

Tweaking, bombing, dabbing and stockpiling: the emergence of mephedrone and the perversity of prohibition

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Abstract

Significant changes in British recreational drug use were seen throughout 2009, with the emergence and rapid growth in the availability and use of substituted cathinones or 'M-Cats' (most notably mephedrone and methylone), a group of psychoactive drugs not currently controlled under the *Misuse of Drugs Act 1971* (HM Government, 1971), with similar effects to ecstasy, cocaine and amphetamines. The reasons for the appearance and appeal of this group of so-called 'legal highs' are explored here in relation to availability, purity, legality and convenience. The authors argue that a reduction in the availability (and thus purity) of illegal drugs such as ecstasy and cocaine and resultant disillusionment among users was a key motivation for displacement to substituted cathinones, conveniently and legally purchased online. Finally, we explore policy considerations around the likely criminalisation of substituted cathinones and the challenge of providing rapid yet considered harm reduction responses to emergent drug trends in the face of a minimal scientific evidence base and eager press demonisation.

Key words

Substituted cathinones, M-Cats, mephedrone, methylone, legal highs, displacement, availability, purity, internet

Introduction

Within the last 12 months, an unexpected and unprecedented shift has occurred in British

recreational drug use. We have seen the emergence and rapid growth in the use of a group of psychoactive drugs currently neither controlled

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by legislation nor routinely used in medical practice, a group of so-called 'legal highs' within the chemical family of substituted cathinones or 'M-Cats', most notably mephedrone (meow, meph) and methylone (M1, bubble). The summer of 2009 saw the sudden emergence of substituted cathinones such as mephedrone, easily purchased at music festivals, in high street 'head shops' and particularly online (where next-day delivery is assured for relatively cheap 'research chemicals not for human consumption'), with similar stimulant, euphoric and hallucinogenic effects as three of the most popular illegal stimulant drugs in the UK: ecstasy, cocaine and amphetamines. This paper brings together the current (limited) knowledge on mephedrone and other substituted cathinones (hereafter mephedrone); suggests reasons for the timing of their emergence in 2009, relating to a reduction in the availability, purity and thus popularity of illegal drugs combined with the legality and convenience of mephedrone; and raises policy questions in the face of their likely inclusion in the *Misuse of Drugs Act (MDA) 1971* (HM Government, 1971) in the coming year.

From chemistry to case studies: what do we know about mephedrone?

With a very small research base and a growing user base, the gulf between experience and knowledge is vast. The history of mephedrone goes back at least to the 1980s and the identification of communities of East African migrants to the UK who brought with them a tradition of chewing the leaves of the khat plant for their stimulant properties. The active ingredients of khat are cathinone and cathine, stimulant drugs classified as keto-amphetamines (Shulgin & Shulgin, 1991). Over the past decade, enterprising 'legal high' producers have manufactured several synthetic keto-amphetamines called substituted cathinones. Mephedrone (4-methyl-N-methylcathinone, 4-MMC) has become the most well-known example of this drug class. Commonly sold either as a loose white powder or contained in capsules, it is snorted or swallowed (either 'dabbing' with a moistened finger or wrapping in cigarette papers and 'bombing'), though there have also been reports of people injecting it.

One of the first studies of mephedrone use in the UK was recently completed in Middlesbrough, involving interviews with drugs workers and focus groups with nine male users and one female user, mostly young adults (Newcombe, 2010). All

participants were regular users of drugs – notably alcohol, cannabis and amphetamines, but also ecstasy and cocaine. All began using mephedrone one to three months earlier, and most were aware that it was legal. About half of the sample obtained mephedrone from internet companies (£10 per gram) and half from drug dealers in nightclubs (£15 per gram). All agreed that mephedrone had quickly become very popular in Middlesbrough and was used mainly at nightclubs and parties. Since sniffing can cause painful 'nose burns', most had switched to swallowing the drug. The typical amount of mephedrone consumed over an evening/night was about 0.5 to one gram, usually taken in doses of 100–200mg every hour or two. Weekend use was the norm, though some participants were near-daily users. Most participants reported mixing alcohol and/or cannabis with mephedrone, either to heighten the effects or ameliorate the comedown.

Participants in the Middlesbrough study regarded the effects of mephedrone as both stimulant (like speed) and hallucinogenic (like ecstasy or LSD). The full effects of one dose lasted around two to four hours. The main physical effects of mephedrone were reported to be dilated pupils, blurred vision, dry mouth/thirst, hot flushes, fast/erratic heart beats, muscular tension in the jaw and limbs, shrunken genitals (men only) and nose bleeds/burns if snorted. The main mental effects were initial 'head rushes', followed by euphoria, boundless energy, talkativeness and time distortions, with heavier users also reporting visual hallucinations. The main residual effect was insomnia. The after-effects were similar to the comedowns associated with ecstasy and amphetamines, involving fatigue, dizziness and low mood. Most participants in the Middlesbrough study regarded mephedrone's effects as superior to those of ecstasy and cocaine. Few harmful consequences of mephedrone use were reported, though all participants had been using for less than three months. None felt that they were dependent, although most reported cravings and some were using nearly every day. Some participants reported skin rashes, insomnia and/or amnesia following mephedrone use, though none reported seeking medical or other help (Newcombe, 2010).

Prevalence of mephedrone use

From the summer festivals through to the Christmas parties of 2009, mephedrone has established itself as a popular 'legal high' in a wide range of social scenes in the UK, from

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street corner teenage gatherings, to the well-established polydrug repertoires of 'committed' clubbers (Moore, 2004), through to 'psychonauts' (Newcombe 1999; 2008) and even some internet savvy over-40s without previous experience of illegal drugs. But how widespread is mephedrone use? To date, the evidence base is largely anecdotal, with researchers, service providers, teachers and users alike reporting widespread and increasing use. The British Crime Survey, the only annual national survey of adult illegal drug use in the UK, includes mephedrone from spring 2010, but data will not be published for many months. Forensic analysis and police seizure statistics are also limited due to restricted resources for the seizure and analysis of suspected legal pills and powders. However, some seizures of mephedrone have come to light. For example, bulk shipments of mephedrone in transit from China to the UK were intercepted and tested in 2009, and police in County Durham were among the first to introduce a policy of arresting and fingerprinting those caught with mephedrone, despite no crime having been committed (Durham Police, 2009).

To date, the only survey evidence on the scale of mephedrone use in the UK was published in the February 2010 issue of the dance magazine *Mixmag*, in its annual survey of readers' drug use. (For previous years, see, for example, Sherlock & Conner, 1999; McCambridge *et al*, 2005.) Although based on a self-selecting group of dance music fans and dance club-goers, the online survey of 2,220 readers provides a valuable window into current usage among young people. The survey (65% male, 81% employed, mostly aged 18–27) revealed that mephedrone has emerged from nowhere to become the fourth most popular drug among British clubbers in 2009, with 42% reporting lifetime prevalence of use, 34% reporting past month use and 6% reporting weekly use (*Mixmag*, 2010).

This experimentation is set against a backdrop of prolific weekend polydrug use across the noughties by a significant minority of young adults, with ecstasy and cocaine remaining the most popular stimulant drugs taken on a night out. In a recently published study of bar and club customers in venues in Manchester city centre, one-fifth of bar-goers and two-thirds of club-goers reported taking illegal drugs on a night out (Measham & Moore, 2009). After cannabis, ecstasy pills and cocaine were reported as the two

most popular drugs on a night out, with 11% of bar-goers and 54% of club-goers having taken ecstasy pills within the past month, and 13% of bar-goers and 51% of club-goers having taken cocaine within the past month, alongside the emergence and inclusion of both ketamine and MDMA powder in mid-2000s polydrug repertoires (Measham & Moore, 2009).

Motivations: availability and legality

The big question is why has the popularity of mephedrone grown so rapidly? Ongoing research by the authors (eg. Measham *et al*, 2010)¹ is exploring changing patterns of weekend polydrug use and how user preferences interact with issues of availability, purity, price, legality, consumer convenience, pharmacological preferences, and the brand 'image' of individual drugs. Two key possible reasons for the rise in mephedrone use – relating to *legality* and *availability* – have emerged from initial interviews, discussed below with respect to two female respondents in their late 30s who are regular mephedrone users.²

First, regarding *legality*, Hammersley (2010) has argued that in relation to smoking mixtures containing synthetic cannabinoids (with trade names such as 'Spice'), their primary appeal over cannabis was their legality, and now that synthetic cannabinoids have comparable legal status to cannabis (since December 2009), most users will switch back to cannabis. Thus, the synthetic cannabinoids served only as a temporary displacement from cannabis, with some users preferring a legal alternative if the opportunity arises but switching back to an illegal drug if the legal alternative is withdrawn. In relation to mephedrone, initial findings (eg. Measham *et al*, 2010; *Mixmag*, 2010; Newcombe, 2010) suggest that legality is a secondary rather than primary motivating factor for mephedrone use, unlike the synthetic cannabinoids.

In terms of legality, the appeal of mephedrone appears to relate less to a fear of arrest and more to the convenience arising from its legal status. In comparison with the more familiar illegal drugs, mephedrone is easy to obtain. There are no restrictions to online purchase in terms of minimum age requirements, quantities or customer identification; nor is it necessary to acquire the requisite subcultural knowledge of illicit markets

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² Interviews conducted by Zoë Welch in January 2010.

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as is required to purchase illegal drugs. With record levels of online shopping in the UK (Interactive Media in Retail Group, 2010), mephedrone is a simple click of the mouse away for any cyber consumer with access to a credit card.

In interviews, users have highlighted this appeal of being able to purchase legal drugs online. A 37-year-old female student described the advantages of mephedrone as:

'Go online, click, and it's delivered to your door. It's perfect drug ordering ... If it was harder to get I'd switch. If there was something else which came along and was legal online I'd buy that instead.'

A 38-year-old female also noted the appeal of the drug being legal, given her professional job. Although wary of internet sales, she stated that a particular attraction of mephedrone was its legality:

'Oh God, yeah. Definitely. For me in particular with my job I feel like because it's legal I'm not going to lose my job. It makes me feel more comfortable taking it in public or giving it to other people. It's a big attraction for me... A friend buys it off the internet. I'm a bit wary of putting my credit card details online for it in case everything changes and it shows up somewhere that I bought it.'

For this respondent, while the illegality of drugs did not act as a deterrent to her longstanding use of illegal drugs, the legality of mephedrone gave it an added appeal.

The second, and we would argue here, more significant motivation is *availability*. The backdrop to this is a growing disillusionment with the quality of street drugs throughout the 2000s. This is evident in a shift among British cannabis users from increasingly adulterated resin (notably low-quality Moroccan soap-bar) to skunk (seen by users as a stronger, 'cleaner' herbal cannabis grown indoors in the UK under artificial conditions) (European Monitoring Centre for Drugs and Drug Addiction, 2008; Klein & Doctors, 2006); and in a parallel shift from ecstasy pills to MDMA powder (Measham, 2004; Measham & Moore, 2009; Smith *et al*, 2009). User disillusionment with Class A drugs is not without base; the Serious Organised Crime Agency heralded a large increase in the wholesale cost of cocaine alongside a fall in its purity at street level to the lowest on record in 2009 (*Daily Telegraph*, 2009; O'Neill, 2009). The

Home Office has reported that '*cocaine seizures have risen sharply*' (Hand & Rishiraj, 2009, p6), and forensic analyses of cocaine seized by the police in England and Wales showed a drop in purity from over 60% in 1999 to 22% in the first quarter of 2009 (Hand & Rishiraj, 2009). Similarly, analysis of ecstasy pills suggests that about half of pills seized in 2009 contained no ecstasy and were as likely to be BZP party pills (criminalised in December 2009 along with GBL and synthetic cannabinoids) or caffeine (BBC News, 2010). Even the purity levels of MDMA powder, which originally emerged as a high cost, high purity 'premium' alternative to ecstasy pills, fell significantly in 2009.

One regular mephedrone user, a professional female of 38, discussed her own disillusionment with the purity of illegal drugs:

'For me it didn't feel like a "new" drug, just felt like a better quality drug, having had shit quality drugs for years. It's been a long time with shit drugs.'

When asked whether it was easier to access mephedrone or ecstasy, the respondent thought:

'Definitely easier to get mephedrone. I did get some decent pills over Christmas though, it was the first time pills were around since August or September [2009]. I'm not bothering with MDMA at the moment. I'm a bit of a stockpiler so if someone had some MDMA that was good I'd buy it and keep it. I do feel funny stockpiling drugs though, just because of my job, I just worry in case I get raided. This [meph] isn't that bad, it's legal.'

This user's first experience of mephedrone reminded her of higher purity ecstasy that she had taken many years earlier:

'"Bubblelur" [a brand of M-Cat] – oh my God! I took a whole capsule and I was off my face. I haven't been like that for years. I've done pills for years and years and I've had nothing like that for a long time. I was really sweaty as well. It took a while to come up, then I was just really high! It makes your jaw really tight and my friend said my eyes were rolling – she'd never seen me like that. It was brilliant. Me and my friend couldn't believe it.'

Research (eg. Best *et al*, 2001) indicates that enforcement alone does not necessarily have

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a significant impact on illegal drug markets at street level. This suggests that the slump in availability and purity of ecstasy and cocaine at street level across the UK throughout 2009 might be the result of not only some notable recent enforcement successes (BBC News, 2009), changes to the international exchange rate and asset seizures, but also a consequence of stricter security and new technologies of surveillance introduced at airports, ports and at sea in response to both the 'war on terror' and attempted illegal immigration (Ceyhan, 2008). Together, these factors appear to have deterred and significantly reduced ecstasy and cocaine importation, resulting in a street-level reduction in availability and a displacement to more readily available 'legal highs' such as mephedrone. This is illustrated in the recent *Mixmag* (2010) survey, with the main reason given by clubbers for taking legal club drugs such as mephedrone and BZP being the lack of availability of other drugs. While the rapid rise in mephedrone use is evident, what is less clear is the extent to which these *push* factors of lack of availability and low purity of illegal drugs are combining with the *pull* factors of curiosity to experiment with a new legal high – and whether this curiosity will be as easily dampened as it has been ignited.

The 'mephedrone menace': a new drug for demonisation?

As word of mouth has spread, alongside growing internet publicity and the inevitable press coverage of the latest 'demon drug', mephedrone sales have spiralled. Initial press reporting about the drug has followed a now familiar pattern of reaction and counter-reaction (Murji, 1998). Gabrielle Price's death in November 2009 followed the usual cycle of 'exaggeration, distortion, inaccuracy and sensationalism' in press reporting of recreational drug use (Coomber *et al*, 2000, p217). Drug-death cases selected by the media tend to be framed in terms of the 'innocent victim', typically a young woman, usually white and often from a 'respectable' family background. Similarities between the media coverage of Leah Bett's death in 1995 are apparent in recent coverage of the death of Gabrielle Price and the GBL-related death of Hester Stewart. Stories about Gabrielle Price, who is believed to have taken 'a suspected drug cocktail including mephedrone' (Bracchi, 2009) on the night she died, framed mephedrone as a 'deadly drug ... imported from China ... by the summer, it was sweeping through clubs and

parties throughout the country' (Bracchi, 2009). Faced with this 'mephedrone menace' (Bracchi, 2009), calls for prohibitive measures become easily justified. Anti-drugs campaigns, often led by grieving family members and friends, demand the immediate banning of psychoactive drugs. This process occurred in the case of Hester Stewart's family and friends who, prior to the classification of GBL as a Class C substance in the MDA in December 2009, embarked on a high profile campaign initially against GBL and then against other 'legal highs' (Gammell, 2009). In the case of Gabrielle Price, it is notable that once the coroner's report established that she died of natural causes unrelated to her consumption of mephedrone, none of the national newspapers that had initially implicated mephedrone in her death subsequently retracted their allegations; indeed, some have continued to frame her death as drug-related (Paton, 2010). At the time of writing, there are press reports of another teenager dying 'after experimenting with legal drug meow meow', although a toxicology report has yet to confirm the cause of death (Levy, 2010).

Policy considerations

There are several policy options currently facing the government. These include, firstly, using the existing legislative framework to regulate use for example, through criminalisation of supply but not possession (such as occurred pre-2006 with ketamine under the *Medicines Act 1968* (HM Government, 1968)) or to restrict sales to adults over 18 years of age (as happens with alcohol, tobacco, solvents and butane). Space does not permit a more detailed exploration of the regulatory options here (for a detailed discussion of regulation, see Rolles, 2009). Second, a new legislative framework could be established, such as introducing a new Class D option into the MDA to act as a 'holding station' while further evidence is gathered, as was proposed in New Zealand with BZP party pills. While delaying prohibition until evidence of harm emerges raises the possibility of prolonging supply of a potentially harmful drug, perceived by some users as safe because it is legal, the UK's history of controlling psychoactive drugs *before* problems emerge goes back to the earliest days of prohibition, for example when cannabis became an illegal drug in 1928, at a time when very few British people used it. More recently, MDMA became a Class A, Schedule 1 controlled drug in the MDA (Modification) Order SI no.1243 in 1977, along with a range of substituted

amphetamines that were neither available on the streets of the UK nor considered a social problem. This contrasts with other jurisdictions such as the US, where MDMA was outlawed only *after* its use came to be regarded as problematic. In the UK, by contrast, amendments to the MDA include whole categories of chemical compounds that might not yet even be available and *before* a problem has been identified. This policy of 'proactive prohibition' (Measham & Moore, 2008) has been keenly pursued by government throughout the 2000s, undermining the notion that the MDA is based on scientific evidence of *pre-existing* harm.

Thus, the third and most likely policy option is to control the substituted cathinones through the MDA, as happened with other 'legal highs' (BZP, synthetic cannabinoids and GBL) in 2009. In this instance, the question then will be into which class the substituted cathinones should be placed. There is an argument that the substituted cathinones are best placed in Class C to remove the current discrepancy between cathinone (currently Class C) and the substituted cathinones. Equally, substituted cathinones are keto-amphetamines and, as such, could be placed in Class B alongside methcathinone and many amphetamines. However, given mephedrone's current popularity as a replacement for ecstasy and cocaine, alongside the molecular similarities between mephedrone and MDMA, there is also a case for Class A status or Class B, if following Advisory Council on the Misuse of Drugs (ACMD) (2009) recommendations on MDMA. These will be issues for consideration by the ACMD this spring as they deliberate on their recommendations to government.

A further policy consideration that has emerged from interviews is that the prevalence, purity, popularity, low price and easy access to mephedrone are incentives for users to bulk buy and stockpile reserves in the face of anticipated criminalisation. While some users are considering using legislative change to their financial advantage by selling their stocks of legally acquired mephedrone once legal internet sites close down, many more users are considering stockpiling for personal use. This raises concerns about future policing and enforcement, particularly the thorny issue of how much mephedrone could be commensurate with 'intent to supply' in the early stages of prohibition.

Both motivations for mephedrone use – availability and legality – have a bearing on policy options. If legality is a significant motivation, then criminalisation may arguably have a deterrent

effect, although there is little evidence that criminalisation and/or tougher enforcement alone reduces the number of drug users (Reuter & Stevens, 2007, p81). If availability is the bigger motivation, as initial research findings suggest, then criminalisation and the resultant reduced availability of mephedrone may have the same displacement effect, from mephedrone to other drugs, both legal and illegal in 2011, as occurred in 2009 from ecstasy and cocaine to mephedrone (and from GHB to GBL in 2003), as well as creating a market for the newly illegal (and likely higher priced and adulterated) mephedrone, as occurred with ketamine post-2006.

Equally as important as national policy responses is the provision of harm reduction advice to those already using mephedrone (Newcombe, 2009; 2010). While lay harm-minimisation messages are exchanged on user forums, much information to date has been obliged to tailor current ecstasy advice, given the paucity of research on mephedrone and other substituted cathinones. Yet, accurate and context-specific harm reduction messages are particularly important in the early days of emergent drug use, when both scientific and lay knowledge is limited. User experiences of mephedrone should also be put into the broader context of the restricted availability and related low purity of illegal street drugs; there may be some younger users in particular who have never taken a full-dose (120mg) ecstasy pill or snorted a line containing more than a sprinkling of cocaine.

Conclusion

The emergence and rapid increase in mephedrone use in the UK in the last 12 months is evidence – if any was needed – of the voracious appetite for psychostimulant weekend party drugs by the British population, from teenagers to the middle aged. The perversity of prohibition is that 'successful' supply reduction and the consequent slump in availability and purity of ecstasy and cocaine in 2009 resulted in drug users turning to unfamiliar and under-researched chemicals that can easily be purchased online. This suggests that substitute displacement, resulting from fluctuations in the supply of illegal drugs, is a key issue in understanding changing patterns of drug use. Yet, while 'research chemists' search for new cheap and legal highs and cyber-entrepreneurs search for easy profits, the legislative carousel continues to turn. This is not to suggest that mephedrone use is unproblematic, as the Lifeline study (Measham *et al*, 2010) has revealed (see also

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Meyer *et al.*, 2009; Wood *et al.*, 2009), or that there is no need for regulation of research chemicals or for the duty of the state to protect vulnerable and young users. Indeed, it is exactly because users' desire for intoxication is constrained by concerns about availability, purity, legality and price, that mephedrone has risen to its current popularity.

One thing is certain: no matter how wide the net is cast in terms of framing legislation to control mephedrone use, the 'research chemists' and cyber-entrepreneurs are likely to remain one step ahead, motivated often by profit and sometimes by evangelical libertarianism or 'cognitive liberty' (Hardison, 2007). Until people no longer want to take drugs to experience altered states of intoxication and until the possibilities for chemically 'tweaking' molecules are exhausted, the cat and mouse antics witnessed with 'meow' will continue.

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Advances in Dual Diagnosis

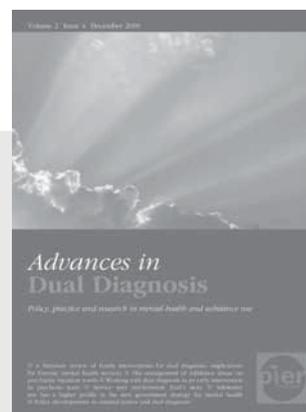
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