

WhatsApp group discussion for smoking relapse prevention: a randomised controlled trial (abridged secondary publication)

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KEY MESSAGES

1. Compared with short message service, WhatsApp group discussion did not lead to a significant increase in long-term tobacco abstinence or a significant decrease in smoking relapse among recent quitters who received smoking cessation support.
2. The use of a WhatsApp group discussion was associated with short-term tobacco abstinence.

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Introduction

The maintenance of long-term smoking cessation (SC) is difficult because most quitters return to smoking.¹ According to a meta-analysis of 43 randomised controlled trials of pharmacological interventions for SC, <30% of smokers who received pharmacological interventions remained abstinent at the 1-year follow-up, and approximately 40% of individuals who quit relapsed within 1 year after treatment.² Online platforms accessed via mobile devices (mhealth) have been used to reduce smoking relapse rates by providing immediate assistance and interaction among group members.³⁻⁵ A trial involving smokers with posttraumatic stress disorders showed that the use of mobile phone apps for relapse prevention was feasible and acceptable.⁵ Smoking cessation messages sent directly by physicians to smokers via WhatsApp may increase the rate of quitting.⁴ The use of WhatsApp to help participants communicate with each other may improve engagement and support among smokers.⁶ For participants who encounter cravings and other withdrawal symptoms outside of the clinical setting, online platforms may facilitate access to support.⁷ We assessed the effectiveness of WhatsApp group discussion for smoking relapse prevention, compared with a control group using a one-way short message service.

Methods

The study protocol was approved by the Hospital Authority Research Ethics Committee, and the

study was conducted from October 2018 to January 2020. All adult smokers who attended a usual SC counselling session were invited to participate. The inclusion criteria were age ≥ 18 years, a habit of smoking at least 1 cigarette per day, enrolment or re-enrolment in SC treatment for <8 weeks, SC of 3 to 30 days, ability to communicate in Cantonese/Mandarin and read Chinese, and possession of a smartphone with a local network connection. Eligible smokers were randomly allocated (at a 1:1 ratio) to the control group (three one-way SMS messages/week for 8 weeks) or experimental group (interactive group discussion via WhatsApp and SMS text messages/videos/photos for 8 weeks). Qualitative interviews were conducted at the 12-month follow-up to collect opinions regarding the WhatsApp group intervention.

The primary outcome was biochemically validated tobacco abstinence at the 12-month follow-up. Secondary outcomes included validated tobacco abstinence at the 6-month follow-up, prevalence of self-reported 7-day and continuous abstinence throughout the study period, and relapse rate (ie, proportion of quitters who smoked at least five cigarettes over 3 consecutive days).

A generalised estimating equation model was used to summarise the intervention effect via risk ratios, with and without adjustment for baseline characteristics. The number of individuals needed to produce one additional quitter at 12 months compared with the control group was determined by taking the reciprocal of the risk difference between the two groups. A linear mixed model was used to

evaluate group, time, and group-by-time interaction effects on ancillary outcomes. The final generalised estimating equation model assessed the numbers of messages received and posted by each participant in the WhatsApp group, along with SC outcomes.

Results

In total, 928 participants were randomly assigned to the experimental group (n=469) or the control group (n=469). The mean age was 43.0±11.7 years, and >70% of the participants were men. Both groups had similar biochemically validated abstinence rates at the 6-month and 12-month follow-ups. In the experimental group, participants who posted ≥20 posts had higher validated abstinence rates at the 6-month follow-up, compared with participants in the control group (P<0.05). Qualitative interviews showed that the experimental group saved time and money with respect to intervention delivery and that peer support and moderator support were beneficial. However, some participants felt that relapse prevention was their responsibility alone and had minimal desire to socialise. Text mining revealed that the provision of quitting-related advice and support by moderators was facilitated by the WhatsApp group discussion. Quitters were more likely than smokers to share their experiences in seeking healthcare professional assistance and quitting methods. Unsupervised text mining revealed classifications similar to predefined contextual lexicons visualised in heat-maps.

Discussion

WhatsApp group intervention did not increase the rate of tobacco abstinence or reduce the rate of relapse in recent quitters. These results suggest that group-based intervention via WhatsApp is not superior to SMS text messaging in terms of preventing smoking relapse, which differs from the findings in our previous pilot study that showed the effectiveness of WhatsApp group intervention. The present study included smokers who had quit for 3 to 30 days, which was much shorter than the 8-week abstinence period in our previous study. During the intervention period, all participants received real-time SC treatment from healthcare providers. Therefore, WhatsApp intervention may not have had an additional effect. Furthermore, the relapse prevention messages via WhatsApp or SMS had a similar impact on SC. Nonetheless, in the experimental group, participants who posted ≥20 posts had higher validated abstinence rates at the 6-month follow-up, compared with participants in the control group (P<0.05). This finding highlights the importance of group engagement in quitting outcomes.

Some participants in the experimental group

reported that the messages sent by moderators and the social and emotional support from moderators and peer smokers helped them to quit smoking and remain abstinent. However, other participants perceived quitting as a personal task; therefore, experiences shared by others did not influence their behaviour. Moreover, participants stated that messages in the group were not personalised, and the frequent pop-up messages interrupted daily life. These disadvantages may counteract the beneficial effects. Therefore, WhatsApp group interventions may be optimised by decreasing group discussion frequency, improving message content, and strengthening connections and interactions among group members.

This study had some limitations. First, participants were recent quitters receiving SC intervention from community-based SC clinics. Second, only the WhatsApp platform was used for intervention. Third, WhatsApp conversations contain large amounts of slangs or colloquial words.

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Disclosure

The results of this research have been previously published in:

1. Cheung YTD, Chan CHH, Ho KS, et al. Effectiveness of WhatsApp online group discussion for smoking relapse prevention: protocol for a pragmatic randomized controlled trial. *Addiction* 2020;115:1777-85.

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