Research Paper

Determinants of high availability of methamphetamine, cannabis, LSD and ecstasy in New Zealand: Are drug dealers promoting methamphetamine rather than cannabis?

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A B S T R A C T

Background: Small towns in New Zealand have reported high availability of methamphetamine, and conversely a shortage of cannabis. Stakeholders have suggested drug dealers are purposely promoting methamphetamine rather than cannabis.
Aims: (1) To compare the availability of methamphetamine and cannabis in different size communities; (2) Identify determinants of the high availability of methamphetamine, including low availability of cannabis.
Method: An online drug survey was promoted via a broadly targeted Facebook™ campaign. Participants were asked if they lived in a "city", "small town" or "rural area", their drug use patterns, and local drug market characteristics, including current availability. A total of 6311 people completed the survey. Logistic regression models were constructed to identify independent predictors of reporting high availability of methamphetamine, cannabis, ecstasy and LSD respectively, with low availability of cannabis included as a predictor in the non-cannabis markets.
Results: Methamphetamine was reported to be more available than cannabis in all regions. Methamphetamine was more available in towns/rural areas than in cities. Significant predictors of high availability of methamphetamine were living in a town/rural area (OR = 1.38), purchasing from a gang member (OR = 1.88), daily methamphetamine use (OR = 2.41), Maori ethnicity (OR = 1.36) and reporting low availability of cannabis (OR = 1.89). Low availability of cannabis was not a predictor of high availability of ecstasy or LSD. Living in a town/rural area was not a predictor of high availability of cannabis, LSD or ecstasy. Purchasing from a gang member was a predictor of high availability of cannabis (OR = 1.80) and LSD (OR = 4.61).
Conclusions: Further research is required to identify what causal relationships, if any, there are between the statistical associations of high methamphetamine availability, living in a small town, purchasing from a gang, and low cannabis availability. It may be the case that small towns offer an environment where a gang can control the local drugs market.

Introduction

Illegal drug use and related drug markets are often associated with city or urban environments. However, recent anecdotal reports from stakeholders in many small towns in New Zealand have described very high availability of methamphetamine (STUFF, 2017b; New Zealand Police Association, 2017; Otago Daily Times, 2017). These accounts have coincided with reports of a shortage of cannabis, which some commentators have labelled a "cannabis drought" (New Zealand Drug Foundation, 2015). Reports of the cannabis shortage originated in 2015, with one source describing cannabis as "almost unobtainable in any meaningful amount right now" (The Guardian, 2016; Vice, 2015).

An experienced cannabis cultivator was quoted as declaring, "I had to buy weed for myself for the first time in 20 years" (Vice, 2015). The reported shortage of cannabis is particularly perplexing as New Zealand has had large scale clandestine outdoor cannabis growing operations in many isolated rural areas for many decades (Wilkins & Casswell, 2003; The dailyblog, 2016; Wilkins & Sweetsur, 2011).

The anecdotal reports of diverging methamphetamine and cannabis availability are consistent with findings from recent drug monitoring studies in New Zealand (Wilkins, Prasad, Romeo, & Rychert, 2017; Wilkins, Prasad, Moewaka Barnes, Romeo, & Rychert, 2017). The proportion of frequent drug users who reported methamphetamine was "easier" to obtain compared to the previous six months increased from

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15% in 2013 to 44% in 2016 [i.e. 15% = 2013, 17% = 2014, 19% = 2015, 44% = 2016], while the proportion reporting cannabis was "more difficult" to obtain compared to the past six months increased from 10% in 2013 to 34% in 2016 [i.e. 10% = 2013, 15% = 2014, 17% = 2015, 34% = 2016] (Wilkins, Prasad, Romeo et al., 2017). Police arrestees have also reported increasing availability of methamphetamine and declining availability of cannabis over recent years (Wilkins, Prasad, Moewaka Barnes et al., 2017). Some local stakeholders have claimed the two trends are related; that is, drug dealers are purposely favouring the manufacture and sale of methamphetamine rather than cannabis due to the higher profits available from methamphetamine (New Zealand Drug Foundation, 2015; The dailyblog, 2016; Vice, 2015).

Understanding the determinants of the local availability of illegal drugs has received surprisingly little academic attention. A number of researchers have elaborated how illegality *in general* negatively impacts the manufacture and sale and, by extension, the availability of prohibited drugs compared to legal commodities (Caulkins, 2007; Kleiman, 1992; MacCoun & Reuter, 2001; Moore, 1977; Reuter, 1983). It has also been pointed out that public street drug markets increase drug availability compared to personal transactions conducted in private settings, and this has been the rationale for police operations targeting street drug markets (Caulkins & Reuter, 2009; Kleiman, 1992). However, there has been little empirical study of the factors associated with higher drug availability.

In contrast, in the alcohol and tobacco research field, particular retail environments have been linked to higher availability and consumption (Babor et al., 2003; Pacula, Kilmer, Wagenaar, Chaloupka, & Caulkins, 2014). For example, higher numbers of retail outlets and longer opening hours of retail outlets have been found to be associated with higher consumption, including by youth (Babor et al., 2003; Pacula et al., 2014).

The aim of this paper was therefore to: (1) empirically investigate the availability of methamphetamine and cannabis in all regions and different size communities in New Zealand; and, (2) identify independent predictors of high availability of methamphetamine, including the possibility that low availability of cannabis is a predictor of high availability of methamphetamine.

Method

An anonymous online survey of alcohol and drug use in New Zealand was promoted via a broadly targeted Facebook™ campaign from November 2017 to February 2018. The Facebook™ promotion was targeted at people 16 years or older, living in New Zealand, and expressing interest in a range of entertainment activities broadly associated with drug use, including nightlife, alcoholic beverages and music genres (see Forsyth, Barnard, & McKeganey, 1997; McCaughan, Carlson, Falck, & Siegal, 2005; Van Havere, Vanderplasschen, Lammertyn, Broekaert, & Bellis, 2011). The aim of the survey was to collect rich data on drug use patterns and drug market characteristics in each region in New Zealand. No reward was offered to complete the survey to reduce the incentive for fraud (Barratt et al., 2015a). A custom survey software solution was developed to convert computer IP addresses into a unique number that allowed the identification of respondents from outside the country and instances where multiple surveys were completed from the same computer, while ensuring respondent anonymity and avoiding any storage of IP addresses. Completed surveys were reviewed for consistency and extent of completion. The final sample consisted of 6331 completed surveys.

Measures

Demographics

Standard questions concerning age, gender, ethnicity (including "Maori" ethnicity, the indigenous people of Aotearoa New Zealand),

Table 1

Comparison of survey sample with New Zealand national census population by region.

Region	Survey sample (2017/18) (%) (n = 6141)	NZ census population (2017) (%) (NZ Stats)
Auckland	19	35
Canterbury	13	13
Wellington	10	11
Waikato	8	10
Gisborne/Hawke's Bay	8	4
Northland	7	4
Otago	7	5
Bay of Plenty	6	6
Manawatu-Wanganui	6	5
Tasman/Nelson/ Marlborough	6	3
Taranaki	5	2
Southland/West Coast	5	3

highest educational achievement (i.e. "none", "primary/intermediate", "high school", "technical/trade", "university") and employment status (i.e. "employed", "student", "unemployed", "retired/parenting").

Region and community size

Participants were asked to identify which of the 16 regions of New Zealand they lived in, and whether they lived in a "city", "small town" or "rural area".

Drug use patterns

Use of drug types in previous six months (e.g "cannabis", "methamphetamine", "ecstasy", "LSD") and the frequency of use in the previous six months (i.e. "daily or near daily", "once or twice a week", "monthly", "once or twice").

Drug market characteristics

Those who had used a drug type in the previous six months were asked about the current availability of the drug (i.e. "very easy", "easy", "difficult" or "very difficult"), change in price in the previous six months (i.e. "increasing", "stable", "fluctuating", "decreasing"), current strength of the drug (i.e. "high", "medium", "fluctuates", "low") and change in strength in the previous six months (i.e. "increasing", "stable", "fluctuating", "decreasing"). Those who had used a drug in the past six months were also asked about the types of sellers (i.e. "gang member/gang associate", "drug dealer", "social acquaintance", "friend/partner/family") and locations (i.e. "street drug market", "agreed public location", "internet", "pub/bar/club", "work/educational institute", "private house", "text/home delivery") they purchased the drug in the past six months.

Analysis

Logistic regression models were constructed to identify independent predictors of reporting a drug type was currently "very easy" to obtain using the demographic, drug use patterns, and drug market variables described above as predictor variables. Reporting cannabis was currently "very difficult" to obtain was included as a predictor variable of high availability of all drug types other than cannabis. The model was fitted to explain the probability of reporting the current availability of a drug type was "very easy" as opposed to "easy"/"difficult"/"very difficult". The demographic variables were included in the model as control variables and included age categorised in dummy variables for the groups 16–20, 21–24, 25–34 and 35+ (reference), gender (1 = female, 0 = male), ethnicity (1 = Maori, 0 = other ethnicity), highest educational achievement (1 = "trade/technical" or "university", 0 = "none", "primary/intermediate", "high school") and employment status