

PARALLEL SESSION 3D

Drugs in clubs: trends and tests

"Magic mushrooms in the UK". Widely available, increasing popular and legal!

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Some commentators have suggested that there is a trend among those involved in clubbing away from stimulants to psychedelics. This paper focuses on the oldest of all psychedelics – hallucinogenic fungi. 'Magic mushrooms' is the street name for a variety of hallucinogenic fungi that contain the naturally occurring indole amine alkaloids psilocybin and psilocin.

Whilst not legislated for under the Misuse of Drugs Act, the isolated alkaloids are scheduled as Class A. Prepared mushrooms (eg dried, powdered) are also considered as illegal. In response to media reports and explicit marketing the previously non prohibited possession, cultivation and marketing of the raw fungus was overturned and all related products are now legislated for under the Misuse of Drugs Act. This paper reviews the evidence for increasing use among those in the dance and questions the appropriateness of the UK government's response. This paper will also highlight clinically relevant research and literature to support front line workers in their management of mushroom use. Although the use of mushrooms is usually safe and without serious complication, clinicians should consider the diagnosis of magic mushroom intoxication in young people, when suggested by history, presentation and clinical examination (dilated pupils, behavioural disturbance, in the absence of significant sympathetic stimulation.)

Magic mushrooms
Tripping on the dance floor
Club Health 2006

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History

- Diverse cultures since antiquity.
- Thought to be an ingredient in the ambrosia of Dionysus.
- Aztecs referred to them as 'teonanacatl or 'flesh of the gods'.
- Father Xmas, Rudolf, Alice....
- 1799-Green Park picnic
- Mycologist Wasson in the mid 1950s
- Albert Hoffman isolated psilocybin 1958
- Marketed by Sandoz Pharmaceuticals as 'Indocybin'

What are magic mushrooms ?

- Hallucinogenic fungi
- Contain the naturally occurring indole amines, the substituted tryptamines psilocybin and psilocin.
- Greek roots for 'bald' (*psilo*) and 'head' (*cybe*).
- Psilocin is the active CNS form of the drug and 1.5 times more potent than psilocybin.
- Relatively less psilocin than psilocybin...but after ingestion, psilocybin is metabolised to psilocin.
- Psilocin structurally similar to serotonin

No one magic mushroom

- Many species.....100
- Mexican *Psilocybe cubensis*
- Northern Europe, *Psilocybe semilanceata* better known as the 'Liberty Cap').
- 7-fold variation in levels between species
- Increase in the content of active alkaloids with successive harvests of the fungus.
- Concentrations of active alkaloids being highest in the caps

Dosing

- There is no standard mushroom.
- The number of mushrooms that constitute a typical dose also varies widely depending on the size, freshness, preparation and species consumed.
- Dried liberty caps average dose 50-100.
- Whole fresh mushrooms from markets usually sold in packets of 10-15gm (2-20 mushrooms).

Use....

- Taken orally (either raw or cooked) mushrooms produce a variable but dose related psychedelic effects that comes on 30-60 minutes after consumption, and lasts for 4-8 hours.
- Users may briefly experience nausea or gastrointestinal discomfort after consumption.

Pharmacology

- Hallucinogenic effects mediated by agonist action at the 5HT-2 receptor
- Unlike LSD, psilocybin itself exerts no activity at dopaminergic receptors – may have indirect DA effects
- Tolerance develops rapidly after repeated use over a few days, which explains why most users report weeks or months between uses.
- A withdrawal has not been described
- Cross tolerance with other psychedelic drugs such as LSD and mescaline is thought to occur

Sought after effects

- 'Ultimate psychedelic'
- Emotional, spiritual, perceptual, cognitive distortion with dissolution of ego boundaries and self.
- Hallucinations, illusions, synaesthesia, dissociation,
- Stimulation, creativity, self exploration....

Mushrooms and God

Doors to perception may be opening again within the scientific community.

36 middle aged religiously inclined volunteers

60% full mystical experience

1/3 most spiritually significant experience of their lives

40% in the top 5

2 months later most said they had become better gentler people

GOD IN A PILL

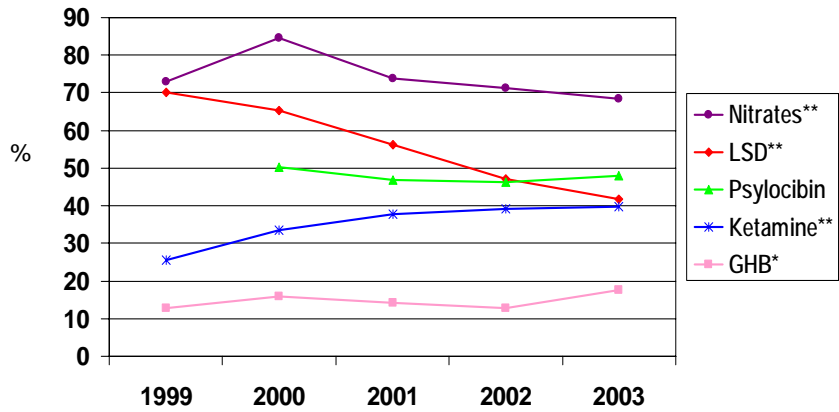
Psychopharmacology July 2006 Griffiths et al

Trends in hallucinogen use among clubbers in the UK

(McCambridge, Winstock et al in press)

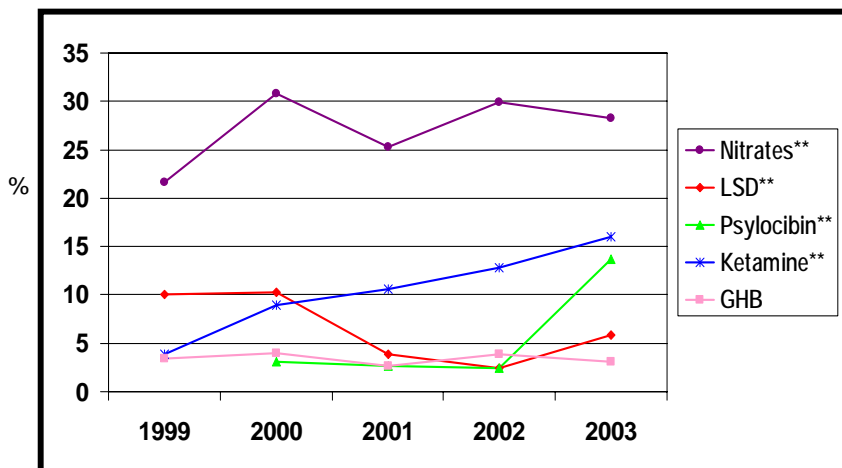
- *Increase in ketamine and magic mushrooms*
- *Decline in LSD-dose????*
- *Appearance of newer drugs 2CT-2, 2CB, 4 MTA, DMT.....*
- *Return to hallucinogen use associated with decline in stimulant use and maybe change in music type in Clubland.*
- *Clubbers remain a novelty seeking group- psychedelics are the most novel of all all drugs..*

Lifetime prevalence – 5 year trends



* $p < .05$ ** $p < .001$

Use in past month – 5 year trends



** $p < .001$

Mean days used among past month users

	1999	2000	2001	2002	2003
Nitrates	3.8	3.5	3.7	3.4	3.3
LSD	1.9	2.2	2.0	2.1	1.7
Psilocybin	-	2.6	2.2	1.5	2.7
Ketamine	2.4	3.2	3.4	3.2	3.7
GHB	2.7	3.8	2.8	5.8	2.4

Signs of intoxication-not as obvious as LSD/stimulant drugs

- Dilated pupils, flushing, sympathetic arousal, perceptual disorders, behavioural disturbance, in the absence of significant sympathetic stimulation.
- Unlike other psychedelics its autonomic activity is modest with no significant increases in pulse or BP after oral doses of 15mg.
- There may however be concurrent sympathetic stimulation if consumption has resulted in an anxiety reaction.

'Bad trips'

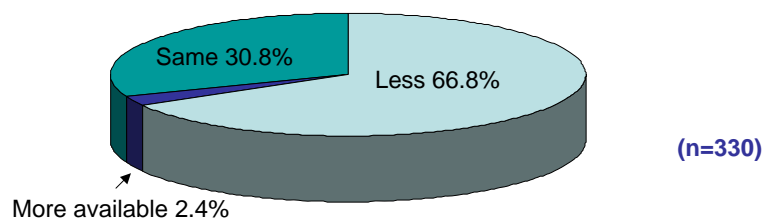
- Not most significantly dose related - set setting and constitution.
- Exacerbation mental health problems
- Acute psychotic reactions with psilocybin resembles an acute schizophrenic episode.
- Changes in sensory perception and cognition affective functioning & loosened associations.
- Acute toxic stuporous states, amnesia, panic attacks and depersonalisation, flashbacks and body dysmorphic disorder.
- Some rare reports of persistent psychotic states....precipitation in vulnerable group.

Problems with shrooms among clubbers

(Winstock et al in preparation)

- 26.7% had experienced nausea / vomiting
- 21.7% had a panic attack
- 0.3% sought medical help / A&E

Mushroom availability since sale of mushrooms made illegal



Management

- Supportive management with reassurance to patient and carers is often all that is required.
- No evidence for emesis or lavage, charcoal (potentially harmful poisonous mushrooms may have been accidentally ingested)
- Benzodiazepines for agitation
- Drugs such as chlorpromazine should be avoided because of anti cholinergic effects.
- For acute psychotic presentations theoretical support for using risperidone, though other neuroleptics may be effective.

Problematic use

- Rapid tolerance protects against regular use in most.
- Compulsive use of psychedelics are is seen.
- Regular heavy use especially in adolescents is likely to be a marker for other psychosocial risks encountered by the user.
- Psychological approaches and management of underlying mental illness with diagnosis occurring during abstinent period.
- Reduction in LSD effect after chronic administration of SSRIs
- Increase after the use of lithium or tricyclic antidepressants

Uneventful recovery is the rule for most presenting with 'magic mushroom' poisoning.

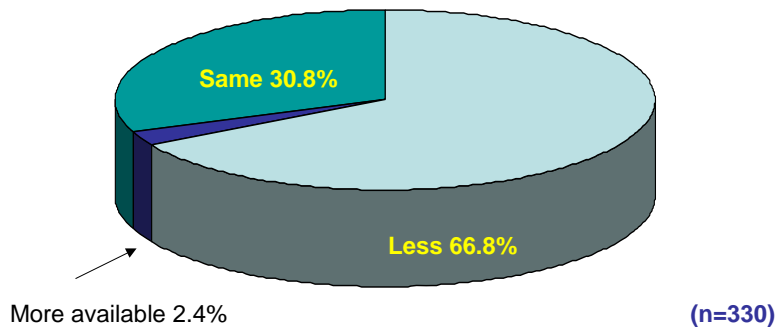
- Physically use is generally safe.
- Greatest risk resulting from the individuals behaviour.
- Fewer than half a dozen fatalities reported.
- Pre-commercialisation of mushrooms - greatest risks following ingestion by mistake of a similar looking fungus.
- A review of 318 psilocybin related cases reported to a poisons unit in America found no evidence of serious toxicity*
- Overdose as such is rare

*Francis and Murray 1983

The law....

- Recent changes in legislation in UK (July 18 2005).
- Still widely available in Europe and via the net.
- Concerns fuelled by media concerns
- Reality – risk minimal compared to cocaine, heroin and methamphetamine
- Vulnerable minority have prompted changes in the law for the majority.

Mushroom availability since sale of mushrooms made illegal Sept 2005



Consequences of law change

- Risk of picking the wrong mushroom may return.
- Cowpat navigation
- Newer legal highs
- Unknown territory
- Less manufacturing experience
- Potential for new harms
- New research
- To boldly go.....

Hope it was food for thought.

Thankyou

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