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Australian prison vocational education and training and returns to custody among male and female ex-prisoners: A cross-jurisdictional study

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Abstract

The current study examined the impact of vocational education and training (VET) in the custody setting on returns to custody among Australian adult prisoners from selected jurisdictions. VET, education, and behavioural change program participation in custody and demographic and risk assessment data were provided by correctional services in four Australian states for 10,834 Australian prisoners released from custody in 2010-2011. This information was used to predict returns to custody by 2015-2016. Overall, the results showed that participating in VET in custody contributed to the likelihood of remaining custody free at two- and five-years post-release for both male and female prisoners. However, for males the relationship was moderated by risk level. These findings are discussed in the context of developing VET in prison settings to address the specific needs of individuals and expectation of the wider community.

Keywords: vocational education and training, prisoners, employment, recidivism

Introduction

The Australian prisoner population is growing rapidly with increases of 40% over the past five years (Australian Bureau of Statistics, 2017). Virtually all these prisoners are released sooner or later so community reintegration post-release is of vital importance. Employment has been identified as a positive factor in successful reintegration (Coyle, 2009). Across Australian correctional jurisdictions approximately three-quarters of all sentenced prisoners (excluding unsentenced/remanded prisoners) who are eligible to work participate in some form of prison work and/or vocational education and training (Productivity Commission, 2017). These programs provide some level of vocational training that, wherever possible, leads to the award of a qualification that improves post-release employability and, as a result, contributes to the rehabilitative goals of correctional services. They are based on the assumption that finding employment post-release is key to the development of non-offending pathways. It is well established in the criminological literature, for example, that employment can act as a buffer against crime (Skardhamar & Telle, 2012) and that individuals who are employed are less likely to commit new offences (e.g., Uggen, 1999). For Coyle (2009), "finding a way of earning a living is the most important part of a prisoner's ability to reintegrate into society on release from prison" (p. 89).

Recent years have seen growing interest and investment in prisoner vocational education training (VET) in both Australia and New Zealand. The "Prison to Work Report", recently published by the Commonwealth of Australia (2016) has found that time in prison could be better used to set up pathways to employment and there have been some recent descriptive analyses of VET (e.g., Day et al., 2016; Wodak & Day, 2017). In 2018, the Australian Government will roll out a new 'Prison to Work' program which is intended to provide Indigenous prisoners access to the post-release supports that will better prepare them to find employment (Australian Department of Employment, 2017). In New Zealand, the

'Release to Work' program allows minimum security prisoners to engage in paid employment in the community that will help them to gain employment on release[i].

It is plausible that an important determinant of the success of this type of initiative will be the VET that some prisoners receive before they seek employment in the community. However, there is limited evidence that prison-based training of this type has any direct impact on re-offending, with a recent systematic review identifying only seven peer-reviewed evaluation studies (worldwide) that were methodologically robust. The authors concluded that the available evidence to support program effectiveness, as judged by their impact on re-offending, is weak and that more rigorous evaluations of prison VET is sorely needed (Newton et al., 2016).

Current evidence on the impact of vocational training for ex-prisoners

Much of the existing evidence about prison VET comes from North America where considerable differences exist in both legislation and program options when compared to Australia. As a result, and despite the proliferation vocational training, there is a paucity of evidence to establish program effectiveness in an Australian context. Furthermore, evaluation studies from the United States have provided mixed results in terms of the impact of pre- and post-release employment training programs on both employment and reoffending outcomes. For example, Cook et al. (2014) evaluated pre-release vocational training as a part of the Milwaukee Safe Streets Prisoner Release Initiative. Although participants in the program (i.e., former gang members, individuals with a history of violence) who received vocational training and other services (e.g., cognitive behavioural therapy, education training, alcohol and drug treatment) toward the end of their prison sentences were more likely to be employed one-year post-release, there were no statistically significant differences between treatment and control groups on re-arrest rates at one-year post-release.

In a study of a post-release employment intervention program, Leukefeld, Webster, Staton-Tindall, and Duvall (2007) evaluated the impact of individual and group job training sessions for non-violent drug involved offenders who had been referred to two drug courts in Kentucky. Overall, the employment intervention had positive effects on securing legitimate employment and income over a one-year follow-up period, with a subsequent analysis by Webster, Staton-Tindall, Dickson, Wilson, and Leukefeld (2014) reporting that the program was most effective for those individuals who had more problematic employment histories prior to the intervention.

In contrast, Farabee, Zhang, and Wright (2014) evaluated a post-release employment program targeted more broadly to ex-offenders in Southern California which provided jobs skills training, employment, and placement assistance for ex-offenders. At two-years follow-up, there were no significant differences between the groups on any employment, housing, and reoffending outcomes. Jacobs (2012) also evaluated the impact of a post-release employment program (Transitional Jobs Reentry Demonstration; TJRD) that provided participants with job skills training, temporary paid employment, and job search services. Program participants in the Midwestern United States were adult male prisoners within six months post-release from prison. The results demonstrated that the program increased employment in the short-term but had no effect on employment outcomes after two years. Furthermore, there were no significant program effects on recidivism after two-years. A similar pattern was observed in an evaluation of the Center for Employment Opportunities in New York City. This post-release program provided pre-employment classes, transitional jobs, job coaching and development, and post-placement, among other services for ex-prisoners. Redcross et al. (2012) found that participation increased employment outcomes early in the follow-up period, but that the effects of the program on employment diminished with time. However, they also found that recidivism rates were slightly lower among program

participants at three years post-release. In addition, Zweig et al. (2011) who examined outcomes from the same program found that the effects on recidivism were more pronounced for participants in this program who were classified as high-risk.

Taken together, the results from these evaluations suggest there may be some positive impacts of employment training, particularly on employment outcomes in the short-term and when program contact and actual employment are temporally proximal to one another. However, there are also important prisoner demographics that appear to be associated with re-offending outcomes. For example, Uggen (2000) measured the impact of a subsidised work experience program for ex-offenders across the United States and found that it had a positive impact on re-offending for older, but not younger, participants. Similarly, Bierens and Carvalho (2011) found that reductions in recidivism as the result of an employment support program for ex-offenders also was contingent on the age of participants (i.e., it was more effective for older participants). Furthermore, it is well established that age at release, gender, ethnicity, and the level of assessed risk of re-offence are all associated with differential rates of post-release offending (e.g., Maden et al., 2006; Payne, 2007). Any impact of program completion on reoffending may also be influenced by the success ex-prisoners have in finding post-release employment, particularly ongoing employment. However, as Duwe (2017) notes, recidivism is the most common measure of correctional program effectiveness and given that a substantial majority of released prisoners recidivate (e.g., Durose, Cooper & Snyder, 2014), even small improvements in recidivism rates can be both socially and economically significant (Andrews & Bonta, 2010).

Current study

This study represents the first Australian cross-jurisdictional analyses of the longer-term impact of VET for prisoners on returning to custody. The key aim is to determine whether the successful completion of VET across four jurisdictions predicts whether

prisoners remain custody free (at the 2- and 5-year time points) following release from prison. More specifically, the study aims to examine the relative impact of VET completion when compared to other types of education and behaviour change programs that are routinely offered to Australian adult prisoners. This is important as VET is rarely offered in isolation from other programs, and it is reasonable to expect the effects of different programs to be cumulative. As noted above, training and programs may be more effective for certain groups of prisoners, so it is also important to establish whether this type of training is effective for high-risk prisoners (Bloom et al., 2007; Newton et al., 2016; Redcross et al., 2009; Redcross et al., 2012; Zweig et al., 2011), as well as the extent to which demographic characteristics, such as age, are also related (Bierens & Carvalho, 2011; Uggen, 2000).

Method

Sample and procedures

De-identified data on all sentenced individuals (n=10,834) released from prison between 1st July 2010 and 30th June 2011 were provided by corrective services in four Australian jurisdictions including: New South Wales (NSW, n=7641); South Australia (SA, n=1336); Northern Territory (NT, n=1691); and, the Australian Capital Territory (ACT, n=166). The study was conducted in accordance with the ethical guidelines provided by the National Statement on Ethical Conduct in Human Research (2007) and approved by the Human Research Ethics Committee of the host academic institution. Approval was also granted from the research committees of the respective corrective services departments. A data request was sent to each jurisdiction although the level of data extraction differed depending on information systems within each. These corrective services departments provided administrative data pertaining to demographic information of prisoners, details of sentencing and incarceration dates, details of program involvement while in custody

(including but not limited to participation in VET), and returns to custody at any point up to 30 June 2016.

Measures

Covariates. Based on the offender rehabilitation literature and administrative data that were available from the various corrective services departments, the following covariates were included in the current study: age at release from prison (measured as a continuous variable); Indigenous status (coded as 0=non-Indigenous, 1=Indigenous); and, prisoner risk level. Given the use of different risk assessment measures across jurisdictions, it was necessary to recode this variable into a common metric. A rank order of risk severity was achieved for two different measures that were present in the data across the jurisdictions (i.e., the Level of Service Inventory-Revised; LSR-I; Andrews & Bonta, 1995, and the Offender Risk-Need Inventory-Revised; ORNI-R; QCS, 2007) by recoding scores into three groups of Low (LSI-R Low and ORN-R Low), Medium (LSI-R Low-Moderate and Medium; ORNI-R Medium) and High (LSI-R Medium-High and High; ORNI-R High and Extreme).

Programs in custody. Based on risk assessment, prisoners are directed to offence-specific behaviour change programs that target specific criminogenic needs (e.g., violence, sexual offending, substance abuse). The number of programs an offender completed therefore depended on their assessed level of need as well as the length of their sentence. Given the inclusion of this variable was to examine for interaction effects, multiple completions of behaviour change programs were recoded to a single score of 0 = not completed/not undertaken, and 1 = completed. Participation in education was similarly included in the analyses to examine for interaction effects; completion of education (e.g., any literacy/numeracy courses) was recoded to a single score of 0 = not completed/not undertaken and 1 = completed. Finally, a range of VET was provided to prisoners across the four jurisdictions. VET ranged from basic IT skills training (e.g., computer literacy; word

processing; training in the use of spreadsheets and other computer packages) to specific vocational skills training (e.g., business skills; hospitality; hairdressing; construction; forklift driving). While time spent in such training varied, prisoners were deemed to have undertaken VET the administrative data provided by corrective services indicated all (or a substantial majority) of modules in which they had been enrolled were successfully completed. This measure was coded as a dichotomous variable where 0 = not completed/not undertaken, and 1 = completed.

Custody free status. While recidivism has been defined in the literature in several different ways (i.e., rearrest, reconviction, reincarceration), in the current study custody-free status was determined as the absence of any return to corrections (including both community and custodial orders) for a new offence (i.e., based on a reconviction) within: 1) a two-year follow-up period post-release; and, 2) a five-year follow-up period post-release, coded as (0=return to custody, 1= no return to custody)[ii]. Despite prisoners being released at different time points, the length of follow-up was consistent with two- and five-year reconviction rates being considered. Date of first conviction was coded for the regression analysis and where no new conviction was recorded during follow-up, an end date for the 5-year follow-up period (i.e., 1830 days) was assigned.

There have been conflicting arguments about the inclusion of technical breaches in recidivism analyses (e.g., breach of bail, breach of parole, breach of suspended sentence, breach of community service order, breach of violence order). On the one hand, breaches should not be included because they are not new offenses. On the other, return to prison may serve to prevent the occurrence of new offenses. Changes in one Australian jurisdiction (Victoria) have seen an amendment to the Corrections Act 1986 whereby it is now an offense to breach a term or condition of parole (s.78A), the penalty for which is 3 months imprisonment. Given this current trend in Australia, a decision was made to include technical breaches in the analysis.

This is consistent with the most recent Australian validation of the LSI-R (*Blinded for review*, in preparation).

Analytic strategy

Logistic regression models were estimated to determine whether successful completion of VET could predict whether prisoners remained custody free at the two- and five-year time points following release from prison. Model covariates included age at release from prison, Indigenous status, prisoner risk level, completion of education modules and/or behaviour change programs, and the interaction between effects (did not complete/participate vs. completed), VET completion and: risk level, education completion, behaviour change program completion. As data form the Northern Territory did not contain risk assessment scores, cases from this jurisdiction were excluded from the multivariate analysis. Finally, many custodial programs are not available to prisoners on short-term sentences (e.g., less than three months) although inspection of the data suggested some (e.g., literacy programs; work preparation programs; specific job training; offence-related and psycho-educational programs) were completed by prisoners with shorter sentences. On this basis, data was restricted to those cases where a prisoner had served a minimum of 60 days. The final sample available for analysis was therefore reduced to 8031 (Males = 7280; Females = 751) from NSW, SA and the ACT. Separate logistic regression models were estimated for male and female prisoners.

Results

Demographic, sentencing, and offence characteristics for the entire sample broken down by jurisdiction are presented in Table one for descriptive purposes. Overall, the majority of the sample were male (90.2%). Aboriginal or Torres Strait Islanders (hereinafter Indigenous prisoners) were overrepresented in the sample[iii] (37.4%); this was particularly evident in male and female samples drawn from the NT (90.4%). The average age at prison entry for males in the entire sample was 32.6 (sd=10.0) years of age and for females was 33.5

(sd=9.1) years of age. The average age at prison release across the entire sample was 34.2 (sd=10.3) and 34.7 (sd=9.1) years of age for males and females respectively. Approximately one-third of males and females in the entire sample were classified as high risk (30.7% and 33.6%, respectively), and these proportions varied to some extent across jurisdictions (these figures do not include data from the NT; risk assessment information was not available from the Northern Territory. As a result, data from the Northern Territory were also excluded from subsequent multivariate analyses).. Finally, virtually equal proportions of males in the sample had completed education, behaviour change programs, and/or VET (approximately one-third for each), and slightly higher proportions of females than males reported completing education and VET (49.2% and 42.9%, respectively). Again, there was some variation across the jurisdictions in completion rates of programs in custody.

Insert Table One about here

Impact of VET on 2- and 5-year custody free status among male adult prisoners

The results of logistic regression models of the relationship between successful completion of VET and participant characteristics, and the two-year custody free period for male prisoners are presented in Table 2, part A[iv]. Participation in VET, age at release from prison, Indigenous status, risk level, and the VET x risk level interaction term were all found to have statistically significant partial effects. The odds ratio for VET indicated that when holding all other variables constant, successful VET completers were 2.5 times more likely to remain custody free at two years. This translates to a probability of 59.96%. Inverting the odds ratio[v] for Indigenous status (resultant OR = 2.27) revealed that non-Indigenous prisoners were more than twice as likely to remain custody free for the two years following release from prison. Risk level was also negatively related to remaining custody free and was

inverted for ease of interpretation. This revealed that for each one-unit increase in risk level, the odds of remaining custody free decreased by a multiplicative factor of 2.04. Although statistically significant, age had a much smaller effect on the dependent variable. The odds ratio (1.05) suggests that for each additional year in age there was a 5% increase in the likelihood an offender would not return to custody within two years post-release. The final statistically significant finding was the VET x Risk Level interaction. Successfully completing VET and remaining custody free within two years post-release had the strongest impact for those assessed as low risk (36.35% probability), with each one-unit increase in risk associated with a decline in the odds of remaining custody free at two years post-release. Figure 1 depicts the mean probability of remaining custody free against risk level and participation in VET and reveals little differentiation between the high-risk groups.

Insert Figure One about here

The results of logistic regression analyses of the relationship between successful completion of VET and prisoner characteristics, and the five-year custody free period for male prisoners are presented in Table two part B[vi]. All predictors in the final model were statistically significant. The odds ratio for VET showed that successful program completers were 2.12 times more likely to remain custody free at five years post-release, holding all other variables in the model constant. This translates to a probability of 78.23%. Successful completion of both education and behaviour change programs were also found to increase the odds of remaining custody free. Successful completion of education programs increased the odds by a factor of 1.18, a probability of 66.67%. For behaviour change programs, the marginal lower odds ratio indicates successful completion increases the likelihood of remaining custody free by a factor of 1.14 (a probability of 65.88%). The effect of risk level

was lower at the 5-year mark with each one-unit increase in risk resulting in the odds of remaining custody free decreasing by a multiplicative factor of 1.89. Age again had a small influence on the dependent variable with the odds ratio (1.04) suggesting that for each additional year in age there was a 4% increase the likelihood that the offender would not return to custody within five years of being released from prison. The VET x Risk Level interaction again showed that successfully completing VET and remaining custody free at five years post-release had the strongest impact for those assessed as low risk (61.06% probability), with each one-unit increase risk associated with a decline in the odds of remaining custody free five years post-release. The mean probability of remaining custody free against risk level and participation in VET, shown in Figure 2, shows the same pattern as that for the two-year follow-up period, again with little differentiation occurring for the high-risk groups.

Insert Figure two about here

Impact of VET on 2- and 5-year custody free status among female adult prisoners

The impact of completing VET on remaining custody free for two-years following release from prison for female prisoners is presented in Table three part A[vii]. Participation in VET and education, Indigenous status, age at release from prison, and risk level were all found to have statistically significant partial effects within two years post-release for female adult prisoners. The odds ratio for successful completion of VET indicated that when holding all other variables constant, completers were more likely to remain custody free by a factor of 2.07. Translated to probabilities, this suggests that female prisoners who undertook VET had a 55.82% greater probability of remaining custody free two years post-release. Education, with all other variables held constant had a similar effect on remaining custody free by a

factor of 2.13 (a probability of 56.22%). An inverted odds ratio for Indigenous status revealed a greater likelihood that non-Indigenous prisoners would not return to the criminal justice system within the first two years following release by a factor of 1.85. As in the models for male adult prisoners, risk level was negatively associated with remaining custody free. The odds of remaining custody free were shown to decrease by a multiplicative factor of 2.86 for each one-unit increase in risk. Finally, age showed the same trend with the odds ratio (1.06) indicating that for each additional year in age there was a 6% increase in the likelihood an offender would remain custody free in the two years post-release.

Insert Table 3 about here

Successful participation in VET and education, age at release from prison, and risk level were found to have statistically significant partial effects at five years post-release (Table 3 part B)[viii]. Holding all other variables in the model constant, successfully completing VET increased the odds of remaining custody free at five years by a factor of 1.68. This translates to a probability of 86.87%. The impact of education programs was equally strong with successful completion increasing the odds of remaining custody free by a factor of 1.57 (holding all other variables constant); this translates to a probability of 84.16%. As with the previous analyses, risk level decreased the odds of remaining custody free. Inverting the odds ratio revealed that for each one-unit increase in risk, the odds of remaining custody free within five years post-release decreased by a multiplicative factor of 2.33. Finally, with each additional year in age (OR = 1.03) there was an increased likelihood of an offender remaining custody free of 3%.

Discussion

The findings from the current study provide some evidence that in Australia VET in custody does assist male and female prisoners to remain custody free post-release. For males, however, our findings suggest that risk level moderates the influence of VET on longer-term desistance from offending. In addition, participation in education and behavioural programs also had a positive influence on longer term (i.e., five-year post-release) recidivism outcomes for males. For females, VET and education were found to have a positive impact on recidivism at both two- and five-years post-release, but risk level did not moderate the impact of VET participation on post-release recidivism outcomes. This differential profile raises important questions regarding the availability and application of VET for male and female prisoners in Australia that aim to improve post-release outcomes.

Although previous research has found mixed support for the impact of VET on recidivism outcomes (see Newton et al., 2016), the variability of such training across cities, states, and countries suggests that local contextual factors are at play. This underscores the need for site-specific outcome research. Our results suggest that VET and education run in the southern states and territories of Australia (NSW, South Australia and the ACT) exerted a positive impact on recidivism, enhancing the capacity of both male and female prisoners to remain custody free post-release. Furthermore, the improved recidivism outcomes associated with participation in VET showed reasonable longevity within 5 years post-release, in line with other research evidence that the benefits of such program extend over time (e.g., Redcross et al., 2012). This relationship was particularly evident in terms of education training where positive impacts were observed on recidivism at five-years post-release for males, and at both two- and five-years post-release for females.

Some prior studies have provided evidence that VET have a positive impact on individuals who are at a higher risk of recidivism (e.g., Bloom et al., 2007; Redcross et al., 2009; Redcross et al., 2012; Zweig et al., 2011). In contrast, the findings from the

current study indicated VET was most effective for low-risk, rather than high-risk, male ex-prisoners. This type pattern suggests that the VET currently being provided in these Australian states may indeed be well calibrated to the needs of low and moderate risk males. At the same time, this also suggests such training may not be sufficiently intensive to cater to the needs of high risk males. Whilst criminogenic programs are often provided at different "intensities" (e.g., duration) based on risk level, the "level" of intensity of education and VET may not be similarly guided by the "risk principle" of the Risk-Needs-Responsivity framework (Andrews & Bonta, 2010) that guides much of Australian correctional services departments programming.

There is a paucity of research on the impact of VET for incarcerated females. This is a critical issue as Lahm (2000) noted: "as women continue to enter prison at a faster pace than males, future research must fully explore the success rates of these and other programs that women inmates are participating in" (p.45). In Australia, the number of incarcerated females has nearly doubled between 2005-2015 (Australian Bureau of Statistics, 2015). Some evidence from US studies that shows incarcerated females are more likely to participate in education programs, and less likely to participate in VET than incarcerated males (Morash et al., 1994). Furthermore, historically when females participated in VET in custody the training has often been heavily characterised by gender stereotyped content (Morash et al., 1994; Rafter, 1995). It was not possible in the current study to scrutinise the content of VET, however higher proportions of incarcerated females participated in education and VET compared to males. While there was a positive impact observed in terms of VET and education participation on post-release outcomes within two- and five-year follow-up periods for females, the interaction between risk level and VET participation that was apparent for males was not observed for females. On the one hand, this may reflect the differential risk profile of incarcerated males and females in Australia. On the other, it may reflect gender

bias in risk assessment tools (e.g., Hannah-Moffat, 2009) considering the relatively equal proportions of low, moderate, and high-risk levels across males and females in the entire sample. Either way, the type and intensity of VET should warrant careful consideration, especially in terms of being combined with other training (e.g., such as education) to cater to unique needs of male and female prisoners.

It was not possible in the current study to investigate post-release employment outcomes and therefore it is unclear whether assisted ex-prisoners to gain employment post-release. In effect, the current results do not shed light on the relationship between post-release employment and recidivism. It is possible that the positive impacts of VET on recidivism are mediated by the capacity of ex-prisoners to gain employment after release (e.g., Cherney & Fitzgerald, 2014). Of course, post-release employment is likely to be influenced by factors related to VET (e.g., relevance of the programs for actual employment prospects in the communities to which prisoners are released) and factors unrelated to VET (e.g., economic conditions including the unemployment rate). Alternatively, VET and education may exert positive impacts on desistance over and above any direct impact on employment (e.g., by instilling more pro-social attitudes and beliefs, improving social skills).

A related issue is the over-representation of Indigenous Australians amongst prisoners in Australian prisons, and in the current context, access to opportunities both in prison and post-release. Although it was not possible to include data from the Northern Territory in the multivariate models, the proportion of prisoners accessing VET in the Northern Territory was the lowest among the States included. In addition, the clear majority of prisoners in the Northern Territory (over 90%) are Indigenous. This highlights two potential issues when it comes to VET in prison and post-release outcomes. The first is whether appropriate resources are in place to run VET that is meaningful for prisoners in that they provide the tools to enhance positive post-release outcomes (i.e., such as finding employment, not reoffending

etc.). The second is whether and to what extent does VET in custody parallel the post-release job market. Prisoners who receive vocational training need skills that will help them succeed in the job market of the communities they live in post-release. Therefore, it is important that developing VET in prison is both meaningful and appropriate to prisoners, as well as the broader employment opportunity structure they will engage with post-release.

Limitations and Conclusion

The current study suffered from several methodological limitations. Assessment of risk level was influenced by the availability of risk assessments across the jurisdictions that supplied data for the study. The assessments used by several corrective services departments in the current study (e.g., LSI-R) have reasonable predictive utility for general and violent offenders but are likely to underestimate risk level for sexual offenders, especially child sex offenders. Whilst this may have underestimated risk for some prisoners included in the study, it is unlikely to have influenced overall results regarding the influence of VET on returns to custody. It should be noted that returns to custody was operationalised as a return to corrective services, including both community and custodial orders (with the exception of data from South Australia that included only returns to prison). This is a somewhat conservative estimate of recidivism as it does not consider arrests, charges or convictions that did not result in a community or custodial sentence. It is possible that employing this measure of 'recidivism' over-estimates the recidivism of high-risk offenders. Such high-risk offenders may be more likely to receive a custodial or community sentence (as opposed to say, fines) due to more substantial criminal records.

Despite these limitations, the overall results of the current study are consistent with other research which has found positive effects post-release for VET and education in prison. Corrections agencies should consider calibrating VET for high risk men. This training may need to be more intensive and perhaps more comprehensive to match the higher risk and

needs profiles of these prisoners. Such 'dose dependant' treatment is compatible with the RNR framework of offender rehabilitation. This aligns with designing VET that is meaningful to prisoners, both at the individual level and in the post-release employment market. The findings therefore provide some support for the recommendations of Newton et al (2016) that VET should be more comprehensive, include reach in services, and target individual needs of prisoners to increase the likelihood of remaining offence free post custody.

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Table 1: Sample Description

	Total Sample (n=10834)		NSW (n = 7641)		NT (n = 1691)		SA (n = 1336)		ACT (n = 166)	
Demographic characteristics	Males (n=9771)	Females (n=1063)	Males (n=6846)	Females (n=795)	Males (n=1554)	Females (n=137)	Males (n=1225)	Females (n=111)	Males (n=146)	Females (n=20)
Aboriginal Torres Strait Islander	37.4%	46.4%	27.8%	40.0%	90.4%	91.2%	26.1%	38.7%	13.8%	35.0%
Age at prison entry	32.6 (10.0)	33.5 (9.1)	32.3 (10.2)	33.3 (9.1)	32.7 (9.1)	34.0 (9.3)	34.3 (10.2)	34.6 (8.4)	31.8 (9.4)	29.5 (8.0)
Age at prison release[a]	34.2 (10.3)	34.7 (9.1)	34.0 (10.3)	34.7 (9.2)	-	-	35.3 (10.4)	35.1 (8.3)	32.5 (9.4)	30.7 (9.7)
Risk level[b]										
Low	3.3%	3.2%	4.4%	4.1%	-	-	6.3%	6.6%	5.7%	7.1%
Moderate	38.6%	36.0%	52.7%	49.9%	-	-	54.9%	41.0%	66.7%	64.3%
High	30.7%	33.6%	43.0%	45.9%	-	-	38.7%	52.5%	27.7%	28.6%
Programs completed in custody[c]										
Education	34.3%	49.2%	40.9%	53.5%	23.9%	26.3%	14.2%	46.8%	-	-
Behaviour change	36.6%	31.6%	40.7%	38.0%	25.1%	10.9%	28.2%	11.7%	-	-
Vocational training	34.6%	42.9%	43.7%	52.7%	9.1%	10.9%	14.5%	11.7%	50.0%	45.0%

a. Age at prison release unavailable.
b. Risk level: (Total sample, n=7875), (NSW, n=6887), (SA, n=833), (ACT, n=155).
c. Education and behaviour change participation data unavailable.

Table 2: Logistic Regression Predicting 2- and 5-Year Offence-Fee Periods for Male Offenders

	B	*SE(B)*	*Wald*	*Exp(b)*	95%CI
A. 2-Years Post Release					
Age at Release	.05	.003	306.28	1.05***	1.05, 1.06
Indigenous Status	-.82	.068	144.11	0.44***	0.39, 0.51
Risk Level	-.72	.069	107.19	0.49***	0.43, 0.56
VET Programs	.92	.243	12.22	2.50***	1.55, 4.02
Education Programs	.10	.061	2.83	1.11	0.98, 1.25
Behaviour Change Programs	.03	.059	0.32	1.03	0.92, 1.16
VET Programs x Risk Level	-.25	.101	5.93	0.78*	0.64, 0.95
Constant	-.51	.198	6.70	0.60*	
$\chi^2(7) = 954.07$, $p < .001$					
Nagelkerke $R^2 = .19$					
Cox & Snell $R^2 = .14$					
Phi Coefficient= .29					
B. 5-Years Post Release					
Age at Release	.04	.003	163.08	1.04***	1.03, 1.04
Indigenous Status	-.56	.059	89.05	0.57**	0.51, 0.64
Risk Level	-.63	.066	92.52	0.53***	0.47, 0.51
VET Programs	.75	.246	9.30	2.12**	1.31 3.43
Education Programs	.17	.059	8.05	1.18**	1.05, 1.33
Behaviour Change Programs	.13	.157	5.14	1.14*	1.02, 1.27
VET Programs x Risk Level	-.20	.098	4.16	0.82*	0.68, 0.99
Constant	.53	.193	7.49	1.70*	
$\chi^2(9) = 644.32$, $p < .001$					
Nagelkerke $R^2 = .13$					
Cox & Snell $R^2 = .10$					
Phi Coefficient = .24					

Note: *** = $p < .001$; ** = $p < .01$; * = $p < .05$

Table 3: Logistic Regression Predicting 2- and 5-Year Offence-Fee Periods for Female Offenders

Variable	*B*	*SE(B)*	*Wald*	*Exp(b)*	95%CI
A. 2-Years Post Release					
Age at Release	.06	.011	29.23	1.06***	1.04, 1.09
Indigenous Status	-.62	.189	10.82	0.54**	0.37, 0.78
Risk Level	-1.06	.167	40.60	0.35***	0.25, 0.48
VET Programs	.73	.197	13.56	2.07***	1.04, 3.04
Education Programs	.76	.292	8.16	2.13***	1.45, 3.14
Behaviour Change Programs	.06	.188	0.09	1.06	0.73, 1.53
Constant	-.51	.621	0.67	0.60	
$\chi^2(6) = 160.89$, $p < .001$					
Nagelkerke $R^2 = .30$					
Cox & Snell $R^2 = .22$					
Phi Coefficient= .41					
B. 5-Years Post Release					
Age at Release	.03	.010	6.97	1.03**	1.01, 1.05
Indigenous Status	-.21	.176	1.47	0.81	0.57, 1.14
Risk Level	-.85	.160	28.23	0.43***	0.31 0.58
VET Programs	.52	.183	8.01	1.68**	1.17 2.40
Education Programs	.45	.180	6.30	1.57*	1.10, 2.24
Behaviour Change Programs	.28	.178	2.41	1.32	0.93, 1.87
Constant	.97	.605	2.57	2.64	
$\chi^2(6) = 78.9$, $p < .001$					
Nagelkerke $R^2 = .16$					
Cox & Snell $R^2 = .11$					
Phi Coefficient = .24					

Note: *** = $p < .001$; ** = $p < .01$; * = $p < .05$

Figure 1: Mean Probability of Remaining Custody Free for Vocational Training by Risk Level Interaction at 2-years Post-release (Males)

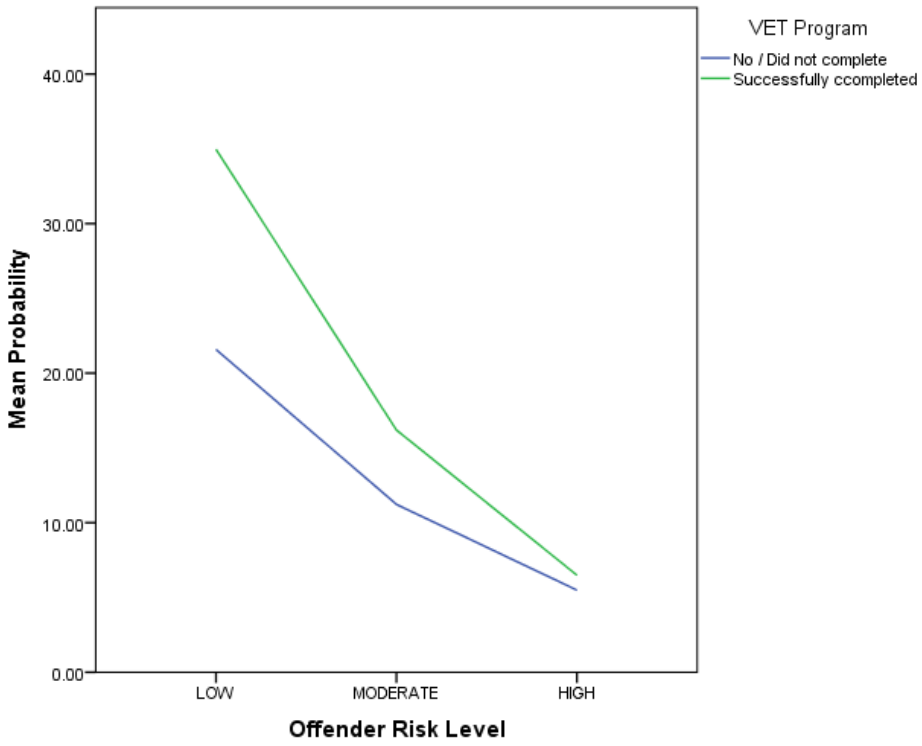
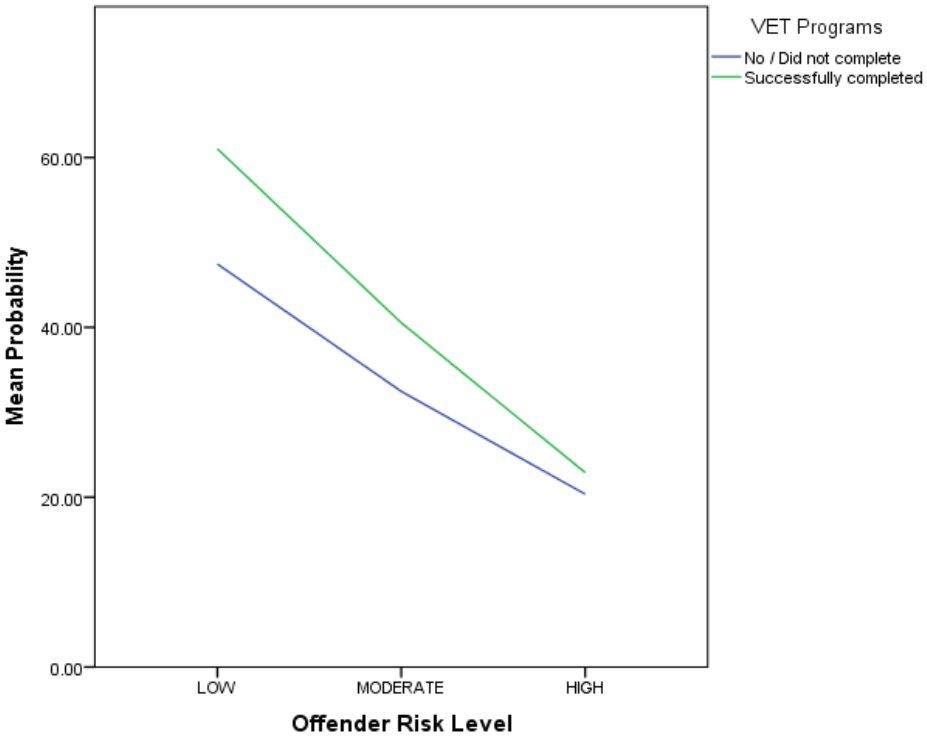


Figure 2: Mean Probability of Remaining Custody Free for Vocational Training by Risk Level Interaction at 5-years Post-release (Males)



[i] http://www.corrections.govt.nz/working_with_offenders/prison_sentences/employment_and_support_programs/employment_activities/release_to_work.html

[ii] Data provided by the Department for Correctional Services in South Australia relates to returns to prison. Returns to community based orders were not available for this subset of data.

[iii] According to the Australian Bureau of Statistics, Aboriginal and Torres Strait Islander peoples represent approximately 3% of Australia's population of approximately 23,674,184 (Australian Bureau of Statistics, 2014).

[iv] In the 2-year model, missing data (n = 926) reduced the total sample available for analysis to 6,354 cases. An initial standard logistic regression (not shown) revealed that the difference between the full model and a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between individuals who did not return to custody within the two-year period and those who did [X^2(9, N = 6354) = 921.39, p < .001]. The model correctly classified 40.9% of prisoners who did not return to custody and 84.7% who did, for an overall prediction success rate of 68%. Despite this, the proportion of total variability in the outcome accounted for by the model was small (18.4%). An examination of the residuals (i.e., Studentized and standardized residuals; deviance statistics) revealed the possible influence of 11 cases on the outcome which were subsequently removed from the data. Two interaction effects (VET x Education and VET x Behaviour change programs) that were not statistically significant were also removed from the final analysis. The analysis was repeated and there was a small improvement in the second model correctly classifying those who did not return to custody (41.4%) although there was no appreciable change classifying those who did (84.6%) or the overall classification success rate (68.1%), [X^2(7, N = 6324) = 954.07, p < .001]. The proportion of total variability in the outcome accounted for by the model also marginally increased (19%) and the Phi (ϕ) statistic (.29) was significant (p < .001) reflecting a moderate effect size (Table 2 part A).

[v] 1/OR = 1/.44 = 2.27

[vi] An initial standard logistic regression for the 5-year model (not shown) revealed that the that the difference between the full model and a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between prisoners who remained custody free and those who did not [X^2 (9, N = 6354) = 635.85, p < .001]. The model correctly classified 78.7% of prisoners who did not return to custody and 43.8% who did, for an overall predictive success rate of 64.3%. The proportion of total variability accounted for by the model was statistically significant but small (12.8%). An examination of the residuals (i.e., Studentized and standardized residuals; deviance statistics) revealed the possible influence of four cases on the outcome which were subsequently removed from the data. Two interaction effects (VET x Education and VET x Behaviour change programs) were also not statistically significant and removed from the final analysis. The final regression analysis revealed no appreciable change in the model with 78.4% correctly classified as not returning to custody over the 5-year period and 43.8% correctly classified as returning to custody (overall success rate = 64.1%), [X^2 (7, N = 6350) = 644.32, p < .001]. There was a marginal increase in the total variability in the outcome accounted for by the model (13%) was well as the statistically significant Phi (ϕ) statistic (.24; p < .001) which indicated that the correlation between those who remained custody free and those predicted as remaining custody free by the model was larger than that indicated by the pseudo R^2 (Table 2 part B).

[vii] In the 2 year model, missing data (n = 102) reduced the total sample available for analysis from 751 to 649 cases. An initial standard logistic regression (not shown) revealed that the difference between the full model and a constant only model was statistically significant, indicating that the set of predictors reliably distinguished between female prisoners who remained custody free and those who did not [X^2 (9, N = 649) = 724.21, p < .001]. The model was able correctly to classify 59.9% of prisoners who did not return to custody and 80.8% who did, at an overall predictive success rate of 71.6%. The proportion of total variability in the outcome accounted for by the model was moderate (30%) with a large and statistically significant Phi coefficient (ϕ=.41, p < .001). As none of the interaction effects (VET x Risk, VET x Education, VET x Behaviour change programs) were statistically significant these variables were removed and the analysis repeated. This resulted in a considerable improvement in the model fit, [X^2(6, N = 649) = 160.89, p < .001], and there was no change in the percentage of correct classification (Table 3 part A).

[viii] An initial test of the 5-year model (not shown) revealed that the difference between the full model and a constant only model was statistically significant, indicating that the set of predictors reliably distinguished between female prisoners who did not return to prison and those who did [$X^2(9, N = 649) = 80.24, p < .001$]. The model correctly classified 77.2% of prisoners who did not return to custody over the 5-year period and 42.2% of those who did (63.3% success rate overall). As with the 2-year follow-up model, the interaction effects (VET x Risk, VET x Education, VET x Behaviour change programs) were not statistically significant and the analysis was repeated following removal of these variables. There was some marginal change in the model, [$X^2(6, N = 649) = 78.88, p < .001$] with no appreciable difference in classification rates (no return to custody = 78.55%; return to custody = 41.5%; correct classification = 63.8%). The proportion of total variability in the outcome accounted for by the model was small (Nagelkerke = .16) and the Phi statistic ($\phi = .22$) was statistically significant (Table 3 part B).