

Implementing the GRiST clinical decision support system within primary care and the community, to improve detection and management of suicide risk amongst depressed patients

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Aims and Objectives

The overall aim of this research is to help save lives threatened by suicide risk. This will be addressed using the GRiST Clinical Decision Support System (CDSS) for detecting risks associated with mental health problems (see www.galassify.org/grist). The proposed research will adapt it for use by service users for self-assessment (my-GRiST) and for clinicians in primary care and Improving Access to Psychological Therapies (IAPT) services (GRiST-PC). The research will provide a preliminary evaluation of the effectiveness of these GRiST versions in helping detect and manage suicide risk.

Research goal

To improve the detection and effective management of suicide risk by extending the GRiST mental-health risk assessment tool for use within primary care and the community.

Research objectives

- 1) Investigate how GRiST can be developed to:
 - a) provide a self-assessment tool, my-GRiST, for members of the public to use;
 - b) provide a version of GRiST, GRiST-PC, for primary care (PC) and IAPT services that can share information with my-GRiST and promote a collaborative clinician/service-user engagement with risk assessment;
- 2) Investigate the ability of my-GRiST and GRiST-PC to:
 - a) determine how depressed people and their families use my-GRiST to monitor and self-manage risk in the community;
 - b) determine how clinicians use GRiST to promote thorough and systematic assessment of suicide risk, risk detection, risk management, and ongoing monitoring of service users within the community;
 - c) help understand how service users' health and social circumstances influence suicide risk, with a particular emphasis on depression and co-morbidity with chronic conditions such as tinnitus.

Research outcomes

- 1) A web-based tool to help clinicians and service users detect, monitor, and manage suicide risk.
- 2) Increased knowledge about the cues and cue combinations influencing suicide risk, especially the roles of tinnitus and depression.

Information about GRiST

GRiST is a web-based decision support system for assessing the risks of suicide, self-harm, harm to others, self-neglect and vulnerability. It is designed to reflect how mental health experts think about and assess risk, because it is based on the elicited expertise of multi-disciplinary mental health clinicians. The GRiST technology contains software simulations of how these experts assess low-level cues (e.g. lives alone), through higher level concepts (e.g. depression, anxiety, anger), to top-level risk categories such as suicide and harm to others. Based on psychological processes, GRiST can fully explain how a set of service user cues generates specific risk quantifications in a way that is intuitive, comprehensible, and resonates with clinicians' own understanding of risk.

GRiST is unique, because it combines the best of both established approaches to mental health risk assessment: structured clinical judgment (i.e. how clinicians formulate risks using their own expertise and training) and actuarial approaches (i.e. those based on statistical analysis of population data). Each time the GRiST CDSS is used, the risk profile of the person assessed and the risk judgments attached to it by the assessor are stored in the GRiST database in anonymous form. These data permit on-going analysis of risk assessment decisions, which will inform improved clinical practice by highlighting how risk decisions are made: what information they are based on, influences on them (e.g. gender, age) and how they link to outcomes.

The hierarchical model of risk expertise contained by GRiST provides a precise index and structuring of risk information which makes it easy to store and analyse data as well as link it to other information-gathering systems. In addition there is the capacity for people to add narrative information to any part of the hierarchy. For example, there are questions exploring links between physical and mental health. People can use the "comment" boxes attached to them to put in more precise details about how their mental health is affected by, for example, tinnitus.

Since its original development, different clinician versions of GRiST have been created (e.g. for older, working age, and children and young people), and implemented in a number of NHS MH Trusts, all of which can 'talk' to each other. The data gathering interfaces have their own specific question wording and order, but because questions are indexed to the underlying risk model, equivalent information is collected. The same approach will be used to create my-GRiST and GRiST-PC.

Below is a summary list of GRiST's attributes:

- 1) It is unique amongst multiple risk assessment tools in explicitly modelling structured clinical judgements:
 - a) obtained from multidisciplinary mental-health clinicians
 - b) through using rigorous research methods for eliciting consensual clinical expertise
 - c) and with a clear audit trail demonstrating the evidence base for the risk model.

- 2) It integrates empirical evidence with structured clinical judgements
 - a) within a single system
 - b) using its accumulating database of risk data and judgements
 - c) in accordance with Department of Health guidance

3) GRiST's validated model of hierarchical risk expertise links risk data to top-level risks through intervening concepts and

- a) provides a precise formal structure and location for each piece of service-user data
- b) acts as an index to risk information held in other patient documentation to facilitate its linkage and collation
- c) has the potential to populate information in other patient records and avoid double data entry
- d) makes it easy to find any piece of information and format it for reports.

4) GRiST is underpinned by a database with sophisticated statistical and pattern recognition tools. On-going analyses will contribute to the research evidence base about:

- a) how clinicians assess risk
- b) social patterns and inequalities associated with risk assessment
- c) risk prediction
- d) how cue clusters influence risk.

5) GRiST was developed from the start to exploit the semantic web to give:

- a) flexible formatting of information
- b) multiple delivery modes and web-based interfaces
- c) easy and universal access
- d) ongoing resources for rapid adaptation in response to changing clinical and patient needs, government directives, and IT requirements.

6) GRiST was designed as an interactive tool with sophisticated interface functionality to give:

- a) streamlined data entry with questions displayed only when relevant
- b) no need to re-enter data that will not change (i.e. persistent/historical data) for subsequent patient and self-assessments (e.g. date of first suicide attempt)
- c) automatic output of reports from the data entered that can be individually customised for the particular clinical service or patient
- d) the facility to add comments or narrative to any piece of risk data or to contextualise risk judgments and self-assessment.

7) There are versions for different populations:

- a) with the same validated underlying knowledge structure
- b) data easily passed between population groups, currently including:

(1) working-age adults

(2) CAMHS

(3) older adults

8) GRiST is based on psychological knowledge structuring and reasoning processes, which enables risk advice to be explained in ways that:

- a) are easy to understand
- b) easy to validate
- c) support judgements, not blind faith.

9) It is intended that GRiST will explicitly support shared decision making and self-assessment through:

- a) the service-user version (my-GRiST)
- b) accessibility via IAPT, primary care, and other front-line services or public facilities such as libraries and mental-health charities

10) GRiST represents a common risk language with multiple interfaces for collecting information and providing advice:

- a) to reflect the needs of different assessors in different contexts
- b) all linked to the same underlying model of risk.

11) GRiST provides a whole (health and social care) system approach to risk assessment that aids risk communication across the entire care pathway, from the community to specialist secondary mental-health services in:

- a) different services
- b) different care sectors
- c) between clinicians, service users and their carers.

12) Finally, GRiST creates opportunities for NHS and other organisations to collaborate on research projects with the GRiST team

- a) GRiST is based in two research-intensive universities (Aston and Warwick)
- b) GRiST is founded on the philosophy of generating rigorous research evidence for its development coupled with extensive clinical testing at the point of care.