Chapter 8 Behavioural specificity in ecstasy use research: why we should not examine the determinants of using ecstasy

Ecstasy use is potentially damaging to health [17; 20; 21] yet prevalent [74; 112], and although accordingly, a need for intervention development has been asserted, it has also been observed that evidence to base these interventions on is scarce [35]. If evidence-based interventions are to be developed, more research into the determinants of ecstasy use is necessary. One issue that begs resolution is formed by the potential differences between determinant configurations of the most studied behaviour so far, 'using ecstasy', and the two related behaviours 'trying out ecstasy' and 'ceasing ecstasy use'. Since a recent qualitative review pointed out these potential differences [114], two studies have mapped the determinant configurations of 'trying out ecstasy' [158] and 'ceasing ecstasy use' [159], and indeed conclude that these differ from the determinant configuration of using ecstasy. However, it is possible that the different association strengths that were found are the consequence of different measurement methods. To exclude this possibility, the current paper reports comparisons between determinant configurations of using ecstasy, trying out ecstasy, and ceasing ecstasy use that were mapped using the same measurements.

There are two reasons to assume that the determinants of related but distinct behaviours differ. The first lies in the formulation of the Theory of Planned Behaviour (TPB), the theoretical basis for most ecstasy use research, where Ajzen [30] states the relevance of measuring determinants specifically for the targeted behaviour. Thus, determinants of ceasing ecstasy use and trying out ecstasy should be assessed in relation to these behaviours, and it should not be assumed that the determinants of using ecstasy also predict trying out ecstasy or ceasing ecstasy use. The second reason supports this: a recent qualitative review found different reasons for trying out ecstasy, using ecstasy,

and ceasing ecstasy use [114]. Such qualitative evidence requires quantitative corroboration to minimise biases involved in introspection, and the quantitative studies described above provided this [158; 159]. However, these studies suffer two limitations. First, different association strengths may be caused by different measurement methods of the TPB variables. Second, the association strengths could not be compared statistically. The current paper resolves these issues by reporting new analyses on data that was previously reported in the two publications on trying out ecstasy and ceasing ecstasy use [158; 159] and one additional publication on the determinants of using ecstasy in a sample of non-users, a sample of users, and the combined sample [160]. By comparing determinant configurations that were mapped using the same measurements, the current paper can help us understand potential differences between behaviours.

Methods

The data have been gathered using an online questionnaire [the internet has been argued to be a suitable medium for studying hidden populations such as non-misusing illicit drug users; 149]. It was possible to tailor the questionnaire, enabling data collection for several behaviours simultaneously. Thus, the presently reanalysed data, that was originally reported in three different papers [158-160], was gathered in one large-scale study, where participants were split up into subsamples, and in each subsample, determinants of a specific behaviour were measured. Data are presently reported for four samples: two samples for using, one for trying out, and one for ceasing. Additional details as to the procedure can be found in the original publications. All TPB determinants were measured the same way in all subsamples, with two exceptions. First, in the trying out subsample, intention to use was not measured; rather intention to try out ecstasy was measured (the other determinants were measured for using). Second, descriptive norm was measured differently for all participants. For using ecstasy, ecstasy use of best friend, other friends with whom one attends parties, and other friends was measured; for trying out, whether ones best friend had tried out ecstasy was measured; for ceasing, whether ones best friend had ceased recently, and how many other friends had ceased recently. Additional details as to the measurements can be found in the original publications. Permission to perform

this investigation was granted by the Ethical Committee Psychology of Maastricht University (the ECP).

As Cohen argued, "the primary product of a research inquiry is one or more measures of effect size" [153, p. 1310]. Therefore, rather than their significance, associations' meaningfulness will guide the discussion of the results. Associations are considered meaningful when they are non-trivial. We distinguish five levels of association strength (effect size): trivial, weak (Cohen's d > .2; Pearson's r > .1; Cramer's V > .1; odds ratio > 1.5), moderate (Cohen's d > .5; Pearson's r > .3; Cramer's V > .3; odds ratio > 2.5), strong (Cohen's d > .8; Pearson's r > .5; Cramer's V > .5; odds ratio > 4), and very strong (Cohen's d > 1.3; Pearson's r > .7; Cramer's V > .7; odds ratio > 10) [70; 109; see also 154; 155]. Differences between correlations were tested by converting the correlations to Fisher's Z, after which the effect size q for the difference between two correlations was calculated, and a p value for this difference was attained by calculating the surface of the standard normal function for Fisher's Z for the difference, which consists of q divided by its standard error [see 159 for the exact formulas]. The difference between two correlations is considered small when q >=.1; medium when q >= .3; and large when q >= .5 [70].

Results

The current paper reanalyses the data of 1 213 participants. As can be seen from their characteristics, shown in Table 8.1, the samples are almost completely equivalent. The only significant meaningful differences are small differences. Specifically, non-users in the trying out sample (compared to the using sample) are more likely to be female, and users in ceasing sample (compared to the using sample) are slightly older, lower educated, use less alcohol, and more GHB. However, when considering the TPB determinants, there are larger differences. Non-users have a higher attitude, subjective norm, and PBC regarding trying out than ceasing. The determinants of ceasing use have been reversed, except anticipated regret (so higher values for intention indicate lower intentions to cease, higher values for PBC indicate lower PBC to cease, higher values for descriptive norm indicate that less friends ceased, et cetera). Still, however, all determinants of intention have very different means. This makes very clear that regarding their determinants, ceasing ecstasy use is not the opposite of using ecstasy.

Table 8.1: Participant characteristics (total N = 1 213).

	Non-users			Ecstasy users		
	Using		Trying out	Using		Ceasing
Determinant	(n = 234)	Δ	(n = 443)	(n = 260)	Δ	(n = 276)
Gender (being female)	44%	+**	56%	39%	-	42%
Higher educated	47%	-	52%	61%	+*	50%
Alcohol use	85%	-	86%	90%	+*	84%
Tobacco use	39%	-	41%	68%	-	59%
Cannabis use	26%	-	29%	62%	-	54%
Speed use	3%	-	2%	35%	-	36%
Cocaine use	2%	-	3%	38%	-	36%
GHB use	1%	-	0%	12%	+***	24%
Poppers use	1%	-	1%	8%	-	7%
Nitruous oxide use	0%	-	2%	7%	-	8%
Psylocybin use	2%	-	1%	6%	-	4%
Ketamine use	0%	-	0%	4%	-	6%
LSD use	0%	-	0%	2%	-	3%
Visits a big party twice a year	46%	-	47%	17%	-	15%
- every two to six months	42%		43%	63%		59%
- every month or more	12%		10%	20%		26%
… club/small party bimonthly	23%	-	24%	24%	-	26%
- every two to four weeks	51%		56%	55%		55%
- every week or more	26%		21%	21%		20%
Age	20.30 (5.17)	-	20.50 (5.10)	23.63 (5.71)	+**	25.44 (6.86)
Intention (range: 1–5)	1.55 (.89)	-	1.65 (1.01)	3.92 (1.00)	-	3.97 (0.82)
Attitude (range: 1–5)	2.19 (.97)	+**	2.43 (1.04)	3.79 (.52)	+++***	2.74 (0.58)
Subjective norm (range: 1–5)	-.87 (.64)	+**	-.72 (.60)	-.03 (.45)	+++***	-.51 (0.44)
PBC (range: -2–2)	3.34 (1.33)	++***	4.15 (.90)	4.72 (.51)	+++***	1.83 (0.91)
Descriptive norm (range: 1–5)	2.32 (1.07)	-	2.26 (1.37)	3.79 (.79)	+++***	4.37 (0.62)
Moral norm (range: 1–5)	2.27 (1.33)	-	2.49 (1.37)	4.41 (.86)	+++***	1.69 (1.00)
Anticipated regret (range: 1–5)	3.17 (1.39)	-	2.95 (1.39)	1.46 (.74)	+++***	2.36 (1.14)

Δ = effect size and significance of difference: - trivial and/or nonsignificant, + small, ++ medium, +++ large or larger, * $p < .05$, ** $p < .01$, *** $p < .001$.

Because these intention measures have been shown to be very predictive of subsequent behaviour [158-160], we will presently concern ourselves with the determinant configurations of these intention measures (i.e. the association strengths of these determinants with intention). The associations of the TPB determinants with the behavioural intention measures are shown in Table 8.2, including the effect size measures of the difference between these associations. When comparing the determinant configurations of trying out ecstasy and using ecstasy within non-users, only subjective norm and PBC differ, with small effects sizes. When comparing the determinant configurations of using ecstasy and ceasing ecstasy use within users, attitude, PBC, descriptive and moral

norm, and anticipated regret all differ with small effect sizes. When comparing the determinant configurations of using ecstasy within non-users and users, attitude, subjective norm and anticipated regret differ with medium effect sizes, and PBC, descriptive norm and moral norm with small effects sizes. Clearly, although all determinant configurations are different, the difference between the determinant configurations of trying out ecstasy and using ecstasy is smaller than the difference between the determinant configurations of ceasing ecstasy use and using ecstasy. Most striking is the difference between the determinant configuration of using ecstasy within non-users and the determinant configuration within users.

Interestingly, despite the fact that three different measures for descriptive norm were used in the trying out sample, the ceasing sample, and in the using sample, the correlations between descriptive norm and intention differed most between users and non-users for the behaviour using ecstasy, which was the only comparison where descriptive norm was measured the same within both samples. The difference between the trying out sample and the using sample was trivial and did not even achieve significance, and the difference between the ceasing sample and the using sample is significant but small. This is an indication that all three descriptive norm measures managed to tap the descriptive norm construct satisfactorily similarly. Also, even though the intention measure that was used to assess intention of non-users in the using ecstasy sample was actually their intention to try out ecstasy, which does not adhere to the principle of compatibility between determinants and behaviour as formulated by Ajzen [30], the determinant configurations trying out and using

Table 8.2: Comparisons of determinant configurations for behavioural intentions to use ecstasy, to try out ecstasy, and to cease ecstasy use (total N = 1 213)[1].

	Non-users				Ecstasy users		
Determinant	Trying out (n = 443)	Δ q	Using (n = 234)	Δ q	Using (n = 260)	Δ q	Ceasing (n = 276)
Attitude	.67	.00 ns	.67	-.41	.39	-.24**	.57
Subjective norm	.34	.16*	.47	-.34	.18**	-.13 ns	.30
PBC	.15**	.25**	.38	-.15*	.25	.29	-.04 ns
Descriptive norm	.26	-.01 ns	.24	-.26**	-.01ns	-.15*	.14*
Moral norm	.60	-.09 ns	.54	-.27**	.33	.19*	.15*
Anticipated regret	-.52	-.09 ns	-.58	.39	-.26	.18*	-.09 ns

[1] All statistics are significant at $p < .001$, unless indicated otherwise: * $p < .05$, ** $p < .01$, ns not significant ($p > .05$).

among non-users differed less than the other determinant configurations. This is an indication that although non-users' attitude, subjective norm, and PBC regarding trying out ecstasy are different from their attitude, subjective norm, and PBC regarding using ecstasy, their intentions to try out ecstasy are similar to their intention to use ecstasy.

Discussion

The results that are presently reported make very clear that the determinant configurations of trying out ecstasy, using ecstasy, and ceasing ecstasy use differ. In addition, the determinant configurations of using ecstasy differ between non-users and ecstasy users.

This study has two limitations. First, among non-users, instead of intention to use ecstasy, intention to try out ecstasy was measured. Although the results support the argument that for non-users, these intentions are comparable, this should be studied before any conclusions can be drawn. It is after all also clear that non-users' attitude, subjective norm and PBC regarding trying out ecstasy *are* different from non-users' attitude, subjective norm and PBC regarding using ecstasy. It can not be excluded that the determinant configurations of trying out ecstasy and using ecstasy differ more than is currently apparent, but that this is masked because the wrong intention measure was used. Second, the descriptive norm measure that was used was different for trying out ecstasy, for ceasing ecstasy, and for using ecstasy. Although the results again indicate that this measurement managed to tap the descriptive norm construct adequately for all three behaviours, it is again possible that descriptive norm's association to intention actually differs more strongly between the different behaviours, but that this is masked because different measurements were used.

These admonitions notwithstanding, interesting lessons emerge from these results. The analyses clearly show differences in the determinant configurations of trying out ecstasy, ceasing ecstasy use, and using ecstasy. Interventions aiming to prevent use should target mainly attitude, moral norm, anticipated regret (strongly associated to intention), place less importance on subjective norm (moderately associated), and even less on descriptive norm and PBC (weakly associated). Interventions aiming to promote cessation should target mainly attitude (strongly associated), place lesser importance on subjective norm (moderately associated), and even less on descriptive and

moral norm (weakly associated). Of course, more research is necessary to corroborate these findings.

Finally, it is very clear that future studies into ecstasy use should be very specific about the behaviour they target. In addition, non-users and ecstasy users should not be considered to have the same determinant structure. It has been suggested that there is merit in distinguishing even more user groups [59], and it will be interesting to see what degree of distinction remains informative. It is likely that these conclusions regarding specificity of behaviour and user-group can be generalised to other drugs, such as cocaine and GHB, so it would be advisable for future studies into these drugs to acknowledge the need to specificity of behaviour and user-group as well.