Head Shop Compound abuse amongst attendees of The Drug Treatment Centre Board

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Abstract
The use of Head Shop compounds has received much media attention lately. There is very little research in the current literature with regards to the usage of these compounds amongst the drug using population in Ireland. We conducted a study to examine the extent of the usage of Mephedrone, Methylone and BZP amongst attendees of Methadone maintenance programs at the DTCC. Two hundred and nine samples in total were tested to determine the extent of their usage, however, unfortunately as one drug is placed under control, other drugs are produced to replace it in the market. Newer groups of drugs such as the Amphetamines are being tested positive for Mephedrone, 7 (3.3%) positive for Methylone and 1 (0.5%) positive for BZP.

Introduction
Much attention has focused lately on the use of Head Shop compounds or Legal Highs amongst the general population. There is grave concern surround the usage of these compounds as many are having an incidence on the population that have taken them. The issue has received much media coverage and has been debated in both the Dail and the Seanad. On 26th January 2010, Minister Mary Haney stated that Minister John Curran, Minister of State at the Department of Justice, Prisons and the Rehabilitation of Offenders, who has responsibility for coordinating the National Drugs Strategy, has expressed concern over the adverse affects that these are having on the individuals that have taken them.

The aim of our study was to determine the chemical content of some of the Head Shop products and then determine the extent of their usage amongst the drug using cohort at the DTCC. It is difficult to source certified reference standards for these compounds and this therefore limits and delays the testing for these compounds. At the time of writing the Drug Treatment Centre Board Laboratory had managed to source Methylone and Mephedrone from LC/MS Standards in the UK. Very little is known of the metabolism of these compounds, however it is known that Methylone is almost completely metabolized with the main metabolite being 4-Hydroxy-3-methylmethcathinone (HMCC). Unfortunately this compound is not available for purchase and very little of the parent compound is left in urine 24 hours after taking the drug. It is not known how long any of these compounds remain detectable in urine after a single ingestion.

Methods
The DTCB laboratory analysed 209 samples of urine for Methylone, Mephedrone and BZP by LC/MS. Of these 209 samples, 46 were from suspected methadone maintenance patients and many are currently being prescribed benzodiazepines. Co-abuse of head shop compounds with opiates is significant with 12 (41%) of the 29 head shop positive patients also abusing opiates. The low number of BZP abusers indicates that placing it under control has been successful. Of the total 209 samples, 13.9% were positive for Mephedrone, 3.3% for Methylone, and 0.5% for BZP. Seven (3.3%) of the 209 tested were co-abusing both Methylone and Mephedrone. This figure for Methylone usage may be an underestimate due to the fast metabolism of this drug. Pharmaceuticals are chosen for their content with the following results: Blow contained Mephedrone, “Blow” contained Mephedrone, “Diablo” contained Mephedrone and Charge had indications of Flephedrone. All 29 samples testing positive by LC/MS for Mephedrone and Methylone were also subjected to the laboratorys routine immunospecific screening however, not all were tested for every class of drug.

All of the 29 samples that tested positive for head shop compounds were tested for Opiates, Benzodiazepines and Cocaine by immunospecific, 21 (72.4%) tested positive for Benzodiazepines and 4 (13.8%) tested positive for Cocaine. Of the 29 positive for head shop compounds, 10 were tested for Amphetamines and 2 were positive, 12 were tested for Cannabis with no positives and 17 were tested for Alcohol with 1 positive. The age range of the patients who tested positive for head shop compounds was 21 to 52 years with the average age being 32 years.

Discussion
The poly substance nature of drug misuse noted previously is again evident in these results. All of the patients tested are methadone maintenance patients and co-abuse of head shop compounds with opiates is significant with 12 (41%) of the 29 head shop positive patients also abusing opiates. The low number of BZP abusers indicates that placing it under control has decreased its usage when compared to the study conducted in the DTCC laboratory in 2008. Males were more likely than females to be taking these compounds, with an approximate ratio of 70:30 male to female. The parent drug is looked for in these analyses, as very little is known of their metabolism. Very little is known of the metabolism of these compounds, however it is known that Methylone is almost completely metabolized with the main metabolite being 4-Hydroxy-3-methylmethcathinone (HMCC). Unfortunately this compound is not available for purchase and very little of the parent compound is left in urine 24 hours after taking the drug.

These drugs are most commonly administered orally or by insufflation, they have also been known to be injected. Users report effects such as euphoria, increased energy, and openness, some users have likened the effect to that of Cocaine. Negative physical effects reported have been tremors, muscle spasms, chest tightness, negative/mental effects reported are nightmares, hallucinations, and paranoia. They have also been linked to a suicide and a number of deaths. On the 3rd March, 2010 the Dept of Health and Children announced the control of the following substances: Synthetic Cannabinoids (SPICE products), Benzylpiperazines (BZP) and Mephedrone. Methylone and related Cathinones and GBL and 1,4 BD. These are expected to come under control in June, 2010. This should decrease their usage, however, unfortunately as one drug is placed under control, other drugs are produced to replace it in the market. Newer groups of drugs such as the Amphetamines are being tested positive for Mephedrone, 7 (3.3%) positive for Methylone and 1 (0.5%) positive for BZP.

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