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Buying 'legal' recreational drugs does not mean that you are not breaking the law

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Summary

Background: Recreational drug use in the UK is common; sources of recreational drugs are changing, with increasing purchase of legal highs from the Internet. Previous studies have shown that there is not consistency of active ingredient(s) in legal highs purchased from the Internet.

Aim: The aim of this study was to determine the impact of the 16 April 2010 change to the Misuse of Drugs Act (1971) on the content of 'legal highs' purchased over the Internet and supplied within the UK.

Methods: Legal highs were purchased from a number of different Internet suppliers and the active ingredients determined by analysis undertaken within a Home Office approved and licensed laboratory set in a UK academic institution. The active ingredient(s) detected on screening were then compared to the UK legislation in force at the time of purchase to determine whether each individual 'legal' high was in fact legal or not.

Results: All 18 products purchased prior to the change in the UK legislation contained active ingredients that were legal under the Misuse of Drugs Act (1971) in force at that time. Six products were purchased and analysed after the changes to the UK Misuse of Drugs Act (1971) on the 16 April 2010. Five of the products contained information, either on the Internet site or the packaging, stating that the product contained legal substances; the final product did not specify the active ingredient and so purchasers would be unable to determine if this was truly a legal product. Five of the six products contained an active ingredient that is a Class B drug under the Misuse of Drugs Act (1971); the other product contained an unlicensed medicine not controlled under the Misuse of Drugs Act (1971).

Conclusions: We have shown in this study that some drugs sold as 'legal' highs contain drugs that are controlled under the Misuse of Drugs Act (1971). Under current UK legislation, individuals purchasing legal highs that contained controlled drugs would be subject to the same penalties as if they had knowingly purchased a controlled drug. Dissemination of information on the harm associated with the use of legal highs should also inform individuals that they may be purchasing controlled substances and the potential legal consequences of this.

Introduction

Acute toxicity associated with the use of legally purchased recreational drugs, also known as 'legal highs', has been widely reported in both the medical literature[1–7] and the lay press,[8] often sensationally and inaccurately.[9] Despite this, their use remains common.[10] This may be, in part, due to the fact that they are not covered under the UK Misuse of Drugs Act (1971) so that purchase and possession of these products will not leave an individual at risk of prosecution and a possible criminal conviction. In addition individuals may believe, because it is legal to purchase and possess these products, that they are 'safe' and therefore underplay potential risks associated with their use more than they would do for controlled recreational drugs, such as cocaine or MDMA (methylenedioxymethylamphetamine, 'ecstasy').

Many of the novel legal highs are new psychoactive substances that are chemically, pharmacologically and toxicologically very similar to drugs, which are controlled under the UK Misuse of Drugs Act (1971) but have no history of previous use as drugs. The UK Advisory Council on the Misuse of Drugs (ACMD), at the request of the Home Secretary, may consider whether these novel legal drugs should be subject to legal control when sufficient information on their availability/use and harm associated with their use becomes available. The resulting generic legislation is drafted so as to include not just the compounds assessed but also those that are structurally similar. Recently the ACMD reviewed and reported on the synthetic cathinones and as a result recommended to the Home Secretary that this class of drugs should be controlled under the UK Misuse of Drugs Act (1971); this change in legislation came into force on 16 April 2010.[11,12] This group of drugs includes not only mephedrone (4-methylmethcathinone), which was the subject of widespread media interest in the early part of 2010, but other synthetic cathinones such as methylenedioxy pyrovalerone (MDPV), 3,4-methylenedioxy-*N*-methylcathinone (methylone), butylone and fluoromethcathinone. However, it did not include naphthyl pyrovalerone (sometimes referred to as naphyrone), a chemical reportedly present in the legal high drug 'NRG-1' (Energy-1).

Legal highs are commonly sold over the Internet and in high street 'head' shops that also sell drug paraphernalia. The range of products is continually evolving to evade the changes in the control of legal highs. The products are usually sold as powders supplied in zip-lock plastic bags with little indication of the required dose. They are usually sold labelled as 'research chemicals, strictly not for human consumption' and sometimes as 'plant food' or 'bath salts'. In a previous study, we have shown that there is poor consistency in the contents of legal highs purchased over the Internet,[13] increasing the risk of individuals purchasing active ingredients that they had not wanted to purchase. There is no published information to the effect of changes in the UK legislation on the contents of legal highs, and in particular whether products marketed as being legal actually contain legal compounds.

Materials and methods

Using methods previously described, products marketed as legal were purchased from Internet sites.[13] Products were chosen to include a number of novel legal highs being marketed. Purchases were made both before and after the 16 April 2010 UK legislative change to include cathinones.

Products received were stored within a Home Office approved and licensed laboratory. Information was recorded either from the Internet site that they had been purchased from or from the packaging/packaging inserts as to the active ingredient(s) in the product as stated by the supplier. The products were subsequently analysed qualitatively using a previously described gas chromatography mass-spectrometric (GC–MS) method and by Fourier transform infra-red spectrometry with diamond attenuated total reflectance.[13,14]

The analytical data of the actual active ingredient(s) was then compared to determine whether (i) the stated active ingredients correlated with the actual active ingredients; and (ii) actual active ingredients were 'legal' or whether they were controlled under the UK Misuse of Drugs Act (1971) and its subsequent amendments.

Results

Products purchased pre-legislation changes

A total of 18 products were purchased and analysed prior to the changes to the UK Misuse of Drugs Act (1971) on the 16 April 2010 (summarized in Table 1). All 18 products were reported by the website and/or on the packaging to contain an active ingredient that was legal at the time of purchase. Analysis of these products demonstrated that they all contained one or more active ingredient and that none of the active ingredients detected was controlled under the UK Misuse of Drugs Act (1971) at the time of the purchase.

Table 1 Products purchased prior to the changes in the UK legislation with a summary of the reported and actual ingredients and the legal status of these ingredients in relation to the Misuse of Drugs Act (1971) in force at the time of purchase

Product name	Active ingredient reported by the website	UK legal status of reported active ingredient at the time of the purchase	Actual active ingredient found by GC–MS analysis	UK legal status of actual ingredient at the time of the purchase
Methylone	Methylone	Legal	Methylone	Legal
Buytlone	Butylone	Legal	Butylone	Legal
NRG-1	Naphthyl pyrovalerone	Legal	Butylone/Methylenedioxy pyrovalerone (MDPV)	Legal
MDAI	MDAI	Legal	5,6-methylenedixoy-2-aminoindane (MDAI)	Legal
Ultimate Sextacy	Blend of concentrated water softening agents, Epsom salts, sodium bicarbonate, sodium chloride, amino acid blend and naturally occurring trace elements and minerals	Legal	Methylenedioxy pyrovalerone (MDPV)	Legal
Vanilla Sky	Blend of concentrated water softening agents, Epsom salts, sodium bicarbonate, sodium chloride, amino acid blend and naturally occurring trace elements and minerals	Legal	Methylenedioxy pyrovalerone (MDPV)	Legal
Hyper X Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Methylenedioxy pyrovalerone (MDPV)	Legal
Dynamite NRG Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Methylenedioxy pyrovalerone (MDPV)	Legal
Head Rush Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Butylone	Legal
Doves Original	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	legal	Mephedrone/butylone	Legal

(continued)

Table 1 Continued

Product name	Active ingredient reported by the website	UK legal status of reported active ingredient at the time of the purchase	Actual active ingredient found by GC–MS analysis	UK legal status of actual ingredient at the time of the purchase
Doves Red	Amino acid blend Dicalcium phosphate Magnesium stearate	Legal	Methylenedioxy pyrovalerone (MDPV)	Legal
Doves Ultra	Amino acid blend Dicalcium Phosphate Magnesium Stearate	Legal	Butylone	Legal
Rocket Fuel Ultra	Amino acid blend Ketones Dicalcium Phosphate Magnesium Stearate	Legal	Butylone	Legal
Speed Freak Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Methylenedioxy pyrovalerone MDPV	Legal
Diablos XXX Extreme	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Butylone	Legal
Space Trips Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Methylenedioxy pyrovalerone MDPV	Legal
Exotix Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Butylone/MDPV	Legal
Xtacy Ultra	Amino acid blend Ketones Dicalcium phosphate Magnesium stearate	Legal	Butylone	Legal

Products purchased post-legislation changes

Six products were purchased and analysed after the changes to the UK Misuse of Drugs Act (1971) on the 16 April 2010 (summarized in Table 2). Five of these six products contained an active ingredient that is a Class B drug under the Misuse of Drugs Act (1971).

Five products were reported by the website and/or packaging to contain legal substance(s); four of these products actually contained a Class B agent under the Misuse of Drugs Act (1971) as modified on 16 April. The final product did not specify the active ingredient and so purchasers would be unable to determine if this was truly a legal product. In fact, on analysis, it was shown to contain a Class B agent under the Misuse of Drugs Act (1971).

Discussion

In this study, we have shown that five of the six products purchased as 'legal' after the 16 April 2010 change in UK legislation actually contained at least one active ingredient, which is controlled under the UK Misuse of Drugs Act (1971). The possession of any of these products would be illegal in the UK and therefore any individual found in possession of these products would be liable to prosecution and the associated penalties. Under current UK legislation, even if individuals are not aware that they have purchased a controlled drug, they could not use this as a defence if arrested and they would be subject to the same penalties as if they had knowingly purchased a controlled drug.

All of the 18 products purchased prior to the changes to the UK Misuse of Drugs Act (1971) that came into force on the 16 April 2010 contained one or more active ingredient. These active ingredients were all legal at the time of purchase under the Misuse of Drugs Act (1971) in force at that time. However, of the 18 products purchased and analysed, 17 of the products contained one or more active ingredient that would now be controlled under the updated Misuse of Drugs Act (1971). Therefore, individuals who purchased these products legally prior to the changes in the law would now be subject to prosecution under this Act, if they were found in possession of these products. They would not be able to use the fact that they had purchased them legitimately prior to the changes in the law as a defence.

The use of 'legal highs' is common in the UK and in other areas of Europe.[10,11,15] This may be, in part, due to the fact that individuals purchasing them

Table 2 Products purchased after the changes in the UK legislation with a summary of the reported and actual ingredients and the legal status of these ingredients in relation to the Misuse of Drugs Act (1971) in force at the time of purchase

Product name	Active ingredient reported by the website	UK legal status of reported active ingredient at the time of purchase	Actual active ingredient found by GC–MS analysis	UK legal status of actual active ingredient at the time of purchase
NRG-1 (Energy-1)	Naphthyl pyrovalerone	Legal	Mephedrone	Class B
NRG-2 (Energy-2)	Undeclared	N/A	4-Fluoromethcathinone	Class B
Dimethocaine	Dimethocaine	Unlicensed medicine	Dimethocaine	Unlicensed medicine, not currently controlled under Misuse of Drugs Act (1971)
D2PM	Diphenylprolinol	Legal	3-Fluoromethcathinone	Class B
MDAI	5,6-methylenedixoy-2-aminoindane	Legal	Methylone	Class B
Jolly Green Granules	'also known to be in the prolintane group'	Legal	Mephedrone	Class B

N/A: not applicable.

believe that they will not be liable to prosecution if they are found in possession of them.[16] We have shown previously that the active ingredient in legal highs purchased from Internet-based suppliers does not remain consistent over time and that the information provided to purchasers of legal highs on the active ingredient(s) is often limited or inaccurate.[13,15,16] This inconsistency in the active ingredients increases the risk of individuals purchasing a 'legal high' that contains a controlled drug. In this study, we have shown that products with the same name purchased from different vendors may contain different active ingredients. There is the potential for significant toxicity associated with these agents [2,11] and this variation in content of legal highs, together with the potential for different potency between the agents, puts users at greater risk of acute toxicity associated with their use. The relative potency of the differing active ingredients is often not clearly known as there is little scientific literature on the pharmacology and toxicology of these compounds. Data on the toxicity of these compounds is largely based on users' anecdotal self-reports on Internet discussion forums and case reports of toxicity associated with the use of the compounds in which the actual doses taken are often not clearly defined by the user.[1–7,11,16]

The recent media interest in the acute harm and risk of death associated with mephedrone perversely seemed to increase interest in and purchase of mephedrone, rather than to have the desired effect of increasing public awareness of the harms associated with its use.[15] Caution is required when disseminating information to the public concerning novel legal highs, to ensure that a balanced picture is presented. This should not only focus on the public health issues relating to the harm associated with their use, but also include sufficient relevant information so that individuals are aware that they may be purchasing controlled substances and what the potential consequences of this could be if they were found to be in possession of these substances.

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