Ecstasy: Patterns of Use in Scotland and Psychological Disturbance

and

Research Portfolio

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Ecstasy: Patterns of Use in Scotland and Psychological Disturbance

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Research Portfolio

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Written for submission to *British Journal of Psychiatry*

(see Appendix 1 for Notes for Contributors)

REHABILITATION NEEDS OF CLIENTS IN A PSYCHIATRIC REHABILITATION SERVICE IN SCOTLAND

R. STOCKS

Background Recent developments in health care policy will increasingly lead to a change in the living circumstances of people referred for rehabilitation. In responding to this, services should consider how best to achieve rehabilitation goals. This study looked at characteristics of clients in a psychiatric rehabilitation unit in Scotland, to consider whether future clients, living in the community, could be catered for in day-care facilities.

Method Current day and residential clients were compared on variables relevant to their rehabilitation needs.

Results On the indices measured, no reliable distinguishing factors emerged.

Conclusions It is likely that most rehabilitation needs can be met by day-care facilities. However, there may be a continued requirement for residentially-based services. Suggestions are made for further research to be carried out at the unit.

Introduction

The demand for psychiatric rehabilitation has been, and will continue to be, affected by 'care in the community' initiatives recently adopted in health care policy (Bridges et al., 1994; Bachrach, 1992). Previously, demand came primarily from long-term hospital patients whose symptoms had been sufficiently controlled for them to be discharged. Now, large numbers of long-stay patients, who would previously have been kept in hospital, are being discharged to the community. Also, fewer and fewer people are being admitted to psychiatric hospital for prolonged periods of time. Even for those who will always require a continual, high level of care, similar to that previously provided in large psychiatric hospital settings (Shepherd, 1991; McCreadie et al., 1991), community care plans aim to provide that care in smaller community-based units. Increasingly, the demand for rehabilitation, will come from sufferers of chronic mental illness who are living in the community and services should consider how best to meet the change.

Following principles of normalisation and social role valorisation promoted in relation to the learning-disabled (Wolfensberger, 1983; Wolfensberger & Tulman, 1982) the aims of rehabilitation are more wide-ranging than before (Gournay, 1995; Shepherd, 1995 & 1991). Effectively, they can be divided into those that apply to interventions and those that apply to the structure of services. Relating to the latter, effective psychiatric rehabilitation is considered an ongoing process, which adapts to an individual's changing needs, rather than a time-limited intervention (Bachrach, 1992). The value of continuity in the provision of care is also stressed (Bachrach, 1992; 1994). Rehabilitation units might, therefore,

consider providing permanent homes with continuing intervention, rather than temporary accommodation where the intention is for people to move on, once they have gained the ability to live independently. Further, it would be beneficial for the rehabilitation needs of clients already settled in the community to be met by a day service; thereby avoiding a change to living circumstances. However, it may be that some people's needs can only be met in a residential setting.

This study was carried out in a rehabilitation unit in Scotland which houses both a day and a residential facility. The aim was to assess whether these two services cater for populations with different characteristics and different, or greater needs, other than that of having somewhere else to live. If there are no differences, this would strengthen the case for day-care as an option for anyone living in the community.

Method

The rehabilitation unit had 17 residential places and six day places, with the day service operating two days a week.

Demographic information and details of the clinical and sociological characteristics of current service users were taken from all available written records (referral forms, assessment forms, case notes). Six residents and six day attendees were then matched for sex, principal diagnosis, and, as closely as possible, age. It did not prove possible to match all the current day clients with current residents and so two people (one day client, one resident) were selected who had recently been discharged from the Unit.

The selected pairs were compared on characteristics considered relevant to rehabilitation needs. These were: mental health (severity of symptoms, compliance with medication, insight), social skills (verbal and nonverbal communication skills, interaction with others, social awareness, social behaviour), practical skills (domestic skills, self care, personal hygiene, budgeting), personal relationships/social support and level of motivation. These details were obtained from written records, and by interviewing two members of staff at the Unit; a Deputy Charge Nurse and an Occupational Therapist.

On each of the factors considered, an assessment was made of whether or not the individuals had a difficulty. Then, a judgement was made of whether these problems were of a greater or equal severity for the day client or the resident within a pair. This judgement was made on the basis of the written records, and staff opinions. In no case was there a discrepancy between the two. The staff were also asked whether they felt there were any other factors which distinguished between day and residential clients generally.

Results

Details on current clients at the Unit are shown in Table 1. The day group can be seen to comprise a younger, more predominantly male population than the residential group. However, further analysis found that the majority of residents (58.8%) fell within the age range of the day attendees. There were no outstanding differences in terms of marital status. Organic problems and depressive disorders were only present in the residential group, but

other than this there were no notable differences between the principal diagnoses of the two groups.

Insert Table 1

Information on other clinical characteristics and behavioural problems of current clients was also collected. In addition to those whose primary problem was alcoholism, three of the residents and three of the day clients were noted to abuse alcohol. None of the clients were considered to have current problems with illegal drugs.

Similar proportions of clients in each group had a history of self-harm. Nine residents had incidents of antisocial behaviour noted: one had received a conviction for assault and four had previously been detained for either murder or attempted murder. Two day attendees had noted antisocial behaviour; one with an assault conviction.

At the time of admission, two residents were restricted under the Mental Health Act (MHA) and two were detained under the Criminal Procedures Act (CPA). One member of the Day Unit was admitted while under a section of the MHA.

Comparing the six pairs of clients, information is provided on each individual's needs using 'X' to denote the residential client and 'Y' the day attendee. The results of the assessments of relative severity are tabulated.

Pair 1 (Table 2)

Sex: male Age: X=31 (during admission period), Y=28

Diagnoses: Schizophrenia

X

Mental health: X experienced predominantly positive symptoms, well-controlled with medication. He continued to suffer mood swings and was said to lack insight into his illness. He had previously failed to comply with his medication and complied reluctantly at the Unit.

Social skills: X was described as being chatty and expressive. He was outgoing and enjoyed the company of others. He was aware of other peoples' feelings and needs but was said to be demanding and often disruptive and failed to make friends.

Practical skills: In relation to domestic skills, self-care and personal hygiene, X was considered fully competent but unwilling. His ability to budget was poor.

Social support: X had an 'on/off' relationship with a 'girlfriend'. He had no friends or visitors apart from his girlfriend and their two children.

Motivation: A lack of motivation was the main problem noted in X's care plan.

Y

Mental health: Y suffered from auditory hallucinations and paranoia, said to be largely responsible for his poor social and practical skills. He complied with his medication while at the Unit but had previously been non-compliant. He did not have insight into his difficulties.

Social skills: Y was said to be withdrawn and did not like to socialise. He rarely initiated conversation and although he would communicate with people he knew well, the content of his speech was usually vague and he made little eye contact. He was not thought to be aware of other people's needs and would not do something for another person without being prompted.

Practical skills: In all of these areas, Y's skills were poor and he required a lot of prompting and encouragement. He was considered irresponsible with money.

Social support: Y had a very caring and supportive family, but no friends.

Motivation: Y was said to be unwilling to participate in programmes at the Unit due to paranoid ideas, but would try hard if encouraged.

Insert Table 2

Pair 2 (Table 3)

Sex: male Age: X=21, Y=21 Diagnoses: Paranoid Schizophrenia

X

Mental health: X did not experience florid psychotic symptoms but had continuing negative symptoms and was lacking in insight. He received medication under Section 18 of the MHA and it was felt that he would not comply otherwise.

Social skills: X had to be encouraged to talk and had poor nonverbal skills. He spent a lot of time in the company of friends without much interaction

with them. He was aware of and responded well to other people's needs and feelings.

Practical skills: In relation to domestic skills, X was competent but unwilling. At times he needed prompting with self-care and personal hygiene. He had difficulty in dealing with money.

Social support: X spent a lot of time with friends and had a supportive family .

Motivation: X was said to need a lot of encouragement to participate in any activity at the Unit.

Y

Mental health: Y's schizophrenic symptoms were well-controlled with medication but he suffered from severe anxiety and obsessions. He was compliant in taking his prescribed medication and showed some insight into his illness.

Social skills: Y was described as being very friendly but having poor nonverbal skills and being repetitive in conversation. He was also said to self-centred, and vulnerable as a result of being too trusting. He had made some friends by attending clubs for people with mental health problems.

Practical skills: Although Y had difficulty in carrying out domestic chores because of his obsessions, he did have the skills required. He was very particular with self-care and personal hygiene and was astute in dealing with money.

Social support: Y lived with his parents who were considered very supportive but over-protective. He met friends at the clubs, but otherwise did not socialise.

Motivation: Y was keen to work on his difficulties.

Insert Table 3

Pair 3 (Table 4)

Sex: male Age: X=44, Y=45 Diagnoses: Alcoholism

X

Mental health: X was not drinking while resident in the Unit. He suffered from anxiety and showed what was described as 'bizarre acting-out' behaviour consisting of pretending to choke or to clutch himself and roll around on the floor. He was compliant with his medication and did have insight into his difficulties.

Social skills: X's social skills were said to be very good. He was outgoing and had made lots of friends since becoming a resident. However, he was reported to be demanding, childish and self-centred at times.

Practical skills: In all of these areas X was fully competent and he was succeeding at paying off his debts.

Social support: X had strong support from family and many friends.

Motivation: X was highly motivated in all aspects of the rehabilitation programme.

Y

Mental health: Y was not drinking while attending the Unit. He had experienced psychotic symptoms in the past and continued to suffer anxiety and low self-esteem. He was compliant in taking medication and had insight into his difficulties.

Social skills: Y was socially isolated, and had very little self-confidence. He found difficulty initiating or sustaining a conversation. He was, however, said to be considerate of other people.

Practical skills: Y was unable to do very much for himself at all, but had no problems with budgeting.

Social support: Y had a large family but only regular contact with one sister and had no friends.

Motivation: A lack of motivation was noted as one of Y's greatest problems.

Insert Table 4

Pair 4 (Table 5)

Sex: male Age: X=24, Y=25 Diagnoses: Schizophrenia

X

Mental health: X suffered predominantly negative symptoms, was lacking in insight and failed to comply with his medication.

Social skills: X was talkative and outgoing but although he liked to socialise, he was unable to make friends. He tended to be very self-centred.

Practical skills: In regard to domestic skills X was said to be capable but unwilling. He took great care over his appearance and personal hygiene but would spend all of his money on clothes.

Social support: X's only support came from his parents who treated him as if his illness was much more serious than it actually was.

Motivation: X showed motivation except towards his drinking.

Y

Mental health: Y suffered from delusions and dysmorphophobia. He was legally enforced to take medication and had no insight into his illness.

Social skills: Y was quiet, submissive and rarely made eye contact when talking. He preferred not to socialise.

Practical skills: Y needed a great deal of prompting in regard to domestic skills, self care and personal hygiene. His parents had never allowed him to look after his own money, but staff felt that he would be capable of doing so.

Social support: Y had support from his parents and brother but had no friends.

Motivation: Y was said to be lacking in motivation.

Insert Table 5

Pair 5 (Table 6)

Sex: female Age: X=48, Y=46 Diagnoses: Chronic Schizophrenia

X

Mental health: X suffered from negative symptoms of schizophrenia. She could be impulsive and had regular outbursts of crying for no apparent reason. She had insight into her difficulties and did not avoid taking medication.

Social skills: X had poor nonverbal communication skills and rarely interacted with others. At times she was disruptive in social situations.

Practical skills: Although X was capable in regard to domestic skills, she had poor concentration and got bored easily. She needed prompting about her personal hygiene and self-care, and although she liked to wear make-up, she applied it badly. She was unable to look after her money carefully.

Social support: X had regular visitors from family and friends.

Motivation: Despite poor concentration and attention, X was keen to participate in her rehabilitation programme.

Y

Mental health: Y suffered from intractable symptoms of paranoia and ideas of reference, as well as negative symptoms of schizophrenia. She did have some insight, however, and complied with her medication.

Social skills: Y was said to be talkative only with familiar people. She was taken advantage of by others and had no real friends.

Practical skills: Y needed direction and encouragement to carry out domestic activities. She sometimes dressed inappropriately and needed prompting in relation to her personal hygiene. She had poor budgeting skills.

Social support: Y had what was considered by the staff to be a fairly mature relationship with a boyfriend, but she had no other supportive friends. She maintained contact with her father and a brother. She had three children and was visited by two of them occasionally.

Motivation: Y's level of motivation was considered to be poor.

Insert Table 6

Pair 6 (Table 7)

Sex: female Age: X=36, Y=34 (during period of attendance)

Diagnoses: Schizophrenia

X

Mental health: In addition to suffering schizophrenia, X was stated to have temporal lobe epilepsy, although she had remained seizure-free for years without medication. She had some continuing positive symptoms, no insight and would not take her medication of her own accord.

Social skills: X was considered to have adequate verbal skills but poor nonverbal skills. She tended to isolate herself and was said to be overgenerous but not friendly.

Practical skills: X was said to be dangerous when cooking and needed help with her self-care and personal hygiene. She was able to budget well.

Social support: X had support from her boyfriend and her parents but had not managed to establish any other friendships.

Motivation: Due to her unwillingness to accept that she needed help, X was lacking in motivation.

Y

Mental health: Y continued to have intractable, florid, positive symptoms. She lacked insight into her illness and would not take her medication without prompting.

Social skills: Y was considered to have adequate social skills but her behaviour could be childish. She was distrustful of others and she tended to avoid others.

Practical skills: Y had no problems in relation to practical skills.

Social support: Y had no contact from friends or family.

Motivation: Y was keen to participate in the Unit's programmes but she had no motivation to develop contacts or interests outwith the Unit.

Insert Table 7

Summary of comparisons between residents and day clients

Table 8 shows the number of cases where clients did not have difficulties, and the number of cases where the resident was considered to have greater difficulties than the day client s/he had been paired with (X > Y); the number where Y was considered to have greater difficulties than X (Y > X); and, the number where the difficulties did not differ in severity (X = Y). It can be seen that overall, the residents had fewer difficulties than the day clients, but, all of the difficulties assessed were experienced by at least some day clients and some residential clients. There was also a tendency to have greater difficulties regarding mental health, social and practical skills, amongst the day clients. However, none of the characteristics consistently distinguished the residents from the day clients in terms of severity.

Insert Table 8

Staff views

The two staff members questioned about the differences between the residential and day service clients suggested two distinguishing factors. Firstly, it was said that the day programme was more structured and

intensive than the residential programme and, therefore, that the day clients had to have sufficient motivation and energy to regularly attend the Unit and to be able to participate in the rehabilitation programme. This was contrary to what had been found when comparing the paired individuals on levels of motivation.

The second factor concerned the aims of rehabilitation for an individual: day clients were those who were believed to be capable of improving their level of functioning whereas, residents were not necessarily expected to do so.

The staff recognised that some of the residents could benefit from day care if they had supported accommodation in the community.

Discussion

Assessing all of the clients currently attending the Unit, only the presence of individuals with organic disorders discriminated the residential population from the day population. However, it is likely that this is only due to the fact that the small number of day places makes it impossible for every disorder to be represented. Having an organic problem would not in itself exclude someone from day care (except that the unit does not accept referrals from people suffering dementia).

There were differences in average age, sex ratio and the incidence of alcohol problems, histories of antisocial behaviour and legal detention orders. While not providing evidence for exclusion criteria from day care, these findings may have other implications for the service. Thus, age may be associated with a low expectation of improvement in functioning or low

levels of motivation or energy and, therefore, older people may be more likely to require residential support.

The reasons for there being a higher proportion of men than women in the day unit but not in the residential unit can only be speculated upon. For example, it may be that women, more so than men, are likely to retain their skills, if living in the community. The greater numbers of women in the residential population may then reflect a more general loss of skills, amongst men and women, due to long periods of institutionalisation. If this is the case, a greater demand for rehabilitation from men than women may emerge in the future.

The proportionately greater number of cases with a history of antisocial behaviour or who were legally restricted under either the MHA or the CPA, amongst the residents, may reflect a tendency for these people to be discriminated against by other accommodation services.

The relatively higher incidence of alcohol abuse in the day population may reflect the fact that living in the community allows more opportunities to take alcohol. This raises the question of whether people with alcohol problems might benefit more from residential programmes.

Six pairs of clients were matched and compared to see if there were any further characteristics which could be found to distinguish residents from day attendees. The results showed that none of these differences reliably discriminated the two populations. Information given by the two staff members suggested that day clients could be distinguished from residential clients in terms of levels of motivation, enthusiasm and energy. The fact that such a difference in motivation was not found in the study suggests that it

may not have been defined or measured adequately or that levels of motivation do not, in fact, distinguish day clients from residents. Alternatively, it might be that day clients were accepted to the unit in the belief that they had some motivation, but that they either did not actually have the motivation, or they lost it in time.

Another difference noted from the staff interviews was that rehabilitation aims for day clients were more about improving functioning and gaining skills. By comparison, with some of the residential clients, aiming for such improvement was not considered realistic. This aspect was not considered in the study and may be one which might be found to reliably distinguish day clients from residents.

In conclusion, the findings of this study show that having rehabilitation needs in the areas of mental health, social and practical skills, and social support does not exclude someone from the day unit. This supports the potential for services to be able to meet most clients' needs in accord with current philosophy on rehabilitation i.e. settling people in permanent homes in the community and providing day care services to meet their rehabilitation needs, thus, avoiding unnecessary changes to living circumstances. However, investigation of the relative effectiveness of intervention approaches applied in the different settings, should be carried out. It is also concluded that day rehabilitation care is not necessarily an option for anyone who has a home in the community but further research is required to establish conclusively whether people with low levels of 'motivation' or 'energy', and those for whom rehabilitation aims are not concerned with improving functioning, require rehabilitation in a residential setting.

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Table 1

Demographic and clinical characteristics of clients at the rehabilitation unit

	Residential (n=17)	Day (n=6)
Gender		
male	8 (47.1%)	5 (83.3%)
female	9 (52.9%)	1 (16.7%)
Age - mean (range)	44.65 (21-64)	31.17 (21-46)
Marital status		
single	14 (82.4%)	5 (83.3%)
separated/divorced	1 (5.9%)	1 (16.7%)
married	1 (5.9%)	0
spouse deceased	1 (5.9%)	0
Principal Diagnosis		
Schizophrenia	9 (52.9%)	4 (66.7%)
Manic Depressive Psychosis	1 (5.9%)	0
Psychotic illness	0	1 (16.7%)
Depression	1 (5.9%)	0
Alcoholism	2 (11.8%)	1 (16.7%)
Epilepsy	3 (17.6%)	0
Post Traumatic Brain Damage	1 (5.9%)	0

Table 2

Pair 1: Comparison of rehabilitation needs

	X	Y
Mental health		+
Social skills		+
Practical skills		+
Social support	+	
Motivation	+	

X = residential client

Y = day client

+ = greater need

Table 3

Pair 2: Comparison of rehabilitation needs

	X	Y
Mental health	=	=
Social skills	=	=
Practical skills	+	no
Social support	+	
Motivation	+	no

'X' - residential client

'Y' - day client

'+' - greater need

'=' - equivalent need

'no' - no rehabilitation need in this area

Table 4

Pair 3: Comparison of rehabilitation needs

	X	Y
Mental health	=	=
Social skills		+
Practical skills	no	+
Social support	no	+
Motivation	no	+

'X' - residential client

'Y' - day client

'+' - greater need

'=' - equivalent need

'no' - no rehabilitation need in this area

Table 5

Pair 4: Comparison of rehabilitation needs

	X	Y
Mental health		+
Social skills		+
Practical skills		+
Social support	+	
Motivation		+

'X' - residential client

'Y' - day client

'+' - greater need

Table 6

Pair 5: Comparison of rehabilitation needs

	X	Y
Mental health		+
Social skills	=	=
Practical skills	=	=
Social support	no	+
Motivation	no	+

'X' - residential client

'Y' - day client

'+' - greater need

'=' - equivalent need

'no' - no rehabilitation need in this area

Table 7

Pair 6: Comparison of rehabilitation needs

	X	Y
Mental health	=	=
Social skills	=	=
Practical skills	+	no
Social support		+
Motivation	+	

'X' - residential client

'Y' - day client

'+' - greater need

'=' - equivalent need

'no' - no rehabilitation need in this area

Table 8

Summary of difficulties relating to rehabilitation needs

	No needs (n)		Differences in severity (n)		
	X	Y	X > Y	Y > X	X = Y
Mental health				3	3
Social skills				3	3
Practical skills	1	2	2	3	1
Social support	2		3	3	
Motivation	2	1	3	3	

'X' - residential client

'Y' - day client

Chapter 2: Major Research Project Literature Review

Ecstasy: patterns of use and the evidence for an association with psychological disturbance

Written for submission to *Addiction*

(see Appendix 2.1 for Notes for Contributors)

Title: **Ecstasy: patterns of use and the evidence for an association with psychological disturbance**

Short title: **Ecstasy-use and psychological disturbance**

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Ecstasy : patterns of use and the evidence for an association with psychopathology.

RUTH STOCKS

Abstract

Use of Ecstasy is now widespread in the U.K. but not much is yet known about patterns of use of the drug in this country or about its long-term effects. Researchers in the U.S. and Australia have concluded that users reduce their levels of Ectsasy-intake in time, but it seems that this may not be the case here. There is now overwhelming evidence that Ecstasy causes irreversible damage to the central nervous system in animals, with indications of similar effects in humans. Functional consequences have not yet been established, but psychiatric disturbance has been predicted. Reviewing the evidence, it appears that there is little to substantiate claims of a link between neurotoxic damage in human MDMA users and anxiety or mood disturbance, and possible explanations for this are considered.

Introduction

It is estimated that over a million people in the U.K. have taken the illicit drug 3,4-methylenedioxymethamphetamine (MDMA), also known as 'Ecstasy' or 'E' (Merchant & Macdonald, 1994). However, no large-scale studies of recreational Ecstasy-use have been conducted in Britain and not much is known about patterns of use of the drug in this country or about its long-term effects. Public awareness has been raised by high-profile, media exposure of the fatal dangers of Ecstasy but, although a number of deaths and serious physical complaints have been attributed to the drug (for review see O'Connor, 1994), such extreme reactions occur in only a tiny percentage of users. Of much greater concern is the indication that there may be less selective dangers. In particular, the development of psychological disturbance has been predicted (Henry, 1996; McCann & Ricaurte, 1995).

This review looks at what is documented about the effects of Ecstasy and how people use it and, considers the evidence for an association between MDMA and psychological disturbance.

Subjective effects and patterns of use

The chemical structure of MDMA resembles amphetamine and it has properties similar to amphetamines and hallucinogens (Shapiro, 1992). Because it differs from these drugs in its particular ability to induce users to be 'in-touch' with their own and others' feelings, it has been suggested that it should be classified separately, as an 'entactogen' (Nichols, 1986). The short-term, subjective effects of Ecstasy have been recorded in a number of clinical studies and surveys in the States (e.g. Beck & Rosenbaum, 1994; Liester et al., 1992; Peroutka, Newman & Harris, 1988).

The experience has been described as a combination of stimulation and relaxation (Saunders, 1995). Shortly after swallowing a tablet or capsule, users describe a brief 'rush' of euphoria, sometimes accompanied by feelings of anxiety or nausea. Then, for several hours there is a general feeling of well-being and

sense of intimacy with others, accompanied by a number of symptoms of autonomic arousal, including psychomotor agitation, sweating, bruxism (clenched jaw or teeth grinding) and nystagmus (rapid flickering of the eyes). The emotional and behavioural consequences are often referred to as the 'positive' and 'negative' effects, respectively.

In the days following Ecstasy-use there is often a hang-over or 'come-down' period. There are consistent reports of depression, general anxiety, irritability and insomnia (Beck & Rosenbaum, 1994; Peroutka et al., 1988; Solowij, Hall & Lee, 1992). However, these symptoms seem to be short-lived and apparently remit spontaneously.

In the United States, from 1976 until 1985, when MDMA was placed on Schedule 1 of the Controlled Substances Act, MDMA was used with clients receiving psychotherapy, to facilitate introspection (Greer & Tolbert, 1990). Recreational use of the drug in the States spread gradually, probably beginning in the 60's amongst 'New Age seekers' (Watson & Beck, 1991). Student surveys conducted in the late 80's found figures for those who had tried Ecstasy ranging from 8% to 37% (Calvert, 1987, reported in Beck and Rosenbaum, 1994; Meilman et al., 1990; Peroutka, 1987). Then, the setting in which Ecstasy was taken tended to be amongst small groups of friends and it would seem that the main attraction of the drug was its 'entactogenic' effects (Beck and Rosenbaum, 1994). Recent reports from the States, indicate a change in the choice of setting, accompanied by a dramatic increase in use, as 'rave' culture has spread from Europe (Cuomo, Dyment & Gammino, 1994; Millman & Beeder, 1994; Randall, 1992).

Ecstasy was introduced to Britain in the mid-80's and its popular appeal became linked to the emergence of a dance scene called 'rave': Ecstasy's stimulant properties being particularly suited to the continued, vigorous dancing demanded at 'raves' (Merchant & Macdonald, 1994; Saunders, 1995). A recent survey of 135 rave-goers in Scotland found that over 90% had tried Ecstasy (Forsyth, 1996) and, extrapolating from the numbers said to attend raves in the north west of England

every weekend (Newcombe, 1992), there must be hundreds of thousands of ravers across the country.

Researchers in the U.S. and Australia have concluded that use of Ecstasy is not 'compulsive' because users report limiting their use over time, rather than taking multiple or more frequent doses (e.g. Pearson et al., 1992; Shapiro, 1992; Solowij et al., 1992). This, they believe, is because the 'negative' effects of the drug begin to outweigh the 'positive' ones with successive use.

In a sample of 495 MDMA-users in the U.S., Siegel (1986) characterised the vast majority as 'experimental' users, who used the drug only very occasionally: over 90% had tried it once and did not intend to do so again. 16 people fitted the category of 'social' use, which ranged from taking Ecstasy between one and four times per month, with a maximum of 20 occasions in a year. There was no indication of any engagement in 'compulsive' use, described as prolonged, high frequency, high dosage use. Beck & Rosenbaum (1994) noted that intensified use, often referred to as 'bingeing' sometimes followed initial experimentation with E but that this was not maintained.

Researchers in Sydney, where E is also linked to the rave scene, have predicted Ecstasy's demise from popularity, because a number of their respondents claimed to have become 'bored' with the experience (Solowij et al., 1992). However, at the time the study was undertaken, the drug had only been available for a few years and most people were saying that they would continue to take it. Also, 43% of the sample said that their pattern of use had not changed over time and 24% claimed to be using the drug more frequently than once a month, with 3 people taking it every few days.

Peroutka (1989) has commented that, to his knowledge "there are simply no reports of individuals who take frequent and large amounts of MDMA for an extended period". It is difficult to refute this as the terms 'frequent', 'large' and 'extended' are not qualified, but there is reason to believe that in Britain, heavy

patterns of use are a phenomena in at least a minority of individuals and indications that many may be maintaining regular use:

Firstly, clinicians are describing prolonged, intensified use in individuals who have become psychiatrically unwell (e.g. Creighton, Black & Hyde, 1991; McGuire, Cope & Fahy, 1994; Schifano & Magni, 1994). However, such use may only pertain to the small minority of users who present to professional services, or may be symptomatic of mental health problems;

Secondly, there are hints that amongst non-clinical populations, some users are taking E regularly. Newcombe (1992), estimates that ravers may use 1 to 2 tablets on a weekly to monthly basis. Winstock (1991) reports on a group of 89 users in London, of whom a third used Ecstasy weekly and a minority had weekend 'binges', when up to 20 tablets were consumed. However, it is not clear if these estimates pertain to representative samples of Ecstasy users and, given its short history in this country, it remains to be seen how long users will continue to take the drug.

Pharmacology and neurotoxicity

MDMA has two distinct actions on the central nervous system (CNS): an acute, neuropharmacological effect and a chronic neurotoxic effect i.e. the drug causes short-term, chemical changes and long-term, structural changes in the brain (for reviews see Green, Cross & Goodwin, 1995; Steele, McCann & Ricaurte, 1994). The acute effect is an alteration in the transmission of the monoamines serotonin (5HT) and dopamine. Primarily, MDMA stimulates the release of 5HT and blocks its post-synaptic uptake, resulting in increased quantities of 5HT in the synaptic cleft. Structurally, animal studies have shown that metabolites of MDMA cause destruction of axons and terminals in central serotonergic neurons at doses equivalent to those taken by humans. Neurotoxicity follows both single large doses and multiple lower doses (Ricaurte et al, 1988a). Specific types of axons show differing vulnerability to MDMA and damage seems to be located primarily in

dorsal regions of the cerebral cortex (Wilson et al., 1993). Regeneration has been observed but this seems to be limited to certain areas and in some structures, regrowth is disorganised and results in permanent morphological changes (Fischer et al., 1995).

As no method of exposing serotonergic neurotoxicity in living brains is available, there is no conclusive evidence that MDMA leads to pathology in humans (McCann et al., 1994). However, there are a number of indications that this may be the case. Notably, a greater effect is found in primates than in rodents, and such a relationship is predictive of an even greater human susceptibility (Ricaurte et al., 1988b). There is also some indirect evidence of reduced serotonin function in humans, following MDMA-use, from measurements of the serotonin metabolite 5HIAA in the cerebrospinal fluid; a procedure which provides some indication of cerebral levels of the neurotransmitter (Ricaurte et al., 1990; McCann et al., 1994). Peroutka (1989) believes that the change in subjective effects with repeated administration of the drug is in itself evidence of long-term and "potentially irreversible" alterations in the brain.

In conclusion, it seems likely that MDMA-use leads to structural brain damage in humans. However, it is not certain how much exposure to the drug is required, nor whether there will be behavioural manifestations.

Long term psychological disturbance

Serotonin is thought to play a role in the pathophysiology of anxiety and depression (e.g. Garvey et al., 1995; Meltzer & Lowy, 1987) and it has, therefore, been predicted that psychological disorder is a likely consequence of the serotonin deficits induced by MDMA (McCann & Ricaurte, 1995). It should be emphasised that it is chronic problems which are being anticipated, as opposed to the short-lived, post-intoxication symptoms which seem to follow use of Ecstasy (see above). However, to date, there is little evidence to suggest that this is the case. Controlled studies of human subjects are precluded because of the drug's illegal

status and potential dangers, and there exists only very limited information on recreational users.

Following Ecstasy-use, 'psychiatric symptoms' were among the most common complaints recorded in calls to the Poisons Information Centre in Dublin over an 18 month period between 1991-1992 (Cregg &Tracey 1993). Also in Dublin, the National Drug Treatment Centre dealt with 163 Ecstasy-users complaining of apparent psychiatric disturbance, including panic, anxiety, paranoia and psychosis in 1992 (Keenan, Gervin & Dorman, 1993). However, it is not clear whether the problems were chronic or temporary and they may simply reflect distress at the immediate or 'come-down' effects of the drug.

Two surveys of volunteer, recreational Ecstasy-users, have found a low rate of psychiatric disturbance (Beck & Rosenbaum, 1994; Solowij et al., 1992). However, standardised screening instruments were not administered and the questions asked might not have been sensitive to problems of this nature. It is also possible that adverse reactions are linked to level of use and that the respondents in these studies had not had sufficient exposure to the drug.

Clinical case studies

Clinical cases have been cited as evidence of a link between MDMA and psychopathology (e.g. Henry, 1992). Most reports describe psychotic reactions but these may result from individual susceptibilities to the general psychoactive properties of MDMA, as occurs with other stimulants and hallucinogens (e.g. Poole & Brabbins, 1996; Vardy & Kay, 1983). Of more concern here, however, is the question of whether there is any support for the suggestion that MDMA is associated with less severe psychopathology i.e. long-term anxiety and depression, as a result of its specific action on the serotonergic system. A literature search of English-language papers, using CD-ROM Medline and Psychlit revealed 16 cases of anxiety and/or depression, not complicated with psychotic symptoms, which were reportedly linked to Ecstasy-use (Appendix 2.2).

There are a number of difficulties in drawing conclusions about the relationship between psychiatric disturbance and drug-use based on these case studies. In only a few instances were attempts made to verify drug-use using means other than witness or self-reports and even then the methods used were only sensitive to very recent drug use, and sometimes incapable of distinguishing MDMA from like-substances. It has been argued that the timing of MDMA-use and the onset of disturbance supports a link, (e.g. Benazzi & Mazzoli, 1991; McCann & Ricaurte, 1991; McCann & Ricaurte, 1992) but this is only reasonable when infrequent doses have been taken: the more often an individual takes the drug the more likely a chance association will occur (Poole & Brabbins, 1994). Also, cases are of an age when initial onset of neurotic and psychiatric problems is not unusual. Thus, the 'illness' and drug-use may be coincidental or the 'illness' may have led to the drug-use, rather than the reverse (Poole & Brabbins, 1996).

There is some indication that the development of anxiety disorders may be related to the short-term rather than the chronic effects of MDMA. Although it is not known how much exposure to MDMA is likely to cause significant neuronal depletion in humans (Ricaurte et al., 1988a) it would seem probable that symptoms emerging soon after ingestion of a first-ever dose of Ecstasy are a consequence of the pharmacological rather than the neurotoxic effects of the drug. Cases 4 and 14 fit this presentation. A possible explanation for this can be found by looking to a theory proposed to account for the development of panic, not specifically associated with drug-use. Thus, panic is seen to arise from the 'catastrophic' misinterpretation of the physiological symptoms of increased arousal which result from normal anxiety (Clark, 1986). These symptoms are similar to those that follow Ecstasy ingestion and it is conceivable that the latter might also be perceived as frightening and induce a panic attack. Given the right conditions, acute anxiety reactions might also occur in individuals who have a more extensive history of MDMA-use and who have not previously had an adverse reaction to it (e.g. case 15).

It is not possible to attribute psychiatric disturbance to MDMA-induced neurotoxicity without establishing that such damage has occurred. As mentioned above, 5HT cell-damage cannot be confirmed except at post-mortem, but in none of the cases were 5-HIAA levels measured to provide an indication. With this limitation in mind, the case for a link between Ecstasy and psychopathology would be strengthened by the presence of individuals in whom there was little reason to suspect that mental disorder would have developed without MDMA. Selecting cases following more than a single dose of MDMA, where sufficient information is provided to suggest that there was no psychiatric history and no significant use of other drugs around the time of presentation (but including those whose cannabis-use was recorded as prolonged, with no prior ill-effects) there are three reported cases of mood disorder (1, 2, 10) and one of anxiety (9). It should also be noted that life events were not mentioned in any case.

Why so few, given the prediction from animal studies? The reasons can only be speculated upon:

1. Cases may not be presenting to psychiatric services (McGuire et al., 1994).
2. Cases may be presenting but are not being attributed to Ecstasy use.
3. Cases are not being reported.
4. The functional consequences of structural damage may be delayed and it may only be in years to come that problems emerge (Green and Goodwin, 1996).
5. The prediction from animal studies may be wrong: MDMA may not lead to structural brain changes in humans; or, any degeneration caused may not be significant enough to have clinical consequences.
6. The relationship between serotonin and psychopathology may have been misunderstood. For example, the deficiency model may be an oversimplification of the relationship between the two (Golden & Gilmore, 1990).
7. Anxiety and depression as a consequence of MDMA use may be rare (McGuire et al., 1994); perhaps mediated by protective factors and individual susceptibilities. The clinical cases with a reported predisposition to psychiatric disturbance suggest

that psychopathology may be triggered in vulnerable people, although most are complicated by the use of other drugs.

Conclusions

In comparison to Ecstasy-use abroad, there are indications of heavier and more regular use in this country. More information is required to establish the generality of this and whether people reduce, maintain or increase their levels of use over time. Regarding the long-term effects of MDMA, the evidence of CNS damage is convincing, but the functional consequences are uncertain. There is little to substantiate the theory of an association between MDMA-induced neurotoxicity and minor psychopathology but this may simply reflect a lack of research attention. Large-scale community-based surveys are required to assess patterns of use and the prevalence of psychological disorder in the non-clinical, Ecstasy-using population.

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Chapter 3: Major Research Project Proposal

Is the use of 3,4-methylenedioxymethamphetamine (MDMA or 'Ecstasy') associated with psychological disturbance?

RESEARCH PROJECT PROPOSAL

Applicants

Principal researcher - Ruth Stocks, Dept. of Psychological Medicine, University of Glasgow.

Supervisor - Dr Anna Stallard, Dept. of Psychological Medicine, University of Glasgow.

Title

Is the use of 3,4-methylenedioxymethamphetamine (MDMA or 'Ecstasy') associated with psychological disturbance?

Summary

The use of 3,4-methylenedioxymethamphetamine (MDMA or 'Ecstasy') is now widespread amongst young people but, as yet, little is known about the long-term effects of the drug. Clinical reports and animal studies predict the possibility of an association between the use of MDMA and psychological disturbance. However, the evidence from non-clinical, human populations is limited and inconclusive. In particular, the effects of different patterns of Ecstasy-use have received little attention. The aims of this study are to investigate the theory that there may be a link between MDMA and psychopathology, and to consider how this might be mediated by different patterns of use. It is anticipated that the results obtained will also expand currently limited knowledge on patterns of Ecstasy-use in this country and the long-term psychological effects of the drug.

Introduction

Recent reports indicate that the illicit drug 3,4-methylenedioxymethamphetamine (MDMA), commonly known as 'Ecstasy', is now in widespread use amongst young people (e.g. Merchant & Macdonald, 1994). The immediate effects of ingesting Ecstasy have been well-documented (e.g. Liester et al., 1992; Saunders, 1995) but much has still to be learned about the long-term effects of the drug.

Animal studies conducted to study its mode of action and physiological consequences have found that Ecstasy acts primarily on the serotonergic system and damages central serotonergic neurons (reviewed by Steele et al., 1994). There are strong indications of a similar outcome in humans (McCann et al., 1994; Ricaurte et al., 1990) but it is not clear what the functional implications of this are. Serotonin is thought to be involved in the pathophysiology of anxiety and depression and, therefore, an association between the use of MDMA and the development of psychological disorder has been predicted (McCann & Ricaurte, 1995).

Some clinical evidence suggests that there is a link, with a variety of psychiatric complications having been cited as a consequence of Ecstasy-use (e.g. Creighton et al., 1991; McCann & Ricaurte, 1992; McGuire & Fahy, 1991). However, the number of clinical case studies reported is very small, relative to the large numbers who apparently use the drug. Also, cases of severe psychopathology, e.g. psychosis, are more frequently cited in the literature than less severe disturbances, e.g. anxiety disorders. As McGuire et al. (1994) suggest, this may be because psychopathology as a consequence of MDMA use is rare, or because less severe mental health problems do not come to the attention of clinicians. These authors advocate large-scale, community-based surveys to investigate the presence of psychopathology in the Ecstasy-using population.

Two surveys of recreational Ecstasy users; one in the United States and one in Australia, have found a low rate of psychiatric disturbance (Beck & Rosenbaum, 1994; Solowij et al., 1992). However, few of the respondents in either sample had

taken Ecstasy as regularly as many British users are believed to do (Saunders, 1995) and standardised screening instruments were not employed.

The influence of aspects of MDMA-use merits attention. Based on studies of Ecstasy-users in the U.S. and Australia, it is said that use of Ecstasy is not 'compulsive' (e.g. Beck & Rosenbaum, 1994; Solowitz et al., 1992). Apparently, with increasing frequency of use or increasing dosage, unpleasant, subjective effects begin to outweigh pleasurable ones, and as a result users reduce their use of the drug. However, there are indications that some people in this country take multiple doses and many may at least maintain constant doses at regular intervals (Newcombe, 1992; Saunders, 1995; Winstock, 1991). Others, it seems, supplement Ecstasy with other drugs to enhance or sustain the positive effects (Forsyth, 1996; Merchant & Macdonald, 1994). It remains to be seen how different patterns might be associated with negative, long-term psychological effects.

In summary, evidence regarding an association between the use of Ecstasy and the development of psychological disorder is limited and inconclusive. The intention of this study is to investigate the theory that there might be an association, by conducting a community survey. Different aspects of Ecstasy use (current or previous use, frequency, quantity, duration, the taking of other drugs in combination and the severity of psychological-dependence on Ecstasy) will be assessed and factors thought to be related to general ill-health or psychiatric disturbance in drug-users, rather than drug-use in itself (Greer & Tolbert, 1986; Hammersley et al., 1992) will be controlled.

Aims

The aim of the study is to investigate the theory that there may be an association between the use of or, aspects of use of, MDMA and psychological disturbance. In doing so, it is expected to provide useful information on patterns of Ecstasy-use in Scotland.

Research questions

Do rates of psychological disturbance differ between Ecstasy-users and polydrug-users who do not use Ecstasy?

Are levels of psychological disturbance related to the frequency, quantity and duration of Ecstasy-use?

Research Method and Design

Pilot study

A pilot study is currently being carried out to assist in the design of the questionnaire and to assess the feasibility of different methods of data collection.

Design

Investigation of the long-term functional consequences of Ecstasy-use is beset with problems. Experimentally-controlled, clinical trials, are precluded because the substance is illegal, and because of the suspicion of harmful effects. The illegal status of the drug also effectively renders recreational Ecstasy-users a 'hidden' population and thus there are difficulties in obtaining representative samples (Biernacki & Waldorf, 1981). It is also difficult to verify people's drug-histories. Toxicological techniques such as urinalysis only provide information on recent drug-use; hair analysis is time-consuming and detects only the presence of drugs and not quantities consumed (Strang et al., 1993). Potential subjects may be dissuaded from participating in such approaches if concerned about confidentiality. Validity studies tend to suggest that self-reports are reliable and provide more complete information than official records (Hammersley, 1994). Self-reported histories of drug-use, therefore, provide the most practical source of obtaining information from large samples and are widely used in this field. Although estimates of lifetime quanitites may not be entirely accurate, it is likely that they can be rank ordered (Hammersley, personal communication; Smart et al., 1980).

Questionnaires allow for the largest possible sample size in a restricted time period and give better access to subjects who might be reluctant to be interviewed. They are also a more practical means of obtaining information than interviews.

Possible methods of data collection

The 'snowballing' technique where drug-users who can be recruited pass on questionnaires to their own personal contacts, is an established method in the field of drug research (Biernacki & Waldorf, 1981; Morrison, 1988) and has been successfully used in surveys of recreational drug-use in Scotland (e.g. Forsyth, 1996; Morrison, 1989; Morrison & Plant, 1990). It allows access to 'hidden' populations and people who might be reluctant to face a researcher. It is not claimed that this method produces a representative sample of the population being studied but given the sensitive nature of the research and the impracticality of contacting a representative sample of all members of the community to then focus on drug users, it is considered an acceptable means of recruitment.

Recruiting drug-users at clubs, raves and outdoor dance events would allow access to large numbers of subjects. However, people might be too intoxicated to complete the questionnaire reliably at the time, or might be reluctant to participate due to concerns regarding confidentiality. It might be possible to recruit participants to begin 'snowballs' by talking to individual members at these events and arranging to contact them later. These questions will be addressed in the pilot study.

Subjects

Inclusion criteria: Anyone who has previously or currently taken any illegal drug, other than cannabis.

Exclusion criteria: Previous intravenous drug-use.

Through discussion with other drug researchers, it was felt that the lifestyles and personal characteristics of people who had never used drugs would be so different from Ecstasy-users as to render them an inviable control group. Similarly, the

injecting population were considered an unsuitable match and so excluded. As Ecstasy-users tend to be polydrug-users (Forsyth, 1996), the preferred research design would involve a control group of non Ecstasy-using, polydrug-users. However, previous attempts have been unsuccessful in this regard: it would seem that there are too few people who take the same amount of other drugs as Ecstasy-users, but who have never tried MDMA (Shewan & Hammersley, personal communication). It is anticipated that the pilot study will indicate the potential for recruiting a satisfactory control group.

The aim is to receive 500 completed questionnaires.

Contacts have been established with bar managers, club organisers, drug researchers and drug workers for access to recreational drug-users who will begin the 'snowballing' recruitment, if this is the preferred option for data collection. These initial subjects will hand out and collect questionnaires from their own contacts, and return them to the principal researcher.

If the collecting of data at clubs and raves proves feasible, questionnaires will be handed out by the principal researcher, who will be accompanied by at least one assistant.

Measures

A questionnaire relating to demographic information, psychiatric history, parental psychiatric history and drug use has been designed but may be altered in response to findings of the pilot study.

An indication of SES will be taken from level of education and predisposition to psychiatric disturbance will be assessed by asking respondents if they or their parents have ever received treatment for mental health problems. Personality will be assessed using the survey form of the Eysenck Personality Questionnaire (EPQ) (Eysenck et al., 1985). The screening measures for psychological disturbance will be the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983) and the 28-item General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979)

both of which have been well-validated as screening measures with non-clinical populations. Both scales were chosen because they each cover different time periods, and, as such, the possible confounding effect of acute, post-intoxication depression (Poole & Brabins, 1996) could be considered.

The Severity of Dependence Scale (SDS) (Gossop et al., 1995) will be used as a measure of psychological dependency on Ecstasy. This scale has not been validated with a population of Ecstasy-users but the authors of the scale consider that it is applicable to users of a variety of illegal drugs. It was selected to allow comparisons to be made with the research findings of other, currently ongoing studies of Ecstasy which include the scale (Shewan, personal communication).

Data analysis

Data will be collated and analysed using the Statistical Package for the Social Sciences. Differences in psychological disturbance, as measured by actual scores on the HADS and GHQ subscales, will be assessed between the groups of Ecstasy-users and non-users. Scores on the subscales will also be correlated with aspects of Ecstasy-use, while controlling for level of education, psychiatric history and dimensions of personality.

Practical applications

The results of this study are expected to expand currently limited knowledge of the association between MDMA-use and psychopathology which is predicted from animal research. The study will also provide information on patterns of MDMA-use in Scotland.

If the use of Ecstasy is associated with psychopathology there is likely to be an upsurge in demand for clinical care (Henry, 1996). In the same way that excessive alcohol use is a contra-indication for psychological treatments of anxiety, interventions with Ecstasy-users who present with psychological difficulties may not be of benefit. The results of this study should generate information for further

research in this regard. It is anticipated that the results of this study will also be of use to those whose aim it is to educate drug-users and potential drug-users on the harmful effects of drugs, with regard to patterns of use which might be particularly problematic.

Ethical approval

Following discussion with other drug researchers, and an approach to the ethics committee at Gartnavel Royal Hospital, it was felt that formal ethical approval need not be sought. This judgement was based on the fact that subjects were to be recruited from a nonclinical population, with voluntary participation in the study, and most respondents never having to face a researcher. Further, no identifying details were to be recorded.

Timescales

	Expected date of completion
Literature review	01.09.96
Data collection	31.01.96
Data collation	31.05.97
Data analysis	31.05.97
Final written presentation	31.07.97

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Chapter 4: **Major Research Project Paper**

Ecstasy: patterns of use in Scotland and psychological disturbance

Written for submission to *Addiction*

(see Appendix 2.1 for Notes for Contributors)

Title - Ecstasy: patterns of use in Scotland and psychological disturbance

Short title - Ecstasy-use and psychological disturbance

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Ecstasy: patterns of use in Scotland and psychological disturbance

RUTH STOCKS

Abstract

Aims. The aim of the study was to assess patterns of Ecstasy-use in Scotland's two major cities and to investigate the predicted association between MDMA and psychological disturbance. **Design, Setting and Participants.** A survey was conducted using self-report questionnaires, distributed by 'snowballing' to recreational, polydrug-users in Edinburgh and Glasgow. **Measurements.** Psychological disturbance was measured using the Hospital Anxiety and Depression Scale and the 28-item General Health Questionnaire. **Findings.** Most of the sample had been using Ectsasy for over five years and almost 20% used it at least weekly. Although the majority usually took no more than a single dose, nearly 10% took two and a half or more tablets on each occasion and over 10% had taken more than five tablets at a time. No differences were found between a subgroup of 20 Ecstasy-users and a matched group of polydrug-users who had never tried Ecstasy, on scores of psychopathology. Heaviness of use in the previous year accounted for a very small but significant percentage of the variance in scores for depression and social dysfunction. **Conclusions.** Regular use of the drug was found to be more widespread in the sample than has been found elsewhere, and, contrary to previous reports, there was no indication of a tendency to limit use of Ecstasy with time. Heavier levels of Ecstasy-use may be associated with depressive symptomatology and social dysfunction.

Introduction

The illicit drug 3,4-methylenedioxymethamphetamine (MDMA), commonly known as 'Ecstasy', or simply 'E', is used recreationally by huge numbers of young people in Britain today (Merchant & MacDonald, 1994; Saunders, 1995). As yet no surveys in this country have looked at how much, how often and for how long, people use the drug. Further, although the immediate consequences of ingesting E are well-documented (e.g. Beck & Rosenbaum, 1994) much has still to be learned about its long-term effects.

Based on samples of E-users in the U.S. and Australia, it is said that use of Ecstasy is not 'compulsive' because users report reducing their use over time, rather than taking multiple or more frequent doses (Beck & Rosenbaum, 1994; Siegel, 1986; Solowij, Hall & Lee, 1992). However, there is reason to believe that in Britain, amongst non-clinical populations, maintained, regular use may occur (Newcombe, 1992; Winstock, 1991).

There is now overwhelming evidence of central, serotonergic damage in MDMA-treated animals, with indications of similar neurotoxic effects in humans (for review see Green, Cross & Goodwin, 1995). Given that serotonin is implicated in the pathophysiology of anxiety and depression, an association between MDMA and psychological disturbance has been predicted (e.g. McCann & Ricaurte, 1995). To date, there is little support for this hypothesis (see Review, this volume). Evidence from case studies is limited and inconclusive and research in non-clinical populations is insubstantive. Further, the extent to which functional consequences might be influenced by different patterns of use is unclear.

The aims of this study were: 1) to provide descriptive information on patterns of Ecstasy use in Scotland; 2) to investigate the theory that there might be a link between psychological disturbance and MDMA-use, and; 3) to consider whether psychological disturbance might be mediated by levels of use.

Method

Pilot study

A pilot study was conducted to assist in the design of the project (see Appendix 3.1).

Design

The study was a survey conducted by self-report questionnaire. A subgroup of Ecstasy-users were compared with a group of non-users using a matched-pairs design. For the whole sample of E-users, relationships between psychopathology and aspects of E-use were assessed using regression analyses. Personality, level of education and self and family psychiatric history; factors thought to be related to psychopathology and general ill-health in drug-users (Greer & Tolbert, 1986; Hammersley, Lavelle & Forsyth, 1992) were controlled.

Measures

The questionnaire included demographic information, previous and parental psychiatric history, and drug use (Appendix 3.2). Patterns of Ecstasy use were assessed in terms of frequency in the previous week, month and year, usual dose and greatest quantity ever taken, duration, intention to use again and other drug-use. The Severity of Dependence Scale (SDS) (Gossop et al., 1995) was used as a measure of psychological dependence on Ecstasy. Dimensions of personality were assessed using the survey form of the Eysenck Personality Questionnaire (EPQ) (Eysenck, Eysenck & Barrett, 1985). Measures of psychopathology were the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) and the 28-item General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979).

Sample

Subjects were recruited using the 'snowballing' technique which has been successfully used in surveys of recreational drug-use in Scotland (e.g. Forsyth,

1996; Morrison, 1989; Morrison & Plant, 1990). Initial contacts were recruited at clubs and pubs in Edinburgh and Glasgow. In addition, a number of people known to drug workers and researchers in these cities were 'referred' to the investigator. In all, 200 people were each given five questionnnaires. 75 contacts returned a total of 280 completed forms (no-one returned fewer than two, and nearly half returned all five). Of these, 41 were excluded on the basis of having injected drugs and two excluded whose illicit drug use seemed to be limited to cannabis. Five further questionnaires were excluded because they were not sufficiently complete. Of the remaining 232 subjects, there were 207 Ecstasy-users and 25 non-users. There were 120 male and 87 female E-users, ranging in age from 14 to 45 (Table 1). Most were either in full-time employment or education, and the majority had been educated beyond secondary school level. The demographic characteristics of the sample are similar to those of another study of drug-use in the dance scene in Glasgow (Forsyth, 1996), except that this sample comprised far fewer unemployed. However, Forsyth did not report the numbers of students in his group and it is possible that his unemployed figures included students.

20 of the 25 non Ecstasy-users were matched to users on the basis of sex, age (Appendix 3.3), psychiatric history, dimensions of personality and other drug use. Selection of the subgroup of Ecstasy-users was randomly made, where necessary, although in many cases only one case matched a non Ecstasy-user. The remaining five could not be matched and were, therefore, excluded from the analysis. The subgroup of Ecstasy-users selected did not differ significantly from the rest of the Ecstasy-using group in terms of duration, frequency and usual quantity of Ecstasy-use (Appendix 3.4).

Insert Table 1

Results

Patterns of use

More than half the sample (52.8%) had started using Ecstasy at least five years ago (Fig. 1) and 85.5% of users said that they intended to continue taking the drug. There was no significant diffference in duration of use between those who did and those who did not intend to use again (t=-0.41, df=198, n.s.). Figures for the number of occasions Ecstasy had been taken in the last year are presented in Fig. 2. In order to draw comparisons with descriptions of Ecstasy-use from other studies these figures can be interpreted in terms of weekly/monthly use. (Although it is possible that people's annual intake was not spread evenly over the year, a high and significant correlation between estimates of yearly and monthly intake of Ectsasy (r_S=0.74; p<0.001) suggested that this was a justifiable means of translating the data.) Of those who had used E in the last year, 45.1% of respondents claimed to have taken it more than monthly (i.e. over 12 times). Of them, 18.6% said that they used it once to twice per week, and nearly 8% even more often. This contrasts with findings from abroad. In an American sample, just over 3% of 495 E-users took Ectsasy between 1 and 4 times per month (Siegel, 1986) and in an Australian group, 24% were found to be using the drug more often than once a month (Solowij et al., 1992).

Insert Figs. 1 & 2

In the preceding week, 78 (37.7%) of the participants had taken Ecstasy; most on either the Friday or Saturday. 23 people (11.1%) reported having taken it on any day between Sunday and Thursday, and of them, 13 had also used it on at least one weekend day. Most people (57.5%) tended to take one tablet or less each time, but nearly 10% reported using two and a half or more doses per occasion (Fig. 3). Almost a quarter of the subjects had never taken more than a single dose at any one time, but more than 10% had on occasion taken more than five tablets (Fig. 4).

Insert Figs. 3 & 4

Correlations between the different aspects of E-use are shown in Table 3. While it is possible that people who started using Ecstasy in this country years ago were taking more of it than people starting more recently, there is no reason to believe that this is the case. Therefore, if E-users do reduce their intake of the drug with time, it would seem likely that there would be a negative correlation between duration of use and frequency of use and/or usual quantity. This was not so. Rather, there was a small, but definite *positive* relationship between duration of use and usual dosage, and virtually no association between duration and frequency of use in the previous year (see Martin & Bateson, 1993 for interpretation of correlation coefficients). Further, it seems that the more frequently people use Ecstasy, the greater the usual quantities taken.

Insert Table 3

In addition to Ecstasy, all members of the sample had tried other illegal drugs. There were high rates of other drug-use in the previous month and many people ingested other substances at the same time as Ecstasy (Appendices 3.5 & 3.6). In particular, cannabis and alcohol were used most or every time by the majority of respondents, and fewer than 20% had never used amphetmaine with Ecstasy.

Dependency

The mean score for psychological dependency, as measured by the SDS was 1.40 (s.d.= 1.89, range 0 - 13). Out of a possible maximum of 15, a score of more than four is considered indicative of problematic amphetamine-use (Topp & Mattick, 1997). 6.5% of this sample scored over four, with 39.1% scoring zero. The maldistribution of scores suggests either that psychological dependence on Ecstasy is an extremely rare phenomenon or that the SDS is not a suitable instrument for

Ecstasy. However, the 6.5% reporting what could be considered problematic use suggests that the potential for psychological dependence on Ecstasy does exist.

The SDS scores showed a substantial positive relationship with frequency of use, a small but definite relationship with usual dose and an almost negligible association with duration of use (Table 3).

Psychopathology

Ecstasy-users vs controls

Based on the thresholds found to give the best sensitivity and specificity (Goldberg & Hillier, 1979; Zigmond & Snaith, 1983), scores of 11 or more on the HADS and five or more on the total GHQ score were considered to have achieved 'caseness'. The numbers of subjects in each group who reached caseness did not differ significantly from expected frequencies. There were also no significant differences between the groups in actual scores on any of the subscales (Appendix 3.3).

Aspects of Ecstasy-use

The relationship between patterns of Ectsasy-use and levels of psychopathology was assessed using multiple regression techniques. For all 7 subscales from the HADS and GHQ (including GHQ-total), the variability in scores accounted for by the control variables (self and family psychiatric history, level of education and dimensions of personality) was removed using direct regression procedures, to produce standardised residual scores (Appendix 3.7). These 7 residualised scores were then regressed on two predictors: duration and heaviness of Ectsasy-use. The variable 'heaviness' was created by multiplying usual dose of Ecstasy by the number of occasions taken in the year. Those who had not used E in the year were excluded from the figures for duration of use. Both variables were entered simultaneously in order to look at the effects of each without the other (Table 2). A listwise deletion of missing variables explains the reduced number of subjects in the analyses. On each of the HADS-depression, GHQ-depression, GHQ-social

dysfunction and GHQ-total subscales, there was a significant, positive effect of heaviness and a nonsignificant effect of duration. Heaviness accounted for about 5% of the variance in severity of scores each time. The consistency with which heaviness, but not duration, was associated with these four subscales is a strong indication that the results are significant and meaningful. No significant effects were found for the HADS-anxiety, GHQ-anxiety or GHQ-somatic subscales.

Insert Table 2

A recent study in the U.K. has suggested that some people suffer depressed mood in the days following Ecstasy-use, but that this may be short-lived and attributable to either short-term pharmacological effects of MDMA or to perceptions that the rest of life is dull, in comparison to the experience of being on Ectsasy (Curran, 1997). Due to the possibility that the symptomatology reported in the present study related to a post-intoxication 'come-down', rather than long-term neurotoxic effects, an analysis of differences in psychopathology scores between participants who had used Ecstasy in the previous week and those who had not was carried out. No significant differences emerged (Appendix 3.8), suggesting that, as intended, the measures were more sensitive to general feelings over the preceding days (HADS) and weeks (GHQ) than to a short-lived experience.

Discussion

The present study has a number of limitations inherent in surveys of recreational drug-use. Self-reported drug histories are subject to the inaccuracies of memory and there is always the possibility that substances believed to be Ecstasy are either contaminated or contain no MDMA. However, it has been reported that the quality of MDMA tablets being sold in Britiain has improved in recent years in response to users switching to other drugs when diasppointed with the quality of MDMA

(Saunders, 1995). Also, it is still likely that people claiming greater use of Ecstasy are consuming relatively more than those reporting lower levels of use.

Patterns of use and dependency

The Ecstasy users in this sample can be characterised as polydrug-users who are, generally, young, highly educated and in employment or education. Although this description matches another study of Scottish drug-users in a similar setting, it is possible that the snowballing method of recruitment, employed in both projects, produced a sampling bias. Certainly, those people claiming to use up to 10 tablets on a daily basis, who have been encountered in clinical practice (personal experience; Jansen, 1997) did not seem to be represented.

The most important findings of this study are the identification of a tendency towards heavier patterns of Ecstasy-use in Scotland, relative to abroad, and the implications for the belief that use of Ecstasy is not compulsive ('compulsive' being used to mean an increase in dosage or frequency of use, in response to the development of tolerance). The results show regular (more than monthly) use of Ecstasy by a much greater proportion of the sample than has been found in the U.S. and Australia. It also seems that there is little relationship between how long people have been taking the drug and how often they use it or how much of it they take each time. If anything, there is a suggestion of a slight tendency for ususal dose to increase with duration of use. Further work is required to look at individual variation in patterns of use over time and to identify determinants of this. The majority of participants in this project were recruited through the dance scene and it may be that use of Ecstasy is tied to this in such a way that as people's lifestyles change they frequent clubs less often and as a result take less Ecstasy. The extent of Ecstasy-use outwith the dance scene then also merits attention. A substantial positive relationship was found between how frequently people take Ecstasy and how much they tend to take each time. The correlational design employed does not allow for conclusions to made about whether the two are causally related, or whether a third

factor links them both, but the possibility exists that users who take Ecstasy frequently, increase their dosage to combat the development of tolerance to MDMA: a phenomenon which has not previously been considered.

The results from the SDS suggest that psychological dependency is rare. It may be that, for most, desire to take the drug is linked to being in a certain setting, e.g. at weekends, at dance clubs, and that removed from this, there is no craving for it. It is of interest to note, however, that several respondents noted on their questionaires that they had not worried about missing a dose of E, or found it difficult to go without, because they had never had to. Hence, it remains a possibility that if E was not so readily-available, more users might report greater psychologically dependency. Certainly, a small minority reported what could be considered problematic use and this seems to be related to heavier patterns of use.

These findings are consistent with the model of addiction which stresses separate components of tolerance, withdrawal, and psychological compulsion to use a drug; whereby a person can be physically 'addicted' to a drug, in terms of having developed a tolerance to it, without feeling a great need for it, or without experiencing withdrawal symptoms (Gossop et al., 1995).

The explanation given by American and Australian researchers for their conclusion that 'compulsive' use of Ecstasy does not occur, is that unpleasant effects of the drug begin to outweigh pleasurable ones with repeated use or increasing dosage. If this is so, why might the Scottish users not have responded in the same way? It is possible that the so-called 'negative' effects are not perceived as such or are not sufficiently unpleasant to act as a deterrent. The particular setting in which the drug is taken may be relevant. Traditionally, American users, took Ecstasy with small groups of friends, primarily for its 'entactogenic' effects (see Review, this volume) (Beck & Rosenbaum, 1994; Randall, 1992a), whereas, in the U.K., E is used as an adjunct to rave dancing. In an environment where continual dancing is the aim, the persistent stimulant properties of E may provide reinforcement enough. There may also be something particular about the rave setting

which reinforces enjoyment of Ecstasy. It is known that certain physical problems can arise from the particular interaction between E and rave dancing i.e. long hours of dancing in hot crowded conditions, in conjunction with the disruption caused by MDMA to the body's thermoregulatory system, can trigger a hyperthermic reaction (Henry, Jeffreys & Dawling, 1992). Similarly, it may be that there is something about the combination of the two that attenuates the pleasurable aspects of the drug-taking experience, or, that provides another, as yet undescribed, positive dimension. However, the Australian sample were also ravers. Another possibility is that the positive experience of E is being maintained by the use of concurrent drug-use as many people in the sample reported taking other drugs at the same time as Ecstasy. It is not known, however, whether this phenomenon is restricted to this country as it was not considered in the studies abroad.

The identification of high rates of concurrent alcohol and other drug-use should also be of interest to drug-education workers, as it suggests that 'ravers' are not paying heed to the advice promoted in harm-reduction strategies (Saunders, 1995).

Psychopathology

Due to the difficulties of obtaining a truly representative sample and the small numbers of matched E-users and non-users it cannot be concluded that there is no association between psychopathology and MDMA. However, it would seem that if there is an effect it is not a very large one. The influence of other intervening variables, such as life events, not considered in this study, demands further attention. Also, the control variables accounted for in this study may not have been adequately measured. Self-reported family psychiatric histories are likely to have been underestimated (Andreasen et al., 1977) and level of education may not have been a sufficiently valid estimate of socioeconomic status, particularly given that the younger users in the sample may go on to further their education.

Taken in conjunction with the results from levels of use and psychopathology, it may be that a slightly greater effect would be found with a sample of heavy E-users.

The analysis of patterns of MDMA-use and psychopathology suggests that around 5% of the variance in increased levels of depressive symptomatology, social dysfunction and overall psychopathology, may be associated with heavier use of the drug. The small but consistent pattern of heaviness and not duration showing an effect on four subscales lends weight to the significance of these findings. However, conclusions regarding causality cannot be made, i.e. mental health problems may lead to increased drug-use rather than the reverse, or some other factor might link the two. Also, the large percentage of variance not accounted for in this study clearly indicates that there are greater influences determining the presence of psychological symptoms in this sample.

In this study, 'heaviness' of use referred to quantities of E taken in the previous year. Whether this reflects total lifetime dosage cannot be determined on the basis of the information collected, but it may be that total quantity of MDMA is the important factor. Ecstasy-users who continue to use the drug, may then increase their susceptibility to suffering from psychological problems in time.

The findings have implications for the research suggesting that human MDMA-users suffer depletion of central serotonergic neurons and the prediction that this will manifest as psychological disturbance. Clearly psychological disturbance is not an inevitable manifestation of MDMA-use, at the amounts so-far consumed by this sample. The results raise the possibility that greater lifetime quantities of Ecstasy may increase susceptibility to psychological problems, but this may still be mediated by protective factors and individual vulnerabilities. Alternatively, it may be that the functional consequences of structural damage are delayed and only in years to come will problems emerge (Green and Goodwin, 1996). Further research should be undertaken to monitor the progress of Ecstasy-users, in order that younger generations might be warned of potential dangers.

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	Males (n = 120)	Females (n = 87)
Age - mean ± s.d.	27.24 ± 4.88	25.37 ± 4.84
(range)	(19 - 40)	(14 - 45)
Occupational status - (%)		
Full-time student	25.0	32.2
Full-time, paid employment	55.0	49.4
Part-time student, part-time employed, unpaid employment	13.3	18.4
Not in education or employment	6.7	0
Educational qualifications - (%)		
None	5.0	2.3
'O' Grades/Levels; Standard Grades	10.0	4.6
Higher Grades; A Levels	16.7	21.8
Further education	35.8	24.1
Higher education	22.5	32.2
Post-graduate degree	10.0	14.9
Measures of Psychopathology - mean scores ± s.d.		(n=85)
GHQ-anxiety	0.95 ± 1.73	1.26 ± 2.02
GHQ-depression	0.41 ± 1.22	0.59 ± 1.50
GHQ-social dysfunction	0.86 ± 1.50	0.88 ± 1.44
GHQ-somatic symptoms	1.45 ± 1.90	1.47 ± 1.95
GHQ-total score	3.67 ± 5.06	4.20 ± 5.50

Table 1. Characteristics of Ecstasy-users

Measure of Psychopathology	Predictor	R^2 F (df)	Beta	T
HADS-anxiety	Heaviness	0.003	0.007	0.083
	Duration	0.26 (2,164)	-0.057	-0.726
HADS-depression	Heaviness	0.063	0.238	3.115**
	Duration	5.53 (2, 164)***	0.052	0.679
GHQ-anxiety	Heaviness	0.005	0.043	0.552
	Duration	0.39 (2,165)	-0.060	-0.767
GHQ-depression	Heaviness	0.055	0.237	3.094**
	Duration	4.84 (2, 165)**	-0.061	-0.794
GHQ-somatic symptoms	Heaviness	0.018	0.083	1.057
	Duration	1.52 (2,165)	-0.120	-1.535
GHQ-social dysfunction	Heaviness	0.044	0.184	2.392*
	Duration	3.82 (2, 165)*	-0.134	-1.741
GHQ-total score	Heaviness	0.037	0.167	2.166*
	Duration	3.19 (2,165)*	-0.125	-1.616

* $p < 0.05$ ** $p < 0.01$ ***$p<0.005$

Table 2. Patterns of Ecstasy-use and psychopathology

	Duration	Usual dose	Dependency (SDS score)
Frequency	.18**	.47***	.47***
Duration		.25***	.16*
Usual dose			.38***

*p<0.05 **p<0.01 ***p≤0.001

Table 3. Correlations (Spearman's rho) between aspects of Ecstasy-use and dependency

List of Figures

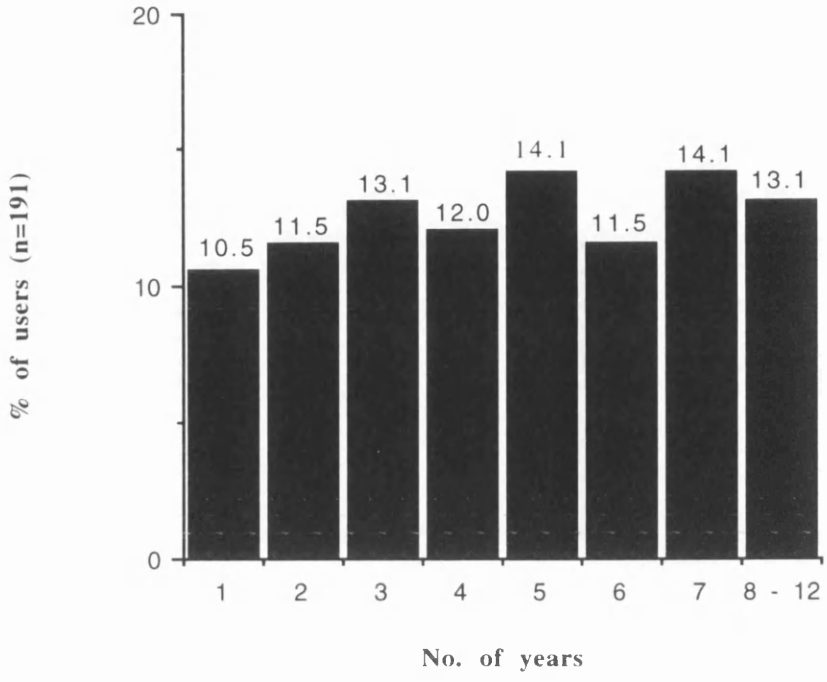

Figure 1. Duration of Ecstasy-use

(Excluding people who had not used Ecstasy in previous year, who also did not intend to use it again.)

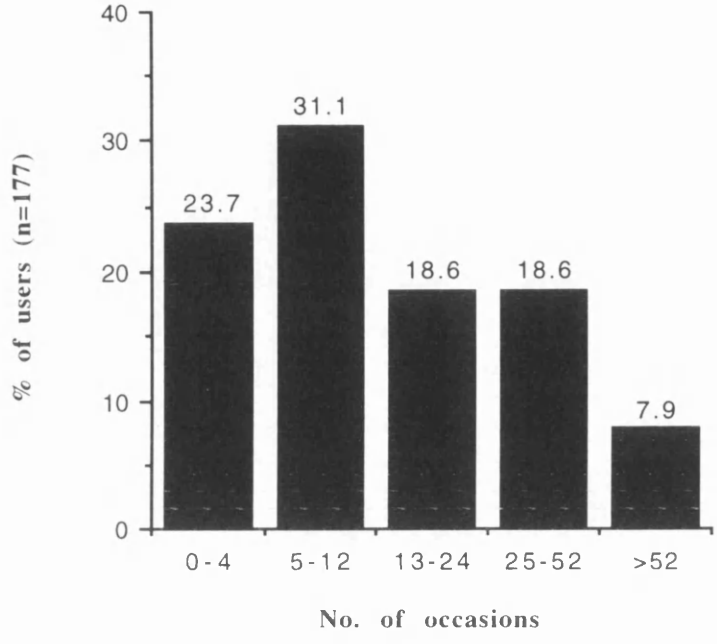

Figure 2. Frequency of Ecstasy-use in previous year

(Missing data for 28 subjects)

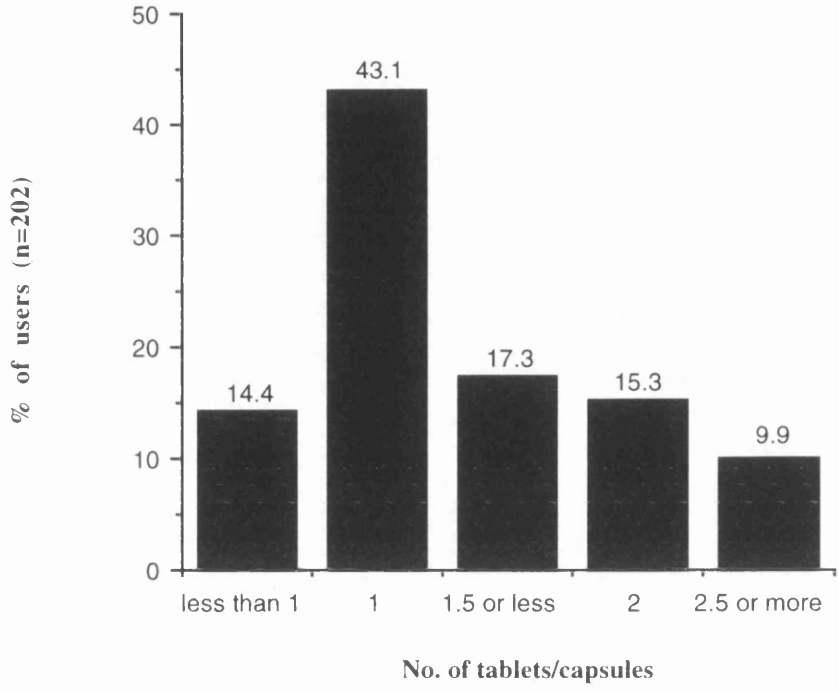

Figure 3. Usual quantity of Ecstasy taken on each occasion

(Missing data for 3 subjects)

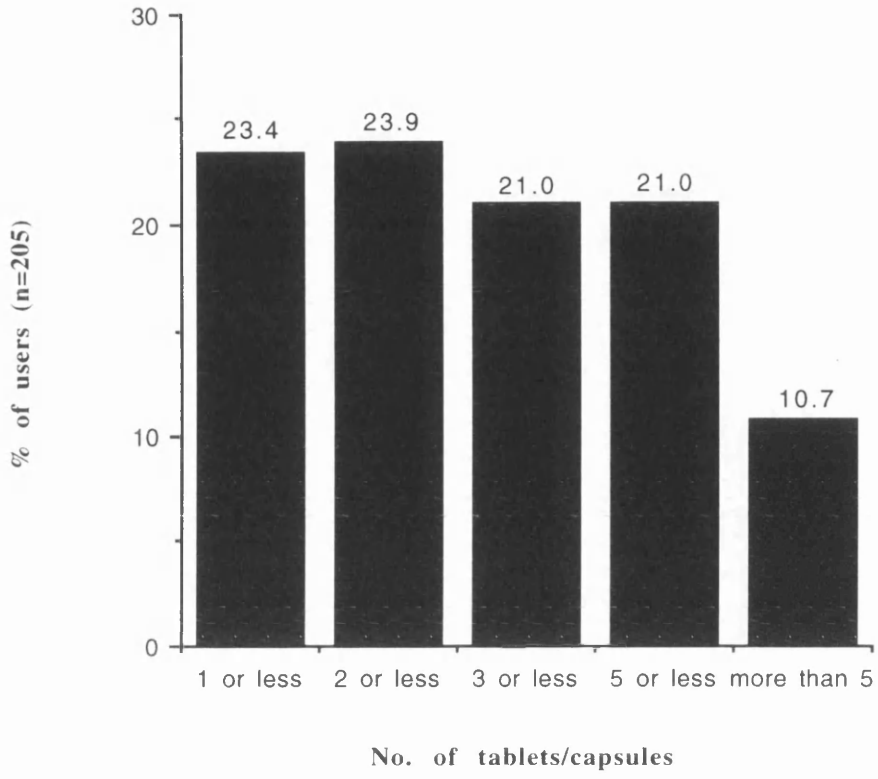

Figure 4. Greatest quantity of Ecstasy ever taken on a single occasion

Chapter 5: Three Single Clinical Case Research Studies

1. Treatment of post-traumatic symptoms in a teenage girl: a case report.

Written for submission to *Clinical Child Psychology and Psychiatry*

(see Appendix 4.1 for Notes for Contributors)

Treatment of post-traumatic symptoms in a teenage girl: a case report

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references - 302

Treatment of post-traumatic symptoms in an teenage girl: a case report

ABSTRACT

The report describes the psychological treatment of a teenage girl who presented with symptoms of anxiety and depression related to the death of her mother a year previously. A cognitive-behavioural treatment package was designed, incorporating a symptom-focused procedure aimed at alleviating sleep difficulties. The approach was successful, and suggests that methods used in the treatment of post-traumatic stress disorder in adults can be effective in adolescents suffering from stress reactions. Although it is difficult to ascribe change to specific treatment components, the case emphasises the value of considering a client's individual needs in planning a symptom-focused approach.

KEYWORDS

adolescent, post-traumatic, cognitive-behavioural, symptom-focused

Introduction

With the exception of sexual abuse, little information exists on the treatment of post-traumatic distress in children and adolescents (Yule, 1991). Relaxation to reduce anxiety and interventions aimed at sleep problems have been advocated for children who survive disasters (Yule, 1991), but the efficacy of such approaches remains to be established. Psychological interventions shown to be effective in the treatment of post-traumatic symptoms in adults combine cognitive and behavioural techniques (Foa et al., 1995; Thompson et al, 1995). Certain components of treatment packages constitute a holistic approach to the presenting syndrome of psychopathology whilst other strategies are designed to deal with individual symptoms. Thus, relaxation is used to reduce a general state of heightened arousal, whilst an exposure programme might be designed to deal with specific avoidance behaviours. Given the favourable response shown by the younger population to cognitive-behavioural techniques designed for adult use in the treatment of other anxiety and depressive disorders (e.g. Kendall et al., 1991), it is feasible to anticipate a similar outcome in regard to post-traumatic stress reactions.

This report describes an adolescent girl whose exposure to a prolonged, distressing situation in her home-life precipitated symptoms of anxiety and depression. She was referred to me while I was working as a psychologist at an outpatient department of adolescent psychiatry and I undertook a cognitive-behavioural package of treatment, focusing on the client's sleep problems.

Case Description

Background

L was a 15-year-old girl. She and her only sibling, a younger brother (R), had been brought up by their natural parents. One year prior to the referral, L's mother (Mrs B) had died.

Mrs B had been suffering from complications of diabetes and L had nursed her mother through a slow and painful death. On a number of occasions, L's

mother had tried to commit suicide and L had been forced to call out the emergency services. L varied her approach to caring for her mother according to her mother's changing moods. L would read her mother's diary for an indication of how she felt each day so that she would know how to respond. On days when her mother seemed very depressed, for example, L would be especially vigilant to the possibility of her mother trying to kill herself; staying home from school and hiding all the medication in the house.

In the year before Mrs B died, L's father had a child with a woman he had been having an affair with for some years. News of this reached Mrs B when the woman appeared on her doorstep holding the child. Mr B, who had always lived with L's family, continued to do so until L discovered that he had been physically and emotionally abusing her mother. In one particular incident, R found their mother ill and lying locked in a cupboard by Mr B. On becoming aware of the situation, some months before the death, L had vandalised her father's car, thrown out his clothes, and forced him to leave home.

Following the mother's death, L moved in with her maternal grandparents while Mr B returned to the old family home to live with R. The father's girlfriend and their child lived elsewhere in the same city. L only saw her brother on the occasional visits he was allowed to make to see the grandparents. L's father had forbidden her from visiting his home and L believed he was trying to turn R against her. She missed R and wished that she could do something to get him away from their father.

Mrs B's death and the disclosures of abuse were also a source of distress for L's grandparents and L felt unable to talk about her feelings with them for fear of upsetting them. However, L was close to an aunt who lived with her and had several good friends with whom she could discuss personal problems.

Presenting Problem

L told me that she was seeking help because she was concerned that her academic performance in school was dropping. This she attributed to a concentration problem, which in turn she felt was caused by not being able to sleep properly. L was hoping to apply for a place at university after school and, consequently, it was important for her to do as well as she could in school.

My assessment revealed that L's sleep was disturbed, with initial insomnia, two recurrent nightmares and night-time wakening. She experienced intrusive thoughts about her mother's suffering, irritability leading to outbursts of anger and poor concentration in school. L also reported somatic symptoms of anxiety and general worrying thoughts. She could not identify any triggers to her intrusive and worrying thoughts but she was aware of trying to shut them out, unsuccessfully. Apparently, all of her symptoms occurred daily but it was her disturbed sleep and reduced concentration which caused her the greatest concern.

L seemed to have come to terms with the loss of her mother but she did present cognitive symptoms of depression. She had feelings of helplessness and hopelessness at her current difficulties as well as guilt and worthlessness at what she perceived to be her failure to prevent her mother's death. This was due to a belief that her father's abuse had contributed to her mother's death and, therefore, that she could have prevented her mother from dying had she been more observant and made him leave their home sooner than she did. L still harboured a great deal of anger and resentment towards her father, and the two were not communicating. She also felt guilty at not being able to look after her brother and because she was often irritable with her grandmother.

Assessment measures

The Beck Depression Inventory (BDI) (Beck et al., 1961) and Beck Anxiety Inventory (BAI) (Beck et al., 1988) were administered before the first treatment session and again in the final session to provide an indication of the severity of L's

psychological distress and to monitor change. Daily, L completed a sleep diary, recording:

1. bedtime
2. time taken to fall asleep
3. number of times awake during night
4. number and content of nightmares
5. quality of sleep (measured on an interval scale of 1 - 5, where 1 = very bad and 5 = very good).

Pre-treatment assessment results

L's BDI score suggested that she was suffering from mild depression and her BAI score indicated moderately severe anxiety (Fig. 1).

Insert Fig 1. here

Formulation

LB was a 15-year-old girl who suffered an anxiety reaction with depressive symptoms related to the death of her mother, one year previously. Her psychological symptoms were similar to those described in children who have survived disasters (Yule, 1991), but did not satisfy diagnostic criteria for a diagnosis of Post Traumatic Stress Disorder (PTSD) (American Psychiatric Association, 1994).

Daily, L experienced sleep disturbance, irritability, poor concentration and intrusive thoughts which she tried to avoid. These recollections did not have the intensity of detail, as if re-living the original trauma, reported by true PTSD sufferers but were distressing none-the-less. She also suffered somatic and cognitive symptoms of anxiety and symptoms of depression, including guilt and hopelessness, and she had strong feelings of anger towards her father.

L's sleep disturbance was probably contributing to the problems she experienced during the day (irritability, poor concentration), and it is likely that her ongoing relationship difficulties with her father and her grandmother as well as her concerns for her brother served to maintain her psychological distress.

Treatment

Treatment involved one hourly session a fortnight in a local community health centre. The similarity between L's presentation and that seen in PTSD, led me to follow a treatment package incorporating the approaches suggested by Yule and cognitive restructuring techniques, found successful with adults (see above). The intention was to focus predominantly on the sleep difficulties with the expectation that improvement in this area would have wide-ranging beneficial effects, including improving her concentration and reducing her irritability. Further, I anticipated, that this would instil a sense of mastery over her difficulties, thus helping to resolve her feelings of hopelessness. Sleep hygiene rules, used in the treatment of adult insomnia (Espie, 1993) were introduced to improve the quality of L's sleep. In addition, a 'dream reorganisation' approach, shown to have quick success with adults (Halliday, 1987; Marks, 1978) and adapted for use with children (Palace & Johnston, 1989) was aimed at overcoming her nightmares. Although L's sleep difficulties might have resolved with traditional anxiety management techniques and/or cognitive therapy alone, I felt it would be of value to use procedures which were more specifically directed at what was of over-riding concern to L herself and which had clear relevance to these problems.

Session 1

In our first session, following the initial assessment interview, I presented L with my formulation of her difficulties and explained the rationale behind the intervention package I proposed to follow. I asked her to keep a sleep diary to gain an accurate description of her sleep problems, and as a method of monitoring

change. I also suggested that before our next meeting, she write down, with as much detail as she could remember, the stories of her nightmares.

Session 2

The sleep diary revealed that L was going to bed at different times every night (Fig. 2) and that it was taking her much longer to fall asleep on those nights when she went to bed early. Also, on nights when she went to bed later, she awoke less frequently during the night and rated the quality of her sleep more highly. Questioning revealed that L was going to bed early on nights when she felt that she particularly needed to get a good rest. In anticipation of not being able to sleep, she reasoned that the longer she had to spend in bed the more sleep-time she would get overall. She went later to bed when the following day was not a school day or not a very demanding day at school. I explained to L how the interaction of her concern at the need for a good night's sleep, and going to bed before she was tired, was in fact more likely to keep her awake. I suggested that she try going to bed only when she felt tired, rather than setting a time when she felt she should go to bed. Further, I advised her to:

1. put out her light a soon as she went to bed
2. not to read or watch T.V. while in bed
3. get up out of bed if she had not fallen asleep after 20 minutes
4. get up out of bed every time she awoke during the night, and stay up until she felt sleepy again. (Espie (1993) recommends leaving the bedroom on awakening, but for L this was not acceptable because she thought this would waken and worry her grandparents.)

We also agreed that L would stop doing homework at 9.00 p.m. and then do something relaxing, such as watching T.V., listening to music or chatting to her family.

L had experienced at least one nightmare a night, with two nightmares on three occasions. The stories she described were as follows:

1. L and her relatives were at her mother's funeral. At the end of the funeral service, L approached her mother's open coffin and suddenly her mother sat up, screaming and shrieking at L. L could not remember what her mother was saying, but was sure that she was blaming L for letting her die.
2. L went to visit her mother's grave, where the coffin was lying in an uncovered hole in the ground. As L knelt to put flowers on the coffin, the lid burst open and her mother leapt out, grabbed L by the neck and tried to strangle her. L pushed her mother off but then found herself in darkness, being chased round trees by Mrs B, brandishing a knife.

We decided that we would initially work on only the first nightmare, which occurred more frequently than the second. Together, we imagined a number of alternative endings to the funeral story and L chose one of these. In the revised story, L wanted to see her mother's ghost rising peacefully from the coffin and floating up to heaven.

In this treatment session, I also taught L breathing exercises and muscular relaxation. I gave her a relaxation tape which she was to listen to before going to school in the morning, in the early evening and in bed every night before trying to fall asleep. L was to think through her new story after listening to the tape.

Session 3

During the second week, L was going to bed at a more regular hour (Fig. 2), was falling asleep more quickly (Fig. 3), was wakening through the night less often (Fig. 4) and felt that she had slept better (Fig. 5). She had experienced both nightmares twice (Fig. 6). Her attempts to alter the ending of the first nightmare she felt had been successful: she had been unable to 'stop' her mother from sitting up 'alive' in her coffin, but her mother had smiled and whispered to L before lying back down. L felt that her mother was telling her that she was relieved to have been released from her suffering.

L devised a happier ending for the story of her visit to the graveyard, where her mother rose out of the coffin and sat talking to L. The setting for this image was sunny and there were flowers all around, rather than the blacks and greys of the original scene.

In this session I checked that L had learned how to breathe properly and relax her muscles. I then instructed her to continue practising the relaxation procedure but without the use of the tape.

Session 4

By session 4, all aspects of L's sleep had improved further although she said that she was still lying awake for longer than she would have liked. She had experienced each of her 'nightmares' once, but had managed to reorganise their content to the extent of seeing them more as dreams than nightmares. She said she was no longer frightened by either of them.

L reported that she was finding her school work easier to concentrate on, that she had noticed being less frequently irritated by other people and that she was having fewer intrusive thoughts and images during the daytime.

Insert Figures 2, 3, 4, 5 and 6 here.

Session 5

Due to unforeseen circumstances, L was unable to attend the scheduled appointment for her fifth session and she then went away on holiday for several weeks. Session 5 finally took place 7 weeks after session 4.

L had not completed her sleep diary over this period, but reported that she now had no difficulty in sleeping. In fact, she felt that all of her previous problems had resolved such that she no longer required to continue treatment. She felt optimistic about her future and psychological assessment measures completed in

this final session confirmed that she was no longer suffering from clinically-significant distress.

Other treatment procedures

In the first session, in addition to the procedures already outlined, I introduced distraction techniques for L to use when experiencing intrusive thoughts and images during the day. In every meeting I gave L the opportunity to recount her life experiences and discuss her feelings towards her family and her father in particular. This in itself may have been therapeutic for her, and indeed she reported that this was so. I did not initiate cognitive therapy in the first few sessions, but inevitably, this ensued to a degree, as an appropriate response to L's spontaneously-voiced, negative thoughts. A more deliberate attempt at cognitive restructuring regarding L's beliefs about her responsibilities towards others and her perceptions of blame took place in session 4. By the fifth session she was expressing a more realistic interpretation of the circumstances of her mother's death and her own responsibilities. I had hoped to continue with this line of work later, in regard to the anger directed towards her father but L decided that she did not want any further help.

Discussion

Psychological intervention was effective in resolving L's post-traumatic symptoms. The case demonstrates that techniques used in the treatment of adults suffering from PTSD can be successful with adolescents experiencing stress reactions. It is difficult, however, to attribute the change in specific symptoms to particular aspects of the treatment programme. For example, L's sleep might have improved as a result of learning how to relax, or because she worried less, having been reassured that her difficulties were not insurmountable, rather than because she had followed the sleep hygiene rules: the reduction in nightmares might not have been consequent on the restructuring technique but rather have occurred

because she had developed a more rational view of her mother's death and her own responsibilities. In general, L's psychological distress may have been alleviated to some extent simply by being given an opportunity to ventilate her concerns within a comfortable, therapeutic relationship, although with adults, counselling alone has proved less effective than cognitive-behavioural methods (Foa et al, 1991). In this case, it seemed appropriate to use techniques which had clear face validity for the treatment of those problems which the client herself perceived to be of paramount importance. In adopting combination packages it would therefore seem prudent to select symptom-focused elements on the basis of a client's particular needs.

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Figure 1. Severity of psychological disturbance measured before and after treatment

Measure	Score (severity)	
	Pre-treatment	Post-treatment
BDI	15 (mild)	9 (minimal)
BAI	21 (moderate)	6 (minimal)

Figure 2. Bedtime (time range over week)

Week	Time range
1	7.30 - 11.15 p.m.
2	9.00 - 11.00 p.m.
3	10.15 - 11.00 p.m.

Figure 3. Time taken to fall asleep (mean time per week in minutes)

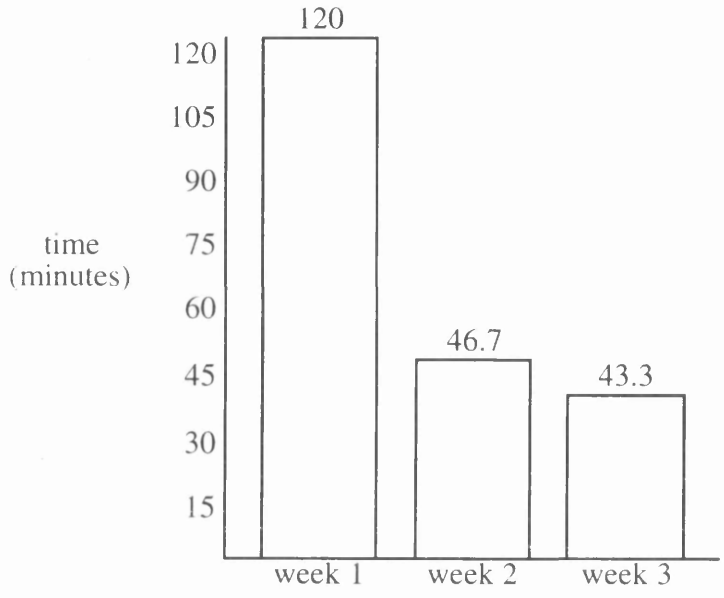


Figure 4. Night wakening (mean number of times awake per week)

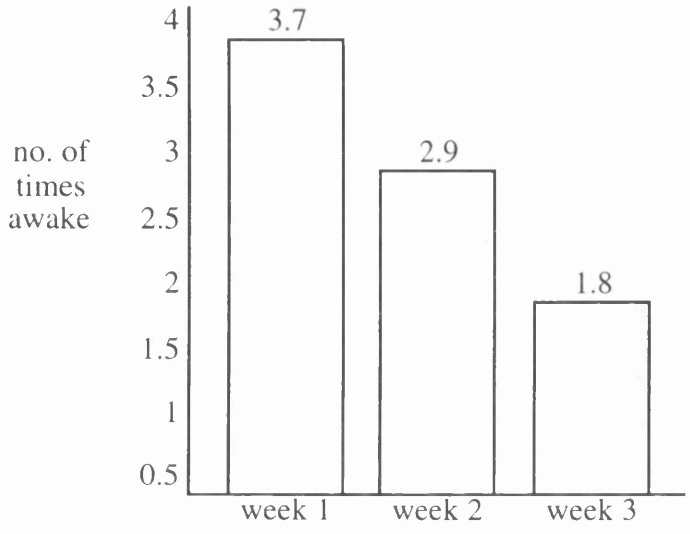


Figure 5. Quality of sleep (mean rating per week)

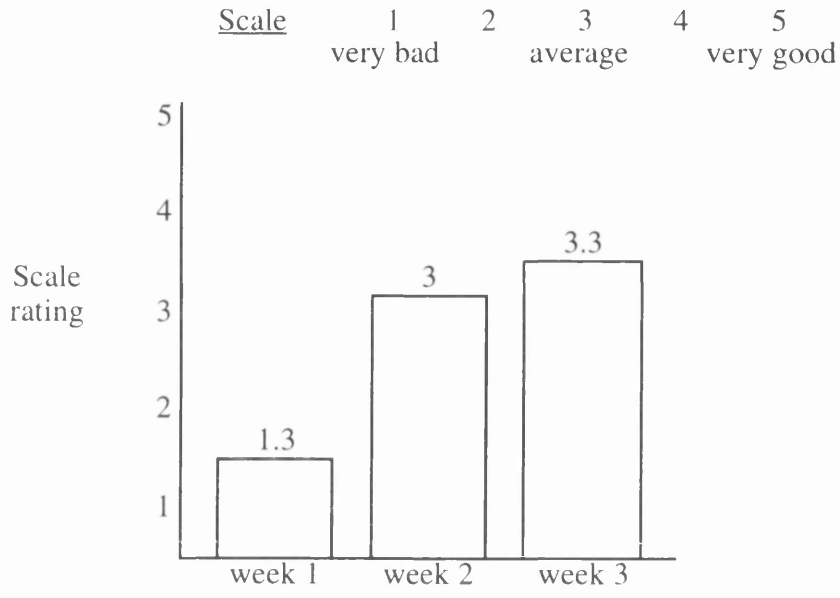
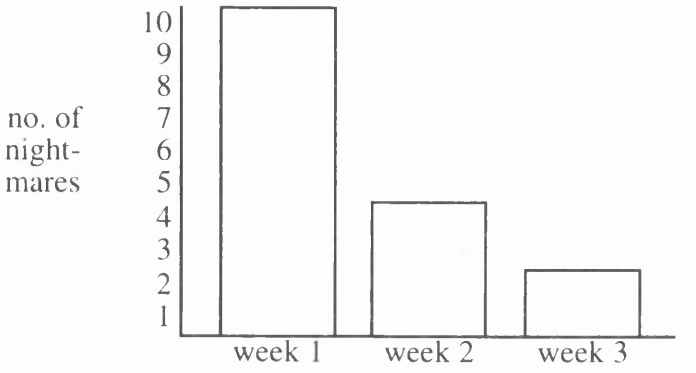


Figure 6. Frequency of nightmares



2. Behavioural treatment of aggressive behaviour in a young boy with Angelman syndrome: a case report.

Written for submission to *Clinical Child Psychology and Psychiatry*

(see Appendix 4.1 for Notes for Contributors)

Behavioural treatment of aggressive behaviour in a young boy with Angelman syndrome: a case report

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Behavioural treatment of aggressive behaviour in a young boy with Angelman syndrome: a case report.

ABSTRACT

Aggressive behaviour problems associated with Angelman syndrome have been noted in literature but the success of strategies for treating such behaviours has not been established. Further, it is not known whether they are primary (phenotypic) or secondary to the underlying disorder, a factor which has implications for the potential efficacy of interventions. The following case describes a child with Angelman syndrome who presented with aggressive behaviours. The decision to attempt treatment was made on the basis of observations which indicated that the behaviours were being positively reinforced, and, due to the child's apparent response to a remedial behaviour programme previously initiated by his school. Intervention followed traditional behaviour management techniques and seemed to lead to some improvement. The case illustrates the need for clinicians working with children to be receptive to the needs of carers.

KEYWORDS

Angelman syndrome, aggressive, phenotypic, treatment

Introduction

Angelman syndrome (AS) is a disorder associated with a deletion on chromosome 15, with an estimated prevalence of one in 12000 children between six and 13 years old (Steffenburg et al., 1996). The clinical characteristics have been well-described (e.g. Williams et al., 1995): in all cases there is a severe to profound global learning difficulty, expressive aphasia, balance or movement disorder and behavioural idiosyncracies (including any combination of hypermotoric behaviour, attentional deficit, hand flapping and episodic laughter). In most, there are cranial abnormalities and distinctive facial traits, although Angelman syndrome children look like their parents and tend to have an attractive appearance. Feeding difficulties in infancy, sleep problems and a love of water are also common. Over 80% are reported to suffer from epilepsy (Clayton-Smith, 1993). Due to the features of episodic laughter and ataxia, combined with sporadic, epileptiform jerkiness, the disorder is also known as 'happy puppet syndrome' (Bower et al., 1967). The term 'happy' is, however, misleading as the laughter is paroxysmal and, therefore, often inappropriate.

In addition to the behavioural problems noted above, aggressive behaviour seems to be a relatively common, although largely ignored, feature found in AS. Reviewing 108 published cases of AS children, Summers and colleagues (1995) found that 10% were noted to have difficulties of this nature, including pinching, biting or slapping. The authors also interviewed the parents of 11 children with AS and aggressive behaviour was mentioned by them all.

Socially unacceptable behaviours, such as aggressiveness, increase the burden on carers, leading to less enjoyment in caring, and possibly reducing teaching opportunities for the child (Summers et al, 1995). However, little is yet known about the effectiveness of treatment strategies in AS. In one reported case, sleep disturbance was successfully treated with a combined behavioural/ pharmacological intervention (Summers et al., 1992). However, it is possible that aggressive behaviour is phenotypic of the disorder, i.e. a primary manifestation of

the underlying chromosomal abnormality, rather than a secondary difficulty e.g. a learned behaviour resulting from poor management. If so, it might be resistant to remedial intervention and such attempts may lead to emotional distress in a child. As an illustration of this effect consider a disabled child with no muscular control from below the waist being placed on a toilet-training programme.

The case reported here concerns a child with AS who exhibited aggressive behaviours. He was referred to me while I was working as a psychologist in the Department of Paediatric Neurology at a large children's hospital. My decision to attempt treatment, and the outcome of this, is described.

Case description

RP was a six year-old boy who had been diagnosed as suffering from Angelman syndrome at age three, on the basis of chromosome testing. R showed all of the classic clinical characteristics of the disorder, including; the distinctive facial features and protruding tongue, a global learning disability, abnormal gait, hyperactivity, an attentional-deficit, episodic laughter, a love of water and no speech, with only limited receptive language ability and sporadic use of two Makaton signs. He also suffered from epilepsy. As an infant he had presented feeding difficulties, but these had resolved without professional intervention. My involvement followed a request from a paediatric neurologist for psychological advice regarding bouts of screaming, hitting and biting which had been reported by R's mother and witnessed by hospital staff. The referral letter also suggested that these behaviours were 'cyclical' but unrelated to brain electrical activity.

R lived at home with his parents (Mr and Mrs P) and younger sister (S), but at the time of referral was in hospital having his antiepileptic medication monitored. He attended a school for children with severe to profound learning difficulties.

Assessment

Psychological assessment involved interviews with R's mother and school-teachers as well as detailed observations on the ward with Mrs P and, later, in his classroom and at home.

Mrs P described prolonged screaming episodes by R and physically aggressive behaviour towards other people, including hitting and biting. She said that during some weeks, these behaviours were far more frequent than others, but that she had been unable to identify any triggers for this. However, despite admitting to having difficulties managing her son, Mrs P was reluctant to accept professional help. She felt that it was her responsibility to deal with him by herself. Mrs P also expressed feelings of guilt at having treated R as simply a troublesome child before he had been diagnosed and expressed concern that psychological intervention was being suggested solely for her benefit. Moreover, she perceived that it would only cause unnecessary distress to R.

The teachers at R's school explained that R had previously been very disruptive in class. However, around six months prior to my meeting with them, R's teachers had attended a course in behavioural therapy and sought advice from an educational psychologist on R's behaviour. A behavioural programme had been initiated and following this things had, apparently, improved remarkably. On questioning, the staff reported that R was perhaps more unsettled when he was unwell, and that he had always had "good days and bad days" but they had not noticed the 'cyclical' patterns described by Mrs P.

Formulation

Observation revealed that R's screaming and physical aggression were reinforced by the consequent attention he received from his mother. Further, when R was misbehaving in the presence of his sister Mrs P asked S to leave the room. The indications that R's behaviours were an attempt to secure affection from his mother were consistent with explanations given to account for oppositional

behaviour in children (Wahler, 1976; reported in Gross & Wixted, 1987). At home, much of his time was spent strapped to a chair. In contrast, at school, R seemed to spend less time in his chair and was generally much quieter; occasionally he hit out at someone near him, but I observed no biting and the teachers informed me that this was not a problem they had to contend with.

These very different patterns of behaviour in R, depending on whether he was with his mother or not, led me to believe that his aggressive behaviour was, at least to a great extent, learned, and maintained by his mother's management style. The apparent success of the behaviour programme at school also indicated that he had the potential to respond favourably to a similar procedure if adopted at home.

Intervention

Clearly, a behaviour programme could not have been instigated without Mrs P's willingness. I spent three sessions with her, using cognitive therapy to address her feelings of guilt and responsibility, and stressing the value to R in changing his behaviour. As Mrs P was loathe to believe that R behaved any differently at school, I video-recorded him for an hour in his classroom and showed the recording to her. This proved instrumental in gaining Mrs P's approval of my suggestions.

Mrs P selected hitting, biting and screaming as the behaviours to be targetted. The approach adopted incorporated established techniques used in parent training programmes for the remediation of oppositional behaviours (Gross & Wixted, 1987) and were selected in collaboration with Mrs P. These procedures were as follows:

1. Ignore screaming.
2. Provide praise and attention when quiet.
3. Respond positively to nonverbal demands.
4. In response to biting and hitting, a firmly spoken 'No' command, using an expressionless face and accompanied by a finger motion.

I had intended for 'time-out' periods to be used in instances where behaviour was particularly severe, but they were excluded because Mrs P found the method unacceptable. I would also have preferred to have worked with R's father as well as his mother, but Mr P was unable to participate due to his working hours.

Training sessions took place in the home environment for approximately one hour, once a week, for four weeks. Adaptive management responses were directed through modelling as well as verbal instruction during observation of interactions between mother and child. Unobtrusive observation using a 'bug-in-the-ear' device has been recommended for parent training (Gross & Wixted, 1987), but was not available in this case.

Outcome

The time R spent screaming and the frequency with which he attempted to hit or bite Mrs P was recorded over an hour, at baseline, during the fourth training session, two weeks after this and again three months later. Given that one hour may not have been representative of the child's general behaviour, this provided only a crude measure of change. However, it was the most practical means possible as Mrs P was reluctant to assess her son's progress herself, other than to give qualitative reports. The results are shown in Figures 1 and 2. It can be seen that there was a trend towards improvement in each of the targetted behaviours over the first three assessments which had been maintained at the three-month stage. No biting was seen on the last two occasions, but Mrs P reported that R had continued to do this at times, although less often than previously. My suggestion that Mrs P kept her own record of R's behaviours was not acted upon. However, she felt that things had definitely improved and was able to describe situations which implied that treatment had been successful to some degree. For example, Mrs P said that she was able to leave R and S playing in one room while she worked in the kitchen, watching them through the dividing door. Previously, R would have been strapped in his chair beside her to prevent disruption.

Insert Figs. 1 & 2 here.

My observations during the final assessment session revealed that elements of Mrs P's management style remained unaltered and were maintaining problem behaviour. Thus, when R was upsetting his sister it was still she who was removed from the situation. Also, Mrs P tended to respond selectively to R's loud vocal protests.

Throughout the months of my involvement with R and his family, there was no evidence of the 'cyclical' regression Mrs P had reported. However, R had remained physically well during this period and it was possible, therefore, that the pattern might re-occur. Even so, given Mrs P's evaluation that R's behaviour was better than it had ever been before, it was hoped that any fluctuations might produce only relatively worse behaviour and not a deterioration to previous levels.

Discussion

Psychological intervention seemed to have been effective in reducing the target behaviours but not in eliminating them. Greater success might have been achieved with more intensive training or with stricter adherence to the programme by the mother. However, as the case demonstrates, professionals working with families have to be receptive to the needs of carers, working within their boundaries and adapting treatment approaches accordingly. The behaviour programme initiated with R at school may have produced better results, but the teachers may have been more consistent in applying the techniques and the behaviours being challenged may never have been as severe as those at home.

Regarding the reported 'cyclical' regression, a longer period of assessment might have identified precipitants of deteriorations in R's behaviour. However, there is no mention of this phenomenon in the literature on Angelman syndrome. It may simply have been that R's 'difficult' behaviours were also those used by him to

express pain or discomfort, and therefore, during times of illness or stress, these behaviours might have been more frequent.

My decision to attempt treatment of R's difficult behaviours was based on detailed observational assessment which revealed an inconsistent pattern of behaviour across situations and a classic picture of disruptive actions being positively reinforced. I was also fortunate that R had already responded well to a similar intervention in a different environment, indicating his potential to change. It cannot be concluded that aggressive behaviour in AS is always secondary to the disorder, but the suggestion is that attempts to intervene in cases of learned aggressive behaviours can be worthwhile. Accurate assessment should allow the clinician to judge the nature of the problem, although a greater challenge may be presented when behaviour is more consistent across situations than it was in R's case. There remains a need for better understanding of the causes of behaviour problems in AS and further research to establish the efficacy of psychological interventions.

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Figure 1. Time spent screaming during observation periods.

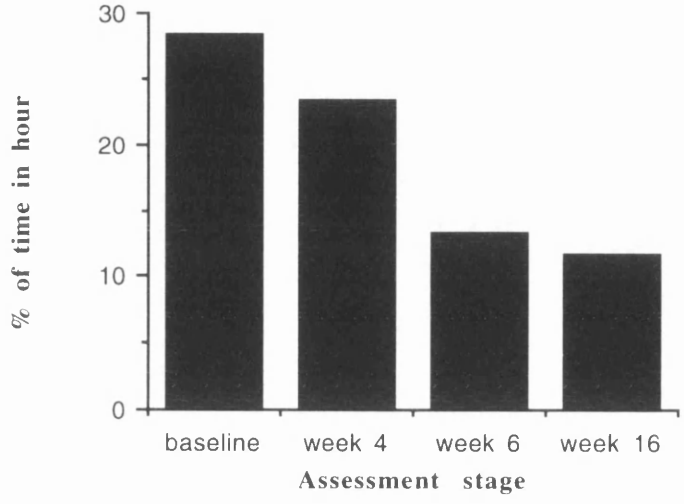
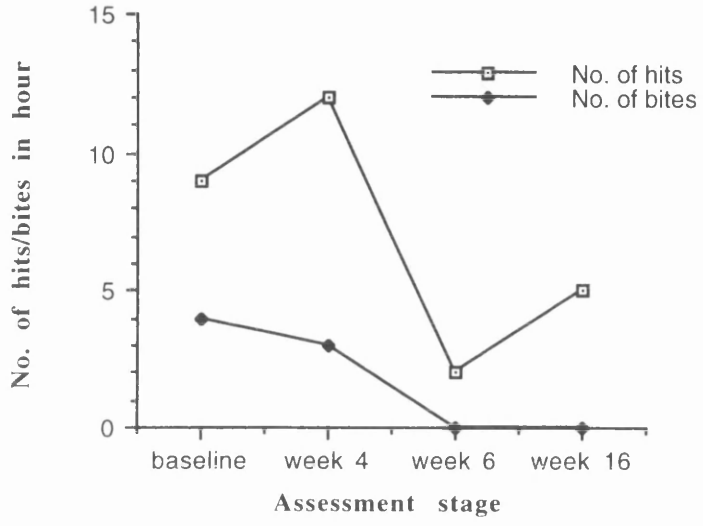


Figure 2. Frequency of hitting and biting during observation periods.



3. Case report: Treatment of a prisoner's opiate dependency following withdrawal

Written for submission to *Addiction*

(see Appendix 2.1 for Notes for Contributors)

Title: **Case report: Treatment of a prisoner's opiate dependency following withdrawal**

Short title: **Treatment of a prisoner's opiate dependency**

Author: RUTH STOCKS

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Number of pages: main text - 6

Word count: abstract - 107

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references - 145

Case report: Treatment of a prisoner's opiate dependency following withdrawal

RUTH STOCKS

Abstract

The Mandatory Drug Testing programme introduced to Scottish prisons in 1996 presents the prison service with the responsibility of providing help for those seeking to combat substance-dependence. The case of a long-term prisoner, who withdrew from an addiction to opiates is described. Relapse-prevention strategies seemed to have been effective in helping him to maintain abstinence from opiates. During treatment, however, the prisoner tested positive for cannabis, but the possibity that he may have ingested the substance without his knowledge is entertained. The case highlights a number of difficulties which need to be addressed in working towards the reduction of illegal drug-use in prisons.

Introduction

The use of illicit drugs is widespread in Scottish prisons (Shewan, Gemmell & Davis, 1994). The problems this presents for the prison service are highlighted in a report by the Advisory Council on the Misuse of Drugs (ACMD) (1996) which concluded that the "most significant harms arising from drug misuse in prisons are as follows:

* Violence and intimidation associated with the operation of the illicit drugs market in prison. This may extend beyond the prison walls to involve friends and relatives of inmates.
* The risk to public and individual health from the spread of communicable diseases, particularly HIV/AIDS and Hepatitis B and C by the sharing of contaminated injecting equipment in prison.
* Continued offending associated with drug misuse following release."

In response to such concerns, mandatory drug testing (MDT) was introduced to Scottish prisons in 1996. Under the initiative, 10% of a prison's population are randomly selected for urinalysis every month. Those who test positive for any illegal drug are punished with loss of privileges, e.g. loss of earnings or recreation-time, and placed on a frequent testing programme in the three months following, with the expectation that they stop using drugs. More severe penalties face prisoners who then continue to fail drug-tests, such as being 'downgraded' to more restrictive facilities and a delay in being considered for a security category change, ultimately prolonging imprisonment.

The value of offering treatment to drug-users in prisons had been stressed prior to the introduction of MDT (Farrell & Strang, 1991). However, the up-take of services available was naturally subject to the discretion of individual prisoners. Now that the MDT programme is identifying those in need of help, the onus is upon establishments to provide supportive care for all concerned. Adding to this increase in demand for services, are requests for help from self-confessed, drug-using prisoners anticipating the possibility of being exposed.

Drug reduction strategies have been found effective with prisoners volunteering to participate (Shewan et al., 1996). However, there is a need to evaluate the effectiveness of interventions with prisoners whose motivation to give up drugs could be considered as more enforced. The case reported here illustrates the use of techniques to help a prisoner maintain abstinence from drugs. Some of the difficulties facing those working towards drug-reduction in prisons are noted.

Case description

Mr T was a 28-year-old prisoner in a Scottish jail, who had served over 12 years of a life-sentence for murder. He was referred for relapse-prevention work by a clinical psychologist, who was conducting an assessment of his risk of dangerousness to the public.

History of alcohol and drug use - Mr T's report

Mr T had started drinking alcohol at age 12. He said that he always drank to get drunk, and not to socialise, and reported having suffered blackouts and accidents which caused him physical harm. The offence for which he was serving his sentence was committed whilst drunk. Mr T remembered that he had been about 14 when he had first smoked cannabis, and that from then until his incarceration at age 15, he had used it less than once a month. During the first six years of his sentence Mr T smoked cannabis 'occasionally'. At age 21 he was moved from one institution to another and did not take drugs for the first year. Then he began taking Temgesic and DF118 tablets at weekends and did this for the next three and a half years. Mr T first tried heroin when he was 25. Shortly afterwards he was sent to another prison and heroin became his preferred drug; when it was unavailable he would take Temgesic or Valium. At this stage he was using drugs daily, although he maintained that there were several periods of up to six weeks when he was either unable to get, or unable to afford, drugs. The peak of Mr T's substance-use, he believed, was from age 26 to 27, when he was taking cannabis and opiates daily, at greater

quantities than previously, and without drug-free intervals (although he claimed that he had never injected drugs). It was during this time that Mr T was selected for random drug-testing and found positive for cannabis. He was surprised that opiates had not been detected at this time. A second test, two months later, was positive for opiates. Following this, Mr T decided to stop using drugs.

Psychological Assessment

The threat of not being allowed to progress to a lower security category if he did not give up taking illicit substances, was Mr T's primary motivation to remain drug-free. Pertaining to the time before withdrawal, Mr T scored 27 on the Severity of Opiate Dependence Questionnaire (Sutherland et al., 1986) indicating a dependence of 'moderate' severity. There was no indication that he suffered any clinically-significant, psychological symptomatology. He had many friends within the prison and supportive friends and family in the community who visited him regularly.

Intervention

Initial contact was made two weeks after Mr T had stopped using opiates. Following assessment, he was seen weekly for one hour, over 10 weeks. The intervention programme involved a covert sensitisation method and relapse-prevention training, based on procedures outlined by Jarvis, Tebbutt & Mattick (1995). Mr T was asked to complete a daily diary of times when he experienced strong cravings, to identify circumstances when he might be at risk of taking drugs. In this he recorded the date and time, the situation, what happened beforehand and the strength of his craving. Strength of craving was measured on a scale of zero (no craving) to ten (worst craving ever). Mr T felt that he was most at risk of taking drugs at times of celebration or adverse life events. The diary revealed that in day-to-day life, his cravings were strongest when he was bored e.g when locked in his cell. Techniques introduced for dealing with cravings and risky situations included, relaxation, avoidance and problem-solving and the prisoner was encouraged to anticipate high-

risk situations in order that he might take preventative action. Covert sensitisation was practised in every session and involved the pairing of unpleasant feelings with images of taking drugs. For Mr T the unpleasant feelings were stimulated by recalling his experience of withdrawal.

The duty of staff to report knowledge of drug-taking by prisoners, and the fact that written information in clinical notes may be prejudical to a prisoner undergoing a risk assessment were explained to Mr T and it was agreed that he would not be asked to admit to 'lapses' of drug-taking if they occurred. However, strategies for dealing with lapses were considered hypothetically.

Monitoring progress

As part of the MDT programme, Mr T was screened during the third and eighth week of treatment. Given that cannabis can be detected in bodily fluids for up to four weeks, whereas most other commonly used drugs, including opiates, remain for no longer than three days, the testing procedure provided a better indication of his abstinence from the former compared to the latter substances. Mr T was also asked to keep a daily record of how easily he had been able to cope without taking drugs. This was measured on a scale of zero to 10, where zero denoted 'no problem' and 10 indicated 'extreme difficulty'.

Outcome

The first of Mr T's drug screens proved negative. The second, however, was positive for cannabis. The mean scores per week of Mr T's assessment of coping ability throughout treatment are shown in Figure 1. It can be seen that there was a general trend towards being able to cope more easily with time. The two peaks at weeks three and eight can be explained by the occurrence of events which led to Mr T experiencing particularly strong cravings for drugs: the first was his birthday and the second, his positive drug-test and the punishments this incurred. In particular, a loss of recreation time, and a 'downgrading' to more restrictive conditions meant

that Mr T was forced to spend more time in his cell, effectively increasing his exposure to conditions already identified as being risky for him. It should be noted that he would have had no difficulty procuring drugs from within his cell, given the ease with which prisoners are able to pass things from one cell window to the next.

Insert Fig.1

Mr T was extremely distressed by the finding of cannabis deposits in his urine sample. He was adamant that he had not been using drugs, and believed that either the testing procedure was flawed, or, that he had been the victim of 'passive' smoking, or, that his food had been 'spiked' by another prisoner. According to prison staff responsible for carrying out the MDT programme, testing was fail-safe and furthermore, an allowance was made for levels of cannabis attributable to 'passive' smoking. It seemed then as if Mr T had unwittingly been administered the drug, or, that he was being dishonest. For a number of reasons, it seemed possible that he had not been lying. First, he had shown a striking degree of determination during therapy. Second, it was known that ex drug-users were often subject to victimisation by drug-dealers within the prison. Third, Mr T was aware of the detection period of different substances and if he had wanted to take drugs it was more likely that he would have used something other than cannabis. Moreover, the detailed risk assessment being conducted had revealed no indication of Mr T having a propensity to deceive. The truth could not of course be established. However, even if Mr T had been using cannabis, the indication was that he had not continued to use opiates. In the community, this would be considered improvement, although the prison system's policy on drugs does does not differentiate between different classes of illegal substances.

Discussion

This case provides an indication that relapse-prevention techniques can be successfully applied in the prison setting, and with individuals whose primary motivation to overcome opiate-dependency may be externally imposed. In addition, a number of issues which merit consideration by both prison authorities and drug-workers emerged in the process of treatment. These were:

1. An obligation on the part of staff to inform prison management of suspected drug-taking by a prisoner may undermine the therapeutic relationship. Negotiating a compromise with the prisoner may increase trust, but progress may be impeded if the client feels unable to be open and honest. For example, the chances of averting relapse are maximised if the conditions surrounding a lapse have been explored (Jarvis et al., 1995), but this obviously requires the admission of having lapsed.
2. Whether or not it happened in this case, being 'spiked' with drugs is likely to be a problem faced by some prisoners. This has the potential to reduce motivation and may breed perceptions of the futility of stopping drug-use. However, for prison management staff, clearly no simple solution to this exists.
3. Punishments may promote conditions likely to lead to relapse. Management staff should consider collaborating with drug-workers to ensure that penalties imposed are not liable to reduce the individual's chances of success in tackling dependency.
4. The problem of prisoners choosing to take substances which are generally considered to have a higher abuse potential and greater associated problems, due to detection periods has already been recognised and demands attention (ACMD, 1996).

Finally, because it is still in its infancy, it is not surprising to have encountered problems in relation to the MDT programme. The task for those working to reduce illegal drug-taking in prisons can only be improved by research into the efficacy of treatment strategies in the context of MDT, the identification of obstacles to changing drug-taking habits and, perhaps, the amending of policy in light of these.

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List of figures

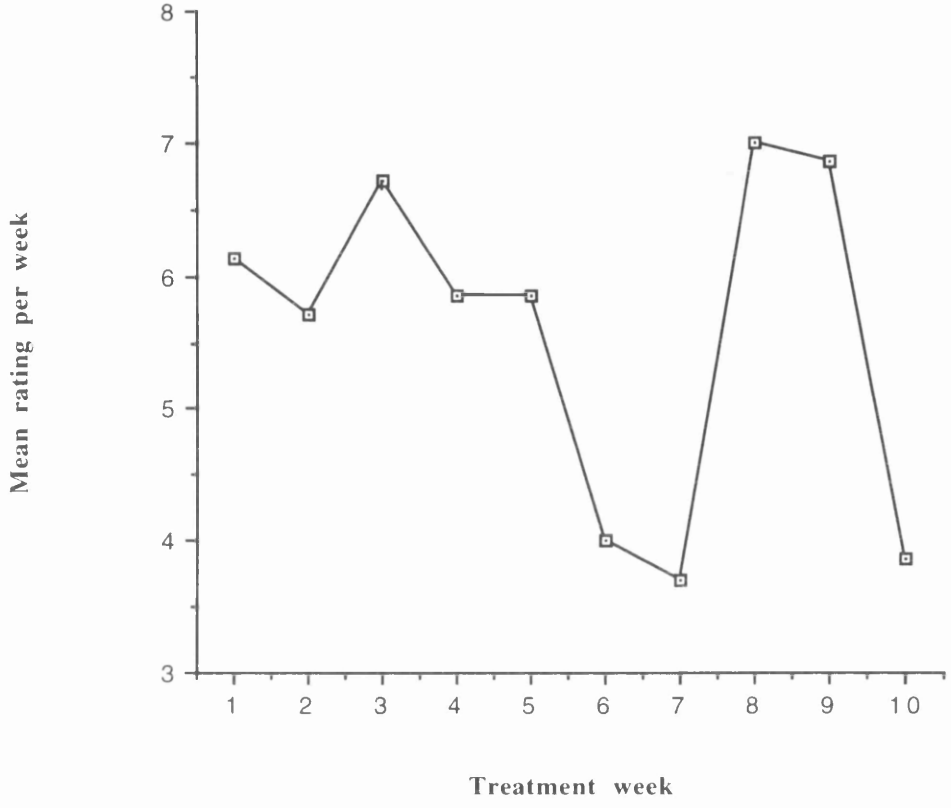

Figure 1. Prisoner's self-reported ability to cope without use of illicit drugs during a 10-week treatment programme: coping ability measured on a scale of 0 (no problem) to 10 (extreme difficulty).

Appendix 1: Small Scale Service Evaluation Project

Appendix 1

Notes for contributors to *British Journal of Psychiatry*

Instructions to authors

The *British Journal of Psychiatry* is published monthly by the Royal College of Psychiatrists. The *BJP* publishes original work in all fields of psychiatry. All communications, including manuscripts for publication, should be sent to The Editor, The British Journal of Psychiatry, 17 Belgrave Square, London SW1X 8PG.

All published articles are peer reviewed. A decision will be made on a paper within three months of its receipt.

Contributions are accepted for publication on the condition that their substance has not been published or submitted for publication elsewhere. The *BJP* does not hold itself responsible for statements made by contributors. Unless so stated, material in the *BJP* does not necessarily reflect the views of the Editor or the Royal College of Psychiatrists.

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Manuscripts accepted for publication are copy-edited to improve readability and to ensure conformity with house style.

We regret that manuscripts and figures unsuitable for publication will not normally be returned.

MANUSCRIPTS

Two high-quality copies should be submitted and authors should keep one copy for reference. Articles should ideally be 3000–5000 words long, must be typed on one side of the paper only, double-spaced throughout (including tables and references) and with wide margins (at least 4 cm); all the pages, including the title page, must be numbered.

TITLE AND AUTHORS

The title should be brief and relevant. If necessary, a subtitle may be used to amplify the main title.

All authors must sign the covering letter; one of the authors should be designated to receive correspondence and proofs, and the appropriate address indicated. This author must take responsibility for keeping all other named authors informed of the paper's progress. More than five authors may be credited to a paper only at the Editor's discretion.

If authors wish to have their work peer reviewed anonymously, they must submit their work without personal identification; names and addresses of all authors should be given in the covering letter. Otherwise, the names of the authors should appear on the title page in the form that is wished for publication, and the names, degrees, affiliations and full addresses at the time the work described in the paper was carried out given at the end of the paper.

SUMMARIES

A structured summary should be given at the beginning of the article, incorporating the following headings: Background; Method; Results; Conclusions. These should outline the questions investigated, the design, essential findings, and main conclusion of the study. This should be up to 150 words long. Review articles do require summaries, although comments, annotations, lectures and points of view do not.

REFERENCES

References should be listed alphabetically at the end of the paper, the titles of journals being given in full. Reference lists not in *BJP* style will be returned to the author for correction.

Authors should check that the text references and list are in agreement as regards dates and spelling of names. The text reference should be in the form '(Smith, 1971)' or 'Smith (1971) showed that . . .'. The reference list should follow the style example below (note that *et al* is used after three authors have been listed for a work by four or more).

Alderson, M. R. (1974) Self poisoning: what is the future? *Lancet*, i, 104–113.

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Personal communications need written authorisation; they should not be included in the reference list. No other citation of unpublished work, including unpublished conference presentations, is permissible.

TABLES

Each table should be submitted on a separate sheet. They should be numbered and have an appropriate heading. The tables should be mentioned in the text but must not duplicate information in the text. The heading of the table, together with any footnotes or comments, should be self-explanatory. The desired position of the table in the manuscript should be indicated. Do not tabulate lists, which should be incorporated into the text, where, if necessary, they may be displayed.

Authors must obtain permission if they intend to use tables from other sources, and due acknowledgement should be made in a footnote to the table.

FIGURES

Figures should be individual glossy photographs, or other camera-ready prints, or good-quality output from a computer, not photocopies, clearly numbered and captioned below. Avoid cluttering figures with explanatory text which is better incorporated succinctly in the caption. Lettering should be parallel to the axes. Units must be clearly indicated and should be presented in the form quantity:unit (note: 'litre' should be spelled out in full unless modified to ml, dl, etc.).

Authors must obtain permission if they intend to use figures from other sources, and due acknowledgement should be made in the legend.

Colour figures may be reproduced if authors are able to cover the costs.

STATISTICS

Not all papers require statistical analysis. Case histories and studies with very small numbers are examples. In larger studies where statistical analyses are included it is necessary to describe these in language that is comprehensible to the numerate psychiatrist as well as the medical statistician. Particular attention should be paid to clear description of study designs and objectives, and evidence that the statistical procedures used were both appropriate for the hypotheses tested and correctly interpreted. The statistical analyses should be planned before data are collected and full explanations given for any *post-hoc* analyses carried out. The value of test statistics used (e.g. χ^2, t, F-ratio) should be given as well as their significance levels so that their derivation can be understood. Standard deviations and errors should not be reported as $\pm$, but should be specified and referred to in parentheses.

Trends should not be reported unless they have been supported by appropriate statistical analyses for trends.

The use of percentages to report results from small samples is discouraged, other than where this facilitates comparisons. The number of decimal places to which numbers are given should reflect the accuracy of the determination, and estimates of error should be given for statistics.

A brief and useful introduction to the place of confidence intervals is given by Gardner & Altman (1990, *British Journal of Psychiatry*, **156**, 472–474). Use of these is encouraged but not mandatory.

Authors are encouraged to include estimates of statistical power where appropriate. To report a difference as being statistically significant is generally insufficient, and comment should be made about the magnitude and direction of change.

GENERAL

All abbreviations must be spelt out on first usage.

The generic names of drugs should be used, and the source of any compounds not yet available on general prescription should be indicated.

Generally, SI units should be used; where they are not, the SI equivalent should be included in parentheses. Units should not use indices: i.e. report g/ml, not gml^{-1}.

The use of notes separate to the text should be avoided, whether they be footnotes or a separate section at the end of a paper. A footnote to the first page may, however, be included to give some general information concerning the paper.

If an individual patient is described, his or her consent should be obtained. The patient should read the report before submission. Where the patient is not able to give informed consent, it should be obtained from an authorised person. Where the patient refuses to give consent, then the case study can only be written up if personal details and dates and other information which identify the patient are omitted to ensure that there is no breach of confidentiality. Contributors should be aware of the risk of complaint by patients in respect of defamation and breach of confidentiality, and where concerned should seek advice.

PROOFS

A proof will be sent to the corresponding author of an article. Offprints, which are prepared at the same time as the *BJP*, should be ordered when the proof is returned to the Editor. Offprints are despatched up to six weeks after publication. The form assigning copyright to the College must be returned with the proof.

LETTERS TO THE EDITOR

Letters should not exceed 350 words. They will be edited for clarity and conformity with *BJP* style and may be shortened. There should be no more than five references. Proofs will not be sent to authors.

Appendix 2: Major Research Project Literature Review

Appendix 2.1

Notes for contributors to *Addiction*

Addiction

Guidance to Authors

The editorial staff will be most grateful for your assistance in relation to the matters listed below. Please follow this guidance carefully when preparing a submission.

General matters
Addiction is a refereed journal. Its goal is to serve international and interdisciplinary scientific and clinical communication, to strengthen links between science and policy, and to stimulate and enhance the quality of debate. Submissions are sought which are not only technically competent, but are original and contain information or ideas of fresh interest to our international readership. Books and major reports may be submitted for review, and material for the News and Notes section is welcomed. We seek to serve the developing as well as the developed world. We aim to handle submissions courteously and promptly, and welcome dialogue with our contributors and readers. We regret that we are not able to return manuscripts.

Ethical standards
Manuscripts are accepted on the understanding that they are subject to editorial revision. Submissions must be accompanied by a signed statement from all authors saying that: (a) the material has not been published in whole or in part elsewhere; (b) the paper is not currently being considered for publication elsewhere; (c) all authors have been personally and actively involved in substantive work leading to the report, and will hold themselves jointly and individually responsible for its content; (d) all relevant ethical safeguards have been met in relation to patient or subject protection, or animal experimentation. This statement must also declare sources of funding, direct or indirect, and any connection with the tobacco, alcohol or pharmaceutical industries. With regard to points (a) and (b): if data from the same study are reported in more than one publication, this should be stated in the manuscript and/or covering letter to the editor, along with a clear explanation as to how the submitted manuscript differs, and copies of closely related manuscripts reporting these data should be enclosed. If at any stage during the handling of their submission, authors decide to withdraw it, we ask them to notify the editor.

Length
Submissions should be double spaced and clearly legible. There is no maximum length for articles. We ask authors to be as concise as possible and will negotiate with you personally and sympathetically if we feel shortening would improve communication. Case reports are welcomed but should not be more than 6 pages. Letters should not be more than 2 pages.

Layout
Please submit four copies of each manuscript. They should be typed on one side of the paper, double spaced, with margins of at least 25 mm. The first sheet should contain the title of the paper, a short title not exceeding 45 characters, names of authors, the address where the work was carried out, and the full postal address of the author who will check proofs and receive correspondence and offprints. The second sheet should contain only the title, names of authors, and an abstract. Please send one extra loose copy of the abstract with submissions. The entire manuscript, including all references, tables, figures, and any other material, should be numbered in one sequence from the title page onwards. Please put at the bottom of the title page the *total* number of pages and, if possible, include a word count for the text and references (excluding title and abstract pages, tables and figures). Footnotes to the text should be avoided where possible.

Abstract
In the case of research reports, abstracts should use the following headings: Aims, Design, Setting, Participants, Intervention (experimental trials only), Measurements, Findings, and Conclusions. The findings should be clearly listed because it is the list of findings that will form the main basis for the editorial decision. Each finding will be evaluated in terms of its **importance if true** and the **confidence that can be placed on it** given the evidence. In the case of other types of paper, there are no formal requirements for the structure of abstracts but it must be clear from the abstract what conclusions are being drawn because evaluation of these will be central to the refereeing process. Abstracts should normally be no more than 250 words.

References

These may be submitted in either the Harvard or Vancouver systems. When following the *Harvard system* references should be indicated in the typescript by giving the author's name, with the year of publication in parentheses, e.g. Smith (1984); if there are three authors Smith, Green & Jones (1984) on the first citation and Smith *et al.* (1984) subsequently; or if there are more than three authors Smith *et al.* (1984) throughout. If several papers from the same authors and from the same year are cited, (a), (b), (c), etc. should be put after the year of publication. References should be listed at the end of the paper in alphabetical order. Examples are:

ABRAMS, D. B. & WILSON, G. T. (1979) Effects of alcohol on social anxiety in women: cognitive versus physiological processes, *Journal of Abnormal Psychology*, 88, 161–173.

BLANE, H. T. & LEONARD, K. E. (1987) *Psychological Theories of Drinking and Alcoholism* (New York, Guilford Press).

When following the *Vancouver system* references should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by arabic numerals (in parentheses). References cited *only* in tables or in legends to figures should be numbered in accordance with a sequence established by the first mention in the text of the particular table or illustration.

The references should be listed in numerical order at the end of the paper. Examples are:

1. COTTON, N. (1987) The familial incidence of alcoholism, *Journal of Studies on Alcohol*, 40, 89–116.
2. MERIKANGAS, K. R. (1989) Genetics of alcoholism: a review of human studies, in: WETTERBERG, I. (Ed.) *Genetics of Neuropsychiatric Diseases*, pp. 21–28 (London, Macmillan).

Whatever referencing system is adopted, titles of journals should not be abbreviated. All authors should be included. The reference list should not be needlessly profligate and should only include items that are retrievable through standard bibliographic sources. Where foreign language papers or books are cited, the title in English needs to be included in brackets after the foreign language version.

Illustrations

These should not be inserted in the text but each provided separately and numbered on the back with Figure numbers, title of paper and name of author. Illustrations should be prepared about twice their final size. Three copies of all figures must be submitted. All photographs, graphs and diagrams should be referred to as Figures and should be numbered consecutively in the text in Arabic numerals (e.g. Fig 3). The approximate position of each illustration should be indicated in the text. A list of captions for the figures should be submitted on a separate sheet and should make interpretation possible without reference to the text. Captions should include keys to symbols.

Tables

These should be typed on separate sheets and their approximate position in the text should be indicated. Units should appear in parentheses in the column heading but not in the body of the table. Words or numerals should be repeated on successive lines 'ditto' or 'do' should not be used. Tables should not be ruled.

Proofs

Proofs are supplied for checking and making essential corrections, not for general revision or alteration. Proofs should be corrected and returned to the publisher within 3 days of receipt.

Offprints

Fifty offprints of each paper are supplied free. Additional copies may be purchased and should be ordered when the proofs are returned. Offprints, together with a complete copy of the relevant journal issue, are sent about three weeks after publication.

Refereeing

Papers will normally be sent by the Regional Editor for review to an Assistant Editor who will solicit referees' reports and make a recommendation to the Regional Editor. The regional editor will make a decision on the paper and communicate this with the authors. The Regional Editor or the Assistant Editor may return a paper unrefereed if in their judgement it is not suitable for the journal because of serious methodological limitations, the topic addressed or problems with reporting.

Clinical case reports of anxiety/depression associated with use of Ecstasy

Case No.	Authors	Sex/Age	*Diagnosis/* psychiatric symptomatology	History of MDMA use	Psychiatric history	History of other illicit drug use
1	Benazzi & Mazzoli (1991)	M/23	*severe depression with suicidal intent*	4 single doses 2-3 weeks apart	none	none
2	Cohen (1996)	F/22	depression	sporadic use over 6 years	none	cannabis - few life-time exposures
3	Greer & Tolbert (1986)	M/not reported	anxiety	not reported	self - anxiety	not reported
4	McCann & Ricaurte (1992)	M/23	*panic disorder*	single dose	none	marijuana - sporadic use before age 21
5	McGuire et al. (1994)	M/38	depression; morbid jealousy	2 years use (symptoms developed after 9 months use)	1st degree relative - depression	previous use of other drugs
6	Pallanti & Mazzi (1992)	M/27	*panic disorder with agoraphobia*	20 occasions over 10 months	none	previous use of other drugs
7	"	M/21	*panic disorder with agoraphobia*	3 occasions over 3 months	none	previous use of other drugs
8	"	M/28	*panic disorder with agoraphobia*	Once every 2 months for 2 years	none	cocaine - recreationally
9	Schifano & Magni (1994)	M/24	*panic disorder without agoraphobia; major depressive episode*	2 x 20 day periods with drug-free interval between of 6 months; 200-600mgs every 1-2 days	none	cannabis - sporadic

Clinical case reports of anxiety/depression associated with use of Ecstasy *contd.*

Case No.	Authors	Sex/Age	*Diagnosis/* psychiatric symptomatology	History of MDMA use	Psychiatric history	History of other illicit drug use
10	"	F/20	*major depressive episode*	45 occasions over 1 year; 150mg doses at 7 day intervals	none	tetrahydrocannabinols
11	"	M/23	*major depressive disorder; panic disorder without agoraphobia*	1st period - 2 years; 600-1500mg doses at 2-15 day intervals; drug-free interval of 2 years; 2nd period - 200 tablets over few months; total = 2000 tablets	none	opiates
12	Series et al. (1994)	F/23	anxiety, depression	most weekends for 2 months; 1-2 tablets each occasion	self - none sister - depression	amphetamine cannabis - low doses LSD
12	Teggin (1992)	M/48	*major depressive disorder*	6 occasions	not reported	not reported
14	Whitaker-Azmitia & Aronson (1989)	F/26	panic attack	single dose	none	
15	"	M/25	panic attack	7 occasions	none	not reported
16	"	F/22	panic attack	not reported	none	not reported

Appendix 3: Major Research Project Paper

Appendix 3.1

Pilot study

Aims

A pilot study was conducted to assist in the design of the questionnaire, to assess the feasibility of different methods of data collection, to establish the size of the predicted effect and to determine the potential for recruiting a control group of polydrug-users who had never taken Ecstasy.

Method

Phase 1

4 groups of 5 people who were all current Ecstasy-users were asked to discuss their experiences of the drug, their thoughts about its potential dangers and their knowledge of patterns of use. Each participant was provided with a draft questionnaire and ancouraged to give their views on the appropriateness and ease of answering the questions.

Based on the information gathered from these groups, the original version of the questionnaire was altered.

Phase 2

One member of each focus group was then given five questionnaires and asked to distribute them to friends, collect them when completed and return them to the investigator. In addition, the principal researcher and an assistant spent a night at a club in Edinburgh, which was run by a personal contact of the assistant, assessing the feasibility of collecting data from ravers. People were approached in the hallway, as they arrived, and asked if they would be prepared to spend about 15 minutes completing the questionnaire.

Results and implications for research project

The 'snowballing' method of recruitment proved very successful, and all 20 questionnaires were returned. On the other hand, few people at the club were willing to give up the time requested and several ravers who did agree, failed to complete the questions or supplied obvious misinformation on personal details. This proposed method was, therefore, abandoned. However, as a number of people said that they were willing to give a contact number to the researchers and would be prepared to hand out questionnaires to their friends, it was decided that participants to begin 'snowballing' could be recruited in this way.

The 20 questionnaires collected in the pilot study were then analysed. Two of the respondents had not used Ecstasy. To attempt to recruit a control group of non Ecstasy-users who used other drugs, was therefore considered viable, although it was anticipated that the numbers would be small.

The results also showed a low rate of psychological symptomatology, suggesting that any effect to be found was likely to be small, and might be missed unless a very large sample of Ecstasy-users could be contacted. It was felt that to be able to discount a large effect was sufficient justification for carrying out the research. However, in order to ensure that the project would be worthwhile, it was decided to place a greater emphasis on patterns of use than had initially been planned.

Appendix 3.2

Ecstasy questionnaire

Date: _____

RESEARCH STUDY on ECSTASY

This survey is being carried out by a student at Glasgow University to study the effects of MDMA ('Ecstasy' or 'E'). **If you have ever taken an illegal drug (other than cannabis)** it would be very much appreciated if you could help by filling in this questionnaire.

The answers you give are entirely confidential and you are not asked to give any information which might identify you.

Tick the boxes to give your answers.

Are you male or female? Male [ ] Female [ ]

How old are you? _____

For most of the last 12 months, were you a student, full-time or part-time?

Yes, full-time [ ] Yes, part-time [ ] No [ ]

For most of the last 12 months, have you worked on a paid job, full-time or part-time?

Yes, full-time [ ] Yes, part-time [ ] No [ ]

For most of the last 12 months, have you worked on an unpaid job, full-time or part-time?

Yes, full-time [ ] Yes, part-time [ ] No [ ]

What educational qualifications do you have? (Tick more than one box if appropriate.)

None [ ]
O'Grades/Standard Grades [ ]
Higher Grades/A levels [ ]
Further Education [ ]
(e.g. HND, HNC, Scotvec)
Degree [ ]
Postgraduate Degree [ ]

Have you ever received treatment for anxiety or depression?

Yes [ ] No [ ]

Has either your mother or your father ever received treatment for anxiety or depression?

Yes [ ] No [ ] Don't know [ ]

Have you ever taken Ecstasy? No [ ] If, 'No' go to page 4

Yes [ ]

If yes, in what year did you **first** try Ecstasy?

1985 [ ]	1989 [ ]	1993 [ ]
1986 [ ]	1990 [ ]	1994 [ ]
1987 [ ]	1991 [ ]	1995 [ ]
1988 [ ]	1992 [ ]	1996 [ ]

Have you taken any Ecstasy in the last **12 months**? Yes [ ] No [ ]

If yes, on how many days approximately? _____

Have you taken any Ecstasy in the last **30 days**? Yes [ ] No [ ]

If yes, on how many days approximately? _____

Have you taken any Ecstasy in the last **7 days**? Yes [ ] No [ ]

If yes, on what days did you take it?

	Yes	No
Monday	[ ]	[ ]
Tuesday	[ ]	[ ]
Wednesday	[ ]	[ ]
Thursday	[ ]	[ ]
Friday	[ ]	[ ]
Saturday	[ ]	[ ]
Sunday	[ ]	[ ]

On average, how many tablets/capsules of Ecstasy do you take on one occasion? _____

What is the greatest number of Ecstasy tablets/capsules you have taken on one occasion? _____

Do you intend to take Ecstasy again? Yes [ ] No [ ]

*When you take Ecstasy who are you usually with?

No-one, alone [ ] One friend [ ] Small group of friends (2-4) [ ] Large group of friends (5+) [ ]

*When you take Ecstasy where do you usually go?

At home [ ] Friend's house [ ] Private parties [ ] Clubs/raves [ ] Pubs [ ] Other (specify_____) [ ]

During the past **year** .....

Did you think your use of Ecstasy was out of control?

Never/almost never [ ] Sometimes [ ] Often [ ] Always/nearly always [ ]

Did the prospect of missing a dose of Ecstasy make you anxious or worried?

Never/almost never [ ] Sometimes [ ] Often [ ] Always/nearly always [ ]

Did you worry about your use of Ecstasy?

Never/almost never [ ] Sometimes [ ] Often [ ] Always/nearly always [ ]

Did you wish you could stop?

Never/almost never [ ] Sometimes [ ] Often [ ] Always/nearly always [ ]

How difficult did you find it to stop or go without Ecstasy?

Not difficult [ ] Quite difficult [ ] Very difficult [ ] Impossible [ ]

**What is the best thing about Ecstasy?

_____

**What is the worst thing about Ecstasy?

_____

* Analysis of these questions was not included in Major Research Project Paper due to word limitation.
** These questions were included, on the advice of Dr Jason Ditton, to sustain participants' interest, but were not included in the analysis.

What other drugs have you **ever** tried, without a doctor telling you to do so?

	Yes	No
alcohol	[ ]	[ ]
cannabis	[ ]	[ ]
cocaine	[ ]	[ ]
amphetamine (speed)	[ ]	[ ]
LSD (acid)	[ ]	[ ]
magic mushrooms	[ ]	[ ]
tranquillisers or sedatives e.g. temazepam (jellies or eggs), valium	[ ]	[ ]
opiates e.g. heroin, opium, DF118, temgesic	[ ]	[ ]
inhalants e.g. amyl nitrate (poppers), glue, petrol	[ ]	[ ]
ketamine	[ ]	[ ]
other (specify _____)	[ ]	[ ]
other (specify _____)	[ ]	[ ]
other (specify _____)	[ ]	[ ]

Have you ever injected an illegal drug? Yes [ ] No [ ]

Have you taken any other drugs in the last 30 days?
If yes, on how many days, approximately?

	Yes	No	Number of days
alcohol	[ ]	[ ]	_____
cannabis	[ ]	[ ]	_____
cocaine	[ ]	[ ]	_____
amphetamine (speed)	[ ]	[ ]	_____
LSD (acid)	[ ]	[ ]	_____
magic mushrooms	[ ]	[ ]	_____
tranquillisers or sedatives e.g. temazepam (jellies or eggs), valium	[ ]	[ ]	_____
opiates e.g. heroin, opium, DF118, temgesic	[ ]	[ ]	_____
inhalants e.g. amyl nitrate (poppers), glue, petrol	[ ]	[ ]	_____
ketamine	[ ]	[ ]	_____
other (specify _____)	[ ]	[ ]	_____
other (specify _____)	[ ]	[ ]	_____
other (specify _____)	[ ]	[ ]	_____

How often do you take the following drugs **on the same occasions** as you take Ecstasy? (If you've never taken Ecstasy turn to next page)*

	Never	Sometimes	Most times	Always
alcohol	[ ]	[ ]	[ ]	[ ]
cannabis	[ ]	[ ]	[ ]	[ ]
cocaine	[ ]	[ ]	[ ]	[ ]
amphetamine (speed)	[ ]	[ ]	[ ]	[ ]
LSD (acid)	[ ]	[ ]	[ ]	[ ]
magic mushrooms	[ ]	[ ]	[ ]	[ ]
tranquillisers or sedatives e.g. temazepam (jellies or eggs), valium	[ ]	[ ]	[ ]	[ ]
opiates e.g. heroin, opium, DF118, temgesic	[ ]	[ ]	[ ]	[ ]
inhalants e.g. amyl nitrate (poppers), glue, petrol	[ ]	[ ]	[ ]	[ ]
ketamine	[ ]	[ ]	[ ]	[ ]
other (specify _____)	[ ]	[ ]	[ ]	[ ]
other (specify _____)	[ ]	[ ]	[ ]	[ ]
other (specify _____)	[ ]	[ ]	[ ]	[ ]

* Questionnaire continued with the standardised psychological assessment measures.

Appendix 3.3

Characteristics of Ecstasy-users and matched controls

	E-users (n = 20)	Non E-users (n = 20)	test statistic* (df) significance
Sex			
males	11	11	
females	9	9	
Age	26.55 ± 4.97	26.30 ± 5.98	
mean ± s.d. (range)	(18 - 33)	(14 - 36)	
Measures of Psychopathology			
mean scores ± s.d.			
HADS-anxiety**	7.42 ± 4.27	6.05 ± 7.42	t = -0.96
(% reaching caseness)	(26.5%)	(26.3%)	(18) n.s.
HADS-depression**	4.37 ± 3.00	3.00 ± 2.77	t = -1.33
(% reaching caseness)	(5.3%)	(5.3%)	(18) n.s.
GHQ-anxiety	1.65 ± 2.52	1.65 ± 2.21	Z = -0.04
			(19) n.s.
GHQ-depression	0.70 ± 2.00	0.75 ± 1.41	Z = -0.42
			(19) n.s.
GHQ-social dysfunction	1.00 ± 1.75	1.60 ± 2.16	Z = -0.72
			(19) n.s.
GHQ-somatic symptoms	2.05 ± 2.54	1.50 ± 1.85	Z = -0.70
			(19) n.s.
GHQ-total score	5.40 ± 7.18	5.50 ± 6.80	Z = -0.12
(% reaching caseness)	(35.0%)	(40.0%)	(19) n.s.

* related t-test or Wilcoxon signed ranks test

** n=19 (missing data from one subject)

Appendix 3.4

Characteristics of Ecstasy-users selected for comparison with non-users and, remaining Ecstasy-users in sample

Aspect of Ecstasy use mean ± s.d. (range)	Subgroup of E-users (n = 20)	Other E-users (n = 187)*	Test statistic (df) significance
No. of occasions in year	18.20 ± 33.45 (1 - 150)	19.96 ± 24.70 (0 - 175)	U = 1432.5 (185) n.s.
Usual quantity	1.54 ± 0.96 (1 - 5)	1.40 ± 0.86 (0.25 - 8)	t = -0.69 (200) n.s.
Duration of use	4.65 ± 2.25 (1 - 8)	4.75 ± 2.48 (1 - 12)	t = 0.17 (204) n.s.

* missing data for some subjects on each variable

Appendix 3.5

Other drug use by Ecstasy-users

Substance	% Ever Tried	% of users in previous month	Days per month mean ± s.d. (range)
Alcohol	100	96.1	14.5 ± 8.6 (1 - 30)
Cannabis	99.5	92.8	20.0 ± 10.7 (1 - 30)
Amphetamine	97.6	49.3	2.8 ± 2.7 (1 - 15)
LSD	89.4	11.1	1.3 ± 0.6 (1 - 3)
Cocaine	83.1	34.8	3.6 ± 4.6 (1 - 20)
Psilocybin	82.1	14.0	2.1 ± 3.9 (1 - 20)
Inhalants	81.6	22.2	4.3 ± 5.94 (1 - 30)
Tranquillisers	48.8	05.3	2.6 ± 1.9 (1 - 6)
Opiates	40.1	03.4	3.7 ± 2.9 (2 - 7)
Ketamine	22.2	01.0	15 ± 0.0 (15)

Appendix 3.6

Other drugs taken on the same occasions as Ecstasy.

	How often? (% of people)				
Substance	Never	Sometimes	Most times	Always	n*
Alcohol	6.8	41.7	23.8	27.7	206
Cannabis	4.9	16.1	24.4	54.6	205
Cocaine	48.5	48.0	2.0	1.5	198
Amphetamine	19.1	54.8	23.1	3.0	199
LSD	60.0	37.9	2.1	0.0	195
Psilocybin	69.1	30.4	0.5	0.0	194
Tranquillisers	80.9	16.0	2.7	0.5	188
Opiates	95.0	4.4	0.6	0.0	181
Inhalants	53.2	37.1	8.1	1.6	186
Ketamine	94.3	5.1	0.0	0.6	157

* Data missing for some subjects

Appendix 3.7

Variance in psychopathology subscale scores accounted for by control variables (level of education, self and family psychiatric history, dimensions of personality)

Subscale	R^2	F(df)
HADS-anxiety	0.44	21.65 (196,7)***
HADS-depression	0.30	12.15 (196,7)***
GHQ-anxiety	0.30	11.98 (196,7)***
GHQ-depression	0.12	3.84 (196,7)**
GHQ-social dysfunction	0.23	8.25 (196,7)***
GHQ-somatic symptoms	0.11	3.55 (196,7)*
GHQ-total	0.28	10.72 (196,7)***

*p<0.005 **p<0.001 ***p<0.0001

Appendix 3.8

Psychopathology scores of people who had and people who had not used Ecstasy in previous week

Measures of psychopathology	Use mean score/rank	No use mean score/rank	t/U (df)	significance
HADS-anxiety	6.61	6.62	0.03 (203)	n.s.
HADS-depression	2.95	3.26	0.88 (203)	n.s.
GHQ-anxiety	103.47	102.73	4839.5 (203)	n.s.
GHQ-depression	102.46	103.31	4834.5 (203)	n.s.
GHQ-social dysfunction	99.28	105.15	4596.0 (203)	n.s.
GHQ-somatic symptoms	107.96	100.14	4503.0 (203)	n.s.
GHQ-total score	104.58	102.09	4756.5 (203)	n.s.

Appendix 4: Three Single Clinical Case Research Studies