

# Chapter 8

## General Discussion



## **Introduction**

The main objectives of this dissertation were to develop (1), and test the effectiveness (2) and the acceptability (3) of adolescent suicide prevention e-learning modules for gatekeepers. In this final chapter, the most important findings of the studies reported in this dissertation are summarized and elaborated per objective. Lastly, the limitations and strengths of the studies, and recommendations for future research are discussed.

## **Important findings**

### **First goal: Development**

In the second chapter of this dissertation, the target group of gatekeepers was asked through an online survey to give their view on the need for development of adolescent suicide prevention e-learning modules. This was the starting point of this dissertation project as including the target group is a very important aspect of the developmental process of a (new) intervention program. The most important finding from this chapter was that gatekeepers, in this case those working in schools, welcomed the development of the intended modules. Gatekeepers stated that the modules should focus on the process of the recognition, guidance and referral of suicidal adolescents.

In chapter three, a systematic review was conducted to provide an overview of existing suicide prevention e-learning modules, and their effectiveness. This was the first overview in this area and was conducted in order to learn from the existing programs. The results showed that suicide prevention e-learning modules are increasingly available worldwide, but that the effectiveness of them has not yet been investigated in an RCT. One of the recommendations originating from this study, besides obviously highlighting the need for an RCT in this area, was the need for documentation of the process of development of new programs.

Based on the findings of chapter three, chapter four was written to provide other researchers and program developers the rationale behind the development of the MHO adolescent suicide prevention e-learning modules. In this particular chapter the relevance of these e-learning modules was discussed, as well as the use of the QPR model (Quinnett, 2012) that was chosen as the basis of the development of the training. The findings from these three chapters contributed to and served as a framework in the development of the e-learning modules of the Mental Health Online (MHO) program which were tested in order to assess their effectiveness and accessibility.

### **Second goal: Effectiveness**

Chapters five and six discussed the RCT conducted on the effectiveness of the adolescent suicide prevention e-learning modules of MHO. This was the first time that an RCT was carried out on the effectiveness of adolescent suicide prevention e-learning modules for gatekeepers.

The RCT study showed that e-learning modules can be effective in educating gatekeepers in adolescent suicide prevention. The most important findings of this study were that the actual knowledge, perceived knowledge and perceived self-confidence of gatekeepers attending the e-learning modules of MHO increased significantly with moderate to large effects (effect sizes 0.76, 1.20, and 1.02, respectively), compared to those in a waitlist control group and that the effects remained significant at a three month follow-up. The found effect sizes were similar to those found for a study which conducted an RCT on the impact of an in-person QPR Gatekeeper Training for gatekeepers working with adolescents with a one year follow-up (Wyman et al., 2008). Moreover, 45% of the gatekeepers who attended the modules mentioned to have implemented the gained knowledge in practice during the three month follow-up period. This could indicate that the modules have also contributed to skills improvement of the gatekeepers when interacting with adolescents who might be at-risk for suicide.

Although there are no results from comparable studies published in the available literature, the QPR Gatekeeper Training, an in-person training based on the QPR model, is well-known and widely used in suicide prevention (Reis & Cornell, 2008). Various studies on the effectiveness of this training have shown that the actual knowledge, the perceived knowledge and perceived self-confidence of gatekeepers with regard to (adolescent) suicide prevention improves after attending this training (Cerel, Padgett, Robbins, & Kaminer, 2012; Cross, Matthieu, Lezine, & Knox, 2010; Indelicato, Mirsu-Paun, & Griffin, 2011; Jacobson, Osteen, Sharpe, & Pastoor, 2012; Johnson & Parsons, 2012; Matthieu, Cross, Batres, Flora, & Knox, 2008; Matthieu, Chen, Schon, Lantinga, & Knox, 2009; Reis & Cornell, 2008; Tompkins & Witt, 2009; Tompkins, Witt, & Abraibesh, 2009; Wyman et al., 2008). The data from the RCT reported in this dissertation are fully in line with the results from these studies, indicating that an e-learning approach aimed at the same goals can be as effective as in-person training, at least regarding the learning objectives addressed.

### **Third goal: Acceptability**

In chapter seven the results of a study addressing the acceptability of the MHO e-learning modules were presented. This study not only addressed the satisfaction of the users regarding the choices that were made with regard to the design of the MHO e-learning modules, but also addressed their overall satisfaction with the content of these modules. The gatekeepers who had participated in the RCT study evaluated the e-learning modules very positively on their design,

which indicates that the format used for these modules is found to be acceptable according to the target group. Furthermore, they stated to have gained knowledge, self-confidence and skills in adolescent suicide prevention, and would recommend the modules to other gatekeepers.

The findings of the evaluation study are as important as the effectiveness study since the adoption of this new educational method fully depends of the user. According to the Technology Acceptance Model (TAM) perceived usefulness and perceived ease of use will determine whether people will accept or reject an information technology (Davis, 1989). The results of this study indicate that e-learning modules have the potential to be broadly implemented, and to be used and adopted as an educational method to train gatekeepers in adolescent suicide prevention. Another interesting finding from this study was that gatekeepers working in schools were more positive in their ratings on improvement of their adolescent suicide prevention skills than those working in (youth) mental healthcare. This may indicate that different groups of gatekeepers have different needs with regard to the content of the modules, and thus the distinction between the designated and the emergent gatekeeper (Isaac et al., 2009) should be maintained in gatekeeper training. Alternatively, it may indicate that the (possibly more specific or complex) skills that mental health care workers deem necessary for addressing adolescent suicidality are insufficiently offered by the current version of the modules.

### **Theoretical and practical implications**

This was the first time that adolescent suicide prevention e-learning modules were tested on their effectiveness and accessibility. Thus, the findings from this dissertation serve as a first step in understanding the potential of this medium in education of gatekeepers in adolescent suicide prevention. The findings of this dissertation demonstrated that: there is a need for adolescent suicide prevention e-learning modules for gatekeepers (1), that these modules are effective in improving the actual knowledge, perceived knowledge and perceived self-confidence of gatekeepers (2), gatekeepers found these modules useful and satisfactory (3), and that the used knowledge is implemented by the gatekeepers which could indicate skills improvement (4). These four remarkable outcomes have the following implications.

By implementing these modules nationwide, through the internet, gatekeepers across the nation have 24/7 access to the modules without any boundaries that are associated with time, place and distance (Arbaugh, 2000), and gatekeepers get the opportunity to complete the modules on their own pace. Moreover, in the MHO program the process of recognition, guidance and referral of adolescent suicide prevention is displayed in short modules allowing each gatekeeper to put together a custom-made training based on their needs. This way even

gatekeepers who have some prior knowledge in this area, but are looking for more targeted information can benefit from the modules. This means that most gatekeepers can easily find the content they need to be trained in regarding this important topic. It is expected that implementation of the program may significantly contribute to the detection and support for the adolescent at-risk for suicide.

Another important implication of the experiences reported in this dissertation is that programs such as MHO can be developed by researchers with limited resources and prior knowledge in the area of informational technology. Although this requires researchers and organizations involved to invest time in the development of the modules, especially if exemplary or similar modules are lacking, the most important advantage is that costs of development remain limited. Especially when it comes to effectiveness of training, simple e-learning modules may be adequate and effective as was the case with the modules investigated in the studies in this dissertation. Thus, there is no need to develop expensive modules, which may be an issue especially if the value of the product has not yet been proven.

The findings of this thesis seem to be generalizable to other areas of mental healthcare as well. If this type of educational method is effective for suicide prevention, it is probably also effective in education of gatekeepers on other emotional, behavioral or developmental problems that affect adolescents such as depression, anxiety, eating disorders and substance abuse. This means that it may be attractive to create online portals to which gatekeepers can get access in order to get trained in different themes. Once this has been achieved, other key figures such as parents and friends, but also adolescents themselves can become target groups of e-learning modules. This way, all important key figures in the lives of adolescents, including the adolescent him/herself, can be educated in (mental) health related issues that affect adolescents and this may subsequently improve prevention of these (mental) health issues.

Still, continuous monitoring and research are needed so that a better insight is provided in the effectiveness and usability of this new delivery medium for different gatekeeper groups, but also for the development of a standard universal model of development and delivery (Lee, 2005). In order to achieve this, there are more RCT's needed that test whether the knowledge and self-confidence of gatekeepers increases after enrolling in online suicide prevention e-learning modules. Besides measuring perceived knowledge, actual knowledge and perceived self-confidence of the participants, it is recommended to somehow find a way to measure the actual gain in self-confidence or skills of the gatekeeper as well. Whether this latter can ever be achieved with real-life people at-risk for suicide is unlikely, but simulation of scenarios with actors or animations could be an alternative route to objective evaluation. Moreover, it is important to distinguish groups of gatekeepers for each study as findings from this dissertation indicate that different gatekeeper groups probably have different needs in content

based on their profession. Also, development of validated and reliable questionnaires that can be used worldwide to test these outcome measures is essential. In order to achieve this, it is recommended to build on the same existing questionnaires instead of keeping developing new questionnaires for every similar study. Finally, it is important to continue to evaluate the modules from the user's perspective, as was done in this thesis. This way the recommendations made by the gatekeepers can contribute to the improvement of suicide prevention e-learning modules, and thus allows researchers to get a better understanding of which ingredients form the base of a well-designed and acceptable e-learning module according to the user. In time this will lead to a better adoption and use of this new delivery medium by the gatekeepers.

### **Strengths and limitations**

The studies presented in this dissertation have several strengths. First, chapters of this thesis provide a first and stepwise overview of the essential procedures in the development and implementation of adolescent suicide prevention e-learning modules designed for gatekeepers. As a result this thesis provides a documented framework for other researchers and program developers interested in e-learning modules for the transfer of knowledge and skills. Second, the target group was actively involved in the process of the development of the modules. This way the needs of the users were taken into account which is possibly *the* most valuable input needed when designing a new educational method. Third, the effectiveness of the modules was tested in an RCT with enough statistical power. Lastly, alongside the effectiveness study the modules were evaluated by the gatekeepers which not only led to valuable information about the experience of the users with these modules, but also provided researchers and developers insight about which design features are relevant for the development of adoptable modules in adolescent suicide prevention.

As pointed out in several places in this dissertation, the studies were the first to be conducted on the development, effectiveness and accessibility of adolescent suicide prevention e-learning modules for gatekeepers. As a result, the findings presented in this thesis should be viewed in light of the following limitations. Firstly, studies discussed in chapters two, six and seven were conducted online. As a result, it was not possible to control whether the gatekeepers filled out the questionnaires themselves. Secondly, an inevitable limitation of the studies was that no standardized instruments were available to test the outcome measurements of the discussed studies as the learning objectives to be tested were completely new. Subsequently, instruments were developed in order to measure the outcomes of each study. Thirdly, it was not possible for the researchers to monitor the actual self-confidence, skills and correctness of referrals of the gatekeepers who participated in RCT study due to privacy issues. Lastly, the

self-report evaluation questionnaire was not filled out by the participants immediately after following the modules which could have affected the reliability of the participant's answers.

## **Conclusion**

This dissertation described the background, development and testing of a new method for the training of gatekeepers involved in the detection and prevention of adolescent suicide. The findings of this dissertation show that e-learning modules can serve as an effective method to increase the knowledge, self-confidence and skills of gatekeepers with regard to adolescent suicide prevention. In addition, gatekeepers evaluated the e-learning modules positively and would recommend the modules to other gatekeepers which underlies the satisfaction of gatekeepers with this relatively new educational tool. Future research is needed in support of the findings of this dissertation.

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