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Using the theory of planned behavior and barriers to treatment to predict intention to enter further treatment following residential drug and alcohol detoxification: a pilot study

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Keywords

study, predict, pilot, detoxification, alcohol, drug, residential, following, further, enter, intention, theory, treatment, barriers, behavior, planned

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

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Abstract

There has been limited research examining the impact of clients' behavioural beliefs on whether they intend to access further treatment following residential drug and alcohol detoxification. Treatment post-detoxification is generally recommended to reduce relapse and for more sustained positive outcomes. The present pilot study examined the extent to which (1) primary components of the Theory of Planned Behaviour (TPB), (2) perceived barriers to accessing treatment, and (3) the participants' previous involvement in substance abuse treatment predicted intentions to enter further treatment following residential detoxification. One hundred and sixty eight participants accessing Salvation Army detoxification units in Australia completed a survey measuring the primary components of the TPB and treatment barriers. Logistic regression analyses indicated that the attitudes and perceived behavioural control components of the TPB significantly predicted intent to enter treatment following detoxification. The implementation of a longitudinal study to examine whether these intentions actually lead to people accessing further treatment is recommended, and possible clinical strategies to enhance intention are discussed.

Key words.

Detoxification, residential, Theory of Planned Behaviour, The Salvation Army, intention.

Using the Theory of Planned Behavior and Barriers to Treatment to Predict Intention to Enter Further Treatment Following Residential Drug and Alcohol Detoxification: A pilot study.

The primary function of residential detoxification services is to manage the physiological symptoms of drug and alcohol withdrawal, with detoxification programs typically being completed within 3 to 7-days. Approximately 50% of people completing detoxification have what would be considered a negative outcome, such as relapse, at follow-up (e.g., Castaneda, Lifshutz, Galanter, Medalia, & Franco, 1992; Franken & Hendriks, 1999; Mark, Dilonardo, Chalk, & Coffey, 2003). Client outcomes following the completion of detoxification seem to be enhanced if the person subsequently engages in further treatment (e.g., Chutuape, Jasinski, Fingerhood, & Stitzer, 2001a). However, published studies report that only between 46% and 64% of people with drug and alcohol problems actually attend treatment following detoxification (see Blondell, Amadasu, Servoss, & Smith, 2006). Detoxification units have the potential for engaging and facilitating further treatment for clients in order to improve long-term treatment outcomes. Thus, it is important to understand the factors associated with clients attending further treatment to inform strategies to better support engagement with such services.

The Theory of Planned Behaviour (TPB, Ajzen, 1991) is a model that has been used to predict and explain a wide range of human behaviour including condom use (Bealanger, Godin, Alary, & Bernard, 2002), smoking (Hoie, Moan, & Rise, 2010), drinking alcohol whilst pregnant (Ve´zina-Im & Godin, 2010) and using safe injecting procedures (Gagnon & Godin, 2009). The model is composed of three primary components. These include the person's; (1) attitude towards the behaviour, (2) his/her perception of social norms associated with the behaviour, and (d) his/her perceived behavioural control (PBC) to engage in the behaviour. Broadly speaking, attitudes relate to whether the person has a positive or negative view toward the behaviour (like/dislike, good/bad), social norms are the persons beliefs that other people (whose opinions have some importance to them) think that they should engage in the behaviour

and, PBC is the extent to which the person believes they have the ability or resources to be able to engage in the behaviour. These three components are used to predict the person's intention to engage in the behaviour. Intention has consistently been demonstrated to be a reliable predictor of actual behaviour (see Ajzen, 1991) and has been suggested for use when testing a procedure prior to implementation (Bonetti, et al., 2006). The TPB has been extensively utilised to predict a wide range of behaviours (Armitage & Conner, 2001; Cooke & French, 2008). A meta-analysis involving 185 independent studies sampling a wide range of behaviours (e.g., fruit consumption, health screening, voting) found that attitudes, social norms and perceived behavioural control (PBC) had a sample weighted multiple correlation with intentions of $r_+ =$ .63. Together these variables accounted for 39% of the variance in intentions (Armitage & Conner, 2001). Attitudes clearly had the strongest relationship with intentions ($r_+ =.49$, $R^2 =$ .24), followed by PBC ($R_+ =$, .43, $R^2 = .18$) and social norms ($r_+ = .34$, $R^2 = .12$). Intentions alone accounted for 22% of the variance in prospective behaviour ($r_+ = .47$) (Armitage & Conner, 2001). The predictive value of the TPB in relation to health screening behaviours appears slightly higher. In a meta-analytic study involving 33 studies examining attendance at screening programs, attitudes were again the strongest predictor of intentions ($r_+ = .51$), again followed by PBC ($r_+ = .46$) and social norms ($r_+ = .41$) (Cooke & French, 2008). Intention had a medium positive relationship with prospective behaviour attendance ($r_+ = .42$) (Cooke & French, 2008).

To our knowledge, the TPB has only been used once to predict further treatment for individuals following illicit drug detoxification (Kleinman, Millery, Scimeca, & Polissar, 2002). This study found that intention to enter treatment, positive attitudes, and PBC were all significantly related to self-reported attendance at treatment following detoxification. A limitation associated with the study was its selection of measures (Kleinman, et al., 2002). This potentially reduced the predictive ability of their model, and may explain why their measure of

perceived barriers to treatment did not predict further treatment involvement. To measure this construct the authors relied on a small pool of items generated specifically for their study. However, there are now more comprehensive and psychometrically sound measures available. For example, the Barriers to Treatment Inventory (BTI) was developed specifically for the substance abuse field (Rapp, et al., 2006). It has 25-items and includes seven primary barriers (i.e. absence of problem, negative social support, fear of treatment, privacy concerns, time conflict, poor treatment availability, and admission difficulty). It is possible that a more detailed and thorough analysis of both barriers and the primary components of TPB will better predict further treatment involvement. Additionally, it is important to replicate these findings with other populations (Kleinman, et al., 2002). The Kleinman (2002) study was conducted within the United States with individuals attending detoxification for heroin and/or cocaine abuse. It is not clear to what extent the TPB would predict further treatment attendance for individuals from different cultural backgrounds, people who used other substances of abuse (e.g. alcohol, cannabis, amphetamines) or people attending detoxification programs outside of the United States.

The present study examined the feasibility of using the primary components of the TPB (i.e. attitudes, social norms and PBC) and the BTI to predict intention to engage in further treatment. The participants previous experience attending substance abuse treatment was also included as a predictor of intention as past behaviour has consistently been demonstrated to predict future behaviour (Ouellette & Wood, 1998), including further treatment following detoxification (Chutuape, Katz, & Stitzer, 2001b). As this was a pilot study, intentions to enter further treatment was used as a proxy of actual attendance (Bonetti, et al., 2006). It was hypothesised that the primary components of the TPB, treatment barriers and previous involvement in substance abuse treatment would together predict intentions to enter further treatment following completion of the detoxification program. More positive attitudes, stronger

normative expectations (social norms) and higher PBC will all be positively related to intentions. Higher barriers will be negatively related to intentions. Those who have previously been in treatment will have higher intentions. With regard to the relative strength of the predictors, the negative finding for PBC in predicting further drug and alcohol treatment (Kleinman, et al., 2002), makes its likely contribution unclear. However, given the consistent prior meta-analytic research in other behaviour domains it was hypothesised that attitudes would be the strongest predictor of intentions.

Method

Participants

The sample consisted of individuals attending one of three Australian residential detoxification services provided by The Salvation Army. The detoxification centres are located in Sydney, New South Wales (10 beds), Brisbane, Queensland (12 beds), and the Gold Coast, Queensland (11 beds) and are categorised as Medium Level 1 detoxification facilities (Health, 1999). This means that patients at risk of severe medical or psychiatric complications were not admitted. The standard detoxification length is 7 days, although this varies on an individual basis depending on the level of care required.

During the study period it was estimated that 410 clients accessed the services, with 168 clients (41%) agreeing to participate in the study. No information was collected on participants who did not agree to participate in the study. Of the participants who did agree, the average age was 39.13 years (*SD* = 10.56) and the majority of participants were male (86%). Seventy-nine percent of individuals were born in Australia, with only 2 participants reporting that English was their second language. Thirty-three percent of participants reported that they usually lived in supported housing (e.g. shelters), other treatment settings (e.g. residential rehabilitation services) or were homeless. Alcohol was the primary substance of abuse for the majority of people who participated in the study (70%). This was followed by Cannabis (13%),

Amphetamines (7%) and Heroin (7%). Demographic information and drug use history are reported in Table 1.

Insert Table 1 about here

Measures

Background Information - A brief background questionnaire was used to collect demographic details such as gender, age, county of birth, "language you prefer to speak" and place of usual residence. Participants were asked to indicate their primary drug(s) of abuse, the number of years they have had substance abuse problems, and "Have you previously sought treatment for your substance abuse problem" (yes or no). If participants had attended previous treatment they were asked to indicate if it was (1) residential rehabilitation, (2) outpatient counselling, (3) 12-step participation or (4) other (asked to specify).

Theory of Planned Behaviour (TPB) - This measure consisted of 16 items, with four items to assess each component of the TPB. Example items for each component are: Intent, "I intend to use further drug / alcohol services after detoxification"; attitudes, "It is 'valuable' for me to utilize further drug / alcohol services after detoxification"; social norms, "Most of the people who are important in my life would think I should attend further drug / alcohol services after detoxification" and PBC, "I have very little power over my ability to utilize further drug / alcohol services after detoxification"). The items were adapted from previous studies examining the TPB (Caperchione, Duncan, Mummery, & Pullism, 2008; Conner & Sparks, 1996). Items assessing the TPB were scored on a 7-point Likert scale, with the anchors differing depending on the type of question. For example, some questions ranged from 1 (Definitely do not) to 7 (Definitely do), while others ranged from 1 (Unlikely) to 7 (Likely). Scores for each component of TPB were based on an average of the 4-items that made up each subscale. The Cronbach alphas for subscales in the present study were generally satisfactory

(see Table 2) with the exception of PBC (0.54). The PBC scale could not be significantly improved with the deletion of items.

Items to assess TPB constructs tend to vary somewhat from study to study, but are typically based on the sample TPB Questionnaire provided by Azjen (2010). There is considerable reliability and validity data regarding these measures and their related constructs. For example, the PBC construct is conceptually close to self-efficacy. Armitage and Conner (1999) provided evidence for convergent and disciminant validity of the PBC items by showing they were reliably discriminated from self-efficacy items when subjected to principal components analysis. The 3-month test-retest coefficient for the PBC measure was r = .58.

In the current study, the intention scale was skewed, suggesting that overall people were more likely to attend further treatment following detoxification. As transformations did not improve the distribution, the intention variable was dichotomised. This involved labelling all responses from 1 to 5 as "Low Intent" (n = 52), and all responses from 6 to 7 (n = 88) as "High Intent". Limitations of dichotomising a continuous variable are the potential loss of information about variation among individuals not at the extreme end of a scale and a loss of statistical power (MacCallum, Zhang, Preacher, & Rucker, 2002). Dichotomization can also reduce comparability across studies when the point of dichotomization is data dependent (Allison, Gorman, & Primaver, 1993). However, one of the few situations where dichotomisation may be justified is when data are highly skewed and this does not improve substantially with the use of transformations (MacCallum, et al., 2002).

Barriers to Treatment - Participants perceived internal and external barriers to treatment entry were measured using the Barriers to Treatment Inventory (BTI; Rapp, et al., 2006). The 25-item measure was developed to assess potential difficulties in attending drug / alcohol treatments. Participants respond to questions on a 5-point Likert scale ranging from 1 (Disagree Strongly) to 5 (Agree Strongly). The measure consists of seven subscales that includes: absence

of problem (e.g. "My drug/alcohol use is not causing me any problems"), lack of social support (e.g. "Friends tell me not to go to treatment), fear of treatment (e.g. "I am too embarrassed or ashamed to go to treatment"), privacy concerns (e.g. "I hate being asked personal questions"), time conflict ("It will be hard for me to find a treatment program that fits my schedule"), poor treatment availability ("I do not know where to go for treatment"), and admission difficulty (e.g. "I have to go through too many steps to get into treatment"). Confirmatory and exploratory factor analyses found the BTI to have good content validity and reliability (Rapp et al., 2006). In the current study subscale Cronbach alphas were generally satisfactory (see Table 2).

Procedures

The Salvation Army staff members were instructed to invite all patients who entered the facility to be involved in the study. Participants received an "Information Sheet" regarding the study that explained the purpose of the research was to examine participants' intentions to enter further treatment after completion of the detoxification program. They were informed the questionnaire would also ask about potential barriers to treatment and treatment readiness and would take approximately 45 minutes to complete. Participants were informed that participation was entirely voluntary. Ethical review led to the decision to allow patients time to become medically stabilised before being approached to participate. As a result, those participants who left the facility prior to this time (typically 3rd day) were not approached to be included in the study. Additionally, patients not considered medically stabilised by staff during their stay (e.g. people transferred to more intensive units) would not have been approached to participate in the study. This likely explains the low participation rate. The average time in detoxification when surveys were completed was 3.77 days (SD = 2.49). All participants provided informed consent and the study protocols were reviewed and approved by the University of Wollongong Human Ethics Committee.

Data analysis

Descriptive statistics, means, standard deviations and internal consistency (Cronbach Alpha) were calculated for all relevant measures and subscales. Spearmans correlations and point biserial correlation were used to examine the relationship between intention, previous attendance at substance abuse treatment, the direct measures of the TPB (i.e. attitudes, social norms and PBC) and the BTI subscales (i.e. privacy concerns, admission difficulties, time conflict, fear of treatment, poor availability, lack of social support and absence of problem). Variables that were significantly correlated with intention at the .05 level (i.e. attitudes, social norms, PBC and absence of problem) were included in the binary logistic regression to predict the categorical variable of intention.

Results

Drug use history and barriers to treatment

Most participants (77.5%) reported previous admissions to treatment services, with residential rehabilitation (45%) and 12-step meetings (42%) both being highly endorsed. The BTI means are displayed in Table 2. Mean subscale scores fell between 'Disagree Strongly' and 'Uncertain', indicating that on average participants tended to disagree that there were barriers to treatment.

Insert Table 1 and 2 about here

Predicting intention to enter further treatment

A logistic regression analysis was used to predict intention (dichotomous variable) to enter treatment following detoxification. The primary components of the TPB (i.e. attitudes, social norms, PBC) and the BTI (i.e. Absence of Problem) that were significantly correlated with intent were included in the regression (see Table 3 for correlations). A significant model (one that is a better predictor than the constant only model) was indicated by a Loglikelihood of 143.54, a significant change in chi-square ($\chi^2 = 36.43$, $p = .00$), and a Nagelkerke R Square explaining 32% of variance. The model showed that attitudes and PBC significantly predicted

intent (see Table 4). In terms of predicting group membership, the model predicted High Intent 92% of the time, but only predicted Low Intent 48% of the time. The model had an overall prediction rate of 75%, which is better than the constant only model (62.1%). No multicollinearity was present in this model.

Insert Table 3 and 4 about here

Discussion

The current study examined factors associated with intent to enter further treatment following residential detoxification from alcohol or substance abuse. Overall, the model accounted for 32% of the variance in intent, with both the attitudes and PBC components of the TPB being statistically significant predictors within the model. The model was a much better predictor of identifying those people with High Intentions (92%), than those people with Low Intentions to attend further treatment (48%). Pragmatically, clinicians could use the model to identify those individuals with high intent and then conduct more intensive interventions with the remaining clients who are less likely to attend further treatment.

The results were similar to the Kleinman et al (2002) study in that social norms did not significantly predict intent to enter further treatment. It has been proposed that the utility of "norms" to predict behavior requires greater specification of the type of norm as either descriptive or injunctive (Cialdini, Reno, & Kallgren, 1990). Descriptive norms refer to what is typical or "normal" whereas injunctive norms refer to what ought to be done and "refers to rules or beliefs as to what constitutes morally approved or disapproved conduct" (Cialdini, et al., 1990, p. 1015). In the context of seeking further treatment, it may be that for one person injunctive norms influenced by the approval of close family members may have an important impact, whereas a second person may be more influenced by the observation that "everyone else (in the residential program) seems to be doing it and so it is probably something I should do" (descriptive norm). It has been argued that normative social influences often go under

detected and that people are often unaware of the influence of normative information on their behavior (e.g. Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). It has also been suggested that when people are made aware of the social influences on their behavior, they often try to correct for them. Together these finding suggest that greater specification of types of norms could be made in future research.

From a clinical perspective, the results of the present study suggest that detoxification programs should consider the use of approaches that help to promote positive client attitudes towards further treatment, but also enhance the person's self-efficacy to actually attend further treatment. These results appear to provide theoretical support to the limited research that has been conducted to promote client attendance at further treatment. For example, post-detoxification treatment entry appears to be enhanced within programs that focus on developing and promoting personal goal attainment (i.e life and treatment goals; Campbell, et al., 2009). It is likely that the focus on goal attainment helps the participant to personalize the importance of attending further treatment. Additionally, intensive staff involvement in the development of post-detoxification treatment plans appears to be particularly important in promoting further treatment attendance (Campbell, et al., 2009; Carroll, Triplett, & Mondimore, 2009). It would appear that this process helps to address concerns that the participants might have regarding further treatment and help to improve the clients belief that they can attend further treatment. To our knowledge previous research has not examined specific strategies to improve attitudes or PBC as a component of a theoretically driven intervention. It is important that research examine the ability of clinical strategies to improve attitudes and PBC within the confines of short-term residential detoxification.

Overall, absence of problem was the only BTI subscale that was significantly correlated with intent. Although not a significant predictor in the model, it was approaching significance ($p = .05$). It is interesting to note that privacy concerns and admission difficulties were the two

most highly endorsed barriers. The privacy concerns subscale refers to difficulties that the individual might have in relation to discussing personal information within a treatment setting. Whilst this item was not related to intent, it is possible that it will influence the degree to which the person engages, and ultimately benefits from further treatment. Admission difficulties refers to waiting times and hurdles associated with accessing treatment. This is a commonly reported barrier associated with substance abuse treatment. Although it does not appear to be directly related to intent, it is likely to be a very real barrier for many of the people completing detoxification. For example, a person may have high intentions to seek further treatment, but then subsequently be confronted with admission difficulties such as long wait lists. As part of the discharge planning process it is important that difficulties associated with accessing further treatment are considered, with the possibility of accessing interim treatment arrangements whilst waiting for the preferred treatment option. For example, this might include accessing self-help groups (Redko, Rapp, & Carlson, 2006) or linking the person in with their general practitioner whilst the person is waiting for residential rehabilitation.

As this research was conducted as a pilot study, there are a number of limitations that should be considered when interpreting the results. There was a relatively small sample size, participants in the study were predominately male (86%), participants were from just one organisation (i.e. The Salvation Army) and there was also a low survey response rate (41%). The study would have also benefited from collecting more detailed information regarding non-participants. This would have provided an opportunity to compare those people who participated in the study with those people who did not participate in the study. All of these factors reduce the generalizability of the results. It would have also been useful to examine the reasons that people attended the detoxification programs (e.g. legal pressure) to examine if this influenced intention. Additionally, the study only examined intentions to enter further treatment. The study would have benefited from examining actual attendance at treatment

following the detoxification program. For example, whilst past behaviours was not related to intentions to attend further treatment, it is possible that past behaviours would be positively associated with participants actually attending treatment post-detoxification (Chutuape, et al., 2001b). The current study, however, does provide further support for the primary components of the TPB in predicting whether clients will attend further treatment. It also provides some guidance about the belief domains that might be targeted as part of motivational strategies during detoxification. It is important that future research attempts to validate these findings, particularly looking at the relationship between intentions and whether clients actually attend further treatment. It is also important that future research evaluates the types of approaches clinicians could use to help enhance attitudes and PBC associated with attending further treatment.

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Table I.

Demographic information (N = 168)

Characteristics	*n*	%	*M*	*SD*
Gender Male	146	86%		
Age (years)			38.04	10.74
Reported length of problem (years)			17.74	0.43
Usual Place of Residence				
Private housing	113	66.66%		
Supported housing or treatment setting	24	14.37%		
Homeless/No usual residence	19	11.38%		
Other or not known	11	6.59%		
Attended previous D&A treatment	125	73.96%		
Type of Previous Treatment[1]				
Residential Rehabilitation	75	44.64%		
AA/NA Services	71	42.265		
Outpatient Counselling	47	27.98%		
Detoxification	22	13.10%		
Other	22	13.10%		
Primary Substance (s) of Abuse[1]				
Alcohol	116	69.90%		
Cannabis	22	13.10%		
Amphetamines	12	7.14%		
Heroin	11	6.55%		
Other	8	4.76%		

Note: [1]Participants could provide more than one answer so totals may be greater than 100%

Table II.

Mean Scores for direct measures of TPB and the BTI (n = 164)

Domain	Cronbach Alpha	Mean	SD
Theory of Planned Behaviour			
Attitudes	0.96	6.04	1.77
Intent	0.86	5.52	1.83
Social Norm	0.66	5.68	1.28
Perceived behavioural control	0.54	5.54	1.37
Barriers to Treatment Inventory			
Privacy Concerns	0.90	2.74	1.27
Admission Difficulty	0.74	2.57	1.20
Time Conflict	0.71	2.27	1.13
Fear of Treatment	0.69	2.02	0.90
Poor Availability	0.63	1.92	0.91
Lack of Social Support	0.77	1.70	0.86
Absence of Problem	0.79	1.65	0.77

Table III.

Spearmans and point biserial correlations between direct measures of Theory of Planned Behaviour, Barriers to Treatment Inventory and Previous substance abuse treatment

	1	2	3	4	5	6	7	8	9	10	11
Direct Measures of Theory of Planned Behaviour											
1. Intent											
2. Attitudes	.57*										
3. Social Norm	.34*	.42*									
4. Perceived behavioural control	.29*	.32*	.13								
Barriers to Treatment Inventory											
5. Absence of Problem	-.35*	-.41*	-.20	-.20							
6. Lack of Social Support	.08	-.09	-.08	-.20	.36*						
7. Fear of Treatment	.06	-.05	-.14	-.24*	.14	.47*					
8. Privacy Concerns	-.07	-.08	-.15	-.26*	.17	.30*	.46*				
9. Time Barriers	.01	-.03	-.06	-.21*	.28*	.38*	.30*	.22*			
10. Poor Treatment Availability	-.01	.02	-.09	-.23*	.18	.38*	.44*	.27*	.38*		
11. Admission Difficulty	-.08	.07	-.16	-.29*	.18	.37*	.42*	.39*	.27*	.48*	

Previous attendance at substance abuse treatment											
12. Previous attendance	.03	.05	.02	.10	-.22*	-.02	.12	-.07	.01	.02	.03

Note: * Correlation is significant at $p < 0.01$ (2-tailed). Point biserial correlation conducted between previous attendance and other variables. Spearmans correlations conducted between all other variables.

Table IV.

Components of the Theory of Planned Behavior as predictors of Intent to enter further treatment.

Predictor	β	*SE*β	Wald's χ^2	e^{β} (odds ratio)	*p*
Attitudes	0.42	0.16	6.39	1.51	0.01*
Social Norm	0.17	0.19	0.66	1.17	0.42
Perceived Behavioural Control	0.33	0.16	4.32	1.40	0.04*
Absence of Problem	-0.73	0.36	4.01	0.48	0.05

Note: * Correlation is significant at $p < 0.05$ level