

# “Getting Every Smoker to Participate and Quit - GEMPAQ V2.0” a Personalised Smoking Cessation Smartphone Application in Malaysia: A Pilot Randomised Controlled Trial

Ina Sharyn Kamaludin, MHSM <sup>a,b</sup>, Anne Yee, Ph.D <sup>a,g\*</sup>, Lim Sin How, Ph.D <sup>b</sup>, Mahmoud Danaee, Ph.D <sup>a,b</sup>, Amer Siddiq Amer Nordin, Ph.D <sup>a,c</sup>, Kan Wei Yeong, MSc <sup>d</sup>, Zarwina Yusoff, MSc <sup>a,e</sup>, Wong Yiik Sang, BSc <sup>f</sup>, Farizah Mohd Hairi, Ph.D <sup>a,b</sup>

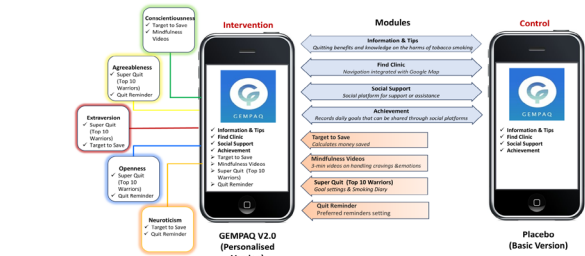
<sup>a</sup>Nicotine Addiction Research Collaborating Group, Universiti Malaysia Centre for Addiction Science Studies, Universiti Malaysia, Kuala Lumpur, Malaysia; <sup>b</sup>Department of Social and Preventive Medicine, Faculty of Medicine, Universiti Malaysia, Kuala Lumpur, Malaysia; <sup>c</sup>Department of Psychological Medicine, Faculty of Medicine, Universiti Malaysia, Kuala Lumpur, Malaysia; <sup>d</sup>Department of Software Engineering, Faculty of Computer Science and Information Technology, Universiti Malaysia, Kuala Lumpur, Malaysia; <sup>e</sup>Department of Computer System and Technology, Faculty of Computer Science and Information Technology, Universiti Malaysia, Kuala Lumpur, Malaysia; <sup>f</sup>Faculty of Computer Science and Information Technology, University of Malaysia Sarawak, Sarawak, Malaysia; <sup>g</sup>Jeffrey Cheah School of Medicine and Health Sciences, Clinical School Johor Bahru, Monash University Malaysia, Johor Bahru, Malaysia

## Introduction

- Despite longstanding tobacco control efforts, **19% of Malaysians still smoke cigarettes.**
- Smoking continues to pose **serious health risks.**
- Smartphone apps** offer practical and accessible tools for smoking cessation.

## Study Aims

- To **evaluate the effectiveness** of a novel smoking cessation smartphone app.
- The app is **tailored to users' five-factor personality traits.**
- Goal: To **increase smoking quit rates** through personalized intervention.



## Results

Table 1: Baseline Data of Participants

Characteristics	Intervention Personalised Version (n = 44) n (%)	Control Basic Version (n = 43) n (%)	Total (n = 87) n (%)	p-Value
Sex				
Male	40 (90.9)	37 (86.0)	77 (88.5)	0.477
Female	4 (9.1)	6 (14.0)	10 (11.5)	
Age (mean (SD)) years	35.3 (10.22)	41.6 (13.27)	38.5 (11.75)	0.014*
Ethnicity				
Malay	30 (68.2)	16 (37.2)	46 (52.7)	0.014*
Chinese	5 (11.4)	9 (20.9)	14 (16.2)	
Indian	1 (2.3)	7 (16.3)	8 (9.3)	
Others	8 (18.2)	11 (25.6)	19 (21.8)	
Marital Status				
Married/Cohabiting	23 (52.3)	27 (62.8)	50 (57.5)	0.067
Separated/Divorced/Widowed	1 (2.3)	5 (11.6)	6 (6.9)	
Single	20 (45.5)	11 (25.6)	31 (35.6)	
Education				
Low (upper secondary and lower)	22 (50.0)	22 (51.2)	44 (50.6)	0.919
Moderate (diploma certificate)	7 (15.9)	8 (18.3)	15 (17.2)	
High (university and higher)	15 (34.1)	13 (30.2)	28 (32.2)	
Employment Status				
Full Time	32 (72.7)	36 (83.7)	68 (78.2)	0.414
Part Time	2 (4.5)	3 (7.0)	5 (5.7)	
Unemployed/Retired/Others	7 (15.9)	3 (7.0)	10 (11.5)	
Student	3 (6.8)	1 (2.3)	4 (4.6)	
Monthly Income				
Low (less than USD1088)	37 (84.1)	23 (53.5)	60 (69.0)	0.003*
Middle (USD1089 to USD2461)	4 (9.1)	16 (37.2)	20 (23.0)	
High (USD2462 and above)	3 (6.8)	4 (9.3)	7 (8.0)	
Smoking Behaviour				
Age started smoking years (mean (SD))	18.3 (3.26)	17.1 (2.51)	17.7 (2.89)	0.049*
Cigarettes per day (mean (SD))	8.5 (6.08)	10.2 (4.96)	9.4 (5.52)	0.150
At least one prior quit attempt	29 (65.9)	17 (39.5)	46 (52.9)	0.018*

\*p < 0.05

## Methods

- An automated, parallel, 2-group: intervention (personalised app), control (placebo using basic app), **double-blinded, randomised controlled pilot trial** with a 12-week.
- Generalised Estimating Equations analysis was applied to repeatedly measure the primary outcome, self-reported abstinence, throughout the trial.

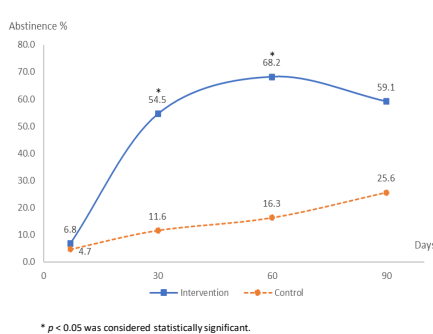


Figure 1: 7-day PPA Self-Reported Abstinence- CCA

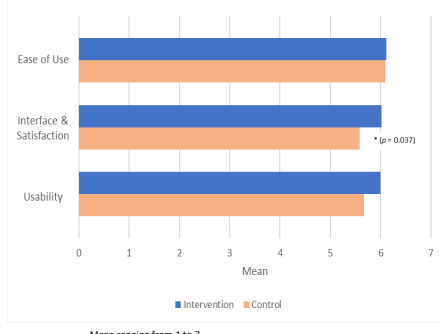


Figure 2: mHealth App Usability Questionnaire (MAUQ) Outcomes

## Conclusion

- ✓ Smokers' cessation rates are higher among the intervention group
- ✓ This research provides preliminary evidence that using personalised smartphone cessation applications aids smoking cessation.

## Disclosure

This research was funded by a grant from the Malaysian Ministry of Higher Education-LRGS NanoMiTe (RU029-2014) and the Universiti Malaysia Research Grant - Malaysia's Tobacco Control Policy Evaluation Program (RU001A-2021).	Tobacco Industry	E-cigarette & nicotine product industry (excluding pharma)	Pharma Industry
Please add "yes" or "no" to each table cell. If "yes", please turn cell background color to yellow.	No	No	No
The work being presented has received funding or other means of support from any of the following sources:	No	No	Yes
Any of the authors have received funding (including consultancy) from any of the following sources in the past 5 years:	No	No	Yes

## Acknowledgments

Extreme gratitude to funders (RU029-2014 & RU001A-2021) and all those who contributed to the design, development, conduct and participation in the GEMPAQ V2.0 study.

