A novel CAMHS risk assessment system: clinicians' views

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Abstract

Purpose – *The purpose of this paper is to record and analyse clinicians' views of the proposed FACE Child and Adolescent Risk Assessment Suite (CARAS). This is a novel risk assessment system comprising a set of screening questions and domain specific sub-schedules intended to be implemented in electronic format within a youth mental health setting.*

Design/methodology/approach – *A qualitative approach was adopted with a series of focus groups conducted with three Child and Adolescent Mental Health Service (CAMHS) teams drawn from general and specialised services in a large NHS Trust in North-East England. A thematic analysis was used to explore the perceived clinical relevance, clarity and utility of the items that are contained within the FACE Child and Adolescent Risk Assessment Suite.*

Findings – *Emerging themes highlighted that items such as criminality and fire-setting be added to the violence risk assessment schedule; a structured approach for risk of sexual harm be utilised; and an eating disorder risk assessment be included.*

Practical implications – *Clinicians viewed the FACE Child and Adolescent Risk Assessment Suite as a structured and comprehensive risk management tool that also demonstrated potential clinical utility. CAMHS clinicians' views of the potential benefits of risk assessment schedules appear to be influenced by the perceived balance between comprehensiveness and ease and rapidity of administration. Further studies relating to validity and reliability are currently ongoing.*

Originality/value – *This is the first qualitative exploration of a comprehensive and flexible approach to risk assessment in a youth mental health setting.*

Keywords *Risk assessment, Children, Adolescents, Validity, FACE*

Paper type *Research paper*

Risk assessment with young people

The assessment and management of risk is a key part of the role of clinicians working in Child and Adolescent Mental Health Services (CAMHS). Despite this, there is a lack of guidelines and research literature to support evidence-based practice in this area. Indeed, reliable and valid schedules and instruments to improve the quality and consistency of risk assessment in CAMHS are urgently required (Borum and Verhaagen, 2006; Tiffin and Richardson, 2006; Tiffin and Nadkarni, 2010; Schmidt et al., 2011).

A number of risk assessments for young people already exist (Augimeri et al., 2001; Borum et al., 2003; Forth et al., 2003; Levene et al., 2001). For some of these risk assessments there is sufficient evidence to suggest that they are valid and clinically reliable tools (Tiffin and Nadkarni, 2010). For example, total scores on the structured assessment of violence risk in youth (SAVRY – Borum et al., 2003) have been shown to have some ability to predict recidivist violence; one study of Scandinavian young people in the secure estate reported that high vs low scorers on the SAVRY had an odds ratio (OR) of 27.85 of recidivist violence at six-month follow-up (Gammelgård et al., 2008). For moderate vs low scorers the OR was 3.83 for recurrence of violence. However, most of these tools, as in the case of the SAVRY, only assess specific areas

of risk (e.g. violence to others) and consequently do not represent a comprehensive structured approach to overall risk assessment, for example, covering most areas relating to the risk that the young person may pose both to others and themselves. Moreover, there are a number of domains of risk in young people that are not currently covered by standardised assessment tools. Probably the most obvious of these is in the area of suicide and self-harm where risk schedules and rating instruments (such as the Beck Scale for Suicide (sic) Ideation – Beck and Steer, 1991) exist for working-age adults but not under 18-year olds.

Many risk instruments have been developed in other countries and thus may not be valid or culturally suitable for a UK-based CAMHS population. Additionally, most are only available in paper format and cannot always be meaningfully entered into electronic patient records, which are increasingly being adopted within the UK National Health Service (NHS). Indeed, the use of electronic records within health and social care settings has been made almost obligatory in the UK by the central demands for routine reporting of outcome measures for monitoring and commissioning purposes. Not least such outcomes will be required as part of the move in the NHS in England towards "payment by results" in healthcare (Macdonald and Elphick, 2011). Potentially the use of electronic medical records can make automated reporting of outcome measures and other clinical data feasible, even where complex scoring algorithms are required.

Given the current lack of a comprehensive structured approach to overall clinical risk assessment, funding was obtained in order to develop a flexible approach system that could be integrated with NHS electronic patient records systems. This approach would build on an existing system developed over half a decade and embedded with Tees, Esk and Wear Valleys (TEWV) NHS Foundation Trust electronic records. This system was made up by what are known as the "Red Border" forms as, historically, the risk forms in the medical paper records had red coloured edges so they could easily be identified. This CAMHS risk assessment employed by TEWV Trust consists of an initial screening set of questions which guides the completion of one or more of three optional schedules covering the areas of violence, self-harm/suicide or vulnerability risk, respectively. The information collected by these schedules is then summarised and informs a risk formulation and risk management plan. Thus, the system is designed to mimic the usual clinical interview process, by which risk-related factors are screened prior to the conduction of a more detailed assessment, as indicated by the responses to initial questions. In practice this means that many young people, especially those under 12 years, have only a very brief risk evaluation. In contrast, adolescents seen in more specialist settings, such as forensic CAMHS, often have more detailed assessments.

In December 2010, the Trust conducted an audit of a random sample of CAMHS "Red Border risk assessments" ($n = 99$). The sampling process followed a clustered design with randomisation at both the clinician and case notes level, across all CAMHS teams. This design was adopted in order to reduce the risk of sampling bias. The audit team concluded that, although the vast majority of assessments were completed to an acceptable or high standard, the system could be improved by being made more comprehensive in scope and by the addition of further quantification of perceived risk via item codings. These conclusions were drawn partly because the Red Border system utilised dichotomous scoring (risk factor absent/present) and the accompanying free text boxes were not always utilised in order to qualify responses. Therefore the use of well-defined anchor points in order to further stratify judged risk seemed desirable as it was hoped this would yield a higher level of information relating to each risk domain. Such anchor points are composed of brief definitions and descriptions of what would constitute each level of perceived risk. For example, for a coding of "2" (moderate) on the proactive aggression item of the Checklist for Risk Aggression in Youth (CRAY) sub-schedule the following anchor point is provided – "May join in with destructive or aggressive acts when with delinquent peers but unlikely to when alone". Previous research relating to the validation of the SAVRY suggests that there may be some utility in stratifying perceived risk into low, moderate and high ordered categories (Gammelgård et al., 2008). Thus the experience accumulated with these risk assessment schedules fed into the development of a novel system of clinical risk evaluation, created in partnership with a commercial organisation, FACE Measurement and Recording Systems and Durham University as the academic institution via a Knowledge Transfer Partnership project. This proposed system is named the FACE Child and Adolescent Risk

Assessment Suite (FACE CARAS). FACE Measurement and Recording Systems (www.face.eu.com) are a company specialising in the development of assessment tools to be used in health and social care settings, available as both paper and electronic systems. The FACE Risk Profile tool designed to be used in adult mental health services has been widely adopted in the UK, with numerous NHS Healthcare Trusts routinely using the instrument, in either paper or electronic format, to guide clinical risk assessment. However, due to the complexity of assessing young people, under the age of 18 years, who may come into contact with mental health services, it was decided to develop a separate system to accommodate the evaluating of varying aspects of risk in children and young people. Thus, it was felt that there would be a synergistic relationship formed by bringing together the experience of TEWV Trust in developing a flexible system of schedules for use in CAMHS and that of widely implementing electronic tools in a broader mental health context, informed by the previous work of the FACE company.

As part of the preparatory work in order to develop a series of draft risk schedules and pilot items, the research team reviewed the literature in relation to putative risk factors for adverse outcomes in young people in contact with mental health services (e.g. Cooper and Tiffin, 2006; Douglas and Skeem, 2005; Lowenstein, 2001; Salekin *et al.*, 2010) including existing validated risk assessments (Borum *et al.*, 2003; Forth *et al.*, 2003; Tiffin and Kaplan, 2004). In addition a series of interviews with clinicians, regularly conducting risk assessments with young people, were performed and analysed.
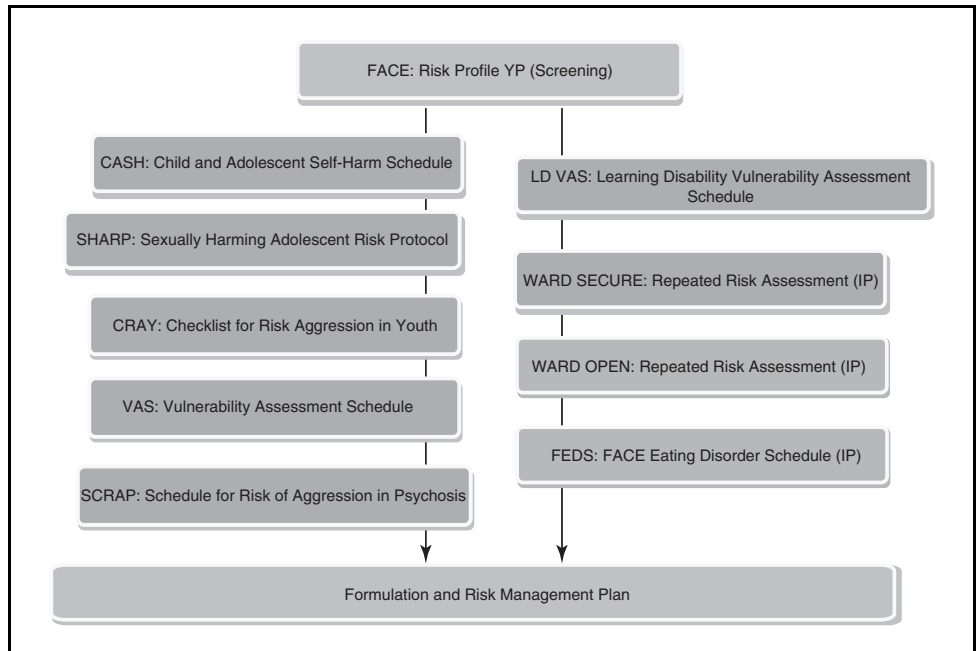
As with the TEWV Red Border system, the FACE CARAS consists of a set of screening questions (also known as the "FACE Risk Profile") that then help guide the clinician to complete further specific schedules from a choice of nine, given the previous risk factors flagged and clinical experience of the rater (see Table I for a list of sub-schedules). Schedules enquire about both historical (static) and current (dynamic) risk factors and provides anchor point descriptions so that items can be coded as absent or representing a perceived low, moderate or high level of risk in that domain. The information gained is then used to develop a risk formulation and management plan, as well as assign global scores to each of a number of risk domains. Figure 1 depicts the proposed FACE CARAS system. In some circumstances no further assessment may be required if the FACE Risk Profile shows there to be no apparent risk or low levels of risk across each of the risk domains. Where this is the case, few risk factors are identified as existing for that young person and risk domain scores can confidently be assigned.

In determining which of the schedules should be utilised, clinical judgement based upon the first part of the FACE Risk Profile would be used. The item and subscale scores are not intended

Table I Schedules proposed as components of the FACE CARAS	
FACE Risk Profile (screening tool)	Checklist of 47 current/previous potential risk factors to guide further schedule selection
CASH: Child and Adolescent Self-Harm Schedule	Measures and formulates risk of self-harm and suicide (16 items)
SHARP: Sexual Harm Adolescent Risk Protocol	Measures and formulates risk of sexually harmful behaviour, development and adjustment (23 items)
CRAY: Checklist for Risk Aggression in Youth	Measures and formulates risk of aggression (27 items)
VAS: Vulnerability Assessment Schedule	Measures and formulates risk of vulnerability/exploitation (19 items)
SCRAP: Schedule for Risk of Aggression in Psychosis	Measures and formulates risk of aggression when psychosis is present or suspected (22 items)
LD VAS: Learning Disability Vulnerability Assessment Schedule	Measures and formulates risk related to learning disabilities and vulnerability (19 items)
FEDS: FACE Eating Disorder Schedule (in-patient)	Measures and formulates risk related to eating disorders (18 items with additional items for blood tests)
WARD SECURE: Repeated Risk Assessment (in-patient)	Rapid risk formulation for in-patient secure units (five items and management plan)
WARD OPEN: Repeated Risk Assessment (in-patient)	Rapid risk formulation for in-patient open units (five items and management plan)

Figure 1 Procedure flowchart for risk assessment using the FACE CARAS

(at this point) to replace professional decision making, but rather support it. Thus the FACE CARAS is based on a structured professional judgement (SPJ) approach to risk assessment (Cooper and Tiffin, 2006; Hanson, 2009; Skeem and Monahan, 2011; Tiffin and Richardson, 2006; Webster *et al.*, 1997).

Methods

A series of focus groups were planned with clinicians that conduct risk assessments with young people. The decision to use a qualitative methodology was determined by the need to obtain an in-depth analysis and understanding of the perceived clinical utility of the FACE CARAS. Permission to conduct the staff groups was give by the Clinical Audit and Evaluation Committee for TEWV Trust.

Sample

Teams from three diverse service areas were targeted: Tier 3 CAMHS (generic community); Tier 4 CAMHS (in-patients); and Forensic CAMHS. Recruitment to the focus groups was via an e-mail sent to CAMHS team managers inviting team members to be nominated to participate in the focus groups. Separate e-mails were then sent to participating clinicians and arrangements were made for the conduction of the three groups, each focused on one of the targeted service areas. Attendance of the focus groups was finalised as: Tier 3 CAMHS ($n = 8$); Tier 4 CAMHS ($n = 5$); and Forensic CAMHS ($n = 7$).

Procedure

On the day, the focus group started with an introduction to the project and the research team. This covered the rationale for developing the FACE CARAS and the objectives of the focus group. All focus groups discussed the FACE Risk Profile in detail. Following this, each focus group was asked to select two sub-schedules which they wanted to discuss. This was done to ensure that CAMHS teams were able to focus on the schedules they perceived as most relevant to their day-to-day practice. For each schedule, copies were handed to clinicians and they were given five minutes to read through and make notes. After this, a ten to 15 minute semi-structured focus group discussion took place. Discussion was broken down into three broad areas: perceived positive elements of the draft schedules and system; perceived weaknesses or

negative aspects of the schedules and system, and suggestions for improvement. Responses were noted on a whiteboard and audio recorded for transcription and analysis. After the focus groups, participants were invited to complete a consent slip allowing the research team to publish any findings that emerged in the study.

Analysis

There are many different perspectives and choices available when selecting a qualitative research methodology (Willig, 2001, 2008). For this study, a thematic analysis (Boyatzis, 1998; Saldana, 2009; Krueger and Casey, 2009) was used. This was done to ensure that a systematic process was followed to obtain and analyse clinicians' perceptions of the FACE CARAS. The thematic analysis does not use a pre-conceived list of categories or themes, and allows the researcher to construct a list of themes within the text. In order to break this process down a line by line analysis (where comments are made at each line) is used (Boyatzis, 1998; Charmaz, 2008; Saldana, 2009). A theme table is then constructed where emerging themes are highlighted. The analysis followed five steps: familiarisation with the data via the reading of transcripts and listening to the focus groups; a line-by-line analysis; categorising similar themes onto a theme table; an explanation or response to the themes; checking for contradictory information, bias and producing a final write up (Krueger and Casey, 2009). Amendments to the draft FACE CARAS schedules were considered where clinicians highlighted potential problems or made suggestions for improvement.

Results

After analysing the transcripts and notes on the whiteboard, various themes emerged. The themes are discussed for each schedule.

The FACE Risk Profile (i.e. detailed risk screening tool) was discussed in all the focus groups. The themes that emerged included the length of the component CARAS schedules; item content; item wording; and additional factors such as the effect of the assessment process on both the clinician and young person being evaluated. This latter area included concerns about directly enquiring about potentially sensitive areas, and hence the risk of triggering distress, or even aggression, in the patient. In terms of schedule length particular concerns were noted about the Risk Profile being too long, although, paradoxically, participants expressed general satisfaction with the content, describing the Risk Profile as structured, comprehensive, specific and risk management focused:

> I like that there is a bit about actions and actually writing down a risk management plan and not just assessing it (FG 1).

> I think that's well thought out to say: have actions been taken in the past to reduce risks? So you're learning good practice and what's worked in the past (FG 1).

Additional items were suggested. However, upon further exploration of the remaining sub-schedules it became clear that these additional areas had been covered. The initial Face Risk Profile was reviewed and the findings resulted in some of the screening questions being removed in order to reduce repetition and redundancy. It was also noted that paper versions of assessments are often long and cumbersome. However, the FACE CARAS is intended to be converted into a concise electronic format that would shorten the schedules with the use of "drop-down menus" displaying anchor points for scoring and options for recording against each risk factor within the checklist.

For the Vulnerability Assessment Schedule (VAS) two themes emerged: wordiness and levels. Clinicians reported that the VAS was "quite wordy". The VAS consists of three levels which are child factors; care factors; and carer or parent factors:

> When people start using this (VAS) they will want access to the details (FG 3).

> I really liked that there are levels and you can highlight key areas (FG 2).

Clinicians thought the levels worked well, that they were detailed, and that the items were very relevant to young people. The VAS is specifically designed to include factors that are especially

pertinent to younger children, under 12 years, or any vulnerable group within CAMHS. Such vulnerable groups could include children within the "looked-after" system or those who have been subjected to safeguarding children proceedings. The length of some of the anchor point descriptions were discussed and some of these were shortened and simplified for ease of coding.

The CRAY was reviewed by two of the focus groups. The themes that emerged related to the need for additional items. The first suggestion was to include harm to others. The second suggestion was to include items on criminality. These included individual criminal history; parent criminal history; sibling criminal history; and peer criminal history:

> Could we consider including criminality as it forms part of the context? (FG 2).

The third recommendation was to split the "fire setting" item into two which would include motivation to fire setting and consequence of fire setting:

> It's more about what happened to the outcome of it (fire) that should be included too (FG 2).

Overall, the CRAY was considered to be an appealing risk assessment tool because of its structured approach. "Harm to others" was highlighted as an item that needed to be added. However, harm to others was included within some of the existing items, and it would also be highlighted in the risk formulation. The risk formulation is a brief summarising statement of an estimate of to the nature and level of the risk/s perceived to be present, the target of these risks (e.g. self, family members, etc.) and the time-scale of the risk prediction (e.g. short term, i.e. over the coming few weeks). Adding "criminality items", relating to police involvement with the young person and family members was suggested and included. It was thought that this would be useful for clinicians to contextualise the risk especially when the young person is being assessed for discharge from a mental health unit or the secure estate.

The Sexually Harming Adolescent Risk Protocol generally received positive comments. Clinicians highlighted the need for such a risk schedule as sexualised aggression was something that was encountered regularly, if not frequently within a CAMHS context. Clinicians also preferred the SPJ approach and the in-depth qualifiers to an exhaustive checklist of items. Other themes that emerged included: questions relating to which type of professional would complete this assessment; the provision of training and validation.

The Child and Adolescent Self-Harm Schedule (CASH) received encouraging feedback. Clinicians suggested they would use the CASH and that the qualifiers were detailed and inclusive of the risk factors that are important for assessing self-harm or suicide in young people. No changes were recommended for this sub-schedule.

The FACE Eating Disorder Schedule (FEDS) was developed as a result of one of the focus groups which included staff from a specialist eating disorder unit. From the focus groups, some of the risk factors that are contained within the FACE CARAS were relevant to eating disorders (i.e. suicide). However, clinicians highlighted the need for an "eating disorder specific" schedule. The draft FEDS was subsequently developed in partnership with a specialist eating disorder unit and includes three levels which are physical risk; blood and/or nutrition risk; and behavioural risk. For adolescent eating disorder units, the risk assessment requires a holistic approach which was not initially included within the FACE CARAS. This specifically includes physical and nutritional risk factors and has subsequently been incorporated into the FACE CARAS, in accordance with the recently issued Junior MARSIPAN Guidance for the assessment of young people affected by severe restrictive eating problems (Royal College of Psychiatrists Junior MARSIPAN Working Group, 2012).

An additional, general, theme that emerged within the focus groups was related to entering risk assessments onto an electronic patient management system. Seemingly many NHS Trusts use a variety of different electronic patient management systems and it may be worth noting that this was an issue that requires attention. The message was that an electronic system that emulates clinical practice is required. Such as system would, ideally, guide a clinician down a series of pathways, moving from the general to the specific, whereby relevant risk-related information would be "homed in" on. Moreover, repeated risk assessments could be repopulated from

previous responses, where appropriate, in order to avoid redundant and repetitious questioning and administration.

Discussion

This study outlines a qualitative approach to designing a novel system risk assessment prior to a full-scale pilot. The themes and comments that emerged as part of these focus groups were fed back into the design process. The feedback from the focus groups was mostly positive. Specifically, the participating clinicians suggested that the FACE CARAS was well structured, specific and had a strong focus on risk management. The main criticism was the length of the initial screen and component schedules. Therefore, the research team explored shortening the FACE CARAS while still retaining the relevant risk factors. This was done through simplifying items and eliminating repetition and overlap between schedules. In addition a number of items had wording clarified or shortened. Also, some ambiguities relating to anchor points were noted and corrected.

The study has two main methodological limitations. First, one member of the research team conducted the analysis. However, to ensure accuracy a summary of important points was reflected at the end of each focus group with the focus group members. Furthermore, a second member of the research team was present in the focus groups and reviewed the findings and write up of themes. Second, although the sample of participating clinicians was intentionally purposive in nature there may have been a sampling bias in that those clinicians most enthusiastic about risk clinical assessment may have accepted the invitation to the groups. It is therefore uncertain whether the themes and views elicited would generalise to CAMHS clinicians as a whole. A further limitation was that the forms could not be demonstrated in their intended final electronic form. It is possible that some of the concerns regarding length and potential duration of completion may have been allayed if the full functionality of the electronic format could have been showcased. In particular, this electronic form could potentially greatly accelerate re-assessment or reviews of risk by pre-populating items which can be reviewed and agreed as current or updated and amended to reflect any changes which have occurred. Moreover, the perceived length of paper forms is greater as they contain coding instructions in the text. In electronic form these can be inserted as drop-down menus that only appear when an item is selected. Furthermore, it may have been that concern relating to the length of the Face Risk Profile was a direct consequence of the contrast with the screening stage of the original Red Border system. The latter is composed of only seven questions whilst the FACE Risk Profile has 47 items. In addition, the indications to complete further schedules following completion of the Red Border screening questions were perceived as very clear compared to the FACE CARAS system. This reflection fed into a discussion amongst the members of the FACE CARAS development group regarding the "signposting" of clinicians to the choice of CARAS specific schedules to be completed following the screening process (see also Figure 1).

Risk assessment tools are considered by the authors as falling into two broad categories: "fat" and "thin". "Fat" tools are lengthy, highly structured and prescriptive with well-defined scoring guides and algorithms in order to guide decision making. Such tools are designed for use by less experienced and qualified practitioners and rely less on professional judgement to provide risk ratings or formulations. An example of a "fat" instrument would be the "Assessment Intervention and Moving On" tool used in the assessment of young people who display sexual aggression (Youth Justice Board, 2004). Such tools generally take a long time to administer but have the advantage that less experienced or non-specialist professionals can complete them. Moreover, as scoring relies very little on subjective judgement one could speculate that inter-rater reliability may possibly be higher compared to less structured tools. In contrast "thin" tools are less highly structured and rely on a certain amount of professional expertise and experience to administer and score. Such an example would be the SAVRY. As an illustration, an earlier version of the SAVRY contained an item relating to Callous-Unemotional traits; a factor which has been established to be predictive of recidivist aggression (Frick *et al.*, 2003). In order to score such an item accurately a rater would have to be familiar with the concept of callous-unemotional personality traits, and be able to enquire about them in both a young person and/or informants; something which would require considerable skill.

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Implications for practice

- Clinicians viewed the FACE Child and Adolescent Risk Assessment Suite as a structured and comprehensive risk management tool that also demonstrated potential clinical utility.

- CAMHS clinicians' views of the potential benefits of risk assessment schedules appear to be influenced by the perceived balance between comprehensiveness and ease and rapidity of administration.

- Further studies relating to validity and reliability are currently ongoing.

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Overall, the findings highlight that clinicians perceive the usefulness of a clinical risk assessment system as a balance between length (and hence likely completion time) and the comprehensiveness of the areas covered. Further research is on-going in order to establish the internal and inter-rater reliability of the system. Certainly instrument reliability is a pre-requisite to validity and it will be especially important to establish the inter-rater reliability for the coding of individual items in the component schedules. As FACE-designed instruments have well-described anchor points embedded within the forms there is no need to refer to a separate manual whilst performing scoring. Thus, it is hoped that by providing clinical raters with clear and unambiguous anchor points acceptable inter-rater reliability will be achieved with minimal training required (i.e. one hour familiarisation and briefing session). Once reliability is established then various aspects of validity will be explored. Ultimately, for risk evaluation tools, predictive validity is the most crucial aspect of validity. Evaluating this can be challenging in a number of ways; first individuals identified at high risk of an adverse event may attract intervention, which then influences the outcome at follow-up; second, capturing adverse events can be difficult, for example in the case of violence that does not result in a criminal conviction, and lastly; in order to statistically model the probability of adverse events a sufficient number must be observed. In the case of (thankfully) rare adverse outcomes such as youth suicide this can lead to insufficient information on which to estimate prediction models. Nevertheless, it is hoped that the widespread adoption of a novel CAMHS risk assessment system within UK NHS services would generate high quality but routine data that could be used to evaluate the item scores (or combination of these) that are most likely to forecast an adverse outcome over the short to medium term. Moreover, statistical techniques, such as structural equation modelling may also allow "protective" or "promotive" factors, such as interventions to be included in predictive models to reduce the risk of artifactual or spurious findings.

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