Contents

Editorial  
Suicide in Israel – An Update
*Yari Gvion, Yossi Levi-Belz, and Alan Apter*  
141

Research Trends  
Gender Differences in Deliberate Self-Poisoning in Hungary: Analyzing the Effect of Precipitating Factors and Their Relation to Depression
*Mónika Ditta Tóth, Szilvia Ádám, Emma Birkás, András Székely, Adrienne Stauder, and György Purebl*  
145

“When You’re in the Hospital, You’re in a Sort of Bubble.” Understanding the High Risk of Self-Harm and Suicide Following Psychiatric Discharge: A Qualitative Study
*Amanda Owen-Smith, Olive Bennewith, Jenny Donovan, Jonathan Evans, Keith Hawton, Nav Kapur, Susan O’Connor, and David Gunnell*  
154

Yearning to Be Heard: What Veterans Teach Us About Suicide Risk and Effective Interventions
*Lori P. Montross Thomas, Lawrence A. Palinkas, Emily A. Meier, Alana Iglewicz, Tabitha Kirkland, and Sidney Zisook*  
161

Temporal and Computerized Psycholinguistic Analysis of the Blog of a Chinese Adolescent Suicide
*Tim M. H. Li, Michael Chau, Paul S. F. Yip, and Paul W. C. Wong*  
168

Suicide Prevention E-Learning Modules Designed for Gatekeepers: A Descriptive Review
*Rezvan Ghoncheh, Hans M. Koot, and Ad J. F. M. Kerkhof*  
176

Preliminary Results From an Examination of Episodic Planning in Suicidal Behavior
*Michael D. Anestis, Stephanie M. Pennings, and Tabatha J. Williams*  
186

A CBT-Based Psychoeducational Intervention for Suicide Survivors: A Cluster Randomized Controlled Study
*Ciska Wittouck, Sara Van Autreve, Gwendolyn Portzky, and Kees van Heeringen*  
193

Measuring Trainer Fidelity in the Transfer of Suicide Prevention Training
*Wendi F. Cross, Anthony R. Pisani, Karen Schmeek-Cone, Yinglin Xia, Xin Tu, Marcie McMahon, Jimmie Lou Munfakh, and Madelyn S. Gould*  
202

News, Announcements, IASP  
213
Your article has appeared in a journal published by Hogrefe Publishing. This e-offprint is provided exclusively for the personal use of the authors. It may not be posted on a personal or institutional website or to an institutional or disciplinary repository.

If you wish to post the article to your personal or institutional website or to archive it in an institutional or disciplinary repository, please use either a pre-print or a post-print of your manuscript in accordance with the publication release for your article and our “Online Rights for Journal Articles” (www.hogrefe.com/journals).
Suicide Prevention E-Learning Modules Designed for Gatekeepers
A Descriptive Review

Rezvan Ghoncheh1,2, Hans M. Koot1, and Ad J. F. M. Kerkhof2

1Department of Developmental Psychology and the EMGO+ institute for Health and Care Research, VU University Amsterdam, The Netherlands
2Department of Clinical Psychology and the EMGO+ institute for Health and Care Research, VU University Amsterdam, The Netherlands

Abstract. Background: E-learning modules can be a useful method for educating gatekeepers in suicide prevention and awareness. Aims: To review and provide an overview of e-learning modules on suicide prevention designed for gatekeepers and assess their effectiveness. Method: Two strategies were used. First, articles were systematically searched in databases of PubMed, Web of Science, and PsycINFO. Second, Google search was used to find e-learning modules on the Web. Results: The literature search resulted in 448 papers, of which none met the inclusion criteria of this study. The Google search resulted in 130 hits, of which 23 met the inclusion criteria of this review. Organizations that owned the modules were contacted, of which 13 responded and nine were included in this study. The effectiveness of two e-learning modules is currently being tested in a randomized controlled trial (RCT), one organization is planning to test the effectiveness of their module, and one organization has compared their face-to-face training with their online training. Furthermore, the included modules have different characteristics. Conclusion: There is a need for RCTs to study the effectiveness of online modules in this area and to understand which characteristics are essential to create effective e-learning modules to educate gatekeepers in suicide prevention.

Keywords: e-learning, gatekeepers, modules, review, suicide

Background
In the last few decades experts believe that much has been achieved in the field of suicidology. Identification of the risk factors associated with suicidality, worldwide acknowledgment that this topic is an important public health problem, and the development of crisis helplines are just a few of the accomplishments to name (O’Connor, Platt, & Gordon, 2011). Nevertheless, despite these remarkable achievements, there are still many challenges that need the attention of suicidologists. Recently, the World Health Organization (WHO) published a framework addressing the needed strategies in suicide prevention (WHO, 2012). One of the proposed strategies was to train gatekeepers in suicide prevention. Gatekeepers, in this case, are defined as professionals who, due to their profession, come in contact with people who might be at risk for suicide. For instance, primary health care providers, school staff, and police are all gatekeepers (Gould & Kramer, 2001; WHO, 2012). In order to detect and prevent suicidality, defined as suicidal behavior, that is, thoughts and actions, it is important that gatekeepers have sufficient knowledge about the prevalence and appearance of suicidality. Furthermore, it is essential that professionals interacting with at-risk individuals are familiar with the required steps in the process of recognition, guidance, and referral of suicidal persons. When warning signs associated with suicidality occur, if trained, gatekeepers can be among the first people to recognize them and refer the person in need for further assistance (Quinnett, 2007).

Although research regarding its effectiveness is limited, gatekeeper training is a promising tool in suicide prevention (Isaac et al., 2009; Mann et al., 2005; Rihmer, Rutz, & Pihlgren, 1995; Van der Feltz-Cornelis et al., 2011). The principle behind gatekeeper training is to give gatekeepers information about suicidality so that their knowledge increases, and they develop the attitudes and skills required to recognize, guide, and refer persons at risk for suicide (Gould & Kramer, 2001; Gould, Greenberg, Velting, & Shaffer, 2003; Mann et al., 2005; Van der Feltz-Cornelis et al., 2011). Nevertheless, even when educational training and courses are offered, several obstacles may inhibit gatekeepers from attending them. First, the subject of
suicidality is surrounded with social stigmas and taboos (WHO, 2012). Second, gatekeepers have limited time to participate in face-to-face courses and training due to their often busy schedule (Walsh, Hooven, & Kronick, 2013; Yu, Chen, Yang, Wang, & Yen, 2007). Third, face-to-face training and courses cannot take into account the needs of every participant separately. Gatekeepers have no other choice than to take part in training and courses that often take many hours, sometimes even days to attend, while they may only be interested in a small segment of the training (Yu et al., 2007). A good answer to these obstacles might be to offer suicide prevention training and courses online (Quinnnett, 2013).

Considering that in 2011, an estimated 33% of all people used the Internet worldwide (International Telecommunication Union, 2013), the shift from face-to-face to an online learning environment may be a good addition to existing prevention programs. Especially since the majority of public institutions, where gatekeepers can be found, have access to the Internet. One way to do this is to present the content of the training through e-learning modules. E-learning is a web-based structure that transfers information and knowledge to the learner (Sun, Tsai, Finger, Chen, & Yeh, 2008). E-learning modules, in this case, stand for packed pieces of information. Online learning modules have several advantages over face-to-face training and courses. First, online e-learning modules can be available 24/7 from any given location. This flexibility and accessibility allows unrestricted access to the material, thus, updating and maintaining the gained knowledge becomes easier. Second, gatekeepers have the liberty to choose which modules they want to attend depending on their needs. In addition, users are allowed to determine their own pace. Third, e-learning modules can be offered to a large audience at the same time. Fourth, e-learning modules can be composed with minimal effort and resources. In some cases, for instance when further maintenance is not needed, only their development requires financial resources, meaning that the modules can be offered at a low price or even free of charge. Lastly, tracking usage of the modules and collecting data online becomes feasible.

Nevertheless, despite these advantages there are several potential barriers that could affect effective education through e-learning methods. In 2003 and 2004, the Information Management Research Institute from Northumbria University carried out a systematic review on the barriers in effective e-learning for health professionals and students (Childs, Blenkinsopp, Hall, & Walton, 2005). The found barriers and their solutions were categorized into eight different “issue” categories: organizational, economic, hardware, software, support, pedagogical, psychological, and skills. Organizational barriers included the time-consuming development process and lack of skills. Economic issues involved the development and maintenance costs of e-learning courses. Three categories (hardware, software, and support) integrated technology issues, mostly concerning lack of availability and assistance. Finally, pedagogical, psychological, and skills barriers involved change resistance from trainers such as lack of acceptance, motivation, and appropriate skills. Although this study did not cover e-learning modules targeting gatekeepers explicitly, the discussed barriers could be generally applicable to all e-learning methods. In addition, developing e-learning for gatekeepers might be more challenging than developing e-learning for students since the level of prior knowledge and skills varies considerably among gatekeepers. While face-to-face interaction allows more flexibility in altering the course content, this will be lacking with e-learning strategies. Also, gatekeepers attending suicide prevention trainings might appreciate and benefit more from face-to-face components due to the stigma and taboos associated with this subject.

The purpose of this study was to review the currently available suicide prevention e-learning modules designed for gatekeepers, and assess their effectiveness to provide an overview of existing programs, their target and audience, the form of delivery, and findings on their efficiency. To the best of our knowledge, this is the first review conducted in this area.

Method

Two different search strategies were applied. First, a systematic search of the published literature was carried out using three databases. Second, as it was expected that the amount of published papers on this topic would be limited, Google search was used to find e-learning modules that could not be found using the first search strategy. In the review, modules were included that met the following criteria: (1) the training included a packed e-learning module, (2) it aimed to prevent suicide or suicidality, and (3) it targeted gatekeepers potentially involved in suicide prevention. Only e-learning modules meeting these three criteria were included in this study.

Literature Search

The search strategy consisted of four steps. First, in collaboration with a group of experts on suicide prevention, synonyms or related words were collected that captured the terms gatekeepers, suicide, and e-learning modules. This was done to expand the reach of the search and resulted in three search categories (see Table 1). Second, a matrix multiplication was made in a way that the search terms of each category were combined in a three-term-combination. Thus, each word from category 1 was combined with each word from category 2 and category 3, and vice versa resulting in 45 three-term combinations. Third, articles were systematically searched in PubMed, Web of Science, and PsycINFO using these three-term combinations. The database research was first carried out in February 2012 and updated in February 2013. The search period was not limited.

Finally, the abstracts of all articles found were reviewed independently by two reviewers. Duplicates were removed and only articles that met the three inclusion criteria were included. After agreement on the abstracts for
inclusion, full papers with potentially eligible abstracts were retrieved and examined in detail.

Google Search

This search strategy was carried out in August 2012 and consisted of three steps. First, the terms suicide, e-learning, and module were combined using the plus sign in Google search. Second, the results on each page were studied and if the page described, consisted of, or redirected to an e-learning module on suicide prevention, this module was included. The examination of the pages was stopped once the page contained no relevant or only recurring modules.

Results

Literature Search

The literature search resulted in 448 papers of which 110 were papers that occurred more than once. The abstracts of all 338 papers were reviewed of which nine met all three inclusion criteria for this study. The full text of the nine papers with potentially eligible abstracts was examined in detail and none of the papers met all three inclusion criteria; five included a face-to-face training, two had no e-learning module format, one included a blended learning program without suicide prevention in the distance-learning component, and one included a systematic review in which no suicide e-learning module was described.

Google Search

The Google search resulted in 263,000 results ordered in decreasing relevance. Pages were examined and the examination was stopped once a result page did not contain relevant e-learning modules or contained only e-learning modules that were included previously. Using these criteria the examination was stopped at page 13, resulting in a total of 130 potentially relevant webpages, of which 45 appeared eligible after a first screening of the available information regarding the content of the module on the webpage. After removal of duplicates (n = 7), the remaining 38 pages were examined in more detail. Finally, 15 pages were excluded from this pool, because they did not have an e-learning module format (n = 7), included a face-to-face training (n = 3), were offline (n = 2), were not about suicidality (n = 2), or in progress (n = 1), resulting in 23 useable webpages describing e-learning modules. Figure 1 depicts a flowchart of the two search strategies.

The selected modules were owned by institutes across eight different countries: US (n = 6), Australia (n = 6), The Netherlands (n = 3), UK (n = 4), Belgium (n = 1), Ireland (n = 1), Canada (n = 1), and India (n = 1). Information about the e-learning modules was collected from the Internet; however, the available material was generally not sufficient to fully describe the characteristics of the modules. Therefore organizations that owned the modules were contacted in January 2013 and February 2013 by e-mail, and were asked to answer several questions (see Table 2). After 2 weeks, reminders were sent to organizations that did not respond.

Of the 23 institutes addressed for the survey, 14 responded, of which one refused to provide further information. Moreover, modules produced by two organizations were excluded from this study after their response. One organization from The Netherlands had withdrawn their

Table 1. List of search terms used in the search strategy divided into three categories

<table>
<thead>
<tr>
<th>Learner</th>
<th>Prevention target</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatekeepers</td>
<td>Sui* (suicide, suicidality)</td>
<td>E-learning module</td>
</tr>
<tr>
<td>Healthcare professionals</td>
<td>Depression*</td>
<td>Module</td>
</tr>
<tr>
<td>Teachers</td>
<td>Deliberate self-harm</td>
<td>E-learning</td>
</tr>
<tr>
<td>Nurses</td>
<td>Self-injury</td>
<td>Online</td>
</tr>
<tr>
<td>Psychologists</td>
<td>Self-poisoning</td>
<td>Online learning</td>
</tr>
<tr>
<td>Counselors</td>
<td></td>
<td>Online training</td>
</tr>
<tr>
<td>Family doctors</td>
<td></td>
<td>Electronic learning</td>
</tr>
<tr>
<td>General practitioners</td>
<td></td>
<td>Electronic education</td>
</tr>
<tr>
<td>Child practitioners</td>
<td></td>
<td>Distance learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web-based learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web-based training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Webinar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internet learning</td>
</tr>
</tbody>
</table>

Note. * In the literature the search term depression is very often linked to suicide and vice versa, therefore depression was used as a proxy for suicide.
plans to develop the proposed module. An institute from the UK was initially included due to a reference on the website regarding the relationship between depression and suicide, thus, it seemed possible that the modules covered suicide as a component of depression. However, this was not the case and therefore this organization was excluded. After reviewing the answers of the 13 organizations that responded to the survey, four modules were excluded from further use since these focused on suicide intervention or bereavement after a suicide, rather than on prevention. An overview of the excluded e-learning modules can be found in Table 3.

Based on the answers, Table 4 was composed, which gives an overview of the characteristics of the nine e-learning modules that fully met the three selection criteria.

The included modules in this study are from Australia (1), The Netherlands (2), the UK (2), and the US (4). These modules show not only similarities, but also distinguishing characteristics. The topic of seven of the modules is suicide prevention and awareness, while the remaining two, CaFcas and HHYP, address self-harm alongside suicide. Except for APS and QPR Institute Inc., which focus on persons at risk for suicide in general, the remaining organizations have chosen a specific at-risk group such as adolescents or patients. Another remarkable detail is that In the Line of Duty and ePhysicianHealth.com focus on gatekeepers themselves as an at-risk group. Although only modules targeting gatekeepers were selected for this study, it is interesting that the included modules target a wide range of professionals, such as clinicians, members of health care teams at schools, and officers. Furthermore, all modules are offered as a stand-alone course, except the ones offered by PITStopSuicide and State Hospital Car-Stairs, which are part of a blended learning training.

The base of almost all the modules is a PowerPoint lecture with voice-over narration. However, MHO, QPR

<table>
<thead>
<tr>
<th>Total Identified (n = 578)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literature Search (n = 448)</strong></td>
</tr>
<tr>
<td>Duplicates Removed: 110</td>
</tr>
<tr>
<td>Abstracts Reviewed: 338</td>
</tr>
<tr>
<td>Excluded: 329</td>
</tr>
<tr>
<td>Full-texts Reviewed: 9</td>
</tr>
<tr>
<td>Excluded: 9</td>
</tr>
</tbody>
</table>

| **Google Search (n = 130)** |
| Webpages Studied: 130 |
| Excluded: 85 |
| Duplicates Removed: 7 |
| Modules Examined: 38 |
| Excluded: 15 |

| Met the Three Inclusion Criteria (n = 23) |
| Literature Search: 0, Google Search: 23 |

Table 2. Questions sent to organizations regarding their e-learning module(s)

1. What is the name of the organization that has developed the e-learning module?
2. What is the name of the organization that owns the e-learning module?
3. What is the topic of the e-learning module? (For example: suicide prevention, suicide awareness)
4. Is the e-learning module addressing suicidality in a specific group or suicidal persons in general? If a specific group, please describe which group is being addressed.
5. For which group of gatekeepers has the e-learning module been developed? (For example: nurses, mental health caregivers, teachers)
6. Is the e-learning module currently online and accessible? If yes, please explain how users can access the e-learning module.
7. How has the e-learning module been designed? (For example: voice-over, text, movies, PowerPoint lecture)
8. Has the effectiveness of the e-learning module been tested or is your company planning on testing it? If yes, please let us know when and how you tested the effectiveness and what the outcome was.
9. In which language(s) is the e-learning module available?
10. Is a fee required to attend the e-learning module or is the e-learning module free of charge?

Additional information (optional):
Institute Inc., and ASP in particular support their modules with additional features such as an online discussion board, role-play downloads and practice sessions. In addition, the first two organizations pay special attention to the role of ethnicity in suicide prevention. Furthermore, the effectiveness of the majority of the modules has not been tested nor is it scheduled to be tested. The QPR Institute Inc. conducted a study comparing face-to-face training with distance learning, but the results have not yet been published. Both MHO and PITStopSuicide from VU University Amsterdam are conducting an RCT to test the effectiveness of the programs, and Cafcass is planning to test the effectiveness of their module. Lastly, the modules from seven organizations are accessible for free or are only available to employees of the organization, while the remaining two from QPR Institute Inc. and In the Line of Duty require a fee.

To illustrate the method behind these e-learning modules, the program MHO from VU University Amsterdam will be discussed briefly. This program has been chosen because the authors have developed the modules in this program and can provide accurate information regarding this program.

Example: MHO (VU University Amsterdam)

This online suicide prevention training program addresses the process of recognition, guidance, and referral in the case of adolescent suicidality through eight modules: suicidality among adolescents (module 1), risk factors (module 2), ethnicity (module 3), recognition of suicidality (module 4), conversation with the suicidal adolescent (module 5), conversation with the parents (module 6), suicide first-aid (module 7), and care and aftercare when an adolescent completes or attempts suicide (module 8; Ghoncheh, Vos, Koot, & Kerkhof, 2013). The modules have been developed by the researchers in this study using Adobe Presenter 7 software to convert PowerPoint slides into e-learning modules. Moreover, apart from text the modules include a voice-over, graphs, quizzes, and cases. Each module takes approximately 10 min to complete and it is up to the participants, based on their needs and experiences, to decide which modules are relevant for them to follow. Furthermore, participants also have access to additional information on the website such as articles, films, interesting links on the subject of adolescent suicidality, and an online discussion board. This board gives participants the opportunity to exchange thoughts on adolescent suicidality with other gatekeepers, and ask a group of experts questions regarding this subject (Ghoncheh et al., 2013). The effectiveness of this program is currently being tested in an RCT with a pretest, posttest, and follow-up design. In addition, the e-learning modules are being evaluated by gatekeepers participating in the study. A protocol paper on this study has been published in which detailed information regarding the program and study, such as background, developmental process, design, and outcome measures is provided (Ghoncheh, Kerkhof, & Koot, 2014).

Discussion

This review aimed to give an overview of the existing e-learning modules on suicide prevention designed for gatekeepers, and in addition aimed to review the effectiveness of these modules. Although no published papers meeting the inclusion criteria were found in the literature search on this topic, the Google search resulted in 23 existing e-learning modules. Thirteen organizations responded to questions regarding their institute’s module, of which nine were included in this study. The effectiveness of the majority of the modules has not yet been tested. As a con-
### Table 4. Overview of documented Google search suicide prevention E-learning modules for gatekeepers

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
<th>Topic</th>
<th>At-risk group</th>
<th>Target group</th>
<th>Form</th>
<th>Effectiveness</th>
<th>Language</th>
<th>Accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>The Australian Psychological Society (APS)</td>
<td>Two training packages on suicide prevention</td>
<td>1. Individuals and communities within the Kimberley region</td>
<td>1. Health professionals working in the Kimberley region</td>
<td>Stand-alone</td>
<td>Effectiveness has not been tested</td>
<td>English</td>
<td>Free for healthcare practitioners registered to the ATAPS scheme</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Not directed at a specific group</td>
<td>2. Health clinicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Online video presentations, demonstrations, interactive activities, readings</td>
<td>Participants are required to complete an evaluation as part of the course and this is monitored</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. Printable learning guide, online video presentations, demonstrations, interactive activities, readings, online discussion forum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Mental Health Online (MHO), VU University Amsterdam</td>
<td>Suicide prevention</td>
<td>Adolescents (12–20 years)</td>
<td>Professionals that work with adolescents</td>
<td>Stand-alone</td>
<td>RCT Status: ongoing</td>
<td>Dutch</td>
<td>Free</td>
</tr>
<tr>
<td></td>
<td>PITStopSuicide, VU University Amsterdam</td>
<td>Suicide prevention</td>
<td>Patients (18+ years)</td>
<td>Mental health caregivers</td>
<td>RCT Status: ongoing</td>
<td>Dutch</td>
<td>Free</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State Hospital, Carstairs</td>
<td>Suicide awareness and prevention</td>
<td>Mentally disordered offenders detained and receiving treatment in a high-security hospital</td>
<td>Front-line clinical staff (all disciplines)</td>
<td>Part of blended learning</td>
<td>Not tested. Participants are invited to complete an online evaluation</td>
<td>English</td>
<td>Restricted</td>
</tr>
</tbody>
</table>

*Note: All modules are designed for gatekeepers who work with at-risk groups and provide guidance and support in suicide prevention and awareness. Each module includes various forms of learning materials such as video presentations, demonstrations, interactive activities, readings, and online discussion forums.*
<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
<th>Topic</th>
<th>At-risk group</th>
<th>Target group</th>
<th>Form</th>
<th>Effectiveness modules</th>
<th>Language</th>
<th>Accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Children and Family Court Advisory and Support Service (Cafcass)</td>
<td>Self-harm and suicide</td>
<td>Adolescents</td>
<td>Cafcass staff</td>
<td>Stand-alone</td>
<td>In an Authoring Tool from Learning Pool.com who host the e-learning</td>
<td>English</td>
<td>Restricted</td>
</tr>
<tr>
<td>US</td>
<td>QPR Online Gatekeeper Training, QPR Institute, Inc.</td>
<td>Suicide prevention</td>
<td>Persons at risk for suicidal behaviors</td>
<td>QPR training has been adapted and expanded for a wide variety of gatekeepers, including by ethnic minorities, and by nationality</td>
<td>Stand-alone</td>
<td>A paper comparing face-to-face training with online gatekeeper training has been submitted</td>
<td>English</td>
<td>Fee required</td>
</tr>
<tr>
<td>Hollywood Homeless Youth Partnership (HHYP)</td>
<td>Self-injurious behaviors and suicide</td>
<td>Adolescents</td>
<td>Care staff working with homeless youth and staff of all types working with vulnerable youth</td>
<td>Stand-alone</td>
<td>Not tested</td>
<td>Text, video, voice-over narration, interactive practice sessions, role-play downloads, mini-exams, reviews and nationally standardized knowledge competency exams</td>
<td>English</td>
<td>Free</td>
</tr>
<tr>
<td>In the Line of Duty</td>
<td>Suicide prevention</td>
<td>Police officers</td>
<td>Everyone, safety and compliance officers</td>
<td>Stand-alone</td>
<td>Not tested</td>
<td>Audio narration, video</td>
<td>English</td>
<td>Fee required</td>
</tr>
<tr>
<td>ePhysicianHealth.com</td>
<td>Suicide prevention</td>
<td>Physicians</td>
<td>Physicians</td>
<td>Stand-alone</td>
<td>Not tested</td>
<td>Video, text, resources (papers, links, books)</td>
<td>English/French</td>
<td>Free</td>
</tr>
</tbody>
</table>

Table 4. continued
sequence, even though the included modules show distinguished features, no recommendations can be made regarding which characteristics enhance learning outcomes. The QPR Institute Inc., which is specialized in suicide prevention and has been listed as an evidence-based practice in the National Register of Evidence-based Practices and Policies (NREPP), has done an as-yet unpublished study comparing face-to-face training with distance learning. Both MHO and PITStopSuicide from the VU University Amsterdam are conducting an RCT. MHO has an ongoing user evaluation and effectiveness study, while PITStopSuicide has incorporated the e-learning module as an optional component of face-to-face training. Cafcass is planning to test the effectiveness of their module. This shows that the number of ongoing or planned studies in this area remains limited.

The discrepancy between the literature search and the Google search is a remarkable result, since it shows that while across the world the Internet and new technologies are being used to develop innovative strategies to enhance suicide prevention, research regarding the effectiveness of these modules is still lacking. According to suicidology experts, knowledge improvement and sustainability of suicide prevention programs still remain among the important challenges that need to be addressed in the future (O’Connor et al., 2011); the findings from our study are in agreement with this. Three explanations could account for the discrepancy found. First, often when innovative prevention and intervention strategy programs are funded, the resources are not sufficient for research, maintenance, and broad implementation. Second, organizations and developers, especially those distanced from academic settings, might not have the required experience, instruments, and assistance to carry out the needed scientific studies. Lastly, since this line of research is fairly new, lack of standardization and guidelines regarding best practices could make the research process quite challenging. Nevertheless, it should be noted that effectiveness studies on the use of e-learning modules as a strategy to educate gatekeepers in mental-health-related topics seems to be lacking in general and is not restricted to the field of suicidology.

By contrast, research on the effectiveness of e-learning programs appears to be more advanced in the field of medicine. Two systematic reviews addressing e-learning programs in health identified a large number of studies in this area (Ruggeri, Farrington, & Brayne, 2013). One study compared the effect of Internet-based intervention with no intervention and with non-Internet interventions. Findings showed that Internet-based learning had a large positive effect compared with no intervention. Mixed and generally small effects were found comparing Internet-based with non-Internet learning that, according to the authors, could indicate similar effectiveness to traditional methods (Cook et al., 2008). Another study aiming to identify characteristics that could improve learning outcomes suggested that interactivity (use of questions), practice exercises, repetition of learning material, and feedback could improve learning outcomes. In addition, health professionals’ satisfaction seemed to improve with interactivity, online discussion (discussion board, e-mail etc.), and audio in tutorial (Cook et al., 2010). It should be noted that conclusions and recommendations from both studies were tempered due to study limitations. Moreover, both studies highlighted that many reports lacked a description of important key elements, instructional design, or outcomes (Cook et al., 2008; Cook et al., 2010). Studies on the cost effectiveness of e-learning in health are essentially unreported, and potential gains are still unknown (Ruggeri et al., 2013).

Even though research on the effectiveness of suicide prevention e-learning modules targeting gatekeepers is lacking, research on effectiveness of e-learning (including modules) in health education seems promising. Especially with a subject as sensitive as suicide, deployment of e-learning modules can be beneficial in creating awareness of how individuals at risk can be recognized, guided, and referred for assistance by gatekeepers. Based on the findings of this study, several recommendations can be made to improve future research in this area. First, there is a need for RCTs aiming to test the effectiveness of e-learning modules. The literature search showed that there is a lack of research in this area. Moreover, ongoing and planned research remains limited. Second, as highlighted by the two systematic review studies in the medical field, detailed description of essential information such as background, theories, development process, and outcomes is highly necessary. The existing information on the web was generally not sufficient to get a complete overview of the most important characteristics of the currently available suicide prevention e-learning modules targeting gatekeepers. Third, organizations and funding agencies should not only invest in development of e-learning programs in this area, but should provide continued resources for research, maintenance, and broad implementation. Finally, research and developers should work toward standardization of e-learning modules and assessment methods.

Limitations

First, the discussed modules in this review derive from the Google search, lacking scientific research regarding important aspects of these modules such as effectiveness, the development process, or user satisfaction. As a result the modules included in this review could only be briefly described. Second, although it was attempted to expand the literature search by compiling all the possible synonyms for suicide, e-learning module, and gatekeepers, it is possible that papers and studies that have used other terms than the ones used in this study, have not been included in this review. Third, of the 23 organizations approached, only 13 answered the questions regarding the characteristics of their institute’s e-learning modules. If the remaining ten organizations had responded and were eligible for this study, a more complete overview could have been composed. Fourth, the Google search probably missed existing e-learning modules on this topic that have chosen to use different terms than the combinations used in this study. Moreover, the collected information regarding the modules is limited and only based on the information provided by the organizations because access to the majority of the
modules was restricted. Lastly, it is not surprising that the
majority of the included modules are from English-speaking
countries since the terms used in both searches are
English. Therefore, existing modules on this topic from
countries that have used non-English languages to address
the same are not included in this study.

Conclusion

Despite a lack of scientific evidence, the findings from
this study provide a first overview of existing e-learning
modules across the world aiming to educate gatekeeper
in suicide prevention. The main conclusions that can be
drawn from the findings of this review are that e-learning
modules in this area are increasingly available, but
that research regarding the effectiveness of these modules
is lacking. Moreover, the ongoing and planned studies in
this area remain limited. Future research should determine
whether the use of e-learning modules is an effective strat-
 egy in gatekeepers’ education in suicide prevention, and
which features enhance learning outcomes.

References

tive e-learning for health professionals and students – barriers
and their solutions. A systematic review of the literature
– findings from the HeXL project. Health Information and

Cook, D. A., Levinson, A. J., Garside, S., Dupras, D. M., Er-
win, P. J., & Montori, V. M. (2008). Internet-based learning in
the health professions: A meta-analysis. JAMA, 300(10),
1181–1196.

Cook, D. A., Levinson, A. J., Garside, S., Dupras, D. M., Erwin,
P. J., Montori, V. M. (2010). Instructional design variations
in internet-based learning for health professions education:
A systematic review and meta-analysis. Academic Medicine,
85(5), 909–922.

Ghoncheh, R., Kerkhof, A. J. F. M., & Koot, H. M. (2014). Effect-
iveness of adolescent suicide prevention e-learning modules
that aim to improve knowledge and self-confidence of gate-
keepers: Study protocol for a randomized controlled trial.

Ghoncheh, R., Vos, C. E., Koot, H. M., & Kerkhof, A. J. F. M.
(2013). Mental health online: A self-report and e-learning
program for enhancing recognition, guidance and referral
of suicidal adolescents. In B. Mishara & A. Kerkhof (Eds.),
Suicide prevention and new technologies: Evidence based
practice (pp. 76–86). Houndmills, UK: Palgrave Macmillan.

Youth suicide risk and preventive interventions: A review of
the past 10 years. Journal of the American Academy of Child
& Adolescent Psychiatry, 42(4), 386–405.

Suicide and Life-Threatening Behavior, 31, 6–31.

Retrieved from http://www.itu.int/ict/statistics

Isaac, M., Elias, B., Katz, L. Y., Belik, S., Deane, F. P., Enns, M.
W., & Sareen, J. (2009). Gatekeeper training as a preventa-
tive intervention for suicide: A systematic review. Canadian

Mann, J. J., Apter, A., Bertolote, J., Beautrais, A., Currier, D.,
Haas, A., … Hendin, H. (2005). Suicide prevention strate-
gies: A systematic review. JAMA: The Journal of the Ameri-
can Medical Association, 294(16), 2064–2074.

and challenges in suicidology: Conclusions and future direc-
tions. In R. C. O’Connor, S. Platt, & J. Gordon (Eds.), Inter-
national handbook of suicide prevention: Research, policy

Quinnett, P. (2007). QPR gatekeeper training for suicide preven-

Quinnett, P. (2013). Preventing suicide online: Why now, with

Rihmer, Z., Rutz, W., & Pihlgren, H. (1995). Depression and sui-
cide on Gorland. An intensive study of all suicides before
and after a depression-training programme for general prac-

for effective use and evaluation of e-learning in health. Tele-

drives a successful e-learning? An empirical investigation of
the critical factors influencing learner satisfaction. Computers

Van der Feltz-Cornelis, C. M., Sarchiapone, M., Postuvan, V.,
Best practice elements of multilevel suicide prevention strat-
egies: A review of systematic reviews. Crisis: The Journal of
Crisis Intervention and Suicide Prevention, 32(6), 319–333.

Walsh, E., Hooven, C., & Kronick, B. (2013). School-wide staff
and faculty training in suicide risk awareness: Success and
challenges. Journal of Child and Adolescent Psychiatry
Nursing, 26(1), 53–61.

World Health Organization. (2012). Public health action for the
who.int/iris/bitstream/10665/75166/1/9789241503570_eng.
pdf

study on the adoption of e-learning for public health nurse
continuing education in Taiwan. Nurse Education To-
day, 27(7), 755–761.

Received April 23, 2013
Revision received December 5, 2013
Accepted December 11, 2013
Published online May 30, 2014

About the authors

Rezvan Ghoncheh is a doctoral candidate working on the project
Mental Health Online. Her dissertation is on the development
and implementation of e-learning modules for gatekeepers to
prevent suicidality among adolescents in The Netherlands.

Hans M. Koot is Professor of Developmental Psychology and
Developmental Psychopathology and Chair of the Department
of Developmental Psychology at VU University Faculty of Psy-
chology and Education. He is also Chair of the Mental Health
Program at VU University EMGO+ Research Institute.

Ad J. F. M. Kerkhof is Professor of Clinical Psychology, Psych-
opathology and Suicide Prevention at VU University in Am-
sterdam. He is also an experienced clinician treating suicidal
patients.
Rezvan Ghoncheh

Department of Developmental Psychology
Department of Clinical Psychology
EMGO+ institute for Health and Care Research
VU University Amsterdam
Van der Boechorststraat 1
1081, BT Amsterdam
The Netherlands
Tel. +31 20598-8972
Fax +31 20598-8745
E-mail r.ghoncheh@vu.nl