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**HKUMed finds “chat-based instant
messaging support”
could substantially enhance smokers’
quitting rate**

**Press Conference
September 20, 2019**



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HKUMed finds “chat-based instant messaging support” could substantially enhance smokers’ quitting rate

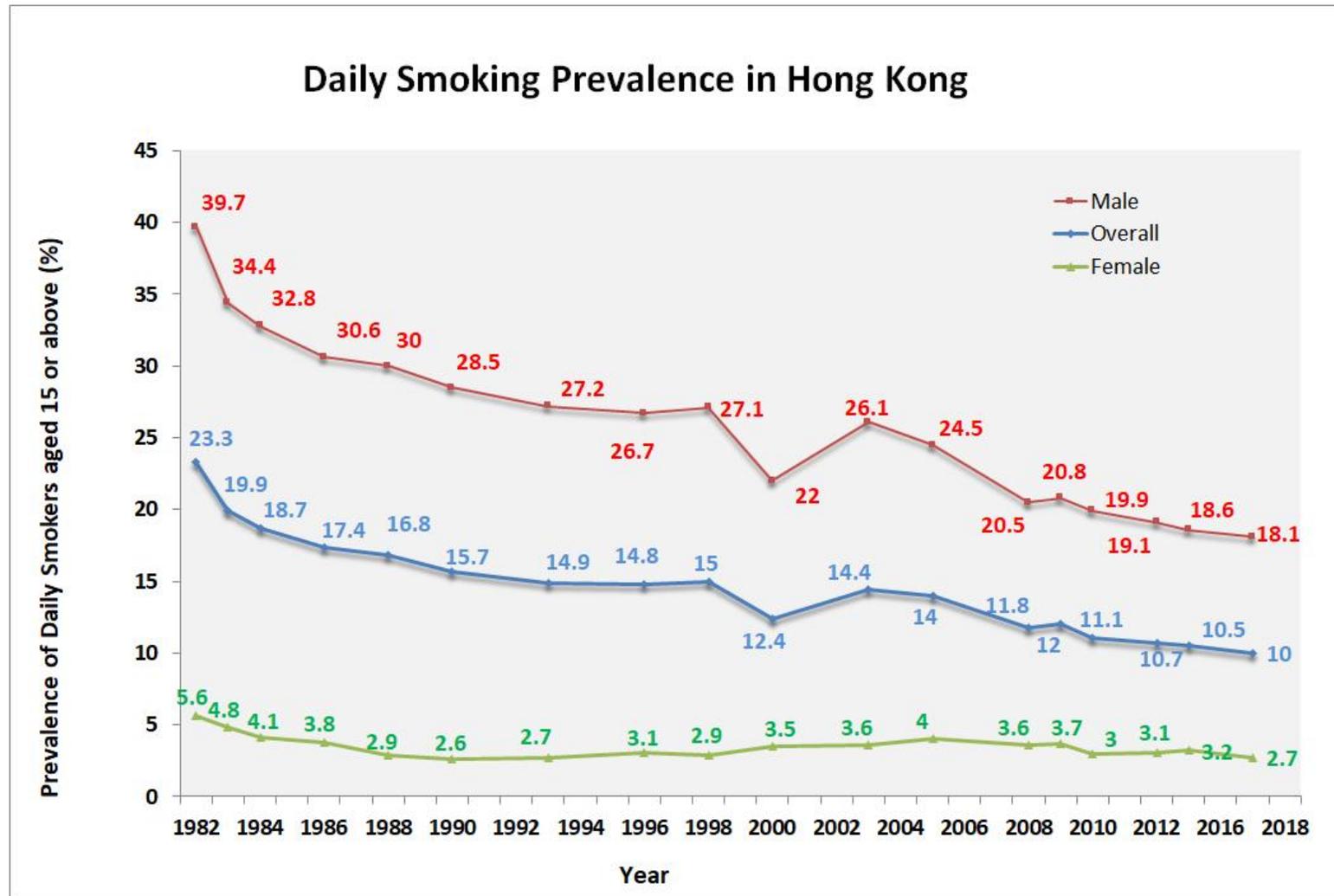
Professor Lam Tai-hing, School of Public Health, HKUMed

Dr Kelvin Wang, School of Nursing, HKUMed

Ms Vienna Lai, Hong Kong Council on Smoking and Health

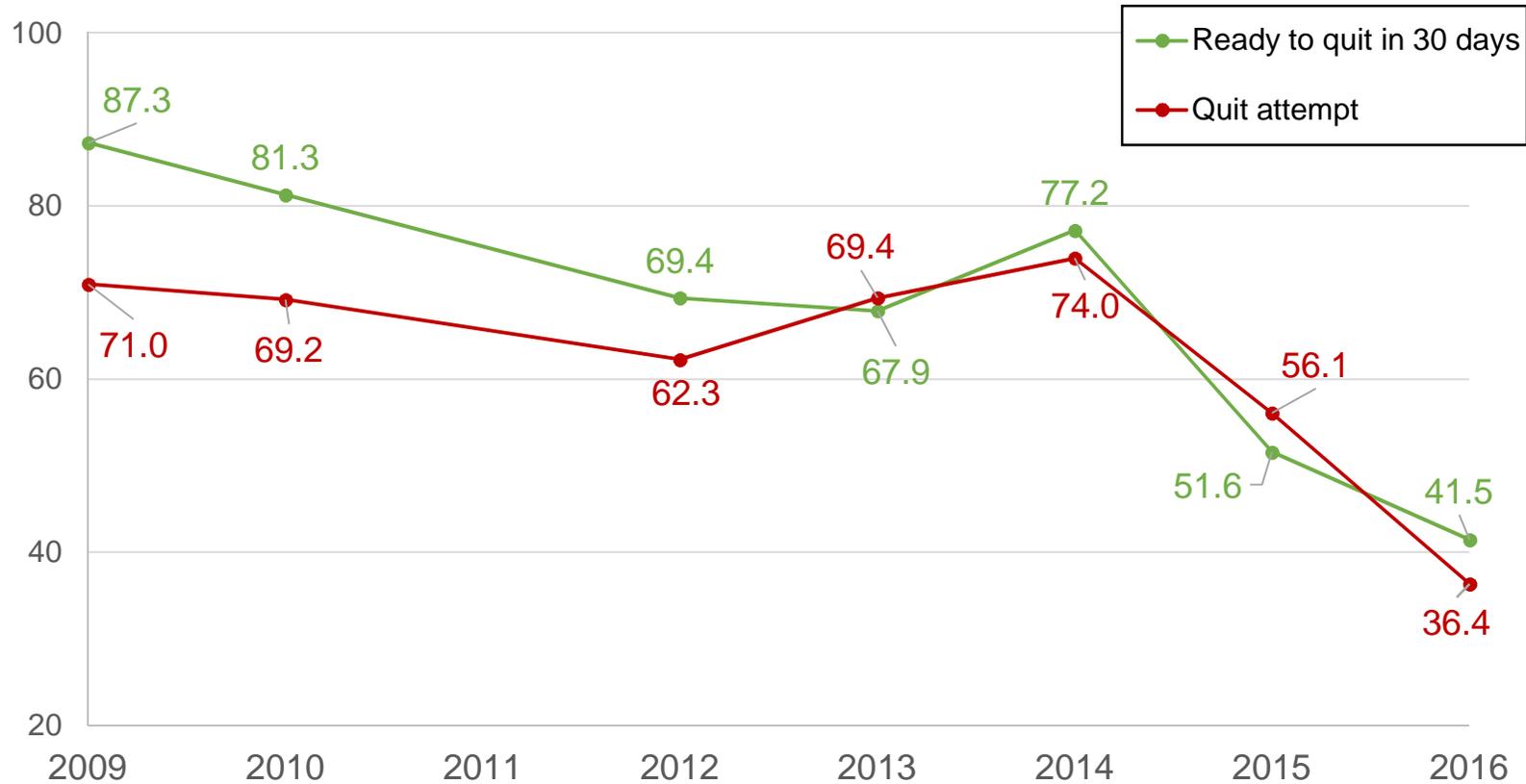
20 Sept 2019

Pattern of smoking in Hong Kong (1)



Pattern of smoking in Hong Kong (2)

Motivation to quit in 30 days & previous quit attempt, %



Pattern of smoking in Hong Kong (3)

Thematic Household Survey No. 64: Pattern of Smoking

- Daily cigarette smoking prevalence: 10.0% (N=615,000) in 2017
- However, 63.5% had never tried to quit and did not want to give up smoking
- Only 2.4% current smokers had ever sought help from a smoking cessation service*

à Need of new treatment model that can motivate and help unmotivated smokers to quit

Why instant messaging apps? (1)

- Thematic Household Survey No. 64: Personal computer and Internet penetration
 - Ø Smartphone ownership in Hong Kong: 88.6% in 2017
- Instant messaging apps are the most widely used communication tool



- Allow delivery of health information in texts, emojis, stickers, voice message and multi-media files (pictures, video, etc.) freely through internet

Why instant messaging apps? (2)

Jockey Club FAMILY Project Family and Health Information Trend Survey

- Respondents: 3,063 adults
- Health information exposure through instant messaging is associated with healthier behaviour

Ø More physical activities

Ø Less smoking



Health information exposure from information and communication technologies and its associations with health behaviors: Population-based survey

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ABSTRACT

Health information and communication technologies (ICTs) are increasingly used but little is known about routine exposure to health information from ICTs and its associations with health behaviors. A territory-wide population-based dual landline and mobile telephone survey was conducted in 2016 in Hong Kong, where smartphone ownership and Internet access are among the most prevalent, easiest and fastest in the world. Health information exposure from traditional sources (television/radio/newspaper/magazine), Internet websites, social media sites and instant messaging (IM); and information on smoking, alcohol consumption and physical activity were recorded. Prevalence was weighted by age, sex and education level of the general population. Multinomial logistic regression was used to assess the association of health information exposure with smoking and alcohol consumption, whilst multivariable linear regression was used to assess the association with frequency of moderate and vigorous physical activity (days/week). Of 3063 respondents, most (71.6%) were often or sometimes exposed to health information from traditional sources, followed by Internet websites (40.9%), social media sites (40.7%), and IM (27.0%). Respondents with lower education and household income were less frequently exposed to health information from Internet websites, social media sites and IM (all $P < 0.001$). Health information exposure from IM was associated with being never smokers, and more frequent moderate and vigorous physical activity (all P for trend < 0.05). Health information exposure from IM was least frequent but associated with healthier behaviors. Further public health education campaigns can consider using IM to deliver information, particularly to disadvantaged groups.

1. Introduction

The determinants of active health information seeking and its association with healthier behaviors have been well-documented (Anker et al., 2011; Cline and Haynes, 2001; Huerta et al., 2016). Health information also comes from passive exposure from routine use of media and interactions with family and friends. Some observational studies found frequent health information exposure is also associated with healthier behaviors such as more regular physical activity and fruit and vegetable consumption, and less cigarette and excessive alcohol consumption (Biggsby and Hovick, 2017; Hay et al., 2009; Hornik et al., 2013). However, none of these studies focused on information and

communication technologies (ICTs), such as social media sites and instant messaging (IM), which are increasing dramatically and can provide convenient and low cost access to health information. Some randomized controlled trials have shown that health information delivered via text message is a cost-effective way to improve health behaviors, but population-based studies on health information exposure from IM are scarce (Armanasco et al., 2017; Badawy and Kuhns, 2017). Compared with traditional text-only message, IM enables information interaction in various forms (e.g. text, photograph, audio clip and video).

Exposure to health information is associated with health behaviors through several mechanisms including new information acquisition, normative reinforcement and reminding (Hornik et al., 2013).

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Why instant messaging apps? (3)

Focus group interviews with 21 current smokers in Hong Kong:

- Instant messaging apps is an acceptable and feasible platform for counsellors to chat with smokers and provide personalized advice to quit in real time
- Provide psychosocial support
- Help identify or clarify reasons for quitting to strengthen motivation to quit



Luk et al. *JMIR Mhealth Uhealth* 2019;7(1):e11954

[Original Paper](#)

Exploring Community Smokers' Perspectives for Developing a Chat-Based Smoking Cessation Intervention Delivered Through Mobile Instant Messaging: Qualitative Study

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Abstract

Background: Advances in mobile communication technologies provide a promising avenue for the delivery of tobacco dependence treatment. Although mobile instant messaging (IM) apps (eg, WhatsApp, Facebook messenger, and WeChat) are an inexpensive and widely used communication tool, evidence on its use for promoting health behavior, including smoking cessation, is scarce.

Objective: This study aims to explore the perception of using mobile IM as a modality to deliver a proposed chat intervention for smoking cessation in community smokers in Hong Kong, where the proportion of smartphone use is among the highest in the world.

Methods: We conducted 5 focus group, semistructured qualitative interviews on a purposive sample of 15 male and 6 female current cigarette smokers (age 23-68 years) recruited from the community in Hong Kong. All interviews were audiotaped and transcribed. Two investigators independently analyzed the transcripts using thematic analyses.

Results: Participants considered mobile IM as a feasible and acceptable platform for the delivery of a supportive smoking cessation intervention. The ability to provide more personalized and adaptive behavioral support was regarded as the most valued utility of the IM-based intervention. Other perceived utilities included improved perceived psychosocial support and identification of motivator to quit. In addition, participants provided suggestions on the content and design of the intervention, which may improve the acceptability and usability of the IM-based intervention. These include avoiding health warning information, positive messaging, using former smokers as counselors, and adjusting the language style (spoken vs written) according to the recipients' preference.

Conclusions: This qualitative study provides the first evidence that mobile IM may be an alternative mobile health platform for the delivery of a smoking cessation intervention. Furthermore, the findings inform the development of a chat-based, IM smoking cessation program being evaluated in a community trial.

(*JMIR Mhealth Uhealth* 2019;7(1):e11954) doi:[10.2196/11954](https://doi.org/10.2196/11954)

KEYWORDS

chat intervention; instant messaging; mHealth; mobile phone; social media; smoking cessation; tobacco dependence; WhatsApp

The aim and methods of the study

- Study aim: To examine the effectiveness of a chat-based WhatsApp intervention for smoking cessation (“WhatsApp chat support”)
- Study design: Pragmatic cluster-randomised controlled trial
 - ∅ Pragmatic trial is the most preferred method to examine the effectiveness of an intervention in real-world settings
- The study was conducted within the 8th “Quit to Win” Smoke-free Community Campaign organized by Hong Kong Council on Smoking and Health

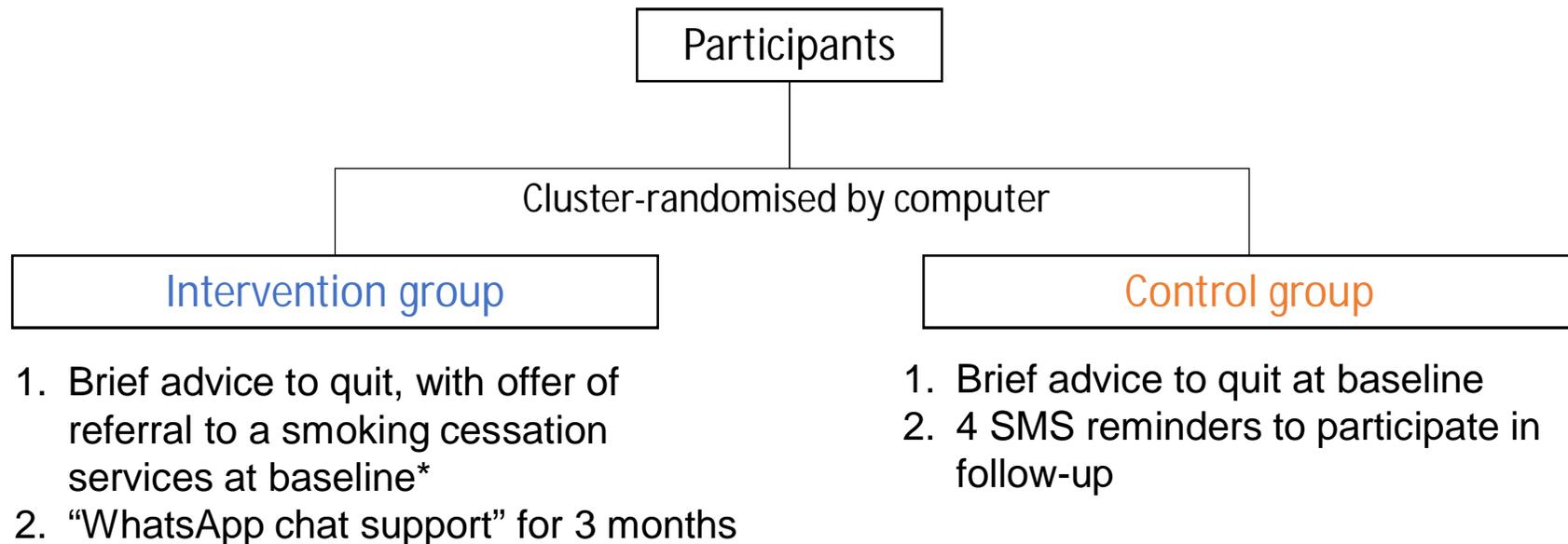
How did we recruit smokers?

- Between June and Sept 2019, 68 recruitment booths were setup in all 18 districts in Hong Kong
- Trained ambassadors (mainly university students) proactively approached and recruited smokers at smoking hotspots in the nearby areas



How were the participants treated?

- Participants were cluster-randomised by computer into “Intervention group” or “Control group”

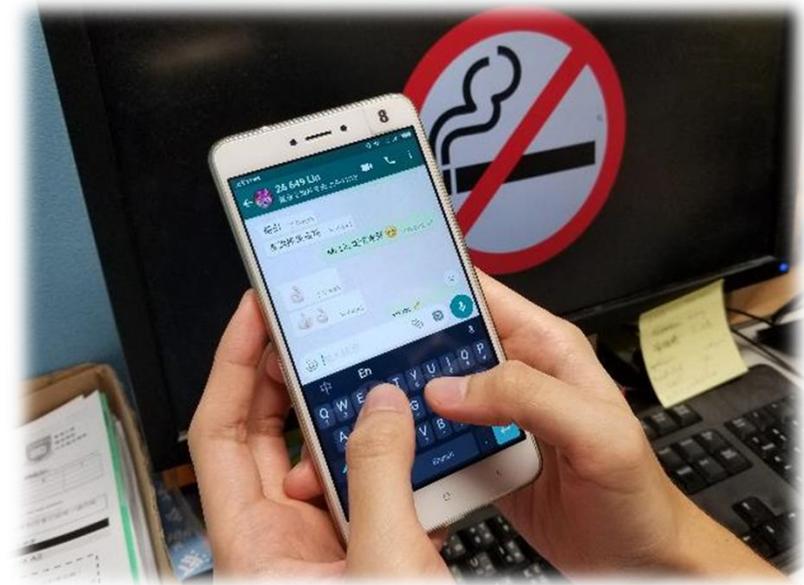


- All participants received a self-help booklet by Hong Kong Council on Smoking and Health

“WhatsApp chat support” for 3 months

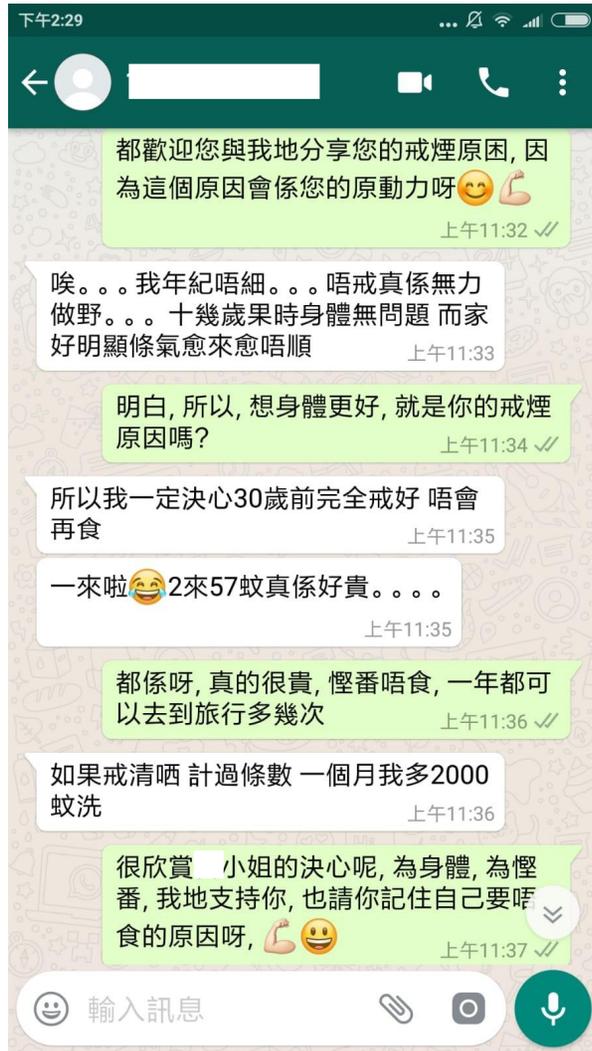
Counsellors chatted with the participants through WhatsApp

- Learnt about their smoking behaviour
- Provided personalised, theory-based advice to quit in real time
- Promoted the use of and offered referral to existing smoking cessation services



Examples of “WhatsApp chat support”(1)

1.

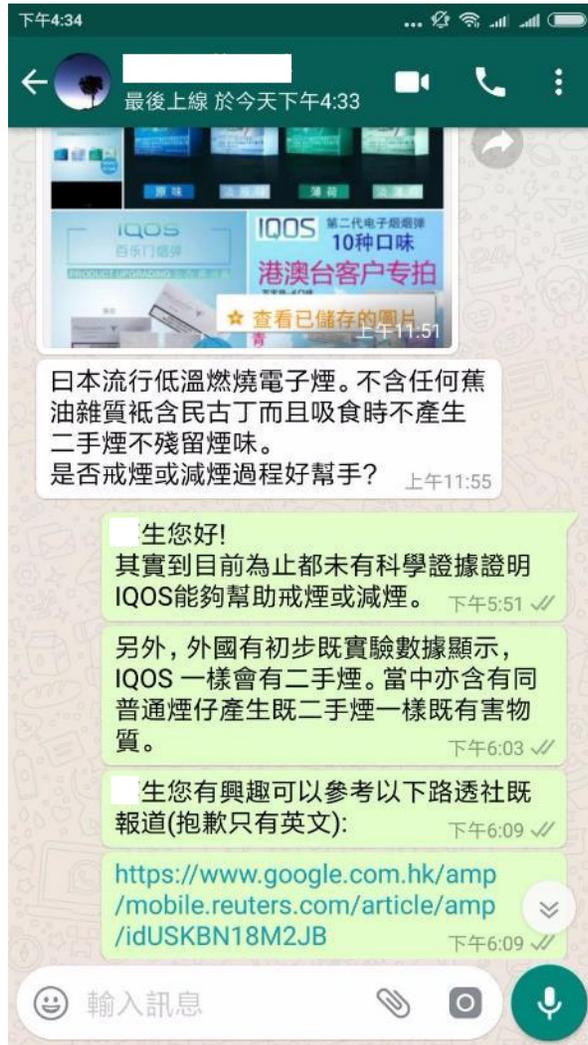


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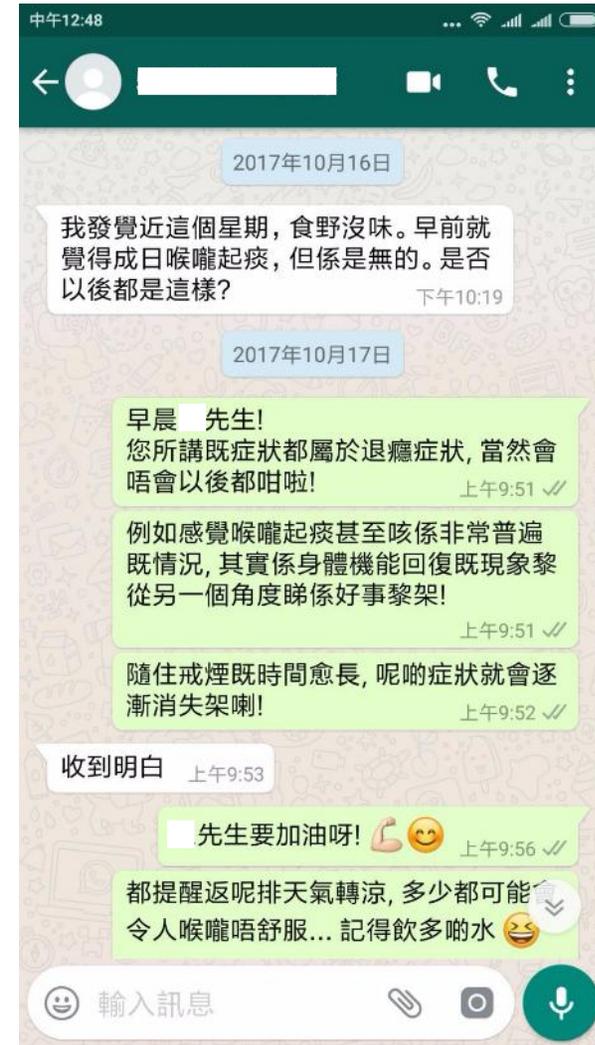


Examples of “WhatsApp chat support”(2)

3.

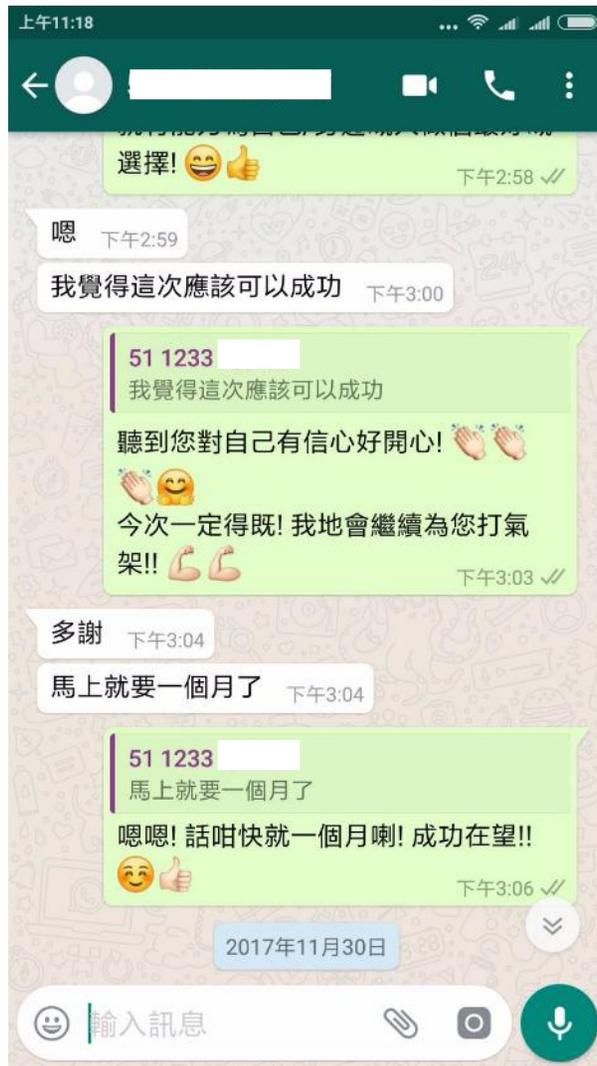


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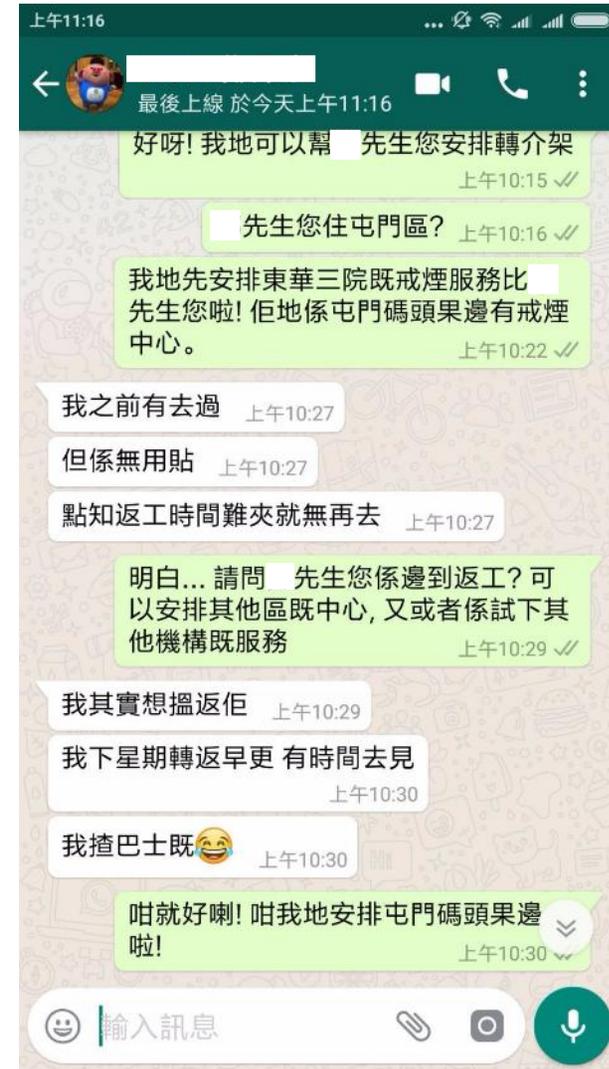


Examples of “WhatsApp chat support”(3)

5.

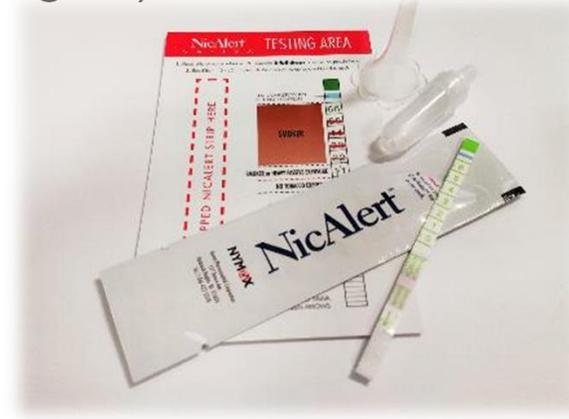


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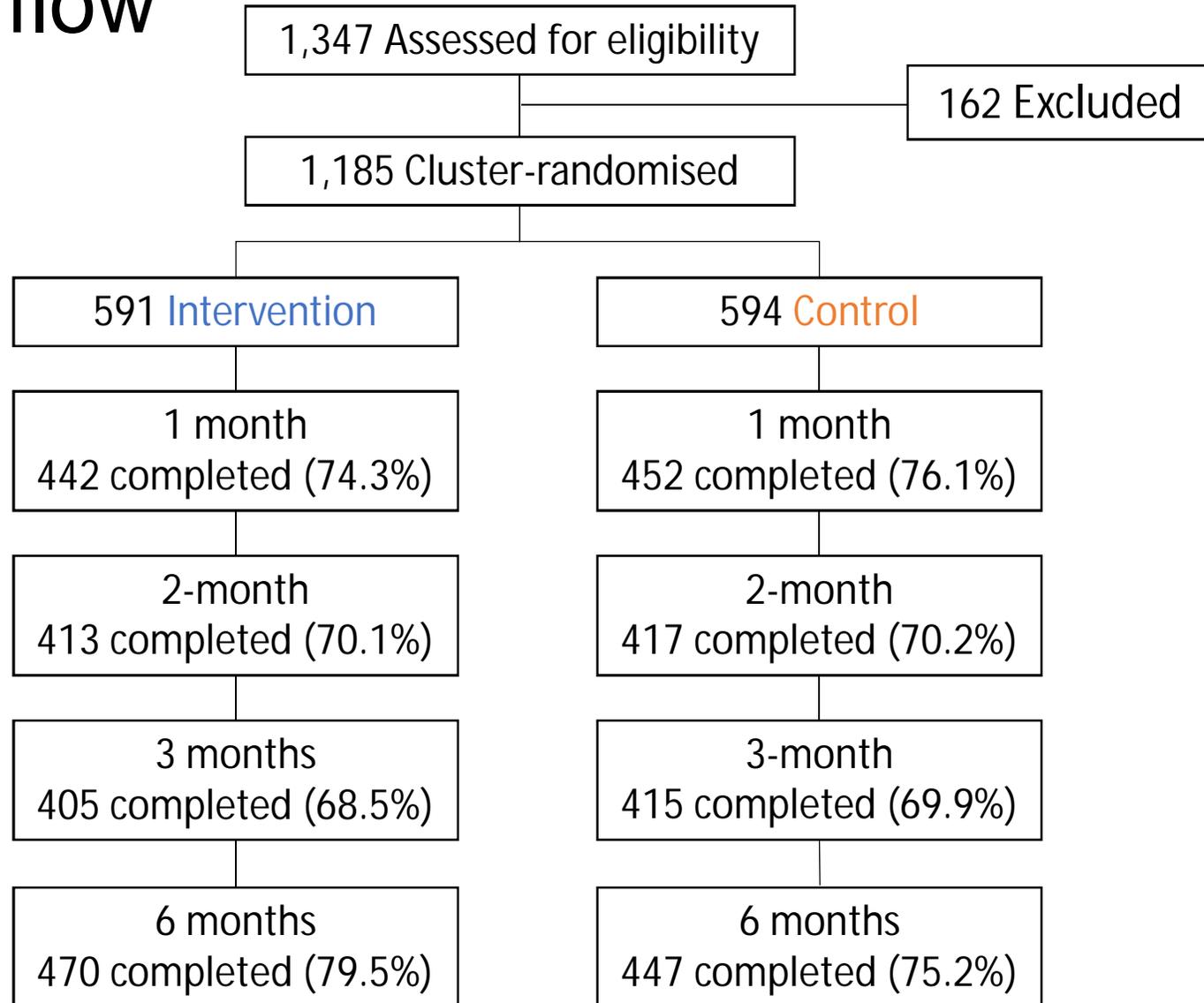


How did we assess quitting outcomes?

- Follow-up with participants by telephone at 1, 2, 3, 6 months, respectively
 - Ø “In the past 7 days, did you smoke any cigarette (even a single puff)?”
- Participants who self-reported having quit for 7 days or longer were invited to verify their quit status by
 - Ø Exhaled carbon monoxide test (level of <4 ppm)
 - Ø Salivary cotinine test (level of <10 ng/ml)



Study flow



Overall retention rate at 6-month follow-up: 77.4%

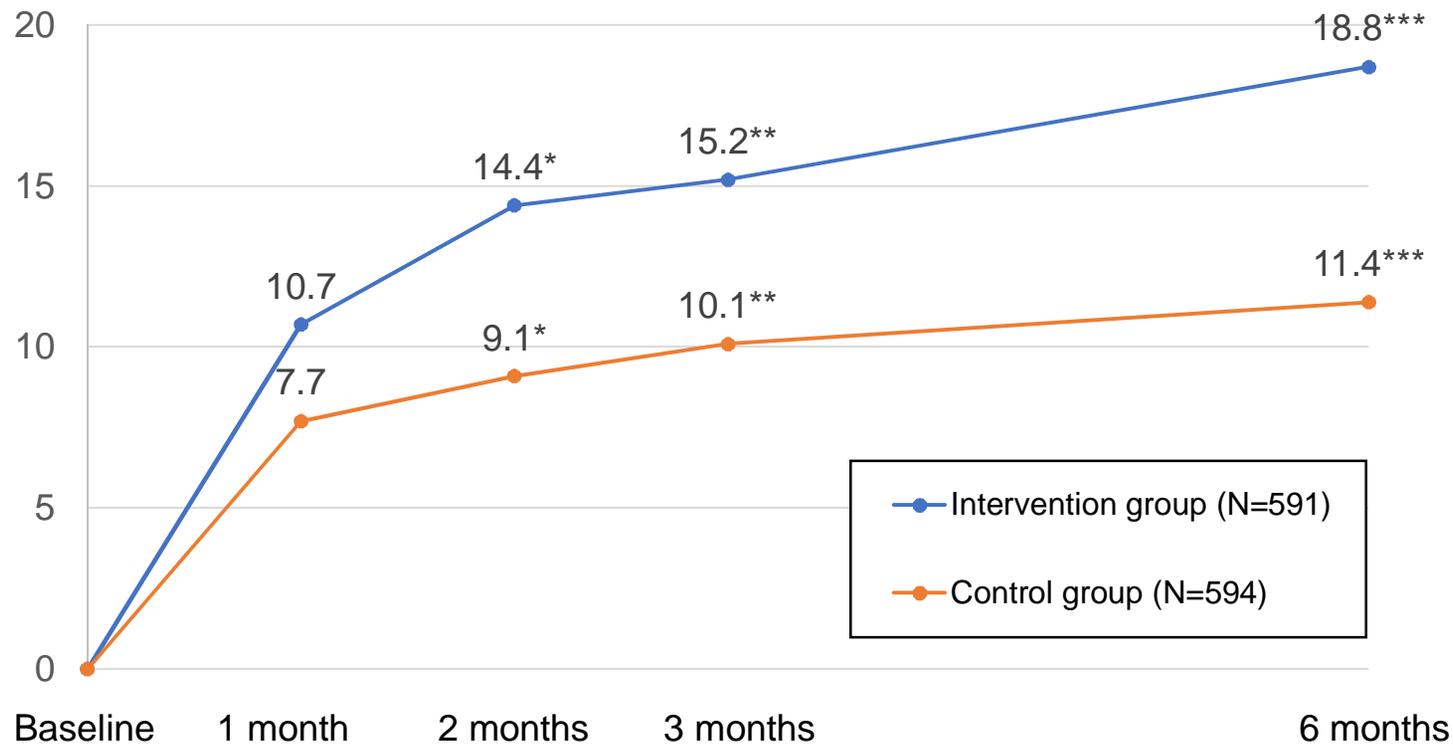
Characteristics of the participants (N=1185)

		Mean or %
Mean age, year		41.5
Sex	Male	77.5%
	Female	22.5%
Nicotine dependence*†	Light	51.7%
	Moderate	42.1%
	Heavy	6.2%
Ready to quit in 30 days†	No	67.2%
	Yes	32.8%
Previous quit attempt†	Never	51.8%
	Over 1 year ago	38.1%
	Within 1 year	10.7%

Results (1): Self-reported quitting

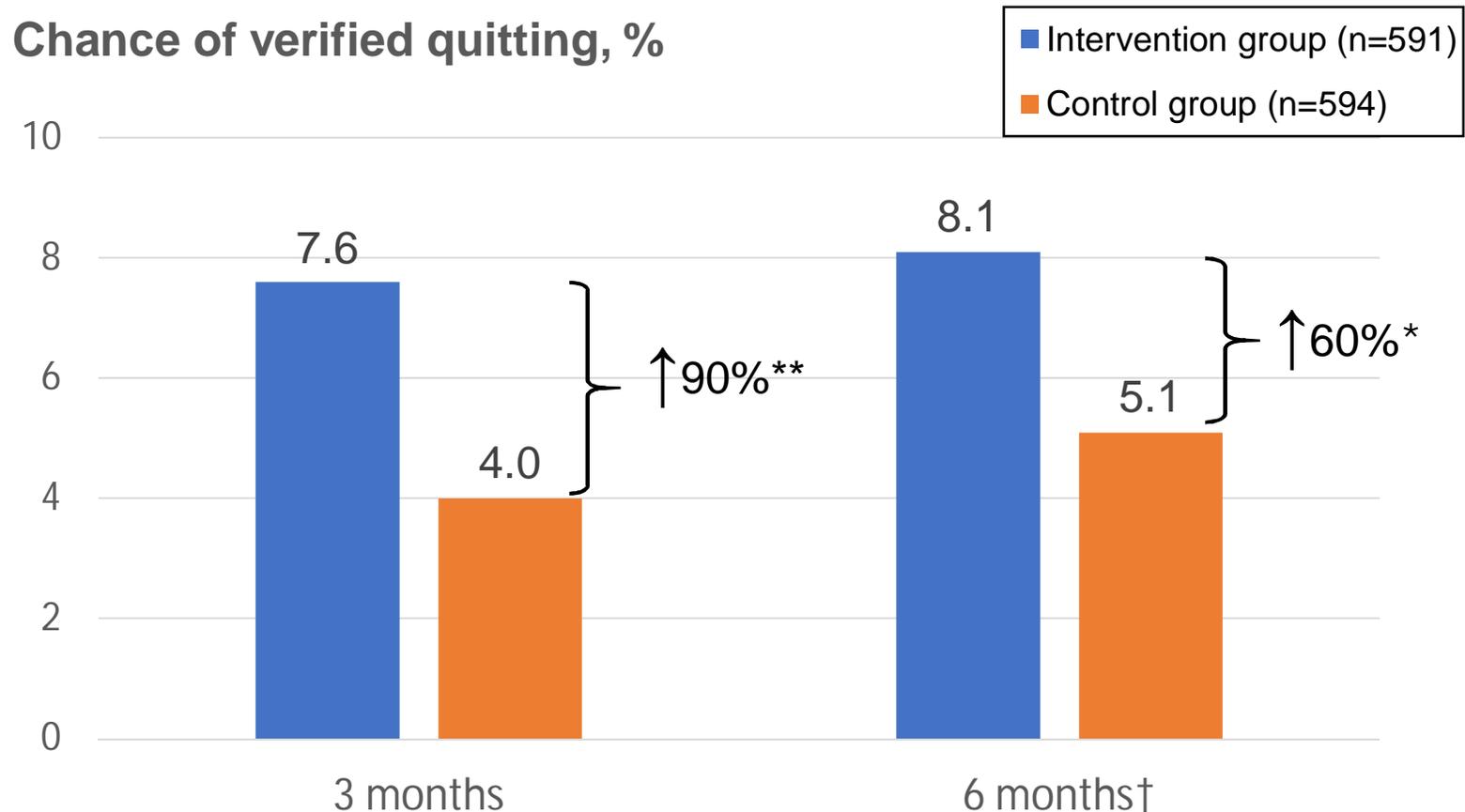
- The “intervention group” had higher chances of self-reported quitting than the “control group” at all follow-up timepoints

Chances of self-reported quitting, %



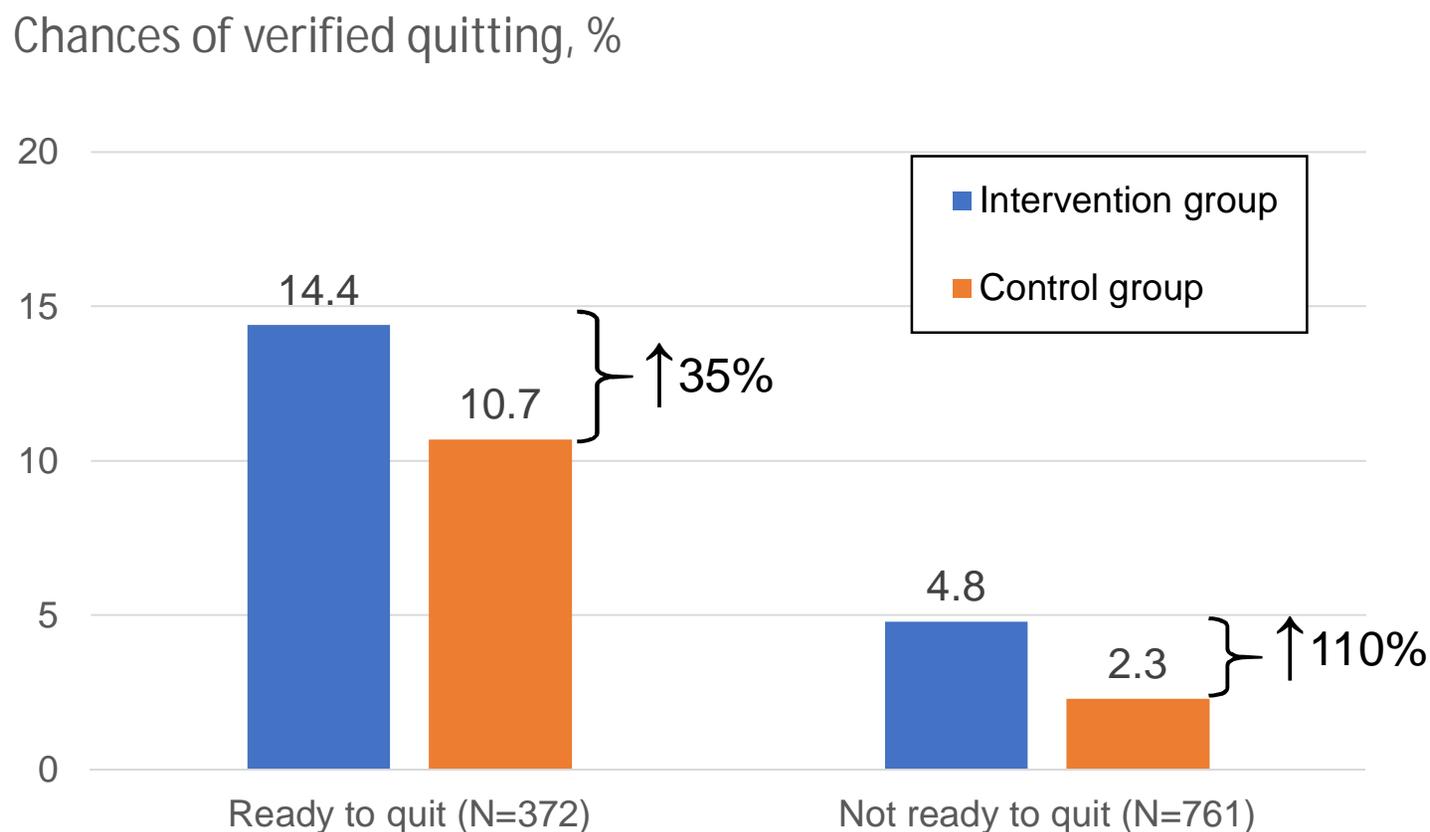
Results (2): Verified quitting

- The chance of verified quitting was 90% and 60% higher in the “intervention group” than in the “control group” at 3 and 6 months, respectively



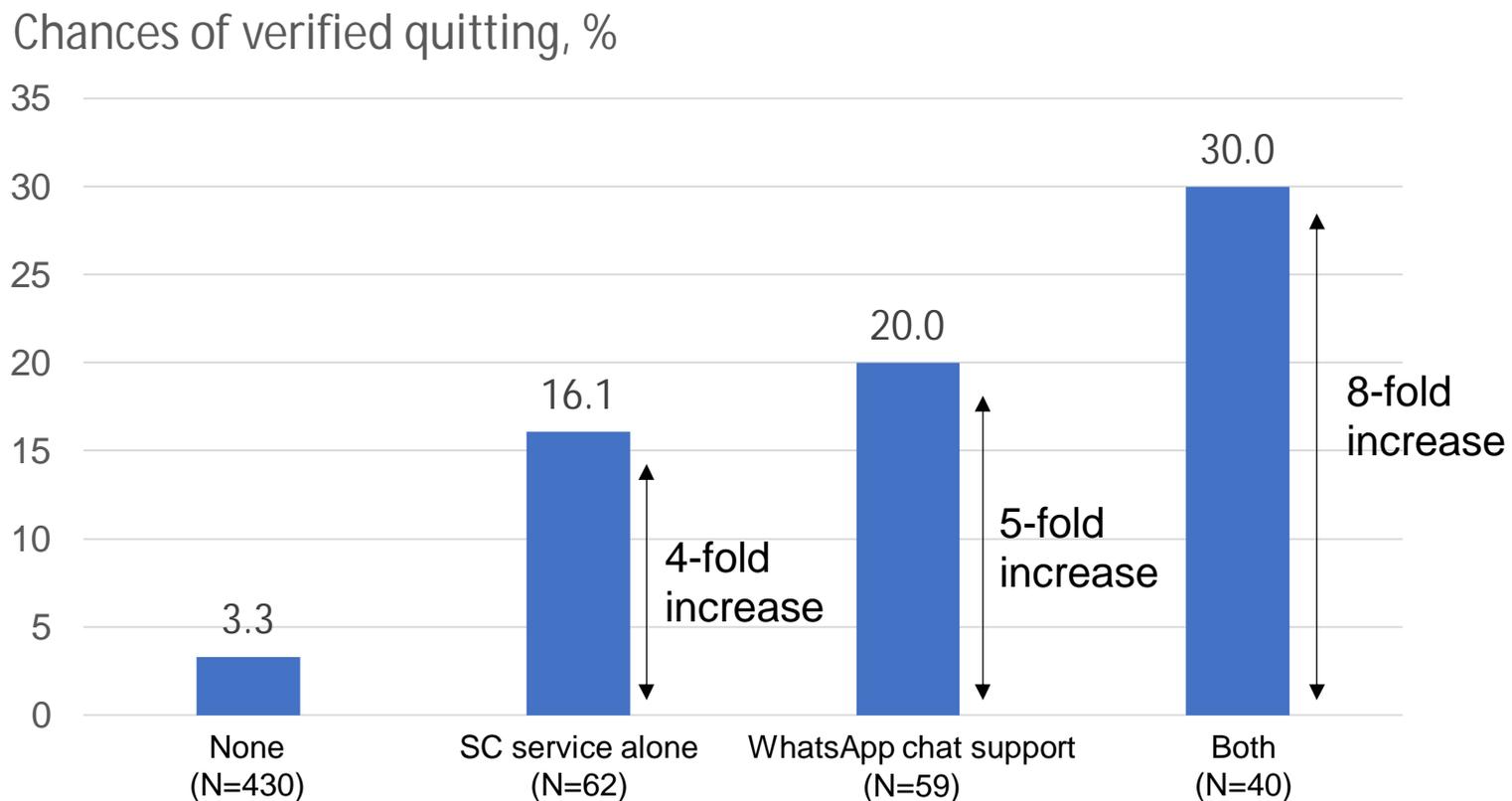
Results (3): Subgroup analyses

- The intervention effect on chance of verified quitting was stronger in participants not ready to quit within 30 days at baseline than those ready to quit*



Results (4): Intervention engagement analyses in the intervention group

- Effective engagement in “WhatsApp chat support”^{*} was associated with increased chances of verified quitting, with or without the use of smoking cessation services[†]



Conclusions

- This study provides initial evidence that “WhatsApp chat support” can...
 - Ø Help smoker quit as a stand-alone intervention, and...
 - Ø Be combined with treatment provided by existing smoking cessation services to further increase the chances of quitting
- Local providers of smoking cessation service can consider adopting “WhatsApp chat support” as a new treatment option
 - Ø To strengthen the effectiveness of existing treatments (e.g., increase compliance of nicotine replacement therapy)
 - Ø Set up a WhatsApp quitting service with a fixed number (like 1833 183)

Implications

The research team is conducting further research for

- Ascertaining the effectiveness of “WhatsApp chat support” in different settings and populations (e.g., hospitalized patients)
- Optimising the content of “WhatsApp chat support”
- Adopting the model for treatment for other lifestyles (e.g., alcoholism)
- Developing and examining chatbot for automizing chat-based support to reduce the burden of smoking cessation counsellors

The study results are published in:

THE LANCET

Digital Health

Citation:

Wang MP, Luk TT, Wu Y, Li WHC, Cheung DYT, Kwong ACS, Lai VWT, Chan SSC, Lam TH. Chat-based instant messaging support integrated with brief intervention for smoking cessation: a community-based, pragmatic, cluster-randomized controlled trial. *Lancet Digital Health* 2019;1(4):e183-e192



Chat-based instant messaging support integrated with brief interventions for smoking cessation: a community-based, pragmatic, cluster-randomised controlled trial



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Summary

Background Mobile instant messaging apps offer a modern way to deliver personalised smoking cessation support through real-time, interactive messaging (chat). In this trial, we aimed to assess the effect of chat-based instant messaging support integrated with brief interventions on smoking cessation in a cohort of smokers proactively recruited from the community.

Methods In this two-arm, pragmatic, cluster-randomised controlled trial, we recruited participants aged 18 years or older who smoked at least one cigarette per day from 68 community sites in Hong Kong, China. Community sites were computer randomised (1:1) to the intervention group, in which participants received chat-based instant messaging support for 3 months, offers of referral to external smoking cessation services, and brief advice, or to the control group, in which participants received brief advice alone. The chat-based intervention included personalised behavioural support and promoted use of smoking cessation services. Masking of participants and the research team was not possible, but outcome assessors were masked to group assignment. The primary outcome was smoking abstinence validated by exhaled carbon monoxide concentrations lower than 4 parts per million and salivary cotinine concentrations lower than 10 ng/mL at 6 months after treatment initiation (3 months after the end of treatment). The primary analysis was by intention to treat and accounted for potential clustering effect by use of generalised estimating equation models. This trial is registered with ClinicalTrials.gov, number NCT03182790.

Findings Between June 18 and Sept 30, 2017, 1185 participants were randomly assigned to either the intervention (n=591) or control (n=594) groups. At the 6-month follow-up (77% of participants retained), the proportion of validated abstinence was significantly higher in the intervention group than in the control group (48 [8%] of 591 in intervention vs 30 [5%] of 594 in control group, unadjusted odds ratio 1.68, 95% CI 1.03–2.74; p=0.040). Engagement in the chat-based support in the intervention group was low (17%), but strongly predicted abstinence with or without use of external smoking cessation services.

Interpretation Chat-based instant messaging support integrated with brief cessation interventions increased smoking abstinence and could complement existing smoking cessation services.

Funding Hong Kong Council on Smoking and Health.

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Introduction

Advances in mobile technologies have provided a new avenue for mobile phone-based interventions (mHealth) for smoking cessation. Randomised trials have found mobile text messaging through short message service (SMS) to be effective for smoking cessation,^{1,2} primarily by increasing perceived psychosocial support.³ Whether more interactive and adaptive mHealth platforms, including smartphone apps and social networking tools, could further improve smoking cessation outcomes remains inconclusive.^{4–6} Personalised, chat-based support provided in real time by counsellors is an emerging area in mental health care,⁷ but no study has yet assessed its effect on smoking abstinence.

Mobile instant messaging apps (eg, WhatsApp, Facebook Messenger, and WeChat) are popular and inexpensive alternatives to SMS for interactive messaging. Our population-based survey⁸ found that adults exposed

to health information from instant messaging smoked less and were more physically active than those who were not exposed, suggesting that instant messaging might be a viable way of promoting preventive behaviours. Our pilot trial⁹ found counsellor-moderated WhatsApp social groups to be effective in preventing relapse among individuals who had recently quit. Our formative qualitative study¹⁰ of community smokers showed that mobile instant messaging is a feasible and acceptable platform for chat-based smoking cessation support.

Available models of treatment for tobacco dependence are mainly reactive and rely on a health-care practitioner to initiate treatment,¹¹ but novel approaches to engage less-motivated or hard-to-reach smokers have been increasingly studied.^{12–14} In Hong Kong, only 31% of daily smokers have ever tried to quit and most current smokers (98%) never sought help from a smoking cessation service.¹⁵ Existing brief intervention models, such as the five-step 5As

Lancet Digital Health 2019;

1: e183–92

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See Comment page e153

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About “Quit to Win” Smoke-free Community Campaign(1)

- Organized yearly since 2009* by Hong Kong Council on Smoking and Health in collaboration with School of Nursing and School of Public Health, HKUMed
- Motivate smoking cessation through contest and prizes
- Disseminates smoke-free message through district-based promotional activities in collaboration with NGOs creating a positive social atmosphere to support smoking cessation
- Provides smoking cessation counselling training



About “Quit to Win” Smoke-free Community Campaign (2)

No. of Smoke-free Ambassador trained	578
No. of participants of the “Quit to Win” contests	11,171
No. of recruitment sessions	618
No. of smoke-free promotion activities organized by district working partners(NGOs)	457



About “Quit to Win” Smoke-free Community Campaign (3)

- The “Quit to Win” Contest engaged over 1000 smokers recruited from the community in quitting every year
- Conduct scientific research for designing and examining brief interventions for smoking cessation
 - ∅ Provide recommendations to improve smoking cessation services in Hong Kong
- The research methods and findings have been published in 12 international medical journals



10th “Quit to Win” Smoke-free Community Campaign

- Recruitment period from 15 June to 30 September 2019.
- Supported by 18 District Councils, 22 district working partners and 37 supporting organizations from various industries.
- Recruitment schedule:

Date	Time	Venue
24 Sep	12:00 – 18:30	HKJC Betting Branch - Choi Wan
28 Sep	12:00 – 18:30	HKJC Betting Branch - Kwai Chung, Wing Fong Road
29 Sep	11:30 – 16:30	Wah Fu Estate, Aberdeen
	14:00 – 18:00	Ping Shek Estate, Ngau Tau Kok

- Website: www.quittowin.hk

