Predictors of retention, and client perceptions of treatment satisfaction and outcomes, among young people presenting to residential drug and alcohol treatment with alcohol as a primary or secondary substance of concern

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ABSTRACT

Background: Given the paucity of research on Australian residential drug and alcohol treatment for young people, and the concerning trends in alcohol consumption among Australian Indigenous and non-Indigenous youth, this study aims to explore retention, self-reported outcomes and program satisfaction among Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern.

Method: The Ted Noffs Foundation's Program for Adolescent Life Management (PALM) provides 14- to 18-year-old drug and/or alcohol dependent young people with up to three months of residential treatment and up to twelve months of continuing care. Client characteristics were analysed, using ordinal logistic regression, for their ability to predict retention among 289 first admissions to PALM; three month post-treatment outcomes were analysed among 101 PALM residents; and quantitative and qualitative measures of satisfaction were gained from 152 young people admitted to PALM.

Results: Significant predictors of lower retention for Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern included younger age, male gender, a history of major health problems, and a recent transient lifestyle. Positive self-reported outcomes were demonstrated for substance use, physical and mental health, family functioning and criminal behaviour, but not for social functioning. Indigenous young people demonstrated outcomes less favourable than their non-Indigenous peers. Finally, levels of satisfaction were equally high for Indigenous and non-Indigenous young people, and residents nominated areas for program improvement.

Conclusions: This study highlights several client characteristics that impact on length of stay in treatment, various improvements in post-program functioning across a variety of domains, and areas of greater and lesser program satisfaction among Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern. Treatment programmers may utilise such findings to help them better equip their programs to meet the needs of the young people who access them.

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INTRODUCTION

Alcohol remains a frequently consumed substance among a significant proportion of young Australians. The 2004 National Drug Strategy Household Survey found that around 25% of teenagers drink alcohol on a weekly basis (Australian Institute of Health and Welfare, 2005). Although proportionally fewer Indigenous Australian young people drink alcohol on a weekly basis, alcohol-consuming Indigenous young people drink at more risky levels and are twice as likely to die from alcohol-attributable causes than their non-Indigenous peers (Chikritzhs & Pascal, 2004).

Given these trends, it is perhaps not surprising that, between 2001 and 2004, over 45% of 14- to 18-year-old young people admitted to a residential drug and alcohol treatment program nominated alcohol as a substance of concern. Almost one quarter of these young people were Indigenous (Arcuri & Howard, 2005).

Despite the trend toward regular drinking among young Australians, risky drinking among alcohol-consuming young Indigenous Australians, and the high proportions of concerning drinking levels among young people seeking residential drug and alcohol treatment, little is known about the effectiveness of such programs in addressing the needs of young people, and Indigenous young people in particular, with alcohol-related concerns. The purpose of the current study, then, is to address this gap in knowledge by exploring retention, self-reported outcomes and program satisfaction among Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern.

Retention

National studies conducted both in the USA and in England have consistently demonstrated that retention is an important_ predictor of post-treatment outcomes in both adult- and youth-focussed drug and alcohol treatment (Gossop, Marsden, Stewart, & Rolfe, 1999; Hser, Grella, et al., 2001; Orlando, Chan, & Morral, 2003; Simpson, Hubbard, Anglin, & Fletcher, 2000). However, retention rates in such treatment programs are demonstrably low (De Leon, 2001; Simpson, Joe, Rowan-Szal, & Greener, 1997). For example, youth-specific research has shown that up to 35 per cent of admissions drop out within 30 days of treatment commencement (Orlando et al., 2003; Stewart, 1994). It is important, then, to identify and understand the key factors involved in client retention, in order to enable the effective development of strategies with which to improve the length of time young people stay in residential drug and alcohol treatment.

Research identifying predictors of retention in residential drug and alcohol treatment has predominantly been adult-focussed, with little consistency across studies (which may, at least in part, be due to the differing nature of the residential treatment programs examined both within and across studies [Condelli & Dunteman, 1993]). Client characteristics that have been inconsistently demonstrated as predictors of retention across studies include age, gender, ethnicity, socio-economic status, substance use history, employment status, education level, criminal history, history of sexual abuse, and psychological functioning (Broome, Flynn, & Simpson, 1999; Claus & Kindleberger, 2002; Condelli, 1994; Condelli & De Leon, 1993; Cosden & Cortez-Ison, 1999; De Leon, 1991, 2001; De Leon, Melnick, Schoket, & Jainchill, 1993; Howard, 1994; Joe, Simpson, & Broome, 1999; Kelley, 2001;

Klein, di Menza, Arflcen, & Schuster, 2002; Lewis & Ross, 1994; Roberts & Nishimoto, 1996; Ross, Cutler, & Sklar, 1997; Rowan-Szal, Joe, & Simpson, 2000; Santos Diez, Merita, & Martin, 2001; Secades & Magdalena Benavente, 2001; Simpson, Joe, & Brown, 1997; Ward, 2002; Westreich, Heitner, Galanter, & Marc, 1997; Wexler & De Leon, 1977). A more consistently demonstrated predictor of retention has been pre-treatment motivation, which includes both intrinsic motivation, characterised by treatment readiness, and extrinsic motivation, such as pressure from the legal system and/or significant others (Condelli, 1989; De Leon, Melnick, & Kressel, 1997; Erickson, Stevens, McKnight, & Figueredo, 1995; Hiller, Knight, Broome, & Simpson, 1998; Hiller, Knight, Leukefeld, & Simpson, 2002; Joe et al., 1999; Knight, Hiller, Broome, & Simpson, 2001; Maglione, Chao, & Anglin, 2000; Young, 2002; Young & Belenko, 2002). Although very few youth-focussed studies of retention in residential drug and alcohol treatment have been conducted, with no studies published outside of the USA, the preliminary findings suggest a pattern similar to that among adult-focussed research (De Leon, Melnick, Kressel, & Jainchill, 1994; Orlando et al., 2003; Pompi & Resnick, .1987). No published youth-focussed studies of retention have demonstrated a link between Indigenous status and program retention.

Outcomes

There appears to be mixed evidence for the effectiveness of drug and alcohol treatment for young people (Lennings, Mackdacy, Arcuri, & Howard, 2005). For example, although a longitudinal evaluation of adolescent treatment programs in the United States (CATOR: Chemical Abuse/Addiction Treatment Outcome Registry) provided support for the general effectiveness of treatment for young people over a 12-month follow-up period (Terry, Van der Waal, McBride, & Van Buren, 2000), an evaluation of drug and alcohol treatment programs across 58 counties in the US state of California suggested that there was no discernible benefit from such programs (Worral, 2004).

Evaluations of non-youth specific residential treatment (particularly therapeutic communities) have generally been positive (Terry et al, 2000). However, research on the effectiveness of residential drug and alcohol treatment for young people is extremely limited. Spooner, Mattick, and Noffs (1999) conducted an evaluation of a residential drug and alcohol treatment program for adolescents using a randomised controlled design. The study compared, at 17 weeks' follow-up, 60 admissions to the program and 61 young applicants who were placed on a waiting list. On a variety of outcome measures, including reductions in drug use and crime desistance, the treated young people demonstrated numerous favourable results. However, the wait-listed group of young people also displayed some improvements (which may in part be accounted for by their allowed utilisation of other forms of treatment while on the waiting list, which in turn raises doubts about their status as a control group).

The effectiveness of residential drug and alcohol treatment for young Indigenous Australians remains unexplored.

Satisfaction

Research suggests that client satisfaction with drug and alcohol treatment is positively correlated with program retention and completion, and with post-treatment outcomes (Carlson & Gabriel, 2001; Chan, Sorensen, Guydish, Tajima, & Acampora, 1997; Dearing, Barrick, Dermen, & Walitzer, 2005; Hser, Evans, Huang, & Anglin, 2004). Several studies of US- and Spain-based, adult-focussed drug and alcohol treatment services (including residential programs) have demonstrated high levels of program satisfaction among clients (Araujo, 2003; Chan et al., 1997; McLellan & Hunkeler, 1998). Predictors of program satisfaction that have been demonstrated across studies include client rated working alliance, higher levels of therapy attendance, and greater reductions in drinking during treatment (Donovan, Kadden, DiClemente, & Carrol, 2002; Liszka-Chaloner, 2005).

In two studies of adolescents' satisfaction with the design of three residential drug and alcohol treatment facilities, Potthoff (1991, 1995) found that satisfaction with the facilities was related to the type of space, furniture and finish contained within them. Client criticisms of two of the facilities were based on their institutional character, lack of comfort and mismatch of furnishings, while the third setting was rated highly for its quality furnishings and finishes, and its contemporary, upgraded and youthful appearance. Nonetheless, satisfaction with interior space declined over a four-week treatment period.

There appears to be no available research exploring Indigenous young people's satisfaction with drug and alcohol treatment services.

Purpose of the current study

This exploratory study aims to begin to address the previously discussed paucity of youth-focussed, Australian-based, Indigenous-sensitive research on client retention, outcomes and satisfaction levels in residential drug and alcohol treatment.

Specifically, this project aims to identify:

- Client-level predictors of retention among young people admitted to residential drug and alcohol treatment with alcohol as a substance of concern
- Self-reported three-month post-treatment outcomes of Indigenous and non-Indigenous young people admitted to residential drug and alcohol treatment with alcohol as a substance of concern
- Levels and areas of program satisfaction and dissatisfaction among Indigenous and non-Indigenous young people admitted to a residential drug and alcohol treatment program with alcohol as a substance of concern

Given the exploratory nature of this study, no hypotheses regarding the three abovementioned project aims have been generated.

METHOD

Participants

Retention Analysis

The participant sample for the retention analysis comprised 289 young people admitted to the Ted Noffs Foundation's Program for Adolescent Life Management (PALM) between January 2001 and July 2005 who upon admission nominated alcohol as a substance of primary or secondary concern. The sample included 75 females (26%) and 214 males (74%), with an average age of 16.6 years. Indigenous young people comprised 22.8% of the sample, while 5.2% of the participants were born in a country other than Australia. Although 4.2% of the sample had achieved only primary school education, the majority (75.4%) had achieved an up to Year 10 education level, 18.7% had completed Year 10, and 1.7% had completed Year 12 or higher. Before treatment, 30.2% of the participants were engaged in full- or part-time education, 10.9% held full- or part-time employment, and 58.9% were unemployed or unable to work.

Self-Reported Outcomes Analysis

Between January 2001 and July 2005, 194 young people who had nominated alcohol as a substance of primary or secondary concern stayed at PALM for one month or longer, and were thus eligible for post-PALM follow-up. Of these young people, 101 (52.1%) were available to follow-up post-PALM. Therefore, these 101 young people comprise the participant sample of PALM residents analysed for self-reported outcomes_ The sample included 69 males (68.3%) and 32 females (31.7%), with an average age of 16.7 years. Indigenous young people comprised 20.2% of the sample, while 4% were born in a country other than Australia. Although 2% of the sample had achieved only primary school education, the majority of the sample (66.3%) had achieved an up to Year 10 education level, 28.7% had completed Year 10, and 3% had completed Year 12 or higher. Before treatment, 32.3% of the participants were engaged in full- or part-time education, 8.1% held full- or part-time employment, and 59.6% were unemployed or unable to work.

Satisfaction Analysis

The participant sample for the satisfaction analysis comprised 152 young people admitted to the Ted Noffs Foundation's Program for Adolescent Life Management (PALM) between January 2001 and July 2005 who upon admission nominated alcohol as a substance of primary or secondary concern. The sample included 99 males (65.1%) and 53 females (34.9%), with an average age of 16.7 years. Indigenous young people comprised 18% of the sample, while 6.6% were born in a country other than Australia. Although 3.9% of the sample had achieved only primary school education, the majority of the sample (69.1%) had achieved an up to Year 10 education level, 25.7% had completed Year 10, and 1.3% had completed Year 12 or higher. Before treatment, 33.1% of the participants were engaged in full- or part-time education, 10.4% held full- or part-time employment, and 56.6% were unemployed or unable to work.

The residential treatment program

PALM offers up to three months of residential treatment, followed by up to twelve months of continuing care, for substance dependent (as defined by DSM-IV [American Psychiatric Association, 1995]) young people aged between 14 and 18 years. PALM is based on a harm reduction philosophy and relapse prevention planning, and provides 42 beds across three metropolitan (PALM East, PALM West and PALM ACT) and two rural (PALM Coffs Harbour and PALM Dubbo) locations in eastern Australia. Practically, PALM offers its residents a structured program incorporating: living skills training; therapeutic, vocational/educational and creative group work; individual counselling; family work; journaling; and recreational activities.

Measures

Questionnaires

The Ted Noffs Foundation Youth Substance Use Assessment Parts A (TNFYSUAA; Howard, Arcuri, & Gascoigne, 2001-2005), B (TNFYSUAB; Howard, Arcuri, & Gascoigne, 2001-2005), C (TNFYSUAC; Howard, Stubbs, Arcuri, & Gascoigne, 2001-2005), and D (TNFYSUAD; Howard, Arcuri, & Gascoigne, 2001-2005) were utilised in this study. The TNFYSUAA was designed to assess pre-treatment client characteristics and behaviour, including demographic/background information, substance use (for example, frequency and amount of use, severity of dependence, injecting drug use and related risk-taking behaviours, effects of substance use, previous treatment experiences and treatment readiness), physical and mental health, previous traumatic experiences, and criminal behaviour. To achieve this, the TNFYSUAA both includes original items and incorporates a number of existing assessment tools, namely: the NSW Minimum Data Set (NSW MDS; New South Wales Health Department, 2002); DSM-IV diagnostic criteria for Substance Dependence (American Psychiatric Association, *1995);* Part 1 of the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995), adapted for use with young people; and the Brief Treatment Outcome Measure (BTOM; Lawrinson, Gerber, Copeland, & Indig, 2003).

The TNFYSUAB was designed to further assess pre-treatment client characteristics and behaviour, including substance use (that is, substance use history and injecting drug use practices), physical and mental health, sexual practices, leisure activities, and social and family functioning. To achieve this, the TNFYSUAB both includes original items and incorporates a number of existing assessment tools, namely: the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982); an adapted version of part of the Opiate Treatment Index (OTI); the Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983); and the Brief Treatment Outcome Measure (BTOM; Lawrinson et al., 2003), including the Social Functioning Scale.

The TNFYSUAC was designed to measure client perceptions of PALM in the areas of: action plans; groups; individual counselling and family and carer support groups; journaling; vocational and educational assistance; and general reflections on and satisfaction with treatment – through both Likert scale and open-ended questions.

The TNFYSUAD was designed to measure self-reported outcomes three months after a young person's participation in PALM. The TNFYSUAD replicates measures contained in the TNFYSUAA and TNFYSUAB in the areas of demographic/background information (including living situation, employment and education), substance use (that is, frequency and amount of use, severity of dependence, poly-substance use, injecting drug use and risk of blood-borne viral infections, and effects of substance use), physical and mental health (including suicidal behaviour), criminal behaviour, sexual practices, leisure activities, and social and family functioning.

For the retention analysis, independent variables were gathered using the TNFYSUAA (please see Appendix A for a full list of independent variables). For the self-reported outcomes analysis, pre-treatment client characteristics and behaviour were collected using the TNFYSUAA and TNFYSUAB, and post-treatment client characteristics and behaviour were collected using the TNFYSUAD. For the satisfaction analysis, data was collected using the TNFYSUAC.

Retention

Retention, the dependent variable in the retention analysis, was defined as the number of `days at PALM' during a young person's first discrete admission to the program. A discrete admission was classified as a therapeutic engagement during which there were no periods of absence from PALM for greater than one month. Any period of absence from PALM for less than one month was defined as a `time out' within a discrete admission, as significant contact with the young person was maintained during this time. However, periods of `time out' were not added to the `days at PALM' calculation. For instances where periods of absence from PALM exceeded one month, any subsequent return to PALM was deemed a new discrete admission, as contact with the young person ceased after one month of absence. These subsequent discrete admissions were excluded from this study, as expected lengths of stay during these admissions were not uniform across young people (in contrast to expected length of stay for first admissions, which was 90 days), as they sometimes depended on lengths of stay during previous admissions.

The distribution of retention in days was decidedly positively skewed, and was not amenable to transformation to normality because of the large number of short duration stays. Further, although it was a count variable, it did not fit a Poisson or negative binomial distribution (if it had, either Poisson or negative binomial regression [Gardner, Mulvey, & Shaw, 1995] would have been appropriate). The retention variable was therefore recoded into an ordinal categorical variable with five levels of retention: (1) up to seven days, (2) eight to 30 days, (3) 31 to 60 days, (4) 61 to 90 days, and (5) greater than 90 days. Although the grouping of the counts into a limited number of categories resulted in some information loss, a positive aspect of the grouping was that the categories allowed for the comparison of young people who had left PALM within the standard time periods of a week, a month, two months, three months, and after three months.

Procedure

The TNFYSUAA was administered to the participants up to one month prior to admission into PALM, the TNFYSUAB was administered within one week of

admission to PALM, the TNFYSUAC was administered where possible upon exit from PALM, and the TNFYSUAD was administered three months after the young person's exit from PALM if they had stayed for at least one month.

Questionnaires were administered by one of ten adolescent and family counsellors in a closed room within one of the five PALM units, with the exception of the TNFYSUAD, which was primarily administered via telephone. Administration time for the questionnaires varied from 30 minutes to one hour.

Analysis

Retention Analysis

Descriptive statistics were employed to derive a profile of participant characteristics, including length of stay at PALM. Although splitting the sample and using one half for preliminary analysis in order to guard against over-fitting was considered, it was decided that the full sample would be utilised in all analyses to gain as much statistical power as possible, due to the exploratory rather than confirmatory nature of this study. In initial analyses, all predictor variables were tested for bivariate associations with retention, using Spearman's correlation for ordinal or scale predictor variables, and both Pearson's chi-square and Mantel and Haenszel's (1959) test of linear by linear association (the latter due to the ordinal nature of the dependent variable) for dichotomous or nominal predictor variables.

Predictor variables identified as having an $\alpha \leq .25$ association with retention in any of the aforementioned tests were included in the multivariable analysis. This strategy was utilised as a way of ensuring that variables that are known to be important, or that may only be significant at conventional significance levels when combined with other variables, are not excluded at the first stage (Hosmer & Lemeshow, 2000). All variables that met the initial bivariate criterion were subsequently included in a full ordinal logistic regression model, which was then reduced, one predictor variable at a time, until a final model, which contained variables that maintained an a of < .05 in the presence of the other remaining variables, was obtained. One of the assumptions of the ordinal logistic regression model used in the analysis is that the effects of the predictors are consistent across response categories (Hosmer & Lemeshow, 2000). An overall test of this assumption (sometimes called the test of proportional odds or of parallel lines) was carried out on the final model using the method described by Brant (1990).

Self-Reported Outcomes Analysis

Descriptive statistics were employed to derive a profile of participant characteristics. Because not all young people who were admitted to PALM and eligible for post-PALM follow-up assessment were administered the TNFYSUAD, the pre-treatment profile of the group of young people who completed the TNFYSUAD was compared with that of the group of young people who did not complete the TNFYSUAD (but were eligible to do so) to determine the degree to which the followed-up group was representative of the entire sample of young people eligible for follow-up. This between-subjects comparison was achieved using Pearson's chi-square for categorical variables and independent samples t-tests for scale variables, with α set at .05.

To analyse self-reported outcomes, a within-subjects design was utilised, where pre-and post-PALM measures of participant functioning were compared using paired samples t-tests, with α set at .05. Also, self-reported outcomes were analysed separately for Indigenous and non-Indigenous participants.

Satisfaction Analysis

Because not all young people who were admitted to PALM were administered the TNFYSUAC, the pre-treatment profile of the group of young people who completed the TNFYSUAC was compared with that of the group of young people who did not complete the TNFYSUAC to determine the degree to which the group of young people who had complete the TNFYSUAC was representative of the entire sample of young people admitted to PALM. This between-subjects comparison was achieved using Pearson's chi-square for categorical variables and independent samples t-tests for scale variables, with α set at .05.

To analyse satisfaction, descriptive statistics were employed to evaluate responses to Likert-scale items, while responses to open-ended questions were analysed using Content Analysis. Likert-scale items were also compared between Indigenous and non-Indigenous participants using independent samples t-tests, with α set at .05.

RESULTS

Retention Analysis

Retention rates

Mean length of stay at PALM for young people who upon admission nominated alcohol as a substance of primary or secondary concern, was 48.43 days (*SD* = 34.89), with a range of 1 to 166 days. Median length of stay was 42 days. Figure 1 demonstrates the percentage of participants in each retention category.

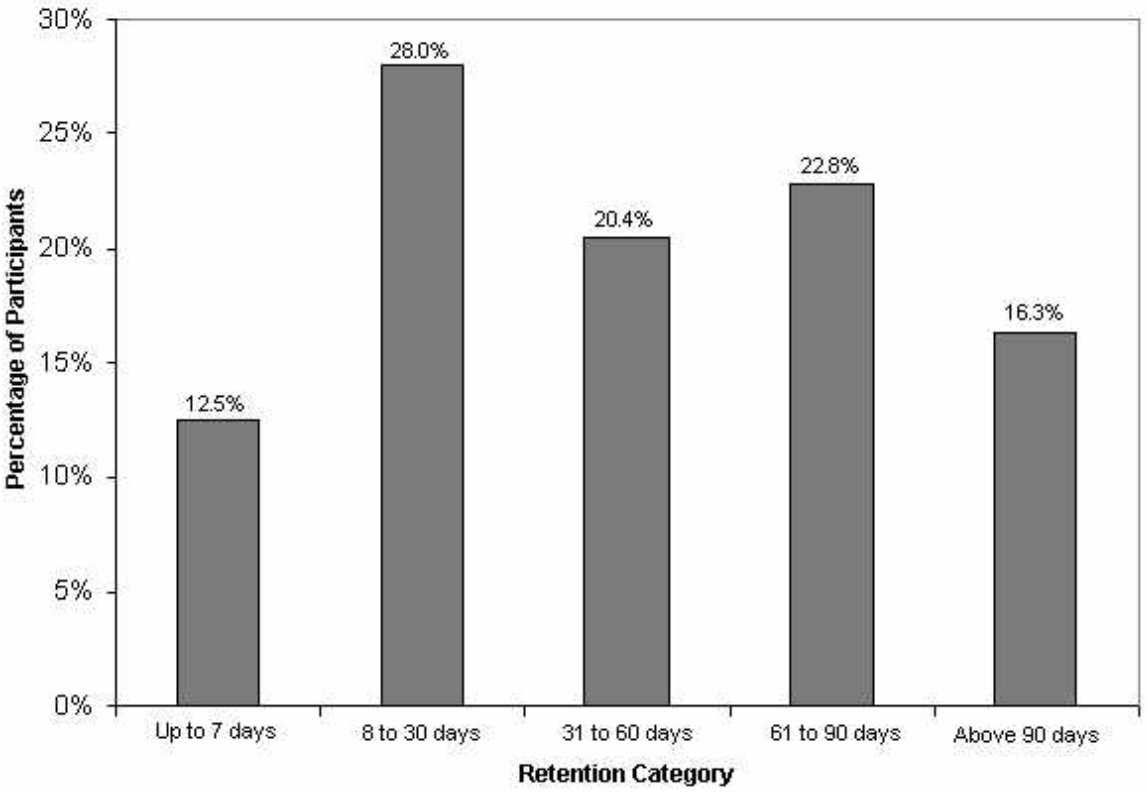

Figure 1. Percentage of participants in each retention category

Bivariate associations of predictor variables with retention

Table 1 contains descriptive statistics for variables that yielded significant bivariate relationships with retention. Note that Indigenous status does not appear in the Table, which shows that it did not demonstrate a significant association with retention.

Table *1: Descriptive statistics for variables significantly associated with retention*

Predictor Variable	Retention Category					*p* =
	Up to 7 Days	8 to 30 Days	31 to 60 Days	60 to 90 Days	Above 90 Days	
PALM unit admitted to (%)						.036[b]
East	13.7	27.5	19.6	19.6	19.6	
West	26.4	20.8	22.6	22.6	7.5	
ACT	8.7	30.4	14.1	21.7	25.0	
Coffs Harbour	9.3	27.8	29.6	22.2	11.1	
Dubbo	5.1	33.3	20.5	30.8	10.3	
Has anyone ever told you that you need treatment?' (%)						.037[b]
Yes	13.0	27.3	20.6	20.9	18.9	
No	5.9	35.3	17.6	38.2	2.9	
Ever experienced verbal abuse (%)						.010[b]
Yes	14.6	24.5	19.9	29.1	11.9	
No	7.9	32.2	21.3	16.5	22.0	
Ever experienced sexual assault by a stranger (%)						.033[c]
Yes	13.2	28.6	19.7	23.5	15.0	
No	2.3	25.0	25.0	22.7	25.0	
Number of places lived in the six months prior to admission (Mean[SD])	3.42 (1.86)	3.30 (1.34)	3.07 (1.24)	2.86 (1.32)	2.62 (1.33)	.002[a]
Occasions of Drug Use Scale (ODUS) Cannabis score (Mean [SD])	592.94 (578.92)	609.18 (611.74)	461.57 (451.49)	532.61 (648.75)	395.35 (548.08)	.032[a]
Highest level of education completed or currently studying (Mean [SD]), where higher mean indicates higher level of education	2.11 (0.32)	2.07 (0.47)	2.20 (0.52)	2.27 (0.62)	2.28 (0.62)	.015[a]
Number of arrests in the three months prior to admission (Mean [SD])	1.06 (1.25)	2.26 (2.65)	2.73 (4.30)	1.81 (2.90)	0.69 (0.93)	.033[a]
Age (Mean [SD])	16.17 (1.33)	16.58 (1.20)	16.68 (1.05)	16.61 (1.06)	16.93 (1.14)	.021[a]

Note. [a] Spearman's Correlation, [b] Pearson's Chi-Square, [c]Linear-by-Linear Association. Where both Pearson's Chi-Square and Linear-by-Linear Association were calculated, the lower of the two *p*-values was reported.

Final model

Thirty-seven of 82 variables were eligible for inclusion in the multivariable analysis (please see Appendix A for the complete list of 82 variables and Appendix B for the list of 37 variables eligible for inclusion in the multivariable analysis). Four of these remained in the final step of the ordinal logistic regression analysis, with an overall model significance, χ^2 (4) = 29.62, $p < .0005$. Table 2 provides a summary of the ordinal logistic regression results for variables predicting higher treatment retention.

Table 2: *Summary of ordinal logistic regression results for variables predicting higher treatment retention*

Predictor Variable	*β*	*SE*	Wald χ^2	*p* =	OR	95% CI (Odds)
Number of places lived in the six months prior to admission (fewer)	0.32	.08	14.92	.000	1.37	1.17-1.61
Age (older)	0.29	.10	8.72	.003	1.33	1.10-1.62
Gender (female)	0.78	.27	8.30	.004	2.18	1.28-3.72
Ever had major health problems (no)	0.51	.24	4.62	.032	1.66	1.05-2.64

Note. Model: χ^2 (9) = 61.65, $p < .001$, *SE* = Standard Error; OR = Odds Ratio; CI = Confidence Interval.

As this Table demonstrates, the odds of young people who 'lived in fewer places in the six months prior to admission' being in a higher retention category were more than one

and one-third times those of young people who 'lived in a greater number of places in the six months prior to admission' (β = 0.32; OR = 1.37, p = .000); the odds of 'older' young people being in a higher retention category were one and one third times those of 'younger' young people (β = 0.29; OR = 1.33, p = .003); the odds of females being in a higher retention category were more than twice those of males (β = 0.78; OR = *2.28,* p = .032); and the odds of young people who had `ever had major health problems' being in a lower retention category were nearly twice those of young people who had not (β = 0.51; OR = 1.66, p = .032). Test of parallel lines on the final model revealed that, overall, the slope coefficients were the same across response categories, and thus the parallel regression assumption was not violated, χ^2 (8)=3.08, p =.929.

Self-Reported Outcomes Analysis

Comparisons between followed-up and not followed-up young people

The pre-treatment profile (142 variables derived from TNFYSUAA and TNFYSUAB) of the followed-up young people was compared with that of the young people who were not (but were eligible to have been) followed up (i.e., followed-up group vs. not followed-up group). This comparison was made to measure the degree to which the followed-up group was representative of the entire sample of young people eligible for follow-up. Variables for which significant differences between the two groups were demonstrated are shown in Table 3.

Table *3: Summary of variables that differed significantly between followed-up and not followed-up groups*

Variable	Followed-up group	Not followed-up group	χ^2	*t*	df	*p* =
Ever had legal problems associated with substance use (yes)	71.0%	92.3%	14.14	NA	1	.000
Ever had psychological problems associated with substance use (yes)	90.9%	80.4%	4.31	NA	1	.038
Thoughts of ending life in three months prior to admission (yes)	55.6%	35.9%	7.44	NA	1	.006
Committed crime against persons in the three months prior to admission (yes)	40.0%	26.1%	4.08	NA	1	.043
Psychological Well-Being Scale score [a]	M = 5.73 SD = 1.86	M = 4.98 SD = 2.23	NA	2.53	188	.012

Note. [a] Psychological Well-Being Scale (PWBS) scores range from 0 to 8 and represent the number of reported psychological problems in the three months prior to admission. The PWBS is contained within the Brief Treatment Outcome Measure.

As this Table demonstrates, 5 of the 142 analysed variables differed significantly between the followed-up and not followed-up groups: young people who had ever had legal problems associated with their substance use were less likely to be followed-up than those who had not, χ^2(1, N = 191) = 14.14, p = .000; young people who had ever had psychological problems associated with their substance use were more likely to be followed up than those who had not, χ^2(1, N = 191) = 4.31, p = .038; young people who had thoughts of ending their life in the three months prior to admission were more likely to be followed up than those who had not, χ^2(1, N = 191) = 7.44, p = .006; young people who had committed crime against persons in the three months prior to admission were more likely to be followed up than those who had not, χ^2(1, N = 187) = 4.08, p = .043; and young people with higher Psychological Well-Being Scale (PWBS) scores

(M = 5.73, SD = 1.86) were more likely to be followed up than those with lower PWBS scores (M = 4.98, SD = 2.23), $t(4188) = 2.53$, $p = .012$.

Self-reported outcomes

Measures of substance use

Pre- and post-PALM substance use comparisons for all participants grouped together, for Indigenous participants separately, and for non-Indigenous participants separately are shown in Tables 4, 5 and 6, respectively.

Table 4: *Measures of substance use, pre- and post-PALM, for all participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Frequency of use[a]					
Alcohol	13.96 (10.07)	5.52 (7.89)	7.07	95	.000
Tobacco	28.57 (5.94)	20.06 (12.31)	5.94	97	.000
Cannabis	21.22 (11.04)	7.90 (11.05)	9.34	93	.000
Opioids	5.57 (8.15)	2.69 (7.78)	0.89	14	.387
ATS[b]	8.47 (9.06)	1.30 (2.92)	5.47	54	.000
Cocaine	4.64 (8.79)	0.45 (0.92)	1.53	10	.157
Tranquillisers	4.31 (5.92)	1.57 (3.06)	1.72	20	.101
Hallucinogens	4.00 (3.80)	0.20 (0.63)	2.95	9	.016
Inhalants	5.31 (7.08)	3.08 (8.30)	0.65	12	.528
Amount of use[c]					
Alcohol	20.23 (14.77)	9.19 (11.47)	5.93	92	.000
Tobacco	16.71 (12.61)	18.41 (46.46)	-0.36	96	.723
Cannabis	16.10 (14.58)	7.33 (13.43)	4.81	91	.000
Opioids	4.85 (10.90)	1.08 (2.14)	1.17	12	.264
ATS	5.67 (13.70)	2.12 (8.57)	2.93	49	.005
Cocaine	2.50 (3.59)	1.00 (1.85)	0.91	7	.396
Tranquillisers	4.26 (4.62)	3.16 (6.29)	0.55	18	.592
Hallucinogens	4.10 (6.58)	0.10 (0.32)	1.90	9	.090
Inhalants	3.20 (4.59)	0.40 (0.70)	1.82	9	.103
Severity of Dependence Scale score[d]	9.33 (3.06)	6.36 (4.40)	4.85	60	.000
Polydrug Use Scale score[e]	3.69 (1.09)	2.49 (1.33)	7.14	88	.000
Injecting drug use in three months prior to assessment	20.8%	12.9%	1.72	100	.088
Blood Borne Viral Risk Scale score[f]	2.85 (2.67)	1.00 (1.73)	1.24	6	.263

Note. [a] Frequency of use represents the number of days of substance use in the month prior to assessment. [b] Amphetamine-type stimulants. [c] Amount of use represents the number of substance administrations per day of substance use in the month prior to assessment. [d] Severity of Dependence Scale scores range from 0 to 15, where a higher score indicates greater severity of dependence to the substance of primary concern in the previous three months. [e] Polydrug Use Scale (PUS) scores range from 0 to 11, and represent the number of different drug types used in the previous month. The PUS is contained within the Brief Treatment Outcome Measure. [f] Blood Borne Viral Risk Scale (BBVRS) scores range from 0 to 7, where a higher score indicates greater risk of blood borne viral infection via injecting in the previous three months. The BBVRS is contained within the Brief Treatment Outcome Measure.

Table 5: *Measures of substance use, pre- and post-PALM, for Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Frequency of use					
Alcohol	11.65 (9.82)	5.69 (9.15)	1.98	19	.063
Tobacco	30.00 (1.05)	18.47 (14.18)	3.50	18	.003
Cannabis	20.03 (12.05)	8.78 (12.28)	3.12	17	.006
Opioids	15.00 (21.21)	3.85 (4.45)	0.61	1	.649
ATS	6.00 (10.24)	0.08 (0.14)	1.63	7	.147
Cocaine	10.33 (17.04)	0.10 (0.17)	1.04	2	.410
Tranquillisers	2.00 (1.73)	0	2.00	2	.184
Hallucinogens	5.50 (6.36)	0	1.22	1	.437
Inhalants	5.00 (7.07)	0.15	0.94	1	.519

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Amount of use					
Alcohol	20.80 (14.98)	6.18 (8.60)	5.93	19	.000
Tobacco	14.00 (8.76)	6.75 (6.06)	2.84	17	.011
Cannabis	13.67 (13.41)	6.83 (9.55)	2.04	17	.058
Opioids	-	-	-	-	-
ATS	3.83 (4.26)	0.17 (0.41)	2.02	5	.100
Cocaine	3.50 (3.54)	0	1.40	1	.395
Tranquillisers	5.33 (4.16)	0	2.22	2	.157
Hallucinogens					
Inhalants					
Severity of Dependence Scale score	8.54 (2.30)	5.54 (4.05)	2.06	12	.062
Polydrug Use Scale score	3.41 (0.94)	1.88 (1.32)	4.08	16	.001
Injecting drug use in three months prior to assessment	25.0%	15.0%	1.45	19	.163
Blood Borne Viral Risk Scale score	2.33 (4.04)	1.33 (2.31)	0.31	2	.785

Table *6: Measures of substance use, pre- and post-PALM, for non-Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Frequency of use					
Alcohol	14.34 (10.14)	5.42 (7.65)	6.82	73	.000
Tobacco	28.53 (5.97)	20.20 (11.94)	5.35	76	.000
Cannabis	21.27 (10.91)	7.46 (10.62)	8.79	73	.000
Opioids	4.13 (4.99)	2.72 (8.62)	0.44	11	.669
ATS	8.76 (8.86)	1.49 (0.15)	4.96	44	.000
Cocaine	2.50 (2.88)	0.58 (1.06)	1.53	7	.170
Tranquillisers	4.97 (6.39)	1.82 (3.34)	1.61	16	.126
Hallucinogens	3.63 (3.46)	0.25 (0.71)	2.52	7	.041
Inhalants	5.36 (7.42)	3.61 (8.98)	0.44	10	.671
Amount of use					
Alcohol	19.94 (14.78)	10.06 (12.20)	4.27	70	.000
Tobacco	16.41 (10.55)	21.14 (51.72)	-0.80	76	.428
Cannabis	16.73 (14.98)	7.53 (14.35)	4.27	72	.000
Opioids	6.10 (12.27)	0.30 (0.67)	1.47	9	.175
ATS	6.02 (14.87)	2.41 (9.32)	2.55	41	.015
Cocaine	2.17 (3.87)	1.33 (2.07)	0.40	5	.706
Tranquillisers	4.33 (4.84)	3.93 (6.91)	0.16	14	.875
Hallucinogens	4.88 (7.22)	0.13 (0.35)	1.83	7	.109
Inhalants	3.20 (4.59)	0.40 (0.70)	1.82	9	.103
Severity of Dependence Scale score	9.50 (3.27)	6.50 (4.58)	4.24	45	.000
Polydrug Use Scale score	3.73 (1.12)	2.62 (1.30)	6.93	70	.000
Injecting drug use in three months prior to assessment	19.0%	11.4%	1.35	78	.181
Blood Borne Viral Risk Scale score	4.00 (1.00)	0	6.93	2	.020

As Table 4 demonstrates, for all participants grouped together, significant pre- to post-PALM reductions were observed in frequency of alcohol, tobacco, cannabis, ATS and

hallucinogen use; for amount of alcohol, cannabis and ATS use; for Severity of Dependence Scale (SDS) scores; and for Polydrug Use Scale (PUS) scores. As Table 5 demonstrates, for Indigenous participants, significant pre- to post-PALM reductions were observed in frequency of tobacco and cannabis use; for amount of alcohol and tobacco use; and for PUS scores. As Table 6 demonstrates, for non-Indigenous participants, significant pre- to post-PALM reductions were observed in frequency of alcohol, tobacco, cannabis, ATS and hallucinogen use; for amount of alcohol, cannabis and ATS use; for SDS scores; for PUS scores; and for Blood Borne Viral Risk Scale (BBVRS) scores.

Physical and Mental health

Pre- and post-PALM physical and mental health comparisons for all participants grouped together, for Indigenous participants separately, and for non-Indigenous participants separately are shown in Tables 7, 8 and 9, respectively.

Table *7: Measures of physical and mental health, pre- and post-PALM, for all participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Brief Symptom Inventory					
Somatization	0.92 (0.80)	0.63 (0.90)	2.45	63	.017
Obsessive Compulsive	1.68 (1.02)	1.14 (1.12)	4.29	63	.000
Interpersonal Sensitivity	1.21 (1.09)	0.80 (1.08)	2.88	63	.005
Depression	1.36 (1.06)	0.79 (1.06)	4.50	63	.000
Anxiety	1.10 (0.98)	0.70 (0.89)	3.06	63	.003
Hostility	1.49 (1.11)	1.15 (1.11)	2.04	63	.045
Phobic Anxiety	0.69 (0.92)	0.48 (0.89)	1.56	63	.124
Paranoia	1.24 (0.89)	0.94 (1.04)	2.32	63	.023
Psychoticism	1.12 (0.86)	0.64 (0.90)	4.41	63	.000
General Symptom Index	1.22 (0.76)	0.81 (0.87)	3.94	63	.000
Psychological Well-Being Scale score[a]	5.73 (1.86)	3.02 (2.50)	10.33	98	.000
Health Scale score[b]	2.69 (1.14)	1.90 (1.12)	4.96	98	.000

Note. [a] Psychological Well-Being Scale (PWBS) scores range from 0 to 8 and represent the number of reported psychological problems in the three months prior to admission. The PWBS is contained within the Brief Treatment Outcome Measure. [b] Health Scale scores range from 0 to 4, where a lower score indicates better physical health. The Health Score is contained within the Brief Treatment Outcome Measure.

Table *8: Measures of physical and mental health, pre- and post-PALM, for Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Brief Symptom Inventory					
Somatization	0.73 (0.76)	0.38 (0.72)	1.38	13	.191
Obsessive Compulsive	1.44 (0.91)	0.81 (1.04)	2.01	13	.066
Interpersonal Sensitivity	0.64 (0.65)	0.48 (1.07)	0.68	13	.509
Depression	1.02 (0.92)	0.63 (1.13)	1.38	13	.192
Anxiety	0.95 (0.94)	0.57 (1.02)	1.07	13	.304
Hostility	0.90 (1.01)	1.04 (0.95)	-0.42	13	.681
Phobic Anxiety	0.23 (0.30)	0.46 (1.06)	-0.82	13	.428
Paranoia	0.90 (0.88)	0.86 (1.14)	0.12	13	.906
Psychoticism	0.83 (0.71)	0.54 (0.92)	1.16	13	.266
General Symptom Index	0.89 (0.65)	0.65 (0.96)	0.95	13	.358
Psychological Well-Being Scale score	5.54 (2.01)	2.35 (2.58)	4.56	19	.000
Health Scale score	2.70 (1.08)	1.75 (1.25)	3.13	19	.005

Table *9: Measures of physical and mental health, pre- and post-PALM, for non-Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Brief Symptom Inventory					
Somatization	0.93 (0.81)	0.67 (0.95)	1.88	47	.067
Obsessive Compulsive	1.70 (1.04)	1.18 (1.12)	3.72	47	.001
Interpersonal Sensitivity	1.35 (1.15)	0.87 (1.08)	2.70	47	.010
Depression	1.40 (1.07)	0.80 (1.04)	4.09	47	.000
Anxiety	1.10 (0.98)	0.70 (0.85)	2.89	47	.006
Hostility	1.68 (1.12)	1.19 (1.18)	2.49	47	.016
Phobic Anxiety	0.81 (1.01)	0.48 (0.87)	2.07	47	.044
Paranoia	1.33 (0.90)	0.96 (1.02)	2.70	47	.009
Psychoticism	1.16 (0.86)	0.65 (0.91)	4.05	47	.000
General Symptom Index	1.28 (0.77)	0.84 (0.86)	3.88	47	.000
Psychological Well-Being Scale score	5.78 (1.84)	3.13 (2.48)	9.24	76	.000
Health Scale score					

As Table 7 demonstrates, for all participants grouped together, significant pre- to post-PALM improvements were observed in eight of the nine Brief Symptom Inventory (BSI) scales (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, paranoia and psychoticism) and the BSI's General Symptom Index; in the Psychological Well-Being Scale (PWBS); and in the Health Scale. As Table 8 demonstrates, for Indigenous participants, significant pre- to post-PALM improvements were observed in the PWBS and in the Health Scale, but not among the BSI scales. As Table 9 demonstrates, for non-Indigenous participants, significant pre- to post-PALM improvements were observed in eight of the nine BSI scales (obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia and psychoticism) and the BSI's General Symptom Index; in the PWBS; and in the Health Scale.

Social and Family functioning

Pre- and post-PALM social and family functioning comparisons for all participants grouped together, for Indigenous participants separately, and for non-Indigenous participants separately are shown in Tables 10, 11 and 12, respectively.

Table 10: *Measures of social and family functioning, pre- and post-PALM, for all participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Social Functioning Scale score[a]	.89 (8.68)	3.17 (11.97)	-1.33	77	.189
Family Assessment Device General Functioning Scale score[b]	2.57 (0.63)	2.44 (0.68)	1.68	74	.098

Note. [a] Social Functioning Scale (SFS) scores range from 0 to 18, where higher scores indicate higher levels of social functioning. The SFS is contained within the Brief Treatment Outcome Measure. [b] Family Assessment Device (FAD) – General Functioning Scale scores range from 1.00 (healthy family functioning) to 4.00 (unhealthy family functioning), with a cut-off score for healthy functioning of 2.00.

Table 11: *Measures of social and family functioning, pre- and post-PALM, for Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Social Functioning Scale score	0.35 (8.99)	2.85 (11.74)	-0.59	15	.565
Family Assessment Device General Functioning Scale score	2.28 (0.48)	2.40 (0.52)	-0.98	16	.342

Table 12: *Measures of social and family functioning, pre- and post-PALM, for non Indigenous participants*

Measure	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Social Functioning Scale score	1.20 (8.62)	2.99 (12.05)	-0.96	60	.342
Family Assessment Device General Functioning Scale score	2.66 (0.66)	2.44 (0.73)	2.15	55	.036

As Table 10 demonstrates, for all participants grouped together, significant pre- to post-PALM improvements were not observed in either the Social Functioning Scale (SFS) or the Family Assessment Device (FAD) scores. As Table 11 demonstrates, for Indigenous participants, significant pre- to post-PALM improvements were not observed in either SFS or FAD scores. As Table 12 demonstrates, for non-Indigenous participants, significant pre- to post-PALM improvements were observed in FAD scores, but not in SFS scores.

Criminal behaviour

Pre- and post-PALM criminal behaviour comparisons for all participants grouped together, for Indigenous participants separately, and for non-Indigenous participants separately are shown in Tables 13, 14 and 15, respectively.

Table 13: *Criminal behaviour in the three months pre- and post-PALM, for all participants*

	Pre-PALM	Post-PALM	t	df	*p* =
Crime					
Property	36.8%	15.5%	3.68	90	.000
Person	40.0%	14.4%	4.39	90	.000
Drug supply	21.1%	8.2%	2.81	90	.006
Vandalism	22.1%	8.2%	2.64	90	.010
Driving	27.4%	12.4%	2.55	90	.013
Arrests [Mean (SD)]	1.83 (3.45)	0.49 (1.19)	3.70	92	.000

Table 14: *Criminal behaviour in the three months pre- and post-PALM, for Indigenous participants*

	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Crime					
Property	35.0%	10.5%	1.76	18	.096
Person	40.0%	21.1%	1.37	18	.187
Drug supply	20.0%	10.5%	0.81	18	.429
Vandalism	20.0%	5.3%	1.37	18	.187
Driving	35.0%	10.5%	1.76	18	.096
Arrests [Mean (SD)]	2.11	0.37	2.26	18	.036

Table 15: *Criminal behaviour in the three months pre- and post-PALM, for non-Indigenous participants*

	Pre-PALM Mean (SD)	Post-PALM Mean (SD)	t	df	*p* =
Crime					
Property	38.4%	17.1%	3.22	69	.002
Person	39.7%	11.8%	4.21	69	.000
Drug supply	21.9%	6.6%	3.19	69	.002
Vandalism	23.3%	9.2%	2.25	69	.028
Driving	26.0%	13.2%	1.91	69	.060
Arrests [Mean (SD)]	1.80 (3.59)	0.46 (1.06)	3.24	71	.002

As Table 13 demonstrates, for all participants grouped together, significant pre- to post-PALM reductions were observed in property, person, drug supply, vandalism and driving crimes committed, and in number of arrests. As Table 14 demonstrates, for Indigenous participants, a significant pre- to post-PALM reduction was observed in number of arrests, but not in any of the different types of crime committed. As Table 15 demonstrates, for non-Indigenous participants, significant pre- to post-PALM reductions were observed in property, person, drug supply, and vandalism crimes committed, and in number of arrests.

Satisfaction Analysis

Comparisons between young people who did and did not complete the TNFYSUAC

The pre-treatment profile (142 variables derived from TNFYSUAA and TNFYSUAB) of the young people who completed the TNFYSUAC was compared with that of the young people who did not (i.e., TNFYSUAC group vs. non-TNFYSUAC group). This comparison was made to measure the degree to which the TNFYSUAC group was representative of the entire sample of young people admitted to PALM. Variables for which significant differences between the two groups were demonstrated are shown in Table 16.

Table 16: *Summary of variables that differed significantly between the TNFYSUAC and non-TNFYSUAC groups*

Variable	Followed- up group	Not followed-up group	χ^2	t	df	*p* =
Gender (male)	65.1%	81.7%	12.44	NA	1	.000
Completed Year 10 (yes)	27.0%	16.8%	5.37	NA	1	.021
Committed crime against persons in the three months prior to admission (yes)	37.2%	25.8%	5.07	NA	1	.024
Number of sex partners in the three months prior to admission[a]	M = 1.67 SD = 1.28	M = 2.06 SD = 1.41	NA	2.38	260	.018

Note. [a] This is an ordinal scale variable, where 0 = None, 1 = 1, 2 = 2, 3 = 3 to 5, 4 = 6 to 10, and 5 = More than 10

As this Table demonstrates, 4 of the 142 analysed variables differed significantly between the TNFYSUAC and non-TNFYSUAC groups: males were less likely to be followed-up than females, $\chi^2(1, N = 349) = 12.44$, p = .000; young people who had completed Year 10 were more likely to be followed up than those who had not, $\chi^2(1, N = 349) = 5.37$, *p* = .021; young people who had committed crime against persons in the three months prior to

admission were more likely to be followed up than those who had not, $\chi^2(1, N = 345) = 5.07$, $p = .024$; and young people with fewer sex partners ($M = 1.67$, $SD = 1.28$) were more likely to be followed up than those with a greater number of sex partners ($M = 2.06$, $SD = 1.41$), $t(260) = 2.38$, $p = .018$.

Quantitative Satisfaction Statistics

General satisfaction ratings and satisfaction ratings for the various components of PALM are shown in Tables 17 and 18 respectively.

Table 17: *General satisfaction ratings*

Satisfaction question	No, definitely not (%)	No, I don't think so (%)	Neutral (%)	Yes, I think so (%)	Yes, definitely (%)	N =
If you needed help again, would you contact the Ted Noffs Foundation?	2.0	4.6	13.8	26.3	53.3	152
If a friend were in similar need of help, would you tell them of our program?	2.6	2.6	7.2	34.2	53.3	152
Did you feel safe at PALM?	0.7	2.0	15.1	50.7	31.6	152
Has PALM better helped you deal with your problems?	-	1.3	9.9	40.8	48.0	152
Do you feel more confident achieving your goals now than when you first came to PALM?	-	1.3	9.2	37.5	52.0	152

Table 18: *Satisfaction ratings for the various components of PALM*

Satisfaction question	Poor (%)	Below average (%)	Neutral (%)	Good (%)	Excellent (%)	N =
How would you rate the meals at PALM?	3.3	4.6	18.5	44.5	29.1	151
How would you rate the recreational activities that we offer?	0.7	4.0	12.0	56.0	27.3	150
How do you feel about/rate the groups at PALM?	3.3	5.3	18.5	56.3	16.6	151
Has would you rate the counselling, with respect to how it helped you with your problems?	2.0	2.7	8.8	42.3	44.2	147
How useful did you find completing your journal?[a]	7.5	12.2	28.6	40.8	10.9	147
How would you rate the vocational/educational assistance you received?	1.1	5.3	20.2	41.5	31.9	94[b]

Note. [a] The journal is a structured workbook that residents work through throughout their stay at PALM, enabling them to reflect on their experience and to record knowledge gained and progress made. [b] N is lower than for other questions as this question was added to the TNFYSUAC in 2003.

In addition, 93.9% of participants responded 'yes' to the question, "Did you feel you had enough input into deciding on the goals of your Action Plan?" and 90.3% answered 'yes' to the question, "Did the Action Plan reflect your needs?"

A comparison of satisfaction ratings between Indigenous and non-Indigenous participants is shown in Table 19.

Table 19: *Comparison of satisfaction ratings between Indigenous and non-Indigenous participants*

Satisfaction question	Indigenous Mean (SD) [a]	Non-Indigenous Mean (SD) [a]	t	df	*p* =
If you needed help again, would you contact the Ted Noffs Foundation?	4.19 (1.08)	4.24 (0.98)	0.28	148	.782
If a friend were in similar need of help, would you tell them of our program?	4.48 (0.85)	4.28 (0.94)	-1.01	148	.316
Did you feel safe at PALM?	4.15 (0.72)	4.08 (0.79)	-0.41	148	.685
Has PALM better helped you deal with your problems?	4.41 (0.57)	4.33 (0.74)	-0.49	148	.627
Do you feel more confident achieving your goals now than when you first came to PALM?	4.56 (0.58)	4.36 (0.74)	-1.31	147	.193
How would you rate the meals at PALM?	3.72 (0.92)	3.93 (0.99)	1.02	147	.308
How would you rate the recreational activities that we offer?	3.89 (0.93)	4.08 (0.74)	1.14	146	.256
How do you feel about/rate the groups at PALM?	3.93 (0.68)	3.73 (0.94)	-1.29	51.36[b]	.203
Has would you rate the counselling, with respect to how it helped you with your problems?	4.06 (0.78)	4.25 (0.90)	1.02	143	.310
How useful did you find completing your journal?	3.67 (0.83)	3.26 (1.10)	-1.81	143	.072
How would you rate the vocational/educational assistance you received?	4.13 (0.81)	2.95 (0.04)	-0.79	90	.432

Note. [a] Higher mean scores indicate a higher level of satisfaction. [b] Equal variances not assumed.

In addition, Indigenous and non-Indigenous participants did not differ significantly in their responses to the questions "Did you feel you had enough input into deciding on the goals of your Action Plan?" (χ^2 = 2.10, N = 145, p = .148) and "Did the Action Plan reflect your needs?" (χ^2 = 0.11, N = 145, p = .740). As this and Table 19 demonstrates, there are no significant differences in reported satisfaction levels between Indigenous and non-Indigenous young people.

Qualitative Satisfaction Statistics

Tables 20, 21 and 22 describe the results of the content analysis of participants' responses to three respective items contained within the TNFYSUAC: "What did you find most helpful in the program?", "What did you find least helpful in the program?" and "What could have made the program more helpful?"

Table 20: *Content analysis of responses to: "What did you find most helpful in the program?"*

Response	Number of participants reporting response [a]
Staff support	48
Counselling	39
Support from other residents	20
Groups	15
Learning about drug use	13
Recreational and other activities	13
Self discovery/development	13
Drug free environment	11
Vocational/Educational component	7
Journaling	6
Life skills	6
Safe environment	4
Routine/structure	3
Everything	2
Freedom	2
Created opportunities	1

Response	Number of participants reporting response [a]
Engendered hope	1
Family visits	1
Free time	1
Fun	1
Goal setting	1
Learning about mental health issues	1
Nothing	1

Note. [a] Participants could report multiple responses to the question. Total N = 141.

Table 21: *Content analysis of responses to: "What did you find least helpful in the program?"*

Response	Number of participants reporting response [a]
Certain groups	24
Journaling	19
Problems with certain staff	18
Problems with other residents	16
Nothing	15
Certain rules	10
Certain activities	6
Vocational/Educational component	6
Boredom	3
Lack of power	3
Food	2
Occasion of drugs in the house	2
Chores	1
Coming off drugs	1
Counselling	1
Insufficient free time	1
Isolation from outside world	1
Lack of privacy	1
Myself	1
Not enough family contact	1
Not feeling understood	1
Program too short	1
Stressful	1
Unrealistic environment	1

Note. [a] Participants could report multiple responses to the question. Total N = 127.

Table 22: *Content analysis of responses to: "What could have made the program more helpful?"*

Response	**Number of participants reporting response** [a]
Nothing	32
More activities/recreation	31
Improved staff skills	16
Changes to rules/discipline system	7
Improved groups	7
Improved journaling system	5
More counselling	5
Improved location	3
Improved management of resident finances	3
More freedom	3
More sleep	3
Less activities/recreation	2
Longer program	2
More cultural support	2
More food	2
More free time	2
More vocational/educational activities	2

Note. [a] Participants could report multiple responses to the question. Total N = 116.

DISCUSSION

The aim of the current study was to explore retention, self-reported outcomes and program satisfaction among Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern.

Retention

The results demonstrated that 40.5% of young people with alcohol as a substance of concern stayed at PALM for up to one month, an additional 20.4% stayed for up to two months, and an additional 39.1% stayed for longer than two months. This finding suggests a pattern of retention that is comparable to that demonstrated in previous youth-focussed research, which indicates that up to 35% per cent of admissions drop out within 30 days of treatment commencement (Orlando et al., 2003; Stewart, 1994).

Bi-variate associations of independent variables with retention indicated that treatment retention was associated with PALM unit admitted to, the young person ever being told that he/she needed treatment (longer stay), the young person ever experiencing verbal abuse (longer stay), the young person ever experiencing sexual assault by a stranger (shorter stay), the number of places the young person lived in the six months prior to admission (greater number associated with shorter stay), the young person's occasions of cannabis use in the month prior to admission (greater number associated with shorter stay), the young person's level of education attainment (higher education associated with longer stay), the number of times the young person was arrested in the three months prior to admission (greater arrests associated with shorter stay), and the age of the young person (higher age associated with longer stay).

The more powerful ordinal logistic regression analysis yielded a model containing four variables as the most important predictors of retention. Higher treatment retention was predicted by the young person having lived in fewer places in the six months prior to admission, being older, being female, and never having had major health problems. It is important to note, given this study's attention to Indigenous PALM residents, that Indigenous status was not significantly associated with retention at any stage of the research.

Given the inconsistency of past research on predictors of retention, it is difficult to compare the current results with those of previous studies. However, the most consistent predictor of retention across previous research — that is, pre-treatment motivation — was not found to be an important predictor of retention in this study. Also, the finding that females exhibited greater retention than did males discords with the majority of previous research, which has demonstrated a tenuous link between male gender and greater retention (e.g., Klein et al., 2002; Pompi & Resnick, 1987; Spooner et al., 1999). Given that gender remained a significant predictor variable in the absence of the other variables in the final model, it may be speculated that young females' needs were better met by PALM than were the needs of young males, hence leading to greater female retention. Alternatively, or in addition, it is possible that staff were more likely to 'forgive' the challenging behaviour of young females than that of young males, and to 'hold' young females in treatment for longer periods of time, because (as previous

research conducted on PALM residents has demonstrated [Arcuri & Howard, 2005]) they were more problem laden than were young males.

The finding that older young people stayed at PALM longer than did their younger counterparts is consistent with previous research (albeit on adult populations). It is possible that younger residents found it more difficult to negotiate a novel and challenging living environment than did their presumably more mature, developmentally advanced and individuated older peers.

Unique to this study was the fording that young people who lived in a greater number of places in the six months prior to admission stayed in treatment for shorter periods of time than did those who previously lived in fewer places. It appears plausible to assume that young people who adopt a mobile or perhaps nomadic lifestyle, especially at a relatively young age, are more likely to find the prospect of living in one environment for three consecutive months an undesirable or even daunting one, thus heightening their likelihood of leaving the program earlier than those who are more accustomed to settling in fewer places. Alternatively, or in addition, it is conceivable that this group of individuals were highly mobile because of difficulty with shared living (such as prior instances of eviction from share accommodation), and whilst in PALM displayed typical disruptive behaviours that increased their likelihood of being asked to leave the program. To exacerbate such difficulties, it is fairly clear that the younger the onset of problematic substance use, the greater the likelihood of entrenched conduct and oppositional disorders in childhood and concomitant behavioural problems.

Physical health status as a predictor of retention had been under-researched prior to this study. The current study's finding that a history of major health problems is predictive of shorter retention could indicate that the presence of significant health problems interferes with a young person's ability to negotiate and thus remain in treatment. However, this finding is tenuous, particularly given that other health variables in this study were not found to be associated with retention, and thus warrants further exploration.

Highlighting the client characteristics that are associated with lower retention provides those who develop and implement residential treatment programs with the opportunity to attend to the unique needs of the differing groups of young people presenting to their services. For example, the finding that male gender predicted lower retention highlights the requirement to attend to the unique needs of young males in residential treatment, while the discovery that young people who previously lived a transient lifestyle were likely to leave treatment early points to the necessity of an induction process conducive to a smoother transition into stable living for these individuals. Similarly, the finding that younger age was associated with early dropout draws attention to the necessity of an approach sensitive to the developmental needs of young residents, while the discovery that having a history of major health problems was associated with low retention underscores the importance of the availability of ancillary health services for young people in residential treatment. In addition, programs may need to attend more to the challenging behavioural presentations of younger males who have been in and out of home for some time, especially in developing better methods and processes for engaging them in treatment and managing their behaviour.

The methodology of the retention analysis suffers from a number of limitations. First, the limited scope of predictor variables utilised in this study did not allow for a comprehensive examination of the full range of possible influences on treatment retention, including client-level factors such as family and social functioning, and program-level components such as staff characteristics, therapeutic alliance and family involvement in treatment. Second, the calculation of retention in this study was determined in the absence of a standardised measure, and thus may not be entirely comparable with the inconsistent measurements of retention across previous studies. Finally, as is inherent in all survey research, the present study suffers from the questionable validity of self-report, which has been the subject of some debate among researchers of adolescent substance use (Winters, Latimer, & Stinchfield, 2001).

Future research on retention in residential drug and alcohol treatment for young people could expand on the current findings by exploring a broader range of client characteristics, and by incorporating a comprehensive set of possible program-level predictors of retention. Furthermore, it is recommended that a standardised measure of retention be developed.

Self-reported outcomes

The comparison between followed-up and not followed-up Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern demonstrated that 5 of the 142 analysed variables significantly differed between groups. This small number of differences between groups suggests that the followed-up group was representative of the entire sample of young people admitted to PALM, and therefore the self-reported outcomes findings can be generalised across PALM residents with some confidence.

For all participants grouped together, significant post-PALM substance use reductions were observed in frequency of alcohol, tobacco, cannabis, ATS and hallucinogen use; in amount of alcohol, cannabis and ATS use; in severity of dependence; and in polydrug use. In addition, significant improvements were observed in physical health, and in somatization, obsessive-compulsivity, interpersonal sensitivity, depression, anxiety, hostility, paranoia, psychoticism and general mental health. No significant improvements were demonstrated in social or family functioning, but among measures of criminal behaviour, significant reductions were observed in property, person, drug supply, vandalism and driving crimes committed, and in number of arrests.

For Indigenous participants, significant post-PALM substance use reductions were observed in frequency of tobacco and cannabis use, amount of alcohol and tobacco use, and polydrug use. In addition, significant improvements were observed in physical health and one general measure of mental health, but not in specific measures of mental health. No significant improvements were demonstrated in social or family functioning, and no significant reductions were observed across any of the different types of crime committed, but a significant reduction was observed in number of arrests.

For non-Indigenous participants, significant post-PALM substance use reductions were observed in frequency of alcohol, tobacco, cannabis, ATS and hallucinogen use; in amount of alcohol, cannabis and ATS use; in severity of dependence; in polydrug use; and in risk of blood borne viral infections. In addition, significant improvements were observed in physical health, and in obsessive-compulsivity, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia, psychoticism and general mental health. There was not a significant improvement in social functioning, but a significant improvement was demonstrated in family functioning, and, among measures of criminal behaviour, significant reductions were observed in property, person, drug supply, and vandalism crimes committed, and in number of arrests.

Overall, these findings suggest that PALM is effective in assisting its clients who nominate alcohol as a substance of concern to reduce their levels of substance use and criminal behaviour, and to improve their health and mental health (and, for non-Indigenous young people, their family functioning), which is consistent with the majority of previous research on outcomes of residential drug and alcohol treatment for young people.

It must be highlighted that Indigenous young people demonstrated outcomes that were less favourable than those of their non-Indigenous peers across the majority of dimensions. However, a closer examination of the results reveals that improvements were indeed evident for Indigenous young people across all domains (with the exception of family functioning, hostility and phobic anxiety), but did not reach statistical significance. Although this could in part be due to the significantly smaller sample size of Indigenous young people compared with their non-Indigenous counterparts, it is also important to explore other possible reasons for this finding.

One possibility for the less favourable improvements in functioning for Indigenous young people three months after PALM is that the program was not able to provide services that catered for and/or were sensitive to the unique needs of Indigenous young people. However, this is unlikely, given that retention rates did not differ between Indigenous and non-Indigenous young people, and, as will be discussed in greater detail later in the report, satisfaction levels of Indigenous young people were highly comparable to (if not higher than) those of their non-Indigenous peers.

Another possibility is that Indigenous young people were not provided adequate continuing and post-PALM support, which did not allow for the consolidation of improvements gained whilst in the program. Anecdotal evidence from PALM clinical staff suggests that providing adequate continuing care, which involves finding appropriate community support services for Indigenous young people and the families to which they return, is difficult. This is especially so for those returning to poorly serviced rural and remote communities.

These findings suggest the need for a greater investment in youth infrastructure, including drop-in centres and family support, particularly for Indigenous young people, to help consolidate the positive changes that young people make during their involvement in PALM. Also, the results of the outcome analysis indicate that PALM could work toward better enhancing the social functioning of its residents, and find ways to better engage with and facilitate the improved functioning of families of Indigenous residents.

The methodology of the outcomes analysis has a number of limitations. First, as previously discussed in relation to the retention analysis, the outcomes analysis suffers from the questionable validity of self-report measures, particularly of substance use, for which more objective measures, such as physiological indicators of substance consumption, could have been used. In addition, the outcomes analysis lacks the inclusion of a control group of young people who did not engage in any treatment across a comparable time period.

Accordingly, future research of this nature could include more objective measures of substance use and include a control group to enhance the validity of the findings. In addition, future research could explore the influence of continuing care and post-program support on post-treatment outcomes.

Satisfaction

The comparison between residents who completed the satisfaction questionnaire and those who did not demonstrated that 4 of the 142 analysed variables significantly differed between groups. This small number of differences between groups suggests that the group who completed the satisfaction questionnaire was representative of the entire sample of young people admitted to PALM, and therefore the satisfaction findings can be generalised across PALM residents with some confidence.

For quantitative measures of general satisfaction with PALM, positive satisfaction levels were reported by over 80 per cent of respondents, while for measures of satisfaction with specific PALM components, positive satisfaction levels were reported by over 70 per cent of respondents, except for satisfaction with the journal, where over 50 per cent of respondents indicated positive satisfaction levels. Overall, these findings suggest that PALM residents are highly satisfied with the program and the majority of its components, which is consistent with past research.

The comparison of satisfaction ratings between Indigenous and non-Indigenous participants yielded no significant differences. The difference that was closest to reaching significance was that Indigenous participants were more satisfied with the journal than were their non-Indigenous peers. These findings are particularly noteworthy, given that despite comparable (if not higher) levels of satisfaction with the program, Indigenous young people demonstrated less favourable outcomes three months after program participation than their non-Indigenous cohorts, as was discussed earlier.

In the qualitative satisfaction analysis, the program characteristics that were most commonly reported by participants as most helpful included (in descending order) staff support, counselling, support from other residents, groups, learning about drug use, recreational and other activities, self discovery/development, and the drug free environment. The most commonly reported least helpful aspects of the program included certain groups, journaling, problems with certain staff, `nothing', certain rules, certain activities, and the vocational/educational component. Finally, the most commonly nominated ideas for what could have made the program more helpful included `nothing', more activities/recreation, improved staff skills, changes to rules/discipline system, improved groups, improved journaling system, and more counselling.

These findings indicate that while a large number of residents found many of the components of PALM helpful, a large number also found some or parts of these components less than helpful, which suggests that a greater depth and diversity within each of these components is warranted to cater to the needs of as many PALM residents as possible. In addition, it is apparent that the journaling system requires an overview, given that it was commonly nominated both as a least helpful PALM characteristic and as an area for improvement.

The methodological limitations of the satisfaction analysis are two-fold. First, the quantitative component of the measure utilised was not standardised and has no demonstrated psychometric properties, including reliability and validity. Second, as previously discussed, the validity of using self-report measures is questionable.

Future research on client satisfaction with residential drug and alcohol treatment for young people could investigate a possible link between levels of satisfaction and treatment retention and post-treatment outcomes. In addition, future qualitative research could explore, from the residents' perspective, the impacts on their levels of satisfaction during their time in the program.

Summary conclusions

The current study explored retention, self-reported outcomes and program satisfaction among Indigenous and non-Indigenous young people presenting to residential drug and alcohol treatment with alcohol as a substance of concern. Among this group of young people, significant predictors of lower retention included younger age, male gender, a history of major health problems, and a recent transient lifestyle. Positive self-reported outcomes were demonstrated for substance use, physical and mental health, family functioning and criminal behaviour, but not for social functioning. Indigenous young people demonstrated outcomes less favourable than their non-Indigenous peers, which may be a result of poorer post-program support. Finally, levels of satisfaction were equally high for Indigenous and non-Indigenous young people, but there remain areas for program development.

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APPENDIX A — Full list of independent variables used in the retention analysis

Categorical Variables

PALM Unit (East, West, ACT, Coffs Harbour, Dubbo)

Gender (Male, Female)

Country of birth (Australia, Other)

Do you identify as Aboriginal and/or Torres Strait Islander? (Yes, No)

Have you ever been suspended or expelled from school? (Yes, No)

Have you ever been in special class at school? (Yes, No)

What is your current employment situation? (Working/studying, Unemployed/Other)

How do you gain your income? (Self acquired, Dependent on others)

What is your current living situation? (Live alone, live with others)

Can you return to your previous accommodation? (Yes, No)

Are you currently in a relationship? (Yes, No)

Do you have children? (Yes, No)

Have you injected a drug in the last three months? (Yes, No)

Is heroin a secondary drug of concern? (Yes, No)

Is cannabis a secondary drug of concern? (Yes, No)

Is an amphetamine-type stimulant a secondary drug of concern? (Yes, No)

Is ecstasy a secondary drug of concern? (Yes, No)

Is cocaine a secondary drug of concern? (Yes, No)

Is a tranquilliser a secondary drug of concern? (Yes, No)

Is tobacco a secondary drug of concern? (Yes, No)

Is an inhalant a secondary drug of concern? (Yes, No)

Is a hallucinogen a secondary drug of concern? (Yes, No)

Do you think your drug use is a problem now? (Yes, No)

Have you ever been told you need help/treatment for a drug or alcohol problem? (Yes, No)

Have you engaged in any previous drug and alcohol treatment? (Yes, No)

Have you previously been in residential drug and alcohol treatment? (Yes, No)

Do you think you need any treatment / help for a drug or alcohol problem now? (Yes, No)

Have you ever tried on your own to give up or cut down your use of any of the drugs that you have used? (Yes, No)

Have you ever seen a mental health professional? (Yes, No)

Are you currently using any prescribed medication(s)? (Yes, No)

Do you have any chronic health problems? (Yes, No)

Have you had any major health problems? (Yes, No)

Have you experienced legal/criminal problems from any drug you have used? (Yes, No)

Have you experienced money problems from any drug you have used? (Yes, No)

Have you experienced work or school problems from any drug you have used? (Yes, No)

Have you experienced problems with people from any drug you have used? (Yes, No)

Have you experienced serious physical health problems from any drug you have used? (Yes, No)

Have you experienced serious psychological problems from any drug you have used? (Yes, No)

Have you experienced problems with violence or aggression from any drug you have used? (Yes, No)

Have you experienced serious accidents as a result of any drug you have used? (Yes, No)

Have you experienced overdose on any drug you have used? (Yes, No)

Have you experienced your own, your family's or your close friends' lives or safety threatened as a result of any drug you have used? (Yes, No)

Have you had thoughts of ending your life in the last three months? (Yes, No)

Have you ever attempted to end your life? (Yes, No)

Have you ever lived through or witnessed a serious accident? (Yes, No)

Have you ever lived through or witnessed a physical assault by someone you know? (Yes, No)

Have you ever lived through or witnessed a sexual assault by someone you know? (Yes, No)

Have you ever lived through or witnessed a combat or war zone? (Yes, No)

Have you ever lived through or witnessed a life threatening illness? (Yes, No)

Have you ever lived through or witnessed a natural disaster? (Yes, No)

Have you ever lived through or witnessed a physical assault by a stranger? (Yes, No)

Have you ever lived through or witnessed severe or ongoing emotional or verbal abuse? (Yes, No)

Have you ever lived through or witnessed a sexual assault by a stranger? (Yes, No)

Have you ever lived through or witnessed torture? (Yes, No)

Have you committed a property crime in the last three months? (Yes, No)

Have you committed a crime against persons in the last three months? (Yes, No)

Have you committed drug supply crime in the last three months? (Yes, No)

Have you committed forgery crime in the last three months? (Yes, No)

Have you committed vandalism crime in the last three months? (Yes, No)

Have you committed arson crime in the last three months? (Yes, No)

Have you committed driving crime in the last three months? (Yes, No)

Scale/Ordinal Variables

Age

In how many places have you lived over the last six months? (1, 2, 3, 4-6, 7-10, 11-20, More than 20)

What was the highest level of education that you completed or are currently completing? (Primary school, High school before Year 10, Year 10 School Certificate, Year 12 Higher School Certificate, Other higher education)

Total DSM score for substance dependence

How would you say your physical health was in the last three months? (Excellent, very good, good, fair, poor)

In the last 3 months (90 days) how many days have you spent in hospital?

Number of arrests in the last three months

Severity of Dependence Scale score

Blood Borne Virus Risk Scale score

Polydrug Use Scale score

Occasions of Drug Use Scale score - Alcohol

Occasions of Drug Use Scale score - Cannabis

Occasions of Drug Use Scale score - Tranquillisers

Occasions of Drug Use Scale score - Cocaine

Occasions of Drug Use Scale score - Tobacco

Occasions of Drug Use Scale score - Opioids
Psychological Well-Being Scale score
Number of primary and secondary drugs of concern
Number of reported drug-related problems
Posttraumatic Stress Disorder Scale score
Number of different types of crime committed in the last three months

APPENDIX B — List of independent variables eligible for inclusion in the multivariable retention analysis

Categorical Variables

PALM Unit (East, West, ACT, Coffs Harbour, Dubbo)

Gender (Male, Female)

Country of birth (Australia, Other)

Do you identify as Aboriginal and/or Torres Strait Islander? (Yes, No)

What is your current employment situation? (Working/studying, Unemployed/Other)

What is your current living situation? (Live alone, live with others)

Can you return to your previous accommodation? (Yes, No)

Are you currently in a relationship? (Yes, No)

Do you have children? (Yes, No)

Is tobacco a secondary drug of concern? (Yes, No)

Is an inhalant a secondary drug of concern? (Yes, No)

Have you ever been told you need help/treatment for a drug or alcohol problem? (Yes, No)

Have you previously been in residential drug and alcohol treatment? (Yes, No)

Are you currently using any prescribed medication(s)? (Yes, No)

Do you have any chronic health problems? (Yes, No)

Have you had any major health problems? (Yes, No)

Have you experienced legal/criminal problems from any drug you have used? (Yes, No)

Have you experienced work or school problems from any drug you have used? (Yes, No)

Have you experienced serious physical health problems from any drug you have used? (Yes, No)

Have you experienced problems with violence or aggression from any drug you have used? (Yes, No)

Have you experienced your own, your family's or your close friends' lives or safety threatened as a result of any drug you have used? (Yes, No)

Have you had thoughts of ending your life in the last three months? (Yes, No)

Have you ever attempted to end your life? (Yes, No)

Have you ever lived through or witnessed a natural disaster? (Yes, No)

Have you ever lived through or witnessed severe or ongoing emotional or verbal abuse? (Yes, No)

Have you ever lived through or witnessed a sexual assault by a stranger? (Yes, No)

Have you committed a property crime in the last three months? (Yes, No)

Have you committed forgery crime in the last three months? (Yes, No)

Scale/Ordinal Variables Age

In how many places have you lived over the last six months? (1, 2, 3, 4-6, 7-10, 11-20, More than 20)

What was the highest level of education that you completed or are currently completing? (Primary school, High school before Year 10, Year 10 School Certificate, Year 12 Higher School Certificate, Other higher education)

Number of arrests in the last three months

Occasions of Drug Use Scale score - Cannabis

Occasions of Drug Use Scale score - Cocaine

Occasions of Drug Use Scale score - Tobacco

Psychological Well-Being Scale score

Number of different types of crime committed in the last three months