Limited use of novel psychoactive substances in South London nightclubs

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Summary

Background: There has been significant media interest in the use of novel psychoactive substances (also known as ‘legal highs’) and reports in the medical literature of toxicity associated with their use. However, most surveys of recreational drug use focus on classical drugs such as cocaine and ecstasy, and there is limited information on how commonly emerging novel psychoactive substances are used.

Aim: To collect data on use prevalence patterns of a wider range of novel psychoactive substances in South London gay nightclubs.

Design: Questionnaire survey.

Methods: Individuals attending gay-friendly nightclubs in South East London (July 2011) were asked about life-time use, last month use and/or use on the night of the survey/planned use later that night of novel psychoactive substances, cocaine and MDMA/ecstasy.

Results: A total of 313 individuals were surveyed over 4 nights; 206 (65.8%) had previously used a ‘legal high’. Mephedrone had the highest prevalence of last month use (53.2%) and use on the night of the survey (41.0%). This was greater than both cocaine (44.6% and 16.7%, respectively) and MDMA/ecstasy (26.9% and 5.8%). There was limited on the night use of the non-mephedrone ‘legal highs’: methoxetamine (1.6%) and 1-benzylpiperazine (0.6%), Spice/K2 (0.6%) and pipradrols (0.6%).

Conclusions: Although a significant proportion of individuals report previous use of novel psychoactive substances, it seems that only mephedrone has become an established part of the recreational drug scene. It is important that there is a considered approach to determining the utilization of drug prevention/education and enforcement budgets to ensure that this is appropriately targeted to drugs that are used recreationally.

Introduction

Over the last decade, there has been increasing availability and use of a range of ‘legal highs’ (also known as novel psychoactive substances) with the number of substances being detected at European level increasing year-on-year.1 However, the new substances detected typically relate to analytical detection of these substances in police:border control seizures of tablets or ‘white powders’ or to their detection in test purchases from head shops or internet legal high sites.1 Detection of a substance does not necessarily imply that it is being used within the recreational drugs scene.
Despite the suggestion from the general media that use of novel psychoactive substances is widespread and increasing, there are limited data to determine whether this is the case. The 2010/2011 British Crime Survey reported on last year use rates of three novel psychoactive substances—Spice (the synthetic cannabinoid receptor agonists), 1-benzylpiperazine (BZP) and mephedrone (4-methylmethcathinone), although all of these were classified as drugs at the time the survey was conducted. Reported last year use of all of these among the total survey population (those aged 16–59 years) was low (0.2%, 0.1% and 1.2% for Spice, BZP and mephedrone, respectively) compared with established drugs such as cocaine and ecstasy (8.8% and 8.3%, respectively); there was greater use of these novel psychoactive substances in those aged 16–24 years compared with those aged 25–59 years. There are also data from the dance music fan-based MixMag surveys, which suggest a higher life-time and recent use of some novel psychoactive substances, in particular mephedrone (2009/2010—life-time use 41.7% and last month use 33.6%; 2010/2011—life-time use 61% and last year use 51%), but more limited use of others such as methylone (life-time use—2009/2010: 10.8% and 2010/2011: 13.7%), Spice/Magic (life-time use—2009/2010: 10.8% and 2010/2011: 10.3%), Methyleneoxyprovalerone (MDPV) (life-time use 2010/2011: 4.4%) and 5,6-Methylenedioxymethylamphetamine (MDMA) (MDMA) (life-time use 2010/2011: 6.7%). In 2011/2012, the MixMag survey was widened and was also promoted in the Guardian newspaper and its website (it is now known as the ‘Global Drugs Survey’); this also suggested that, other than mephedrone (last year use in 19.5% of UK respondents), use of other novel psychoactive substances was not common, e.g. Spice, 3.3% and methoxetamine, 4.2%.

Surveys undertaken in nightclubs and other venues in the night-time economy are a good source of data on the prevalence of use of recreational drugs in populations of drug users. Data from these surveys have tended to concentrate on the use of established recreational drugs such as cocaine, 3,4-methylenedioxymethamphetamine (MDMA)/ecstasy and in recent years mephedrone, the novel psychoactive substance that is most widely used. We describe in this study a questionnaire survey undertaken in the night-club environment that aimed to collect more detailed information on use prevalence patterns of a wider range of novel psychoactive substances to add to the limited population and sub-population level information that is currently available.

Methods

Study participants

The study was undertaken in two ‘gay’/men who have sex with men (MSM) nightclubs in South London, UK, on four separate nights in July 2011. Potential study participants were approached by a member of the research team in the smoking/chill out area inside the clubs, using previously described convenience sampling methodology. The study outline was briefly explained, and potential participants gave verbal consent for inclusion in the study. The questionnaire was a two-sided A4 questionnaire, which collected basic demographics and the study-specific information below. The member of the research team went through the questionnaire verbally after consent, completing the questionnaire based on the responses gained.

Previous legal high use

Study participants were asked whether they had used a ‘legal high’ previously; where they indicated that they had, they were asked to specify if this was a powder, pill or other type of legal high.

Overall prevalence of recreational drug use

Respondents were asked to indicate to the researcher whether they had ever used each legal substance/drug on a pre-determined list and if so whether they had used the substance/drug within the last month and if they had used on the night of the survey and/or were planning on using later that night. In addition, for comparison, respondents were asked the same in relationship to cocaine and MDMA/ecstasy tablets.

Data analysis

Collation of responses was undertaken from the completed questionnaires, at which time the data could be considered to be anonymous. Data are reported as means ± standard deviation and percentages where appropriate. Statistical comparison of the proportions of those reporting last month use and on the night of the survey/planned use later that night for (i) mephedrone and cocaine and (ii) mephedrone and MDMA/ecstasy pills was undertaken by χ² analysis.

Ethical approval

The study was approved by Lancaster University Research Ethics Committee (reference 45558, 27 D.M. Wood et al.
May 2010). Information was included in advertising material circulated to potential attendees before the event, and posters were displayed in the venue on the night of the survey.

**Results**

**Study participants**
A total of 315 individuals were surveyed over the 4 nights. The majority were men 262 (82%), reflecting that the study sites catered for the gay/MSM community, 45 (15%) were women and 3 (1%) trans-gender. The mean age of respondents was 29.7 years (range: 18–59 years).

**Overall self-reported use of legal highs**
A total of 313 responded to this question, and 206 (65.8%) reported that they had previously used a ‘legal high’. Of those who had previously used a legal high, the type of legal high preparation is shown in Figure 1 (data not available from two respondents).

**Prevalence of drug use**
The prevalence of life-time, last month and use on the night of the survey/planned use later that night for the novel psychoactive substances, cocaine and MDMA/ecstasy is presented in Table 1. Overall, mephedrone had the highest prevalence of use within the last month and on the night of the survey/planned use later that night than both cocaine and MDMA/ecstasy pills [use within the last month: mephedrone 53.2% compared with 44.6% for cocaine (P=0.03) and 26.9% for MDMA/ecstasy pills (P=0.0002); use on the night/planned use later that night: mephedrone 41.0% compared with 16.7% for cocaine (P<0.0001) and 5.8% for MDMA/ecstasy pills (P<0.0001)]. For the other novel psychoactive substances, the life-time use and last month use were less than 10% (Table 1). For the non-mephedrone novel psychoactive substances, the three most commonly used in terms of life-time use were synthetic cocaine (9.9%), BZP (9.3%) and Spice/K2 (9.0%) and in terms of last month use were synthetic cocaine (3.5%),

<table>
<thead>
<tr>
<th>Drug</th>
<th>Life-time use (%)</th>
<th>Last month (%)</th>
<th>Today/tonight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine</td>
<td>76.0</td>
<td>44.6</td>
<td>16.7</td>
</tr>
<tr>
<td>Ecstasy pills</td>
<td>68.6</td>
<td>26.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Mephedrone</td>
<td>63.8</td>
<td>53.2</td>
<td>41.0</td>
</tr>
<tr>
<td>BZP</td>
<td>9.3</td>
<td>1.6</td>
<td>0.6</td>
</tr>
<tr>
<td>MDAI</td>
<td>7.7</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Synthetic cocaine</td>
<td>9.9</td>
<td>3.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Spice/K2</td>
<td>9.0</td>
<td>2.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Methoxetamine</td>
<td>6.4</td>
<td>1.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Pipradrols</td>
<td>1.6</td>
<td>1.0</td>
<td>0.6</td>
</tr>
</tbody>
</table>

![Figure 1. Number of respondents who reported that they had used each type of preparation of new psychoactive substance ('legal high') previously.](image-url)
Spice/K2 (2.2%) and methoxetamine (1.9%). Apart from mephedrone, there was little on the night/planned use later other new psychoactive substances [methoxetamine (1.6%) and BZP (0.6%), Spice/K2 (0.6%) and pipradrols (0.6%)].

Discussion

In this survey of attendees at South London ‘gay’/MSM nightclubs, overall 65.8% reported previous life-time use of one or more ‘legal high’ (novel psychoactive substance). However, there was little evidence, apart from mephedrone that there was recent use (within the last month or on the night of the survey) of these novel psychoactive substances.

Our data were collected from a MSM sub-population cohort. It is possible to compare the pattern of self-reported use prevalence data from this MSM sub-population level survey to data from the widely discussed MixMag clubbing surveys and the population level British Crime Survey and other surveys conducted in the night-time economy.

British crime survey—population level survey

In the 2010/2011 British Crime Survey, 15.2% of respondents reported life-time use of a substance classified under the UK Misuse of Drugs Act, 1971 as Class A.2 Life-time use of any stimulant was 18.0% and of any drug included in the British Crime Survey was 36.3%. Data on the use of a limited range of novel psychoactive substances were first included in the 2010/2011 British Crime Survey and was reported in terms of last year use only. It should be noted that all these agents were classified under the Misuse of Drugs Act at the time of the survey. Overall population level of use in those aged 16–59 years seemed to be low—Spice (synthetic cannabinoid receptor agonists) 0.2%, BZP 0.1%, GBL/GHB 0.0% and mephedrone 1.4% compared with established recreational drugs such as cocaine and ecstasy (2.1% and 1.4%, respectively). It was apparent, however, that self-reported use was greater in those aged 16–24 years compared with those aged 25–59 years for each substance (Spice 0.4% compared with 0.1%), BZP (0.2% compared with 0.0%), GHB/GBL (0.1% compared with 0.0%) and mephedrone (4.4% compared with 0.6%). Overall, this suggests that, at a population level, the use of novel psychoactive substances, other than mephedrone, seems to be low and therefore qualitatively is similar to the data obtained in our study. It should be noted that the last year use of mephedrone (4.4%) in those aged 16–24 years was comparable with cocaine (4.4%) and ecstasy (3.8%).

MixMag surveys—clubbing sub-population survey

These surveys are undertaken online and collect information on self-reported use, from individuals who associate themselves with the MixMag dance/clubbing magazine.3,4 The survey is co-ordinated by addiction psychiatrists and psychologists to ensure scientific rigor but delivered through MixMag to ensure it captures data from the target study population. In the 2009/2010 survey, 38% of respondents reported that they had previously used a ‘legal high party pill’.3 In our study population, overall 65.8% reported that they had previously used a legal high, and a similar proportion reported previous use of a legal high pill (32.8% of respondents).

The 2010/2011 MixMag survey, which collected data in the autumn of 2010 and published in the spring of 2011, included data on the self-reported use of a number of legal highs.4 It is possible to compare life-time use rates for a number of legal highs that were included in both the MixMag survey and our study reported here. Similar to our study results, there was a similar pattern of significantly lower self-reported use rates of legal highs compared with classical recreational drugs such as cocaine, cannabis, ecstasy and amphetamine. However, life-time self-reported use of novel psychoactive substances was higher in our study population compared with the MixMag study population: mephedrone 63.8% compared with 51.0%; BZP 9.3% compared with 5.0%; MDAI 7.7% compared with 4.7% and Spice 9.0% compared with 2.2%. In terms of more recent use (defined as within the last month), it is possible to compare our results for mephedrone and Spice only to the results of the 2009/2010 MixMag survey.3 Although the last month use of Spice was comparable (2.2% in our study compared with 2.0% in the 2009/2010 MixMag survey), mephedrone use was significantly higher in our study (53.2% compared with 33.6%). Potentially, this may reflect the difference in time period of the sampling, rather than an actual difference in patterns of use between the two studies.

Global health survey

In 2011/2012, the MixMag survey methodology was widened to include promotion of the survey outside its traditional home in MixMag to the Guardian newspaper and Guardian website. In addition to these sources, it seems that almost half of those answering the survey were directed to it from other sources such as drug-user forums and other blogs, Facebook and Twitter. Data from 7700 UK respondents were included in the 2011/2012 Global Drug
Survey results published in the MixMag magazine in March 2012. This showed that although 14.6% of respondents had used a ‘mystery white powder’, other than mephedrone (last year use 19.5% in the whole UK group and 30% in a subset of regular clubbers), last year use of other novel psychoactive substances was uncommon (methoxetamine 4.2% and 6%, Spice 3.3% and 5.0% and MDAI 2.2% and 3.0%) compared with cocaine (41.8% and 54.0%) and MDMA (53.7% and 77.0%). These findings in the wider Global Drugs Survey demonstrate similar pattern of use of novel psychoactive substances to those seen in our study.

Previous night-time economy surveys

Most surveys of recreational drug use in the night-time economy have focused on established recreational drugs and in that they included novel psychoactive substances, reported data only for mephedrone. One recent survey conducted outside night-time economy venues in four towns in Lancashire in North West England in November 2010 asked about use of established recreational drugs, mephedrone and ‘bubble’. ‘Bubble’ is a slang term that was initially used for mephedrone in the North West of England and more recently seems to have been adapted in this area to refer to any stimulant novel psychoactive substance or unidentified ‘white powder’. In this survey of 207 individuals, life-time, last year and last month use of ‘bubble’, (18%, 16% and 9% of those surveyed, respectively) was higher than mephedrone (13%, 11% and 5%).

Limitations

Our survey was undertaken in two night-club venues that cater for, but not exclusively, ‘gay men’/MSM. There are differences in the frequency and also the type and pattern of drugs used in these populations. The results of our study are, therefore, not necessarily generalizable to the general population or other subgroups. However, we feel that this group are an appropriate population to study as they are higher users of drugs than the background population and are often early adopters of new drugs. A further limitation is that individuals may not be aware of what drug(s) they are actually using and are reporting the substance(s)/drug(s) that they intended to use. However, the data collected were on self-reported drug(s) used, which is similar to the other self-reported use surveys described earlier.

Our survey was only undertaken in two nightclubs with a total sample size of 313 individuals; however, this sample size is comparable with that in other in situ night-time economy surveys, such as the Lancashire night-time economy survey.

Conclusions

This survey has shown that although a significant proportion of individuals report previous use of legal highs (novel psychoactive substances), it seems that only mephedrone has become an established part of the recreational drug scene. For the majority of other novel psychoactive substances surveyed, although there is detectable life-time use, it seems that more recent (last month) and current (on the night of the survey/planned use that night) use is low or non-existent. It is not possible to determine why an individual reports previous use of a legal high but not continuing use. There are a number of possible factors including unwanted effects associated with the use of the legal high, poor availability or the impact of control. We believe that it is not likely to be the latter, as these individuals appear to be using a range of other controlled substances including mephedrone, and so, therefore, control of a legal high is unlikely to make them not use it. However, it is important to note that use both in our study and in data from both other UK-based population and sub-population surveys seems to suggest that use of legal highs is low. Therefore, it is important that a considered approach is taken when determining the utilization of drug prevention, education and enforcement budgets to ensure that this is appropriately directed to those substances with high levels of use and/or significant harms associated with their use.

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Conflict of interest: None declared.

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