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

Press Conference
September 20, 2019
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)

Source of data: Thematic Household Survey (formerly known as General Household Survey), Census & Statistics Department, Government of HKSAR, 1982-2017
Pattern of smoking in Hong Kong (2)

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

Source of data: “Quit to Win” Contest, Hong Kong Council on Smoking and Health, 2009-10, 2011-16
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*

* Referring to Department of Health’s Smoking Cessation Hotline 1833 183 and Clinic; Hospital Authority’s Smoking Counselling and Cessation Centre; Tung Wah Group of Hospitals Integrated Centre on Smoking Cessation; Pok Oi Hospital’s Smoking Cessation Service; The University of Hong Kong’s Youth Quitline

‡ 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
  Ÿ 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
  - More physical activities
  - Less smoking

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

Chen Shen, Man Ping Wang, Alice Wan, Kasiomayajula Viswanath, Sophia Siu Chee Chan, Tai Hing Lam

**ARTICLE INFO**

**Abstract**

Health information and communication technologies (ICTs) are increasingly used but little is known about media exposure to health information from ICTs and its associations with health behaviors. A population-based face-to-face 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 (45.0%), 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 behaviour. Further public health education campaigns can consider using IM to deliver information, particularly to disadvantaged groups.

---

**Shen et al. Prev Med** 2018;133:140-146
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
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
  ÿ 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”

  - **Intervention group**
    1. Brief advice to quit, with offer of referral to a smoking cessation services at baseline*
    2. “WhatsApp chat support” for 3 months

  - **Control group**
    1. Brief advice to quit at baseline
    2. 4 SMS reminders to participate in follow-up

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

*Include a health warning leaflet and a referral card
“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. [WhatsApp chat screen 1]

2. [WhatsApp chat screen 2]
Examples of “WhatsApp chat support” (2)

3.

4.
Examples of “WhatsApp chat support” (3)

5. 6.
How did we assess quitting outcomes?

• Follow-up with participants by telephone at 1, 2, 3, 6 months, respectively
  Ŷ “In the past 7 days, did you smoke any cigarette (even a single puff)?”

• Participants who self-reported having quitted for 7 days or longer were invited to verify their quit status by
  Ŷ Exhaled carbon monoxide test (level of <4 ppm)
  Ŷ Salivary cotinine test (level of <10 ng/ml)
Study flow

1,347 Assessed for eligibility

1,185 Cluster-randomised

162 Excluded

591 Intervention

1 month
442 completed (74.3%)

2-month
413 completed (70.1%)

3 months
405 completed (68.5%)

6 months
470 completed (79.5%)

594 Control

1 month
452 completed (76.1%)

2-month
417 completed (70.2%)

3 months
415 completed (69.9%)

6 months
447 completed (75.2%)

Overall retention rate at 6-month follow-up: 77.4%
### Characteristics of the participants (N=1185)

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

*Measured by heaviness of smoking index
† Participants with missing data were excluded
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, %

- Intervention group (N=591)
- Control group (N=594)

*P<0.05; **P<0.01; ***P<0.001
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.

![Graph showing the chance of verified quitting](image)

- **Intervention group (n=591)**
- **Control group (n=594)**

↑ 90%**
↑ 60%*

*P<0.05; **P<0.01; ***P<0.001
† 3 months after the end of “WhatsApp chat support”
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*

*P value for interaction <0.0001
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†

![Bar chart showing chances of verified quitting]

* Defined by having chatted with a counsellor via WhatsApp
† All P<0.001
Conclusions

• This study provides initial evidence that “WhatsApp chat support” can...
  Ŷ Help smoker quit as a stand-alone intervention, and...
  Ŷ 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
  Ŷ To strengthen the effectiveness of existing treatments (e.g., increase compliance of nicotine replacement therapy)
  Ŷ 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:

THANK YOU

Acknowledgement

• This study was funded by Hong Kong Council on Smoking and Health
• We would like to thank the participants of the study and the ambassadors for subject recruitment
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

* Except 2011
### About “Quit to Win” Smoke-free Community Campaign (2)

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Smoke-free Ambassador trained</td>
<td>578</td>
</tr>
<tr>
<td>No. of participants of the “Quit to Win” contests</td>
<td>11,171</td>
</tr>
<tr>
<td>No. of recruitment sessions</td>
<td>618</td>
</tr>
<tr>
<td>No. of smoke-free promotion activities organized by district working partners (NGOs)</td>
<td>457</td>
</tr>
</tbody>
</table>

Source of data: “Quit to Win” Contest, Hong Kong Council on Smoking and Health, 2009-10, 2012-16
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

  ṭ 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:

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

- Website: [www.quittowin.hk](http://www.quittowin.hk)