

# The Effectiveness of Online Suicide Prevention Programs: 1998-2009



**A Literature Review**

**April 2009**





Centre for Military and Veterans Health  
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# The Effectiveness of Online Suicide Prevention Programs

## A Literature Review

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## Key Findings

- There were very few studies investigating online programs of suicide prevention; most of the evidence comes from telephone-based intervention programs.
- Few studies investigated direct outcomes of suicide prevention (i.e. decrease in suicide rate); most studies investigated intermediate outcomes (change in mental state, caller satisfaction, session impact). These outcomes are easier to measure, but their impact on the suicide prevention is speculative.

### Online-Based Programs:

- There is some supporting evidence for effectiveness of online based programs in achieving intermediate suicide prevention outcomes such as:
  - Clients satisfaction with provided interventions
  - Impact of the counselling style on perceived session helpfulness
  - Attaining good therapeutic relationship between patient and therapist and
  - Ability to freely express suicidal thoughts.
- There is reasonable level evidence for effectiveness of online based programs for:
  - Suicide risk assessments and
  - Suicide screening.

### Telephone-Based Interventions:

- One large scale cohort study with long follow up showed good evidence that telephone based intervention consisting of continuous support (twice-weekly calls and a 24h emergency alarm) are effective in decreasing suicide rate in elderly population, especially in females.
- There is a reasonable level of evidence from randomised controlled trials showing that a sporadic telephone contact has no effect on repetition of suicide or self harm attempts.
- There is some evidence that telephone sessions improve caller's mental/suicidal state from the beginning to the end of their call and that participation in the session has more impact when compared with the specific style of psychotherapy.

## Introduction

Suicide prevention is a challenging task. Despite the development of a variety of initiatives and approaches across the world, there are still limited evidence-based, effective and sustainable methods for preventing suicidal behaviours. Previous reviews have indicated that some approaches yield promising results, although methodological shortcomings (including small sample size, follow-up periods of short duration, and recruitment biases) require caution in interpreting their results.

The development of information technology and opening of new communication channels have created new opportunities in suicide prevention, research and clinical practice. Telecommunication technologies have been used to provide support to individuals in crisis, to supplement psychotherapy and to increase treatment compliance and motivation among individuals with a history of suicidal behaviour. They have also been utilised for screening and assessment of suicide risk, and to provide education and training to mental health professionals and the general public.

The aim of this literature review was to find the best ‘evidence-based’ method for online delivery of:

1. Suicide prevention;
2. Suicide counselling/intervention; and
3. Suicide postvention services.

In order to achieve this aim, the following issues will be considered:

- What modalities of online suicide prevention, suicide counselling/intervention, and suicide postvention have been evaluated in the literature?
- How effective are each of the online modalities?
- What are the best methods/models?

## Methods

### Data search

Papers between the years 1998 and 2009 were identified from the electronic databases Medline and SCOPUS. These databases were searched separately and then combined. Two string searches were conducted: one that described the mode of communication and one that described suicide. The search terms used are detailed in **Table 1**. Reference lists of the identified publications were also manually searched for relevant articles. The review was restricted to publications in English only. It was agreed that the review would be limited to peer reviewed journal articles only.

TABLE 1. SEARCH TERMS

Mode of communication	Suicide
<b>MESH TERMS:</b> Hotlines, Telephone, Internet, Videoconferencing, Remote consultation (includes telecommunications/ or electronic mail/or radio/or satellite communications/or telefacsimile/or telemedicine/or telephone/or videoconferencing)	<b>MESH TERM:</b> Suicide  <b>Keywords</b> Suicid*
<b>KEYWORDS (title and abstract search)</b> Telemedicine, Telepsychiatry, Telepsychology Videoconferencing/videoconference, Internet/inter-based/internet-assisted Telephone/phone Computer assisted/ computer mediated/ computer based Web-based, Online	

### Article review

The titles of articles were then scanned to elicit studies investigating online methods of suicide prevention, intervention and postvention. We were particularly interested in identifying studies with relevance to the Defence or veteran community, however due to the small number of papers pertaining to the veteran community articles focusing on civilian populations were included. The abstracts of papers in which the title appeared to be relevant to the research questions were then examined and the following inclusion and exclusion criteria were applied.

Studies were included if they:

- Evaluated online/telephone suicide prevention programs such as education, risk assessment, therapy and counselling programs;
- Evaluated postvention interventions such as counselling after an attempted suicide or counselling for family and friends of a successful suicide; and

- Investigated outcomes of prevention of suicide, either directly (decrease in suicide number or attempts at suicide or self-harm) or indirectly (an improvement in suicidal mood, session impact, likelihood of coming for evaluation or entering treatment).

Studies were excluded if they met any of the following criteria:

- Editorial letters/comments/replies;
- Case studies;
- Studies in which telephone counselling was the only modality investigated;
- Studies focusing on biological factors, such as using online interventions to treat medical conditions;
- Studies of assisted suicide;
- Studies considering technical issues, such as the feasibility of application of online modality;
- Studies with fewer than 5 participants;
- Non-accessible studies; and
- Duplicated articles.

## Search results

The results of the searches conducted are summarised in **Table 2** on the next page. The scope of the articles that remained following title and abstract examination, based on their abstracts, are also included in the table. It was possible for some articles to be coded into more than one category so the numbers in the lower portion of the table do not correlate with the number of papers identified.

TABLE 2. THE SCOPE OF THE ARTICLES BASED ON ABSTRACT EXAMINATION

Articles	Number
<b>Titles found</b>	<b>217</b>
<b>Included following examination of titles and abstracts</b>	<b>35</b>
<b>These articles were in the following categories</b>	
<b>Reviews</b>	<b>10</b>
<b>Telephone hotlines</b>	<b>18</b>
<b>Telephone and internet</b>	<b>4</b>
<b>Internet</b>	<b>8</b>
<b>Program evaluation</b>	<b>10</b>
<b>Risk assessment</b>	<b>4</b>
<b>Veteran population</b>	<b>3</b>

## Results

After the full text examination, 22 papers were included in the review, 20 found by an electronic search and two by the manual search. The analysis of characteristics of included papers is presented in **Table 3** below.

**TABLE 3: ANALYSIS OF CHARACTERISTICS OF INCLUDED PAPERS**

Papers included after examination of full text	22 <sup>1-22</sup>
<b>Type of study</b>	
• Reviews	7 <sup>8, 9, 12-14, 18, 19</sup>
• Studies with original data	15 <sup>1-7, 10, 11, 15-17, 20-22</sup>
<b>Main mode of communication in research articles</b>	
• Telephone	10 <sup>2-6, 10, 16, 20-22</sup>
• Internet	3 <sup>1, 11, 17</sup>
• Comparison of modes	2 <sup>7, 15</sup>
<b>Themes of studies</b>	
• Postvention (intervention after an attempt)	2 <sup>2, 22</sup>
• cost effectiveness of videoconferencing vs. face to face	1 <sup>15</sup>
• Screening	2 <sup>3, 11</sup>
○ Screening by telephone	1 <sup>3</sup>
○ Online Screening	1 <sup>11</sup>
• Program evaluation	13 <sup>1, 2, 5-7, 10, 11, 15-17, 20-22</sup>
○ Long-term direct outcomes	5 <sup>2, 5, 6, 20, 22</sup>
○ Short-term intermediate outcomes	6 <sup>1, 7, 10, 16, 17, 21</sup>
○ Cost effectiveness	1 <sup>15</sup>
<b>Study design</b>	
• RCT	6 <sup>2, 3, 5, 6, 21, 22</sup>
• Large cohort with long follow up	1 <sup>4</sup>
• Prospective cost-effectiveness	1 <sup>15</sup>
• Remaining: interrupted time series or cross-sectional	7
<b>Time of publication</b>	
• Earlier than the Krysinska review, but not included	3 <sup>13, 17, 22</sup>
• At the same time or after the Krysinska review	8 <sup>7-12, 14, 19</sup>
○ Reviews	5 <sup>8, 9, 12, 14, 19</sup>
○ Data papers	3 <sup>7, 10, 11</sup>
<b>Country where research was performed</b>	
• US	6 <sup>3, 10, 11, 17, 20, 21</sup>
• UK	3 <sup>5, 6, 22</sup>
• Israel	2 <sup>1, 7</sup>
• Australia	1 <sup>16</sup>
• Canada	1 <sup>15</sup>
• Sweden	1 <sup>2</sup>



The most important was the systematic review by Krysinska *at al*, 2007 which addressed questions very similar to the research questions outlined for this project. We compared the results of our search with those of Krysinska and all articles included in the previous review which investigated suicide were identified using our search methods. A number of papers which focused on e-health/psychology/psychiatry that were included in the Krysinska review were excluded from our review. Using the current search strategy a further eleven pertinent papers were identified, six of which were reviews. The most important review for our purposes was that of Godleski which discussed telehealth suicide prevention in the veteran setting. The remaining five papers contained new data and they are summarised below. In order to avoid duplication of effort we will summarise the main findings of these reviews as they apply to the current research questions and update the reviews by discussing the implications of the additional papers identified. Full copies of the reviews by Krysinska and De Leo and Godleski are provided at the end of the literature review. Summary of data extracted from all included papers are presented in **Appendix A**.

## **Summary of Key Papers**

### **Krysinka and De Leo, 2007**

*Telecommunication and Suicide Prevention: Hopes and Challenges for the New Century*

#### **1. Telephone Services and Suicide Prevention**

Telephone services are considered the traditional telecommunication medium for crisis intervention and suicide prevention and have been used to:

- Provide support to individuals in crisis;
- Deliver brief psychotherapy;
- Provide information and support to relative and friends of suicidal individuals;
- Improve treatment and compliance and outcome in patients with a history of suicidal behaviour; and
- Assist the elderly at risk of suicide.

Despite telephone services being the traditional medium for suicide prevention there are very few studies supporting the effectiveness of these services for suicide prevention. The major limitations in collecting data in this area are the factors that are considered the advantages of telephone counselling: anonymity and confidentiality of services.

**Key findings from the literature:**

Studies looking at clients and counsellors satisfaction with provided interventions, repeated use of services and referral outcomes show positive results.

1. Ecological and time-series studies yield conflicting results or indicate that suicide hotlines may help reduce suicide rates in particular sub-populations e.g. young white females.
2. A brief telephone intervention has been deemed as effective particularly when face-to-face options are unavailable or inconvenient; however these results are not generalisable to individuals at medium or high levels of suicide risk.
3. Programmes aimed at providing support and information to callers concerned about a suicidal friend have been reported as being potentially beneficial to both the callers and men at risk of suicide.
4. Conflicting results have been reported about the efficacy of programs which provide individuals with cards or letters providing details of counselling services.
5. Maintained telephone contact between health services and individuals who have attempted suicide yielded no difference in repetition events, suicidal ideation scores and treatment attendance.
6. SMS technology is a promising means of improving outpatient attendance in primary care.
7. A phone based service which is a portable alarm system providing rapid intervention in medical and psychological emergencies resulted in significant reductions in suicidal deaths in individuals aged 65 years and over compared with the general population.

**2. Videoconferencing and suicide prevention**

Only one paper was identified which reported on the efficacy of videoconferencing for suicide prevention.

**Key findings from the literature:**

1. Individuals in remote areas who were considered a suicide risk and linked via videoconference with a psychiatrist, local nurse or counsellor reported high levels of satisfaction with the service.
2. The service was effective both in terms of costs involved and clinical outcomes.

**3. Web-based modalities and suicide prevention**

The internet is widely used as a tool for suicide prevention with reports of internet based approaches being adopted for:

- online suicide risk screening;

- interventions for individuals who have planned or attempted suicide, identified using Web-based facilities;
- email communication has been used for crisis intervention; and
- websites and mailing lists have been developed to assist clinical services and raise awareness on suicide prevention issues among the general public and health professionals.

The use of telecommunication based technologies in interventions with suicidal individuals raises several issues. The major disadvantages of such interventions are based on the limited risk assessment opportunities due to lack of visual cues, client's anonymity, as well as limited access to consultation, referral, emergency care and hospitalisation services.

### ***Email***

Although befriending by email is based on the same guiding principles of caring as other methods of contact there are several difference between this method and phone counselling. Despite its two major disadvantages, asynchronicity and lack of verbal immediacy, email communication adds an extra degree of anonymity and control; allows for sharing of emotions without having a direct witness; and gives both helpers seekers and counsellors additional time to compose a message.

#### **Key findings from the literature:**

To date there is a lack of information regarding the efficacy of email crisis intervention and websites providing support and referral to suicidal individuals. The majority of published material consists of:

1. Case reports of attempted or completed suicides using methods described online;
2. Descriptions of web-based interventions and information sources; and
3. Theoretical analyses of phenomena related to virtual communities and online interpersonal communication.
4. Positive feedback from help seekers and volunteers has been reported

### **Chat rooms**

Online discussion groups may provide support to suicidal individuals by encouraging sharing of thoughts and feelings in a supportive and understanding environment, by strengthening help-seeking attitudes, and providing links to online and offline crisis intervention and mental health services.

Due to methodological difficulties including anonymity of members in online communities there is a paucity of research in this area.

**Key findings from the literature:**

1. A qualitative study on messages posted on a suicide bulletin board and direct interviews with the group indicated that ‘within certain domains, a substantial degree of “therapeutic work” can and does spontaneously take place on the internet’.
2. The group members positively evaluated the constancy of support, appreciated an opportunity to express themselves, to share useful information and to engage in mutually helping relationships. They also did not discourage seeking professional help and considered the online support as a supplement to traditional forms of psychotherapy.

**Online suicide prevention education and training**

There are a number of websites which have been launched to educate the general public and health professionals about suicide risk factors, warning signs and referral pathways.

Currently there is a scarcity of research concerning the effectiveness of educational websites to the general public and health professionals; however, preliminary results are encouraging.

**Key findings from the literature:**

1. Individuals participating in online workshops showed consistent improvements in their knowledge of suicide and positively rated their educational experience.

**Discussion**

Despite a rapid increase in suicide prevention initiatives and programs based on telecommunication technologies, there have been few research projects to evaluate their effectiveness. The guiding principles of anonymity of callers and confidentiality of services do not allow for randomised controlled follow-up studies and create ethical and legal problems related to data collection. Online crisis intervention services face identical difficulties in data collection and analysis. Although correlational studies show an impact of crisis intervention centres on suicide rates, they do not allow for drawing cause-and-effect conclusions. Anecdotal reports and qualitative data indicating high levels of callers’ satisfaction with services and high numbers of people using services are not sufficient to prove their impact on the actual prevalence of fatal and non-fatal suicidal behaviour.

The continuing development and use of telecommunication equipment and technologies requires more research concerning cost-effectiveness and sustainability of such programs. Available data indicates that telephone based interventions and suicide risk assessment via videoconferencing do not overburden health providers and are feasible to run. However, concerns have been raised with regard to resource implications for the introduction of real-time chat befriending and helpers' burnout and system capacity overload in web-based crisis intervention services.

In order to design and implement effective telecommunication based strategies further research is needed to understand the dynamics of online and offline communication and crisis interventions and the needs of people at risk of suicide.

## Conclusion

Telecommunication-based approaches to suicide prevention seem quite promising however there is currently no clear evidence confirming their usefulness. Further research could deepen our knowledge concerning which types of interventions using which media of communication are effective in particular populations at risk of suicidal behaviour and its repetition. Future studies could determine whether it is possible to prevent suicide and deliver effective treatment exclusively by phone or via the internet, or if the use of these communication technologies is limited to supplementing the more traditional face-to-face interventions.

**Table 4** summarises potential future developments in the use of telecommunication technologies in suicide prevention and relevant areas of research.

**TABLE 4. FUTURE DEVELOPMENTS AND RESEARCH IN THE USE OF TELECOMMUNICATION TECHNOLOGIES IN SUICIDE PREVENTION AND RELEVANT AREAS OF RESEARCH.**

Future developments	Future research
Further development of telecommunication-based crisis intervention and psychotherapy for individuals at risk of suicide (including development of a wide variety of interventions tailored to suit individuals at different levels of suicide risk)	Increased numbers of effectiveness and efficacy studies for crisis intervention, prevention and postvention programs using telecommunication technology (including randomised control trials)
Expanding use of new technologies in a wide range of suicide prevention initiatives (e.g. SMS in follow-up intervention programs to increase treatment compliance and/or interpersonal connectedness)	Research evaluating the effectiveness of telecommunication-based suicide prevention programs in a wide variety of demographic (e.g. age, gender, culture) and clinical subpopulations (e.g. different levels of suicide risk)

Use of multi-technology applications (e.g. crisis intervention using both telephone and online-based resources, including emails and chat rooms)	Research evaluating the effectiveness of online based suicide prevention, education and training programs for mental health professionals and the general population
Use of telecommunication technologies intertwined with face to face interventions (e.g. traditional face-to-face psychotherapy mixed with email-based and/or telephone interventions)	Studies of phenomena related to online-based communication (including virtual Werther effect, dynamics of online suicide pacts and web-based self-help groups)
Further development of web-based support and referral services for suicide survivors.	Studies of mechanisms of effective suicide prevention programs utilising telecommunication technologies (e.g. the role of interpersonal connectedness and/or support based upon referral and information
	Further development of research methodology tailored to suit the specific context of telecommunication-based interventions (including anonymity of users and confidentiality of services)
	Studies evaluating the cost-effectiveness and sustainability of telecommunication-based interventions
	Further consideration and development of medico-legal guidelines for telecommunication-based suicide prevention initiatives and programs

## **Godleski *et al*, 2008**

### *VA Telemental Health: Suicide Assessment*

The United States Department of Veterans Affairs (VA) clinicians and researchers have been instrumental in establishing the evidence based for telemental health as a modality for the delivery of mental health treatment. Remote video care has been studied and funded extensively in the VA in the last ten years, including tele-treatment for multiple mental health diagnoses, multiple mental health treatment modalities, multiple sites of care and multiple telemental health approaches. Over the past five years the evidence base has continued to establish telemental health as comparable to face-to-face treatment, and successful remote videoconferenced suicide risk assessments have been documented in the literature. Subsequently the VA has moved to develop best practices and clinical paradigms for use of videoconferencing in suicide risk assessments, addressing the legal implications. Currently, the VA offers opportunities for evaluations for suicidality to remote sites via videoconferencing and to the home via videophone and in-home messaging devices.

## **VA Telemental Health Technologies**

The typical VA high-speed (384 kbits/sec) videoconferencing scenario delivers care from a clinician at the main hospital to the patient at the remote community based outpatient clinic. In addition to videoconferencing, the VA utilised telemental health technologies to connect direct to the patient's home. Videophones insert into traditional telephone lines and provide small screen images over low bandwidth (typically 24-48 kbits/sec). While not considered equivalent to a high-speed videophone encounter in terms of transmission, the videophone provide additional information for the clinician's remote assessment beyond what is available through a sole telephone contact (e.g. facial expression, grooming and affect). Additionally, in-home messaging devices are deployed in the VA with telemental health protocols for depression, substance abuse, PTSD, schizophrenia and bipolar disorder. In-home messaging devices are small technological units that are placed in the patients' homes and connected by traditional phone lines. They generate questions and transmit data from the patient to the clinician, including triage information (e.g. clinical alerts), cumulative clinical data (e.g. daily rating scale scores) and patient educational materials. The VA Mental Illness, Research, Education and Clinical Centre (MIRECC) have developed in-home messaging device protocols that address suicide risk assessment and intervention in depressed patients.

## **Legal issues related to suicide assessments**

The three main legal arenas intersecting remote suicide assessments involve licensing, involuntary detainment/commitment and liability. Licensing law requirements for remote clinicians can limit their ability to practice across state lines. Furthermore, legal regulations become even more important if, in the course of the suicide assessment, the clinician must petition for the involuntary detainment or commitment of the patient. Finally, liability issues related to suicide assessments should be considered.

### ***Licensing***

While remote videoconferencing technology provides advantages for the delivery of suicide evaluations, licensing regulations can limit its use. Clinicians often need to be licensed in the state of the patient, just to be able to deliver the care legally across state lines, and almost always to be recognised as 'experts' able to give legal testimony regarding dangerousness. Licensing is a globally important issue for telemental health, but it is even more important when assessing suicidality because specific licensing requirements often restrict clinicians from conducting these evaluations if involuntary detainment becomes necessary.

***Involuntary detainment/commitment***

Patients who are considered a danger to themselves or others can be detained and committed to involuntary hospitalisation if they meet criteria established by state law, generally determined by an evaluation with a mental health clinician. These evaluations of dangerousness have traditionally been conducted in person, but telemental health offers opportunities for remote assessment. This is particularly important if the patient is geographically distant from the nearest qualified evaluator.

***Liability***

Liability for remote suicide evaluations falls into two major categories: abandonment and negligence. Issues of abandonment could arise if the technical transmission failed during the patient interview. These could be readily addressed with contingency plans, e.g. providing for back up telephone connections, access to other clinicians, or other options to address technical interruption in care. Since the acknowledgement that mental illness may lead to suicide laws have been implemented to protect individuals from endangering themselves. Once a clinician determines that a patient presents a high risk of endangering him or herself, each state defines the level of duty the clinician has to try to prevent this, with involuntary detainment and commitment to hospitalisation if need be. Telemental health suicide assessments would be bound by the same duty of reasonable care provision that face-to-face visits require. The remote suicide assessment should complete the same comprehensive clinical components of an in-person visit for suicide evaluation.

The increasing evidence base in the literature supports the mental health videoconferencing modality itself as reasonable care. Telemental health studies support the notion that telepsychiatry assessments produce reliable results, leading to improved clinical outcomes with good patient and clinician satisfaction (Frueh et al 2007; Monnier et al 2003). More recently, a number of randomised controlled studies have concluded that telemental health visits are comparable to face to face (De Las Cuevas et al., 2006; Fortney et al., 2007; Frueh et al., 2005, 2007; Ruskin et al., 2004). A number of these randomised controlled studies actually treat two conditions most closely associated with suicide: depression and alcohol dependence. Specifically, videoconferencing equipment has been used successfully in suicide evaluations. A recent report demonstrated successful outcomes as well as cost efficiency with suicidal patient evaluation using videoconferencing equipment in a remote rural area. A total of 71 patients were evaluated successfully, with three patients being referred to a secondary hospital for further assessment and care. There were no suicides.



***Lessons learned/best practices***

The use of telemental health in suicide risk assessments within the VA has yielded a number of lessons learned and best practices which address the legal challenges. These consist of four basic areas:

- (a) practicing within local legal regulations;
- (b) using clinical judgement in patient selection;
- (c) utilising accepted suicide assessment parameters; and
- (d) addressing contingency plans.

**Practicing within local legal regulations**

Before deciding whether or not to offer suicide assessment using videoconferencing to a remote location, local legal regulations must be taken into consideration.

Awareness of the state laws regarding telemental health assessment is important is the encounter crosses state lines, and especially if it involves licensure and involuntary detainment and commitment procedures.

Knowledge of the local laws at a VA site helps determine whether remote suicide assessments can be conducted at a particular site and with what procedures.

**Using clinical judgement in patient selection**

In order to provide optimal patient care as well as minimise liability, clinical judgement is key to patient selection remote video suicide assessments. Factors taken into consideration at the VA include:

- Distance;
- Patient acuity;
- Clinician familiarity with the patient;
- Likelihood of imminent hospitalisation; and
- Probability that suicide and hospitalisation could be prevented with a remote video intervention.

Suicide behaviour protective factors such as strong spiritual beliefs, strong family bonds, life satisfaction and ability to handle stress can be readily evaluated through videoconferencing equipment.

If it is known that the patient will require hospitalisation based upon history prior to the assessment, then it may make more sense to try and transport the patient directly to hospital.

### **Utilising accepted suicide risk assessment parameters**

Use of standardised accepted decision trees with comprehensive elements for suicide assessment seeks to provide optimal patient care while minimising liability risk in face-to-face as well as remote assessments.

VA suicide assessment tools for clinicians and patients are posted regularly on the internet.

### **Addressing contingency plans**

It is helpful to establish contingencies for emergencies during the suicide assessment, such as equipment failure and on-site need for security/police back-up.

At the VA there is generally telephone back-up if the video connection is interrupted so the patient and clinician are able to continue contact through a landline telephone. In addition, when the care is being delivered to a remote VA clinic, there are other clinicians present, albeit not always mental health, who can resume care of the patient if the connection fails.

Liaison between law enforcement at the clinician and patient sites is necessary in the case of an on-site suicide attempt, a need for involuntary detention, or to remove any access to suicidal means e.g. remove a firearm, or secure and safe transport to another location for hospitalisation or further care.

## **Discussion**

Future directions should include careful analysis and research regarding the outcomes of, and the systematic impact on, telemental health evaluations of suicidal patients. The VA is working with the National Centre for Suicide Prevention to establish a database to track the volume and disposition of suicide assessments done remotely by videoconferencing. Outcome analysis will help delineate the clinical factors leading to successful remote assessment, for example whether or not there are specific diagnoses or clinical indicators that lend themselves well to remote assessment or contra-indicate it.

**Gould et al, 2007**

*An evaluation of crisis hotline outcomes. Part 2: Suicidal callers.*

Gould evaluated the effectiveness of integrated telephone crisis services/hotlines, examining a short- and medium-term intermediate outcome of changes in callers' suicide state from the beginning to the end of their calls. Assessment was made for 1,085 suicide callers at the time of the first call and for 380 participants in the follow-up assessment within 3 weeks. Several key findings emerged. Seriously suicidal individuals reached out to telephone crisis services. Significant decreases in suicidal state were found during the course of the telephone session, with continuing decreases in hopelessness and psychological pain in the following weeks. A caller's intent to die at the end of the call was the most potent predictor of subsequent suicidality.

*Weakness of the study: intermediate outcome measure was used. The follow up group was self-selected.*

**Gilat and Shahar, 2007**

*Emotional first aid for a suicide crisis: comparison between Telephonic hotline and internet.*

Gilat, 2007 compared characteristics of calls to volunteer-based Israeli Association for Emotional First Aid (ERAN). Calls were made using three different technologies: telephonic hotline, personal chat and asynchronous online support group (n = 4426, 373 and 954, respectively). Results: Threats of suicide were significantly more frequent among participants in the asynchronous support group (15%) than the telephone and personal chat (1.4% and 0.3%). The frequency distribution was similar for male and female callers.

*Weakness of the study: Although there is some evidence that it is easier to express themselves (make a suicide threat) in an asynchronous support group, no suicide outcome, even intermediate was measured in this study. Demographic characteristics of the callers were limited, there is no information on age distribution.*

**Knaevelsrud and Maercker, 2006**

*Does the quality of the working alliance predict treatment outcome in online psychotherapy for traumatized patients?*

Knaevelsrud 2006 investigated the correlation between therapeutic relationship between patient and therapist (also called working alliance inventory, WAI-S) and therapeutic outcomes for patients receiving online therapy for PTSD in a population of 48 people (civilians) with PTSD. Those at risk

of suicide and psychosis were specifically excluded. Intervention was a short-term, Internet-based, cognitive-behavioural therapy program. The revised Impact of Event Scale (IES-R) and the depression and anxiety subscales of the Brief Symptom Inventory (BSI) were used to assess treatment outcome. Results: High alliance scores were found. There was only a low to modest association between the quality of the therapeutic relationship and treatment outcome.

*Importance of the study: High alliance scores found in the study indicate that it was possible to establish a stable and positive therapeutic relationship online.*

*Weakness of the study: only treatment group was included, no comparison was made between online treatment and face to face treatment groups, selection of the group was biased towards healthier people, there was no range in WAI-S.*

### **Haas et al, 2008**

*An interactive web-based method of outreach to college students at risk for suicide.*

Haas 2008 tested an interactive, Web-based method to screen college students for of suicide to encourage them to seek treatment. From 2002 to 2005 students at two universities were invited to complete an online questionnaire that screened for depression and other suicide risk factors. Respondents received a personalized assessment created automatically by the program and were able to communicate anonymously with a clinical counsellor online. At-risk students were urged to attend in-person evaluation and treatment. A total of 1,162 students (8% of those invited) completed the screening questionnaire. About 84% of students were designated as at high or moderate risk, about 19% of those attended an in-person evaluation and about 13% entered treatment. Women were significantly more likely than were men to submit the screening questionnaire, but comparable percentages of male and female respondents came for evaluation and entered treatment. Main result: Engaging in online dialogues with the counsellor increases the likelihood of coming for evaluation and entering treatment 3 times.

*Weakness of the study: there was no control group, the proportion of identified by online screening was not known (since the baseline of students at high risk of suicide not known).*

### **Vaiva et al, 2006**

*Effect of telephone contact on further suicide attempts in patients discharged from an emergency department: randomised controlled study.*

Vaiva 2006 investigated the effects of a single telephone in patients discharged after attempted suicide at one year follow up in a population of 605 people discharged from 13 emergency

departments in the north of France. Patients who attempted suicide by deliberate self poisoning were randomised to two groups. Patients in the intervention group were contacted by telephone at one month or three months after discharge to evaluate the success of recommended treatment or to adjust treatment. Control patients received treatment as usual, in most cases referral back to their general practitioner. Outcome was another suicide attempt. There were no significant differences in re-attempted suicides in contact group than in no-contact (although numbers were lower in 1- and 3-month groups by 7% and 5%)

*Strength of the study-RCT Design, high proportion of eligible patients agreed to participate (~75%).*

*Weakness of the study: low impact intervention (i.e. compared with twice weekly telephone check in DeLeo 2002).*

## Appendix A: Summary Characteristics and Results of Included Studies

TABLE 5: SUMMARY CHARACTERISTICS AND RESULTS OF INCLUDED STUDIES

Study	Aims and Outcomes	Study Design, Population, Intervention, Measures	Main findings	Strengths and Limitations
Studies with internet as the main mode of communication				
Barak and Bloch 2006 †	<p><u>Program evaluation</u></p> <p><u>Short-term intermediate effects</u></p> <p>Correlation between counselling styles and perceived helpfulness and the session impact</p> <p>Impacting factor-rating of session helpfulness</p> <ul style="list-style-type: none"> <li>○ Study 1-Caller's</li> <li>○ Study 2 –Helper's</li> </ul> <p>Outcomes: session</p>	<p><u>Design</u>-retrospective, analysis of recorded chat conversations</p> <p><u>Population</u>: callers to Israeli online emotional support service for suicidal and highly distressed people (SAHAR) and volunteer helpers.</p> <p><u>Study 1</u>: All chats (N=80) were randomly selected. Out of these, 40 chats contained deliberate expression of helpfulness by clients at the termination stage and 40 did not.</p> <p><u>Study 2</u>: Helpfulness of all chats (N=60) was appraised by helpers.</p> <p><u>Outcome measures</u>:</p> <ul style="list-style-type: none"> <li>○ Client's rating was evaluated from a recorded spontaneous, deliberate statement by a client at the end of the session</li> <li>○ Helper's rating was assessed using nine-point Session Helpfulness Rating Scale filled immediately after the session.</li> <li>○ Session impact evaluated by independent experts using 4 session-impact factor (depth, smoothness,</li> </ul>	<p><u>Study 1</u>: All four impact factors significantly differentiated between helpful and other conversations, while textual variables did not.</p> <p><u>Study 2</u>: Session helpfulness as rated by helpers was significantly and positively correlated with all four session-impact factors and with two textual factors (length of helper's and client's writing).</p>	<p>Importance of the study:</p> <p>show that counselling style has an impact on perceived helpfulness for online helpers, similarly as for telephone helpers.</p>

	impact (in both studies)	positivity and emotional arousal), and some textual factors (use of positive and negative emotional words and writing lengths).		
Knaevelsrud and Maercker 2006 ‡	<p><u>Program evaluation</u></p> <p><u>Short-term intermediate effects</u></p> <p>Correlation between therapeutic relationship between patient and therapist (working alliance inventory, WAI-S) and therapeutic outcomes for patients.</p> <p>Impacting factor: WAIS</p> <p>Outcome - therapeutic outcomes for patients.</p>	<p>Population: 48 people civilians with receiving online therapy for PTSD (those at risk of suicide and psychosis specifically excluded). All patients received a short-term, Internet-based, cognitive-behavioural therapy.</p> <p>Treatment outcome was assessed by the revised Impact of Event Scale (IES-R) and the depression and anxiety subscales of the Brief Symptom Inventory (BSI).</p>	<ul style="list-style-type: none"> <li>○ High alliance scores were found in all patients.</li> <li>○ There was only a low to modest association between the quality of the therapeutic relationship and treatment outcome.</li> </ul>	<p><u>Importance:</u></p> <p>High alliance scores indicate that it was possible to establish a stable and positive therapeutic relationship online.</p> <p><u>Limitations:</u></p> <ul style="list-style-type: none"> <li>○ only treatment group included,</li> <li>○ no comparison between online treatment and face to face treatment groups, self-selected group, no range in WAI-S.</li> </ul>
Haas et al. 2008 ‡	<p><u>Screening</u></p> <p>Evaluation of the</p>	<p>N=1,162 university students.</p> <p>Participation rate=8% of invited.</p>	<ul style="list-style-type: none"> <li>○ ~ 84% of students were designated as at high or moderate risk,</li> <li>○ ~ 19% of those attended an in-person evaluation and</li> </ul>	<ul style="list-style-type: none"> <li>○ Weakness of the study: no control group,</li> <li>○ The proportion of identified by online screening not known (since the baseline of</li> </ul>

	<p>screening tool for depression and other suicide risk factors.</p> <p>Outcome: likelihood of coming for evaluation and entering treatment 3 times.</p>	<ul style="list-style-type: none"> <li>○ 8% completed the screening questionnaire for depression and other suicide risk factors.</li> <li>○ Respondents received a personalized assessment created automatically by the program and were able to communicate anonymously with a clinical counsellor online.</li> <li>○ At-risk students were urged to attend in-person evaluation and treatment.</li> </ul>	<ul style="list-style-type: none"> <li>○ ~ 13% entered treatment.</li> <li>○ Women were significantly more likely than were men to submit the screening questionnaire, but</li> <li>○ comparable percentages of male and female respondents came for evaluation and entered treatment.</li> </ul> <p><u>Main result:</u></p> <ul style="list-style-type: none"> <li>○ Engaging in online dialogues with the counsellor increases the likelihood of coming for evaluation and entering treatment 3 times.</li> </ul>	<p>students at high risk of suicide not known).</p>
<p>Studies with telephone as main mode of communication</p>				
<p>Cedere et al. 2002 †</p>	<p><u>Program evaluation:</u></p> <p><u>Suicide postvention</u></p> <p><u>Long-term effects</u></p> <p>Effect of telephone contact on outcomes:</p> <ul style="list-style-type: none"> <li>○ Repetition of suicide attempts</li> <li>○ Treatment attendance</li> <li>○ mental health</li> </ul>	<ul style="list-style-type: none"> <li>○ RCT</li> <li>○ 216 (out of 281 consecutive) suicide attempters were randomised one month later to either 2 groups.</li> <li>○ Control group received treatment as usual. Intervention group had two additional telephone contact at 4 and 8 months.</li> <li>○ The telephone interventions included motivational support to attend and/or to stay in treatment.</li> <li>○ Mental health outcome measures –GAF<sup>1</sup>, SSI<sup>2</sup> and GSI<sup>3</sup> (SCL-90<sup>4</sup>) applied at baseline and 12 months</li> </ul>	<p>There were no differences in:</p> <ul style="list-style-type: none"> <li>○ repetition of suicide attempts (one each per group)</li> <li>○ Treatment attendance</li> <li>○ Suicide Ideation and Severity of distress (GSI, GAF and SSI).</li> </ul> <p>There was some differences in the subgroups of individuals with no psychiatric initial treatment, in those in the intervention group:</p> <ul style="list-style-type: none"> <li>○ psychological symptoms improved in more dimensions</li> </ul>	<p><u>Strengths:</u></p> <ul style="list-style-type: none"> <li>○ Design of the study</li> <li>○ Patient selection consecutive with high (88%) participation rate</li> </ul> <p><u>Limitations</u></p> <ul style="list-style-type: none"> <li>○ Groups different at baseline: SSI higher in intervention group</li> <li>○ <i>Subgroups of patients selected post hoc.</i></li> <li>○ <i>Small sample with primary outcomes</i></li> <li>○ <i>Unimpressive therapeutic treatment</i></li> </ul>



			(7 vs. 1 on SCL-90 scale) ○ Treatment attendance was better (56% vs. 11%)	<u>Quality of evidence</u> ○ Strong evidence for lack of differences.
De Leo et al. 2002 †	<u>Program evaluation</u> <u>Suicide prevention</u> <u>Long-term effects</u>  To examine long-term effects of telephone-based intervention on  (Outcome) the rate of suicide in elderly population.	○ Prospective cohort study, ○ Intervention: TeleHelp-TeleCheck Service (twice-weekly telephone calls for support and needs assessment and a 24h emergency alarm) ○ Intervention group: N=18 641 elderly, 65 and over from Veneto region of Italy ○ Comparison group: expected suicide rate (corresponding general population of the region) ○ 11 years follow up (1988-1998).	Significantly fewer suicide deaths than expected occurred among elderly service users of both sexes:  $N_{(OBSERVED)} = 6$ vs. $N_{(EXPECTED)} = 21$ ;  The service performed better for females  $N_{(OBSERVED)} = 2$ vs. $N_{(EXPECTED)} = 12$  but not as well for males:  $N_{(OBSERVED)} = 4$ vs. $N_{(EXPECTED)} = 9$	<u>Strengths:</u> ○ Design of the study ○ Large population ○ Long follow up ○ High impact intervention  <u>Strong evidence</u> that regular telephone contact prevents suicide in elderly population over a long time period.
Mishara et al. 2005 †	<u>Program Evaluation</u> <u>Support for family and friends</u> <u>Long-term effects</u>	Semi RCT: randomly invited to participate, side-to-side comparison  Callers to a Canadian Suicide Prevention Centre, who were concerned family or friends of men at high risk of suicide	○ The third party participants in all programs reported a positive effect on suicidal men and family and friends: significantly less suicidal ideation, fewer suicide attempts, and less depressive symptoms. ○ Family and friends had less psychological distress, used	<u>Some</u> evidence that providing services to family and friends of high-risk suicidal men may prevent suicide in this population.  <u>Limitation:</u> the possibility of spontaneous improvement

	<p>To compare effectiveness of 4 programs on (outcomes):</p> <ul style="list-style-type: none"> <li>○ Effects on the Suicidal Men</li> <li>○ Level of Satisfaction with the Programs</li> <li>○ Perceived Usefulness of the Programs</li> </ul> <p>(all outcomes assessed by the third party)</p>	<p>N=131, participation rate=37%</p> <p>Interventions:</p> <ol style="list-style-type: none"> <li>1. Information Session (in person, 1.5h),</li> <li>2. Information session with telephone follow-up,</li> <li>3. Rapid Referral system,</li> <li>4. Telephone Support</li> </ol> <p>Outcomes measures:</p> <p>All callers completed questionnaires:</p> <ul style="list-style-type: none"> <li>○ about callers</li> <li>○ about men at risk</li> </ul> <p>at pre-test, 2 month post-test and at 6 months follow-up.</p> <p>and about satisfaction with the programs and program usefulness at 6 months.</p>	<p>more positive coping mechanisms, and better communication with the suicidal man.</p> <p>There was no difference between programs in these changes.</p> <p>The Telephone Support was considered the most useful program.</p> <p>It was assessed as better on</p> <ul style="list-style-type: none"> <li>○ length of the intervention,</li> <li>○ meeting callers needs,</li> <li>○ understanding mental health problems,</li> <li>○ improving communication with the suicidal man,</li> <li>○ increasing caller's use of other resources.</li> </ul>	<p>cannot be excluded (no control group).</p> <p>All four programs appear to be helpful.</p> <p>The Telephone Support (<i>continuous support</i>) was perceived as more useful than other programs (<i>one-off support sessions</i>)</p>
<p>Vaiva et al. 2006 ‡</p>	<p><u>Program evaluation</u></p> <p><u>Long-term effects</u></p> <p>The effect of telephone contact intervention on frequency of re-</p>	<p>RCT</p> <p>Population: N=605, people who attempted suicide, discharged from emergency departments in France</p> <p>Intervention patients were contacted by telephone at one month or three months after discharge to evaluate the success of recommended treatment or to adjust</p>	<p>There were no significant differences in re-attempted suicides in contact group than in no-contact, although numbers were lower in 1- and 3-month groups by 7% and 5%</p>	<p>Strength of the study-</p> <p>RCT design,</p> <p>high participation rate (~75% of eligible patients).</p> <p>Limitations:</p> <p>low impact intervention</p> <p>(i.e. compared with twice</p>

	attempted suicide.  Outcome: another suicide attempt.	treatment.  Control - treatment as usual.		<i>weekly telephone check in DeLeo 2002).</i>
Evans 1999†	<u>Program evaluation:</u>  <u>Long-term effects</u>  Effect of telephone contact on outcome:  deliberate self-harm repetition within six months	RCT  randomisation concealed  N=827 deliberate self-harm patients  consecutive patients  64% participation rate (of eligible)  intervention (N=417) - 24h telephone support (offering a return call from a psychiatrist)  control (N=410) -treatment as usual  follow up 6 months    Outcomes measured by admission to hospital following self-harm for next 6 months	<ul style="list-style-type: none"> <li>○ The intervention had no significant effect on the overall DSH repetition rate (odds ratio 1.20, 95% CI 0.82-1.75).</li> <li>○ Sub-group analysis suggested that response to the intervention differed according to the past history of DSH</li> <li>○ subjects with a previous history repeating significantly more often in the intervention group often and first-timers appearing to benefit (insignificantly).</li> <li>○</li> <li>○</li> </ul>	<u>Strengths:</u>  <ul style="list-style-type: none"> <li>○ Design of the study</li> <li>○ Patient selection consecutive with high participation rate</li> <li>○ objective outcome measure</li> </ul> Limitation  DSH may be treated as attention seeking behaviour, not genuine suicidality
Evans 2005†	This study is a follow up on the previous study (Evans 1999)	As above  follow up 12 months	<ul style="list-style-type: none"> <li>○ After 12 months of follow up, the intervention still had had no significant effect on the overall DSH repetition rate.</li> <li>○ Among those with a first episode of self-harm, the possible benefit of the intervention had diminished.</li> <li>○ Of patients in the intervention group, those making telephone</li> </ul>	<u>Strong evidence</u> that telephone support has no benefit in this group of patients

			contact were more likely to have repeat episodes of self-harm.	
King et al. 2003 †	<p><u>Program Evaluation:</u></p> <p><u>Short-term intermediate effects</u></p> <p>Effect of telephone counselling on (outcome) changes in suicidality and mental state measured at the beginning and end of counselling session.</p>	<p>Uncontrolled, observational, retrospective.</p> <p>100 taped telephone counselling sessions with young people seeking help in Kids Help Line.</p> <p>Suicidal ideation or intent was evaluated by independent assessors at the beginning and end of session.</p> <p>Changes in suicidality and mental state were measured using a study-developed rating scale.</p>	<p>Significant decreases in suicidality and significant improvement in mental state occurred during the course of counselling sessions.</p>	<p>Some evidence for a positive immediate effect on in suicidality and mental state.</p> <p>Limitations</p> <p>Not known or measured how a immediate effect translates into longer-term outcomes</p>
Rhee et al. 2005 †	<p><u>Program Evaluation:</u></p> <p><u>Short-term intermediate effects</u></p> <p>The effect of two types of brief telephone psychotherapies on</p>	<p>RCT</p> <p>N=85, 55 in therapy groups</p> <p>population: callers to a US suicide Hotline, those with high and medium suicide risk <u>excluded</u></p> <ul style="list-style-type: none"> <li>○ Intervention 1 - Solution Focused Brief Therapy (SFBT)</li> <li>○ Intervention 2 - Common Factors Therapy (CFT).</li> <li>○ Control (on waiting list for 6 weeks)</li> </ul> <p>Outcome measures: Beck Depression Inventory, Brief Symptom Inventory, Brief Psychiatric Rating Scale, Satisfaction with Life Scale, current level of</p>	<p>Improvement was significantly higher in the two treatment conditions compared to the waitlist control: for 10 out of the 14 client-reported outcome measures, there were significant differences between therapy conditions and the waiting list control condition.</p>	<p>Strengths:</p> <p>RCT design</p> <p>blinded evaluator</p> <p>Limitations:</p> <p>Excluded callers with high or medium suicide risk</p>

	(outcome): mental state before and after the session	depression on a VAS scale	There were no differences in improvement between SFBT and CFT.  Treatment worked best for the most distressed clients and the type of treatment did not seem to matter.	
Gould et al. 2007 †	<u>Program evaluation</u>  <u>Short-and medium term intermediate effects</u>  Effect of telephone helpline on (Outcome) a change in callers' suicidal state from the beginning to the end of their call.	Population: N=1,085 suicidal callers  N=380 participated in the follow-up assessment within 3 weeks.	<ul style="list-style-type: none"> <li>○ Seriously suicidal individuals reached out to telephone crisis services.</li> <li>○ Significant decreases in suicidal state were found during the course of the telephone session.</li> <li>○ A decrease in hopelessness and psychological pain was seen in the following weeks.</li> <li>○ A caller's intent to die at the end of the call was the most potent predictor of subsequent suicidality.</li> </ul>	Limitations:  Intermediate outcome measure was used. The follow up group was self-selected.
Corson et al. 2004 †	<u>Screening</u>  To evaluate:  ○ VA single-item Diagnostic tests for depression and	Cross-sectional  N=1211  Consecutive VA patients with upcoming primary care clinic appointments (Portland, US )	<ul style="list-style-type: none"> <li>○ VA single-item screen had specificity of 88% and sensitivity of 78%.</li> <li>○ A PHQ-2 score of <math>\geq 3</math> had similar specificity (91%) but higher sensitivity (97%).</li> <li>○ For case finding, the PHQ-8 was similar to the PHQ-9.</li> <li>○ Approximately 20% of patients</li> </ul>	<u>Strengths:</u>  <ul style="list-style-type: none"> <li>○ Large population</li> <li>○ Gold standard used</li> <li>○ Test validated</li> </ul>

	<p>suicidality against a Standard test.</p> <ul style="list-style-type: none"> <li>○ Utility of scoring algorithms in screening for depression and suicidality in a VA primary care setting.</li> </ul>	<p>All were administered a telephone test:</p> <ul style="list-style-type: none"> <li>○ the VA single-item screen assessing depressed mood over the past year and</li> <li>○ the PHQ<sup>5</sup> (PHQ-9, PHQ-8 and PHQ-2) as the reference standard).</li> </ul> <p>Patients whose responses suggested potential suicidality were administered 2 additional items assessing suicidal ideation.</p>	<p>screened positive for moderate depression, 7% reported thoughts of death or suicide, 2% reported thoughts of harming themselves, and 1% had specific plans.</p>	<p><u>Quality of evidence</u></p> <p>Strong evidence that the VA single-item depression screen psychometric properties for depression screening than the PHQ-2.</p>
<b>Studies comparing modes of communication</b>				
<p>Jong 2004 †</p>	<p><u>Program evaluation</u></p> <p><u>Risk assessment</u></p> <p><u>Cost-effectiveness</u></p> <p><u>Intermediate effects</u></p> <p>Cost-effectiveness of consultations via videoconferencing vs. in-person</p> <p>User satisfaction (doctors, mental health workers, nurses &amp; patients)</p>	<p>Cost effectiveness study</p> <p>N= 71</p> <p>Patients needing a suicide risk assessment in a remote community in Canada.</p> <p>The cost of maintenance and on-line charges of videoconference were compared with the cost of sending the patient out for assessment.</p> <p>User satisfaction was assessed through qualitative questionnaires.</p>	<p>The cost use of videoconferencing per person was \$206 compared with \$1745, a saving of \$1539. It resulted in total savings of \$140,088 in 2003.</p> <p>Patients and health professionals were satisfied with mental health assessment via videoconference.</p>	<p>Strengths:</p> <p>Simple and effective comparison of costs</p> <p>Limitations:</p> <ul style="list-style-type: none"> <li>○ Comparison may not translate to other circumstances</li> <li>○ The setting up and the maintenance of videoconference has to be supported by a health centre or other organisation in the community.</li> </ul>
<p>Gilat and</p>	<p><u>Program evaluation</u></p>	<p>N=5,753 callers to volunteer-based Israeli Association</p>	<p>Threats of suicide were significantly more frequent among</p>	<p><u>Limitations</u></p>

Shahar 2007 ‡	Comparison of calls characteristics between telephonic hotline, personal chat and asynchronous online support group	for Emotional First Aid (ERAN). calls were made using three different technologies: telephonic hotline (n = 4426), personal chat (n =373) and asynchronous online support group (n= 954).  Outcome measure: frequency distribution of threats of suicide	participants in the asynchronous support group (15%) than the telephone and personal chat (1.4% and 0.3%).  The frequency distribution was similar for male and female callers.	Although there is some evidence that it is easier to express themselves (make a suicide threat) in a asynchronous support group, no suicide outcome, even intermediate was measured.  Demographic characteristics of the callers were limited, there is no information on age distribution.
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† included in the Krysinska review

‡ not included in the Krysinska review

<sup>1</sup>GAF = Global Assessment of Functioning was assessed by an interviewer, <sup>2</sup>SSI=Scale of Suicide Ideation, <sup>3</sup>GSI=Global Severity Index,

<sup>4</sup>SCL-90=The Symptom Check List-90, <sup>5</sup>The PHQ-9 (9 items) encompasses DSM-IV criteria for major depression, the PHQ-8 (8 items) excludes the thoughts of death or suicide item, and the PHQ-2 (2 items) assesses depressed mood and anhedonia.

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