Web-integration of PROAFTN methodology for suicide risk assessment

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Background

Web-based decision support systems have an important role to play in mental health practice.

Current situations in mental health practice

- The amount of expert knowledge has increased so that no mental health professional can memorize all the necessary information for his or her daily practice.
- General practitioners, physicians, psychiatrists, nurses, and social workers may not have enough knowledge or experience to deal with certain litigious cases. Global insufficient supply of specialists will never be overcome. There are significant waiting time for specialist consultations.

Advantages of modern technologies

- Computer-based decision support systems can enhance clinical performances and patients' outcomes.
- Web-based decision support systems use advanced networking, telecommunications, database, and web-based technologies to improve mental health care services by offering clinical decision support, treatment, education and consultation across space and time.

Suicide Risk Assessment

- Suicide risk can be quantified and assigned to different classes and levels (high, medium, low) with targeted recommendations as output. Since the prognosis and treatment modalities depend on proper classification, it is very important to classify suicide risk precisely.

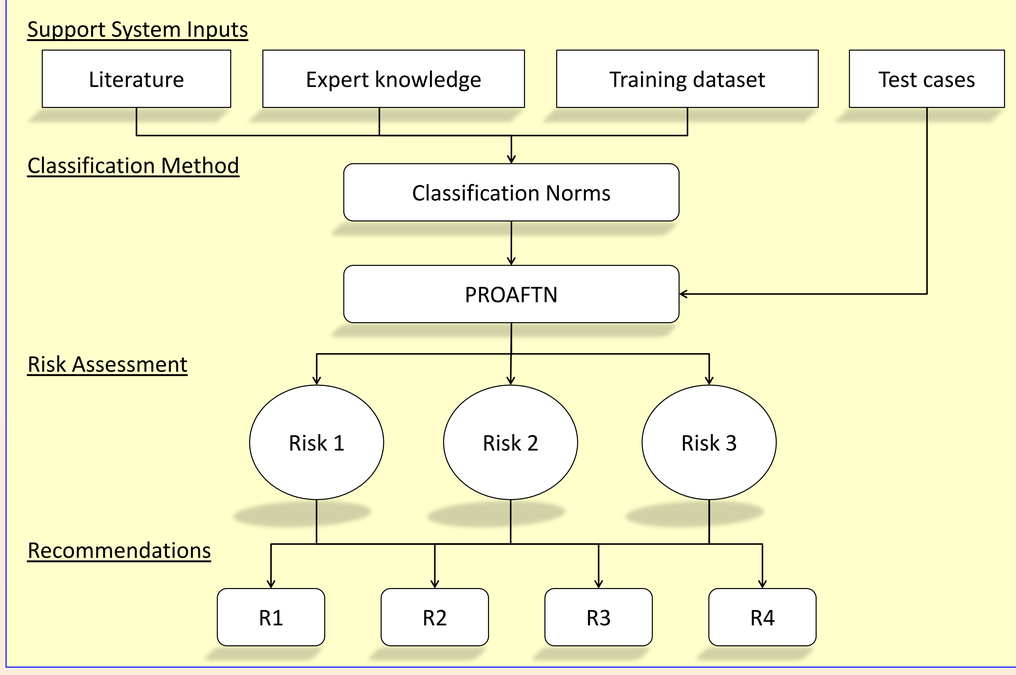
Objectives

This web-based clinical decision support system will help to:

- Support frontline and second line mental health professionals in dealing with litigious cases of suicide risk;
- Exchange suicide risk assessment information between multidisciplinary teams at independent times and locations;
- Facilitate online learning and simulate cases for training mental health professionals;
- Encourage timely and targeted interventions, and minimize inappropriate referrals;
- Improved dissemination of risk knowledge and expertise across disciplines and services.

PROAFTN Methodology

Figure 1: Clinical Decision Support System



System Functionalities

This Web Integration of PROAFTN methodology for Clinical Decision Support System is implemented based on a client/server paradigm. HTTP provides a primary protocol to allow data transmission between web server and web browsers. In this system, the web server maintains the whole system, including system and database management as indicated in Figure 1.

System Management

- Service Section consists of modules for "Case Submission" and "Case Evaluation". Modules for Case Submission are designed according to system input data. Users generate case data by filling out web forms and submitting information to the database via web interfaces (see Figure 2). Modules for Case Evaluation are designed to display the output results to users.
- The PROAFTN section is coded in Java. The analysis procedure will follow the flow as indicated in Figure 1.

Database Management

- The Clinical Database provides the services for users to access and update case data instantly, as well as to perform system authentication and authorization.

Case Submission Module

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Reference Information

1. Reference:

Notes:

Current Suicidal Thoughts, Intent, and Plan

1. Does the client have any suicidal thoughts?
   a) Unknown b) Very low c) Low d) Low/moderate e) Moderate/high f) High g) Very high
2. Does the client have a specific plan?
   a) Unknown b) No c) Yes
3. Does the client have detailed suicide methods?
   a) Unknown b) None c) Hanging d) Use of firearm e) Sharp instrument f) Drug overdose g) Medication overdose h) CO2
   i) Jumping j) Drowning k) Others

Notes:

4. What is the degree of lethality?
   a) Unknown b) Low c) Moderate d) High
5. Intent to commit suicide?
   a) Unknown b) Very low c) Low d) Low/moderate e) Moderate/high f) High g) Very high
6. Are the detailed methods available?
   a) Unknown b) No c) Yes
7. Has the client already set up the detailed plan?
   a) Unknown b) No c) Yes
8. How long has the client had this plan?
   a) Unknown b) None c) < 2 weeks d) 2 weeks - 2 months e) > 2 months
9. Does the client have a suicide date?
   a) Unknown b) No c) Yes
10. Uncompleted suicide attempt/rehearsal?
    a) Unknown b) No c) Yes
11. How long has the client had these suicidal thoughts?
    a) Unknown b) None c) < 1 week d) 1 - 2 weeks e) < 1 month f) 1 - 3 months g) 4 - 6 months h) 6 + months

Conclusions

- Prototype system is currently being used by a mental health professional to provide training sets of input data for the three levels of risk along with targeted recommendations;
- Continued use of training set input data to complete the definition of the classification criteria (norms) ;
- Next steps include web-based implementation and broader access to support learning and training for frontline and second line mental health professionals;
- Potential application for assessing other mental health problems (e.g., depression, addiction).

Research team and coordinates

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