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**Abstract** | This study examines how accurately the refined Family Violence Risk Assessment Tool (FVRAT) predicts repeat domestic violence. Developed on the basis of a previous validation study of an earlier, much longer version of the tool, the refined FVRAT consists of 10 checkbox items, along with sections recording victim and officer judgements. These are used to inform police responses in the Australian Capital Territory.

A sample of over 450 unique reports of violence involving current and former intimate partners between March and December 2020 in which police used the refined FVRAT were examined. Repeat domestic violence was measured based on whether a subsequent report of domestic violence was made to police within six months.

Consistent with the previous study, the refined FVRAT predicts repeat domestic violence at least moderately well. Victim judgements were also shown to enhance the tool's ability to correctly identify repeat domestic violence, although the findings also suggest some caution is warranted in using these judgements.

## Improving police risk assessment of domestic violence: A follow-up validation study

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Police are one of a number of first points of contact for victims of domestic violence who are seeking help or protection (Australian Institute of Health and Welfare 2019; Boxall & Morgan 2021; Boxall, Morgan & Brown 2020). Police first responders to domestic violence must decide how best to ensure the safety of victims and keep perpetrators from committing further abuse (Dowling et al. 2018; Mazerolle et al. 2018). Getting these decisions right is critical, and police devote significant time and resources to actioning domestic violence reports (Queensland Government Statistician's Office 2021; State of Victoria 2016).

Police are increasingly relying on domestic violence risk assessment tools to standardise, document and improve their decision-making (Kebbell 2019). These tools estimate the probability of further domestic violence so that responses can be tailored, and resources allocated, accordingly. They typically consist of checklists of items which are associated with an increased probability of further domestic violence, along with a formula for scoring them and classifying reports into risk categories.

When it comes to the prediction of a variety of clinical and deviant behaviours, structured approaches to risk assessment that incorporate these actuarial techniques are a significant improvement over clinical and expert judgements alone (eg Ægisdóttir et al. 2006; Singh & Fazel 2010), including in relation to domestic violence (van der Put, Gubbels & Assink 2019). However, many domestic violence risk assessment tools now in use do incorporate the judgements of victims and police alongside actuarial risk estimates, to caveat and contextualise these estimates. Research has shown that, while not sufficient on their own to accurately estimate risk, these judgements can be critical to informing police and other responses, particularly to coercive controlling behaviour and other less obvious forms of abuse (Backhouse & Toivonen 2018; Myhill & Hohl 2019).

Domestic violence risk assessment tools have been subjected to varying levels of research examining their predictive validity or the accuracy with which they predict repeat domestic violence. The key metric in these studies has been the area under the receiver operating characteristic (AUROC) curve score, which represents the probability that a randomly selected case in which there was an outcome of interest (ie repeat domestic violence) received a higher risk rating on a tool than a randomly selected case in which there was no outcome of interest (ie no repeat domestic violence; Green & Swets 1966). Scores typically range from 0.50, indicating that a tool is no better than chance at predicting repeat domestic violence, to 1, indicating that a tool is a perfect predictor. This research is critical to building confidence in domestic violence risk assessment tools, which cannot be assumed to be accurate simply because they were developed with empirically supported risk factors.

Systematic reviews have found that domestic violence risk assessment tools are moderately better than chance at predicting various measures of repeat domestic violence, with AUROC scores between 0.60 and 0.80 (Graham et al. 2021; Messing & Thaller 2013; van der Put, Gubbels & Assink 2019). Most of the tools used by police in Australia that have been subjected to some degree of validation have also returned AUROC scores of between 0.60 and 0.75 (Lauria et al. 2017; McEwan, Bateson & Strand 2017; McEwan, Shea & Oglloff 2018; Spivak et al. 2021; but see Ringland 2018). Importantly, the development of these tools has historically been human-driven, with developers selecting risk factors on the basis of their own experience and knowledge of empirical research. However, data-driven approaches, where the design and refinement of risk assessment tools are determined through statistical modelling and machine learning algorithms, are increasingly being used with promising results (eg Berk, Sorenson & Barnes 2016; Leung & Trimboli 2022).

In 2019 the Australian Institute of Criminology (AIC) undertook a validation study of the Family Violence Risk Assessment Tool (FVRAT), which was being used by frontline police in the Australian Capital Territory (Dowling & Morgan 2019). After controlling for police responses in the period following each domestic violence report for which an FVRAT was completed—which is overlooked in many validation studies of this kind—the results of this study indicated that the tool was moderately better than chance at predicting repeat domestic violence within a six-month follow-up period (AUROC=0.60). Additionally, as with most domestic violence tools (Graham et al. 2021), it was found to be better at predicting when repeat domestic violence would not occur (ie true negatives) than when it would occur (ie true positives).

Further analysis identified a subset of 10 items within the 37-item FVRAT that were individually important to the prediction of repeat domestic violence. Scores derived from these 10 items only, and classified into one of three empirically optimised risk categories, were more accurate than the original tool (AUROC=0.73) and exhibited improvements in the identification of true positives without a corresponding sacrifice in the accurate identification of true negatives. On the basis of this study, and in consultation with stakeholders across government, the criminal justice system and the services sector, ACT Policing developed a refined FVRAT, which was rolled out in March 2020.

## Aim and method

This study examines the predictive validity of ACT Policing's refined FVRAT, which exhibited a good overall level of accuracy in predicting repeat domestic violence within the sample that was used to develop it. This study validates the tool using a new sample of over 400 reports of domestic violence to ACT Policing across a separate study period.

### The refined Family Violence Risk Assessment Tool

Police in the Australian Capital Territory are required to complete the FVRAT when responding to a report of violence by a current or former intimate partner. The actuarial component consists of 10 checkbox items (see Dowling & Morgan 2019), which are summed for a score out of 10 and used to classify reports into low (0–2), medium (3–5) or high (6+) risk categories. Based on actuarial risk ratings, officers are instructed to undertake graduated sets of responses to ensure the safety of victims and their children, including support service referral, safety planning and applications for family violence orders.

The refined FVRAT also includes sections for recording victim and officer judgements, along with a series of 'red flag' items, such as perpetrator mental health concerns, alcohol or drug abuse, and signs of escalating violence (eg sexual violence, strangulation, coercive controlling behaviour and threats to kill). Additionally, victims provide their own assessments of risk, classified into low, medium and high ratings. Officers are only required to complete red flag items where an arrest is made, or where the actuarial or victim risk rating is high, but may complete them for other reports if they choose. These sections of the tool are primarily focused on capturing the severity of an incident and its impact on victims, and are used to determine where modified or additional responses on top of those attached to actuarial risk ratings may be required.

### Sample and data

The initial sample consisted of 469 reports of violence involving current or former intimate partners in the Australian Capital Territory between 1 March and 31 December (inclusive) 2020. Thirteen cases were excluded from the sample because of missing information on risk scores, or on criminal justice and service responses following the domestic violence report, leaving 456 reports. Reports are unique in that no perpetrator or victim is represented more than once in the sample. Data collection followed the same two-stage process, and drew on the same information sources, as the AIC's original study (see Dowling & Morgan 2019 for further information).

Two-thirds of perpetrators (65%) and victims (68%) were between the ages of 25 and 44 at the time of their domestic violence report, and perpetrators were, on average, around a year and a half older ( $M=36.6$ ,  $SD=10.7$ ) than victims ( $M=35.0$ ,  $SD=10.6$ ; age unknown for 5 perpetrators and 2 victims). Most perpetrators were male (85%) and victims female (85%; gender unknown for 1 victim and 1 perpetrator). Three percent of reports concerned same-sex current or former intimate partners (orientation of relationship unknown for 1 case). Small proportions of perpetrators (15%) and victims (17%) were recorded as being members of culturally and linguistically diverse communities (unknown for 4 perpetrators and 4 victims). One percent of perpetrators and victims were recorded as Indigenous (unknown for 4 perpetrators and 4 victims).

Consistent with the AIC's first study, repeat domestic violence was measured as at least one additional report of domestic violence to police involving the same victim within six months of the initial report or perpetrator release from custody (see Dowling & Morgan 2019 for more information). Order breaches were not included in this measure. The focus on short-term repeat domestic violence reflects the intended purpose of the tool and the broader operational needs of frontline police.

### Measuring predictive validity

The AUROC score was the principal measure of predictive validity, with scores of 0.80 or above taken as indicative of excellent accuracy, scores of 0.70–0.79 taken as indicative of good accuracy, and scores of 0.60–0.69 taken as indicative of moderate accuracy (Hosmer & Lemeshow 2004). The following additional measures of accuracy were also examined (see also Table 2);

- classification accuracy—the total proportion of correct risk ratings;
- sensitivity—the proportion of repeat domestic violence reports correctly predicted;
- specificity—the proportion of non-repeat domestic violence reports correctly predicted;
- positive predictive value (PPV)—the proportion of correct higher risk ratings; and
- negative predictive value (NPV)—the proportion of correct lower risk ratings.

		Actual repeat domestic violence?		
		Yes	No	
Predicted repeat domestic violence?	Yes	True positive (tp)	False positive (fp)	Positive predictive value $tp/(tp+fp)$
	No	False negative (fn)	True negative (tn)	Negative predictive value $tn/(fn+tn)$
		Sensitivity $tp/(tp+fn)$	Specificity $tn/(fp+tn)$	Classification accuracy $(tp+tn)/n$

Logistic regression models were used to examine the association of actuarial risk ratings and repeat domestic violence, with police responses to initial domestic violence reports included as covariates. Models used in the original FVRAT examination incorporated a covariate indicating whether police arrested and/or charged the perpetrator at any point during the follow-up period. The first model was run with this covariate only to ensure comparability with results of the previous study. The second model included other criminal justice and service responses during the follow-up period, including:

- whether police undertook further investigation subsequent to initial attendance during the follow-up period; and
- whether victims accepted a referral to one or more services during the follow-up period.

Given their use in the assessment of risk as part of the current FVRAT, this study also examined the extent to which victims' own assessments of risk improve the tool's predictive validity. An open-ended approach was taken to this stage of the analysis, first examining whether victim risk ratings were significantly associated with repeat domestic violence independent of actuarial risk ratings (Model 3) before exploring how, if at all, the actuarial component of the tool could be enhanced with consideration of these victim ratings (Model 4).

Importantly, the study period spans the outbreak of the novel coronavirus disease 2019 (COVID-19) in Australia. On 16 March 2020 the ACT Government declared a public health emergency and instituted a series of containment measures to limit transmission of the virus, which limited people's ability to travel, gather, and undertake public activities (Barr & Stephen-Smith 2020). From early May the ACT Government implemented a staged easing of these restrictions (ACT Government 2020a, 2020b, 2021). Overall, the international evidence is mixed as to how, if at all, COVID-19 restrictions influenced the reporting of domestic violence to the police (Kourti et al. 2023), and several Australian studies report small or no impacts (Burgess et al. 2021; Freeman & Leung 2021; Payne, Morgan & Piquero 2022). Findings that do show post-restriction increases in reported domestic violence have been linked to increases in the actual amount of domestic violence (Boxall, Morgan & Brown 2020) and the exacerbation of risk factors for it (eg increased isolation, financial stress; Morgan & Boxall 2020), both of which there is stronger evidence for (see also Kourti et al. 2023), as well as to changes in the likelihood of such violence being reported to police (Morgan, Boxall & Payne 2022; Pfitzner, Fitz-Gibbon & True 2020). To account for any influence of COVID-19 restrictions in the Australian Capital Territory on rates of repeat domestic violence, all logistic regression models incorporate a covariate that ordinally captures their intensity, with the pre-restriction period—1 March to 15 March 2020—taken as the baseline.

Classification accuracy, sensitivity, specificity, PPVs and NPVs were calculated from predicted probabilities of repeat domestic violence across each actuarial risk rating, with covariates adjusted for using marginal standardisation (Muller & MacLehose 2014). The upper bounds of confidence intervals around these metrics were calculated using the upper bounds of confidence intervals around predicted probabilities for medium or high risk ratings and the lower bounds of confidence intervals around predicted probabilities for low risk ratings. The lower bounds were calculated inversely. Covariate-adjusted AUROC scores, representing the weighted average of AUROC scores across cases with distinct configurations of covariate ratings (Janes & Pepe 2009), were also calculated.

## Limitations

The data for this study are restricted to domestic violence that is reported to the police. The effect of under-reporting to police (Morgan, Boxall & Payne 2022) on the validity of risk assessment tools is unknown. It is worth noting that validation studies using these data assess the predictive validity of risk assessment for repeat domestic violence that is reported to police. Relatedly, the incident-based approach underpinning police data, which treats domestic violence as one or more discrete incidents of verbal or physical aggression, may make these findings less applicable to coercive control and other ongoing forms of abuse.

While this study accounts for the intervening influence of additional criminal justice and service responses compared with the AIC's original study, consistent data on other responses, including protection orders and charge outcomes, were not available. While information was available on the remand and custody time perpetrators served in relation to the initial domestic violence report, custodial information was not available in relation to other criminal activities. Relatedly, information was not available on whether perpetrators or victims 'dropped out' of the sample by leaving the Australian Capital Territory, although this was probably rare, given that the study period coincides with restrictions on interstate travel.

Finally, while this study draws on a larger sample of domestic violence reports than the AIC's original study (Dowling & Morgan 2019), its size is still insufficient for a rigorous examination of the FVRAT's predictive validity with different ethnic and cultural communities or sexual orientations. Many of the FVRAT's items have been identified as risk factors for domestic violence across a variety of demographic groups (Backhouse & Toivonen 2018; Capaldi et al. 2012), but there are also differences between these groups (eg Lauria et al. 2017; Ringland 2018).

## Results

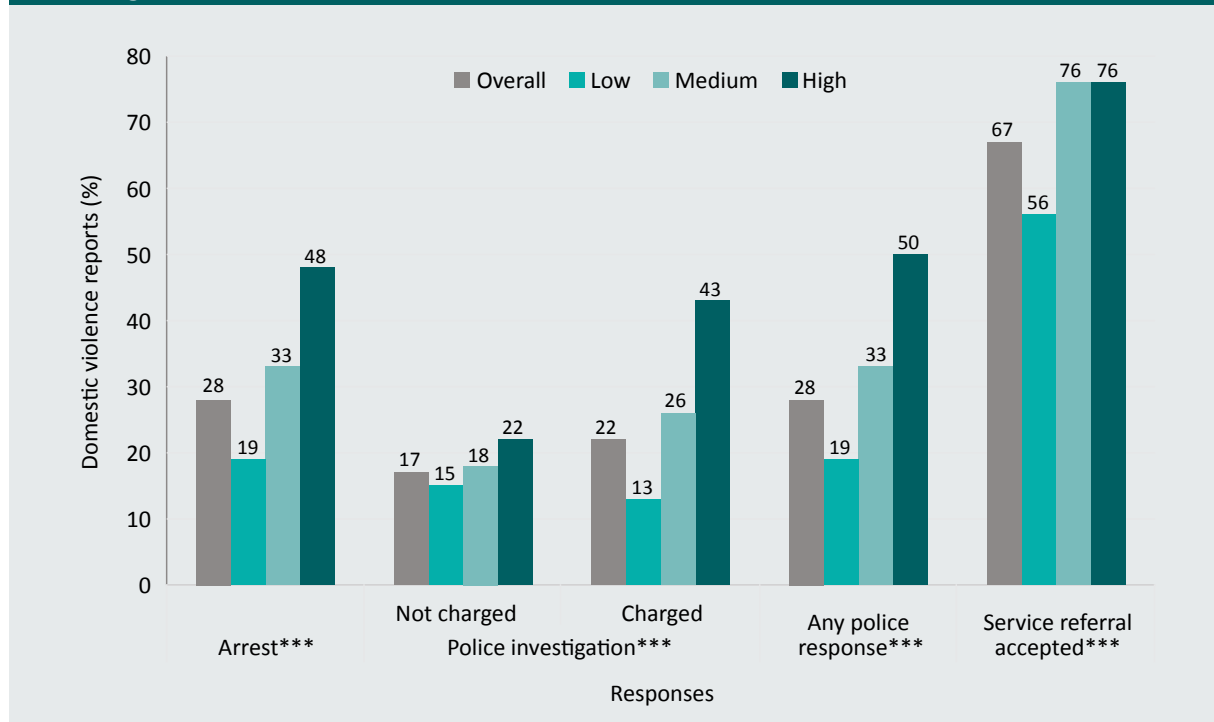
### Descriptive statistics

Equal proportions of domestic violence reports were rated as low (46%) and medium (44%) risk by the actuarial component of the FVRAT, with 10 percent rated as high risk. Fourteen percent of victims made at least one further report of domestic violence to police within the six-month follow-up period. Two-thirds of these reports (65%), or nine percent of the total sample, involved physical violence, as indicated by the presence of at least one offence classified under either Division 2 (acts intended to cause injury) or Division 3 (sexual assault and related offences) of the Australian and New Zealand Standard Offence Classification (Australian Bureau of Statistics 2011). Eighty-five percent of repeat domestic violence reports involved the perpetrator of the initial domestic violence report.

## Actuarial risk ratings

Figure 1 displays the application of different police and service responses to domestic violence reports by risk rating. Initial analyses revealed that, unsurprisingly, all reports for which charges were laid involved some degree of further police investigation subsequent to initial police attendance. Police investigation and charges were therefore combined into a single variable (0=not investigated, 1=investigated but not charged, 2=investigated and charged). In line with the AIC’s original study (Dowling & Morgan 2019), a variable was also created combining arrest and/or the laying of charges. All responses were more common in domestic violence reports that received higher risk ratings, meaning the intensity of the response by police was proportionate to the assessed level of risk.

**Figure 1: Responses to domestic violence reports, by Family Violence Risk Assessment Tool risk rating**



\*\*\*statistically significant at  $p < 0.001$

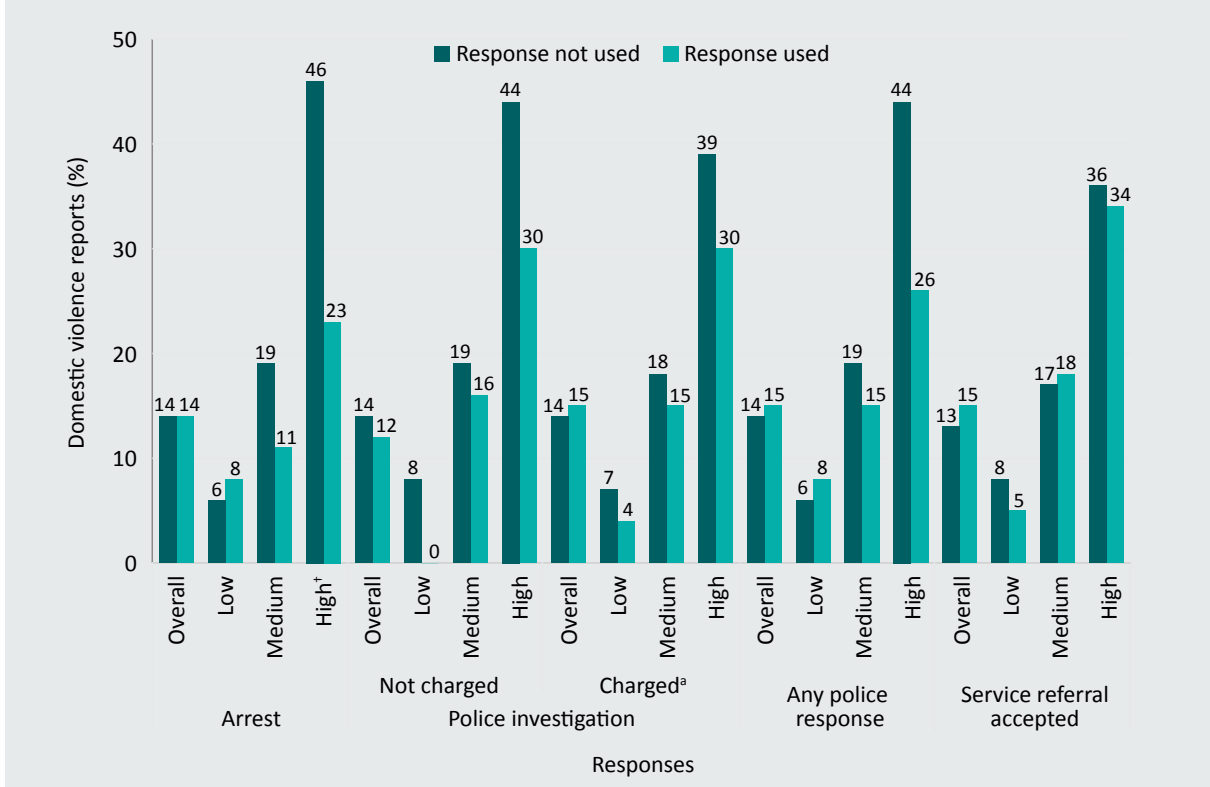
Note: Arrest  $\chi^2(5)=20.4$ , Cramér’s  $V=0.21$ . Police investigation  $\chi^2(8)=31.3$ , Cramér’s  $V=0.19$ . Service referral accepted  $\chi^2(5)=20.7$ , Cramér’s  $V=0.21$

Source: ACT Policing 2021 [computer file]



Figure 2 displays the likelihood of repeat domestic violence by response and risk rating. Overall, rates of repeat domestic violence were similar for reports that did and did not receive different responses. When broken down by risk rating, repeat domestic violence was notably more common among high risk reports that did not receive a police response of some kind, although the differences only approached statistical significance for arrest (likely due to the small proportion of cases that received a high risk rating). These results nevertheless highlight the importance of taking police responses into account when assessing the FVRAT’s predictive validity.

**Figure 2: Repeat domestic violence, by Family Violence Risk Assessment Tool risk rating and police response**



\*statistically significant at  $p < 0.10$

a: The 'Response not used' option combines reports that were investigated without the laying of charges *and* reports that were not further investigated

Note: Arrest for high risk domestic violence reports  $\chi^2(3)=2.7$ , Cramér's  $V=0.24$

Source: ACT Policing 2021 [computer file]

After controlling for any police response, the odds of repeat domestic violence within the six-month follow-up period were significantly higher in cases rated as medium (odds ratio (OR)=3.26, 95% confidence interval (CI)=[1.64, 6.50]) and high risk (OR=9.15, 95% CI=[3.72, 22.48]) than in cases rated as low risk (Table 2, Model 1; see also Table A1 in *Appendix* for covariate results).



Figure 3 plots predictive validity metrics calculated from Model 1 against those from the AIC’s original examination of the FVRAT. The AUROC score (0.67, 95% CI=[0.60, 0.75]) indicates that there is a 67 percent likelihood of a randomly selected report where repeat domestic violence occurred receiving a higher actuarial risk rating on the FVRAT than a randomly selected report where there was no repeat domestic violence. This is lower than the AUROC reported in the original study—0.73, or a 73 percent likelihood—and falls below the threshold many researchers use to indicate good accuracy. However, there is a strong overlap between the confidence intervals for these two scores, meaning the difference is not statistically significant, and Model 1’s AUROC stills falls well within the range many researchers use to indicate moderate accuracy (Hosmer & Lemeshow 2004). Other metrics are largely similar to those reported in the original study, and confidence intervals suggest a high degree of precision in their estimation once police responses and COVID-19 restrictions are adjusted for. The exception is the sensitivity of high risk ratings against low risk ratings (57%), which is notably, but not significantly, lower than in the original study (73%), and which exhibits less precision (95% CI=[35%, 79%]) than the other metrics.

**Table 2: Logistic regression models predicting repeat domestic violence from Family Violence Risk Assessment Tool risk ratings (n=456)**

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI) <sup>a,b</sup>
	Replication of Dowling and Morgan (2019)	Includes additional response covariates	Includes controls for victim- assessed risk ratings	Revised actuarial risk ratings based on victim- assessed risk ratings
<b>Actuarial risk ratings</b>				
Medium risk (vs low risk)	3.26 (1.64, 6.50)**	3.47 (1.77, 6.78)***	3.64 (1.62, 8.18)**	3.92 (1.78, 8.67)**
High risk (vs low risk)	9.15 (3.72, 22.48)***	10.54 (4.42, 25.11)***	8.31 (2.86, 24.10)***	7.98 (3.40, 18.74)***
<b>Victim risk ratings</b>				
Medium risk (vs low risk)	–	–	1.86 (0.85, 4.04)	–
High risk (vs low risk)	–	–	2.86 (1.23, 6.65)*	–

\*\*\*statistically significant at  $p < 0.001$ , \*\*statistically significant at  $p < 0.01$ , \*statistically significant at  $p < 0.05$

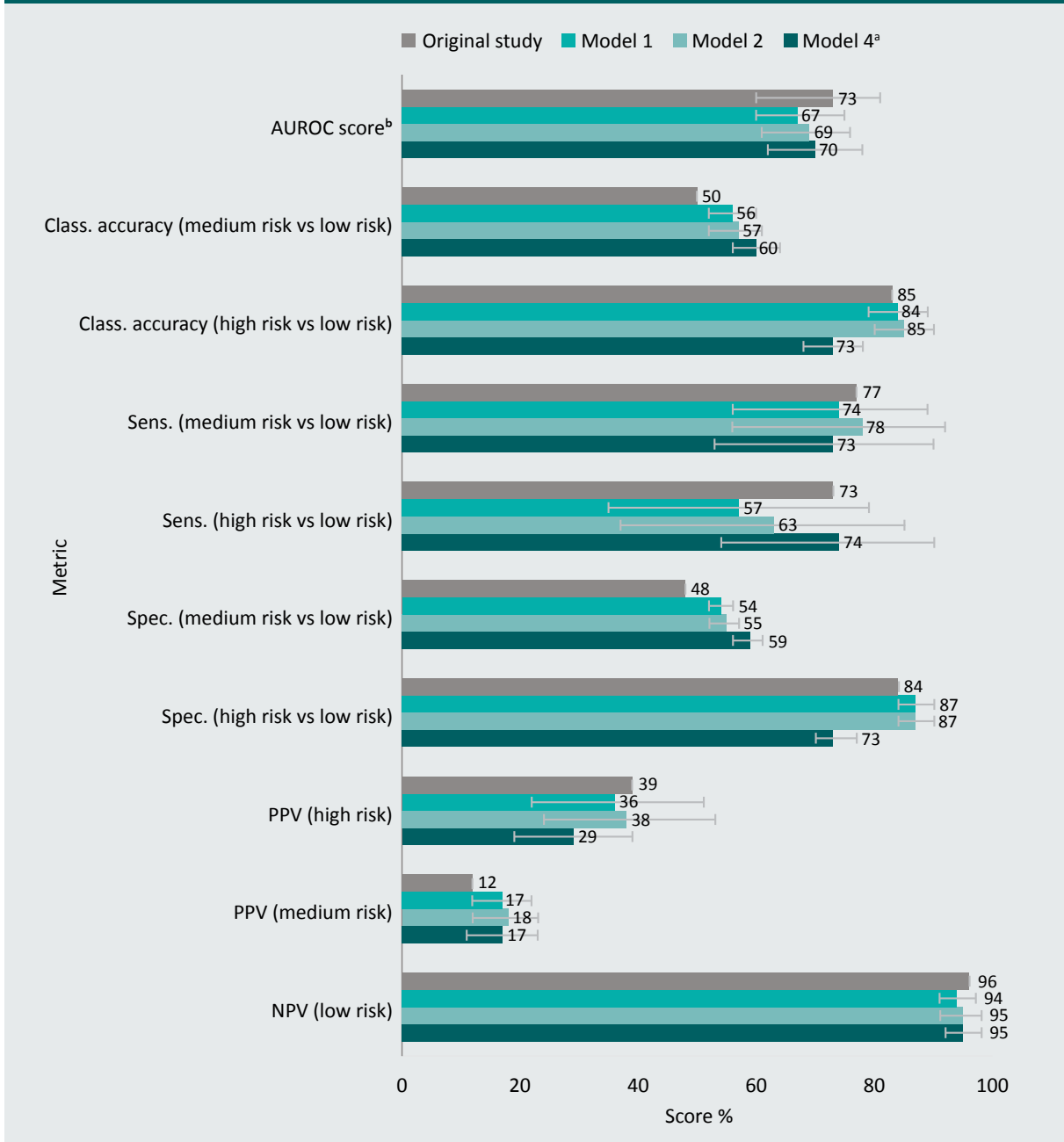
a: Actuarial risk ratings adjusted upward if domestic violence reports received a high victim risk rating

b: Excludes 53 reports with missing victim self-assessed risk rating

Note: OR=odds ratio. CI=confidence interval. Model statistics as follows: (1) Model 1 – model  $\chi^2(df, n)=29.10 (8, 456)$ ,  $p < 0.001$ , Nagelkerke  $R^2=0.09$ ; (2) Model 2 – model  $\chi^2(df, n)=35.10 (11, 456)$ ,  $p < 0.001$ , Nagelkerke  $R^2=0.10$ ; (3) Model 3 – model  $\chi^2(df, n)=40.01 (13, 403)$ ,  $p < 0.001$ , Nagelkerke  $R^2=0.14$ ; (3) Model 4 – model  $\chi^2(df, n)=31.70 (11, 403)$ ,  $p < 0.001$ , Nagelkerke  $R^2=0.11$

Source: ACT Policing 2021 [computer file]

**Figure 3: Comparison of predictive validity metrics**



a: All predictive metrics omit an additional 53 domestic violence reports due to missing victim risk ratings

b: AUROC scores are displayed as the percentage likelihood of a randomly selected report for which there was repeat domestic violence receiving a higher risk rating than a randomly selected report for which there was no repeat domestic violence (AUROC score × 100).

Note: PPV=positive predictive value. NPV=negative predictive value. AUROC=area under the receiver operating characteristic curve. The meaning of scores on the y-axis varies depending on the metric. See the *Aim and method* section for the operationalisation of each metric

Source: ACT Policing 2021 [computer file]

Controlling for a wider range of police responses (Model 2), the odds of repeat domestic violence within the six-month follow-up period were significantly higher in cases rated as medium (OR=3.47, 95% CI=[1.77, 6.78]) and high risk (OR=10.54, 95% CI=[4.42, 25.11]) than in cases rated as low risk. The AUROC score improved slightly to 0.69 (95% CI=[0.61, 0.76]). The sensitivity of high risk ratings against low risk ratings also improved (63%) but still exhibited less precision than estimates of the other validity metrics (95% CI=37% to 85%). Other metrics remained consistent or exhibited small improvements.

## Victim risk ratings

There was a moderate positive correlation between actuarial and victim risk ratings ( $\chi^2(6)=84.36$ , Cramér's  $V=0.30$ ). Victims in two-thirds of reports that received low actuarial ratings also rated their reports as low risk, and only four percent of these victims rated their reports as high risk. However, only one-third of reports that received medium or high actuarial ratings had concordant victim ratings recorded. Victims in reports that received medium actuarial ratings tended more often to downgrade (33%) than upgrade (18%) these ratings, while few victims in reports that received high actuarial ratings estimated their level of risk as being low (17%).

Fifty-three reports, or 12 percent of the sample, had no victim risk ratings reported. These reports were spread proportionally across low (12%,  $n=25$ ), medium (11%,  $n=23$ ) and high (11%,  $n=5$ ) actuarial risk ratings. Victim ratings were significantly more likely to be missing from reports involving male victims (20%) than those involving female victims (10%), but no other significant demographic differences between these reports were evident. Further, these reports did not differ in relation to any police, criminal justice or service responses, or repeat domestic violence. Therefore, they were excluded from all analyses that follow.

Model 3 shows that, independent of actuarial risk ratings, the odds of repeat domestic violence were significantly higher for reports where victims estimated their level of risk as high (OR=2.86, 95% CI=[1.23, 6.65]). On the basis of this finding, it was decided to examine whether the adjustment of actuarial risk ratings upward in cases of discordant high victim risk ratings improved their predictive validity. This adjustment led to the reclassification of 45 reports—nine with an originally low actuarial risk rating and 36 with an originally medium actuarial risk rating—as high risk.

Model 4 shows that the odds of repeat domestic violence within the six-month follow-up period were significantly higher in cases rated as medium (OR)=3.92, 95% CI=[1.78, 8.67]) and high risk (OR=7.89, 95% CI=[3.40, 18.74]) than in cases rated as low risk. There was only a small improvement in the AUROC score to 0.70 (95% CI=[0.62, 0.78]). However, there was a notable improvement in the sensitivity of high risk ratings against low risk ratings (74%, 95% CI=54% to 90%), although this came at the expense of specificity (73%, 95% CI=70% to 77%) and the PPV of high risk ratings (29%, 95% CI=19% to 39%), as well as the overall classification accuracy of high and low risk ratings (73%, 95% CI=68% to 78%). Predictive validity metrics remained relatively consistent for medium risk ratings against low risk ratings.

## Conclusion

The findings of this study are largely consistent with those of the original study (Dowling & Morgan 2019). The AUROC score, while marginally lower, still indicates that the actuarial component of this tool predicts repeat domestic violence at least moderately well and compares favourably with other tools in use across Australia (Lauria et al. 2017; McEwan, Bateson & Strand 2017; McEwan, Shea & Ogloff 2018; Ringland 2018; Spivak et al. 2021) and internationally (Graham et al. 2021; Messing & Thaller 2013; van der Put, Gubbels & Assink 2019).

Results regarding the tool's ability to correctly predict when domestic violence will and will not occur are also largely consistent with those in the original study. At least by current standards in domestic violence risk assessment, the refined FVRAT strikes a good balance between being able to identify reports in need of more intensive and immediate responses and separating out reports that are less in need of such responses. The former is critical to ensuring that fewer victims 'slip through the cracks' and experience further abuse, while the latter ensures the efficient targeting of limited time and resources where they are most needed.

This said, and in line with other Australian and international tools, the FVRAT does appear to be better overall at identifying true negatives (ie no repeat domestic violence) than true positives (ie repeat domestic violence), as indicated by NPV and specificity scores. This is most evident in the examination of high risk reports against low risk reports. The PPV suggests that a little over one-third of high risk reports involved repeat domestic violence and, while the specificity score was relatively high, and consistent with that in the previous study, the sensitivity score was notably lower than in the original study—although, at around 60 percent, it still compares favourably with other Australian and international risk assessment tools. Meanwhile, when comparing reports classified as medium and low risk, of which there were a similar number, there was more of a trend towards the overestimation of risk. This resulted in a relatively high sensitivity score, indicating that most reports involving repeat domestic violence were classified as medium as opposed to low risk, but a low specificity score and PPV, indicating that many reports classified as medium risk did not involve repeat domestic violence.

Further examination of victim risk ratings on the refined FVRAT highlights their utility in improving the prediction of when repeat domestic violence will occur in some cases. This is consistent with research illustrating the validity of victims' own feelings and views on the threats they face from their current or former partners when assessing the risk of further violence (Backhouse & Toivonen 2018). However, results also suggest that invariably prioritising high victim risk ratings may lead to some overestimation of risk. Police need to balance the risk of repeat offending, which might be overestimated by victim self-assessments, with the need to maintain perceived legitimacy and ensure procedural justice for victims who are seeking their assistance.

To the authors' knowledge, there are no other validation studies that consider the intensity of the policing response when assessing the predictive validity of police risk assessment tools for domestic violence. Results from this study show that the police response is proportionate and responsive to the level of assessed risk. This is important both in demonstrating the importance of taking this into account when validating risk assessment tools and in demonstrating the value of risk assessment in guiding police decision-making.

The importance of empirically examining the predictive validity of domestic violence risk assessment tools has been highlighted, although it should be noted that this study does not examine other elements of the FVRAT's performance or implementation. This includes its consistency as a measure of risk (ie test–retest and inter-rater reliability), how it is applied in the field, and its strengths and limitations from the perspective of police. Relatedly, it does not examine the tool's effectiveness at channelling limited police resources—beyond the conclusions drawn regarding predictive validity— or its value to investigations and criminal justice outcomes. While these concerns are arguably redundant if a risk assessment tool is found to lack predictive validity, tools with acceptable validity may nonetheless fail in practice due to implementation issues. Robust evaluations of domestic violence risk assessment tools must build on successful validations with further examinations of their reliability, feasibility, economic outcomes and benefits for victims (Ariza, Robinson & Myhill 2016; Backhouse & Toivonen 2018; Graham et al. 2021; Spivak et al. 2021).

## References

*URLs correct as at May 2023*

ACT Government 2021. *Canberra's recovery plan: Easing of restrictions roadmap (as at 14 April 2021)*. Canberra: ACT Government. [https://www.covid19.act.gov.au/\\_\\_data/assets/pdf\\_file/0010/1706329/PICCC0050-COVID-Recovery-Plan\\_April-2021.pdf](https://www.covid19.act.gov.au/__data/assets/pdf_file/0010/1706329/PICCC0050-COVID-Recovery-Plan_April-2021.pdf)

ACT Government 2020a. *Canberra's recovery plan: COVID-19 easing of restrictions roadmap*. Canberra: ACT Government. <https://www.commsatwork.org/wp-content/uploads/2020/03/Canberras-Recovery-Plan-1.pdf>

ACT Government 2020b. *Canberra's recovery plan: COVID-19 easing of restrictions roadmap as at 06 August 2020*. Canberra: ACT Government. [https://www.act.gov.au/\\_\\_data/assets/pdf\\_file/0011/1602695/CV\\_Roadmap\\_Recovery-plan\\_Ease\\_Restrictions\\_6\\_Aug.pdf](https://www.act.gov.au/__data/assets/pdf_file/0011/1602695/CV_Roadmap_Recovery-plan_Ease_Restrictions_6_Aug.pdf)

Ægisdóttir S et al. 2006. The meta-analysis of clinical judgment project: Fifty-six years of accumulated research on clinical versus statistical prediction. *The Counseling Psychologist* 34(3): 341–382. <https://doi.org/10.1177/0011000005285875>

Ariza JJM, Robinson A & Myhill A 2016. Cheaper, faster, better: Expectations and achievements in police risk assessment of domestic abuse. *Policing: A Journal of Policy and Practice* 10(4): 341–350. <https://doi.org/10.1093/police/paw023>

Australian Bureau of Statistics (ABS) 2011. *Australian and New Zealand Standard Offence Classification (ANZSOC), 2011*, 3rd edition. ABS cat. no. 1234.0. Canberra: ABS. <https://www.abs.gov.au/ausstats/abs@.nsf/mf/1234.0>

Australian Institute of Health and Welfare 2019. *Family, domestic and sexual violence in Australia: Continuing the national story*. Cat. no. FDV 3. Canberra: Australian Institute of Health and Welfare. <https://www.aihw.gov.au/reports/domestic-violence/family-domestic-sexual-violence-australia-2019/contents/summary>

- Backhouse C & Toivonen C 2018. *National risk assessment principles for domestic and family violence: Companion resource. A summary of the evidence-base supporting the development and implementation of the national risk assessment principles for domestic and family violence*. Insights no. 9. Sydney: Australia's National Research Organisation for Women's Safety
- Barr A & Stephen-Smith R 2020. *Public health emergency declared for ACT*. Media release, 16 March. [https://www.cmtedd.act.gov.au/open\\_government/inform/act\\_government\\_media\\_releases/barr/2020/public-health-emergency-declared-for-act](https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/barr/2020/public-health-emergency-declared-for-act)
- Berk RA, Sorenson SB & Barnes G 2016. Forecasting domestic violence: A machine learning approach to help inform arraignment decisions. *Journal of Empirical Legal Studies* 13(1): 94–115. <https://doi.org/10.1111/jels.12098>
- Boxall H & Morgan A 2021. *Intimate partner violence during the COVID-19 pandemic: A survey of women in Australia*. Research report issue 3. Sydney: Australia's National Research Organisation for Women's Safety. <https://www.anrows.org.au/publication/intimate-partner-violence-during-the-covid-19-pandemic-a-survey-of-women-in-australia/>
- Boxall H, Morgan A & Brown R 2020. *The prevalence of domestic violence among women during the COVID-19 pandemic*. Statistical Bulletin no. 28. Canberra: Australian Institute of Criminology. <https://www.aic.gov.au/publications/sb/sb28>
- Burgess A, Nguyen H, Chai W & Kelly S 2021. *Police-recorded crime trends in Victoria during the COVID-19 pandemic: Update to end of December 2020*. Brief no. 12. Melbourne: Crime Statistics Agency. <https://www.crimestatistics.vic.gov.au/research-and-evaluation/publications/police-recorded-crime-trends-in-victoria-during-the-covid-19-1>
- Capaldi DM, Knoble NB, Shortt JW & Kim HK 2012. A systematic review of risk factors for intimate partner violence. *Partner Abuse* 3(2): 231–280. <https://doi.10.1891/1946-6560.3.2.231>
- Dowling C & Morgan A 2019. Predicting repeat domestic violence: Improving police risk assessment. *Trends & issues in crime and criminal justice* no. 581. Canberra: Australian Institute of Criminology. <https://www.aic.gov.au/publications/tandi/tandi581>
- Dowling C, Morgan A, Boyd C & Voce I 2018. *Policing domestic violence: A review of the evidence*. Research Report no. 13. Canberra: Australian Institute of Criminology. <https://www.aic.gov.au/publications/rr/rr13>
- Freeman K & Leung F 2021. *Domestic violence in NSW in the wake of COVID-19: Update to December 2020*. Bureau Brief no. 154. Sydney: NSW Bureau of Crime Statistics and Research. [https://www.bocsar.nsw.gov.au/Pages/bocsar\\_publication/Pub\\_Summary/BB/BB154-Summary-Domestic-Violence-COVID-update-Dec2020.aspx](https://www.bocsar.nsw.gov.au/Pages/bocsar_publication/Pub_Summary/BB/BB154-Summary-Domestic-Violence-COVID-update-Dec2020.aspx)
- Graham LW, Sahay KM, Rizo CF, Messing JT & Macy RJ 2021. The validity and reliability of available intimate partner homicide and reassault risk assessment tools: A systematic review. *Trauma, Violence and Abuse* 22(1): 18–40. <https://doi.org/10.1177/1524838018821952>
- Green DM & Swets JA 1966. *Signal detection theory and psychophysics*. New York: Wiley & Sons
- Hosmer DW & Lemeshow S 2004. *Applied logistic regression*. New Jersey: John Wiley & Sons



- Janes H & Pepe MS 2009. Adjusting for covariate effects on classification accuracy using the covariate-adjusted receiver operating characteristics curve. *Biometrika* 96(2): 371–382. <https://doi.org/10.1093/biomet/asp002>
- Kebbell MR 2019. Risk assessment for intimate partner violence: How can the police assess risk? *Psychology, Crime & Law* 25(8): 829–846. <https://doi.org/10.1080/1068316X.2019.1597087>
- Kourti A et al. 2023. Domestic violence during the COVID-19 pandemic: A systematic review. *Trauma, Violence and Abuse* 24(7): 719–745. <https://doi.org/10.1177/15248380211038690>
- Lauria I, McEwan TE, Luebbers S, Simmons M & Ogloff JR 2017. Evaluating the Ontario Domestic Assault Risk Assessment in an Australian frontline police setting. *Criminal Justice and Behavior* 44(12): 1545–1558. <https://doi.org/10.1177/0093854817738280>
- Leung F & Trimboli L 2022. *Improving police risk assessment of intimate partner violence*. Crime and Justice Bulletin no. 244. Sydney: NSW Bureau of Crime Statistics and Research. [https://www.bocsar.nsw.gov.au/Pages/bocsar\\_publication/Pub\\_Summary/CJB/CJB244-Summary-Improving-police-risk-assessment-of-intimate-partner-violence.aspx](https://www.bocsar.nsw.gov.au/Pages/bocsar_publication/Pub_Summary/CJB/CJB244-Summary-Improving-police-risk-assessment-of-intimate-partner-violence.aspx)
- Mazerolle L et al. 2018. *Criminal justice responses to domestic and family violence: A rapid review of the evaluation literature: Final report*. Brisbane: University of Queensland. <https://espace.library.uq.edu.au/view/UQ:b915230>
- McEwan TE, Bateson S & Strand S 2017. Improving police risk assessment and management of family violence through a collaboration between law enforcement, forensic mental health and academia. *Journal of Criminological Research Policy and Practice* 3(2): 119–131. <https://doi.org/10.1108/JCRPP-01-2017-0004>
- McEwan TE, Shea D & Ogloff J 2018. The development of the VP-SAFVR. *Criminal Justice and Behaviour* 46(4): 590–607. <https://doi.org/10.1177/0093854818806031>
- Messing JT & Thaller J 2013. The average predictive validity of intimate partner violence risk assessment instruments. *Journal of Interpersonal Violence* 28(7): 1537–1558. <https://doi.org/10.1177/0886260512468250>
- Morgan A & Boxall H 2020. Social isolation, time spent at home, financial stress and domestic violence during the COVID-19 pandemic. *Trends & issues in crime and criminal justice* no. 609. Canberra: Australian Institute of Criminology. <https://doi.org/10.52922/ti04855>
- Morgan A, Boxall H & Payne JL 2022. Reporting to police by intimate partner violence victim-survivors during the COVID-19 pandemic. *Journal of Criminology* 55(3): 285–305. <https://doi.org/10.1177/26338076221094845>
- Muller CJ & MacLehose RF 2014. Estimating predicted probabilities from logistic regression: Different methods correspond to different target populations. *International Journal of Epidemiology* 43(3): 962–970. <https://doi.org/10.1093/ije/dyu029>
- Myhill A & Hohl K 2019. The ‘golden thread’: Coercive control and risk assessment for domestic violence. *Journal of Interpersonal Violence* 34(21–22): 4477–4497. <https://doi.org/10.1177/0886260516675464>



Payne JL, Morgan A & Piquero AR 2022. COVID-19 and social distancing measures in Queensland, Australia, are associated with short-term decreases in recorded violent crime. *Journal of Experimental Criminology* 18: 89–113. <https://doi.org/10.1007/s11292-020-09441-y>

Pfitzner N, Fitz-Gibbon K & True J 2020. *Responding to the 'shadow pandemic': Practitioner views on the nature of and responses to violence against women in Victoria, Australia during the COVID-19 restrictions*. Melbourne: Monash University. [https://bridges.monash.edu/articles/report/Responding\\_to\\_the\\_shadow\\_pandemic\\_practitioner\\_views\\_on\\_the\\_nature\\_of\\_and\\_responses\\_to\\_violence\\_against\\_women\\_in\\_Victoria\\_Australia\\_during\\_the\\_COVID-19\\_restrictions/12433517](https://bridges.monash.edu/articles/report/Responding_to_the_shadow_pandemic_practitioner_views_on_the_nature_of_and_responses_to_violence_against_women_in_Victoria_Australia_during_the_COVID-19_restrictions/12433517)

Queensland Government Statistician's Office 2021. *Domestic and family violence calls for police service: Research paper*. Brisbane: State of Queensland (Queensland Treasury). <https://www.qgso.qld.gov.au/statistics/theme/crime-justice/crime-justice-research/domestic-family-violence>

Ringland C 2018. *The Domestic Violence Safety Assessment Tool (DVSAT) and intimate partner repeat victimisation*. Crime and Justice Bulletin no. 213. Sydney: NSW Bureau of Crime Statistics and Research. [https://www.bocsar.nsw.gov.au/Pages/bocsar\\_publication/Pub\\_Summary/CJB/cjb213-The-Domestic-Violence-Safety-Assessment-Tool-DVSAT-and-intimate-partner-repeat-victimisation.aspx](https://www.bocsar.nsw.gov.au/Pages/bocsar_publication/Pub_Summary/CJB/cjb213-The-Domestic-Violence-Safety-Assessment-Tool-DVSAT-and-intimate-partner-repeat-victimisation.aspx)

Singh JP & Fazel S 2010. Forensic risk assessment: A metareview. *Criminal Justice and Behavior* 37(9): 965–988. <https://doi.org/10.1177/0093854810374274>

Spivak B, McEwan T, Luebbers S & Ogloff J 2021. Implementing evidence-based practice in policing family violence: The reliability, validity and feasibility of a risk assessment instrument for prioritising police response. *Policing and Society* 31(4): 483–502. <https://doi.org/10.1080/10439463.2020.1757668>

State of Victoria 2016. *Royal Commission into Family Violence: Report and recommendations*, vol. 3. Melbourne: State of Victoria. <http://rcfv.archive.royalcommission.vic.gov.au/Report-Recommendations.html>

van der Put CE, Gubbels J & Assink M 2019. Predicting domestic violence: A meta-analysis on the predictive validity of risk assessment tools. *Aggression and Violent Behavior* 47: 100–116. <https://doi.org/10.1016/j.avb.2019.03.008>

## Appendix

<b>Table A1: Additional covariates for logistic regression models predicting repeat domestic violence from Family Violence Risk Assessment Tool risk ratings (n=456)</b>				
	<b>Model 1 OR (95% CI)</b>	<b>Model 2 OR (95% CI)</b>	<b>Model 3 OR (95% CI)</b>	<b>Model 4 OR (95% CI)<sup>a</sup></b>
<b>Responses</b>				
Arrest (vs no arrest)	–	1.21 (0.24, 6.07)	0.49 (0.09, 2.79)	0.50 (0.08, 3.01)
Investigation—not charged (vs no investigation)	–	0.53 (0.20, 1.38)	0.84 (0.36, 1.98)	0.94 (0.41, 2.20)
Investigation—charged (vs no investigation)	–	0.49 (0.08, 2.88)	1.05 (0.16, 6.71)	1.33 (0.19, 9.17)
Any police response	0.72 (0.37, 1.40)	–	–	–
Service referral accepted	–	0.96 (0.51, 1.83)	0.87 (0.41, 1.83)	0.92 (0.45, 1.88)
<b>COVID-19 restrictions<sup>b</sup></b>				
Full COVID-19 restrictions (vs no COVID-19 restrictions)	1.23 (0.39, 3.81)	1.28 (0.41, 3.98)	1.85 (0.54, 6.30)	1.90 (0.54, 6.57)
Stage 1 easing (vs no COVID-19 restrictions)	0.69 (0.15, 3.08)	0.66 (0.15, 2.91)	0.94 (0.20, 4.43)	0.81 (0.17, 3.85)
Stage 2 easing (vs no COVID-19 restrictions)	1.42 (0.46, 4.41)	1.39 (0.45, 4.30)	1.73 (0.50, 60.2)	1.79 (0.51, 6.30)
Stage 3 easing (vs no COVID-19 restrictions)	0.67 (0.23, 2.00)	0.70 (0.29, 1.96)	0.77 (0.24, 2.46)	0.78 (0.24, 2.55)
Stage 4 easing (vs no COVID-19 restrictions)	0.36 (0.06, 2.07)	0.34 (0.06, 1.98)	0.54 (0.09, 3.39)	0.61 (0.10, 3.80)

a: Excludes 53 reports with missing victim self-assessed risk rating

b: Full COVID-19 restrictions in the ACT commenced shortly after the beginning of the observation period for this study (1 March 2020) on 16 March 2020. Stage 1 easing of these restrictions commenced on 8 May 2020. Stage 2 easing commenced on 29 May 2020. Stage 3 easing commenced on 10 August 2020. Stage 4 easing commenced on 2 December 2020, persisting beyond the end of the observation period (31 December 2020)

Source: ACT Policing 2021 [computer file]

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