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Name of Tool	Structured Assessment of Violence Risk in Youth (SAVRY)
Category	Youth Assessment: Violence Risk (Validated)
Author / Publisher	Borum, Bartel and Forth
Year	2006

Description

- The SAVRY is a 24-item structured assessment of violence risk in adolescents.
- The items are clustered under three risk domains: (1) Historical Risk Factors, looking at history of violence, self-harm and suicide attempts, and exposure to violence within the home; (2) Social/Contextual Risk Factors, focusing on peer delinquency and rejection, stress and poor coping skills, poor parental management, lack of personal support and community disorganisation; (3) Individual/Clinical Factors, examining negative attitudes, risk taking/impulsivity, substance use difficulties, anger management, lack of personal and social support.
- Also examined on the SAVRY are protective factors like prosocial involvement, strong social support, attachments and bonds, positive attitudes towards intervention and authority, strong commitment to school and resilient personality traits.
- The SAVRY is not designed to be a formal test or scale to 'quantify risk'; there are no assigned numerical values nor are there any specified cut-off scores. The purpose of SAVRY is to provide operational definitions of risk factors for examiners to apply (Borum et al., 2010).
- Designed for use with individuals aged between 12 and 18.
- Interviews are carried out with the student and their family members as part of the assessment. Data from the mental health providers and physicians involved are also used.

Age Appropriateness

12-18

Assessor Qualifications

Assessors should possess training and experience in youth assessment, expertise in child/adolescent development and conducting risk assessments (Borum et al., 2010).

Strengths

- The SAVRY contains six additional protective factors as a separate set of items to risk factors. These are considered positive items notable for their presence (as opposed to negative protective factors significant for their absence) (Borum et al., 2006).
- Provides a systematic approach to risk assessment which may assist in highlighting risk factors to be addressed in risk formulation and risk management planning.
- This tool considers dynamic variables as well as static ones. This allows for the assessment of change in risk level (i.e. progress in treatment) and also informs intervention needs and targets (Yates, 2005).

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- Shepherd et al. (2014) found that the SAVRY had the ability to identify specific treatment targets for youth, suggesting that the tool is able to link dynamic social and environmental factors with reoffending outcomes.
- Majority of items can be coded using file information.

Empirical Grounding

Structure of the SAVRY is modelled on other existing guided assessment protocols such as the HCR-20. The item content is focused specifically on the risk in adolescents. The 24 risk items have been drawn from literature and research on adolescent development and violence in youth (Borum et al., 2006).

Inter-Rater Reliability

a) UK Research	• Dolan and Rennie (2008) - the SAVRY was found to have excellent inter-rater reliability in relation to the composite risk score (ICC =.97) and the risk rating (ICC =.88). • Selby (2018) looked at the inter-rater reliability of the SAVRY amongst mental health professionals, looking at professional characteristics like perception of their confidence and objectivity in ratings. Self-reported confidence was not associated with increased reliability in scoring, suggesting a need for training.
b) International Research	• McGowan et al. (2011) found ICC for both raters in the study (.81). • Penney et al. (2010) – the SAVRY demonstrated an ICC of .91 for the composite score. • Lodewijks et al. (2008a) – the SAVRY demonstrated similar ICC in relation to the summary risk scale score (.82). • Using a sample of 145 Spanish juveniles, Hilterman et al. (2014) found that the ICCs for general and violent recidivism were good (.66) and excellent (.76) respectively. The ICCs for subscales and total scores also ranged from 0.60 to 0.89, falling within good and excellent levels. • Inter-rater reliability was measured by Shepherd et al. (2014) using twenty-eight cases from a sample of 213 adolescents in Australia. The ICC level was almost perfect at .97, identifying the level of agreement between the two raters.

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Validation History

General Predictive Accuracy	
a) UK Research	None available at present.
b) International Research	• Singh, Grann and Fazel (2011) - in a meta-analysis, the SAVRY achieved a median AUC value of .71 in predicting violent recidivism. • McGowan et al. (2011) found good predictive accuracy (AUC = .72) in correctly identifying violent youths upon carrying out a retrospective file review on 87 adolescents (aged 12-18) in educational settings. • Spice et al. (2009) - the SAVRY composite score significantly predicted adult sentencing and/or transfer to courts in a sample of 74 adolescents (AUC = .71) • Lodewijks et al. (2008) found moderate to large AUC values found for various types of disruptive behaviours including physical violence (.86), violence against objects (.74) and verbal abuse (.74). The composite score and summary risk rating were significantly above chance prediction of future violence. • Welsh et al. (2008) - significant ROC values in relation to the prediction of general (.77) and violent recidivism (.81). • Viljoen et al. (2008) found the SAVRY composite score was able to predict non-sexual aggression during treatment (AUC = .69) and post-discharge (AUC = .77). It could not, however, significantly predict sexual aggression during treatment or sexual offences post-discharge. • Penney et al. (2010) found that few youth within a high risk sample demonstrated any protective factors as per the SAVRY. This led the researchers to suggest that the protective factor items on the SAVRY are perhaps not fully measuring strengths in high-risk adolescents. • To measure risk over time, Vilijoen et al. (2017) carried out 508 risk assessments on 146 adolescents every three months for a year. This created partial support for the 'internal sensitivity' of the SAVRY in measuring changes in risk over time, with a modest proportion of youth displaying reliable changes. The link between change scores and reoffending (external sensitivity) was moderately supported by the results.

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	• Childs and Frick (2016) found that the SAVRY yielded similar measures of risk across age groups of 13 to 15 and 16 to 18. • Lawing et al. (2017) found that SAVRY was able to both distinct violent from non-violent offending in a sample of 505 adolescents and predict violent and non-violent recidivism over a year follow-up period. The 'anger control' item was found to be an important indicative factor for risk. • Perrault et al. (2017) found that the SAVRY completed by juvenile probation officers in a sample of 383 adolescents significantly predicted violent reoffending with an AUC of 0.69. • For longer-term follow-up periods of four to seven years, the SAVRY was shown to predict violence in adolescents (Sijitsema et al., 2015). • The summary risk rating of the SAVRY was a significant predictor of serious violence in a sample of 56 adolescents in Sweden with an AUC of .80 (Åström et al., 2015). • A study by Childs et al. (2013) provided moderate support for the predictive validity of the SAVRY in a sample of 158 adjudicated youth. • Chu et al. (2016) applied the SAVRY to 165 adolescents and discovered that the total scores were moderately predictive of violent and general recidivism with AUCs of .65 and .72 respectively. The Protective score of the SAVRY also generated moderate and large predictive accuracy for violent and general recidivism with AUCs of .69 and .72. • The predictive validity of the SAVRY was .75 for reoffending; although there was not any predictive validity on the protective factors (Hilterman et al., 2014). • Ortega-Campus et al. (2017) found the SAVRY differentiated between adolescents at low and high risk of reoffending and showed good predictive capacity with an AUC of 0.737 for risk total score and an AUC of 0.748 for the summary risk rating. • A study of 213 adolescents found the SAVRY was able to predict general recidivism (AUC=.71) (Shepherd et al., 2014).

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	• A study in China found that the AUC for the total risk score was predictive at 0.68. The protective factors, however, yielded an AUC at 0.60, which is lower than it tends to be for those who offend in Western countries. This led the authors to suggest that the cultural factors relative to China may not be measured with the SAVRY protective items (Zhou et al., 2017). • Testing the SAVRY on 100 male juvenile who had committed sexual offences found that the total score and overall risk rating significantly predicted general and non-sexual recidivism (AUC=>66 and .64 respectively) (Owens, 2011). • Hilterman et al. (2018) conducted a longitudinal study of 5205 male juveniles through the Catalan justice system from 2006-2014 to test the ability of the SAVRY to measure distinct change over time. Results showed that the tool might not be sufficiently sensitive to measure changes in juveniles who offend over time. • Vilijoen et al. (2018) examined the predictive validity of the SAVRY for 216 adolescents on probation. AUCs generated for violent charges were .66 and .60 for total score and summary risk ratings respectively. For all charges, the validity was slightly lower, with AUCs of .63 and .59 for total score and summary risk ratings respectively. • Soderstrom, Childs and Frick (2019) utilised the SAVRY to analyse the impact of protective factors on reoffending using a sample (n=460) of post-adjudication juveniles in a Southern state. Findings indicated that protective factors did not predict reoffending when controlling for risk domains. It was found, however, that certain protective factors buffer the effect of some of the risk domains.

Validation History

Applicability: Females	
a) UK Research	None available at present.
b) International Research	• Schmidt et al. (2011) - low to moderate predictive accuracy observed between non-violent (AUC =.68) and violent (.57) recidivism in relation to the SAVRY composite score.

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	• Penney et al. (2010) found moderate to high predictive accuracy between the composite score and violent (AUC = .72) and non-violent (AUC =.65) recidivism. • Lodewijks et al. (2008a) - the SAVRY demonstrated predictive accuracy in a sample of females (AUC =.85). In spite of this, there was a higher rate of false positives in females who offended than males. • Childs and colleagues (2013) used administrative data from 292 adjudicated juveniles placed in state custody to test the SAVRY across genders. Results support the use of the SAVRY for both boys and girls.

Validation History

Applicability: Ethnic Minorities	
a) UK Research	None available at present.
b) International Research	• Vincent et al. (2012) found that ethnicity moderated the association between summary risk ratings on the SAVRY and re-arrests within a 1-5 year follow-up. For instance, White individuals with moderate to high summary risk ratings were almost 4.5 times more likely to be re-arrested for a non-violent offence than those of other ethnic origins. • Meyers and Schmidt (2008) found moderate to high accuracy in predicting violent recidivism in Native Canadian youth at 1 (AUC =.64) and 3-year (AUC =.84) follow-up periods.

Validation History

Applicability: Mental Disorders	
a) UK Research	• Dolan and Rennie (2008) found moderate AUC values for the composite SAVRY score and violent (.64) and general recidivism (.69) in a sample of males diagnosed with conduct disorder. • A UK study of 76 male youth with conduct disorder (CD) and 33 with conduct disorder and attention deficit hyperactivity disorder (CD/ADHD) found that the CD/ADHD group had higher scores on the SAVRY on the social and individual domains. The SAVRY showed more

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	predictive accuracy of violent reoffending for the CD group (Khanna et al., 2014).
b) International Research	• A study of adolescents with mental disorders carried out in a psychiatry setting in Finland found that the summary risk rating of the SAVRY was the most accurate predictor of violent offending as well as non-violent criminal conduct (Gammelgard et al., 2015). • McLachlan et al. (2018) carried out research into the predictive validity of the SAVRY in youth with 'foetal alcohol spectrum disorder,' using a sample of 50 youth with this condition and 50 without FASD or prenatal alcohol exposure. The SAVRY was shown to predict recidivism in this offending population.

Contribution to Risk Practice

- The SAVRY can aid assessors in identifying risk and responsivity factors specific to the individual (e.g. negative attitudes, low empathy).
- The dynamic factors included in the SAVRY can act as targets for change.
- The tool identifies risk, responsivity and protective factors that could contribute to risk management strategies such as victim safety planning and risk scenario planning.
- Parmar (2016) found that those who scored at the moderate and high levels in the SAVRY had significant mood disturbances and feelings of loneliness and hopelessness. It was thus suggested that the SAVRY should be used in routine psychiatric assessments to identify youths at risk of violence and allow for treatment strategies to be devised.
- The implementation of the SAVRY in a probation office led to a reduction in both secure and non-secure placement rates and the use of maximum and intensive supervision (Vincent et al., 2012).
- It was found that the inclusion of the SAVRY and structured case plans led to significantly better case plans for 216 adolescents on probation (Vilijoen et al., 2018).

Other Considerations

- The SAVRY can be time-consuming to administer.
- Childs et al. (2013) suggest that a focus on non-violent delinquency risk coupled with risk of violence could increase the usefulness of the SAVRY in devising management and intervention strategies for non-violent or low-risk individuals on probation.
- A doctoral dissertation examined whether file-only raters can reliably and accurately code the SAVRY in cases where standard administration is not possible. Findings indicated that to reliably score the SAVRY solely with file information, the evaluator must have access to an adequate source of information on the defendant. It is suggested that there may be a threshold level of data to allow for the SAVRY to be accurately coded (Burl, 2012).

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Name of Tool	Short-Term Assessment of Risk & Treatability: Adolescent Version (START:AV)
Category	Youth Assessment: Violence Risk (Validated)
Author / Publisher	Viljoen, Nicholls, Cruise, Desmarais and Webster
Year	2010

Description

- This is an SPJ instrument focusing on assessing short-term risk (up to three months) and strength factors in adolescents. All items are potentially dynamic in nature (Singh et al., 2014).
- This is an adolescent version of the START risk assessment tool. Developers of START worked alongside individuals with clinical and research expertise in managing adolescents to develop the START:AV. It was developed out of a need to address factors like self-harm, suicide, victimisation and substance abuse in risk assessment (Vilijoen et al., 2012b).
- It consists of dynamic and protective factors that are rated from 0 to 2 for their presence within the review period. Risk estimates of low, moderate or high are given on eight outcome domains: violence, self-harm, suicide, unauthorised absence, substance abuse, self-neglect, victimisation and general offending (Sellers et al., 2017; Sher et al., 2017).

Age Appropriateness

12-18

Assessor Qualifications

The recommendations provided in the START:AV User Guide are to obtain formal training via a workshop if possible, study the User Guide and companion Knowledge Guide, establish competency through a minimum of three practice cases and regularly refresh knowledge about the tool.

Strengths

- The START:AV was found to have strong current validity with the SAVRY and identify a greater number of strengths (Viljoen et al., 2012a).
- The instrument is able to be used by adolescents in hospital, mental health and justice settings (Sher et al., 2017; Viljoen et al., 2012a).
- The START:AV is said to complement other risk measures in a number of ways: examination of the broader adverse outcomes that adolescents are vulnerable to; offers a balanced overview of strengths and vulnerabilities; focuses on dynamic factors that are relevant to short-term risk (Viljoen et al., 2012a).
- It has been suggested that the START:AV may be used to classify dynamic factors as acute or stable, which could be useful in identifying treatment options and interventions (Sellers et al., 2017).

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Empirical Grounding
An extensive literature review was undertaken by the authors to formulate risk and protective factors for adolescents. All of the items in the adult version of START were found to be relevant to young people, so these were retained in the START:AV. General Offending was added as an outcome and detailed coding instructions were provided to explain how risk and protective factors could manifest in adolescents: parenting and home environment, as well as relationships with caretakers and peers (Viljoen et al., 2012b).

Inter-Rater Reliability	
a) UK Research	None available at present.
b) International Research	• Viljoen et al. (2012a) found that ICCs were in the good to excellent range, with any disagreements relating to low/moderate and moderate/high risk. • Inter-rater agreement was evident (k>.67) in 10% of randomly selected cases in a study by Singh et al. (2014).

Validation History

General Predictive Accuracy	
a) UK Research	• In a study by Sher et al. (2017), the START:AV total vulnerabilities and verbal aggression and the total vulnerabilities and physical aggression scores yielded a moderate to large effect size.
b) International Research	• In a sample of 90 adolescents, Viljoen et al. (2012a) found that START:AV risk estimates and vulnerability total scores predicted a number of adverse outcomes: violence, offending, victimisation, suicidal ideation and substance abuse.

Validation History

Applicability: Females
Sher et al. (2017) found there were gender differences in predictive validity, with no significant relationships being found when it was applied to a female sample. It is, therefore, suggested that the START:AV items do not accurately reflect the strengths and vulnerabilities specific to female self-harm and aggression.

Validation History

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Applicability: Ethnic Minorities	■ ■ ■
a) UK Research	None available at present.
b) International Research	• Viljoen (2014) applied the START:AV retrospectively to a group of 30 American Indian and Alaska Native youth in a residential centre in the United States. Vulnerability and strength scores were predictive of violence with AUCs of .78 and .67 respectively.

Validation History

Applicability: Mental Disorders	■ ■ ■
a) UK Research	• Sher et al. (2017) carried out a study within a medium secure adolescent service with a sample divided between those on pathways for mental disorder and developmental disabilities (individuals with a diagnosis of a learning disability or autism spectrum disorder). The study found there was evidence for the predictive validity of START:AV in male adolescents with and without developmental disabilities. Predictions for property damage, physical and verbal aggression were significant for the non-developmental disabilities group.
b) International Research	None available at present.

Contribution to Risk Practice

• Sher and Gralton (2014) surveyed staff members in a UK-based medium secure service for adolescents to determine their views about the START:AV. Findings showed that staff members felt the instrument was straightforward to use, although there were difficulties in completing risk formulation and making distinctions in ratings.

• De Beauf, de Vogel and de Ruiter (2019) assessed the implementation of the START:AV in a residential youth care facility in the Netherlands. The majority of staff members perceived the START:AV core constructs as useful for treatment and the completion rate for assessments was acceptable. A lack of integration into clinical case conferences and increased workload, however, meant that satisfaction with the tool decreased for staff members over time.

Other Considerations

• Singh et al. (2014) found there were discrepancies between START:AV assessments and treatment plans, for adolescents with higher vulnerabilities ratings (particularly females) had fewer interventions targeting their specific needs. This elucidates the need for interventions to be tailored to risk assessment scoring.

• Rather than relying solely on the START:AV, Viljoen et al. (2012b) recommended that it should be supplemented with additional evidence-based approaches.

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• Training for this tool is available online or the possibility of a START:AV author travelling to venues to provide in-person training may also be considered.

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