During pregnancy, recreational drug-using women stop taking ecstasy (MDMA) and reduce alcohol consumption but continue to smoke tobacco and cannabis: Initial findings from the DAISY study.

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Abstract

While recreational drug use in UK women is prevalent, to date there is little prospective data on patterns of drug use in recreational drug-using women immediately before and during pregnancy. A total of 121 participants from a wide range of backgrounds were recruited to take part in the longitudinal Development and Infancy Study (DAISY) study of prenatal drug use and outcomes. Eighty-six of the women were interviewed prospectively while pregnant and/or soon after their infant was born. Participants reported on use immediately before and during pregnancy and on use over their lifetime. Levels of lifetime drug use of the women recruited were high, with women reporting having used at least four different illegal drugs over their lifetime.Most users of cocaine, 3,4-methylenedioxy-N-methylamphetamine (MDMA) and other stimulants stopped using these by the second trimester and levels of use were low. However, in pregnancy, 64% of the sample continued to use alcohol, 46% tobacco and 48% cannabis. While the level of alcohol use reduced substantially, average tobacco and cannabis levels tended to be sustained at pre-pregnancy levels even into the third trimester (50 cigarettes and/or 11 joints per week). In sum, while the use of ‘party drugs’ and alcohol seems to reduce, levels of tobacco and cannabis use are likely to be sustained throughout pregnancy. The data provide polydrug profiles that can form the basis for the development of more realistic animal models.

Introduction

In the UK the majority of young men and women drink alcohol and, despite health campaigns, rates of tobacco smoking remain high. The use of so called recreational drugs is also commonplace and is not restricted to low SES groups, with the use of cannabis and other 'party' drugs such as ecstasy, cocaine and amphetamines highly prevalent among young adults from all backgrounds. According to the British Crime Survey 24% of the 16- to 24-year-old age group in England and Wales report having used one or more illicit substances in the last year (Nicolas et al, 2007). Whilst males are more likely to use illicit substances than women, recent UK and EU data show that this gender gap is narrowing and that the experiences and drug use patterns of younger men and women are increasingly similar (EMCDDA, 2005).

Although there are considerable data and publicity on the impact on the unborn child of 'harder' drug use by dependent users of cocaine and heroin, and increasing publicity on the impact of alcohol and smoking, young, non-dependent, recreational drug-using women receive little direct information on the specific effects of recreational 'party' drugs in pregnancy, and particularly the potential impact of combining these drugs. This lack of information could potentially lead to the belief that some recreational drugs are less harmful than others and could be responsible for their continued use during pregnancy.

One first step in addressing these issues is to establish the likely combinations and levels of 'party' drug use that will be taken during pregnancy by women who are self-confessed recreational drug users, and to use this information to model the effects. If we are to begin to address this issue in the UK we need more detailed prospective longitudinal data on the patterns of drug use of UK drug-using women before, during and after pregnancy, and in particular, information on the likely levels and combinations of infant drug exposure. Also, to assess the impact on the developing foetus, we need to have details on how levels of use are likely to change across trimesters.

This paper presents one of the first detailed prospective reports of polydrug recreational drug use by a cohort of pregnant self-acknowledged recreational drug-using women in the UK. These women took part in the DAISY (Drugs and Infancy StudY) study and were interviewed about their lifetime use, and use in pregnancy of all common 'party'

drugs, but particularly their use of cannabis and ecstasy (MDMA, 3,4-methylenedioxy-N-methylamphetamine). MDMA and cannabis are among the most widely used illicit recreational drugs in young adults in the UK, and are often taken together and in conjunction with other psychoactive substances (DAWN, 2000; Johnston et al., 2001;Yacoubin et al., 2003; Parrott, 2004; Scholey et al., 2004; Singer et al., 2004; Parrott, 2006). Cannabis is of particular interest as it is a drug which young (non- pregnant) women appear to consider to be less harmful than other illicit drugs (Pearson & Shiner, 2002), and prevalence in the general population of pregnant women in the UK has been reported to be around 5 in 100 (see Fergusson et al, 2002).

Many studies have concluded that MDMA and cannabis are associated with psychobiological problems in adult users (e.g. Milani et al 2000; Rodgers, 2000; Parrott et al. 2001). These adult neuro-psychobiological effects are likely to have important influences upon the behaviour of young women who are pregnant and, if use is continued throughout and beyond pregnancy, may have a significant impact on their ability to care for their children once born. While there are some mixed reports on impact on daily living, MDMA use has been shown to be associated with poorer general psychological health (Parrott, Sisk & Turner, 2000; Parrott et al., 2001; Thomasius et al., 2006), specifically with depression (MacInnes et a.l, 2001; de Win et al, 2004; Lamers et al., 2006) and increased anxiety (Lamers et al., 2006). MDMA use has also been found to be associated with impairments in prospective memory, and in social and emotional intelligence (see Reay et al., 2006; Rendell et al., 2007). While these effects may not have an undue impact on the daily living of non-parents, these combined effects could impact significantly on a mother's capacity for caring for and relating to their children. There are also likely to be direct effects on the developing infant, with growing evidence of the long-term effects on the physical and psychological health children of cannabis , and cocaine (Hingson et al., 1982; Fried & Smith, 2001; Singer et al., 2004b; Huizink & Mulder, 2006).

In the case of MDMA, while there is a growing literature of its effects in utero and post-partum on animals (for reviews see Piper, 2007; Skelton et al., 2008), there is very little data available on the specific impact of this drug on human infants to date (see Mcelhatton et al., 2004), and no data on its neuropsychological impact on human infants. Further, and the focus of this paper, little is known about the likely levels of use in pregnancy of MDMA by recreational drug-using women. We need more information on the likely levels of use of

individual ‘party’ drugs by pregnant recreational drug using women, and also the likely extent of multiple or ‘polydrug’ use, and information on patterns of continued use (Havens et al 2009). This information will allow the development of better animal models of the impact of drugs on the unborn child. In this first paper from the DAISY study, we present longitudinal prospective data on the levels and patterns of poly drug use before and during pregnancy in a cohort of self-identified recreational drug-using women from the UK.

Method

Participants

Within the UK health system the point at which non-dependent drug use is routinely raised with pregnant mothers is at the initial booking appointment with a midwife. While we initially attempted to recruit participants via midwives and by distributing leaflets to antenatal clinics, we found that this method of recruitment was relatively unsuccessful. The best recruitment method proved to be through paid adverts in pregnancy magazines. These asked to hear from pregnant women who “used recreational drugs at some point during their pregnancy, even if it was before you knew you were pregnant”. The leaflets and adverts explicitly listed ecstasy, tobacco, cannabis, alcohol and cocaine as examples of recreational drugs. The participants were, therefore a sample of women who identified themselves as recreational drug users and who were interested, or potentially concerned, about the effects of drugs on their developing babies. To encourage candour, participants were informed that their data would not be released to health professionals. All participants gave informed written consent under procedures approved by university and NHS ethics committees.

In the course of five years 121 women contacted the study. Of these, eleven did not respond to further contact, four had miscarriages, two withdrew because their partner objected to their participation, one withdrew because of mental health problems, four lived or moved too far away for interviewers to visit, one did not meet the criteria, with two cases the child was too old, and four participants withdrew for an unspecified reason. Of the remaining 92 women, four mothers provided data on pregnancy use, but at submission of this paper had not provided data on lifetime use, and two women used no drugs, alcohol or tobacco in their lifetime or in pregnancy. As this paper is concerned with patterns of drug use in lifetime and during pregnancy for known recreational drug users, we have not included their data here.

This left a cohort of 86 women who provided interview data about lifetime drug use and drug use during pregnancy. Sixty-six (75.6%) of these 86 women were recruited through paid adverts in pregnancy magazines, eight (9.3%) were recruited through hospital antenatal clinics and physicians (GPs), three (3.5 %) through drug agency magazines, websites and flyers in bars and music venues, two (2.3%) through adverts in shops, libraries and student unions, and seven (8.1%) were through word of mouth and other routes. Participants were recruited from a wide geographical area across the UK.

A strength of the sample was that the women recruited were not predominantly from low socio-economic status backgrounds, and spanned a range of occupational and educational groupings with a range of household incomes (See Table 1). The relationship circumstances of the women varied with fourteen women single, forty-four unmarried and cohabiting, twenty-seven married and cohabitting, with one undisclosed. The mean age of the women was 30.3 years. The women were from a representative range of ethnic groups.

[Table 1 here]

Drug interviews

Once recruited into the study, trained researchers visited the women at home, interviewed them in a private room at the university, or, in a small number of cases, interviewed them by phone. The interview schedule was an adaptation of the Maternal Post-Partum Interview (Singer et al. 2002). The interview was adapted to ask about substances commonly used in UK cohorts based on our own previously used drug questionnaires (Milani et al., 2005). The interview consisted of three parts: Lifetime, P1 & P2.

The first part (Lifetime) asked about lifetime drug use and use in the year leading up to conception. Depending on the extent of drug use, this part took around ¾ hour to complete. Where mothers were recruited into the study early in pregnancy this was administered as soon as possible, but in some cases, because of time constraints, this part was deferred to post partum in order to prioritise the collection of the pregnancy data. 57 participants completed the lifetime interview during pregnancy with 79 having completed it by 4-months post-partum.

The second part of the interview (P1) asked about drug use in the month prior to pregnancy and over the first two trimesters and took around half-an-hour to complete. For mothers recruited early in pregnancy, this was administered at the end of the second trimester. 54 participants completed P1 during pregnancy with 80 completing it by 4-months-post-partum.

The third section (P2) asked about drug use during the final trimester, taking up to half-an-hour to complete. The intention was to administer this at one-month postpartum (or if feasible just prior to birth). For women recruited in the latter stages of pregnancy data was collected after the birth. Seven women completed P2 during pregnancy with a further 61 completing this at one-month post-partum as planned, and with 81 women completing it by 9-months post-partum.

Thus, the pattern of administration of the parts varied depending on the circumstances and timing of recruitment and the time available: where the participant was recruited during mid-pregnancy we combined the Life and P1 sections; for women recruited late in pregnancy we concentrated on completing P1 and P2 sections and deferred the Lifetime section to a later date. It was not practical to complete all three sections in one session. All participants except one[1] completed all three parts of the interview:

For each section of the interview, values were reported/computed for number/amount of tobacco cigarettes, units of alcohol, cannabis smoked or ingested, tablets of ecstasy taken, cocaine lines snorted and/or grams, crack/cocaine rocks, amphetamine wraps and tablets, heroin smoked or injected, ketamine snorted or injected, benzodiazepine tablets, LSD and hallucinogenic mushrooms. The interview also allowed for reporting of other substances and/or alternative methods of administration. For each drug, frequency of use was recorded on a scale ranging from 0 (not at all) to 7 (daily use). By utilising frequency data, and the reported usual amounts of each drug taken on a typical occasion, we calculated the average dose per week for each of the six drug-use periods reported below.

Drug Abuse Screening Test (DAST)

We also administered the DAST to explore whether our sample consisted of 'recreational' users who had significant drug abuse problems. The DAST is a 20-item scale validated against the DSM-III and yields a quantitative index of the degree of problems

related to drug use and misuse (Gavin et al., 1989). A score of 16 out of 20 or above indicates a severe level of drug problems.

Results

Eighty-one of the 86 participants completed the DAST interview. Although some of our sample were using opiates, only three women scored greater than the cut off of 16 with DAST score MEAN =5.48, SD = 4.4.

Lifetime use and use in year before pregnancy

The first data we examined was the level of reported drug usage in the sample over their lifetime and in the year immediately prior to pregnancy. This subsequently allowed baseline levels of use to be compared with usage during pregnancy. Table 2 shows the number of the 86 participants who reported using each drug during lifetime and pregnancy and the average levels of use at each period in time for those who used each drug. This included a sub-sample of 13 participants who used alcohol and tobacco but no illicit drugs in their lifetime and a small sub-sample of users who had used opiates and crack but who did not consider themselves to be dependent users.

[Table 2 here]

Alcohol was the most frequently used drug in lifetime with all 86 women having used this in their lifetime, with 83 of the 86 using it in the year immediately before pregnancy. Tobacco and cannabis were also widely used in lifetime (tobacco lifetime n=73, year before n=63; cannabis lifetime n=68, year before n=53). The two next most widely used drugs in the year prior to pregnancy were MDMA and powder cocaine (MDMA lifetime n= 54, year before n=32; powder cocaine lifetime n=56, year before n=30). Levels of usage of alcohol, tobacco, cannabis and other stimulants prior to pregnancy were similar to those reported in previous studies of non-pregnant drug-using women (see Milani et al., 2004).

Lifetime use of amphetamines was reported by 55 women, although only 12 had used it in the year leading up to pregnancy. Ketamine, LSD, opiates, ‘magic mushrooms’, crack-cocaine and tranquilisers showed a similar pattern to amphetamines with number of users reducing considerably between lifetime and the year prior to pregnancy.

Profiles of polydrug use

An issue of interest for modelling the effects of drugs is knowing what polydrug combinations are most prevalent, that is to what extent those who used one drug also used other drugs. There was considerable polydrug use in the sample. Not counting alcohol and tobacco, one participant reported having used ten recreational drugs in their lifetime, 16 participants had used eight or more drugs, 9 had used seven drugs, 14 six drugs, 11 used five drugs, and 23 had used between one and 4 drugs. The mean number of different drugs reported in the lifetime for the whole sample was 4.55 (SD=2.99). Table 3 shows the extent to which there was overlap across each drug combination during lifetime, the year before and in the first trimester. In the year before pregnancy the number of participants using illicit drugs was fewer, with 24 participants reporting using no illicit drugs during this period, 21 participants reported using one illicit drug, 36 participants used 2 to 4 drugs, and seven reported using five to eight drugs.

[Table 3 here]

Change in use over the three trimesters

To explore the profile of reduction across trimesters we examined the numbers of participants who continued to use the three most frequently used illegal drugs (cannabis, MDMA and powder cocaine) plus alcohol and tobacco, and also compared the average levels[2] of usage to that reported in the year prior to pregnancy (see Figure 1). We converted the data to percentages in order to be able to directly compare the profiles of usage across drugs and we report relative levels only for those who continued to use the drug.

[Figure 1 here]

As can be seen in Figure 1a, for cocaine and MDMA the number of users and the level of use during pregnancy fell substantially after the first two trimesters. In contrast, the majority of participants who used alcohol in the year before pregnancy continued using it during pregnancy, but at significantly reduced levels. In the first trimester 28 participants reported using no illicit drugs, but even among these women, 10 used tobacco and 19 drank alcohol, with 8 both drinking and smoking. Figure 1b shows that levels of use of alcohol fell (from around 16 units a week[3]) to around 60% of this level in the first trimester, and then to around 25% level in the final two semesters (around 4 units a week). The majority of tobacco

users also continued to smoke during pregnancy. Tobacco users, however, showed a lesser reduction in levels of use than for alcohol, from a year-before average of 77 cigarettes a week to a fairly constant 50-60% level of use through all three trimesters (around 50 cigarettes a week). A similar pattern was also found for use of cannabis, with 60% of users continuing to use upwards of 10 joints a week throughout pregnancy, which was around 60-70% of the level in the year before. Twenty-seven participants used one illicit drug in the first trimester and for the majority (22 of 27) this drug was cannabis. Seventeen of these 27 participants also smoked and 23 drank alcohol, with 15 doing both. Fourteen participants used two drugs (with 10 also drinking and smoking). Twelve participants used three drugs, and five reported using four drugs (14 of these 16 also drank and smoked tobacco). Almost all those who used recreational drugs in pregnancy used cannabis.

Finally we looked at the levels of use of those 55 women who continued to drink throughout pregnancy, the 34 who used tobacco into the third trimester and the 33 who used cannabis, to see if for these chronic users there were reductions in their use across the three trimesters, and when comparing the first trimester to their reported lifetime use. Related t-tests showed significant reductions in use from lifetime to the first semester in alcohol use (related-$t = 4.3$, $df = 54$, $p < .001$), and in tobacco use (related-$t = 3.6$, $df = 33$, $p = .005$) but not in cannabis use (related-$t = 0.49$, $df = 32$, ns). From the first to second trimesters there was a significant reduction in cannabis use (related-$t = 2.3$, $df = 32$, $p < .05$) and alcohol use (related-$t = 2.8$, $df = 54$, $p < .01$), but not in tobacco use (related-$t = 1.3$, $df = 33$, ns). From the second to third trimesters there were no significant further reductions in levels of smoking, drinking, or cannabis use for these chronic users (related-t tests ns).

An additional issue of interest is whether those women who continue to use drugs into the third semester are also those who were high users in the first place. We explored this association by dividing women on the basis of reported use in the year before pregnancy into high and low users. This was done on the basis of the number of drugs reported to have been used. This was considered a conservative approach as it was not based on assumptions regarding distributions. Those women who reported taking 3 or more recreational drugs (not including alcohol and tobacco) in the year before pregnancy were classified as high users. 33 women fell into this category. We examined the data to see if these women were more likely to be using any drugs in the final semester, compared to the remaining women. Of these 33

women, 54.5% (n=18) were still taking at least one drug in the third trimester. This compared to 34% (also n=18) of the low-use women (There being a total of 36 women who took at least one drug in the third trimester). Although this is suggestive that high lifetime use means women are more likely to continue use of drugs into the third trimester, this association was not quite significant (Chi-squared = 3.54, p = .06).

Discussion

This study is the only UK prospective study to date to report in detail and longitudinally the drug use of 'recreational' using women prior to and during pregnancy. The first issue to note was the difficulty we had in recruiting large numbers of participants into the study via hospital midwives. This was a limitation of the study. We speculate that one reason for this may be that, in the UK, women are uncomfortable with revealing their use to midwives, and other pre-natal and postnatal carers, for fear of prejudicing their treatment. More studies are required to establish the reasons underlying this reluctance to participate in this type of study. Certainly future studies in the UK will need to address this issue.

The women who took part in our study had a history of using many 'recreational' drugs, having used, on average, at least four different illicit drugs in their lifetime. We advertised explicitly for 'recreational' drug users, yet within the recruited sample were a small sub-sample of potentially dependent opiate users. The majority of the women drank alcohol and smoked tobacco. Of concern was that for most drug users smoking was maintained throughout pregnancy, with women on average smoking in excess of 50 cigarettes a week. On the other hand, alcohol drinking in drug-using women showed a clear reduction after the first trimester, to levels consistent with the maximum safe level recommended by UK government health advice (Directgov, 2009), suggesting that some health messages may be impacting on the behaviour of these women.

While many women reported using amphetamines, mushrooms, tranquilisers, LSD and ketamine at some point in their lifetimes, few reported having used these in the month and year prior to pregnancy, and the use of these drugs during pregnancy was infrequent. However, concerning the two most common 'club drugs', MDMA and cocaine, the majority of women were using these in the year before pregnancy and many continued use in the month prior to pregnancy, and into the first trimester[4]. Levels then decreased markedly in the

second and third trimesters. This may reflect a reduction in the attractions of 'clubbing', and associated drug use, in pregnant women. Of particular concern, however, was that many women continued using cannabis. The majority of women reported using cannabis prior to pregnancy, and while there was a reduction in the number of users, and levels of use, into pregnancy, this reduction was proportionately far less than with the other illicit drugs, with a large sub-group of (n = 33; 38%) of the pregnant women continuing to smoke, on average, eleven 'joints' a week even into the third trimester.

One can speculate on the possible reasons for continued cannabis use. One possibility is that because cannabis is often perceived as a 'soft drug' it is wrongly assumed by recreational drug using women to be low-risk compared to other legal and illegal substances (Pearson, & Shiner, 2002). With cannabis downgraded from a Class B to a Class C drug in the UK in January 2004, this may contribute to the perception that cannabis has less of an effect on the health of adults and children than other 'hard' drugs and than alcohol. In the wider population, although there has been a recent decline in usage, overall levels of cannabis use have increased significantly over the last decade, despite health warnings, and this lack of concern over potential negative effects may be continued into pregnancy. Further, as cannabis has not been widely featured as a target for pregnancy education campaigns in the UK, women may feel it is relatively safe to continue using it compared to other drugs. While data from studies in North America and the UK suggest that cannabis can have significant long term negative effects on both mother and foetus (Fried & Smith, 2001; Huizink & Mulder, 2006), this information may not be getting though to pregnant women.

However, more work is required with larger samples to determine precisely why recreational drug using women continue using cannabis and tobacco in pregnancy while reducing the use of alcohol and other recreational drugs. The maintenance of cannabis use may simply be because of the strongly addictive nature of tobacco when taken alone and in 'joints'. Further studies are required to explore the perceptions of risks in pregnant women with histories of recreational drug use, and to compare these with the general population. These studies also need to explore the many social, environmental and developmental factors that determine why women continue to use drugs into late pregnancy.

The data revealed considerable 'polydrug' use both in lifetime and pregnancy, with many women having used a combination of alcohol, tobacco, cannabis and in some cases a

variety of stimulants and other psychoactive substances. While we are not able to be sure of the timing of co-occurrence of the drugs, which would only be possible using detailed daily diary methods, the data confirm that infants of pregnant drug users in the UK are likely to be exposed in-utero to a multitude of drugs, and that single dose effects are likely to be rare. Of particular concern is how the effects of drugs may be multiplied when combined (see, for example, Ben Hamida et al., 2008). Our sample suggests that, in the UK, researchers and practitioners should be particularly concerned with the multiplied effects, throughout pregnancy, of cannabis combined with tobacco and alcohol consumption. There have been proposals (for example see Hingson et al., 1982), that combining high levels of cannabis, tobacco and alcohol may make infants more susceptible to Foetal Alcohol Syndrome (FAS). Future animal studies need to pay particular attention to these potential dose and drug combinations when developing models of the teratological effects of recreational substances on brain and behaviour.

Our data show that the women report reducing their levels of many club and party drugs leading up to pregnancy and once they know they are pregnant. While it is recognised that these data are based on self-reports from a self-selected sample, the data indicate that many recreational drug using women are likely to continue to use cannabis throughout their pregnancy in combination with alcohol and tobacco, even though they may stop using other drugs. While the validity of these reports will need to be confirmed with forensic measures such as hair analysis, the reported patterns of lifetime pre-pregnancy use of our recreational drug-using women were in-line with those reported by other recreational drug users in other studies (see Milani et al., 2004; Parrott et al, 2001; Scholey et al, 2004), and we have no reason to suspect systematic over- or under-reporting.

This pattern of use represents a potentially large risk to the well being of women and their babies and the concern is that this may be more widespread amongst pregnant women than is presently realised and could be responsible for detrimental long-term developmental outcomes in children, the causes of which are currently unattributable. We will be reporting on the outcomes of the infants born to these mothers in future papers. Further studies with larger samples are required to explore the associations between continued use of drugs by women in pregnancy and common risk factors, such as relationship status, employment, income, ethnicity and levels of stress (Havens et al,. 2009).

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Table 1: Characteristics of the sample

		N= 86
Maternal age at birth of child	mean	30.3
	sd	6.3
	range	18.5 – 43.5
		n (%)
Maternal social economic status	Professional/managerial	25 (29.1%)
	Intermediate	15 (17.4%)
	Routine/manual	9 (10.5%)
	Unemployed/ full time mother	33 (38.4%)
	No classification	4 (4.7%)
Marital status	Married	27 (31.4%)
	With partner	44 (51.2%)
	Single	14 (16.3%)
	Other	1 (1.2%)
Maternal ethnic origin	Asian/ Indian	4 (4.7%)
	Black	7 (8.2%)
	Mixed race	4 (4.7%)
	White european	71 (82.5%)
Maternal qualification†	Degree	28 (32.6%)
	Vocational qualification	27 (31.4%)
	A Level	10 (11.6%)
	GCSEs	13 (15.1%)
	No formal qualification	7 (8,1%)
	Other	1 (1.2%)
Household income	<£10,000	14 (16.3%)
	£10-20,000	19 (22.1%)
	£20-30,000	18 (20.9%)
	£30-40,000	13 (15.1%)
	>£40,000	21 (24.4%)
	undisclosed	1(1.2%)

† GCSE : UK age 16 school leaving qualifications, Vocational: school or post-school semi-skilled vocational training, A'level: UK advanced, age 18, school/college qualification, Degree: Bachelors level or above UK university degree qualification

Table 2: Average reported drug use per week for those women using the drug over their lifetime, the year before and the month before pregnancy, and during each of the three trimesters.

Total N = 86	Lifetime			Year Before			Month Before			1st trimester			2nd trimester			3rd Trimester		
	n	mean	sd	n	mean	sd	n	mean	sd	n	mean	sd	n	mean	sd	n	mean	sd
Alcohol *(units/week)*	86	19.3	23.4	83	15.5	19.5	75	18.1	26.8	70	10.8	18.9	64	4.1	10.8	55	4.4	11.6
Tobacco *(cigarettes/week)*	73	76.2	48.9	63	76.2	53.3	58	84.6	62.8	54	53.0*	52.5	38	52.9	55.5	34	56.3	59.2
Cannabis *(joints/week)*	68	14.0	16.8	53	19.2	28.6	49	20.9	32.6	47	15.7	25.9	34	13.0	19.6	33	11.3	17.2
Cocaine *(grams/week)*	56	1.0	3.0	30	0.48	1.1	21	0.6	0.9	20	.17	.32	8	.09	.08	3	.03	.15
MDMA *(tabs/week)*	54	2.2	3.9	32	1.6	2.6	18	2.5	3.6	19	1.2	1.8	2	1.0	1.36	1	.16	-
Opiates (units†/week)	28	2.4	7.9	8	6.8	14.4	4	6.1	9.9	6	4.7	5.9	3	0.6	0.7	3	0.4	0.5
Crack cocaine *(crystals/week)*	16	15.4	36	9	14.6	23.5	8	7.9	11.8	6	8.1	13.3	5	1.2	1.7	2	2.1	2.7
Tranquilisers *(tabs/week)*	28	1.2	2.9	13	.53	.84	2	4.5	6.3	3	15.9*	17.7	4	1.4	2.4	3	1.9	2.7

Table 2 continued…

Ampehatmines *(tabs/week)*	55	1.2	2.5	12	0.8	1.3	3	1.1	.9	5	0.1	0.1	0	-	-	0	-	-
Mushrooms (*number/week*)	35	3.8	6.4	8	4.7	6.9	1	0.2	-	3	0.4	0.5	0	-	-	0	-	-
LSD *(tabs/week)*	36	0.42	.79	5	0.14	.06	1	0.25	-	2	0.1	.02	0	-	-	0	-	-
Ketamine *(tabs/week)*	16	.33	.43	3	.26	.15	1	7.0	-	0	-	-	1	.08	-	0	-	-

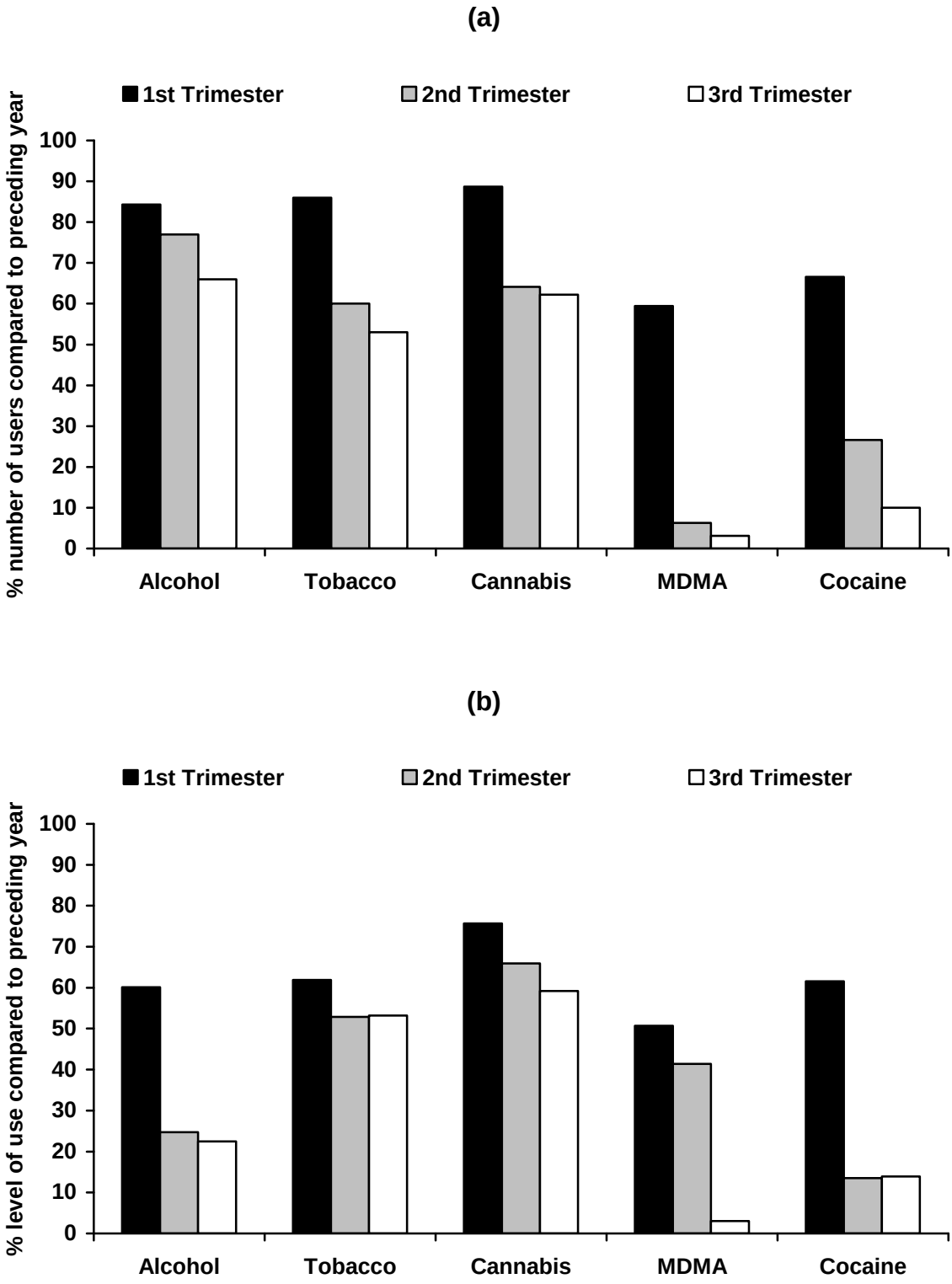
† units refer to an equivalent amount of grams, ml, injections and lines

* note one woman reported taking 35 tranquilisers a week

Table 3: Patterns of polydrug use over lifetime, year before pregnancy, and during first trimester.

Total N = 86	N	% of users who also used:				
Drug used		Alcohol	Tobacco	Cannabis	Cocaine	MDMA
Lifetime						
Cannabis	68	100%	100%	-	81%	76%
Cocaine	56	100%	100%	98%	-	91%
MDMA	54	100%	100%	96%	94%	-
Year before						
Cannabis	53	98%	100%	-	45%	47%
Cocaine	30	97%	100%	80%	-	77%
MDMA	32	97%	100%	78%	72%	-
1st trimester						
Cannabis	47	87%	79%	-	27%	25%
Cocaine	20	90%	90%	65%	-	55%
MDMA	19	95%	84%	63%	58%	-

Figure 1: Showing (a) number of continuing drug users across the three trimesters as a proportion of those using the year before and (b) the level of use compared to average reported use in the preceding year.



Footnotes

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[1] One woman provided Lifetime and P1 data but no P2 data.

[2] Table 2 reports average use per week during the period specified. This was calculated by dividing the total estimated by the participants during the period by the number of weeks in that period. Thus to gain an idea of the total average amount of exposure to drugs in each trimester of pregnancy then these means should be multiplied by 13 weeks.

[3] A unit is a standard measure used in publicising alcohol use in UK health advice. It corresponds to around 10ml of pure alcohol which is estimated to be contained in half a pint of beer, one small glass of wine or one small 25ml measure of spirits.

[4] Note that those women who continued using powder cocaine did not show higher levels of drug dependency.