7% (35)	5.8% (4)	7.5% (9)	6.1% (61)	
No	93.3% (182)	94.3% (579)	94.2% (65)	92.5% (111)	93.9% (937)	
Type of crime						
Property crime	3.6% (7)	4.2% (26)	2.9% (2)	3.3% (4)	3.9% (39)	0.915
Dealing—for profit	19.0% (37)	15.1% (93)	10.1% (7)	10.8% (13)	15.0% (150)	0.149
Dealing—not-for-profit	39.4% (76)	41.0% (250)	44.9% (31)	39.2% (47)	40.7% (404)	0.852
Fraud	1.5% (3)	1.3% (8)	2.9% (2)	0.8% (1)	1.4% (14)	0.690
Violence	4.1% (8)	1.8% (11)	4.3% (3)	5.8% (7)	2.9% (29)	0.049
Frequency of crime for sub-sample reporting any crime—dealing only, as other samples too small						
Dealing—not-for-profit (n=404)						0.154
Once a week or less	65.8% (50)	76.8% (192)	83.9% (26)	76.6% (36)	75.2% (304)	
More than once a week	34.2% (26)	23.2% (58)	16.1% (5)	23.4% (11)	24.8% (100)	
Dealing—for profit (n=150)						0.503
Once a week or less	48.6% (18)	61.3% (57)	71.4% (5)	53.8% (7)	58.0% (87)	
More than once a week	51.4% (19)	38.7% (36)	28.6% (2)	46.2% (6)	42.0% (63)	

Table B6 Change in criminal behaviour pre- to post-intervention						
	Charge	Caution	Expiation	Warning	Total	p value
Incidence of crime including not-for-profit dealing						0.05
Increase	4.6% (9)	2.9% (18)	5.8% (4)	2.5% (3)	3.4% (34)	
No change	74.9% (146)	84.2% (517)	85.5% (59)	85% (102)	82.6% (824)	
Decrease	20.5% (40)	12.9% (79)	8.7% (6)	12.5% (15)	14.0% (140)	
Incidence of crime excluding not-for-profit dealing						0.191
Increase	5.1% (10)	3.1% (19)	4.3% (3)	3.3% (4)	3.6% (36)	
No change	80.5% (157)	88.3% (542)	88.4% (61)	88.3% (106)	86.8% (866)	
Decrease	14.4% (28)	8.6% (53)	7.2% (5)	8.3% (10)	9.6% (96)	
Type of crime %						
Property crime						0.560
Increase	0.5	1.6	0	0.8	1.2	
No change	92.8	94.3	95.7	94.2	94.1	
Decrease	6.7	4.1	4.3	5.0	4.7	
Dealing for profit						0.404
Increase	3.6	3.3	2.9	4.2	3.4	
No change	85.1	90.1	92.8	89.2	89.2	
Decrease	11.3	6.7	4.3	6.7	7.4	
Dealing not-for-profit						0.035*
Increase	4.1	2.5	5.8	3.3	3.1	
No change	76.2	85.6	87.0	81.7	83.4	
Decrease	19.7	12.0	7.2	15.0	13.5	
Fraud						0.308
Increase	0.0	0.7	1.4	0	0.5	
No change	98.5	98.4	97.1	96.7	98.1	
Decrease	1.5	1.0	1.4	3.3	1.4	
Violence						0.090
Increase	2.1	0.2	1.4	1.7	0.8	
No change	94.9	98.4	97.1	95.8	97.3	
Decrease	3.1	1.5	1.4	2.5	1.9	

Table B7 Severity of dependence scores (%)				
	Never or almost never/ not difficult	Sometimes/ a little/ quite difficult	Often/ very difficult	Always or nearly always/ impossible
Did you ever think your use of cannabis was out of control?	63.4	26.4	7.1	3.1
Did the prospect of missing a smoke make you very anxious or worried?	64.6	24.9	6.6	3.8
Did you worry about your use of cannabis?	56.2	33.2	7.9	2.7
Did you wish you could stop?	70.2	21.8	4.4	3.5
How difficult would you find it to stop or go without?	58.1	28.0	8.3	5.6