mHealth solutions for engaging smokers unmotivated to quit

Tobacco cessation is integral to global efforts to reduce the burden of tobacco-related illness. However, despite the existence of effective behavioural and pharmacological treatments, few smokers are offered assistance when they try to quit. Mobile health (mHealth) technology is a promising solution to this undertreated problem. The first large-scale trial of an mHealth intervention with long-term smoking cessation outcomes that were biochemically validated was published in 2011. Since then, multiple trials of text message interventions in smokers motivated to quit have shown increases in long-term smoking cessation.

This body of evidence has led to the rollout of publicly available text message campaigns such as SmokeFreeTXT from the US National Cancer Institute, the QuitNow mCessation programme in India from WHO’s Be Healthy Be Mobile initiative, among others. However, the full potential for mHealth interventions to reduce the burden of tobacco smoking has yet to be realised.

Population-based text message interventions primarily use reactive models, in which smokers must opt in to these interventions or seek out a provider who can initiate the programme for them. By contrast, a proactive offer of help delivered directly to smokers might reach more people. Proactive smoking cessation treatment models have been developed and tested in health-care settings where patients, identified as smokers in their health records, are contacted proactively and offered help. Community-based outreach might be needed to engage some hard-to-reach populations.

In The Lancet Digital Health, Man Ping Wang and colleagues have reported on the use of chat-based instant messaging support as part of a community-based behavioural smoking cessation intervention. In their trial, the authors proactively recruited smokers, including smokers ready to quit and those who were not, through outreach in community sites. The study team managed to recruit a sample in which the majority of smokers were not ready to quit within the next 60 days (347 [61%] of 567 participants in the intervention group and 354 [63%] of 566 in the control group) and they managed to retain 77% of this mostly unmotivated sample of smokers through 6 months of study in a real-world setting. Few examples exist of this degree of success in engaging smokers unmotivated to quit from the community in smoking cessation activities and few studies have been reported of mHealth for smoking cessation targeting these unmotivated smokers. Furthermore, although quit rates were low in the trial (48 [8%] of 591 participants in the intervention group had validated abstinence vs 30 [5%] of 594 in control group), as one would expect in a sample in which a majority of smokers were not motivated to quit, their proactive, mHealth-enabled intervention increased validated quit rates at 6-month follow up compared with those of the control group (unadjusted odds ratio 1.68, 95% CI 1.03–2.74; p=0.040). Even a modestly effective intervention targeting most smokers who are not ready to quit can have a large public health effect. Wang and colleagues note that engagement with the chat-based support was low (17%). They measured engagement as interacting through the chat-based app after receiving an automated message intended to prompt interaction. These messages were sent during regular business hours. Given the association between engagement and cessation, a useful next step might be optimising these automated messages by comparing different timings or message content and subsequent chat engagement.

Most trials of mHealth interventions for smokers have used reactive models, with advertisements to recruit smokers who were ready to make a quit attempt within a month, and this is a key in which the study by Wang and colleagues stands out. mHealth interventions for tobacco cessation have not been well tested until now in smokers who are not motivated to quit—those not ready to quit within the next month. At any given time, the majority of smokers are in this not-ready-to-quit group and have few evidence-based treatment options. mHealth interventions that are convenient, inexpensive, and asynchronous might be more appealing to this less motivated group than other more intensive interventions.

Not only does their recruitment of smokers unmotivated to quit with use of an mHealth intervention advance the literature, but also the use of a chat-based messaging system had not been previously tested as part
of a smoking cessation intervention. Most evidence for mHealth interventions for smoking cessation is based on text message interventions. This evidence base is expanded by Wang and colleagues’ study, with its use of biochemical validation and long-term outcomes and soon, randomised trials of smoking cessation apps with long-term, biochemically validated outcomes will be added to the literature. Smoking cessation apps and text messages are touted as inexpensive and scalable, with no actual counsellors or coaches required to deliver the intervention. By contrast, a smoking cessation coach interacting by chat-based app might be a more expensive and less scalable approach than fully automated interventions. Although this chat-based model with a live coach responding to messages is more expensive than an automated intervention, Wang and colleagues have shown its effectiveness in a trial that was executed in a real-world setting. As norms around communication change, a chat-based service such as this could be integrated with quit lines (smoking cessation phone call services) so that quit-line coaches can communicate by either telephone call or chat. Alternatively, chatbots that can replicate the interactive advice from a real coach might be a way to automate this type of intervention in the near future. However, it is not clear whether a fully automated version of this intervention would have been as effective as the approach in Wang and colleagues’ trial for engaging even smokers unmotivated to quit with in-person outreach activities and an offer of connection with a smoking cessation counsellor. In the future, research assessing how automated intervention components and human interaction components can be optimally combined for individual smokers might help us to realise the full potential of mHealth to reduce the effect of tobacco smoking on health.

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