



The Domestic Violence Safety Assessment Tool (DVSAT) and intimate partner repeat victimisation

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Aim: To examine the predictive ability of the Domestic Violence Safety Assessment Tool (DVSAT) in determining a victim's risk of intimate partner repeat victimisation.

Method: The study sample was 24,462 victims of intimate partner violence who were administered the DVSAT and recorded in the Central Referral Point (CRP) database between 1 January 2016 and 30 June 2016. Repeat victimisation was defined as experiencing a new domestic violence incident within 12 months of the index incident. The incident had to involve an intimate partner and result in a subsequent incident recorded in the CRP database. Two measures of repeat victimisation were defined: one included intimate partner related incidents overall (regardless of the type of incident); the other was limited to physical incidents of intimate partner violence, involving homicide, assault, sexual assault or robbery. Various predictors were examined, including the number of 'yes' responses to DVSAT items, with particular focus on 'yes' responses to 12 or more items, whether the victim had been involved in 2 or more DV incidents in the 6 months prior (a proxy for the repeat victim trigger), and being classified as 'at serious threat' (based on 12 or more 'yes' responses, the repeat victim trigger and/or an officer's professional judgement). Responses to individual DVSAT items were also examined. Predictive accuracy was assessed separately for female and male victims.

Results: Responding 'yes' to 12 or more items was associated with repeat victimisation but was a poor indicator in terms of discriminating those who experienced repeat victimisation from those who did not. The classification of 'at serious threat' was a better indicator of repeat victimisation than was responding 'yes' to 12 or more items, however, predictive accuracy was still poor. While some individual DVSAT items were predictors of repeat victimisation, many were weak predictors, and some, intended as indicators of increased risk of repeat victimisation, actually signalled a lower risk of this outcome.

Conclusion: This study highlights the importance of empirical validation when developing a risk assessment tool and provides evidence in support of further evaluation and review of the DVSAT.

Keywords: domestic violence, re-offending, risk assessment

INTRODUCTION

Domestic and family violence includes 'any behaviour, in an intimate or family relationship, which is violent, threatening, coercive or controlling, causing a person to live in fear' (NSW Ministry of Health, 2016, p. 2). The physical, psychological and social impacts of domestic and family violence are significant and pervasive (Bair-Merritt, Blackstone, & Feudtner, 2006; Campbell, 2002; Holt, Buckley, & Whelan, 2008; Howell, Barnes, Miller, & Graham-Bermann, 2016; Plichta, 2004).

The 2016 Personal Safety Survey conducted across Australia estimated that 17 per cent of women and 6 per cent of men had experienced violence and 23 per cent of women and 16 per cent of men had experienced emotional abuse¹ by a partner² since

the age of 15 (Australian Bureau of Statistics [ABS], 2017). Furthermore, it was estimated that over one in ten Australians aged 18 years and over (13%) had experienced abuse before the age of 15, with those who experienced physical abuse most commonly reporting that the perpetrator was a parent or step parent (ABS, 2017). In NSW in 2016 more than 29,000 incidents of domestic violence related assault were recorded by the NSW Police Force (Goh & Holmes, 2017) and over the period 2000 to 2014 30 per cent of all homicides (61% of all homicides with a female victim and 18% of all homicides with a male victim) were domestic violence related (NSW Domestic Violence Review Team, 2017).

In 2014, the NSW Government launched *It Stops Here* – a reform aimed at reducing the prevalence of domestic and family

violence (NSW Government, 2014). A key feature of that reform was the *Safer Pathway* program, 'a streamlined and integrated approach to safety assessment, referrals and service coordination for victims of domestic violence' (NSW Government, 2017). The focus of this study is on the risk assessment tool used in the program to identify the seriousness of the threat to a victim, the Domestic Violence Safety Assessment Tool (DVSAT; NSW Government, 2015a).

THE DOMESTIC VIOLENCE SAFETY ASSESSMENT TOOL (DVSAT)

The NSW Police Force has used the DVSAT state-wide since 1 July 2015; its use at every domestic violence incident attended by the NSW Police Force is mandatory. The DVSAT is a tool developed for police to identify the level of threat of future harm, particularly serious injury or death, to each victim of domestic violence, so that those at greatest risk can be prioritised and offered timely and appropriate support (NSW Government, 2015b).

The DVSAT consists of 30 questions and is made up of two parts: Part A and Part B. Part A is used only for victims in intimate partner relationships and contains 25 questions. The questions are based on research that has identified specific behaviours and circumstances commonly found in intimate partner homicides. There are five basic underlying themes:

1. The background/current environment of the offender/partner;
2. The threat of violence;
3. The dynamics of the specific relationship;
4. The presence of children;
5. Sexual behaviours/assault.

Part B is completed for all incidents of domestic violence, involving victims in both intimate and non-intimate relationships. The investigating officer provides responses to five questions relating to the level of fear felt by the victim, the reasons for those fears, whether there are children at risk of harm, and whether there are any additional factors that cause the officer to believe there is a threat or serious threat to the safety of the victim and/or children.

DVSAT responses are used to classify a victim as 'at serious threat'. Victims are assessed as being 'at serious threat' based on:

1. 12 or more 'yes' responses to the 25 questions in Part A (for victims in intimate partner relationships) or
2. An officer's professional judgement regarding the responses in Part B (for victims in intimate and non-intimate relationships).

In addition, prior to January 2017 the NSW Police Force standard for repeat victimisation was also used to identify those 'at serious

threat'. The repeat victim trigger resulted in all victims with two or more prior domestic violence related incidents being rated 'at serious threat'.³

Those victims not 'at serious threat' are considered 'at threat'. Via the Central Referral Point (CRP), victims who are deemed 'at serious threat' and reside in a *Safer Pathway* site⁴ are automatically referred to a Safety Action Meeting (SAM) where police and other agencies develop a safety action plan to reduce the risk of harm to the victim and assist them in obtaining support and referral to other specialist services (for further information see Trimboli, 2017). Female victims who do not reside in a *Safer Pathway* site are referred to the Women's Domestic Violence Court Advocacy Service (WDVCAS) where case co-ordination is strongly encouraged for each victim, but is not mandatory. Similarly, male victims are referred to Victims Services NSW which provides case coordination and referral to local support services, if available (Trimboli, 2017). Agnew-Pauley and Poynton (2017) reported that in the first 12 months of DVSAT implementation one in five victims of intimate partner violence and one in eight victims of non-intimate partner violence were classified as 'at serious threat'.

THE CURRENT STUDY

While the items included in the DVSAT are based on common risk factors identified in a review of Australian and international literature, including research in domestic violence homicides (NSW Government, 2015b), the predictive ability of the DVSAT has not been determined. It is currently unknown whether the DVSAT is effectively identifying those who are at greatest risk of future harm.

The main objective of the current study is to examine the predictive accuracy of the DVSAT in determining a victim's risk of intimate partner repeat victimisation. We do this by addressing the following questions:

1. Does the DVSAT discriminate effectively between those who do and do not experience repeat victimisation?
2. Is the threshold of 12 or more 'yes' responses, used to refer victims to SAMs, WDVCAS or Victim Services NSW, effective in predicting those who experience repeat victimisation? How does the threshold of 12 or more 'yes' responses compare with the criteria of (a) 2 or more prior DV incidents (a proxy for the repeat victim trigger) and (b) the classification of 'at serious threat' (based on 12 or more 'yes' responses, professional judgement and/or the repeat victim trigger) in predicting repeat victimisation?
3. What individual risk factors from the DVSAT are related to repeat victimisation?

These questions are examined separately for repeat victimisation overall (regardless of the type of incident) and for repeat victimisation involving physical violence, and for females and males.

METHOD

DATA SOURCE

Data for this study were extracted from the CRP database (maintained by Victim Services, NSW Department of Justice). The database contains information on all incidents, including non-criminal incidents,⁵ attended by NSW Police where domestic violence was flagged as an associated factor. Details include the gender, Indigenous status and postcode of the victim and information concerning the incident, such as the relationship between the victim and the alleged offender, and the type of incident (e.g., assault, breach AVO, domestic violence – no offence). Responses to DVSAT items are also included in the CRP database. The data extracted for this study relate to incidents recorded between 1 July 2015 and 30 June 2017, allowing a 6-month period of observation prior to and a 12-month period of observation post the index incident for those with an incident recorded between 1 January 2016 and 30 June 2016.

SAMPLE

The study sample consists of victims of intimate partner violence included in the CRP database, with an incident recorded between 1 January 2016 and 30 June 2016 ($N = 39,830$). In addition, the sample was restricted to those with identifiers recorded (e.g., name, Central Names Index (CNI), date of birth), who resided in New South Wales, and had responded 'yes' or 'no' to at least 12 of 25 DVSAT Part A items,⁶ and to one set of DVSAT responses per person per day ($N = 30,197$).

Where individuals were included more than once during the 6-month sampling period, one incident was randomly selected for inclusion in the sample.⁷

The final study sample included index incidents for 24,462 victims of intimate partner violence, 18,782 females and 5,680 males.

OUTCOME VARIABLE

Repeat victimisation was defined as whether or not a victim experienced a new domestic violence incident⁸ within 12 months of the index incident, involving an intimate partner and resulting in a subsequent incident recorded in the CRP database. Two measures of repeat victimisation were defined: one included intimate partner related incidents overall (regardless of the type of incident); the other was limited to physical incidents of intimate partner violence, involving homicide, assault, sexual assault or robbery (according to the incident type recorded).⁹

Repeat victimisation was identified by linking records within the CRP database using identifiers such as the first and last names of the victim, date of birth and CNI.¹⁰ The relationship type was used to limit incidents of repeat victimisation to those involving intimate partner violence. These incidents did not necessarily involve the same alleged offender as the index incident (however, in over

90% of subsequent incidents the alleged offender was the same as at the index incident).

EXPLANATORY VARIABLES

The data potentially available for each victim/incident included the following:

1. Victim socio-demographic characteristics:
 - a) Gender (male, female)
 - b) Age at incident (derived from date of birth and date of incident)
 - c) Indigenous status of victim (Aboriginal or Torres Strait Islander, other, unknown; derived from whether the victim was recorded as being Aboriginal or Torres Strait Islander on any incident)
 - d) Socio-economic disadvantage (in quartiles; derived from applying the Socio-Economic Index for Areas to the victim's postcode of residence; ABS, 2011a)
 - e) Remoteness of area of residency (major city, inner regional, outer regional, remote, and very remote; derived from applying the Accessibility Remoteness Index of Australia to the victim's postcode of residence; ABS, 2011b)
2. Incidents in the 6 months prior where victim was recorded as a victim of domestic violence (derived from linking incidents within the CRP database):
 - a) Number overall (0, 1, 2+)
 - b) Number where the relationship type was recorded as intimate partner (0, 1, 2+)
 - c) Number involving physical violence where the relationship type was recorded as intimate partner (0, 1+)
3. Type of incident (DV - no offence, physical violence (including assault, sexual assault, robbery, homicide), breach apprehended violence order (AVO), offences against the person, malicious damage, other (including break and enter, fire, fraud, GIC/receiving, intention offence, miscellaneous, public mischief))
4. DVSAT variables:
 - a) Responses to items 1 – 25, Part A (yes, no/unknown/missing/refused to answer)¹¹
 1. Has your partner ever threatened to harm or kill you?
 2. Has your partner ever used physical violence against you?
 3. Has your partner ever choked, strangled or suffocated you or attempted to do any of these things?
 4. Has your partner ever threatened or assaulted you with any weapon (including knives and/or other objects)?
 5. Has your partner ever harmed or killed a family pet or threatened to do so?

6. Has your partner ever been charged with breaching an apprehended domestic violence order?
7. Is your partner jealous towards you or controlling of you?
8. Is the violence or controlling behaviour becoming worse or more frequent?
9. Has your partner stalked, constantly harassed or texted/emailed you?
10. Does your partner control your access to money?
11. Has there been a recent separation (in the last 12 months) or is one imminent?
12. Does your partner or the relationship have financial difficulties?
13. Is your partner unemployed?
14. Does your partner have mental health problems (including undiagnosed conditions) and/or depression?
15. Does your partner have a problem with substance abuse such as alcohol or other drugs?
16. Has your partner ever threatened or attempted suicide?
17. Is your partner currently on bail or parole, or has served a time of imprisonment or has recently been released from custody in relation to offences of violence?
18. Does your partner have access to firearms or prohibited weapons?
19. Are you pregnant and/or do you have children who are less than 12 months apart in age?
20. Has your partner ever threatened or used physical violence toward you while you were pregnant?
21. Has your partner ever harmed or threatened to harm your children?
22. Is there any conflict between you and your partner regarding child contact or residency issues and/or current Family Court proceedings?
23. Are there children from a previous relationship present in the household?
24. Has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?
25. Has your partner ever been arrested for sexual assault?

- b) Number of 'yes' responses to Part A items (0-25; derived from items 1-25)
- c) 12 or more 'yes' responses to Part A items (yes, no; derived from items 1-25)
- d) Risk classification: whether classified as being 'at serious threat' or 'at threat'

STATISTICAL ANALYSIS

Box 1 shows the measures used to assess the predictive accuracy of the DVSAT and other criteria, key to the analyses undertaken:

- 'Sensitivity' (or the true positive rate) is a measure of the proportion of those who experienced repeat victimisation who were assessed as being at risk according to the specified threshold or criterion applied (i.e., the denominator includes all who experienced repeat victimisation)
- 'Specificity' (or the true negative rate) refers to the proportion of those who did not experience repeat victimisation who were not assessed as being at risk according to the threshold or criterion applied (i.e., the denominator includes all who did not experience repeat victimisation)
- 'Positive predictive value' (PPV) is the proportion of those assessed as being at risk who went on to experience repeat victimisation (the denominator includes all who were assessed as being at risk based on the threshold or criterion applied)
- 'Negative predictive value' (NPV) is the proportion of those assessed as not being at risk who did not go on to experience repeat victimisation (the denominator includes all who were not assessed as being at risk based on the threshold or criterion applied).

Box 1. Measures of predictive accuracy

		Repeat victimisation (observed/actual)		
		Yes	No	
Assessment (predicted)	Yes	True-positive <i>a</i>	False-positive <i>c</i>	Positive predictive value $a/(a+c)$
	No	False-negative <i>b</i>	True-negative <i>d</i>	Negative predictive value $d/(b+d)$
		Sensitivity $a/(a+b)$	Specificity $d/(c+d)$	

Another key measure used to assess predictive accuracy is the area under the receiver operating characteristic (ROC) curve (AUC; or c-statistic). The ROC curve is constructed by plotting sensitivity against specificity. AUC values generally range from .5 (no better than chance; no ability to distinguish individuals with vs. those without the outcome of interest) to 1.0 (perfect prediction/accuracy). AUCs of .8 or greater correspond to 'excellent' discrimination, .70 to .79 to 'acceptable' discrimination, and .60 to .69 'moderate' discrimination (Hosmer & Lemeshow, 2004). An alternative interpretation is to consider an AUC value of .56 a small effect, .64 a medium effect and .71 and above a large effect size (Rice & Harris, 2005).

Does the DVSAT discriminate effectively between those who do and do not experience repeat victimisation?

Our analyses begin with an examination of the relationship between the number of 'yes' responses to DVSAT Part A items and repeat victimisation. The ability of the DVSAT to discriminate between those who experienced repeat victimisation and those who did not was assessed using the AUC, with sensitivity plotted against specificity at each possible 'score' (i.e., number of 'yes' responses). PPVs and NPVs are also plotted for a range of possible thresholds relating to the number of 'yes' responses.

Is the threshold of 12 or more 'yes' responses effective in predicting those who experience repeat victimisation?

To answer this question we focus on the accuracy of the threshold of 12 or more 'yes' responses to DVSAT items as a predictor of repeat victimisation, comparing this criterion with (a) 2 or more DV incidents in the 6 months prior (a proxy for the repeat victim trigger) and (b) the classification of being 'at serious threat' (based on responding 'yes' to 12 or more DVSAT Part A items, professional judgement and/or the repeat victim trigger). For each criterion we present the relative risk (RR) of experiencing repeat victimisation, along with chi-square analyses to test whether any differences were statistically significant. In addition, we present the AUC, sensitivity, specificity, PPVs and NPVs. By way of illustration, the RR for responding 'yes' to 12 or more DVSAT items is the ratio of the probability of experiencing repeat victimisation in those with 12 or more 'yes' responses relative to the probability of repeat victimisation in those with less than 12 'yes' responses.

What individual risk factors from the DVSAT are related to repeat victimisation?

To identify factors related to an increased risk of repeat victimisation we first examine the bivariate relationships between responses to each DVSAT item and repeat victimisation. AUC values are presented as effect size measures, and chi-square analyses are used to determine whether there was a statistically significant difference in the rate of repeat victimisation between those who responded 'yes' to an item and those who did not. Following the examination of each item individually we constructed logistic regression models of repeat victimisation using items found in the bivariate analyses to be significantly associated with an increased risk of repeat victimisation. Items were added to the model using a forward selection method, and only those items found to be significantly related to an increase in the risk of repeat victimisation, after controlling for the effects of other items, were retained in each model. Odds ratios (ORs) for each item are presented and provide an indication of the importance of each item included in the model. In this study, an OR greater than 1 means that repeat victimisation is more likely for those who responded 'yes' compared to those who did not respond 'yes'; an OR less than 1 means that repeat victimisation is less likely. AUCs

and Hosmer-Lemeshow goodness of fit statistics¹² (Hosmer & Lemeshow, 2004) are presented for each model.

All analyses were conducted separately for repeat victimisation overall and for repeat victimisation involving physical violence, and for female and male victims.

RESULTS

SAMPLE CHARACTERISTICS

Characteristics of the sample are presented in Table 1. Of the 18,782 female victims included in the study, the median age was 33 years, 9.7 per cent were Aboriginal or Torres Strait Islander and over two-thirds resided in a major city. For the majority of victims the index incident was recorded as 'DV - no offence' (60.4%) and 21.7 per cent of incidents involved physical violence (97% of these incidents were for assault). In the 6 months prior to the index incident, 29.1 per cent of female victims had at least one incident where they were recorded as a victim, 11.4 per cent had two or more incidents and 5.2 per cent had at least one incident for an intimate partner related incident involving physical violence.

Of the 5,680 male victims included in the study, the median age was 38 years, 5.8 per cent were Aboriginal or Torres Strait Islander and 70.2 per cent resided in a major city. Almost three-quarters of male victims had an index incident that was recorded as 'DV - no offence' and 16.0 per cent of incidents involved physical violence (over 99% of these were for assault). In terms of incidents in the 6 months prior, 18.8 per cent of male victims had at least one incident where they were recorded as a victim, 6.0 per cent had two or more, and 2.6 per cent had an incident for an intimate partner related incident involving physical violence.

RATES OF INTIMATE PARTNER REPEAT VICTIMISATION

Overall, 35.0 per cent of females and 22.8 per cent of males experienced a subsequent incident of intimate partner violence within 12 months of the index incident; 9.5 per cent of females and 5.1 per cent of males experienced a subsequent incident of intimate partner violence that involved physical violence (i.e., homicide, assault, sexual assault, robbery).

Does the DVSAT discriminate effectively between those who do and do not experience repeat victimisation?

The average number of 'yes' responses to the 25 DVSAT items was 4.6 (SD = 4.2) for females and 2.7 (SD = 3.1) for males. The number of 'yes' responses was highly skewed with 1 in 5 females and 1 in 3 males not responding 'yes' to any item. Distributions of the number of 'yes' responses are presented in Figure 1 (females) and Figure 2 (males), with separate bars showing the number of victims who experienced repeat victimisation

Table 1. Sample characteristics

Characteristics	Females (N = 18,782)		Males (N = 5,680)	
	n	%	n	%
Age at incident report (years)				
16-24	4,074	21.7	802	14.1
25-34	6,339	33.8	1,553	27.3
35-44	5,052	26.9	1,720	30.3
45-54	2,374	12.6	1,019	17.9
55+	784	4.2	523	9.2
Missing	159	0.8	63	1.1
Indigenous status				
Not Aboriginal or Torres Strait Islander	16,969	90.4	5,351	94.2
Aboriginal or Torres Strait Islander	1,813	9.7	329	5.8
Socioeconomic disadvantage for victim's postcode				
Q1 - Most disadvantage	5,469	29.1	1,554	27.4
Q2	5,308	28.3	1,580	27.8
Q3	4,789	25.5	1,415	24.9
Q4 - Least disadvantage	2,956	15.7	1,055	18.6
Missing/unknown	260	1.4	76	1.3
Remoteness area for victim's postcode				
Major cities	12,684	67.5	3,988	70.2
Inner regional	4,300	22.9	1,168	20.6
Outer regional	1,329	7.1	393	6.9
Remote	154	0.8	43	0.8
Very remote	95	0.5	22	0.4
Missing/unknown	220	1.2	66	1.2
Type of incident				
DV - no offence	11,339	60.4	4,178	73.6
Physical violence (assault, sexual assault, robbery, homicide)	4,068	21.7	906	16.0
Breach AVO	1,431	7.6	183	3.2
Offences against the person	919	4.9	92	1.6
Malicious damage	560	3.0	210	3.7
Other	465	2.5	111	2.0
Number of incidents in prior 6 months				
0	13,329	71.0	4,616	81.3
1	3,321	17.7	726	12.8
2+	2,132	11.4	338	6.0
Number of incidents in prior 6 months, intimate partner relationship				
0	13,924	74.1	4,750	83.6
1	3,058	16.3	639	11.3
2+	1,800	9.6	291	5.1
Number of incidents in prior 6 months, intimate partner relationship involving physical violence				
0	17,803	94.8	5,531	97.4
1+	979	5.2	149	2.6

Note. Q = quartile; DV = domestic violence; AVO = apprehended violence order.

and the number who did not. Further, bars for repeat victimisation show the number of victims who experienced repeat victimisation involving physical violence. The distributions of 'yes' responses are overlapping for those who experienced repeat victimisation and those who did not. As shown in Figure 1, the number of female victims who did not experience repeat victimisation dropped substantially from 0 to 1 'yes' responses and decreased steadily as the number of 'yes' responses increased from 1 to 14. In contrast, while the number of female victims who experienced repeat victimisation also decreased considerably from 0 to 1 'yes' responses, and further decreased from 1 to 14, those who experienced repeat victimisation were more evenly distributed across the scale from 1 to 14 'yes' responses; as the number of 'yes' responses increased so too did the number of female victims who experienced repeat victimisation relative to those who did not.

The distribution for males shown in Figure 2, consistent with the distribution for females, as the number of 'yes' responses increased so too did the number of male victims who experienced repeat victimisation relative to those who did not.

The sensitivity, specificity, PPV and NPV were calculated for the number of 'yes' responses. Figures 3 to 6 display the trade-off between these measures of predictive accuracy for repeat victimisation overall and repeat victimisation involving physical violence, for females (Figures 3 and 4) and males (Figures 5 and 6), respectively. Corresponding AUC values (derived from calculating the area under the plot of sensitivity vs. specificity) are also included in the figures. It can be seen that sensitivity (the proportion of those who experienced repeat victimisation who were assessed as being at risk according to the threshold applied) decreased rapidly as the number of 'yes' responses increased and that AUCs differed little from chance (AUC = .5 indicated by the dashed diagonal line included in each of the figures). For females, AUCs for repeat victimisation overall and repeat victimisation involving

Figure 1. Number of 'yes' responses and intimate partner repeat victimisation: Females (N = 18,782)

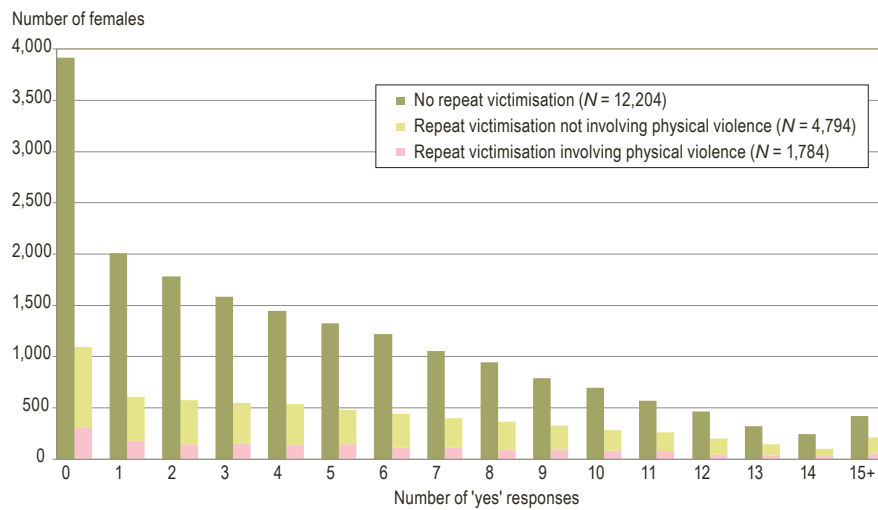
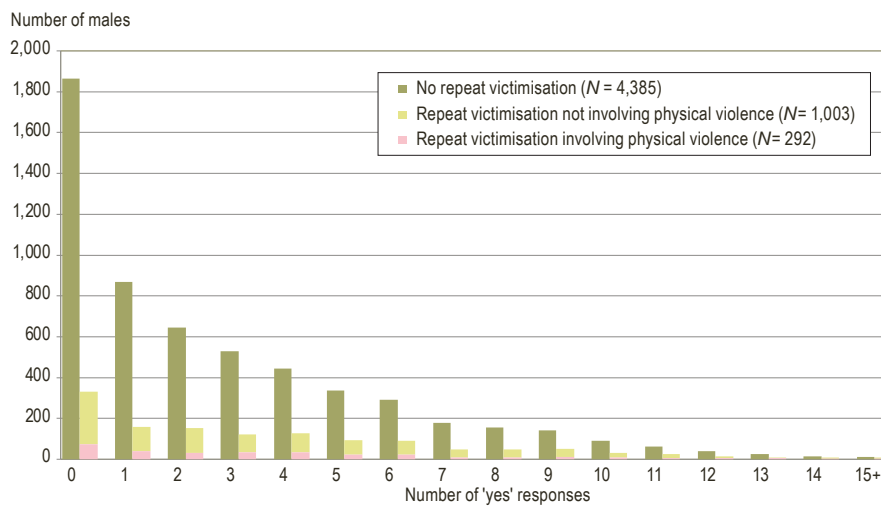


Figure 2. Number of 'yes' responses and intimate partner repeat victimisation: Males (N = 5,680)



physical violence were .567 (95% CI (.559, .576)) and .544 (95% CI (.530, .558)) respectively. For males, AUCs for repeat victimisation overall and repeat victimisation involving physical violence were .586 (95% CI (.568, .603)) and .569 (95% CI (.536, .602)) respectively. Thus, depending on the measure of repeat victimisation, and whether the victim was female or male, there was a probability of between .544 and .586 that a randomly selected victim who experienced repeat victimisation would have a higher number of 'yes' responses than a randomly selected victim who did not experience repeat victimisation. By commonly accepted standards, these AUC values can only be considered small effect sizes (Rice & Harris, 2005). The number of 'yes' responses was not effective in discriminating between victims who experienced repeat victimisation and those who did not.

PPVs (indicating the percentage of those at a specified threshold who experienced repeat victimisation) did generally

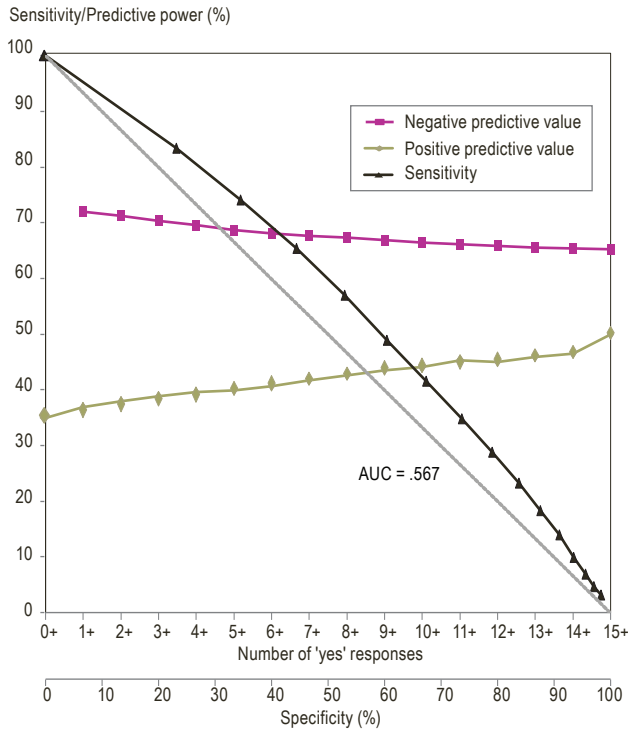
increase as the number of 'yes' responses increased (as also shown in Figures 1 and 2). For females, in relation to repeat victimisation overall, PPVs increased from 35 per cent (the overall rate of repeat victimisation) to 50 per cent as the threshold increased while NPVs (indicating the percentage of those below a specified threshold who did not experience repeat victimisation) decreased from 72 per cent to 65 per cent as the threshold increased (Figure 3). In relation to repeat victimisation involving physical violence PPVs increased from 9.5 per cent to 13.3 per cent as the threshold increased from 0 to 15 or more 'yes' responses, while NPVs decreased only slightly from 92.2 per cent to 90.6 per cent (Figure 4). For males, PPVs increased steadily as the threshold increased from 0 to 13 or more 'yes' responses (from 22.8% to 42.9%), and increased more rapidly from 13 to 15 or more 'yes' responses (estimates likely to be unreliable due to the small number of male victims who responded 'yes' to 13 or more items); NPVs decreased from 82.3 to 77.3 per cent (Figure 5). In relation to repeat victimisation involving physical violence, PPVs increased from 5.1 per cent (when no threshold was applied) to 9.1 per cent when a threshold of 15 or more 'yes' responses was applied; NPVs only declined slightly, from 96.1 to 94.9 per cent (Figure 6).

In the section that follows measures relating specifically to a threshold of 12 or more 'yes' responses are presented.

Is the threshold of 12 or more 'yes' responses effective in predicting those who experience repeat victimisation?

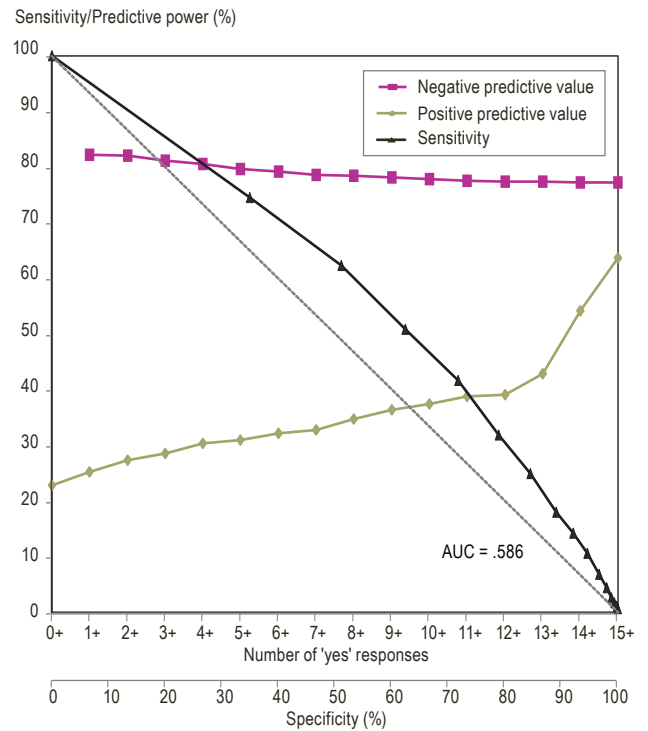
During the study period, responding 'yes' to 12 or more DVSA Part A items, professional judgement and/or the repeat victim trigger (based on 2 or more DV incidents in the 6 months prior) were used to classify victims as being 'at serious threat'. In this section we examine the relationships between responding 'yes' to 12 or more items, being a victim of 2 or more DV incidents in the 6 months prior (a proxy for the repeat victim trigger), being classified 'at serious threat' and repeat victimisation. Relatively few victims included in the sample were classified as being 'at serious threat' without either responding 'yes' to 12 or more items or having 2 or more DV incidents in the 6 months prior (16% of females and 21% of males classified as 'at serious threat'

Figure 3. Area under the curve (AUC) and other accuracy statistics for predictions of intimate partner repeat victimisation based on the number of 'yes' responses to DVSAT Part A items: Females



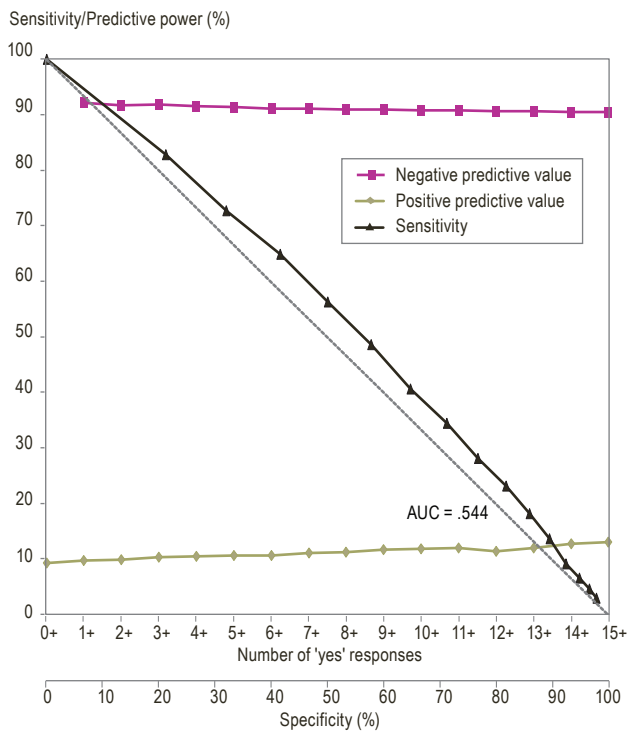
Note. AUC = Area Under the Curve. Sensitivity is plotted against specificity, with each triangle marker corresponding to values at each cutpoint (0+ to 15+ 'yes' responses). Positive and negative predictive values are plotted against the number of 'yes' responses. The dashed line on the diagonal corresponds to an AUC = .5.

Figure 5. Area under the curve (AUC) and other accuracy statistics for predictions of intimate partner repeat victimisation based on the number of 'yes' responses to DVSAT Part A items: Males



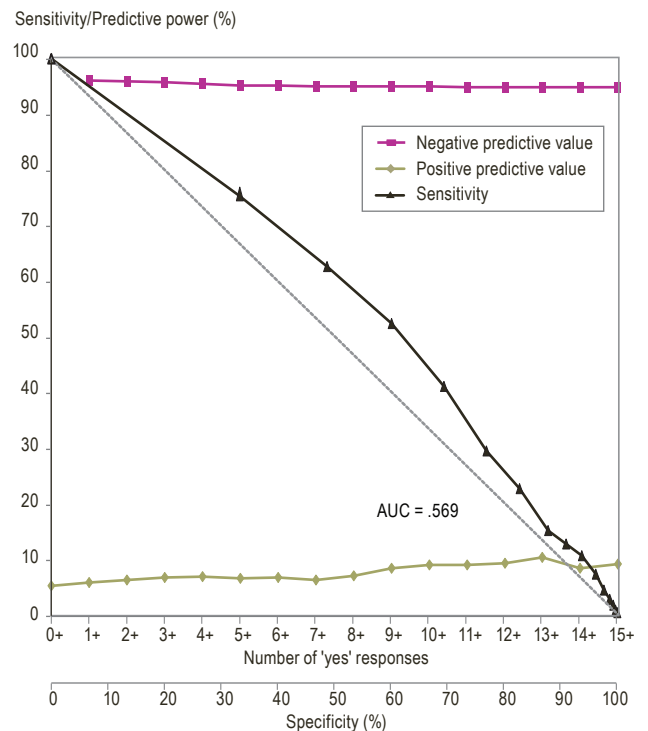
Note. AUC = Area Under the Curve. Sensitivity is plotted against specificity, with each triangle marker corresponding to values at each cutpoint (0+ to 15+ 'yes' responses). Positive and negative predictive values are plotted against the number of 'yes' responses. The dashed line on the diagonal corresponds to an AUC = .5.

Figure 4. Area under the curve (AUC) and other accuracy statistics for predictions of intimate partner repeat victimisation involving physical violence based on the number of 'yes' responses to DVSAT Part A items: Females



Note. AUC = Area Under the Curve. Sensitivity is plotted against specificity, with each triangle marker corresponding to values at each cutpoint (0+ to 15+ 'yes' responses). Positive and negative predictive values are plotted against the number of 'yes' responses. The dashed line on the diagonal corresponds to an AUC = .5.

Figure 6. Area under the curve (AUC) and other accuracy statistics for predictions of intimate partner repeat victimisation involving physical violence based on the number of 'yes' responses to DVSAT Part A items: Males



Note. AUC = Area Under the Curve. Sensitivity is plotted against specificity, with each triangle marker corresponding to values at each cutpoint (0+ to 15+ 'yes' responses). Positive and negative predictive values are plotted against the number of 'yes' responses. The dashed line on the diagonal corresponds to an AUC = .5.

responded ‘yes’ to fewer than 12 items and had fewer than 2 DV incidents in the 6 months prior; see Table A1 included in the Appendix). While the classification of these victims as being ‘at serious threat’ could be considered to have been based on professional judgement it is not possible to report on all victims who would have been classified as being ‘at serious threat’ based on professional judgement alone as this information is not recorded.

Measures of predictive accuracy (AUC, sensitivity, specificity, PPV, NPV) relating to 12 or more ‘yes’ responses, 2 or more DV incidents in the 6 months prior, and being classified as being ‘at serious threat’ (based on 12 or more ‘yes’ responses to DVSAT Part A items, professional judgement and/or the repeat victim trigger) as indicators of future repeat victimisation are presented in Table 2 (for females and males). The first panel presents the number and percentage of the sample who met the specified criteria, the second panel shows measures of predictive accuracy relating to repeat victimisation involving any type of intimate partner violence, and the third panel shows measures of predictive accuracy relating to repeat victimisation involving physical violence. In the sections that follow we describe results from Table 2 and present relative risks (RRs) related to the criteria.

12 or more ‘yes’ responses

Almost 8 per cent of female victims responded ‘yes’ to 12 or more DVSAT items. While the rate of repeat victimisation overall in females who responded ‘yes’ to 12 or more items (corresponding to the PPV) was higher than the rate in those who responded ‘yes’ to fewer than 12 items (45.0% vs. 34.2%, RR = 1.32, *p* < .001), it is worth noting that over one-third of those who responded ‘yes’ to fewer than 12 items went on to experience repeat victimisation (two-thirds did not experience repeat victimisation, corresponding

to the NPV). Rates of repeat victimisation involving physical violence were also higher for those who responded ‘yes’ to 12 or more items than those who responded ‘yes’ to fewer than 12 items, however the difference in rates was relatively small (11.5% vs. 9.3%, RR = 1.23, *p* < .001). The threshold of 12 or more ‘yes’ responses was generally a poor indicator of repeat victimisation, with AUC values close to .5, indicating poor discrimination. Looking at sensitivity values for females it can be seen that of the females who experienced repeat victimisation involving any type of intimate partner violence, only 10.0 per cent had responded ‘yes’ to 12 or more items. Put another way, 90.0 per cent of those who experienced repeat victimisation had responded ‘yes’ to fewer than 12 items. Similarly, only 9.4 per cent of the female victims who experienced repeat victimisation involving physical violence had responded ‘yes’ to 12 or more items. The vast majority (93%) of female victims who did not experience repeat victimisation answered ‘yes’ to fewer than 12 items (specificity for repeat victimisation overall and involving physical violence).

Only 1.5 per cent of male victims responded ‘yes’ to 12 or more DVSAT items. Those who responded ‘yes’ to 12 or more items had higher rates of repeat victimisation overall than those who responded ‘yes’ to fewer than 12 items (39.1% vs. 22.6%, RR = 1.73, *p* < .001); more than one in five of those who responded ‘yes’ to fewer than 12 items experienced repeat victimisation (NPV = 77.5%). The difference in rates of repeat victimisation involving physical violence was not statistically significant (9.2% vs. 5.1%, RR = 1.81, *p* = .090). Only 2.6 per cent of males who went on to experience repeat victimisation involving any type of intimate partner violence and 2.7 per cent of those who experienced repeat victimisation involving physical violence had responded ‘yes’ to 12 or more items (sensitivity). Specificity values show that close to 99 per cent of those who did not experience repeat victimisation responded ‘yes’ to fewer than 12 items.

Table 2. Measures of predictive accuracy: Responding ‘yes’ to 12 or more items, 2 or more DV incidents in 6 months prior, ‘at serious threat’ and rates of intimate partner repeat victimisation within 12 months

	Sample		Repeat victimisation, overall					Repeat victimisation, involving physical violence				
	<i>n</i>	%	AUC (95% CI)	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	AUC (95% CI)	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Females (N = 18,782)												
12+ ‘yes’ responses	1,455	7.7	.517 (.513, .521)	10.0	93.4	45.0	65.8	.509 (.502, .516)	9.4	92.4	11.5	90.7
2+ DV incidents in 6 months prior	2,132	11.4	.566 (.561, .571)	19.9	93.3	61.5	68.4	.560 (.550, .570)	22.3	89.8	18.6	91.7
‘at serious threat’	3,783	20.1	.572 (.566, .579)	29.6	84.9	51.4	69.1	.557 (.546, .568)	30.4	80.9	14.4	91.7
Males (N = 5,680)												
12+ ‘yes’ responses	87	1.5	.507 (.502, .512)	2.6	98.8	39.1	77.5	.506 (.497, .516)	2.7	98.5	9.2	94.9
2+ DV incidents in 6 months prior	338	6.0	.553 (.543, .562)	14.1	96.4	53.9	79.2	.566 (.544, .589)	18.5	94.7	16.0	95.5
‘at serious threat’	491	8.6	.560 (.549, .571)	17.8	94.1	47.1	79.5	.570 (.546, .594)	21.9	92.1	13.0	95.6

Note. AUC = Area Under the Curve; CI = confidence interval; PPV = positive predictive value; NPV = negative predictive value; DV = domestic violence.

2 or more DV incidents in the 6 months prior

More than one in ten (11.4%) female victims had been involved in 2 or more domestic violence incidents in the 6 months prior to the index incident. These victims were twice as likely to experience repeat victimisation overall (61.5% vs. 31.6%, RR = 1.95, $p < .001$) and more than twice as likely to experience repeat victimisation involving physical violence (18.6% vs. 8.3%, RR = 2.24, $p < .001$) than victims with fewer than 2 DV incidents in the 6 months prior. Approximately one-fifth of female victims who went on to experience repeat victimisation had 2 or more DV incidents in the 6 months prior (sensitivity 19.9% for repeat victimisation overall, and 22.3% for repeat victimisation involving physical violence). AUCs were .566 for repeat victimisation overall and .560 for repeat victimisation involving physical violence.

In relation to prior DV incidents, 6.0 per cent of male victims had been involved (as a victim) in 2 or more incidents in the 6 months prior. Rates of repeat victimisation overall were more than twice as high for those with 2 or more DV incidents in the 6 months prior than those with fewer than 2 prior incidents (53.9% vs. 20.8%, RR = 2.58, $p < .001$), and rates of repeat victimisation involving physical violence were more than three times higher (16.0% vs. 4.5%, RR = 3.59, $p < .001$). Of those who went on to experience repeat victimisation, 14.1 per cent had 2 or more DV incidents in the 6 months prior to the index incident (sensitivity); of those who experienced repeat victimisation involving physical violence, nearly one in five had 2 or more DV incidents in the 6 months prior (sensitivity = 18.5%). AUCs for males were similar to those for females, .553 for repeat victimisation overall and .566 for repeat victimisation involving physical violence.

'At serious threat'

Based on 12 or more 'yes' responses to DVSA Part A items, professional judgement and/or the repeat victim trigger, one in five female victims were classified as being 'at serious threat'. Those classified as 'at serious threat' were more likely to experience repeat victimisation overall (51.4% vs. 30.9%, RR = 1.66, $p < .001$) and repeat victimisation involving physical violence (14.4% vs. 8.3%, RR = 1.73, $p < .001$) than those 'at threat'. That over 30 per cent of those who were not classified as being 'at serious threat' went on to experience repeat victimisation is worth noting (approximately 70 per cent did not experience repeat victimisation as indicated by the NPV). Approximately 30 per cent of females who experienced repeat victimisation overall and 30 per cent who experienced repeat victimisation involving physical violence were classified as being 'at serious threat' (sensitivity; i.e., 70 per cent of those who went on to experience repeat victimisation were not classified as being 'at serious threat'). Specificity values suggest that 84.9 per cent of those who did not experience repeat victimisation and 80.9 per cent of those who did not experience repeat victimisation involving physical violence were not classified

as being 'at serious threat' (i.e., they were classified as being 'at threat'). AUCs were higher for risk classification than for 12 or more 'yes' responses and similar to AUCs for 2 or more prior DV incidents (AUC = .572 for repeat victimisation overall and AUC = .557 for repeat victimisation involving physical violence).

Almost 9 per cent of male victims were classified as being 'at serious threat'. Those classified as 'at serious threat' were more than twice as likely as those 'at threat' to experience repeat victimisation overall (47.1% vs. 20.5%, RR = 2.29, $p < .001$) and repeat victimisation involving physical violence (13.0% vs. 4.4%, RR = 2.97, $p < .001$). For males, 17.8 per cent of those who experienced repeat victimisation overall and 21.9 per cent who experienced repeat victimisation involving physical violence were classified as being 'at serious threat' (i.e., approximately 80 per cent of those who went on to experience repeat victimisation were not classified as being 'at serious threat'). Less than 6 per cent of those who did not experience repeat victimisation, and 8 per cent of those who did not experience repeat victimisation involving physical violence were classified as being 'at serious threat' (i.e., 94.1% and 92.1% of those who did not experience repeat victimisation overall and repeat victimisation involving physical violence were classified as not being 'at serious threat'; specificity). AUCs for males were similar to those for females, .560 for repeat victimisation overall and .570 for repeat victimisation involving physical violence.

What individual risk factors from the DVSA are related to repeat victimisation?

Rates of intimate partner repeat victimisation by individual DVSA item responses for females are presented in Table 3. The panel with the heading 'Sample' shows the percentage of the sample who responded 'yes' and 'no' (including 'unknown', 'refused', and missing responses) to each item. The next panel of the table with the heading 'Overall' shows rates of repeat victimisation involving any type of intimate partner violence for those who responded 'yes' and 'no', chi-square and p values to indicate whether there was a statistically significant difference in rates for those who responded 'yes' and 'no', and AUC values as measures of effect size. For 19 of the 25 items, rates of repeat victimisation were higher for those who responded 'yes', although all with small effect sizes. The strongest predictors of repeat victimisation overall were question 13 'Is your partner unemployed?' (AUC = .561, 95% CI (.554, .568)), question 17 'Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?' (AUC = .552, 95% CI (.546, .558)) and question 15 'Does your partner have a problem with substance abuse such as alcohol or other drugs?' (AUC = .551, 95% CI (.544, .558)). For one item, rates of repeat victimisation overall within 12 months were significantly lower for those who responded 'yes' (question 18: 'Does your partner have access to firearms or prohibited weapons?'; 30.7% vs. 35.2%, $p < .001$).

Table 3. Responses to DVSAT items and rates of intimate partner repeat victimisation within 12 months: Females

DVSAT item		Sample (N = 18,782)	Repeat victimisation							
			Overall				Physical violence			
			%	%	χ^2	p	AUC (95% CI)	%	χ^2	p
1. Has your partner ever threatened to harm or kill you?	No	68.5	33.1	65.50	< .001	.529 (.522, .536)	9.0	12.99	< .001	.521 (.509, .532)
	Yes	31.5	39.2				10.6			
2. Has your partner ever used physical violence against you?	No	57.1	32.2	84.83	< .001	.535 (.527, .542)	8.3	39.40	< .001	.539 (.526, .551)
	Yes	43.0	38.7				11.0			
3. Has your partner ever choked, strangled, suffocated you or attempted to do any of these things?	No	86.3	34.5	16.90	< .001	.511 (.506, .516)	9.1	20.26	< .001	.519 (.510, .528)
	Yes	13.7	38.6				11.9			
4. Has your partner ever threatened or assaulted you with any weapon (including knives and/or objects)?	No	90.6	34.5	18.68	< .001	.510 (.505, .514)	9.5	0.47	.493	.503 (.495, .510)
	Yes	9.4	39.7				10.0			
5. Has your partner ever harmed or killed a family pet or threatened to do so?	No	96.5	34.9	2.98	.084	.502 (.500, .505)	9.5	0.65	.420	.498 (.494, .502)
	Yes	3.5	38.2				8.6			
6. Has your partner ever been charged with breaching an apprehended domestic violence order?	No	86.6	32.8	253.06	< .001	.541 (.536, .547)	8.7	79.64	< .001	.538 (.528, .547)
	Yes	13.4	49.1				14.4			
7. Is your partner jealous towards or controlling of you?	No	60.8	33.1	48.78	< .001	.526 (.519, .533)	9.0	7.17	.007	.516 (.504, .528)
	Yes	39.2	38.0				10.2			
8. Is the violence or controlling behaviour becoming worse or more frequent?	No	67.9	33.9	22.58	< .001	.517 (.510, .524)	9.5	0.10	.751	.502 (.490, .513)
	Yes	32.1	37.4				9.6			
9. Has your partner stalked or constantly harassed or texted/ e-mailed you?	No	77.0	34.1	25.70	< .001	.516 (.510, .523)	9.9	11.35	< .001	.482 (.473, .492)
	Yes	23.0	38.2				8.2			
10. Does your partner control your access to money?	No	90.2	34.7	7.57	.006	.506 (.502, .511)	9.4	4.35	.037	.508 (.500, .515)
	Yes	9.8	37.9				10.9			
11. Has there been a recent separation (in last 12 months) or is one imminent?	No	59.8	33.4	31.95	< .001	.521 (.514, .529)	9.5	0.01	.929	.500 (.488, .511)
	Yes	40.2	37.4				9.5			
12. Does your partner or the relationship have financial difficulties?	No	76.7	33.2	93.43	< .001	.531 (.525, .538)	9.0	15.81	< .001	.521 (.510, .532)
	Yes	23.3	41.1				11.0			
13. Is your partner unemployed?	No	69.3	31.0	302.19	< .001	.561 (.554, .568)	7.8	134.64	< .001	.567 (.555, .579)
	Yes	30.7	44.1				13.2			
14. Does your partner have mental health problems (including undiagnosed conditions) and/or depression?	No	74.9	33.6	49.66	< .001	.523 (.517, .530)	9.2	4.87	.027	.512 (.501, .523)
	Yes	25.1	39.3				10.3			
15. Does your partner have a problem with substance abuse such as alcohol or other drugs?	No	64.5	31.4	195.23	< .001	.551 (.544, .558)	8.2	71.81	< .001	.551 (.538, .563)
	Yes	35.5	41.6				11.9			
16. Has your partner ever threatened or attempted suicide?	No	84.6	34.4	16.41	< .001	.511 (.506, .517)	9.5	0.19	.663	.498 (.489, .507)
	Yes	15.4	38.3				9.3			
17. Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?	No	83.2	32.2	334.80	< .001	.552 (.546, .558)	8.5	110.76	< .001	.549 (.538, .559)
	Yes	16.8	49.2				14.5			
18. Does your partner have access to firearms or prohibited weapons?	No	96.2	35.2	6.17	.013	.496 (.494, .499)	9.6	6.65	.010	.494 (.490, .498)
	Yes	3.8	30.7				6.7			
19. Are you pregnant and/or do you have children who are less than 12 months apart in age?	No	92.8	34.3	59.30	< .001	.515 (.511, .519)	9.1	54.76	< .001	.524 (.516, .532)
	Yes	7.2	44.6				15.2			
20. Has your partner ever threatened or used physical violence towards you while you were pregnant?	No	93.4	34.5	26.59	< .001	.510 (.506, .514)	9.2	22.40	< .001	.515 (.508, .522)
	Yes	6.6	41.8				13.3			
21. Has your partner ever harmed or threatened to harm your children?	No	95.4	35.0	0.06	.801	.500 (.497, .504)	9.7	14.30	< .001	.490 (.486, .494)
	Yes	4.6	35.4				5.8			
22. Is there any conflict between you and your partner regarding child contact or residency issues and/or current Family Court proceedings?	No	90.3	34.8	1.93	.165	.503 (.499, .507)	9.8	24.03	< .001	.482 (.476, .488)
	Yes	9.3	36.5				6.2			
23. Are there children from a previous relationship present in the household?	No	87.7	34.0	58.25	< .001	.519 (.514, .524)	9.3	4.86	.028	.509 (.501, .517)
	Yes	12.3	42.1				10.8			
24. Has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?	No	95.6	34.9	1.02	.312	.502 (.498, .505)	9.6	4.24	.039	.495 (.490, .499)
	Yes	4.4	36.7				7.5			
25. Has your partner ever been arrested for sexual assault?	No	99.0	35.0	0.65	.420	.501 (.499, .502)	9.5	0.01	.914	.500 (.498, .503)
	Yes	1.0	37.8				9.7			

Note. DVSAT=Domestic Violence Safety Assessment Tool; AUC = Area under the Curve; CI = confidence interval. 'No' includes 'unknown', 'refused to answer', and missing responses. For each item, with the exception of question 14, fewer than 5 per cent of the sample had unknown, refused or missing responses. Light olive shading corresponds to items where rates of repeat victimisation were significantly higher for those who responded 'yes' compared with those who didn't respond 'yes'. Pink shading corresponds to items where rates of repeat victimisation were significantly lower for those who responded 'yes' compared with those who didn't respond 'yes'.

Table 4. Responses to DVSA items and rates of intimate partner repeat victimisation within 12 months: Males

DVSA item		Sample (N = 5,680)	Repeat victimisation							
			Overall				Physical violence			
			%	%	χ^2	p	AUC (95% CI)	%	χ^2	p
1. Has your partner ever threatened to harm or kill you?	No	85.2	21.4	35.32	< .001	.533 (.521, .545)	5.0	2.14	.143	.516 (.493, .538)
	Yes	14.8	30.7				6.2			
2. Has your partner ever used physical violence against you?	No	74.2	20.4	52.77	< .001	.550 (.536, .565)	4.3	22.85	< .001	.563 (.534, .591)
	Yes	25.8	29.7				7.5			
3. Has your partner ever choked, strangled, suffocated you or attempted to do any of these things?	No	97.3	22.6	5.12	.024	.506 (.500, .511)	5.1	0.00	.991	.500 (.490, .510)
	Yes	2.7	30.3				5.2			
4. Has your partner ever threatened or assaulted you with any weapon (including knives and/or objects)?	No	91.7	22.0	21.91	< .001	.521 (.511, .530)	5.0	2.08	.150	.512 (.494, .530)
	Yes	8.4	31.4				6.5			
5. Has your partner ever harmed or killed a family pet or threatened to do so?	No	99.3	22.7	6.04	.014	.503 (.500, .506)	5.1	0.00	.973	.500 (.495, .505)
	Yes	0.7	39.5				5.3			
6. Has your partner ever been charged with breaching an apprehended domestic violence order?	No	95.8	21.8	67.55	< .001	.526 (.518, .534)	4.9	17.24	< .001	.525 (.508, .542)
	Yes	4.2	44.7				11.0			
7. Is your partner jealous towards or controlling of you?	No	79.0	21.4	22.81	< .001	.531 (.517, .544)	5.0	1.24	.265	.514 (.489, .539)
	Yes	21.0	27.9				5.8			
8. Is the violence or controlling behaviour becoming worse or more frequent?	No	83.3	21.6	22.05	< .001	.528 (.515, .540)	5.0	0.69	.406	.509 (.486, .532)
	Yes	16.7	28.6				5.7			
9. Has your partner stalked or constantly harassed or texted/ e-mailed you?	No	87.5	22.0	13.65	< .001	.519 (.508, .530)	5.3	3.58	.059	.481 (.464, .498)
	Yes	12.5	28.2				3.7			
10. Does your partner control your access to money?	No	96.7	22.7	1.48	.224	.503 (.498, .509)	5.1	0.03	.868	.501 (.490, .512)
	Yes	3.3	26.5				5.4			
11. Has there been a recent separation (in last 12 months) or is one imminent?	No	69.7	21.9	6.17	.013	.518 (.504, .533)	5.1	0.12	.731	.505 (.477, .532)
	Yes	30.3	24.9				5.3			
12. Does your partner or the relationship have financial difficulties?	No	83.3	21.8	15.30	< .001	.523 (.511, .535)	5.1	0.12	.734	.504 (.481, .526)
	Yes	16.7	27.7				5.4			
13. Is your partner unemployed?	No	69.9	20.0	59.24	< .001	.556 (.541, .571)	4.2	23.46	< .001	.567 (.538, .596)
	Yes	30.1	29.3				7.3			
14. Does your partner have mental health problems (including undiagnosed conditions) and/or depression?	No	74.8	20.4	54.94	< .001	.551 (.537, .565)	4.3	24.05	< .001	.564 (.536, .592)
	Yes	25.2	29.9				7.6			
15. Does your partner have a problem with substance abuse such as alcohol or other drugs?	No	76.4	19.8	93.80	< .001	.565 (.551, .579)	4.4	18.30	< .001	.555 (.527, .582)
	Yes	23.6	32.5				7.4			
16. Has your partner ever threatened or attempted suicide?	No	88.7	22.2	8.61	.003	.515 (.504, .525)	4.9	5.13	.024	.522 (.500, .543)
	Yes	11.3	27.4				7.0			
17. Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?	No	94.8	21.6	81.69	< .001	.532 (.523, .540)	4.7	34.68	< .001	.539 (.520, .559)
	Yes	5.2	44.3				12.5			
18. Does your partner have access to firearms or prohibited weapons?	No	99.2	22.8	0.64	.425	.501 (.498, .504)	5.1	0.15	.699	.501 (.495, .507)
	Yes	0.8	27.7				6.4			
21. Has your partner ever harmed or threatened to harm your children?	No	98.1	22.6	3.76	.052	.504 (.499, .509)	5.2	1.26	.262	.495 (.489, .501)
	Yes	1.9	30.6				2.8			
22. Is there any conflict between you and your partner regarding child contact or residency issues and/or current Family Court proceedings?	No	91.9	22.6	0.43	.511	.503 (.494, .511)	5.2	0.91	.340	.492 (.478, .507)
	Yes	7.6	24.1				4.2			
23. Are there children from a previous relationship present in the household?	No	92.7	22.6	1.16	.282	.504 (.496, .513)	5.2	0.08	.776	.498 (.483, .513)
	Yes	7.3	24.9				4.8			
24. Has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?	No	99.5	22.8	0.28	.595	.499 (.497, .501)	5.2	1.47	.225	.498 (.497, .498)
	Yes	0.5	18.5				0.0			
25. Has your partner ever been arrested for sexual assault?	No	100.0	22.8				5.1			
	Yes	0.0	-				-			

Note. DVSA=Domestic Violence Safety Assessment Tool; AUC = Area under the Curve; CI = confidence interval. 'No' includes 'unknown', 'refused to answer', and missing responses. For each item, with the exception of question 14, fewer than 5 per cent of the sample had unknown, refused or missing responses. Light olive shading corresponds to items where rates of repeat victimisation were significantly higher for those who responded 'yes' compared with those who didn't respond 'yes'. Items 19 and 20 are not included in this table due to being items relating to pregnancy.

The panel with the heading ‘Physical violence’ shows rates of repeat victimisation for intimate partner violence involving physical violence for those who responded ‘yes’ and ‘no’. For 14 of the 25 items rates of repeat victimisation involving physical violence were higher for those who responded ‘yes’. All effect sizes were small, with the strongest predictors again question 13 ‘Is your partner unemployed?’ (AUC = .567, 95% CI (.555, .579)), question 15 ‘Does your partner have a problem with substance abuse such as alcohol or other drugs?’ (AUC = .551, 95% CI (.538, .563)), and question 17 ‘Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?’ (AUC = .549, 95% CI (.538, .559)). In relation to repeat victimisation involving physical violence, rates were significantly lower for those who responded ‘yes’ to the following five items:

- Question 9 ‘Has your partner stalked or constantly harassed or texted/ e-mailed you?’ (8.2% for ‘yes’ responses vs. 9.9% for ‘no’ responses, $p < .001$);
- Question 18 ‘Does your partner have access to firearms or prohibited weapons?’ (6.7% vs. 9.6%, $p = .010$);
- Question 21 ‘Has your partner ever harmed or threatened to harm your children?’ (5.8% vs. 9.7%, $p < .001$);
- Question 22 ‘Is there any conflict between you and your partner regarding child contact or residency issues and/or current Family Court proceedings?’ (6.2% vs. 9.8%, $p < .001$); and

- Question 24 ‘Has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?’ (7.5% vs. 9.6%, $p = .039$).

Rates of intimate partner repeat victimisation by individual DVSA item responses for males are presented in Table 4. Beginning with the panel corresponding to repeat victimisation overall, for 16 of the 25 items rates of repeat victimisation were higher for those who responded ‘yes’. Effect sizes were small. The strongest predictors of repeat victimisation overall for males were question 15 (‘Does your partner have a problem with substance abuse such as alcohol or other drugs?’; AUC = .565, 95% CI (.551, .579)) and question 13 (‘Is your partner unemployed?’; AUC = .556, 95% CI (.541, .571)).

In relation to rates of repeat victimisation involving physical violence, only seven questions showed significantly higher rates for those who responded ‘yes’. The strongest predictors were question 13 (‘Is your partner unemployed?’; AUC = .567, 95% CI (.538, .596)), question 14 (‘Does your partner have mental health problems (including undiagnosed conditions) and/or depression?’; AUC = .564, 95% CI (.536, .592)), and question 2 (‘Has your partner ever used physical violence against you?’; AUC = .563, 95% CI (.534, .591)).

Table 5 shows results from the logistic regression models with odds ratios presented for the items included (i.e. those items where a ‘yes’ response was independently associated with an increase in repeat victimisation). For example, the first panel presents results from the logistic regression model examining

Table 5. DVSA items associated with intimate partner repeat victimisation within 12 months

DVSA item	Females (N = 18,782)				Males (N = 5,680)					
	Repeat victimisation, overall		Repeat victimisation, physical violence		Repeat victimisation, overall		Repeat victimisation, physical violence			
	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p		
2. Has your partner ever used physical violence against you?					1.19 (1.03, 1.39)	.020	1.37 (1.05, 1.79)	.021		
6. Has your partner ever been charged with breaching an apprehended domestic violence order?	1.41 (1.28, 1.55)	< .001	1.28 (1.11, 1.48)	.001	1.64 (1.21, 2.20)	.001				
13. Is your partner unemployed?	1.40 (1.31, 1.51)	< .001	1.47 (1.32, 1.64)	< .001	1.20 (1.03, 1.39)	.016	1.34 (1.03, 1.75)	.029		
14. Does your partner have mental health problems (including undiagnosed conditions) and/or depression?					1.23 (1.05, 1.43)	.009	1.39 (1.06, 1.83)	.016		
15. Does your partner have a problem with substance abuse such as alcohol or other drugs?	1.16 (1.08, 1.24)	< .001	1.16 (1.04, 1.30)	.008	1.40 (1.19, 1.64)	< .001				
17. Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?	1.43 (1.31, 1.57)	< .001	1.30 (1.14, 1.49)	< .001	1.66 (1.26, 2.18)	< .001	2.02 (1.37, 2.99)	< .001		
19. Are you pregnant and/or do you have children who are less than 12 months apart in age?	1.36 (1.21, 1.52)	< .001	1.61 (1.37, 1.88)	< .001						
23. Are there children from a previous relationship present in the household?	1.20 (1.10, 1.32)	< .001								
	AUC (95% CI)		.604 (.596, .612)		.600 (.587, .614)		.600 (.583, .618)		.614 (.581, .648)	
	Hosmer-Lemeshow statistic		$\chi^2(5) = 23.91, p < .001$		$\chi^2(5) = 9.95, p = .077$		$\chi^2(5) = 4.28, p = .510$		$\chi^2(5) = 1.04, p = .959$	

Note. DVSA = Domestic Violence Safety Assessment Tool; CI = confidence interval; AUC = Area Under the Curve. The table includes items where a ‘yes’ response was significantly and independently associated with an increased risk of repeat victimisation. The odds ratios presented control for the effects of the other items independently associated with increased repeat victimisation.

repeat victimisation in females and shows that 'yes' responses to the following items were independently associated with an increase in repeat victimisation overall in females:

- Question 6: 'Has your partner ever been charged with breaching an apprehended domestic violence order?'
- Question 13: 'Is your partner unemployed?'
- Question 15: 'Does your partner have a problem with substance abuse such as alcohol or other drugs?'
- Question 17: 'Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?'
- Question 19: 'Are you pregnant and/or do you have children who are less than 12 months apart in age?'; and
- Question 23: 'Are there children from a previous relationship present in the household?'

Similarly, as shown in the second panel, 'yes' responses to questions 6, 13, 15, 17, and 19 were independently associated with an increase in repeat victimisation involving physical violence in females.

As shown in the third and fourth panels, 'yes' responses to the following items were independently associated with an increase in both repeat victimisation overall and repeat victimisation involving physical violence in males:

- Question 2: 'Has your partner ever used physical violence against you?'
- Question 13: 'Is your partner unemployed?'
- Question 14: 'Does your partner have mental health problems (including undiagnosed conditions) and/or depression?'
- Question 17: 'Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?'

In addition, question 6 ('Has your partner ever been charged with breaching an apprehended domestic violence order?') and question 15 ('Does your partner have a problem with substance abuse such as alcohol or other drugs?') were independently associated with repeat victimisation overall.

Logistic regression models including all 25 items were also fit, and are presented in Table A2 of the Appendix.

DISCUSSION

The primary aim of the study was to examine the predictive accuracy of the DVSAT in identifying victims of intimate partner violence who are at greater risk of repeat victimisation. Responding 'yes' to 12 or more items on Part A of the DVSAT is one way a victim of intimate partner violence can be classified as being 'at serious threat' and referred to a Safety Action Meeting (SAM; if they reside in a *Safer Pathway* site) or otherwise to the

Women's Domestic Violence Court Advocacy Service (WDVCAS) or Victims Services NSW. In this study, the DVSAT was found to be a poor predictor of intimate partner repeat victimisation within 12 months, as measured by incidents reported to the police. Depending on whether the victim was female or male and the measure of repeat victimisation examined there was a probability of between .544 and .586 that a randomly selected victim who experienced repeat victimisation would have a higher number of 'yes' responses to DVSAT items than a randomly selected victim who did not experience repeat victimisation. If the criteria of 12 or more 'yes' responses to DVSAT items was used alone as an indicator of those 'at serious threat' many victims at increased risk of repeat victimisation would not be identified and referred.

While the focus of the current study was on the predictive accuracy of the DVSAT, during the study period other factors were taken into consideration when classifying victims as being 'at serious threat': professional judgement and a trigger for repeat victims with two or more incidents in the 6 months prior (since late 2016 this trigger has not been used). Many more victims were classified as being 'at serious threat' on this basis. While the classification of a victim as being 'at serious threat' was a better indicator of risk of repeat victimisation than was responding 'yes' to 12 or more items, it also performed poorly in terms of correctly classifying those who experienced repeat victimisation (all AUCs < .6). Victims misclassified as being 'at serious threat' (i.e., those who were not at increased risk of repeat victimisation) may have received support and services that were superfluous to their needs, while, more importantly, others who were at increased risk of repeat victimisation, but not classified as being 'at serious threat', may not have received more intensive support and services.

The examination of the relationships between individual DVSAT items and repeat victimisation revealed that while many items were associated with repeat victimisation, some were not, and others appeared to be inversely associated. Given that items included in the DVSAT were selected following review of the literature and existing risk assessment tools, and not on the basis of empirical methods, it is perhaps not surprising that many items were not found to be predictors of repeat victimisation; weak, inverse, or unreliable predictors are more likely to be included when empirical test construction methods have not been used (Hilton, Harris, Rice, Lang, & Cormier, 2004). Further, it may be possible that repeat victimisation, as measured in this study, is not commensurate with the harm the DVSAT was developed to assess (e.g., in terms of severity, frequency, or timing). Risk factors for domestic homicide, for example, may differ to risk factors for repeat victimisation, especially repeat victimisation relating to non-criminal incidents reported to police. Indeed, for this reason, in this study two measures of repeat victimisation were defined – one a broader measure that included criminal and non-criminal incidents of intimate partner violence reported to police, and the other a measure restricted to incidents that

involved physical violence, reflecting more serious repeat victimisation. However, we found that predictive accuracy was similarly poor for both measures, with considerable overlap in the items found to be independently associated with an increased risk of repeat victimisation overall and repeat victimisation involving physical violence. While it is likely that the inclusion of items that are not independently associated with an increase in repeat victimisation may have limited the predictive validity of the tool, it is worth noting that it is possible for a tool to have good predictive accuracy despite some individual items not being associated with the outcome (for an example see Lauria, McEwan, Luebbers, Simmons, & Ogloff, 2017).

It could be suggested that the completion of the DVSAT and referral through the LCP, WDVCAS or Victim Services NSW may have affected the risk of repeat victimisation, potentially increasing the rate of false positives (those who were assessed as being at risk who did not experience repeat victimisation) and reducing the apparent predictive accuracy of the DVSAT in this study. Trimboli (2017) suggests that the administration of the DVSAT could result in victims re-assessing their relationships and taking action to reduce their immediate or future risk; reflecting the view that “risk assessments may be considered vehicles for prevention and not simply tools for prediction” (Messing & Campbell, 2016, p. 336). This line of reasoning could provide an explanation for the apparent protective effects of responding ‘yes’ to questions such as ‘Has your partner ever harmed or threatened to harm your children?’ and ‘Is the violence or controlling behaviour becoming worse or more frequent?’. It might also be argued that the predictive accuracy of the DVSAT may have been reduced as the result of changes in the behaviour of the alleged offender due to police and/or legal action resulting from the incident. Indeed, police may respond differently to some risk factors, potentially influencing the relationships between some items and repeat victimisation.

Without dismissing these possibilities out of hand, there are a number of considerations that work against them as explanations for the poor performance of the DVSAT. Firstly, they do not explain why a large proportion of those judged not to be ‘at serious threat’ went on to experience repeat victimisation. Secondly, if the introduction of the DVSAT itself resulted in a reduction in domestic violence risk, one might have expected the number of domestic violence incidents to have fallen after its introduction. Analyses of data gathered by Wan, Thorburn, Poynton, and Trimboli (in press) in the course of evaluating the *Safer Pathway* program provide no indication of any change in the number of reported domestic assault incidents following the introduction of the DVSAT (H. Thorburn personal communication 18 Jan. 2018). Thirdly, the argument that administration of the DVSAT led to changes that reduced the risk of further violence lacks supporting evidence. Indeed, there is little evidence that the *Safer Pathway* program or any other domestic violence intervention implemented thus far has been reliably effective in reducing domestic violence (Feder,

Wilson, & Austin, 2008; Jahanfar, Howard, & Medley, 2014; Miller, Drake, & Nafziger, 2013; Rivas et al., 2016; Trimboli, 2014).

A recent evaluation of the *Safer Pathway* program (Trimboli, 2017) found that being referred to a *Safer Pathway* program (largely on the basis of the DVSAT) did not result in a significantly greater reduction in proscribed behaviours compared to the conventional response in sites without the complete *Safer Pathway* program. Overall, there was a statistically significant reduction in the negative behaviours experienced after the index incident compared with the 4 weeks before. However, improvements were evident for both female victims in sites where all elements of the *Safer Pathway* program were operating and those where only some of the elements (e.g., DVSAT but not SAMs) were operating. Further, an evaluation conducted at the aggregate level, comparing rates of domestic violence in Local Area Commands (LACs) with SAMs with rates in LACs without SAMs provided little evidence that SAMs have been effective in reducing domestic violence (Wan et al., in press). Findings from the current study suggest that the process of identifying those ‘at serious threat’ may not be effectively targeting those at greatest risk of future harm. These findings could contribute to the apparent lack of effectiveness of SAMs and the *Safer Pathway* program.

The findings of the current study confirm the need for a review of the use of the DVSAT and the process of identifying those ‘at serious threat’ (a review which is currently being undertaken). As part of this review, consideration should be given to the large number of intimate partner incidents where DVSAT responses were not recorded, as well as those where no ‘yes’ responses were recorded; incomplete responses may signal a problem with administering the DVSAT and/or a reluctance or inability of victims to complete the DVSAT. While professional judgement can be used in such cases to classify a victim as ‘at serious threat’, incomplete DVSAT responses are still of concern, and may have impacted the findings of the current study. It is also worth noting that since the end of 2016 the repeat victim trigger has not been used to automatically classify victims as being ‘at serious threat’; the impact of this change should be explored.

It may be that the DVSAT can be modified to better identify those at risk of future harm; alternatively, use of an existing, empirically validated tool could be considered. The body of empirical evidence evaluating risk assessment measures in the context of intimate partner violence is relatively small (Nicholls, Pritchard, Reeves, & Hilterman, 2013), but is fast growing. Numerous existing tools have been found to have moderate predictive validity, significantly better than chance and within the range of the general violence risk assessment measures (with AUCs of .68/.70; Nicholls et al., 2013). Messing and Thaller (2013) conducted a review comparing the average predictive validity of five intimate partner violence risk assessment tools and reported average AUCs less than .7 for all tools. The highest average AUC

(based on five studies) was for the Ontario Domestic Assault Risk Assessment (ODARA; average AUC = .666), a 13-item scale that has been validated in many different settings, including the state of Victoria (Lauria et al., 2017) and in relation to female perpetrators (Hilton, Popham, Lang, & Harris, 2014) since it was developed over a decade ago (Hilton et al., 2004). The majority of evidence relates to heterosexual relationships with female victims and male perpetrators; few instruments have been developed and evaluated for use with other family and household relationship types. One exception worth noting is the Domestic Violence Screening Instrument - Revised (DVSI-R), a family violence risk assessment instrument which has been found to have good predictive accuracy across a range of recidivism measures and for different types of perpetrators (Stansfield & Williams, 2014; Williams, 2012).

Alternatively, it may be possible to effectively assess risk of domestic violence re-offending using tools based on administrative data sources. Fitzgerald and Graham (2016) used information on the socio-demographic characteristics and criminal history of offenders to develop a model of re-offending with acceptable levels of predictive accuracy (AUC = .7). Such information could perhaps be supplemented by more comprehensive risk assessment, victim report measures and/or professional judgement. In the state of Victoria, the evaluation of a risk assessment instrument used by the state-wide police was also found to be ineffective in predicting future police reports of family violence (AUC .54 to .56; McEwan, Bateson, & Strand, 2017). Through collaboration between law enforcement, forensic mental health and academia, a new tiered risk assessment system has since been developed and implemented in two police Divisions. The system includes a newly developed actuarial risk assessment instrument used to immediately screen out cases in which future reports of family violence are unlikely, with assessments then conducted by specialist family violence teams, including use of the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER; Kropp, Hart, & Belfrage, 2010) for intimate partner cases and a set of structured guidelines for non-intimate cases (McEwan, Bateson, & Strand, 2017). The new risk assessment and management process is the subject of ongoing evaluation and review.

The current study highlights the difficulty of predicting human behaviour and the importance of empirical validation when developing a risk assessment tool. While, in this study, the DVSA was found to be relatively ineffective at predicting those at increased risk of future intimate partner violence, evidence evaluating domestic violence risk assessment measures in other areas suggests that it is possible to develop useful tools with moderate predictive validity. Use of a risk assessment instrument will always result in some misclassification; however, the use of risk assessment instruments has clear and consistent advantages over unstructured clinical judgement (Nicholls, et al., 2013).

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NOTES

1. 'Emotional abuse' was defined by a range of behaviours including the following: controlling or trying to control a person from contacting family, friends or community; constantly insulting a person to make them feel ashamed, belittled or humiliated (e.g. put downs); shouting, yelling or verbally abusing a person to intimidate them; lying to a person's child/children with the intent of turning their children against them; threatening to take a person's child/children away from them.
2. In the 2016 Personal Safety Survey 'partner' is used to describe a person the respondent currently lives with, or has lived with at some point, in a married or de facto relationship and does not include a boyfriend/girlfriend or date or ex-boyfriend/girlfriend (ABS, 2017).
3. From August 2016 the repeat victimisation trigger was disengaged for the majority of Local Area Commands (LACs) state-wide; in the remaining LACs the trigger was disengaged in December 2016. The trigger was removed because it created a high demand for SAMs which could not be adequately serviced. It is not possible to determine the extent to which an assessment of 'at serious threat' was based on an officer's professional judgement and/or the standard for repeat victimisation (in addition to the number of 'yes' responses on the DVSA), although associations between these factors can be examined.
4. From mid-September 2014, all elements of the program (including the Local Co-ordination Points (LCPs) and Safety Action Meetings (SAMs)) began operation in the pilot sites of Orange and Waverley and on 1 July 2015 the program became operational in an additional four sites – Bankstown, Broken Hill, Parramatta and Tweed Heads.
5. Non-criminal incidents include those recorded as 'domestic violence – no offence', which are most often further classified as 'verbal argument'.

6. Of the 9,633 incidents excluded, 94 per cent were excluded due to not having responded 'yes' or 'no' to at least 12 of 25 DVSAT Part A items. Of those, approximately 80 per cent had no responses (i.e., unknown, missing, or refused responses) for all 25 items; 20 per cent had 'yes' or 'no' responses to some items.
7. During the 6-month period, 83.4 per cent of the sample had one incident only, 12.1 per cent had two incidents, and 4.5 per cent had 3 or more.
8. It should be noted that these incidents were not necessarily criminal incidents and that alleged offenders were not necessarily proceeded against. For example, many incidents were recorded as 'domestic violence - no offence', and further classified as 'verbal argument'.
9. Incidents were included regardless of whether the alleged offender was charged with an offence.
10. Records did not need to match exactly on all identifiers; allowances were made for some differences. Despite these allowances, it is likely that some cases of repeat victimisation were missed (potentially resulting in the under-estimation of repeat victimisation). Further, it is also likely that some records were incorrectly identified as being for the same victim (potentially resulting in the over-estimation of repeat victimisation).
11. To simplify the analyses, 'unknown', 'refused' and missing responses were combined with 'no' responses; the highest proportion of 'unknown', 'refused' and missing responses combined was for item 14 'does your partner have mental health problems (including undiagnosed conditions) and/or depression?' (7.2% for females, 5.6% for males, most of which were 'unknown' responses), followed by item 16 'has your partner ever threatened or attempted suicide?' (4.8% for females, 4.2% for males, most of which were 'unknown' responses), and item 12 'does your partner or the relationship have financial difficulties?' (4.8% for females, 3.3% for males). The highest proportion of 'refused' responses was in response to item 24 'has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?' (0.7% for females).
12. The Hosmer-Lemeshow statistic compares observed and predicted values for groups of individuals partitioned according to their predicted probabilities. The distribution of the statistic is roughly approximated by chi-squared distribution and if significant indicates a poor model fit, but it is highly sensitive to small deviations between the two values when there is a large sample size.

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APPENDIX

Table A1. Characteristics of those 'at serious threat': 12 or more 'yes' responses, 2 or more DV incidents in the 6 months prior, and rates of intimate partner repeat victimisation

12+ 'yes' responses	Prior DV incidents, 2+	Females				Males			
		n	%	Repeat victimisation		n	%	Repeat victimisation	
				Overall	Physical violence			Overall	Physical violence
No	No	614	16.2	36.5	9.5	101	20.6	30.7	6.9
	Yes	1,717	45.4	62.1	18.5	304	61.9	54.6	16.1
Yes	No	1,102	29.1	40.2	9.0	62	12.6	35.5	8.1
	Yes	350	9.3	60.3	19.4	24	4.9	50.0	12.5
<i>'At serious threat'</i>	<i>Total</i>	<i>3,783</i>	<i>100.0</i>	<i>51.4</i>	<i>14.4</i>	<i>491</i>	<i>100.0</i>	<i>47.1</i>	<i>13.0</i>

Note. 'Prior DV incidents, 2+' refers to whether the victim was involved in two or more DV incidents in the 6 months prior to the index offence (as a victim) and was generated from counting the number of incidents in the Central Referral Point database – it is a proxy for the repeat victim trigger. Data in this table correspond to those included in the study sample and do not include those who were classified 'at serious threat' but excluded from the study due to missing DVSA responses.

Table A2. DVSAT items and intimate partner repeat victimisation within 12 months

DVSAT item	Females (N = 18,782)						Males (N = 18,782)					
	Repeat victimisation, overall			Repeat victimisation, physical violence			Repeat victimisation, overall			Repeat victimisation, physical violence		
	Odds Ratio (95% CI)	p		Odds Ratio (95% CI)	p		Odds Ratio (95% CI)	p		Odds Ratio (95% CI)	p	
1. Has your partner ever threatened to harm or kill you?	1.00 (0.92, 1.09)	.982		0.96 (0.84, 1.11)	.613		1.02 (0.82, 1.27)	.859		0.82 (0.55, 1.21)	.322	
2. Has your partner ever used physical violence against you?	1.04 (0.96, 1.12)	.371		1.13 (0.99, 1.29)	.060		1.21 (1.01, 1.44)	.035		1.69 (1.23, 2.31)	<.001	
3. Has your partner ever choked, strangled, suffocated you or attempted to do any of these things?	0.93 (0.84, 1.03)	.171		1.24 (1.06, 1.46)	.008		0.94 (0.63, 1.38)	.744		0.75 (0.33, 1.69)	.490	
4. Has your partner ever threatened or assaulted you with any weapon (including knives and/or objects)?	0.93 (0.83, 1.05)	.232		0.83 (0.69, 1.00)	.054		0.98 (0.77, 1.26)	.900		0.87 (0.55, 1.37)	.541	
5. Has your partner ever harmed or killed a family pet or threatened to do so?	0.98 (0.82, 1.17)	.854		0.91 (0.68, 1.23)	.550		1.07 (0.53, 2.15)	.854		0.68 (0.15, 3.06)	.620	
6. Has your partner ever been charged with breaching an apprehended domestic violence order?	1.43 (1.30, 1.58)	<.001		1.37 (1.18, 1.58)	<.001		1.65 (1.22, 2.23)	<.001		1.48 (0.89, 2.44)	.131	
7. Is your partner jealous towards or controlling of you?	1.04 (0.96, 1.14)	.333		1.16 (1.01, 1.33)	.032		1.10 (0.91, 1.34)	.332		1.13 (0.79, 1.62)	.505	
8. Is the violence or controlling behaviour becoming worse or more frequent?	0.90 (0.82, 0.98)	.016		0.83 (0.73, 0.96)	.012		0.99 (0.80, 1.23)	.945		0.92 (0.61, 1.38)	.681	
9. Has your partner stalked or constantly harassed or texted/ e-mailed you?	1.01 (0.92, 1.10)	.891		0.72 (0.62, 0.83)	<.001		1.00 (0.80, 1.24)	.970		0.50 (0.31, 0.79)	.003	
10. Does your partner control your access to money?	1.04 (0.93, 1.17)	.451		1.19 (1.01, 1.42)	.043		0.91 (0.63, 1.30)	.598		0.88 (0.43, 1.81)	.732	
11. Has there been a recent separation (in last 12 months) or is one imminent?	1.03 (0.96, 1.10)	.389		0.93 (0.83, 1.04)	.184		0.98 (0.85, 1.14)	.809		0.98 (0.74, 1.29)	.891	
12. Does your partner or the relationship have financial difficulties?	1.10 (1.01, 1.19)	.021		0.97 (0.86, 1.10)	.656		0.94 (0.79, 1.13)	.526		0.67 (0.47, 0.95)	.026	
13. Is your partner unemployed?	1.38 (1.28, 1.48)	<.001		1.50 (1.34, 1.69)	<.001		1.21 (1.04, 1.41)	.016		1.44 (1.08, 1.91)	.013	
14. Does your partner have mental health problems (including undiagnosed conditions) and/or depression?	0.99 (0.91, 1.08)	.850		0.96 (0.84, 1.10)	.564		1.28 (1.09, 1.51)	.003		1.52 (1.13, 2.06)	.006	
15. Does your partner have a problem with substance abuse such as alcohol or other drugs?	1.20 (1.11, 1.29)	<.001		1.27 (1.13, 1.44)	<.001		1.41 (1.20, 1.66)	<.001		1.19 (0.88, 1.61)	.257	
16. Has your partner ever threatened or attempted suicide?	0.94 (0.85, 1.04)	.204		0.87 (0.74, 1.02)	.083		0.84 (0.67, 1.04)	.108		1.05 (0.72, 1.55)	.785	
17. Is/has your partner currently on bail, parole, served a time of imprisonment or has recently been released from custody in relation to offences of violence?	1.48 (1.35, 1.62)	<.001		1.36 (1.19, 1.57)	<.001		1.69 (1.28, 2.22)	<.001		1.94 (1.25, 3.03)	.003	
18. Does your partner have access to firearms or prohibited weapons?	0.69 (0.58, 0.82)	<.001		0.67 (0.49, 0.91)	.011		0.99 (0.50, 1.95)	.977		1.13 (0.33, 3.88)	.844	
19. Are you pregnant and/or do you have children who are less than 12 months apart in age?	1.35 (1.20, 1.52)	<.001		1.53 (1.29, 1.82)	<.001							
20. Has your partner ever threatened or used physical violence towards you while you were pregnant?	1.06 (0.92, 1.21)	.435		1.36 (1.11, 1.66)	.003							
21. Has your partner ever harmed or threatened to harm your children?	0.82 (0.70, 0.95)	.011		0.52 (0.38, 0.71)	<.001		1.13 (0.73, 1.74)	.596		0.48 (0.15, 1.56)	.224	
22. Is there any conflict between you and your partner regarding child contact or residency issues and/or current Family Court proceedings?	0.94 (0.85, 1.05)	.312		0.58 (0.47, 0.72)	<.001		0.92 (0.72, 1.17)	.506		0.78 (0.47, 1.29)	.330	
23. Are there children from a previous relationship present in the household?	1.23 (1.12, 1.35)	<.001		1.08 (0.93, 1.25)	.318		1.00 (0.78, 1.27)	.987		0.84 (0.52, 1.37)	.481	
24. Has your partner ever done things to you, of a sexual nature, that made you feel bad or physically hurt you?	1.00 (0.85, 1.17)	.961		0.77 (0.58, 1.03)	.081		0.50 (0.18, 1.39)	.185				
25. Has your partner ever been arrested for sexual assault?	0.87 (0.63, 1.19)	.377		1.01 (0.60, 1.70)	.975							
AUC (95% CI)												
.607 (.598, .616)												
Hosmer-Lemeshow statistic												
$\chi^2 (7) = 13.27, p = .066$												
$\chi^2 (7) = 12.18, p = .095$												
$\chi^2 (6) = 4.73, p = .579$												
$\chi^2 (6) = 5.57, p = .473$												

Note. DVSAT = Domestic Violence Safety Assessment Tool; CI = confidence interval; AUC = Area Under the Curve. The odds ratios presented control for the effects of all other items, and compare rates of repeat victimisation for those who responded 'yes' to those who didn't respond 'yes'. Light olive shading corresponds to items where rates of repeat victimisation were significantly higher for those who responded 'yes'. Pink shading corresponds to items where rates of repeat victimisation were significantly lower for those who responded 'yes'. Items 19 and 20 are not included for males due to being items relating to pregnancy.