

***Program attrition among justice-
involved youth and its relationship
with reoffending from the Changing
Habits and Reaching Targets
(CHART) program***

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Outline

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- Aims of the research
- Methodology
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- Strengths, Limitations and Implications
- Questions

Background

WHAT IS PROGRAM ATTRITION...

➤ Program attrition (or non-completion) can be defined as:

“the failure of a client (young person) to adhere to the requirements of an intervention or program and not progress through to completion” (Olver, Stockdale & Wormith, 2011)

THREE MAIN TYPES:

1. Client-initiated dropout
2. Agency-initiated expulsion
3. Administratively-based exits

(Wormith & Olver, 2002)

Background

WHY AN INTEREST IN PROGRAM ATTRITION...

- Program attrition is not a new phenomenon nor unique to the juvenile justice system.
- Within the medical and therapeutic treatment fields, program attrition rates have been found to be between **23% and 39% for clients within institutional care and 26% and 68% for those clients receiving community based interventions** (Baekeland & Lundwall, 1975).

OFFENDING POPULATIONS VARY CONSIDERABLY

- As **low as 10%** among adult sexual offending programs
- **Over 90%** program attrition for community-based DV programs
- Juvenile focused studies, **between 40-60% do not complete**

(Seto & Barbaree, 1999; Polaschek, 2010; Lockwood and Harris, 2015)

Predictors of Program Attrition

Can we predict those who will fail to complete...

- International research on program attrition among justice-involved people (adult and youth) have identified a number of predictors: *single male; younger of age; member of a minority group; unemployment; lower income; being less educated; higher score of risk assessment tools for violence and reoffending; lower scores on motivational assessment tools; antisocial personality disorder and psychopathy; and criminal history* (Olver, Stockdale & Wormith, 2011)
- **Young people focused studies:** younger age; parental issues; low SES; family dysfunction; mental health disorders; denial of offence; educational involvement; and substance abuse (Lockwood, 2012; Dakof et al, 2001).
- **Neighbourhood-level and Organisational-level predictors:** socially disadvantaged communities; distance to treatment location; limited staff and resourcing; less participants in group settings; staff not addressing responsivity factors, e.g. gender, culture, attitude towards treatment (Lockwood, 2012; Olver et al, 2011; Wormith & Olver, 2002).

Program Attrition & Recidivism among Juvenile Offenders

Program Attrition and Recidivism: A clearly established link...

- Individuals who fail to complete treatment programs are more likely to commit a future offence (Lockwood & Harris, 2015).
- ***For justice-involved youth***, studies have found that program attrition is associated with reoffending for those who failed to complete sex offending and substance abuse treatment (Lockwood & Harris, 2015).
- There is a need for more research to better understand the program attrition-recidivism relationship among justice-involved youth, particularly with regards to community-based programs in Australia (Lockwood & Harris, 2015).

Aims of the Research Project

Study 1 (Predictors of program attrition):

- RQ 1: What factors predict that youth participating in the CHART program will fail to complete (i.e. 6 core module) on their first attempt?
- RQ2: What factors predict that youth participating in the CHART program will fail to complete on their first attempt using a data-driven approach to program attrition (50% of the program i.e. mid-point program attrition)?

Study 2 (Program attrition-recidivism relationship):

- RQ 3: Is there a relationship between CHART core module program attrition and recidivism during a 12 month follow-up period?
- RQ4: Is there a relationship between CHART core module client-initiated program attrition and recidivism during a 12 month follow-up period?

Study 3 (Program attrition-frequency of reoffending):

- RQ 5: Do young people who fail to complete the 6 core modules of the CHART program on their first attempt re-offend at a greater frequency than young people who complete the 6 core modules of the program?

Methodology

PARTICIPANTS:

- N = 1315
- Young people aged 11-20 years old
- Includes both males and females
- Supervised by Juvenile Justice NSW between 1 January 2013 to 1 January 2015
- Participated in the community-based program, Changing Habits and Reaching Targets (CHART).
- Successfully matched to the NSW BOCSAR Reoffending Database (RoD) for a 12 month follow-up period

DATA COLLECTION:

- Obtained from the Juvenile Justice Client Information Management System (CIMS) and matched to the NSW BOCSAR RoD
- Variables: demographics; risk assessments (YLS/CMI-AA), common risk factors, and recidivism outcomes

Methodology

DESIGN, PROCEDURE AND ETHICS:

- A historical cohort design utilising data that had been previously collected by JJNSW field staff and entered into the JJNSW CIMS, and matched to the NSW BOCSAR RoD, where possible for recidivism outcome data during a 12 month follow-up.
- This study employed convenience, non-probability sampling by examining all juvenile offenders who were under the supervision of JJNSW between 1 January 2013 and 1 January 2015 in the community and participated in the CHART program.
- Ethics approval from the University of New South Wales, Human Research Ethics Advisory (HREA) panel (HREAP D: Biomedical – HC15656) was obtained and the New South Wales Department of Justice, Juvenile Justice approved the research (JJNSW File Number – 15/00569) on 30 October 2015.

Methodology

INTERVENTION PROGRAM:

- The ***Changing Habits And Reaching Targets (CHART)*** program is an offending behaviour program designed specifically for young people at risk of re-offending. CHART employs a ***skills-oriented, cognitive-behavioural approach*** that uses active learning methods to encourage participation (Juvenile Justice NSW, 2015).

CORE Modules (6) Sessions (16)

Introduction to CHART	1
1. Mapping my Offences	3
2. Motivation to Change	3
3. Thinking and Offending	2
4. Problem-solving	3
5. Lifestyle Balance	3
6. Relapse Prevention	1

DISCRETIONARY Modules (6) Sessions (12)

1. Healthy Relationships	2
2. Violence	2
3. Motor Vehicle Offending	2
4. Drugs and Alcohol	2
5. Living Independently	2
6. Education and Work	2

Variables and Coding

Outcome Variable	Variable Definition and Coding
CM Program Attrition	Coded as 0 = CM completer; 1 = CM non-completer (STUDY 1)
MP Program Attrition	Coded as 0 = MP completer; 1 = MP non-completer (STUDY 1)
Recidivism	Coded as 0 = no reoffending; 1 = reoffending within a 12 month follow-up period (STUDY 2)
Time to recidivism	Number of days between CHART program completion/non-completion and re-offending date
Frequency of recidivism	Number of new offences committed during the 12 month follow-up period (STUDY 3)
Explanatory Variable	Variable Definition and Coding
Demographics Age at CHART start date Age at first contact Gender Rural Location	Age in years at time of starting the CHART program Age in years at time of first contact with Juvenile Justice Coded 0 = females; 1 = males Coded 0 = Major City; 1 = Inner Regional; 2 = Outer Regional & Remote area in Study 1 and coded 0 = Major City; 1 = Inner Regional; 2 = Outer Regional; 3 = Remote area in Study 2.
Risk Assessment Factors YLS/CMI-AA Risk Group	Total score on the YLS/CMI-AA at CHART program start date Coded 0 = Low; 1 = Medium; 2 = Medium-High; 3 = High
Protective Factors Individual strengths Family strengths Community strengths	Coded 0 = not present; 1 = present for individual strengths factors Coded 0 = not present; 1 = present for family strengths factors Coded 0 = not present; 1 = present for community strengths factors
Common Risk Factors	
Disaggregated CM Program Attrition	Coded 0 = completer; 1 = administrative/other attrition (non-client-initiated attrition); 2 = client-initiated attrition
Enrolled in education	Coded 0 = not enrolled; 1 = enrolled in school at time of CHART program start date
Parole Order	Coded 0 = all non-parole orders; 1 = parole order
Non-Compliance	Coded 0 = compliant; 1 = non-compliant resulting in Court action
First Contact Type (Custodial)	Coded 0 = non-custodial contact; 1 = custodial contact
First Contact Type (YJC)	Coded = = non-youth justice conference referral; 1 = youth justice conference referral
Violent Offence	Coded 0 = non-violent offence; 1 = violent offence
Referrals to other programs	Coded 0 = No; 1 = Yes
Participation in other programs	Coded 0 = No; 1 = Yes
Control Variable	Variable Definition and Coding
Time at liberty	Number of days a participant spent in custody from program end date/dropout to date of re-offending.

Methodology

METHOD OF STATISTICAL ANALYSES:

Study 1:

- **univariate logistic regression** analyses were performed to examine the relationship between possible explanatory variables and the outcome variable of program attrition.
- **multivariate logistic regression analysis** was performed to predict the likelihood of program attrition using the full cohort.

Study 2:

- the proportion of completers and non-completers who re-offended was examined using **Kaplan-Meier estimates**.
- time to re-offending was examined using **Cox Proportional Hazard regression**. This analysis was performed using a series of models examining the relationship between program attrition and reoffending when controlling for covariates.

Study 3:

- the **Mann-Whitney U test** was conducted to assess whether there was a statistically significant difference between the medians of completers and non-completers for the frequency of re-offending.

Results

DESCRIPTIVE STATISTICS:

- 80.2 per cent male (n=1055) and 19.4 per cent female (n=260)
- mean age at the start of the program was 15.9 years (SD = 1.4) and ranged from 11 to 20 years old.
- mean age at first contact with JJNSW was 14.6 years (SD = 1.59), with a range of 9 to 18 years old
- ethnicity composition of the cohort consisted of 34.1 per cent Aboriginal and/or Torres Strait Islander and 37.1 per cent Australian, 16.4 per cent Other ethnic identity, and 12.3 per cent Unknown ethnic status.
- 55.8 per cent of juvenile offenders were supervised by a Juvenile Justice Community Office (JJCO) within a major city, whilst 33.1 percent were supervised in an inner regional area; 6.8 per cent in an outer regional area; and 4.3 per cent in a remote area of New South Wales (Accessibility Remoteness Index of Australia (ARIA+, Australian Bureau of Statistics, 2001) .
- non-compliance with legal order conditions was present for 23.9 per cent of the cohort.
- The majority of the cohort received a community-based court outcome for their first contact (i.e. 62.5 per cent) with the juvenile justice system. Probation (33%) and good behaviour bonds (28%) were most common legal orders.
- Most serious offence type (ANZSOC Division Title) were: Acts intended to cause injury (45.2%) and Theft and Related offences (17.3%).
- YLS/CMI-AA for the cohort had a mean of 19.25 (95% CI: 18.79, 19.71), with a range of 2 to 46
- Protective factors (i.e. strength factors) as assessed by the YLS/CMI-AA: 43.4 % scored as present for individual, social and personal skills; 68.3 % scored as present for family strengths; and 65.0 % scored as present for community supports outside of the family.

Results

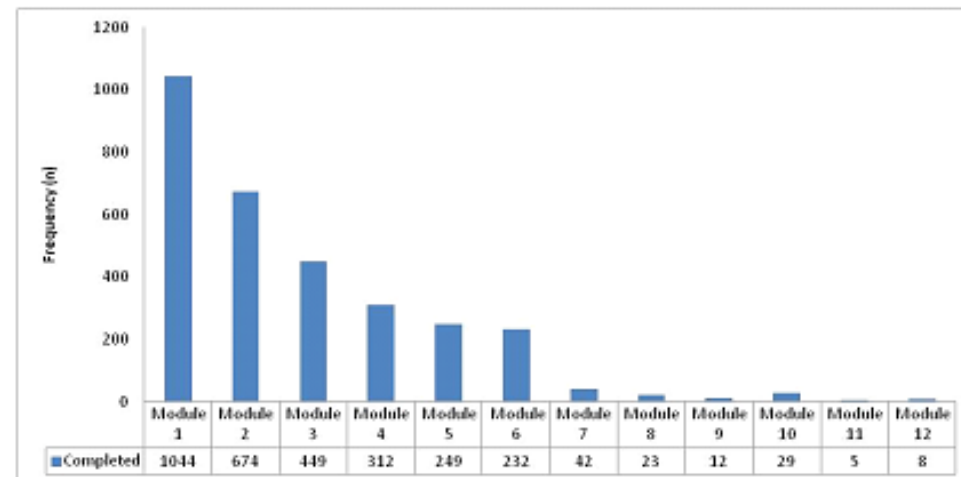
DESCRIPTIVE STATISTICS – PROGRAM ATTRITION:

- Just under one-fifth of the cohort (17.6%) had completed (i.e. completed the six core modules of the CHART program; n=232); 82.4% did not complete the six required core modules (n=1083)
- Disaggregation of CM program attrition demonstrated that amongst the CM non-completers group, 24.3 % had failed to complete as a result of client-initiated CM program attrition (n=263) and 75.7 % for administrative/other CM program attrition (n=820).

Descriptive Statistics for CM Program Attrition Disaggregation

Program Attrition Disaggregation	N (n = 1083)	%
<i>Client-initiated attrition</i>	263	24.3
Re-arrested	84	6.4
Breach action	60	4.6
Withdrawn due to other needs	59	4.5
Failed to make progress	44	3.3
Decline to continue in program	12	0.9
Not suitable for program	4	0.3
<i>Administrative/Other attrition</i>	820	75.7
Supervision suspended	304	23.1
Legal order expiry	259	19.7
Transfer or discharge	144	11.0
Other	107	8.1
Clashes with other legal requirements	6	0.5

Frequency of Participants who completed each module of the CHART program



Results

STUDY 1 (PREDICTORS OF PROGRAM ATTRITION):

TABLE 1: Multivariate logistic regression analyses examining factors predicting core module program attrition

Explanatory Variable	p	Odds Ratio	95%CI Lower	95%CI Upper
Non-compliance	0.04*	1.47	1.02	2.12
Individual – protective factor	0.15	0.80	0.59	1.08
Community – protective factor	0.10	0.76	0.55	1.06
First Contact (YJC Referral)	0.03*	1.50	1.05	2.14
Rural Location				
Major City		1.00 (Referent)		
Inner Regional	.004*	0.63	0.46	0.86
Outer Regional/Remote	.008*	0.56	0.36	0.86
Constant	0.000	6.624		

*p<.05

TABLE 2: Multivariate logistic regression analyses examining factors predicting mid-point program attrition

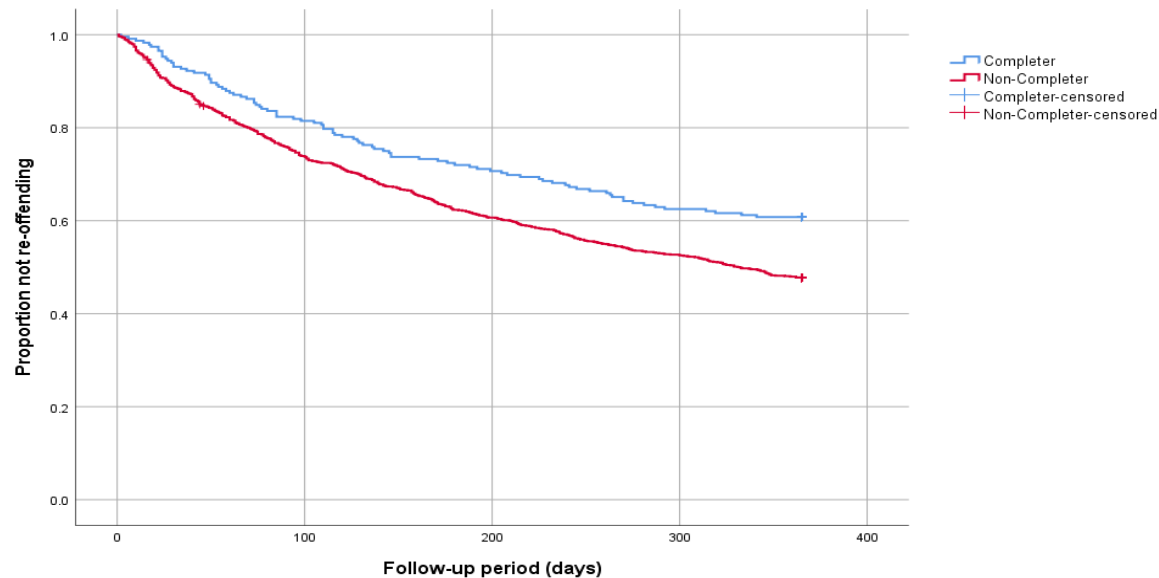
Explanatory Variable	p	Odds Ratio	95%CI Lower	95%CI Upper
YLSI Score	0.34	1.01	0.99	1.02
Non-compliance	0.001*	1.69	1.25	2.28
Individual – major strength	0.007*	0.72	0.57	0.91
Family – major strength	0.015*	0.72	0.55	0.94
Rural location				
Major City		1.00 (referent)		
Inner Regional	0.40	0.90	0.69	1.16
Outer Regional/Remote	0.016*	0.64	0.44	0.92
Constant	0.000	2.382		

*p<.05

Results

STUDY 2 (PROGRAM ATTRITION-RECIDIVISM RELATIONSHIP):

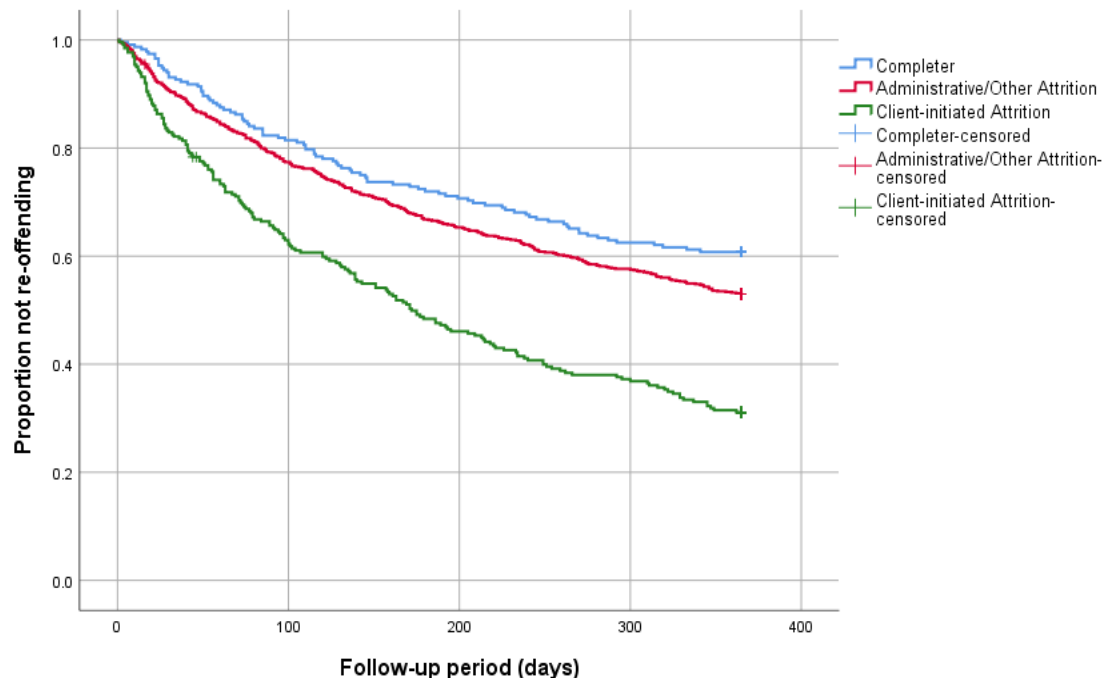
- 49.9 per cent had a proven re-offence during the 12 month follow-up.
- 19.4 per cent re-offended with a first violent/sexual offence, 27.9 per cent had a re-offence for a first property/deception offence, and 7.3 per cent re-offended with an first illicit drug offence.
- When comparing **completers and non-completers** for reoffending rates: 39.2% of completers versus 52.2% of non-completers re-offended during the 12 month follow-up period.
- The survival distribution (Kaplan-Meier, 1958) for completers and non-completers was different with statistical significance, $X^2(1) = 12.137$, $p < .001$ (log rank test).



Results

STUDY 2 (PROGRAM ATTRITION-RECIDIVISM RELATIONSHIP):

- The overall survival distribution comparison for the three groups was different with statistical significance, $X^2(2) = 60.696$, $p < .001$ (log rank test).
- Pair-wise rank comparisons demonstrated a statistically significant difference in the survival distribution of all three groups: completers versus administrative/other attrition ($X^2(1) = 4.114$, $p < .05$); completers versus client-initiated attrition ($X^2(1) = 44.621$, $p < .001$); administrative/other attrition versus client-initiated attrition ($X^2(1) = 45.600$, $p < .001$).



Results

STUDY 2: Cox Proportional Hazard regression (Univariate)

- CM non-completers were 48 % at greater risk of re-offending at any point during the follow-up than CM completers (HR=1.48, 95%CI 1.18, 1.84, p=.001)
- Participants who were classified as client-initiated CM program attrition had the highest risk of re-offending at any point during the follow-up period (HR=2.31, 95% CI 1.79, 2.97, p<.001)

TABLE 3: Multivariate logistic regression analyses examining factors predicting core module program attrition

	Hazard Ratio	95% CI	p-value
Program Outcome			
Completer	1.00 (Reference)		
Non-Completer	1.48	1.18, 1.84	.001**
Program Outcome Disaggregated			
Completer	1.00 (Reference)		
Administrative/Other Attrition	1.27	1.01, 1.59	.043*
Client-initiated Attrition	2.31	1.79, 2.97	.000***

*p<.05; **p<.005; ***p<.001

Results

STUDY 2: Cox Proportional Hazard regression (Multivariate)

Explanatory Variables	Model 1 HR [95% CI]	Model 2 HR [95% CI]	Model 3 HR [95% CI]	Model 4 HR [95% CI]
Program Attrition	1.48 [1.18, 1.84]***	1.36 [1.09, 1.70]*	1.36 [1.09, 1.70]*	1.33 [1.07, 1.67]*
Demographics	-	-	-	-
Male	-	1.75 [1.40, 2.18]***	1.80 [1.44, 2.25]***	1.70 [1.36, 2.13]***
Age at first contact	-	0.87 [0.83, 0.91]***	0.90 [0.86, 0.95]***	0.92 [0.87, 0.97]**
Ethnicity	-	-	-	-
ATSI	-	1.00	1.00	1.00
Australian	-	0.80 [0.66, 0.96]*	0.81 [0.67, 0.97]*	0.84 [0.70, 1.02]
Other	-	0.80 [0.62, 1.02]	0.84 [0.65, 1.08]	0.86 [0.66, 1.10]
Unknown	-	0.46 [0.34, 0.64]***	0.50 [0.36, 0.69]***	0.58 [0.42, 0.81]**
Rural location	-	-	-	-
Remote	-	1.00	1.00	1.00
Major City	-	1.24 [0.83, 1.85]	1.10 [0.73, 1.64]	0.98 [0.65, 1.47]
Inner Regional	-	1.09 [0.73, 1.62]	0.99 [0.66, 1.48]	0.89 [0.59, 1.33]
Outer Regional	-	0.81 [0.49, 1.33]	0.77 [0.46, 1.26]	0.70 [0.42, 1.15]
Risk Variable	-	-	-	-
YLS/CMI-AA Score	-	-	1.03 [1.01, 1.05]***	1.02 [1.00, 1.04]*
Risk Category	-	-	-	-
High	-	-	1.00	1.00
Low	-	-	1.17 [0.60, 2.29]	1.06 [0.54, 2.08]
Medium	-	-	1.30 [0.76, 2.21]	1.19 [0.70, 2.04]
Medium-High	-	-	1.17 [0.84, 1.62]	1.10 [0.78, 1.53]
Common Risk Factors	-	-	-	-
Most Serious Legal Order (Parole)	-	-	-	1.34 [1.09, 1.65]*
Current Violence Offence	-	-	-	1.26 [1.02, 1.54]
First Contact Type (Custodial)	-	-	-	1.26 [1.02, 1.54]*
First Contact Type (YJC Referral)	-	-	-	1.22 [0.98, 1.52]
Had referral to other programs	-	-	-	1.02 [0.63, 1.67]
Had started other programs	-	-	-	1.20 [0.74, 1.93]

*p<.05; **p<.005; ***p<.001

Results

STUDY 2: Cox Proportional Hazard regression (Multivariate)

Explanatory Variables	Model 1 HR [95% CI]	Model 2 HR [95% CI]	Model 3 HR [95% CI]	Model 4 HR [95% CI]
Program Attrition				
Completer	1.00	1.00	1.00	1.00
Administrative/Other Attrition	1.27 [1.01, 1.59]*	1.20 [0.95, 1.51]	1.23 [0.98, 1.55]	1.23 [0.98, 1.55]
Client-initiated Attrition	2.31 [1.79, 2.97]***	1.94 [1.50, 2.51]***	1.81 [1.39, 2.34]***	1.70 [1.30, 2.21]***
Demographics	-			
Male	-	1.73 [1.40, 2.16]***	1.77 [1.42, 2.21]***	1.69 [1.35, 2.12]***
Age at first contact	-	0.88 [0.84, 0.93]***	0.91 [0.86, 0.96]***	0.93 [0.88, 0.98]**
Ethnicity	-			
ATSI	-	1.00	1.00	1.00
Australian	-	0.81 [0.67, 0.98]*	0.81 [0.67, 0.98]*	0.84 [0.70, 1.02]
Other	-	0.81 [0.63, 1.03]	0.84 [0.65, 1.07]	0.85 [0.66, 1.10]
Unknown	-	0.49 [0.36, 0.68]***	0.52 [0.37, 0.71]***	0.59 [0.43, 0.83]**
Rural location	-			
Remote	-	1.00	1.00	1.00
Major City	-	1.22 [0.82, 1.82]	1.11 [0.74, 1.65]	0.99 [0.66, 1.48]
Inner Regional	-	1.02 [0.69, 1.53]	0.96 [0.64, 1.43]	0.88 [0.58, 1.30]
Outer Regional	-	0.80 [0.49, 1.32]	0.77 [0.46, 1.27]	0.71 [0.43, 1.17]
Risk Variable	-			
YLS/CMI-AA Score	-	-	1.03 [1.01, 1.05]**	1.02 [1.00, 1.04]
Risk Category	-			
High	-	-	1.00	1.00
Low	-	-	1.16 [0.60, 2.26]	1.04 [0.53, 2.05]
Medium	-	-	1.27 [0.75, 2.18]	1.18 [0.69, 2.02]
Medium-High	-	-	1.18 [0.85, 1.65]	1.11 [0.80, 1.55]
Common Risk Factors	-			
Most Serious Legal Order (Parole)	-	-	-	1.28 [1.03, 1.57]*
Current Violence Offence	-	-	-	0.95 [0.81, 1.11]
First Contact Type (Custodial)	-	-	-	1.27 [1.03, 1.56]*
First Contact Type (YJC Referral)	-	-	-	1.24 [0.99, 1.54]
Had referral to other programs	-	-	-	0.97 [0.60, 1.59]
Had started other programs	-	-	-	1.21 [0.74, 1.95]

*p<.05; **p<.005; ***p<.001

Results

STUDY 3 (PROGRAM ATTRITION-FREQUENCY OF REOFFENDING):

- A Mann-Whitney U test was run to determine if there were differences in the frequency of re-offences between completers (n=91) and non-completers (n=565).
- The frequency of re-offences was statistically significantly higher in non-completers ($Mdn = 3.00$) than in completers ($Mdn = 2.00$), $U = 30812.50$, $z = 3.07$, $p = .002$.
- Therefore, it can be concluded, that CHART program non-completers had a higher number of re-offences during the 12 month follow-up period than juvenile offenders who completed the program, and this difference was statistically significant at $p < .05$.

TABLE 4: Descriptive Statistics for Frequency of Re-offences (amongst those who re-offended at least once, N = 656)

Re-offence Category	N (%)
1 offence	141 (21.5)
2-4 offences	262 (39.9)
5+ offences	253 (38.6)
Total	656 (100)

Strengths, Limitations and Implications

STRENGTHS:

- The sample comprised a total sample of all valid and available records for young people participating in the CHART program between 1 January 2013 and 1 January 2015. Therefore, **selection biases was reduced** to an extent compared to studies using individually recruited participants by the researcher.
- The sample was relatively diverse, i.e. included: both males and females, ages ranging from 11 to 20 years, and a diverse ethnic profile, all of which enhances the generalisation of the findings
- Utilised multivariable statistical analysis, enabling a variety of potential confounding factors to be accounted for.

LIMITATIONS:

- Data relied upon client database information (JJ CIMS) with input from field caseworkers (validity and reliability)
- Could not account for other previously found predictor variables in the analysis (e.g. mental health, psychopathy, treatment motivation, practitioner factors, etc) and a purely quantitative approach
- Sample size was small at N= 1315, a larger sample size could overcome issues with regards to statistical power
- Study did not utilise a control group and only focused on the CHART program; and did not include other programs delivered to youth. Cannot make any conclusions about the effectiveness of the CHART program due to no control group.

IMPLICATIONS:

- Efforts need to be made at both the program/policy development and delivery level to reduce program attrition, especially administratively-based exits
- Non-compliance is an area which warrants further investigation and policy consideration given its predictor power for program attrition in this study
- Client-initiated program attrition has a potentially important relationship with recidivism, this group of youth likely to require more intensive support during program implementation to enhance completion rates and have the best chances of reducing reoffending.

Questions?

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