

Chapter 6 Social cognitive determinants of trying out ecstasy: why interventions based on research into using ecstasy may have a hard time preventing ecstasy use

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. In particular, all quantitative research into ecstasy use has examined determinants of the behaviour 'using ecstasy' [35], whereas recent qualitative evidence suggests that reasons, and therefore possibly determinants, of related but distinct behaviours such as 'trying out ecstasy' and 'ceasing ecstasy use' may be different [114]. To address this issue, the current paper reports a study that examines the determinants of trying out ecstasy.

Interventions promoting abstinence from ecstasy use can do so either by targeting non-users and preventing them from trying out ecstasy, or by targeting users and causing them to cease using ecstasy. Thus, the behaviours of interest for such interventions are trying out ecstasy and ceasing ecstasy use, not using ecstasy. This discrepancy may prove problematic because the theories that guided these studies (i.e. Ajzen's Theory of Planned Behaviour [TPB; 30; e.g. 56; 58-61] and the expectation part of the outcome expectancy constructs from Bandura's Social Cognitive Theory [13; SCT; 34; e.g. 54; 55; 57]) both emphasised the relevance of sufficiently specific measures [30; 34]. For example, in exercise research, evidence has been found that suggests that similar but related behaviours can have different determinant configurations (e.g. a social cognitive determinant that significantly contributes to predicting one behaviour need not contribute to the prediction of related behaviours; [84]). Although in ecstasy use, such studies are lacking, a qualitative review did find different

reasons for trying out ecstasy, using ecstasy, and ceasing ecstasy use [114]. If these concerns prove grounded, then that means that there is no research available to inform interventions aimed at preventing ecstasy use or promoting cessation.

The determinants that will be measured are drawn from the Theory of Planned Behaviour [TPB; 30], which has been shown applicable to ecstasy use [56; 58; 60; 61] and as such provides a good starting point. The TPB postulates intentions as most proximal social cognitive determinant of behaviour, in turn predicted by attitude (i.e. evaluation of the likelihood and desirability of that behaviour's consequences), subjective norm (i.e. perception of others' approval of the behaviour) and perceived behavioural control [PBC, i.e. perception of control based on perception of skills and external obstacles/facilitators; very similar to self efficacy; 30]. In addition to these traditional TPB determinants, four additional determinants have been found predictive of ecstasy use [35]: subjective descriptive norm [an extension of the traditional subjective normative construct that assesses the perceived behaviour of social referents; 142], anticipated regret [or affect; the amount of negative emotions one experiences when prospectively imagining not having performed the target behaviour; 143; 144], moral norm [ones personal norm regarding performing a behaviour; 58; 145], and habit. Of these, however, habit will not be included, as trying out ecstasy cannot sensibly be habitual. The outcome expectancy approach [based on Social Cognitive Theory, 34] has also proved informative in explaining ecstasy use [13; 54; 55; 86], and it has been suggested that these two approaches be combined in future research [35]. Therefore, in the current study, a number of expectancies specified in previous Dutch studies [13; 86] were also measured, along with two additions that were based on a Dutch qualitative study [147].

In sum, the current study was designed to address a number of lacunae in ecstasy use research. First, the determinant configuration of trying out ecstasy will be mapped, allowing comparison to the determinant configuration of using ecstasy [see 35]. Second, the overlap of the TPB and the outcome expectancy approach will be addressed. Third, the relative relevance of the traditional TPB determinants and three of the four additional TPB determinants that were found predictive of ecstasy use will be determined.

Methods

Procedure

An online questionnaire study was conducted as the internet has been argued to be a suitable medium for studying hidden populations such as non-misusing illicit drug users [149]. Participants were recruited by links at several dance-related Dutch websites (most participants came from the online community at <http://partyflock.nl>). The questionnaire was administered by a self-chosen virtual interviewer in a Flash interface [150; also see 151]. To activate the proper context for respondents, the interview took place to the background of several party pictures while dance music was playing. Server-side parsing of the content (using PHP and MySQL; see [152]) enabled tailoring of the questionnaire to the respondent (i.e. presentation of every item depended upon previous answers).

This possibility to tailor the questionnaire enabled data collection for several behaviours simultaneously, but only results pertaining to trying out ecstasy will be reported here, and therefore only methodological details relevant to these results. At the first measurement (t_1), demographics, drug use, party behaviour, ecstasy expectations, and behavioural intentions were measured for all participants, after which a subset of participants answered questions about the determinants of trying out ecstasy (the other participants answered questions about the determinants of other behaviours). After three months, participants could access the follow-up measurement (t_2), where their ecstasy use behaviour in the past three months, and their intention try out ecstasy in the next three months, were measured. Five months later (t_3 ; logistical problems delayed this follow-up two months), behaviour was measured again. Participants were attended to the follow-ups by e-mail, and six weekly reminders were sent out. Permission to perform this investigation was granted by the Ethical Committee Psychology of Maastricht University (the ECP).

Measurements

At t_1 , *demographic variables* (gender, age and education level), *drug use* ('which of these substances do you occasionally use at parties?') and *party behaviour* were measured with one item each, as well as a number of consistently reported *ecstasy expectations* (the leading statement "if I would take ecstasy I would . . ." was followed by "feel very good", "feel more connected to other people", "make contact easier", "understand myself better", "have better sex", "get a lot of energy", "live my life more intensely", "have a better life than without

ecstasy", "damage my health", "feel bad the next couple of days", "feel nauseous", and "get stiff jaws"). *Behavioural intention to try out ecstasy* was measured with two items (i.e. 'do you intend to try out ecstasy in the next three months?' and 'do you think that you will indeed do that?', both absolutely not-absolutely; range 1-5; $\alpha = .94$).

Attitude was measured with five semantic differentials (i.e. 'I think that trying out ecstasy is/would make me ...', unpleasant-pleasant, bad-good, unwise-wise, not nice-nice, unhappy-happy; range 1-5; $\alpha = .90$). *Subjective norm* was measured by multiplying an item tapping injunctive subjective norm (e.g., 'how would your parents feel if you were to use ecstasy?', disapproving-approving; range -2-2, also including an option 'I don't know' with the same value as the middle option 'neutral', i.e. 0) with an item tapping motivation to comply (e.g. 'how important do you find your parents' opinion about whether you use ecstasy?', very unimportant-very important; range 1-5) for best friend, other friends, and parents, and dividing the product by 5 to get a range of -2-2 ($\alpha = .72$). *Perceived behavioural control* was measured with two items (i.e. 'imagine that you would want to try out ecstasy', followed by 'does it seem easy to you to try out ecstasy?', 'do you think you would manage to try out ecstasy?', absolutely not-absolutely; range 1-5; $\alpha = .72$).

Descriptive norm was measured by a single item ('did your best friend try ecstasy, and what does he/she think about it?' with as answer options 'no, and he/she does not want to' (coded 1), 'yes, but he/she no longer uses' and 'yes, and I don't know whether he/she still uses' (both coded 2), 'no, and I don't know whether he/she wants to' (3), 'yes, and he/she still uses' (4), and finally 'no, but he/she does want to' (5). *Moral norm* was measured by two reverse items (i.e. 'trying out ecstasy contrasts my principles', 'I would feel troubled if I were to try out ecstasy' absolutely not-absolutely; range 1-5; $\alpha = .87$).

Anticipated regret was measured by three items (i.e. 'imagine that in a few weeks at a party you try out ecstasy. Imagine how you would feel the next day. Would you [regret it/worry/feel guilty]?', not at all-very much; range 1-5; $\alpha = .90$).

At t_1 , *intention* was measured with the first of the two intention items used at t_1 . *Behaviour* at t_2 and t_3 was measured by asking whether since the last questionnaire, participants had taken ecstasy, and if so, how often (to which participants typed in a number). In addition, the number of parties participants had attended in the past three months was measured.

Analyses

As Cohen argued, “the primary product of a research inquiry is one or more measures of effect size” [153, p. 1310]. Especially with large samples, trivial associations can become significant. 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].

For the significance tests of bivariate associations between one dichotomous and one continuous variable, the t-test for unequal variances will be used (in recognition of the issues pointed out by Ruxton [156]). In addition to bivariate analyses, we will conduct a number of multivariate analyses to enable exploration of associations between variables while artificially keeping other variables constant. In particular, we used linear and logistic regression. In these analyses, Cook’s distances were examined (but always remained low), and cases with absolute studentised residuals > 3 were considered outliers and discarded from the analyses (two cases).

Results

At the first measurement (t_1), 1,772 non-users participated. At the second measurement (t_2), 803 of these were retained (45%), and at the third measurement (t_3), 479 participants (60%). At t_1 , 443 non-users participated in the TPB determinant subsample (where the determinants of trying out ecstasy were measured). Of these, 221 were retained at t_2 , and 121 at t_3 . Drop-out analyses for demographic variables, used drugs, party behaviour, intention and expectancies showed that only one variable was significantly and meaningfully associated to whether participants dropped out at t_2 : sex just achieved a small odds ratio (OR = 1.5, $\chi^2[1] = 17.99$, $p < .001$). Drop-out at t_3 was only significantly and meaningfully predicted by the expectation that using ecstasy lead to a stiff jaw (Cohen’s $d = .20$, $t[674.09] = -2.76$, $p < .01$). The characteristics of the participants are shown in Table 6.1, separate for non-intenders (those participants that indicated to be certain of their intention to not use ecstasy, intention = 1) and intenders (with a higher intention). Compared to non-

Table 6.1: Participant characteristics (for means, standard deviations are provided in parentheses) and differences between non-intenders and intenders.

Variable name or categories	% or mean (sd)		Difference ¹		
	Range	Non-intenders (n = 1198)	Intenders (n = 574)	Lbl ²	Unit Value
Gender (being female)		57%	55%	-	OR .95 ^{ns}
Higher educated		38%	48%	-	OR 1.48
Alcohol use		80%	88%	+	OR 1.86
Tobacco use		36%	47%	+	OR 1.58
Cannabis use		13%	39%	+++	OR 4.41
Speed use		.3%	5.4%	++++	OR 17.04
Cocaine use		.7%	3.5%	+++	OR 5.37
GHB use		.3%	.5%	+	OR 2.09 ^{ns3}
Poppers use		.2%	1.9%	++++	OR 11.68 ⁴
Nitrous oxide use		1.4%	2.4%	+	OR 1.74 ^{ns}
Psylocybin use		.5%	1.4%	++	OR 2.81 ^{*3}
Ketamine use		.1%	.3%	+++	OR 4.19 ^{ns3}
LSD use		0%	.5%	-	OR 1.01 ^{*3}
Visits a big party twice a year or less		35%	35%	-	V .02 ^{ns}
- every two to six months		53%	52%		.03 ^{ns}
- every month or more		12%	13%		-.12 [*]
Visits a club/small party bimonthly		23%	21%	-	V .92
- every two to four weeks		51%	54%		.77
- every week or more		26%	25%		.65
Age in years	11-51	20.45 (4.28)	19.89 (4.99)	-	d .65
Expectation to feel very good	1-5	2.19 (1.31)	3.35 (1.14)	+++	d .60
Expectation to feel more connected	1-5	2.22 (1.34)	3.23 (1.24)	+++	d .65
Expectation to make contact easy	1-5	2.48 (1.42)	3.37 (1.24)	++	d .65
Expectation to understand self better	1-5	1.56 (.93)	2.19 (1.09)	++	d .37
Expectation to have better sex	1-5	2.11 (1.22)	2.85 (1.23)	++	d -.44
Expectation to get a lot of energy	1-5	3.36 (1.41)	4.19 (.95)	++	d -.39
Expectation to live a more intense life	1-5	1.65 (1.01)	2.34 (1.14)	++	d -.45
Expectation to have a better life	1-5	1.52 (1.16)	1.94 (1.16)	+	d .03 ^{ns}
Expectation to damage health	1-5	4.46 (1.08)	3.99 (1.08)	+	d 2.45
Expectation to feel bad for a few days	1-5	4.24 (1.10)	3.82 (1.08)	+	d 1.83
Expectation to feel nauseous	1-5	3.51 (1.27)	2.97 (1.03)	+	d .64
Expectation to get stiff jaws	1-5	3.51 (1.30)	3.55 (1.07)	-	d .24 ^{**}
Intention	1-5	1.00 (.00) ⁴	2.58 (1.01) ⁴	++++	d .62
Attitude	1-5	1.85 (.80) ⁴	3.26 (.74) ⁴	++++	d 1.40
Subjective norm	-2-2	-.73 (.71) ⁴	-.30 (.58) ⁴	++	d -1.07
Perceived behavioural control	1-5	4.06 (.96) ⁴	4.28 (.78) ⁴	+	d .95 ^{ns}
Descriptive norm	1-5	1.93 (1.19) ⁴	2.74 (1.45) ⁴	++	d 1.48
Moral norm	1-5	1.84 (1.05) ⁴	3.42 (1.23) ⁴	++++	d 1.86
Anticipated regret	1-5	3.49 (1.27) ⁴	2.18 (1.16) ⁴	+++	d 1.58

¹ For all differences, $p < .001$, unless specified otherwise, ² Association strength labels: - trivial, + weak, ++ moderate, +++ strong, ++++ very strong, ³ For these variables, the chi-square statistic is not reliable (one cell had predicted count < 5 , * $p < .05$, ** $p < .01$, ^{ns} Not significant ($p > .05$), ⁴ For these, $n = 260$ for non-intenders and 183 for intenders.

Table 6.2: Means, standard deviations, and correlation coefficients for the associations between all determinants (n = 443).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Means	2.98	3.02	3.09	1.93	2.55	3.81	2.08	1.74	4.19	4.04	3.19	3.48	1.65	2.43	- .55	4.15	2.26	2.49	2.95	
Standard deviations	1.36	1.39	1.42	1.06	1.24	1.27	1.18	1.16	1.12	1.12	1.19	1.17	1.01	1.04	.69	.90	1.37	1.37	1.39	
1 Helps to feel very good	-																			
2 Helps to feel connected	.68	-																		
3 Helps to make contact easier	.58	.72	-																	
4 Helps to understand self	.44	.43	.47	-																
5 Sex enhancement	.43	.45	.42	.35	-															
6 Provides energy	.51	.51	.52	.31	.43	-														
7 Helps to live more intensely	.42	.40	.37	.47	.37	.30	-													
8 Helps to live a better life	.20	.20	.19	.33	.24	.11	.35	-												
9 Damages my health	-.02	-.05	-.06	-.09	-.11	.03	-.17	-.07	-											
10 Induces down period	-.02	.00	.03	-.07	-.05	.06	-.11	-.07	.63	-										
11 Makes me feel nauseous	-.28	-.22	-.17	-.11	-.13	-.16	-.17	-.06	.34	.34	-									
12 Makes my jaws feel stiff	.07	.09	.10	.04	-.01	.21	-.01	-.09	.27	.32	.32	-								
13 Behavioural intention	.38	.28	.27	.25	.27	.28	.29	.24	-.22	-.21	-.28	-.03	-							
14 Attitude	.55	.46	.39	.35	.38	.42	.37	.22	-.23	-.16	-.29	.01	.67	-						
15 Subjective norm	.24	.21	.19	.17	.22	.19	.18	.10	-.20	-.11	-.21	.05	.32	.46	-					
16 PBC	.10	.12	.06	.04	.08	.15	.02	-.02	.04	.01	-.06	.12	.15	.20	.31	-				
17 Descriptive norm	.20	.15	.18	.16	.16	.17	.17	.13	-.12	-.07	-.17	.04	.26	.29	.41	.15	-			
18 Moral norm	.38	.32	.29	.25	.25	.31	.28	.18	-.26	-.19	-.27	-.02	.60	.74	.41	.10	.26	-		
19 Anticipated regret	-.34	-.29	-.23	-.22	-.25	-.29	-.22	-.13	.18	.18	.23	.00	-.52	-.66	-.43	-.17	-.23	-.66	-	

With N = 443, correlation coefficients below .10 have a p-value < .05; below .13 a p-value < .01; and below .16 a p-value < .001.

Table 6.3: Regression analyses to predict intention from traditional (step 1) and additional (step 2) TPB determinants (N = 438).

	β step 1	β step 2
Attitude	.69***	.48***
Subjective norm	-.02	-.09
Perceived behavioural control	.00	.01
Descriptive norm		.08*
Moral norm		.21***
Anticipated regret		-.08
R ²	.45	.49
R ² change	.45	.04
F of R ² change	120.16***	9.54***
Df _F (change)	3	3
Df _F (error)	434	431

* $p < .05$, ** $p < .01$, *** $p < .001$.

intenders, intenders were more likely to be higher educated, use alcohol, tobacco, cannabis, speed and cocaine, have higher positive expectations and lower negative expectations (except for the expectation to get stiff jaws when using ecstasy) and score higher on all TPB determinants.

In bivariate analyses, participants' intention at t_1 very strongly predicted whether they would indeed have tried out ecstasy at t_2 (1.44 vs. 2.87, Cohen's $d = 1.79$, $t[801] = -6.21$, $p < .001$), and intention at t_2 very strongly predicted use at t_3 (1.29 vs. 2.53, Cohen's $d = 1.97$, $t[446] = -4.76$, $p < .001$). When using the dichotomised intention measure to compare non-intender to intenders, similar strong associations were found, with the odds of intenders at t_1 having tried out ecstasy at t_2 being over seven times the odds of non-intenders (OR = 7.25, $\chi^2[1] = 28.23$, $p < .001$), and the odds of intenders at t_2 having tried out ecstasy at t_3 being over eleven times the odds of non-intenders (OR = 11.81, $\chi^2[1] = 27.28$, $p < .001$; however, the χ^2 is not reliable as one cell had an expected count < 5). Of the 221 participants in the TPB determinants subsample that were retained at t_2 , only 14 had tried out ecstasy. Therefore, it was not possible to conduct a multivariate analysis to assess the associations of intention and perceived behavioural control (PBC) simultaneously. Nonetheless, it is clear that intention to try out ecstasy is a very strong predictor of subsequent ecstasy use. This crucial role for intention warrants closer examination of its determinants.

The correlations between all determinants are shown in Table 6.2. Regression weights in regression analyses of intention on the traditional (step 1) and additional (step 2) TPB determinants are shown in Table 6.3. In the first step of the regression analyses, only attitude achieves significance, and the

model explains 45% of the variation in intention. In the second step, in addition to attitude, descriptive norm and moral norm achieve significance, explaining 49% of the variation in intention (a parsimonious model with only these three predictors explains 48% of the variation in intention).

To assess the degree of overlap between the expectation approach and the TPB approach, we conducted two analyses. First, to establish the degree to which the expectations explain variation in TPB's attitude, attitude was regressed upon the expectations. The results are shown in Table 6.4. The expectations together explain 46% of the variation in TPB's attitude measure. The significantly contributing expectations are the expectation that ecstasy helps to feel very good, that it enhances sex, provides energy, and that it damages ones health and causes nausea. Second, we examined whether these expectations have additional predictive value over the TPB. We did this by saving, for every participant, their predicted intention to use ecstasy as predicted by the parsimonious model described above. The difference between each participants' measured intention and their predicted intention (the residual) represents the part of intention that cannot be explained by the TPB

Table 6.4: Regression analyses where attitude was predicted from the ecstasy expectations, and regression analyses where the residuals were predicted from the ecstasy expectations (these residuals are the differences between measured intention and intention predicted by a parsimonious model consisting of the significant predictors in step 2 in Table 6.3).

	β s for attitude (N = 440)	β s for residuals (N = 438)
Help to feel very good	.34*	.06
Helps feeling more connected	.06	-.18*
Helps to make contact easier	-.03	.09
Helps to understand myself better	.05	-.06
Sex enhancement	.09*	-.01
Provides energy	.16*	.00
Helps to live life more intensely	.06	.03
Helps to live a better life	.06	.09
Damages my health	-.19*	.01
Makes me feel bad for days after use	-.05	-.10
Makes me feel nauseous	-.08*	-.06
Makes my jaws feel stiff	.03	.01
R ²	.46	.04
F of R ²	30.18***	1.32
Dfr (model)	12	12
Dfr (error)	427	425

* p < .05, ** p < .01, *** p < .001.

determinants. We then regressed this residual upon the expectations. This shows what percentage of intention, of the part that cannot be explained by the TPB determinants, can be explained by the expectations, providing a measure of their additional value. The advantage of this approach compared to conducting a hierarchical regression analysis is that in this way, only the variation in intention that is not already accounted for by the TPB determinants is considered, whereas in a hierarchical regression analysis, it is possible that expectations' regression coefficients achieve significance by explaining variation that was previously explained by for example attitude. As can be seen in Table 6.4, the model fails to achieve significance, explaining only 4% of the unexplained part of intention. Because 51% of the intention to try out ecstasy remains unexplained, this means that the expectations together explain an addition 2% of intention.

Discussion

Non-users' intention to try out ecstasy was highly predictive of subsequent ecstasy use, rendering it expedient to map the determinant configuration underlying this intention. Bivariate analyses showed strong associations between determinants and intention. Specifically, when examining correlation coefficients, the determinants that were most strongly associated to intention to try out ecstasy were attitude, moral norm and anticipated regret (all with strong associations), followed by subjective norm and the expectation that ecstasy helps to feel very good (both moderately associated). When comparing non-intenders with intenders, attitude and moral norm had very large associations, and anticipated regret and the expectations to feel very good and to feel more connected when using ecstasy had strong associations, and subjective norm and many other expectations had moderate associations. However, when analysing these associations multivariately, these determinants turned out to explain mostly the same variation in intention. When only looking at the traditional TPB determinants, only attitude achieved significance, explaining 45% of intention, and when adding the additional TPB determinants to the model, descriptive norm and moral norm also achieved significance, together explaining 49% of the variation in intention. Subsequent analyses showed that the expectations explained 46% of TPB's attitude, but that together, they could not explain variation in intention that was not already explained by the TPB.

The current study suffers three limitations. First, the behavioural measure relies on self-reports. Even though these have been shown to be reliable [112; 157], of course, it would have been desirable to eliminate all possibility of measurement error. Second, no belief-based measures were used. Although earlier studies have found direct measures to yield no different results from belief-based measures [58], it would have been interesting to see whether these results would replicate. Third, a number of relevant beliefs and determinants have not been measured. This is partly because results from a recent qualitative review [114] were not yet available. Future research should include more beliefs drawn from qualitative research so as to gain a better understanding of non-users' intention to try out ecstasy. Fourth, the current sample was recruited purely by letting participants voluntarily participate. It cannot be excluded that certain groups of participants, for example non-users that are strongly inclined to remain non-users and have no interest in ecstasy at all, have not participated. The NeXT study [see for example 110] is an excellent example of a study utilising a design that does not suffer such flaws.

Despite these limitations, this study does provide interesting results. First, this is the first study to address the behaviour trying out ecstasy. And perhaps related to this, it became clear that less than half of potential future users' intention to try out ecstasy is understood. Although this is promising for the first study examining this behaviour (reviews found mean R^2 s of .39 [46] and .41 [33]) it is also clear that interventions aiming to prevent ecstasy use have an urgent need for more research to inform them. As long as it is not clear which determinants are relevant and which beliefs underlie these determinants, developing evidence-based interventions remains problematic. Second, the current data do support the theoretical assumption that TPB's attitude encompasses the expectations from Social Cognitive Theory. These results also make clear that for trying out ecstasy, this attitude measure encompasses many expectations that are as yet unknown, as less than half of the variation in attitude is understood. Since it is these specific cognitive measures that can guide intervention development, it seems advisable to direct research attention to mapping these expectations. Such studies should, however, combine these measurements with other TPB determinants, so that it may become clear whether indeed all expectations underlie attitude.

And finally, when comparing the associations between determinants and the intention to try out ecstasy to the associations found in a meta-analysis of the determinants of using ecstasy [35], it seems that indeed the determinant

configuration of trying out ecstasy differs from that of using ecstasy. Attitude is strongly associated to intention both for using and for trying out, but subjective norm, descriptive norm and PBC are strongly associated to intention to use, whereas subjective norm and descriptive norm are moderately associated to intention to try out, and PBC only weakly. Moral norm, on the other hand, is only moderately associated to intention to use ecstasy, but strongly associated to intention to try out ecstasy, and anticipated regret is only weakly associated to intention to use, but strongly to intention to try out. Because the results from the meta-analysis represent an amalgamation of results from studies that use different measurement methods for the TPB determinants in different populations, and the current study used slightly different measurements again, it cannot be excluded that these measurement differences caused the different association strengths until a study compares samples where the same measurement was used. However, as these apparent differences are in line with the qualitative evidence [114; 147], and are predicted by the TPB [the condition of compatibility; see 30], it seems reasonable to assume that they do reflect real differences. Thus, whereas the strongest predictors of intention to use ecstasy are attitude, subjective norm, descriptive norm, and perceived behavioural control, the strongest predictors of intention to try out ecstasy are attitude, moral norm, and anticipated regret. This means that interventions aiming to prevent ecstasy use would do well to target these determinants, rather than subjective norms, descriptive norms or PBC.