



## Research paper

## Development of a 2-h suicide prevention program for medical staff including nurses and medical residents: A two-center pilot trial



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## ARTICLE INFO

## Keywords:

Suicide prevention  
Depression  
Mental health first aid (MHFA)  
Medical staff  
Nurse  
Medical resident

## ABSTRACT

**Background:** Suicide is a crucial global health concern and effective suicide prevention has long been warranted. Mental illness, especially depression is the highest risk factor of suicide. Suicidal risk is increased in people not only with mental illness but also with physical illnesses, thus medical staff caring for physically-ill patients are also required to manage people with suicidal risk. In the present study, we evaluated our newly developed suicide intervention program among medical staff.

**Methods:** We developed a 2-h suicide intervention program for medical staff, based on the Mental Health First Aid (MHFA), which had originally been developed for the general population. We conducted this program for 74 medical staff members from 2 hospitals. Changes in knowledge, perceived skills, and confidence in early intervention of depression and suicide-prevention were evaluated using self-reported questionnaires at 3 points: pre-program, immediately after the program, and 1 month after program.

**Results:** This suicide prevention program had significant effects on improving perceived skills and confidence especially among nurses and medical residents. These significant effects lasted even 1 month after the program.

**Limitations:** Design was a single-arm study with relatively small sample size and short-term follow up.

**Conclusions:** The present study suggests that the major target of this effective program is nurses and medical residents. Future research is required to validate the effects of the program with control groups, and also to assess long-term effectiveness and actual reduction in suicide rates.

**Abbreviations:** MHFA, Mental Health First Aid; AMED, The Japan Agency for Medical Research and Development; STORM, Skills-Based Training on Risk Management; CTR, Clinical Trials Registry; PHQ, Patient Health Questionnaire; MTD, Modern Type Depression

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<http://dx.doi.org/10.1016/j.jad.2017.08.074>

Received 21 April 2017; Received in revised form 26 July 2017; Accepted 27 August 2017

Available online 30 August 2017

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## 1. Introduction

Suicide accounts for over 800,000 deaths per year, which translates to 1.4% of all deaths worldwide according to the World Health Organization (WHO) (World Health Organization, 2014). As such, suicide is a crucial global health concern and effective suicide prevention has long been warranted. In Japan, the annual number of suicide victims was in excess of 30,000 from 1998 until very recently (approximately more than 20 per 10,000). In 2007, the Cabinet Office released the ‘General Principles of Suicide Prevention Policy’, and promoted the establishment of systems for suicide prevention, and a standard package of programs for suicide prevention (Nakanishi et al., 2015).

Suicidal risk increases by various physical illnesses such as cancer, cardiovascular disease, multiple sclerosis, and peptic ulcer (Hawkins et al., 2016; Hawton and van Heeringen, 2009; Lewis et al., 2017). In Japan, one of the most common causative factors for suicide is health problems (Inoue et al., 2015). Among patients admitted to general hospital, the suicide rate is approximately 3 times higher than in the general population (Dhossche et al., 2001). Approximately 70% of people who die by suicide are in contact with a general practitioner within the last month of their lives (Andersen et al., 2000). Thus, medical staff caring for physically ill patients are required to identify people with high suicide risk, and to provide an initial response. Indeed, professionals in the general public health sector, including physicians, nurses, and emergency care staff, are defined as a key player in the WHO suicide prevention strategy (World Health Organization, 2012).

Based on the above evidence, suicide prevention programs for primary care staff, especially for physicians, have previously been developed in various countries. In Northern Ireland, a 150-min educational program for general practitioners improved knowledge of depression and its management (Kelly, 1998). In Canada, physicians receiving a 3-h case-based educational session had increased referrals to psychiatrists and other mental health professionals (Worrall et al., 1999). Furthermore, in Sweden, two 2-day programs which was offered to general practitioners succeeded in reducing suicide rates by 60% (Rutz, 2001). A meta-analysis also indicated that suicide prevention delivered by general practitioners decreased relative risk of suicide deaths by 0.78 (Milner et al., 2017). In addition to physicians, nurses and medical residents are key players in suicide prevention due to their close contact with patients (Berlim et al., 2007; Gilbody et al., 2003). However, nurses and residents often lack educational training related to suicide prevention (Bolster et al., 2015; Kato et al., 2010), and therefore tend to experience communication barriers in suicide management. For example, some nurses fear that they might say something wrong, and remain silent (Valente, 2011).

Thus, development of educational programs for not only physicians but also nurses and medical residents is warranted to help patients at risk of suicide. In 2002, the United Kingdom adopted a national suicide prevention strategy, and a suicide prevention program called “Skills-Based Training on Risk Management (STORM)” played an important role. After STORM training, which is usually completed in 1 to 2 days, medical staff including nurses and junior physicians had an improved attitude toward suicidal people (Gask et al., 2006).

Due to time constraints common among medical staff which often constitute a barrier in taking these programs (Chan et al., 2009; Magruder et al., 2015), shorter educational programs are warranted. We previously developed a pilot 2-h suicide intervention program for medical residents (Kato et al., 2010), partially based on the Mental Health First Aid (MHFA) (Kitchener and Jorm, 2002, 2006). MHFA is originally developed as an 12-h educational course that teaches participants (mainly, citizens) how to identify, understand and respond to signs of mental illnesses, which gives participants the skills needed to reach out and provide initial help and support to someone who may be developing a mental health or experiencing a crisis. Five-step principles of the MHFA (3rd version) are as follows: Step 1) Approach the person,

assess and assist with any crisis; Step 2) Listen non-judgmentally; Step 3) Give support and information; Step 4) Encourage the person to get appropriate professional help; Step 5) Encourage other support (Kitchener et al., 2013). As the main content of our 2-h educational program, we have limited our focus on assessing and managing people with depression, because the most prevalent disorder of those who die by suicide is major depression (Botega et al., 2007; Hawton and van Heeringen, 2009; Rutz, 2001), and depressed suicidal patients are cost-effective targets for suicide prevention intervention (de Beurs et al., 2015a). This first pilot program was conducted among 44 new medical residents at a university hospital in 2008, and improved participants’ confidence in management of suicidal people (Kato et al., 2010). However, a multi-center trial of this first pilot program has shown that the effectiveness of this program was limited (Suzuki et al., 2014). Thereafter, we have conducted a process of revising the educational program by modifying the lecture content and role-play materials and have just completed development of the latest version of this program, which can be applied for different types of staff including nurses, residents, and physicians at the same time. In the present study, we conducted this updated program among nurses, residents, and physicians in two hospitals (independently), and evaluated its effectiveness on each professional group.

## 2. Methods

This study was approved by the ethics committees of Kyoto University and Kyushu University, and was registered at the UMIN Clinical Trials Registry (UMIN-CTR) (UMIN000018768 & UMIN000020133). We developed a modified training program on suicide prevention, and examined its effect on medical staff as a single arm pilot study in 2 general hospitals in Japan, namely, Kyoto university hospital (Site A) and Aso Iizuka hospital (Site B; one of Kyushu University affiliated hospitals). In each hospital, all the participants were recruited through official announcements such as e-mail and posters. Participants in both hospitals received the same 2-h program, consisting of lectures and a role-play session. Participants answered self-rated questionnaires 3 times; pre-program, post-program, and 1 month after the program. All the questionnaires were anonymous, nonintrusive, and completed in privacy. All research subjects were informed that participation was completely voluntary, return of the questionnaire implied consent, and that results of questionnaires would be used for research purposes.

### 2.1. Program development

The original 12-h MHFA program was established for non-health professionals in Australia, composed of lectures and workshops, and has improved (1) knowledge of mental health, (2) stigma of mental illnesses and (3) assistance approach toward people with mental problems (Hadlaczky et al., 2014; Kitchener and Jorm, 2002). Based on the 12-h MHFA program, we previously developed a 2-h educational program for medical residents especially focusing on dealing with patients with depression and suicidal risk (Kato et al., 2010; Suzuki et al., 2014). Thereafter, in order to improve the training program, round table discussions were conducted with organizers, facilitators, and participants. Applying these outcomes, we further modified the program for medical staff, including nurses, residents and physicians. Three major modifications are as follows:

First, we updated the lecture content. Depressive symptoms such as insomnia and loss of appetite are frequently observed during the course of depression even in the early phase, thus such physical symptoms are possible signs of depression. We encouraged participants to ask such symptoms first before asking mental symptoms (Fujieda et al., 2017). We suggested to utilize checklists of depression such as Patient Health Questionnaire (PHQ)-9. PHQ-9 is a 9-item measure of depressive symptoms, developed by Kroenke et al. (Kroenke et al., 2001) and

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