Improving risk practice in Scotland: Evaluation of START:AV training

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Contents

Executive summary

Following a review of risk practice in youth justice in Scotland and the risk assessment tools available, the decision was made to introduce the Short Term Assessment of Risk and Treatability: Adolescent Version (START:AV) into practice and to provide training in this tool across Scotland.

Since 2018, a total of 440 staff have attended START:AV training across 18 different training events. Staff have been trained from 31 local authority areas, three secure care centres, six third sector organisations, the National Health Service and the Risk Management Authority.

The results from the evaluation indicate that the training has had a positive impact on the reported knowledge, understanding, skills and confidence of practitioners in relation to four areas of risk practice: structured professional judgment risk assessment tools, risk formulation, risk management planning and the START:AV itself. Improvements across all these areas from pre to post training were statistically significant with large effect sizes.

Although START:AV training has been welcomed by practitioners who overall believe that it will assist with more holistic assessments and lead to better intervention planning and improved outcomes, participants still identified the need for further training/support, particularly in relation to formulation and risk management/intervention planning.

The choice of assessment tools and the roll-out of training is, however, only one step in effectively implementing risk practice. As such further research would be beneficial to examine the implementation of START:AV in practice and to consider the further support required to ensure the effectiveness of this.

Introduction

Risk assessment tools are used widely throughout the world and according to an international survey the use of risk assessment tools has become a 'global phenomenon' (Singh et al., 2014). The international survey, which covered six continents, discovered that more than 200 different risk assessment tools were being used, as well as additional tools that had been developed for personal or institutional use only. The number and type of risk assessment tools available can present challenges for practitioners and services in terms of selecting the most appropriate tools to assist with risk management/reduction.

In Scotland, there has been a recent move from the use of actuarial risk assessment tools to the use of structured professional judgment tools in youth justice settings. In particular, there has been a coordinated effort to introduce the Short Term Assessment of Risk and Treatability: Adolescent Version (START:AV) into practice and to provide training in this across Scotland. This move followed a review of the risk assessment tools available and the conclusion that START:AV could assist with a holistic, dynamic and systemic assessment of a variety of risks/adverse outcomes commonly experienced by children in conflict with the law (Viljoen, Nicholls, Cruise, Desmarais & Webster, 2014).

This paper describes the background to this shift from actuarial risk assessment to structured professional judgment (SPJ) tools in Scotland and documents the method utilised to examine the reported impact of the START:AV training on the knowledge, understanding, skills and confidence of practitioners in their risk practice. The results from the evaluation of the training are documented, as well as practitioner feedback on the START:AV tool and the further support requirements they identified. The paper concludes with a consideration of the next steps that may be required to further improve risk practice in Scotland in line with emerging best practice.

General risk practice in Scotland

A recent study by the Centre for Youth & Criminal Justice (CYCJ), which examined practice in relation to risk assessment, formulation and management in Scotland, concluded that despite examples of good practice, there was room for improvement. In particular, it highlighted that some of the risk assessment tools in use in Scotland were not fit for purpose and that practitioners required further tools, training, support and resources in order to assess and manage risk more appropriately (Murphy, 2018).

The research undertaken by CYCJ examined risk practice for a group of 63 children (52 male, 11 female). This sample consisted of those children who had 1) been referred to the Intervention for Vulnerable Youth (IVY) project due to concern over their risk of serious harm to others, and 2) following referral to IVY had a risk analysis report completed that utilised the Structured Assessment of Violence Risk in Youth (SAVRY) at the time the research was completed. Referral information and consultation with the professional team around the child was used to profile the mental health needs of this group and the risk and protective factors present. Additionally, the elements of risk practice utilised prior to referral to IVY were coded. Despite individual children displaying a range of high-risk behaviours, mental health needs and types of violent behaviour, this study found limited evidence of a SPJ approach being

used to aid risk practice, which is of concern given that the SPJ approach allows for a more individualised assessment that is grounded in an evidence base.

All children who were referred to the IVY project were considered against the criteria for various mental health issues detailed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5: APA, 2013). Whilst these did not constitute formal diagnosis, there were indications that the sample of 63 children in this study were experiencing a mean of four mental health issues (range1-7; *SD* 1.44), with attachment disorder and post-traumatic stress disorder being overwhelmingly represented, 92.1% and 74.6% respectively. In terms of high risk behaviours displayed, the largest percentage was overwhelmingly risk of engaging in violent behaviour, followed closely by general offending. It is also noted that the majority of young people (i.e. over 50%) additionally presented with risk of self-harm, substance use and unauthorised absences. The mean number of types of risk presented by individuals was 6 (range 3-10; *SD* 1.67). In terms of violence, the mean number of types of violent behaviour (e.g. serious assault, common assault, robbery) prior to referral to IVY was 4 (range 1-8; *SD* 1.63), the mean age at first violence was 10 years (range 3-17; *SD* 3.52) and the mean duration of the violent behaviour was 5 years (range 1-15; *SD* 3.78).

Despite these profiles, of the 63 children in this sample, in only 31.7% of cases was there reference to a risk assessment having been completed. This may have been because no risk assessment had been completed, or may have been that it was simply not referred to. In addition, only 12.7% were reported to have been through a multi-agency risk management process and there was clear evidence of a formulation having been developed in only 4.8% of cases. Of those cases where the completion of a risk assessment had been referred to, there were various types of risk assessment completed. The tools used were Asset (14%), SAVRY (6.3%), AIM2 (4.8%), LSCMI (3.2%), YLSCMI (1.6%), START:AV (1.6%) and JSOAPII (1.6%)[1].

Whilst these findings are based on a specific population, they highlight the often complex needs of young people engaging in violent behaviour and a concerning lack of appropriate risk assessment tools being used.

Risk assessment tools in Scotland

Asset is an actuarial risk assessment tool for general offending and can be used with children aged between 10 and 17 years. It has been used in youth justice services in England and Wales since 2000 and was introduced to Scotland in 2002. The Youth Level of Service/Case Management Inventory (YLS/CMI) was published in 2002. It is an actuarial risk assessment tool for general offending that is combined with a case management tool. It is designed for use with 12-17 year olds, although on its update to YLS/CMI 2.0 the age range was extended to 18 years (Hoge & Andrews, 2011). Asset and YLS/CMI were the two risk assessment tools for children that the Scottish Executive mandated for use in 2002. These tools are still the main risk assessment tools used today in Scotland to assist with assessing risk of general offending.

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[1] N.B. One case had two risk assessment tools completed so the total percentage is greater than 31.7.

In terms of predictive validity, the few studies examining the predictive validity of Asset in England and Wales have found it to be a moderate predictor of reoffending (Baker, Jones, Merrington & Roberts, 2005; Baker, Jones, Roberts & Merrington, 2003; Wilson & Hinks, 2011). The limited number of studies on the predictive validity of the YLS/CMI in the UK have found it to have moderate to high predictive accuracy and excellent inter-rater reliability (Marshall, Egan, English & Jones, 2006; Rennie & Dolan, 2010).

There has been some research into the use of risk assessment tools in Scotland. A study by Vaswani and Merone (2013) examined the predictive validity of YLS/CMI assessments for 1,138 children in an urban area in Scotland. They found that the predictive power of YLS/CMI in this population was comparable to the predictive power of reoffending in other studies. They also found that this was the case for males and females. The conclusion drawn was that there was evidence to support the tool within social work in order to inform practice and decision-making. A further study in Scotland (Fearn, 2014) compared the predictive validity of Asset and YLS/CMI in a sample of 138 children in one local authority area. The findings indicated that YLS/CMI was a good predictor of repeat offending in this population, whereas Asset was found to have moderate predictive accuracy. Of concern is that there was a large difference between the two tools in terms of the percentage of females classed as low risk of reoffending, despite this being based on the same information. Using Asset, 91% of the females were classified as low risk compared to 36% using YLS/CMI. It is unclear whether YLS/CMI may inflate risk classification for females, whether Asset underestimates risk for females, or a mixture of both. Whatever the reason, this is likely having an impact on whether or not appropriate and proportionate services are offered and received by females. It would be interesting to see what impact the use of YLS/CMI 2.0 might have on classification given that additional gender specific items have been added, as well as norms for females (Hoge & Andrews, 2011), and the potential for this to reduce any gender bias that may have been present previously. Studies have found that both Asset and YLS/CMI are less powerful at detecting violent offending than general offending, which is in line with their purpose as they are intended to be assessment tools for general offending (Fearn, 2014; Schmidt, Campbell & Houlding, 2010; Welsh, Schmidt, McKinnon, Chattha & Meyers, 2008).

Despite being reported to have reasonable predictive accuracy for general reoffending and inter-rater reliability, the YLS/CMI and Asset are actuarial risk assessment tools and as such have fundamental limitations. One particular limitation is that these tools are derived from statistics about group characteristics, which are then applied at an individual level. However, due to the margins of error being so large when applied at the individual level, it is not possible to estimate an individual's risk for future offending with any reasonable degree of certainty (Cooke & Michie, 2007). Therefore, whilst the tools can predict the general reoffending rate of the *group*, they cannot predict which *individuals* within that group will, or will not, reoffend. For example, from a conclusion that there is a 70% likelihood of reoffending as a result of completing an actuarial tool, it is not possible to conclude whether the individual will be in the 70% who offend or the 30% who do not. One of the common defences of this method is that other practices such as insurance companies use actuarial methods; however, as indicated by Cooke and Michie (2013) this analogue is false:

> "*The life insurance actuary achieves a profit by predicting the proportion of insured lives that will end within a particular time period: the actuary has no interest in predicting the deaths of particular individuals and recognises the impossibility of doing so. By way of contrast, the decision-maker in court is*

not concerned with the properties of any statistical group, similar, at least in some regard, to the accused; they are only interested in the accused in front of them" (p.11).

Given this fundamental problem, the continued use of actuarial risk assessment tools to predict which *individuals* are likely to reoffend is extremely concerning.

In addition to studies examining the predictive accuracy of these tools in Scotland, the Risk Management Authority conducted a survey of 21 practitioners to get their views about the risk assessment tools available/being used for assessing risk of offending behaviour in children (Burman, Armstrong, Batchelor, McNeill & Nicholson, 2007). The survey found that overall practitioners found risk assessment tools (mainly Asset and YLS/CMI) to be useful in identifying and prioritising issues. However, there was concern expressed that the tools become overly prescriptive and blind professional judgment, or encourage a 'tick-box mentality', resulting in a mismatch between the assessment and the management plan. Additionally, other disadvantages of the tools noted by practitioners were that they were not holistic, not relevant to girls, and not relevant for assessing violence or harmful sexual behaviour (Burman et al., 2007). Interestingly, these views are in line with some of the reasons for the move from Asset to Asset Plus in England and Wales.

Research into the implementation and use of Asset in England and Wales indicated that it was regarded as replacing professional practice rather than supporting it. Additionally, the intervention plans developed following completion of the assessment did not reflect the Asset outcomes and there was a tendency to create standardised plans (Baker, Jones, Merrington & Roberts, 2005). Based on their learning from the implementation of Asset and recent research and theoretical debate, the Asset Plus framework places greater emphasis on flexibility and professional discretion as well as more focus on strengths (Baker, 2014). Whilst Asset scores were shown to have good predictive validity it has been recognised that over time there has been too much weight placed on one score. In 2009, England and Wales introduced the Scaled Approach. This approach directly links the asset score to the nature, frequency, intensity and duration of intervention provided; an approach that is heavily criticised largely due to the lack of focus on the individual and the over reliance on one score, which is in itself inherently flawed (Case & Haines, 2009; Haines & Case, 2012). In Scotland, the Scaled Approach has not been used, however, there appears to be a lack of research indicating how Asset and YLS/CMI are being used in practice and the weight that is given to the score rather than an analysis of the offending behaviour.

In Scotland, the use of actuarial tools, or certainly the emphasis that has been placed on the score in England and Wales when using such tools, does not appear to fit well with the Framework for Risk Assessment, Management and Evaluation (FRAME) practice standards (Scottish Government, 2014). FRAME is the national policy document outlining Scotland's approach to risk assessment and management and contains five practice standards. The first practice standard focuses on risk assessment and states that:

> *"Risk assessment will involve identification of key pieces of information, analysis of their meaning in the time and context of the assessment, and evaluation against the appropriate criteria. Risk assessment will be based on a wide range of available information, gathered from a variety of sources. Risk assessment will be conducted in an evidence-based, structured manner, incorporating appropriate tools and professional*

decision-making, acknowledging any limitations of the assessment. Risk assessment will be communicated responsibly to ensure that the findings of the assessment can be meaningfully understood and inform decision-making. Risk will be communicated in terms of the pattern, nature, seriousness and likelihood of offending" (p.7)

In addition, the FRAME guidance goes on to state that "Assessments in relation to the risk of further offending behaviour are best undertaken within the context of structured professional judgement. This should be underpinned by holistic formulation of the relevant developmental, dispositional and environmental factors" (Risk Management Authority, 2011; Scottish Government, 2014: p.8). The use of scores and converting these to risk bands in the Asset assessment, and perhaps to a lesser extent YLS/CMI, does not encourage the practice of developing a comprehensive formulation so that the relevant underlying drivers to the behaviour of concern can be understood and risk reduction measures linked directly to these.

It is also of concern that these tools are being used to assess the risk of reoffending in relation to violent behaviour when we know that risk assessment tools show better predictive accuracy for the outcomes they were designed to assess and the populations they were intended for (Desmarais, Johnson & Singh, 2016; Fazel, Singh, Doll & Gramm, 2012; Williams, Wormith, Bonta & Sitarenios, 2017). This is despite the availability of an SPJ tool designed specifically to aid the assessment of violence risk in 12-18 year olds, the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel & Forth, 2006). The SAVRY guides practitioners to weigh and evaluate the patterns of risk factors to arrive at a global violence risk rating of low, moderate or high. This is in contrast to Asset and YLS/CMI where practitioners sum the items to arrive at a risk score. The SAVRY has been found to have excellent inter-rater reliability and strong predictive validity for general and violent recidivism both internationally and in the UK (Dolan & Rennie, 2008; Hilterman, Nicholls & van Nieuwenhuizen, 2014; Lodewijks, de Ruiter & Doreleijers, 2008; McGowan, Horn & Mellott, 2011; Olver, Stockdale, & Wormith, 2009; Penney, Lee & Moretti, 2010). However, this research has largely been conducted by transforming risk ratings into risk scores to examine predictive validity and there has been limited research into how the SAVRY is intended to be used i.e. the SPJ approach. Despite this, the research that has been conducted indicates support for the predictive accuracy of the summary risk ratings and the dynamic sections (Social/Contextual, Individual/Clinical, and Protective Factors) (Guy, 2008; Lodewijks et al., 2008).

Another issue with the prevalent use of Asset and YLS/CMI in Scotland is that they are tools designed to assist with the specific assessment of general reoffending and are not conducive to a holistic assessment of risk-taking behaviours, which we know are often complex and reflect concerns across a spectrum of behaviours (Moodie & Anderson, 2015; Murphy, 2018). In contrast, the Short-Term Assessment of Risk and Treatability: Adolescent Version (START:AV) is an SPJ tool that focuses on various adverse outcomes for 12-18 year olds: general offending, violence, self-harm, suicide, unauthorised absence, substance abuse, self-neglect and victimisation (Viljoen et al., 2014). This tool has a greater focus on dynamic strengths, as well as vulnerabilities, than other tools and is amenable to assessing change over the short term (three months). As such the START:AV is a more holistic and dynamic assessment than others and has a systemic focus. Inter-rater reliability has been found to be good to excellent (Viljoen et al., 2012; Singh et al., 2014) and predictive accuracy good (Sher, Warner, McLean, Rowe & Gralton, 2017; Viljoen et al., 2012; 2014).

Although further research is required to determine validity of this new tool in other populations and contexts such as in the community, the research so far indicates that it holds promise; a view shared by the Risk Management Authority in their Risk Assessment Tools Evaluation Directory (RATED).

Despite the extensive focus on the predictive validity of risk assessment tools, we need to remember that the ultimate purpose of risk assessment is prevention not prediction. We therefore should be moving towards a risk practice model whereby our assessments aid formulation of the drivers underlying an individual's behaviour, with a view to developing systemic intervention plans to meet the individual's needs in a holistic and proportionate manner. Using a case example assessed using the SAVRY, YLS/CMI 2.0 and START:AV, Viljoen, Gray and Barione (2015) highlighted that each tool provided similar conclusions regarding risk level but that the START:AV was able to provide the most information regarding protective factors for the youth and whether the youth was at risk for outcomes other than offending. In addition, we need to shift to a more concrete focus on whether our interventions have resulted in changes to dynamic factors. The START:AV has been found to detect item-level changes in strength and vulnerability factors, as well as the total scores, over a short-term follow up period (Sellers, Desmarais & Hanger, 2017). This finding also highlights the contribution that measuring strengths can add to risk assessment.

Based on the initial findings from the recent research in Scotland and the evidence base for the various risk assessment tools, a paper was submitted to the Youth Justice Improvement Board in Scottish Government highlighting a need to improve practice nationally. Although various assessment tools were considered, the paper recommended introducing the START:AV in Scotland as it was most likely to result in improved risk practice and outcomes for children in conflict with the law (for the reasons outlined above). Following this, the Scottish Government agreed to fund training by one of the authors of the START:AV for 100 practitioners in Scotland. In addition, they agreed to fund advanced training for six practitioners to become START:AV trainers in Scotland in order that this training could be rolled out more widely across Scotland. This training commenced in September 2018, and was delivered to practitioners from across Scotland. The purpose of the training was to familiarise practitioners with the START:AV assessment tool and to equip them to use the tool in practice. It does this through a two-day training course, the use of presentation, group discussion and case studies.

As highlighted previously, this paper examines the reported impact of the START:AV training on the knowledge, understanding, skills and confidence of practitioners in their risk practice as well as their feedback on the START:AV tool and further support requirements.

Method

Ethics

This research was given ethical approval by the University of Strathclyde's Ethics Committee based in the School of Social Work and Social Policy. This scrutiny focuses on the well-being of participants and the security of data collected through the duration of the study.

Participants

The initial START:AV training, which was delivered by one of the tool authors, was attended by 101 individuals over two separate training events in 2018. One of the events was held in Edinburgh and the other in Dundee. Further to the initial START:AV training, which was delivered in 2018, Scottish trainers were developed and roll-out of START:AV training across Scotland commenced in 2019-20. In the first 12 months of rolling out the training, 16 events were hosted in 15 different local authority areas: Glasgow, Edinburgh, North Lanarkshire, Aberdeen, East Ayrshire, Dundee, Renfrewshire, Inverclyde, Highland, South Ayrshire, South Lanarkshire, Midlothian, Dumbarton, Argyll and Bute and Aberdeenshire. This resulted in a further 339 staff being trained in the first 12 months of rollout (for various reasons 45 individuals who were booked on training events were unable to attend or only attended the first day). This brought the total number of staff trained to 440.

Staff have been trained from 31 local authority areas, three secure care centres, six third sector organisations, the National Health Service and the Risk Management Authority.

Procedure

Individuals attending the START:AV training events were given information on our proposed evaluation of the training and had the opportunity to consent to participate. Specifically they were asked whether they would consent to their survey responses pre-training, post-training and at three month follow-up being included in research to look at the impact of START:AV training in Scotland. The responses of those individuals who consented to this were included in this study.

Results - Initial START:AV training delivered by the START:AV author

Demographics

The initial START:AV training was attended by 101 individuals of whom 79 consented to take part in the research. Unfortunately one of the responses had missing data and so was excluded from the analysis. This led to the data of 78 participants being used, a response rate of 77%.

Of the 78 individuals who detailed their role, 80.8% described themselves as practitioners and 19.2% as supervisors/managers. Only 76 individuals detailed their years of experience which ranged from 0-26 years with a mean of 9.6 years (*SD 6.2*).

Pre and post-training ratings

Prior to the commencement of the START:AV training, those attending were asked to rate statements on their knowledge and understanding of four areas of risk practice as well as their confidence and skills in these. The four areas of risk practice were SPJ risk assessment tools, risk formulation, risk management planning and START:AV. These were rated on a 5-point scale: 1. Strongly Agree, 2. Agree, 3. Neither Agree or Disagree, 4. Disagree, 5. Strongly Disagree. Following the two-day START:AV training, those attending were again asked to rate the statements on the four areas of risk practice. An email requesting

completion of these ratings was issued to all those who consented at the three month follow-up period. These were rated on the same five-point scale (See Appendix 1).

As can be seen from the findings detailed in Table 1 below, pre-training knowledge and understanding of SPJ risk assessment tools, risk formulation and risk management planning was regarded as good overall with between 69.2 - 76.9% agreeing or strongly agreeing that they would describe their knowledge and understanding as good. This was similar for confidence and skills in these three areas with between 62.8 - 74.4% agreeing or strongly agreeing that they would describe their confidence and skills as good. In contrast the knowledge and understanding of START:AV and the confidence and skills in the use of START:AV were not regarded as good overall pre-training (6.4% and 2.6% respectively), which is unsurprising since this is a relatively new tool in Scotland and was the purpose of the training.

Table 1 also shows that following the training, over 90% agreed with or strongly agreed with the statements across all four areas of risk practice in relation to knowledge and understanding and over 85% in relation to confidence and skills.

Table 1: Percentage ratings pre and post training: n (%)

		Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
SPJ risk assessment tools	Pre Knowledge and understanding	11 (14.1%)	45 (57.7%)	17 (21.8%)	5 (6.4%)	0 (0%)
	Post Knowledge and understanding	21 (26.9%)	56 (71.8%)	1 (1.3%)	0 (0%)	0 (0%)
	Pre Confidence and skills	6 (7.7%)	52 (66.7%)	10 (12.8%)	10 (12.8%)	0 (0%)
	Post Confidence and skills	17 (21.8%)	58 (74.4%)	3 (3.8%)	0 (0%)	0 (0%)
Risk formulation	Pre Knowledge and understanding	4 (5.1%)	50 (64.1%)	15 (19.2%)	9 (11.5%)	0 (0%)
	Post Knowledge and understanding	13 (16.7%)	61 (78.2%)	4 (5.1%)	0 (0%)	0 (0%)
	Pre Confidence and skills	5 (6.4%)	44 (56.4%)	20 (25.6%)	8 (10.3%)	1 (1.3%)
	Post Confidence and skills	12 (15.4%)	56 (71.8%)	10 (12.8%)	0 (0%)	0 (0%)
Risk management planning	Pre Knowledge and understanding	6 (7.7%)	54 (69.2%)	15 (19.2%)	3 (3.8%)	0 (0%)
	Post Knowledge and understanding	18 (23.1%)	58 (74.4%)	2 (2.6%)	0 (0%)	0 (0%)
	Pre Confidence and skills	5 (6.4%)	46 (59%)	23 (29.5%)	4 (5.1%)	0 (0%)
	Post Confidence and skills	15 (19.2%)	57 (73.1%)	6 (7.7%)	0 (0%)	0(0%)
START:AV	Pre Knowledge and understanding	0 (0%)	5 (6.4%)	15 (19.2%)	41 (52.6%)	17 (21.8%)
	Post Knowledge and understanding	19 (24.4%)	58 (74.4%)	1 (1.3%)	0 (0%)	0 (0%)
	Pre Confidence and skills	0 (0%)	2 (2.6%)	11 (14.1%)	43 (55.1%)	22 (28.2%)
	Post Confidence and skills	13 (16.7%)	54 (69.2%)	11 (14.1%)	0 (0%)	0 (0%)

Figure 1 below shows the percentage point increase across the ratings of Strongly Agree and Agree for knowledge and understanding over the four risk practice areas following the START: AV training. These ratings indicate that as well as improving knowledge and understanding of the START:AV tool, which is what the training was designed to do, it has also increased ratings of knowledge and understanding of the SPJ risk assessment approach, formulation and risk management planning.
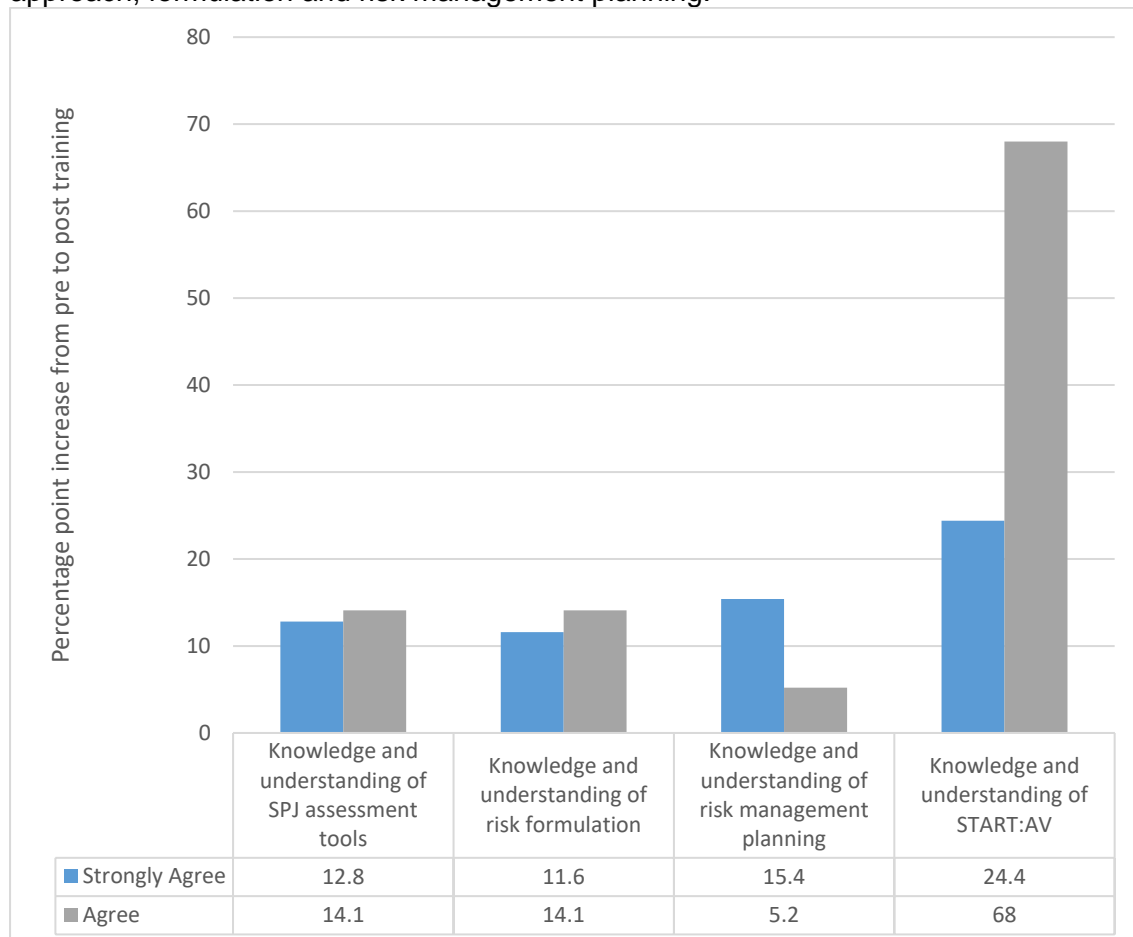

	Knowledge and understanding of SPJ assessment tools	Knowledge and understanding of risk formulation	Knowledge and understanding of risk management planning	Knowledge and understanding of START:AV
Strongly Agree	12.8	11.6	15.4	24.4
Agree	14.1	14.1	5.2	68

Figure 1: Percentage point increase in knowledge and understanding from pre to post START:AV training (n=78)

Wilcoxon Signed Rank Tests revealed statistically significant changes in ratings of knowledge and understanding for the four risk practice areas, indicating improvements following training. For knowledge and understanding of SPJ assessment tools, $z = -5.108$, $p < .001$, with a medium effect size ($r = .41$); for knowledge and understanding of formulation, $z = -4.916$, $p < .001$, with a medium effect size ($r = .39$); for knowledge and understanding of risk management planning, $z = -4.825$, $p < .001$, with a medium effect size ($r = .39$); and for knowledge and understanding of START:AV, $z = -7.661$, $p < .001$, with a large effect size ($r = .61$).

Figure 2 below shows the percentage point increase across the ratings of Strongly Agree and Agree for confidence and skills over the four risk practice areas following the START: AV training. These ratings indicate that as well as improving confidence and skills in the START:AV tool, which is what the training was designed to do, it has also increased ratings

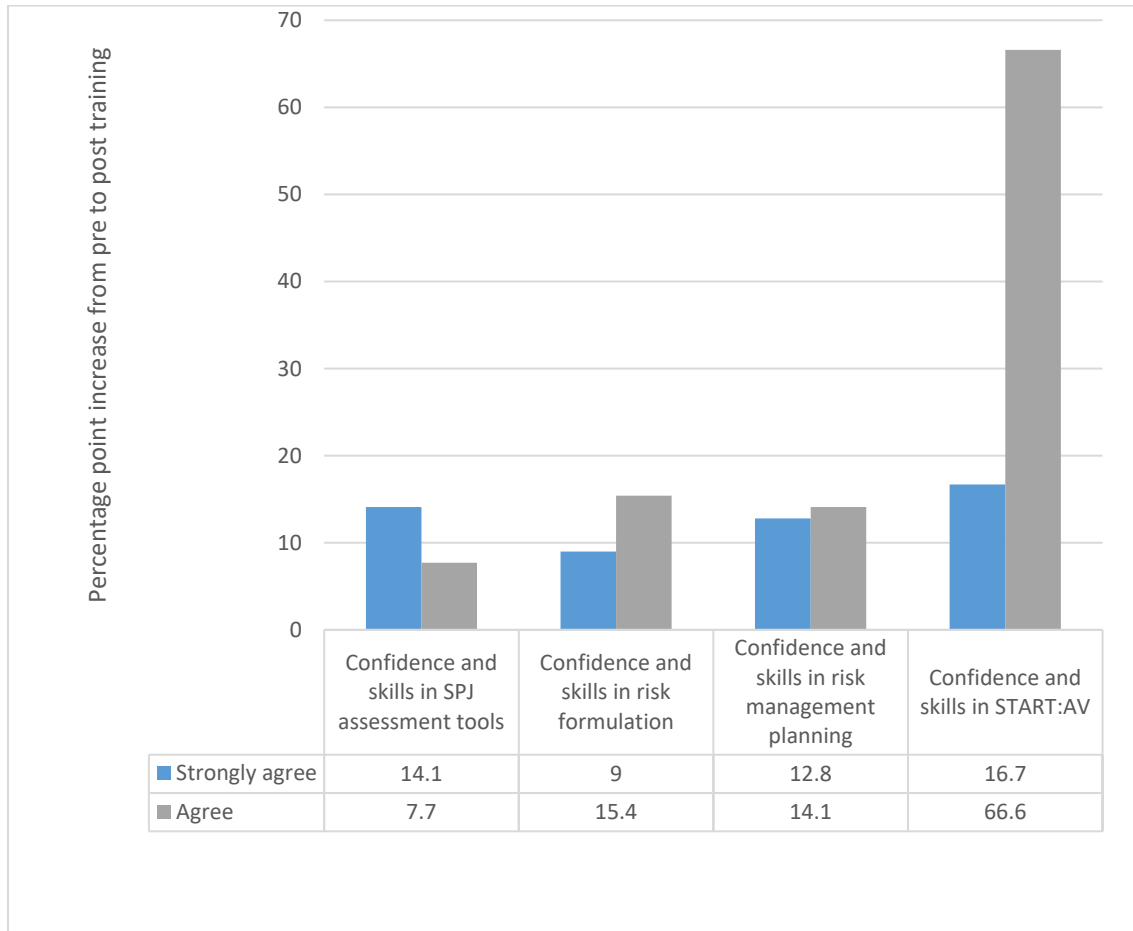of confidence and skills in the SPJ risk assessment approach, formulation and risk management planning.

	Confidence and skills in SPJ assessment tools	Confidence and skills in risk formulation	Confidence and skills in risk management planning	Confidence and skills in START:AV
■ Strongly agree	14.1	9	12.8	16.7
■ Agree	7.7	15.4	14.1	66.6

Figure 2: Percentage point increase in confidence and skills from pre to post START:AV training (n=78)

Wilcoxon Signed Rank Tests revealed statistically significant changes in ratings of confidence and skills for the four risk practice areas indicating improvements following training. For confidence and skills in SPJ assessment tools, $z = -4.818$, $p < .001$, with a medium effect size ($r = .39$); for confidence and skills in formulation, $z = -4.595$, $p < .001$, with a medium effect size ($r = .37$); for confidence and skills in risk management planning, $z = -5.184$, $p < .001$, with a medium effect size ($r = .41$); and for confidence and skills in START:AV, $z = -7.634$, $p < .001$, with a large effect size ($r = .61$).

Results - START:AV training rollout with Scottish trainers

Demographics

Of the 339 practitioners trained by Scottish trainers in the first 12 months of the training rollout, 259 consented to take part in the research. However, there were 47 data sets where pre and/or post measures were missing from the responses received. This led to the data of 212 participants being included, a response rate of 62.5%.

In terms of their role, 210 participants out of the 212 detailed their role, with 91.4% describing themselves as practitioners and 8.6% as supervisors/managers. Out of the 212 participants, only 175 detailed their years of experience which ranged from 0-35 years with a mean of 8.1 years (*SD* 7.3).

Pre and post-training ratings

As can be seen from the findings detailed in Table 2 below, pre-training knowledge and understanding of SPJ risk assessment tools, risk formulation and risk management planning was regarded as good overall with between 58 - 61.8% agreeing or strongly agreeing that they would describe their knowledge and understanding as good. This was similar for confidence and skills in these three areas with between 50-56.2% agreeing or strongly agreeing that they would describe their confidence and skills as good. In contrast, the knowledge and understanding of START:AV and the confidence and skills in the use of START:AV were not regarded as good overall pre-training (5.2% and 3.8% respectively), which is unsurprising since this is a relatively new tool in Scotland and was the purpose of the training.

Following the two-day START:AV training, those attending were again asked to rate the statements on the four areas of risk practice. These were rated on the same five-point scale. The table below also shows that following the training, over 90% agreed with or strongly agreed with the statements across all four areas of risk practice in relation to knowledge and understanding and over 86% in relation to confidence and skills. Confidence and skills in relation to risk formulation was the lowest percentage.

Table 2: Percentage ratings pre and post training: n (%)

		Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
SPJ risk assessment tools	Pre Knowledge and understanding	10 (4.7%)	120 (56.6%)	64 (30.2%)	17 (8.0%)	1 (0.5%)
	Post Knowledge and understanding	55 (25.9%)	148 (69.8%)	8 (3.8%)	0 (0%)	1 (0.5%)
	Pre Confidence and skills	6 (2.8%)	112 (52.8%)	68 (32.1%)	25 (11.8%)	1 (0.5%)
	Post Confidence and skills	39 (18.4%)	163 (76.9%)	10 (4.7%)	0 (0%)	0 (0%)
Risk formulation	Pre Knowledge and understanding	4 (1.9%)	119 (56.1%)	64 (30.2%)	25 (11.8%)	0 (0%)
	Post Knowledge and understanding	31 (14.6%)	165 (77.8%)	15 (7.1%)	1 (0.5%)	0 (0%)
	Pre Confidence and skills	5 (2.4%)	101 (47.6%)	77 (36.3%)	28 (13.2%)	1 (0.5%)
	Post Confidence and skills	24 (11.3%)	160 (75.5%)	27 (12.7%)	1 (0.5%)	0 (0%)
Risk management planning	Pre Knowledge and understanding	5 (2.4%)	126 (59.4%)	69 (32.5%)	12 (5.7%)	0 (0%)
	Post Knowledge and understanding	35 (16.5%)	165 (77.8%)	11 (5.2%)	1 (0.5%)	0 (0%)
	Pre Confidence and skills	5 (2.4%)	114 (53.8%)	78 (36.8%)	15 (7.1%)	0 (0%)
	Post Confidence and skills	28 (13.2%)	167 (78.8%)	16 (7.5%)	1 (0.5%)	0 (0%)
START:AV	Pre Knowledge and understanding	0 (0%)	11 (5.2%)	48 (22.6%)	111 (52.4%)	42 (19.8%)
	Post Knowledge and understanding	49 (23.1%)	158 (74.5%)	5 (2.4%)	0 (0%)	0 (0%)
	Pre Confidence and skills	0 (0%)	8 (3.8%)	46 (21.7%)	108 (50.9%)	50 (23.6%)
	Post Confidence and skills	30 (14.2%)	166 (78.3%)	16 (7.5%)	0 (0%)	0 (0%)

Figure 3 below shows the percentage point increase across the ratings of Strongly Agree and Agree for knowledge and understanding over the four risk practice areas following the START: AV training. These ratings indicate that as well as improving knowledge and understanding of the START:AV tool, which is what the training was designed to do, it has also increased ratings of knowledge and understanding of the SPJ risk assessment approach, formulation and risk management planning.
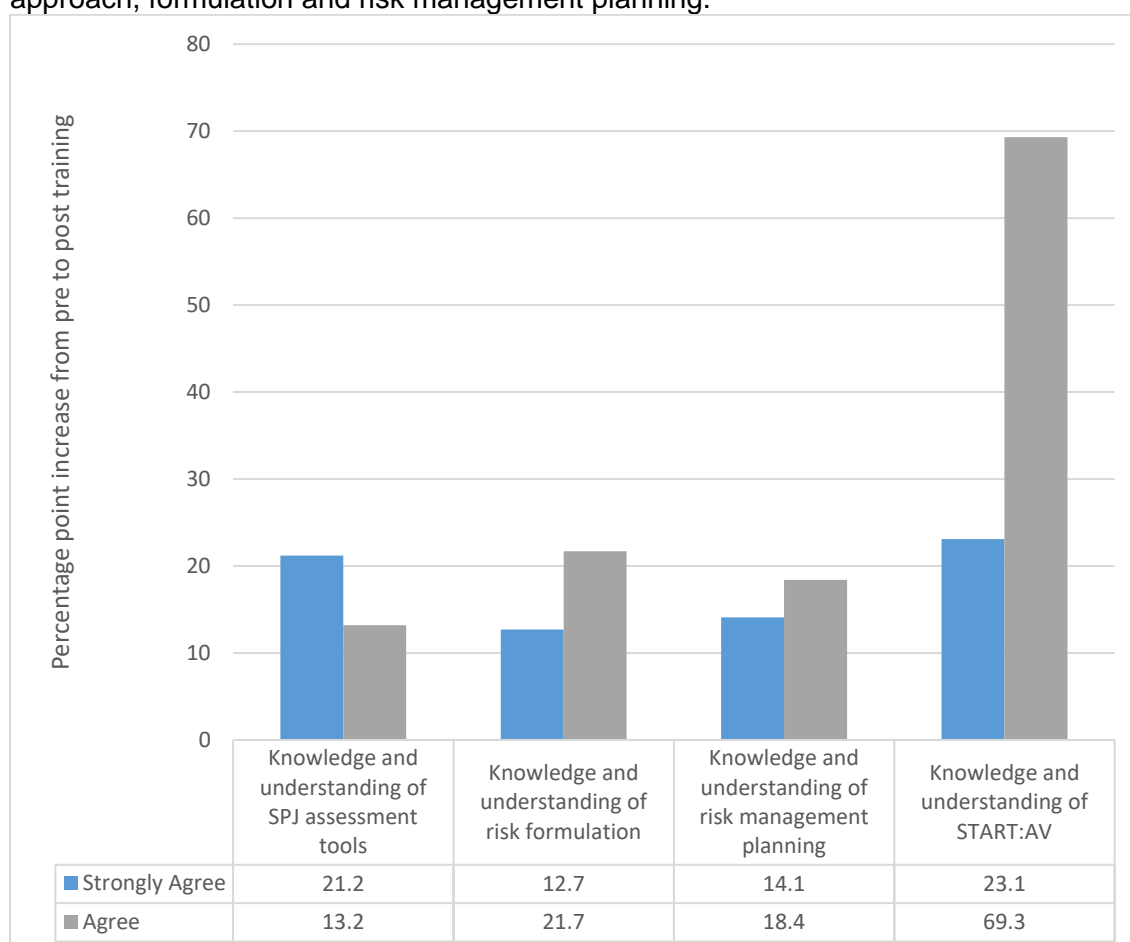

	Knowledge and understanding of SPJ assessment tools	Knowledge and understanding of risk formulation	Knowledge and understanding of risk management planning	Knowledge and understanding of START:AV
Strongly Agree	21.2	12.7	14.1	23.1
Agree	13.2	21.7	18.4	69.3

Figure 3: Percentage change in knowledge and understanding from pre to post START:AV training (n=212)

Wilcoxon Signed Rank Tests revealed statistically significant changes in ratings of knowledge and understanding for the four risk practice areas indicating improvements following training. For knowledge and understanding of SPJ assessment tools, $z = -9.368$, $p < .001$, with a large effect size ($r = .64$); for knowledge and understanding of formulation, $z = -8.739$, $p < .001$, with a large effect size ($r = .60$); for knowledge and understanding of risk management planning, $z = -8.624$, $p < .001$, with a large effect size ($r = .59$); and for knowledge and understanding of START:AV, $z = -12.644$, $p < .001$, with a large effect size ($r = .87$).

Figure 4 below shows the percentage point increase across the ratings of Strongly Agree and Agree for confidence and skills over the four risk practice areas following the START: AV training. These ratings indicate that as well as improving confidence and skills in the START:AV tool, which is what the training was designed to do, it has also increased ratings

of confidence and skills in the SPJ risk assessment approach, formulation and risk management planning.
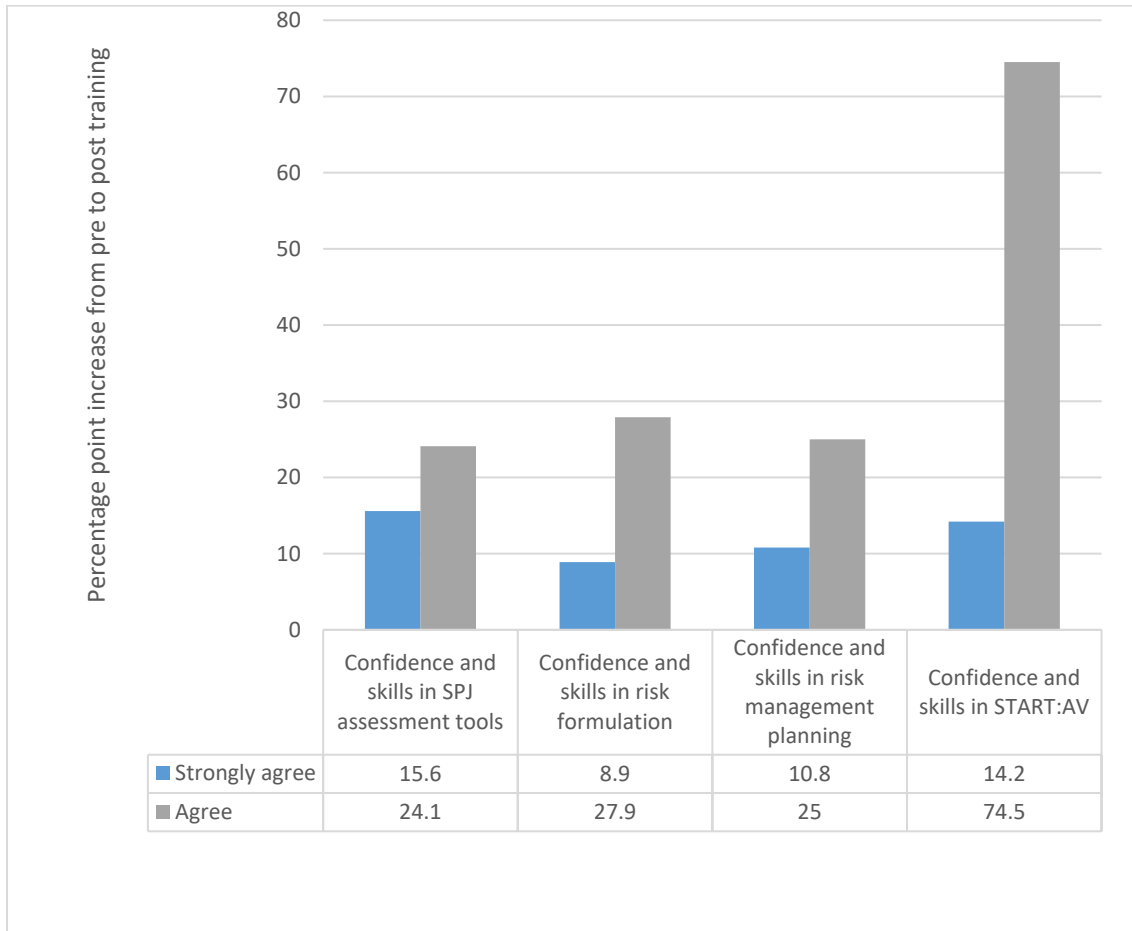

Figure 4: Percentage change in confidence and skills from pre to post START:AV training (n=212)

Wilcoxon Signed Rank Tests revealed statistically significant changes in ratings of confidence and skills for the four risk practice areas indicating improvements following training. For confidence and skills in SPJ assessment tools, $z = -9.413$, $p < .001$, with a large effect size ($r = .65$); for confidence and skills in formulation, $z = -8.612$, $p < .001$, with a large effect size ($r = .59$); for confidence and skills in risk management planning, $z = -8.590$, $p < .001$, with a large effect size ($r = .59$); and for confidence and skills in START:AV, $z = -12.545$, $p < .001$, with a large effect size ($r = .86$).

Learning from training and impact on practice

On the post-training evaluation form there was a space for those who attended the training to provide comments on how they thought the training will impact on their practice. Overall, the feedback from participants on the learning from the training and the impact this could have on their practice fell into six main themes. Individuals regularly specified that the training had given them confidence to use the START:AV assessment and that the training in START:AV would lead to better assessments and/or reports. There was also the view that the training would lead to working with children and young people in a more holistic way and

17

that there would be more focus on the importance of strengths. Additionally, individuals frequently said that it would have an impact on their approach to formulation and that the START:AV would help to focus interventions and care planning. A small selection of these comments are detailed below to highlight the impact some attendees thought it would have:

> "I believe it will help me practice in a more holistic and strength based approach to risk assessment and intervention planning going forward"

> "Holistic nature of risk assessment and the importance of incorporating strengths as well as critical vulnerabilities in working towards effective intervention planning"

> "Target interventions around strengths rather than over focus on young person's risk. It will allow a framework to capture risk intervention and formulation. I find this assessment progressive"

> "Invaluable to my practice and knowledge for myself but also as a manager to support staff in ensuring a young person receives fully inclusive risk assessment"

However, participants still identified a clear need for further training/support. The most common support or further training needs identified by individuals were attending a follow-up/refresher event; further training on formulation and risk management/intervention planning; and attending a formulation forum.

Follow up three months post-training

Across the training events delivered by the START:AV author and the events delivered by Scottish trainers, a total of 290 individuals had provided complete pre and post-training survey data and had consented to be contacted via e-mail three months following the training. However, at the time of the data analysis only 11 individuals had responded to the three-month follow up survey. This is a response rate of 3.8%. Due to the extremely low response rate, analysis of this data has not been undertaken. An alternative way of gathering information about implementation of START:AV post-training will be considered.

Discussion

For children who are in conflict with the law there is little information available about what risk practice looks like in Scotland. However, one study of risk practice for a group of children who were considered to be at potential risk of causing serious harm to others has identified limitations to the current practice and areas for improvement (Murphy, 2018). One of the recommendations from this research was that actuarial risk assessment tools be replaced with more holistic, SPJ tools such as the START:AV (Murphy, 2018). One of the key benefits of START:AV is that it is a holistic assessment that considers a broad range of adverse outcomes that children often face, frequently in combination. In addition, it considers both strengths and vulnerabilities, therefore providing a more balanced assessment that can lead to a more robust intervention plan.

The investment in START:AV in Scotland has led to the achievement of this recommendation to some extent, with 440 professionals having received the two-day START:V training. The training has been rolled out across Scotland and has had a

significant reach geographically with 31 out of 32 local authority areas having accessed training places.

The roll-out of START:AV training in Scotland has had a positive impact on the reported knowledge, understanding, skills and confidence of practitioners in relation to four areas of risk practice: structured professional judgment risk assessment tools, risk formulation, risk management planning and the START:AV itself. Improvements across all these areas from pre to post training were statistically significant with large effect sizes. In addition, these findings were consistent across the training events delivered by the author of the tool and those delivered by the Scottish trainers, demonstrating that the reported quality of the training had been maintained.

In addition, the feedback received from practitioners who attended the training was very positive in relation to the START:AV as an assessment tool. In particular, they believed that it would assist with more holistic assessments, improved formulation and lead to better intervention planning and improved outcomes. Practitioners frequently reported that they welcomed the focus on strengths as well as vulnerabilities as it provides a more balanced and motivational assessment. Whilst the feedback from those who attended the training was positive, some practitioners still identified further training and support requirements such as follow-up/refresher events and further training in formulation and risk management/intervention planning.

The choice of assessment tools and the roll-out of training is, however, only one step in effectively implementing risk practice. Effective implementation requires an environment that ensures the tool is used in a way so its benefits can be realised (Orr & Murphy, 2018). This includes ensuring that the tool is being used as intended and that the information shared as a result of the assessment is helpful to other decision makers. Further work will need to be undertaken to examine whether, and how, the tool is being used in practice. Within this it will be important to identify whether the START:AV has contributed to a better understanding of risk and what could reduce the risk of adverse outcomes for a child, as well as ascertaining whether the appropriate resources are available to be able to implement the plan in practice and improve outcomes for children in Scotland.

Conclusion

The roll-out of START:AV training in Scotland appears to have had a positive impact on the knowledge, understanding, skills and confidence of practitioners in relation to their risk practice and the use of START:AV to assist with this. START:AV has been welcomed by practitioners who overall believe that it will assist with more holistic assessments and lead to better intervention planning and improved outcomes. However, participants still identified the need for further training/support particularly in relation to formulation and risk management/intervention planning. Additionally, effective implementation requires more than the delivery and roll-out of training. Further research would be beneficial to examine the implementation of START:AV in practice and to consider the further support required to ensure the effectiveness of this.

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Appendix

1. I would describe my knowledge and understanding of structured professional judgment (SPJ) risk assessment tools as good

2. I would describe my confidence and skills in using structured professional judgment risk assessment tools as good

3. I would describe my knowledge and understanding of risk formulation as good

4. I would describe my confidence and skills in using risk formulation as good

5. I would describe my knowledge and understanding of risk management planning as good

6. I would describe my confidence and skills in risk management planning as good

7. I would describe my knowledge and understanding of START:AV as good

8. I would describe my confidence and skills in using START:AV as good