



Government of South Australia

Attorney-General's Department

office of crime statistics and research

**CAUTION VERSUS
CONFERENCE REFERRAL:
A COMPARISON OF
POLICE DIVERSION IN
REDUCING RE-CONTACT
BY FIRST-TIME
INDIGENOUS JUVENILE
OFFENDERS IN SOUTH
AUSTRALIA**

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Executive Summary

Introduction

The over-representation of Indigenous young people in the criminal justice system remains a significant social justice and public policy issue in Australia. It has been suggested that an increased use of effective police diversion can reduce Indigenous over-representation. Diversion can be defined as the practice of diverting young people from entering or continuing into the formal criminal justice system and commonly involves pre-court processes and programs. Two of the most frequently used methods of diversion in South Australia are formal police cautioning and family conferencing.

While a number of studies have investigated the effectiveness of diversion in reducing re-offending by Indigenous juveniles, only Cunningham (2007) and Allard et al. (2009) have investigated the effectiveness of formal police cautioning and family conferencing in reducing re-offending by *first-time* Indigenous juvenile offenders (F-TIJOs). However, these two studies report conflicting findings and contain notable methodological limitations, including: (i) short follow-up periods, (ii) failure to track re-offending into adulthood, (iii) small sample sizes, (iv) failure to examine more than two recidivism outcomes, and (v) risks of bias due to failure to control for significant predictors of re-offending and failure to analyse data on intention to treat.

The current study aimed to compare the effectiveness of two methods of diversion; cautioning and referral to conferencing, in reducing re-contact by F-TIJOs using methods to overcome the limitations of previous research. To address these methodological limitations the current study (i) employed a follow-up period of 24 months for each offender regardless of whether this period extended into the adult justice system, (ii) analysed four recidivism outcomes, (iii) analysed data on intention to treat, and (iv) employed propensity score matching to control for significant predictors of re-offending.

The following research question was examined: (1) Did the proportion of F-TIJOs who re-contacted with police within 24 months differ between those who received a formal police caution and those who received a referral to a family conference?

For those who re-contacted within 24 months, the following research questions were also examined: (2) Did the frequency of re-contact differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?, (3) Did the seriousness of first re-contact differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?, and (4) Did time to re-contact differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?

Method

The data for the current study was based on administrative records sourced from South Australia Police (SAPOL) maintained in a database by the Office of Crime Statistics and Research (OCSAR). SAPOL data pertains to all individuals apprehended by police in South Australia. To establish the sample, data was extracted for all F-TIJOs who received a formal police caution (Caution group) or police referral to a family conference (Conference group) at first police apprehension between 1 January, 2000 and 31 December, 2008 in South Australia.

All re-contact outcome analyses were conducted using SPSS for Windows version 19.0 (IBM, 2010). Chi-Square tests of Independence were used to test Re-contact within 24 Months and Seriousness of Re-contact, and a Mann-Whitney U test was used to test Frequency of Re-contact. A Kaplan-Meier survival analysis was employed to test Time to Re-contact. However, to control for significant differences between the Caution and Conference groups on predictors known or expected to impact group allocation (i.e., receiving a conference referral) and/or re-contact propensity score matching and tests of balance were first conducted.

Results

After controlling for demographic and offence characteristics via propensity score matching (including age, sex, socioeconomic status, residential remoteness, method of police apprehension, offence type, seriousness of offence, and number of offences at first contact) the results of the study indicated that after a 24 month follow-up period the (1) proportion of re-contact, (2) frequency of re-contact, (3) seriousness of re-contact, and (4) time to re-contact did not significantly ($p < .05$) differ between F-TIJOs who received a formal police caution (Caution group) and those who received a police referral to a family conference (Conference group). More specifically, the study found that:

- After 24 months, 65.4% of the Caution group and 70.1% of the Conference group had had at least one re-contact with police in South Australia.
- Of those who re-contacted within 24 months, F-TIJOs in the Caution group had a median of 2 (ranging between 1 and 21) contacts with police while offenders in the Conference group had a median of 3 (ranging between 1 and 24) contacts.
- Of those who re-contacted within 24 months, 51.3% of the Caution group and 52.5% of the Conference group committed an offence at first re-contact that was more serious than the offence committed at first contact.
- Of those who re-contacted within 24 months, F-TIJOs within the Caution group re-contacted at a median of 579 days while the offenders within the Conference group re-contacted at a median of 522 days.

Discussion

In addition to contributing to the limited and conflicting literature investigating the effectiveness of diversion in reducing re-offending by F-TIJOs, the findings of the current study could have implications for policing policy and practice. As the two diversionary processes do not appear to significantly differ in reducing the re-contact of F-TIJOs it may be that diverting Indigenous juvenile offenders via caution is a more efficient method of responding to a first offence than conference referral which, by comparison, is a more time-consuming and costly use of system resources. However, it should be acknowledged that family group conferencing may offer significant psycho-social benefits and a greater sense of perceived procedural justice which cautioning may not.

The findings of the current study should be interpreted with regard to two key methodological limitations. Firstly, the study used the first formally recorded contact between F-TIJOs and South Australia Police to identify first-time offenders. However, it is possible that this did not represent the juvenile's first *actual* contact with police. For example, a juvenile may have been previously *informally* cautioned by police, may have had contact with police in another jurisdiction, or may not have been reported upon previous contact due to insufficient evidence that an offence occurred. Secondly, as propensity score matching can only control for variables entered into the model and the extent to which they are accurately measured it is possible that hidden bias may still have remained within the final analyses. Furthermore, as propensity score matching excludes unmatched individuals, it is also possible that a potential treatment effect may have been lost due to the exclusion of these individuals from the analysis. It should also be noted that as the study is based on police apprehension data, the results of the current study reflects police practice at the time each F-TIJO was apprehended which may not necessarily be representative of current police practices.

It is recommended that future research should aim to compare re-contact between Indigenous males and females. Additionally, it is recommended that future research investigate the impact of F-TIJOs' experiences at first contact – including the level of perceived procedural justice (e.g., perceived fairness, feelings of respect, satisfaction with process, etc.) and the psycho-social outcomes of the diversionary process (e.g., greater understanding of harm caused, opportunity to apologise and receive forgiveness, etc.) – on the effectiveness of police diversion. Further research is also required to determine the cost benefits of both cautioning and conference referral against formal court processing.

Introduction

The Over-representation of Indigenous Youth in the Criminal Justice System

The over-representation of Indigenous¹ young people in the criminal justice system remains a significant social justice and public policy issue in Australia. Despite comprising approximately 5% of all Australians aged 10 to 17 years (Australian Bureau of Statistics [ABS], 2013), between 2012 and 2013 Indigenous young people accounted for 50% of juvenile detainees across Australia (Australian Institute of Health and Welfare [AIHW], 2014). That is, Indigenous youth were 28 times more likely to be in detention than non-Indigenous youth (AIHW, 2014). It has been suggested that an increased use of effective police diversion can reduce Indigenous over-representation (Cunneen, Collings, & Ralph, 2005; Luke & Cunneen, 1995), and has been recommended as a key strategy by the Australian Government in the *National Indigenous Law and Justice Framework* (Standing Committee of Attorneys-General [SCAG], 2009).

Police Diversion in South Australia

Diversion can be defined as the practice of diverting young people from entering or continuing into the formal criminal justice system and commonly involves pre-court processes and programs (Polk, Adler, Muller, & Rechtman, 2003; Richards, 2010). Two of the most frequently used methods of diversion in South Australia are formal police cautioning and family conferencing (Polk et al., 2003; Richards, 2010).

Formal police cautioning involves an apprehending police officer recording and formally documenting the details of an offending youth and their offence, and subsequently administering an official warning in the presence of the youth's parent(s) and/or guardian(s) (Polk et al., 2003). Founded on the principles of restorative justice, family conferencing involves a formal meeting including the apprehending officer, a conference convenor, the offending youth, the victim(s), and both their supporters (i.e., family members, partners, and/or friends) (Daly, 2001; Richards, 2010). During the conference the offence and its impact on the attendees are discussed and additional undertakings or sanctions that the offender is required to complete are negotiated and issued (Daly, 2001; Daly & Hayes, 2001). These undertakings may include paying financial compensation, undertaking community service, participating in therapy, and/or issuing a formal apology to the victim.

In South Australia, use of cautioning and conferencing are typically only granted to first-time and/or minor juvenile offenders and typically require an admission of guilt, satisfactory evidence to establish that an offence occurred, and the offender's consent to participate in the diversionary process (Polk et al., 2003; *Young Offenders Act 1993*). Under the *Young Offenders Act 1993* (s 4) an offence is determined to be minor by the apprehending police officer according to the following criteria:

- (i) The limited extent of the harm caused;
- (ii) The character and antecedents of the alleged offender;
- (iii) The improbability of the youth re-offending;
- (iv) And, where relevant, the attitude of the youth's parents or guardians.

Justifications for Diversion

As only a minority of youth are responsible for the majority of juvenile re-offending (Allard, Chrzanowski, & Stewart, 2012; Thompson & Stewart, 2006), it is argued that punitive justice sanctions should be largely reserved to address chronic offenders who represent an on-going risk rather than first-time and/or minor offenders who do not (Lowenkamp, Latessa, & Holsinger, 2006). As such, cautioning and conferencing, which are both economically efficient (Allard, Ogilvie, & Stewart 2007; Farrington & Welsh 2003) and time effective (Moore, 2011), are considered ideal alternatives to formal court processing.

In addition to its economic benefits, conferencing has been found to provide a strong sense of perceived procedural justice; conference participants feel respected, believe the process is

¹ For the purposes of this report the term Indigenous will be used to represent both Australian Aboriginal and Torres Strait Islander people.

fair, and are highly satisfied with conference outcomes and their level of involvement (Barnes, Hyatt, Angel, Strang, & Sherman, 2013; Daly, Venables, McKenna, Mumford, & Christie-Johnston, 1998; Daly & Hayes, 2001; Latimer, Dowden, & Muise, 2005; Palk, Hayes, & Prenzler, 1998; People & Trimboli, 2007; Trimboli, 2000). There are also several psychosocial benefits of conferencing. Victims who have participated in a conference have reported a strong sense of closure as well as significantly lower levels of victim post-traumatic stress, fear, anxiety, anger, and desire for revenge (Daly et al., 1998; Palk et al., 1998; Sherman & Strang, 2007; Strang, 2001; 2002). Offenders have also reported an increased sense of responsibility and understanding of the harm they had caused as well as a greater respect for police, the law, and the criminal justice system (People & Trimboli, 2007; Strang, Sherman, Woods, & Barnes, 2011; Trimboli, 2000).

More importantly, it has also been suggested that police diversion may reduce re-offending as it avoids the criminogenic impacts of the formal justice system (i.e., court processing) such as stigmatisation, negative labelling (e.g., “criminal”, “evil”), reduced life chances (e.g., limited education and/or employment prospects), and in turn, restricted access to legitimate opportunities for success and/or social acceptance (AIHW, 2013; Becker, 1963; Bernburg & Krohn, 2003; Braithwaite, 1989; McGrath, 2009). This is supported by findings that prior formal contact with the criminal justice system is a significant predictor of juvenile recidivism (Chen, Matruglio, Weatherburn, & Hua, 2005; Hua, Baker, & Poynton, 2006).

The Effectiveness of Diversion

While a number of studies have investigated the effectiveness of diversion in reducing re-offending by Indigenous juveniles (e.g., Allard et al., 2009; Cunningham, 2007; Dennison, Stewart, & Hurren, 2006; Hayes & Daly, 2003; Little, Allard, Chrzanowski, & Stewart, 2011; Luke & Lind, 2002; Stewart, Hayes, Livingston, & Palk, 2008; Sherman, Strang, Barnes, & Woods, 2006 cited in Sherman & Strang, 2007; Vignaendra & Fitzgerald, 2006; Wilczynski, Wallace, Nicholson, & Rintoul, 2004), few have compared the effectiveness of diversion against a second diversionary process (e.g., Allard et al., 2009; Cunningham, 2007; Little et al., 2011; Vignaendra & Fitzgerald, 2006).

To date Cunningham (2007) and Allard et al. (2009) are the only researchers to have investigated the effectiveness of cautioning and conferencing at reducing re-offending by *first-time* Indigenous juvenile offenders (F-TIJOs). As the likelihood of re-offending increases with each additional contact with the justice system (Chen et al., 2005; Hua et al., 2006), and a significant proportion of serious and persistent adult offenders first offend as juveniles (Livingston, Stewart, Allard, & Ogilvie, 2008), it is crucial to investigate the effectiveness of diversion for first-time offenders. Such research has the potential to inform police and policy-makers on how to most appropriately respond to first-time offenders, and consequently achieve better outcomes for youth and the wider community. This is particularly relevant for Indigenous young people who disproportionately offend (AIHW, 2014; Weatherburn, Fitzgerald, & Hua, 2003), and for Indigenous communities who disproportionately experience crime (Allard et al., 2012; Steering Committee for the Review of Government Service Provision [SCRGSP], 2007).

Allard et al. (2009) investigated the re-contact of juvenile offenders, aged 10 to 16, who were cautioned, attended a police referred conference or a finalised youth court trial in Queensland between 2000 and 2007.² To control for numbers of previous offences and offence seriousness, Allard et al. (2009) analysed the re-offending of first-time offenders excluding those who received a supervised order. After controlling for factors found to significantly impact re-offending (e.g., sex, age, offence type), a logistic regression revealed that the proportion of male and female F-TIJOs who re-contacted within 12 months (i.e., 52 weeks) did not significantly differ between those who received a caution (Male = 73.4%; Female = 63.1%), attended a conference (Male = 52.6%; Female = 50.0%), or attended youth court (Male = 73.7%; Female = 71.4%).³ However, while there were no significant differences in time to re-contact for Indigenous males based on system of first contact, a survival analysis

² Allard et al. (2009) also analysed frequency of re-contact; however, the results of this analysis were not reported separately for F-TIJOs from the overall sample.

³ Juvenile offenders aged 16 years or older were excluded from the proportion of re-contact analysis to ensure all individuals had at least a one year follow-up period.

revealed that both cautioning (84.7 days) and conferencing (93.3 days) increased time to re-contact for Indigenous females when compared to court (48.6 days).

Cunningham (2007) examined the re-contact of first-time juvenile offenders, aged 10 to 17, who were cautioned, attended a police referred conference, or a finalised youth court trial in the Northern Territory between 2000 and 2005. A Chi Square test of Independence revealed that after 12 months, conferencing (42%) significantly reduced the proportion of first-time Indigenous males who had re-contact when compared to cautioning (51%) and youth court (50%).⁴ However, both cautioning (23%) and conferencing (21%) were found to significantly reduce the proportion of first-time Indigenous females who had re-contact when compared to youth court (36%). Additionally, a survival analysis found that police diversion increased time to re-contact for both male and female F-TIJOs compared to youth court. Within the first 500 days, 50% of F-TIJOs who had a court appearance re-offended compared to just 33% of F-TIJOs who were diverted (i.e., received a caution or attended a conference).⁵

While the studies by Cunningham (2007) and Allard et al. (2009) provide valuable insight into the effectiveness of diversion on re-offending by F-TIJOs, they both contain notable methodological limitations. First, both Cunningham (2007) and Allard et al. (2009) employed a follow-up period of 12 months within their analyses. Although diversion may be the most effective in the period directly following it (Maxwell & Morris, 2001), utilising a one year follow-up may underestimate re-offending. Additionally, while recidivism is most likely to occur within the first year after a sentence or intervention, time to re-offend differs according to offence type (Hedderman, 2009; Prentky, Lee, Knight, & Cerce, 1997), and if diversion does slow the rate of recidivism, then it should be expected that a large proportion of diverted youth may not re-offend until after one year (Maxwell & Morris, 2001).

Second, both Cunningham (2007) and Allard et al. (2009) did not track re-offending into adulthood. This has also been found to substantially underestimate the extent of re-offending as youth who do not re-offend within the juvenile justice system but do so within the adult system are regarded as non-recidivists (Chen et al., 2005; Richards, 2011). Third, the sample size of the conference group ($N \leq 38$) within Allard et al.'s (2009) study was small which substantially reduced the power to detect a treatment effect.

Finally, and more importantly, both studies failed to control for potential sources of bias. For example, although Cunningham (2007) reported several significant predictors of re-offending (e.g., age, sex, offence type, offence seriousness; see Cunningham 2008) the researcher did not statistically control for these variables within the final analysis. Therefore, the differences in re-offending observed may simply have been a result of group differences (Bergseth & Bouffard, 2007; McGrath, 2008). Additionally, both Cunningham (2007) and Allard et al. (2009) did not analyse data on intention to treat, that is, the researchers examined the re-offending of those who attended and completed a conference, as opposed to those who received a *referral* to a conference regardless of whether it occurred or was finalised. Consequently, the researchers introduced significant risks of self-selection bias (Bergseth & Bouffard, 2007; McGrath, 2008; Smith & Weatherburn, 2012). As juvenile offenders may decide whether to voluntarily participate in a conference (once deemed eligible and referred by police) it is likely that only those most amenable to treatment will choose to do so. Therefore, not analysing data on intention to treat may inflate the effectiveness of police diversion (Bergseth & Bouffard, 2007). This is supported by findings from McCold and Wachtel (1998) who reported significant differences in the re-offending rates of offenders who agreed to participate in a conference (20%) compared to those who refused (48%). In addition to reducing the risk of self-selection bias, analysing data on intention is also more practically relevant to police and policy makers as a youth cannot be referred to an attended and finalised conference.

Due to these methodological limitations, it is clear that there is a strong need for further research to examine the effectiveness of diversion in reducing re-offending by F-TIJOs.

⁴ Juvenile offenders aged 17 years or older were excluded from the proportion of re-contact analysis to ensure all individuals had at least a one year follow-up period.

⁵ Within Cunningham's (2007) survival analysis the cautioning and conferencing sample were not separately analysed but were combined to form a diversion sample. Consequently, the effectiveness of both cautioning and conferencing in reducing time to re-contact for F-TIJOs were not compared.

The Current Study

The current study aimed to compare the effectiveness of cautioning and conference referral in reducing re-contact by F-TIJOs using methods to overcome the limitations of previous research. The study sample included F-TIJOs, aged 10 to 17 years, who received a formal police caution (Caution group) or a referral to a family conference (Conference group) between 2000 and 2008 in South Australia.

To address the methodological problems of Cunningham (2007) and Allard et al. (2009) the current study employed a follow-up period of 24 months for each offender, regardless of whether this period extended into the adult justice system. A 24 month follow-up period is short enough to ensure that the effect of diversion can be disaggregated from other factors that may influence the impact of diversion over time, while still being long enough to overcome the limitations of a 12 month period (Richards, 2011). As recommended by a recent review (Richards, 2011), the study also analysed several recidivism outcomes as opposed to the two outcomes analysed in past research. These included proportion of re-contact, frequency of re-contact, seriousness of re-contact, and time to re-contact.

To control for the risk of self-selection bias encountered by Cunningham (2007) and Allard et al. (2009) the current study analysed data on intention to treat; that is, the Conference group comprised offenders who received a referral to a family conference as opposed to offenders who attended and completed a conference. To control for group differences and further reduce potential bias a matched samples design was employed using propensity score matching. Propensity score matching aims to estimate the conditions of randomisation by matching pairs of individuals – one who is referred to treatment (e.g., received a conference referral) with one who is not (e.g., received a caution) – based on the same probability of being referred to treatment (Smith & Weatherburn, 2012).

Research Questions

Due to the conflicting findings and methodological limitations of Cunningham (2007) and Allard et al. (2009), directional hypotheses could not be established. Instead, the following research question was examined:

- 1) Did the proportion of F-TIJOs who re-contacted with police within 24 months differ between those who received a formal police caution and those who received a referral to a family conference in South Australia between 2000 and 2008?

For those who re-contacted within 24 months, the following research questions were also examined:

- 2) Did the frequency of re-contact with police within 24 months differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?
- 3) Did the seriousness of re-contact compared to first contact with police differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?
- 4) Did time to re-contact with police within 24 months differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?

The current study also initially aimed to analyse the re-contact of F-TIJOs who were referred to youth court. To do this, it was essential that only those who were referred to youth court but potentially legally eligible for diversion in accordance with the *Young Offenders Act 1993* (i.e., had admitted guilt and committed only minor offences) be included in the analysis to ensure a fair comparison. However, only a small number of court referred F-TIJOs were found to have been potentially eligible for diversion (less than 170 of the 1,997 F-TIJOs or less than 8.5%). It was therefore decided to limit the current analysis to those who received a formal caution and those who received a referral to family group conferencing.

Method

Data Source

The data for the current study was based on administrative records sourced from South Australia Police (SAPOL) maintained in a database by the Office of Crime Statistics and Research (OCSAR). SAPOL data pertains to all individuals apprehended by police in South Australia. The study was approved by the University of South Australia's Human Research Ethics Committee and cultural consultation was gained from South Australian Aboriginal elder, Tauto Sansbury prior to data requests.

Sample

Unmatched Sample

To establish the sample, data was extracted for all first-time Indigenous juvenile offenders who received a formal police caution or police referral to a family conference between 2000 and 2008 in South Australia. After the application of inclusion and exclusion criteria (refer to *Appendix A*), this resulted in an unmatched sample of 1,563 F-TIJOs. The Caution group comprised 68.7% of the unmatched sample ($N = 1,105$), while the Conference group comprised the remaining 31.1% ($N = 458$).

Matched Sample

To control for differences between the Caution and Conference groups, propensity score matching was conducted on the unmatched sample. This matching process involves conducting a logistic regression to predict group allocation on the basis of predictors known or expected to impact group allocation and/or the outcome (Smith & Weatherburn, 2012). The two matched samples are then compared to investigate whether those who received treatment experienced a better outcome than those who did not (Smith & Weatherburn, 2012). Refer to Appendix B for details of the propensity score matching method and results.

Table 1.
Demographic and Offence Characteristics of the Matched Caution and Conference Groups (N = 810)

	Caution (N = 405)	Conference (N = 405)
Demographic Characteristics		
Sex (Male)	67.2%	67.2%
Sex (Female)	32.8%	32.8%
Age	16(7)	16(7)
Socio-economic Status (High)	15.6%	15.8%
Socio-economic Status (Low)	84.4%	84.2%
Residential Remoteness (City)	32.1%	34.1%
Residential Remoteness (Regional)	45.4%	43.5%
Residential Remoteness (Remote)	22.5%	22.4%
Offence Characteristics		
Method of Apprehension (Report)	53.1%	48.9%
Method of Apprehension (Arrest)	46.9%	51.1%
Offence Type (Personal)	13.8%	15.1%
Offence Type (Property)	41.5%	40.2%
Offence Type (Driving & Traffic)	18.5%	20.5%
Offence Type (Other)	26.2%	24.2%
Offence Seriousness (High)	38.0%	38.3%
Offence Seriousness (Moderate)	31.1%	30.6%
Offence Seriousness (Low)	30.9%	31.1%
Number of Offences	1(6)	1(7)

Note. Categorical variables are presented as percentages. Continuous variables (Age, Number of Offences) are presented as Median (Range).

The following variables relating to the F-TIJOs' demographic and offence characteristics at first contact were included in the propensity score model: Sex, Age, Socioeconomic Status,

Residential Remoteness, Method of Apprehension, Offence Type, Seriousness of Offence, and Number of Offences. These variables were considered to be related to group allocation (i.e., receiving a conference referral) and/or re-contact based on prior research (e.g., Allard et al., 2009; Cunningham, 2007; Dennison et al., 2006; Hayes & Daly, 2004; Little et al., 2011; Luke & Lind, 2002; Smith & Weatherburn, 2012).

Following propensity score matching, the final matched sample comprised of a total of 810 F-TIJOs (405 within both the Caution and Conference groups) representing approximately 51.8% of the unmatched sample. The demographic and offence characteristics of F-TIJOs within the matched Caution and Conference groups are presented in Table 1. Within both groups, the majority of F-TIJOs were male, aged approximately 16 years, had a low socio-economic status and resided in regional South Australia. At first contact, most F-TIJOs within the matched groups were apprehended for approximately one offence, the majority of which were highly serious property offences. Roughly half of both the matched Caution and Conference groups were apprehended via arrest, while the remaining offenders were apprehended via report.

Measures

The following four re-contact outcome measures were used to compare the effectiveness of cautioning and conference referral in reducing re-contact by F-TIJOs:

Re-contact within 24 Months

Re-contact within 24 Months was dichotomously measured as whether or not a F-TIJO was apprehended within 24 months (730 days) of their first contact (i.e., re-contact vs. no re-contact). Apprehensions for justice related offences; offences against court or a court order (JANCO; Division 5, Sub-division 52 offences; OCSAR, 2011), as well as apprehensions for offences committed prior to first contact (i.e., pseudo re-contacts) were excluded as these offences did not accurately reflect a new offence.

Frequency of Re-contact

Frequency of Re-contact was measured as the number of re-contacts a F-TIJO had within 24 months of their first contact (≥ 1 offences).

Seriousness of Re-contact

Seriousness of Re-contact was dichotomously measured as whether a F-TIJO's first re-contact offence was more or less serious than their first contact offence (more serious vs. no more or equally as serious). In the instance where the re-contact offence and first contact offence were equally as serious the re-contact offence was considered no more serious. The seriousness of an offence was determined using the *National Offence Index* (NOI) (ABS, 2009), which provides an ordinal ranking, ranging from 1 (most serious) to 157 (least serious), of offence type categories according to seriousness.

Time to Re-contact

Time to Re-contact was measured as the number of days between a F-TIJO's first contact and re-contact within 24 months (1 - 730 days).

Procedure

Formation of Sample

To form the unmatched sample, SAPOL data pertaining to all first-time Indigenous juvenile offenders who received a formal police caution or police referral to a family conference between 1 January, 2000 and 31 December, 2008 was requested from the OCSAR Data Team and provided in a series of Microsoft Excel extracts (Microsoft, 2003). All data derived from the OCSAR databases was de-identified to ensure individual anonymity and retained on-site for confidentiality purposes. To collate the extracts into a single data file, F-TIJOs were identified and linked across extracts (e.g., first contact and re-contact extracts) using unique personal identification numbers which are assigned to each offender upon entry into the South Australian criminal justice system. Following the application of sample exclusion criteria (refer to *Appendix A*), the collated data file was then manually reviewed for inconsistent, missing, or duplicated data. After data cleaning, residential address at first contact was found

to be missing for three F-TIJOs, therefore address at first re-contact was used to calculate Socio-economic Status and Residential Remoteness. Sex was missing for four F-TIJOs and, as this information could not be generated from re-contact data, the offenders were reassigned as male based on probability (i.e., 63.3% & 67.7% of the unmatched Caution and Conference groups were male). Upon finalisation of the collated data file, propensity score matching and tests of balance were conducted to control for significant differences between the Caution and Conference groups on predictors known or expected to impact group allocation (i.e., receiving a conference referral) and/or re-contact. Refer to Appendix B for results of propensity score matching and tests of balance.

Analysis of Re-contact

All re-contact outcome analyses were conducted on the final matched sample using SPSS for Windows version 19.0 (IBM, 2010). Chi-Square tests of Independence were used to test Re-contact in 24 Months and Seriousness of Re-contact, and a Mann-Whitney U test was used to test Frequency of Re-contact. A Kaplan-Meier survival analysis was used to test Time to Re-contact. Two tests of significance were used in this analysis; the Log-rank test of equality and the Wilcoxin statistic. The Log-rank test of equality measures the survival data at the end of the survival curve; a significant Log-rank test indicates that the difference in the final survival rate between groups is significant. The Wilcoxin statistic measures the survival data at the beginning of the survival curve; a significant Wilcoxin statistic indicates that the difference in the initial survival rate between groups is significant (Payne, 2005).

Data Screening

After data screening, Frequency of Re-contact was found to be positively skewed while Time to Re-contact was found to be negatively skewed. These variables remained skewed after transformations⁶ and therefore remained untransformed during analysis.

⁶ Frequency of Re-contact was transformed using a log transformation. Time to Re-contact was transformed using a reversed score log transformation.

Results

Re-contact within 24 Months

After 24 months, 65.4% ($N = 265$) of the matched Caution group and 70.1% ($N = 284$) of the matched Conference group had at least one re-contact with police. A Chi Square test of Independence revealed no significant difference between the two groups on Re-contact within 24 Months, $\chi^2 (1, N = 810) = 2.0, p = .153$. Cramer's $V = .15$ (refer to *Table 2*).

Frequency of Re-contact

Of those who had re-contact within 24 months, F-TIJOs within the matched Caution group ($N = 265$) had a median of 2 (ranging between 1 and 21) contacts with police while the offenders within the matched Conference group ($N = 284$) had a median of 3 (ranging between 1 and 24) contacts. A Mann-Whitney U test revealed no significant difference between the two groups (Caution Mean rank = 264.32, Conference Mean rank = 284.96) in Frequency of Re-contact, $U = 34801, Z = -1.559, p = .119$ (refer to *Table 2*).

Seriousness of Re-contact

Of those who had re-contact within 24 months, 51.3% of the matched Caution group ($N = 265$) and 52.5% of the matched Conference group ($N = 284$) committed an offence at first re-contact that was more serious than the offence committed at first contact. A Chi Square Test of Independence revealed no significant difference between the two groups in Seriousness of Re-contact, $\chi^2 (1, N = 549) = 0.1, p = .789$. Cramer's $V = .01$ (refer to *Table 2*).

Table 2.
Re-contact Outcomes of the Matched Caution and Conference Groups

Re-contact Outcomes	N	Caution	Conference	Coefficient p value
Re-contact within 24 Months <i>Percentage</i>	810	65.4	70.1	.153
Frequency of Re-contact <i>Median (Range)</i>	549	2(20)	3(23)	.119
Seriousness of First Re-contact <i>Percentage</i>	549	51.3	52.5	.789
Time to Re-contact (days) ^a <i>Median</i>	549	576	522	.088

Note. ^aRange is not reported for Kaplan-Meier survival analyses.

Time to Re-contact

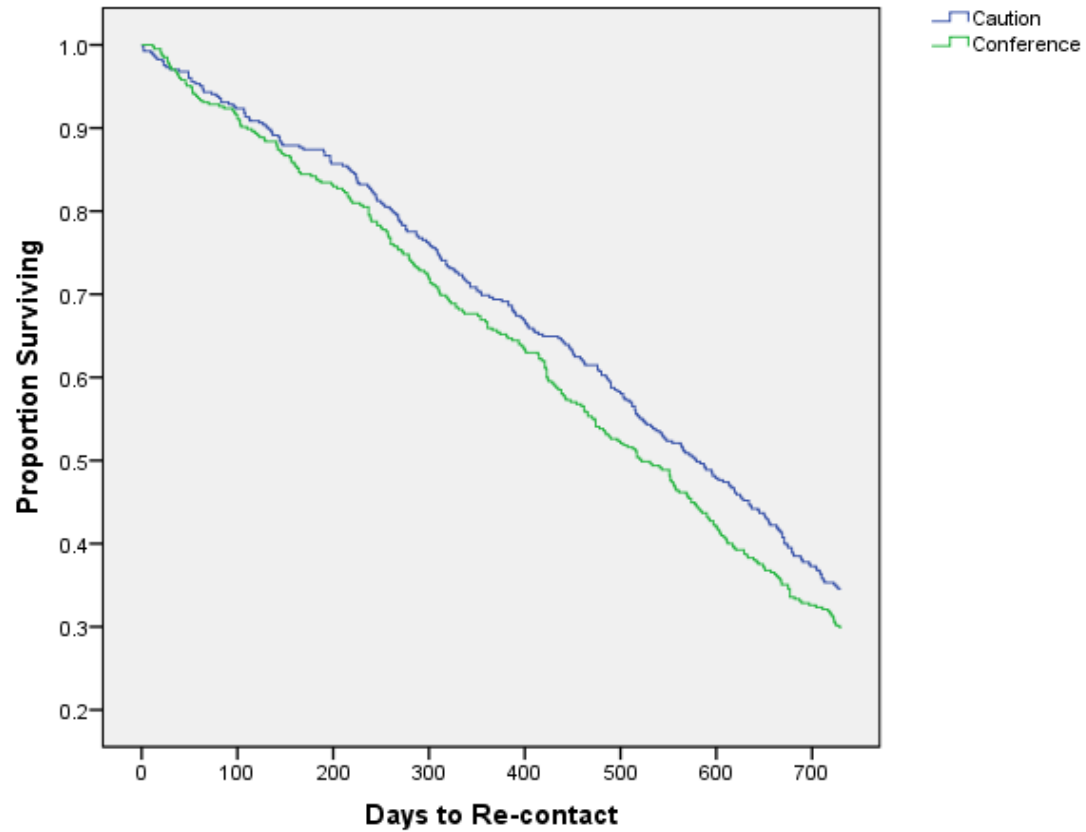
Of those who had re-contact within 24 months, F-TIJOs within the matched Caution group ($N = 265$) re-contacted at a median of 579 days while the offenders within the matched Conference group ($N = 284$) re-contacted at a median of 522 days. A Kaplan-Meier survival analysis revealed no significant difference between the two groups in Time to Re-contact within 24 months (730 days); Log-rank: $\chi^2 (1, N = 810) = 2.8, p = .096$, Wilcoxin: $\chi^2 (1, N = 810) = 2.9, p = .088$ (refer to *Table 2*).

Table 3.
Survival Percentages of the Matched Caution and Conference Groups (N = 549)

Time	Caution (N = 265)	Conference (N = 284)
6 months (183 days)	87.4	83.7
12 months (365 days)	69.6	65.9
18 months (548 days)	52.3	48.9
24 months (730 days)	34.6	29.9

Table 3 shows the proportion of F-TIJOs in the matched Caution and Conference groups that had survived (i.e., did not re-contact) at 6, 12, 18 and 24 months following first contact. Figure 1 depicts the survival curve of time to re-contact for the two groups and the proportion of F-TIJOs in the matched Caution and Conference groups that had survived at various points in time following first contact.

Figure 1. Time to Re-contact Survival Curve of the Matched Caution and Conference Groups



Discussion

Summary of Findings

The aim of the current study was to compare the effectiveness of cautioning and conference referral in reducing re-contact by first-time Indigenous juvenile offenders (F-TIJOs) using methods to overcome the limitations of past research. These limitations included short follow-up periods of 12 months, failure to track re-offending into adulthood, small sample sizes, failure to use more than two measures of recidivism, and risks of bias due to failure to control for significant predictors of re-offending and failure to analyse data on intention to treat.

The current study contained several methodological strengths, such as a proportionate 24 month follow-up period which extended beyond the juvenile justice system, the analyses of four re-offending outcomes, a relatively large sample size, the analysis of data on intention to treat, as well as the use of propensity score matching, all of which served to overcome the limitations encountered by previous research.

Within this study, the following research question was investigated: (1) Did the proportion of F-TIJOs who re-contacted with police within 24 months differ between those who received a formal police caution and those who received a referral to a family conference? For those who re-contacted within 24 months, the following research questions were also examined: Did (2) the frequency of re-contact; (3) seriousness of re-contact; and/or (4) time to re-contact differ between F-TIJOs who received a formal police caution and those who received a referral to a family conference?

Using the matched sample, the current study found that within 24 months, 65.4% of the Caution group and 70.1% of the Conference group had at least one re-contact with police in South Australia. Of those that re-contacted within 24 months, F-TIJOs in the Caution group had a median of 2 (ranging between 1 and 21) contacts with police while offenders in the Conference group had a median of 3 (ranging between 1 and 24) contacts. Over half of these offenders committed an offence at first re-contact that was more serious than the offence committed at first contact (Caution group = 51.3%; Conference group = 52.5%). Offenders in the Caution group took a median of 579 days (19.3 months) to re-contact from first contact while F-TIJOs in the Conference group took a median of 522 days (17.4 months) to re-contact. Statistical analysis revealed that within a 24 month follow-up period the (1) proportion of re-contact, (2) frequency of re-contact, (3) seriousness of re-contact, and (4) time to re-contact did not significantly differ between F-TIJOs who received a formal police caution and those who received a police referral to a family conference.

The findings of this study are consistent with previous research by Allard et al. (2009), who reported no significant difference in the proportions of re-contact between F-TIJOs who received a caution and those who attended a conference. Further, as 67.2% of the current study's sample was male, the results of this study may also offer support for Allard et al.'s (2009) finding that cautioning and conferencing did not significantly differ in time to re-contact for Indigenous males. Conversely, the results of the current study contradict those of Cunningham (2007) who reported that the proportion of re-contact for Indigenous males who attended a police referred conference was significantly less than those who received a caution. However, there is a potential explanation for this discrepancy. While Cunningham (2007) did not control for significant predictors of re-offending, the current study employed propensity score matching in order to control for both demographic and offence characteristics. However, caution must be advised when comparing the results of the current study to those of prior research as this study was unable to investigate gender differences due to a small number of female F-TIJOs within the final matched sample.

Implications for Policy and Practice

In addition to contributing to the limited literature investigating the effectiveness of police diversion in reducing re-offending by F-TIJOs, the findings of the current study could have implications for policing policy and practice. As the two diversionary processes do not appear to significantly differ in reducing the re-contact of F-TIJOs, it may be that diverting Indigenous juvenile offenders via caution is a more efficient method of responding to a first offence than via conference referral which is, by comparison, a more time-consuming and costly use of

system resources. However, it should be acknowledged that family group conferencing may offer significant psycho-social benefits and a greater sense of perceived procedural justice which cautioning may not.

Despite being first-time minor offenders, over half of those who re-contacted within 24 months committed a more serious offence at re-contact, and some offenders had as many as 20 re-contacts with police, averaging almost one re-contact per month. These findings indicate a clear need for the development, implementation, and evaluation of early prevention programs to reduce the risk of offending for Indigenous youth. Many Indigenous Australians experience considerable social disadvantage, including poverty, unemployment, low educational attainment, drug and alcohol dependence, and histories of abuse and childhood trauma, all of which are known to significantly increase the likelihood of offending (Allard, 2010; Hunter, 2001; Weatherburn, Snowball, & Hunter, 2006; 2008). Prevention initiatives, such as youth, parenting, substance abuse and health programs, as well as community justice groups, have been found to be effective methods in reducing the risk of recidivism for Indigenous young people (Bartels, 2010; Richards, Rosevear, & Gilbert, 2011).

Limitations of the Current Study

The findings of current study should be interpreted with regard to two main methodological limitations. Firstly, the study used the first formally recorded contact between F-TIJOs and South Australia Police to identify first-time offenders. However, it is possible that this did not represent the juvenile's first *actual* contact with police. For example, a juvenile may have been previously *informally* cautioned by police, may have had contact with police in another jurisdiction, or may not have been reported upon previous contact due to insufficient evidence that an offence had occurred.

Secondly, while propensity score matching significantly reduces the likelihood of biased results by controlling for group differences, it can only control for variables entered into the model and the extent to which they are accurately measured (Apel & Sweeten, 2010; Smith & Weatherburn, 2012). Due to the use of administrative data sets, the number and type of variables available were limited and only a small number of predictors known or expected to impact group allocation (i.e., receiving a conference referral) and/or re-contact could be investigated. Therefore, it is possible that hidden bias may still have remained. It should be noted that as propensity score matching excludes unmatched individuals, it is possible that a potential treatment effect may have been lost. That is, it cannot be determined from the current study whether formal police cautioning and referral to family conferencing significantly differed in reducing the proportion, frequency, seriousness, and time to re-contact for the 753 unmatched F-TIJOs excluded from the final analyses. However, propensity score matching is a convenient and credible alternative to a randomised experiment, which is not only impractical but unethical within the context of the current study. For example, randomly assigning offenders to diversion programs may be considered unethical as it could potentially deny some offenders access to appropriate treatment on the basis of chance (Baunach, 1980).

It should also be acknowledged that as the study is based on police apprehension data, the results of the current study reflects police practice at the time each F-TIJO was apprehended which may not necessarily be representative of current police practices (Little et al., 2011).

Directions for Future Research

Further research is required to expand the limited and conflicting literature investigating the effectiveness of cautioning and conference referral in reducing re-offending by first-time Indigenous juvenile offenders. Specifically, future research should aim to investigate the impact of gender on the effectiveness of police diversion in reducing re-contact, as significant gender differences have been reported within previous research (Allard et al., 2009; Cunningham, 2007). It is further recommended that future research investigate the impact of F-TIJOs' experiences at first contact – including the level of perceived procedural justice (e.g., perceived fairness, feelings of respect, satisfaction with process, etc.) and the psycho-social outcomes of the diversionary process (e.g., greater understanding of harm caused, opportunity to apologise and receive forgiveness, etc.) – on the effectiveness of police diversion. Finally, future research should also incorporate economic analyses to “facilitate

evidence based resource allocation and determine the most appropriate approaches to reduce Indigenous overrepresentation” (Allard et al., 2009, p.75).

Conclusion

The current study suggests that formal police cautioning and police referral to family conferencing – as established under the South Australian *Young Offenders Act 1993* – do not significantly differ in reducing the proportion, frequency, and seriousness of re-contact, or in delaying time to re-contact for first-time Indigenous juvenile offenders (F-TIJOs). The results of this study provide a significant contribution to the limited literature investigating the impact of diversion in reducing re-offending by F-TIJOs and also serve to support positive policy change that could potentially reduce the unnecessary use of system resources.

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Appendix A

Sample Inclusion and Exclusion Criteria

Inclusion Criteria

To establish the sample, data was extracted for all first-time Indigenous (refer to *Indigenous Status*) juvenile offenders (refer to *Juvenile Offender*) who received a formal police caution or police referral to a family conference (refer to *Contact Outcome*) at first contact (refer to *First Contact*) between 1 January, 2000 and 31 December, 2008 in South Australia.

Contact Outcome

Caution. Although South Australian police can informally caution juvenile offenders (see *Young Offenders Act 1993*) informal cautions are not officially recorded. Therefore, the current study only investigated F-TIJOs who received a formal police caution.

Conference. While juvenile offenders can be court-referred to a conference, these conference referrals do not provide an accurate representation of a youth's first contact with the criminal justice system. As a result, the study only investigated F-TIJOs who were police-referred to a conference. It should be noted that referral to a family conference does not guarantee that a conference will be held and finalised.

Indigenous Status

Prior to 2007, the Indigenous status of an offender was derived from the opinion of the apprehending police officer based on the appearance of the offender. However, in 2007, South Australia Police (SAPOL) implemented the *Standard Indigenous Question (SIQ)* (ABS, 1996). The SIQ requires individuals to self-identify as being Aboriginal and/or Torres Strait Islander, or non-Indigenous. Where possible, the SIQ was used to identify the Indigenous status of the offender. If the SIQ was unavailable, status was based on the opinion of the apprehending officer.

Juvenile Offender

A juvenile offender refers to "a person of or above the age of 10 years but under the age of 18 years" (*Young Offenders Act 1993*, p. 6) who has committed an offence and has been apprehended by a South Australian police officer.

First Contact

First contact was defined as the date a F-TIJO first had contact with a South Australian police officer (via arrest or report) that resulted in an apprehension report (i.e., the date of the apprehension report).

Exclusion Criteria

F-TIJOs who committed a drug offence as classified by the *JANCO Classification System* (JANCO; Division 6 offences; OCSAR, 2011) at first contact were excluded as these offences are diverted under the South Australian *Police Drug Diversion Initiative* (OCSAR, 2008). Additionally, F-TIJOs who committed an offence against a court or a court order, such as breach of court bail (JANCO; Division 5, Sub-division 52 offences; OCSAR, 2011), at first contact were excluded as these offences do not accurately represent an offender's first contact with the criminal justice system.

Appendix B

Propensity Score Matching

Method

The propensity score matching methodology used within the current study was adapted from Smith & Weatherburn (2012). Propensity scores were obtained from a binary logistic regression conducted using SPSS for Windows version 19.0 (IBM, 2010) and represented the predicted probability of receiving a conference referral. All covariate (i.e. demographic and offence) variables were included in the propensity score model excluding Offence Type due to multicollinearity. Matching was conducted manually in Microsoft Excel (Microsoft, 2003) and one-to-one nearest neighbour matching without replacement and with a caliper of .01 units was used. That is, a F-TIJO who received a caution was considered to be matched to a F-TIJO who received a conference referral if their propensity scores were within .01 units of each other.

Balance between the Conference and Caution groups on the covariate variables was assessed before and after matching using Rosenbaum and Rubin's (1985) standardised bias (SB). A SB value of 0 represents a perfect balance between the Caution and Conference groups for a variable of interest; a value of less than 10 is considered ideal (Apel & Sweeten, 2010). Standardised bias (SB) for binary variables was calculated as:

$$SB = \frac{100(P_c - P_p)}{\sqrt{[P_p(1 - P_p) + P_c(1 - P_c)]/2}}$$

P_c = Proportion of the covariate in the Caution (control) group

P_p = Proportion of the covariate in the Conference (treatment) group

Standardised bias (SB) for continuous variables was calculated as:

$$SB = \frac{100(\chi_c - \chi_p)}{\sqrt{(S_c + S_p)/2}}$$

χ_c = Mean of the Caution (control) group

χ_p = Mean of the Conference (treatment) group

S_c = Variance of the Caution (control) group

S_p = Variance of the Conference (treatment) group

As an additional test of balance, the difference (percentage and median) between the Caution and Conference groups on the covariate variables before and after matching was examined using Mann-Whitney U tests and Chi Square tests of Independence. The number of F-TIJOs in the Caution and Conference groups that were matched and unmatched across the distribution of the propensity scores was also examined.

Measurement of Covariate Variables

Sex

Sex was measured as either male or female as recorded by South Australia Police (SAPOL).

Age

Age was measured as age in years at first contact (10 - 17 years) as recorded by SAPOL.

Socio-economic Status

Socio-economic Status was measured using the *Socio-Economic Indexes for Areas, 2006 (SEIFA) – Index of Relative Socio-economic Disadvantage* (ABS, 2008) for South Australia. This index provides a state rank, decile, and percentile for every Local Government Area (LGA) (ABS, 2011a) in South Australia based on relative socio-economic disadvantage. Disadvantage is based upon Australian Census variables such as low income, low educational attainment, and unemployment. Socio-economic Status was dichotomously measured as either low (1 - 5) or high (6 - 10) using the South Australia state decile of a F-TIJO's residential LGA at first contact.

Residential Remoteness

Residential Remoteness was measured using *The Australian Standard Geographical Classification (ASGC) Remoteness Area Correspondences, 2006 – Local Government Area Correspondence* (ABS, 2011a) for South Australia. This index provides the Remoteness Area (ABS, 2011b) for each LGA in South Australia. Remoteness area is based upon Census population data and is categorised as: Major Cities (of), Inner Regional, Outer Regional, Remote, or Very Remote Australia. For the purposes of this study Residential Remoteness was measured as City, Regional (Inner & Outer Regional combined), or Remote (Remote & Very Remote combined) based on a F-TIJO's residential LGA at first contact.

Method of Apprehension

Method of Apprehension was measured dichotomously as either report or arrest as recorded by SAPOL.

Offence Type

Offence Type of a F-TIJO's offence was measured using the *JANCO Classification System* (OCSAR, 2011). *JANCO* is a South Australian offence classification index that consists of 9 divisions of offences in a hierarchical structure. For the purposes of this study Offence Type was categorised into the following four categories:

- (i) Personal offences (JANCO Divisions 1: Offences against the person including acts endangering life, & 2: Robbery & extortion offences)
- (ii) Property offences (JANCO Divisions 3: Burglary, break and enter, fraud, forgery, false pretences and larceny offences, & 4: Damage property & environmental offences)
- (iii) Driving and Traffic offences (JANCO Division 7: Driving, motor vehicle, traffic and related offences)
- (iv) Other offences (JANCO Divisions 5: Offences against good order, & 8: Other offences)

Where an individual was apprehended for multiple offences, the offence with the greatest Maximum Statutory Penalty (MSP) was used to determine the offence type. The MSP is specified within the South Australian legislation for an offence as the most severe penalty that a court can impose for the offence.

Seriousness of Offence

Seriousness of Offence was measured using the *National Offence Index* (NOI) (ABS, 2009) which was divided into the following three categories as adapted from Skrzypiec (2005):

- (i) High seriousness (Ranks 1 - 64)
- (ii) Moderate seriousness (Ranks 65 - 96)
- (iii) Low seriousness (Ranks 97 - 157)

Where an individual was apprehended for multiple offences the offence with the greatest MSP was used to determine seriousness.

Number of Offences

Number of Offences was measured as the total number of offences listed on a F-TIJO's apprehension report at first contact.

Covariate Variables before Propensity Score Matching

To determine whether the Caution and Conference group differed significantly on any of the covariate variables, Chi Square analyses and Mann-Whitney U tests were conducted. After data screening Age was found to be negatively skewed while Number of Offences was found to be positively skewed. These variables remained skewed after transformations (i.e., log & reversed score log) and therefore remained untransformed for the following analyses.

A Chi Square test of Independence revealed a significant difference between the Caution and Conference groups on Method of Apprehension $\chi^2 (1, N = 1,563) = 84.1, p < .001$. Cramer's V = .23, with a greater proportion of F-TIJOs in the Caution group being apprehended via report than those in the Conference group (refer to *Table A1*).

A second Chi Square of Independence also revealed a significant difference between the two groups on Offence Seriousness (High), $\chi^2 (2, N = 1,563) = 10.2, p = .006$. Cramer's V = .08, with a greater proportion of those in the Caution group having committed offences considered to be of high seriousness compared to those in the Conference group (refer to *Table A1*).

Additionally, a Mann-Whitney U test revealed that F-TIJOs in the Conference group (Median = 2, Range = 10) had a greater Number of Offences than those in the Caution group (Median = 1, Range = 6). The difference between the ranks (Caution Mean rank = 723.19, Conference Mean rank = 923.89) was significant, $U(N_1 = 1,105, N_2 = 458) = 188060, Z = -9.491, p < .001$ (refer to *Table A1*).

These results suggest that the unmatched Caution and Conference groups are fundamentally different, thereby justifying the need to perform propensity score matching.

Table A1.
Demographic and Offence Characteristics of the Unmatched Caution and Conference Groups (N = 1,563)

Covariate Variables	Caution (N = 1,105)	Conference (N = 458)
Demographic Characteristics		
Sex (Male)	63.3%	67.7%
Sex (Female)	36.7%	32.3%
Age	15(7)	16(7)
Socio-economic Status (High)	13.8%	16.2%
Socio-economic Status (Low)	86.2%	83.8%
Residential Remoteness (City)	31.8%	34.3%
Residential Remoteness (Regional)	42.9%	45.0%
Residential Remoteness (Remote)	25.3%	20.7%
Offence Characteristics		
Method of Apprehension (Report)**	68.7%	43.9%
Method of Apprehension (Arrest)	31.3%	56.1%
Offence Type (Personal)	15.2%	13.5%
Offence Type (Property)	40.1%	40.8%
Offence Type (Driving & Traffic)	21.4%	19.9%
Offence Type (Other)	23.3%	25.8%
Offence Seriousness (High)*	44.3%	35.6%
Offence Seriousness (Moderate)	27.4%	31.4%
Offence Seriousness (Low)	28.3%	33.0%
Number of Offences**	1(6)	2(10)

Note. Categorical variables are presented as percentages. Continuous variables (Age, Number of offences) are presented as Median (Range). ** $p < .001$. * $p < .01$.

Results

Propensity scores predicting a conference referral were derived from the logistic regression presented in *Table A2*. The model using the unmatched samples ($N = 1,563$) significantly predicted Conference group membership, $\chi^2(9, N = 1,563) = 157.74, p < .001$. However, the model using the matched samples ($N = 810$) did not significantly predict Conference group membership, $\chi^2(9, N = 810) = 4.17, p = .900$ (refer to *Table A3*), indicating that the matched groups were balanced across all covariate variables entered into the initial model.

Standardised bias (SB) values for the matched and unmatched samples are presented in *Table A4*. Before matching, 5 of the 15 variables examined had a SB value over 10 and were deemed imbalanced. After matching, all of the 15 variables examined had an SB value of less than 10 (< 9.6) indicating balance between the Caution and Conference groups.

Table 1 (refer to page 5) describes the demographic and offence characteristics of the Caution and Conference groups after matching. Chi Square analyses and Mann-Whitney U tests revealed no significant differences between the two matched groups on the covariate variables, suggesting that the two groups were adequately balanced.

Figure A1 illustrates the distributions of the propensity scores across F-TIJOs in the Caution and Conference groups and indicates whether an offender was matched or unmatched. The distributions of propensity scores for the matched Caution ($N = 405$) and Conference ($N = 405$) groups were quite similar.

Of the 458 F-TIJOs in the Conference group, 53 offenders (11.6%) were not matched as they did not have a corresponding offender within the Caution group with a propensity score within .01 units of their own. These 53 offenders had propensity scores at the upper end of the distribution ($> .79$), that is, they had a high predicted probability of receiving a conference referral. Among the 1,105 FTIJOs in the Caution group, 700 offenders (63.3%) were not matched as they did not have a corresponding offender within the Conference group with a propensity score within .01 units of their own. These 700 offenders had propensity scores at the lower end of the distribution ($< .131$), that is, they had a low predicted probability of receiving a conference referral. In sum, the tests of balance indicated that the matched Caution and Conference groups were adequately balanced on the variables that were expected to impact conference referral and/or re-contact.

While propensity score matching can significantly reduce sample size, the current study was able to retain a relatively large sample. The matched sample comprised 810 F-TIJOs, representing 51.8% of the unmatched sample.

Table A2.
Logistic Regression Model predicting Conference Referral versus Caution for Unmatched Sample (N = 1563)

Covariate Variables	Odds ratio	Coefficient
	(95% confidence interval)	p-value
Demographic Characteristics		
Sex (Male vs Female)	.81 (.63, 1.03)	.086
Age	.99 (.93, 1.06)	.786
Socio-economic Status (Low vs High)	1.10 (.79, 1.52)	.571
Residential Remoteness (City: Yes vs No)	.87 (.63, 1.19)	.381
Residential Remoteness (Regional: Yes vs No)	.84 (.62, 1.14)	.266
Offence Characteristics		
Method of Apprehension (Report vs Arrest)	2.41 (1.90, 3.05)	<.001
Offence Seriousness (High: Yes vs No)	1.46 (1.10, 1.93)	.008
Offence Seriousness (Moderate: Yes vs No)	1.04 (.77, 1.39)	.813
Number of Offences	1.57 (1.39, 1.78)	<.001

Note. $R^2 = .02$ (Hosmer & Lemeshow), .01 (Cox & Snell), .14 (Nagelkerke). Offence Type removed from model due to multicollinearity.

Table A3.
Logistic Regression Model predicting Conference Referral versus Caution for Matched Sample (N = 810)

Covariate Variables	Odds ratio	Coefficient
	(95% confidence interval)	p-value
Demographic Characteristics		
Sex (Male vs Female)	.995 (.74, 1.34)	.975
Age	1.0 (.92, 1.09)	.955
Socio-economic Status (Low vs High)	.96 (.66, 1.42)	.851
Residential Remoteness (City: Yes vs No)	.95 (.65, 1.39)	.791
Residential Remoteness (Regional: Yes vs No)	1.04 (.72, 1.49)	.842
Offence Characteristics		
Method of Apprehension (Report vs Arrest)	.83 (.62, 1.09)	.180
Offence Seriousness (High: Yes vs No)	1.01 (.72, 1.41)	.961
Offence Seriousness (Moderate: Yes vs No)	1.07 (.75, 1.52)	.726
Number of Offences	.88 (.75, 1.04)	.126

Note. $R^2 = .75$ (Hosmer & Lemeshow), .01 (Cox & Snell), .01 (Nagelkerke). Offence Type removed from model due to multicollinearity.

Table A4.
Standardised Bias between the Caution and Conference Groups before and after Propensity Score Matching

	Unmatched (N = 1563)	Matched (N = 810)
	Standardised bias	Standardised bias
Covariate Variables		
Demographic Characteristics		
Sex (Male)	-9.3	0.0
Age	-3.0	0.0
Socio-economic Status (Low)	6.7	-0.6
Residential Remoteness (City)	5.3	4.3
Residential Remoteness (Regional)	4.2	-3.8
Residential Remoteness (Remote)	-10.9*	0.0
Offence Characteristics		
Method of Apprehension (Report)	-51.6*	-8.4
Offence Type (Personal)	-4.9	3.7
Offence Type (Property)	1.4	-2.6
Offence Type (Driving & traffic)	-3.7	5.0
Offence Type (Other)	5.8	4.6
Offence Seriousness (High)	-17.8*	0.6
Offence Seriousness (Moderate)	8.8	-1.1
Offence Seriousness (Low)	10.4*	0.3
Number of Offences	51.5*	-9.6

Note. A positive standardised bias value signifies that the Conference group exhibits more of the characteristic than the Caution group. A negative value signifies that the Conference group exhibits less of the characteristic than the Caution group. * denotes imbalance.

Figure A1. Distribution of Propensity Scores predicting Conference Referral versus Caution by Group before and after Propensity Score Matching

