



Original Article

Improving Work Functioning and Mental Health of Health Care Employees Using an E-Mental Health Approach to Workers' Health Surveillance: Pretest–Posttest Study



Sarah M. Ketelaar^{1,*}, Karen Nieuwenhuijsen¹, Linda Bolier², Odile Smeets³,
Judith K. Sluiter¹

¹ Coronel Institute of Occupational Health, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands

² Department of Public Mental Health, Trimbos Institute, Netherlands Institute of Mental Health and Addiction, Utrecht, The Netherlands

³ Innovation Center of Mental Health and Technology (I.COM), Trimbos Institute, Netherlands Institute of Mental Health and Addiction, Utrecht, The Netherlands

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ABSTRACT

Background: Mental health complaints are quite common in health care employees and can have adverse effects on work functioning. The aim of this study was to evaluate an e-mental health (EMH) approach to workers' health surveillance (WHS) for nurses and allied health professionals. Using the waiting-list group of a previous randomized controlled trial with high dropout and low compliance to the intervention, we studied the pre- and posteffects of the EMH approach in a larger group of participants.

Methods: We applied a pretest–posttest study design. The WHS consisted of online screening on impaired work functioning and mental health followed by online automatically generated personalized feedback, online tailored advice, and access to self-help EMH interventions. The effects on work functioning, stress, and work-related fatigue after 3 months were analyzed using paired *t* tests and effect sizes.

Results: One hundred and twenty-eight nurses and allied health professionals participated at pretest as well as posttest. Significant improvements were found on work functioning ($p = 0.01$) and work-related fatigue ($p < 0.01$). Work functioning had relevantly improved in 30% of participants. A small meaningful effect on stress was found (Cohen $d = .23$) in the participants who had logged onto an EMH intervention (20%, $n = 26$).

Conclusion: The EMH approach to WHS improves the work functioning and mental health of nurses and allied health professionals. However, because we found small effects and participation in the offered EMH interventions was low, there is ample room for improvement.

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1. Introduction

Working as a nurse involves dealing with a range of potential workplace stressors, such as psychological and emotional demands [1]. Unsurprisingly, mental health complaints including burnout, posttraumatic stress, anxiety, and depression are quite common in nurses [2]. Impaired mental health can have adverse effects endangering the health and safety of the nurses themselves but

also of their patients [3,4]. Consequently, it seems worthwhile to pay preventive attention to the mental health and work functioning of nurses.

One promising preventive tool may be a mental module for workers' health surveillance (WHS). WHS can be used to identify and treat health complaints relevant to work and it should be an essential component of programs aimed at the protection of employees [5]. In The Netherlands, employers are obliged to

* Corresponding author. Academic Medical Center, University of Amsterdam, Department: Coronel Institute of Occupational Health, PO Box 22700, 1100 DE Amsterdam, The Netherlands.

E-mail address: S.M.Ketelaar@amc.uva.nl (S.M. Ketelaar).

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periodically offer employees the opportunity to undergo a medical examination targeted toward preventing or limiting the risks for the employees' work-related health. A job-specific assessment should be applied to tailor the interventions to detected work functioning impairments [6]. Attention has been paid to the occupational hazards of health care employees, but WHS targeting work functioning as well as mental health of nurses and allied health professionals has not been studied in this way.

We have developed a self-help e-mental health (EMH) approach to a mental module for WHS, consisting of online screening on impaired work functioning and impaired mental health followed by personalized online feedback and online tailored advice combined with access to self-help EMH interventions. Online screening offers a practical and efficient method to screen for self-reported impaired work functioning and impaired mental health. Several EMH interventions are available as subsequent interventions. Self-help EMH interventions may offer some advantages over face-to-face health care, e.g., they can be followed in a self-chosen time and place and at one's own pace. Research has shown that unguided self-help EMH interventions have positive outcomes for a variety of mental health aspects [7,8]. However, their effects on work functioning have not been studied in a specific working population such as nurses and allied health professionals. Moreover, EMH interventions have thus far only been offered as stand-alone interventions for a specific common mental disorder. In our study, we offer a choice of EMH interventions, tailored to the specific complaints as indicated by the individual's screening results.

We have studied the EMH approach to WHS in a randomized controlled trial (RCT) [9]. Because we applied a waiting-list design for the control group (i.e., the control group was enrolled in the EMH approach to WHS after completion of the trial), we had the opportunity to study the pre- and posteffects of the EMH approach in a larger group of participants. For this study, we have focused on three outcomes: impaired work functioning, stress complaints, and work-related fatigue. We have chosen stress complaints and work-related fatigue as outcome measures because we consider them to form a generic and encompassing measure of mental health in health care employees. In this study, we addressed the following research question: Does our EMH approach to WHS improve work functioning, stress, and work-related fatigue in hospital nurses and allied health professionals?

2. Materials and methods

2.1. Study design and participants

The study participants originated from two study arms of a previous RCT performed in 2011 [10]. The study population for this trial was formed by all nurses, including surgical nurses and anesthetic nurses, and allied health professionals (such as physiotherapists and radiotherapists) employed at one academic hospital in The Netherlands. Because the trial regarded a preventive study, participants were included if they were not, or were not expecting to be, on sick leave for > 2 weeks at baseline. The Medical Ethics Committee of the Academic Medical Center Amsterdam, Amsterdam, The Netherlands approved the study. All participants gave their written informed consent prior to taking part. Participation rate of the RCT at baseline was 32%.

In the original EMH approach group, 178 participants filled out the baseline questionnaire and were offered the intervention. Participants from the control group who filled out the last follow-up questionnaire 6 months after baseline were offered the same intervention as the original EMH approach group. They were also asked if we could contact them again in future. Those who agreed ($n = 117$) were invited to complete an extra follow-up

questionnaire 3 months after the last RCT follow-up questionnaire. The original EMH approach group and the original control group were then combined to study the effect of offering an EMH approach to WHS in a pre-post design. The scores that were used for this single-group pretest–posttest study are shown in Fig. 1. The outcome measures were assessed using online questionnaires.

Thus, in total, 295 participants filled out the pretest questionnaire and were invited for the posttest questionnaire. Forty-three percent ($n = 128$) also filled out the posttest questionnaire.

2.2. Intervention

The intervention consisted of three parts. (1) Participants were screened on impaired work functioning (seven subscales) and impaired mental health (stress, work-related fatigue, risky drinking behavior, depression including suicide risk, anxiety including panic disorder, and posttraumatic stress disorder) using the pretest questionnaire (see Gärtner et al [10] for information on the instruments and cutoff points that were used). (2) All participants received automatically generated personalized feedback on screening results, onscreen and by e-mail. (3) The personalized feedback was followed by online tailored advice, consisting of an invitation to follow an EMH intervention and (if applicable) the receipt of an onscreen educational leaflet with advice per subscale on how to improve work functioning. In Table 1 an overview is given of the algorithm used for tailoring the advice.

The EMH interventions that were used are self-help interventions on the Internet aimed at reducing specific mental health complaints or enhancing wellbeing: (1) Psyfit [11], aimed at enhancing mental fitness; (2) Strong at work [12], aimed at gaining insight into work stress and learning skills to cope with it; (3) Color Your Life [13], aimed at tackling depressive symptoms; (4) Don't Panic Online [14], aimed at reducing panic symptoms for subclinical and mild cases of panic disorder; and (5) Drinking Less [8], aimed at reducing risky drinking behavior.

The interventions are mainly based on the principles of cognitive behavioral therapy and combine a variety of aspects, e.g., providing information and advice, weekly assignments, and a forum to get in contact with others with similar complaints. The EMH interventions were developed as stand-alone interventions by the Trimbos Institute (Netherlands Institute of Mental Health and Addiction, Utrecht, The Netherlands) at an earlier stage. In separate trials, Psyfit, Colour your Life, and Drinking Less have had positive outcomes [7,8,15,16].

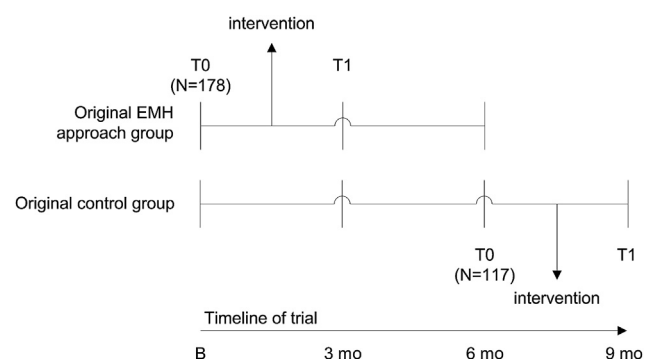


Fig. 1. Schematic representation of the scores that were used as pretest and posttest scores. B, baseline; EMH, e-mental health; N, number of participants who filled out the pretest questionnaire and were invited for filling out the posttest questionnaire; T0, pretest scores; T1, posttest scores; 3 mo, follow-up after 3 months; 6 mo, follow-up after 6 months; 9 mo, follow-up after 9 months (only assessed in the original control group).

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