

Supplementary Tables

Supplementary table 1. Five A's Guidelines for Smoking Cessation

Five A's Guidelines for Smoking Cessation	
ASK	The mobile app asks the user whether or not they smoke cigarettes and/or use other tobacco products
ADVISE	The mobile app persuades and advises all tobacco users to quit
ASSESS	The mobile app assesses the user's readiness to make a quit attempt. For example, the app can do this by asking questions related to importance or quitting and a self-efficacy.
ASSIST	The mobile app assists or helps the user quit. It can do this in various ways: helping create a quit plan, providing counselling, providing support, recommending medications etc.
ARRANGE	The mobile app arranges follow-up contact with the user or provides referral to specialist support.

Supplementary table 2. Adherence to Five A Guidelines for Smoking Cessation

Smoking Cessation Guidelines		Platform		
		iOS (n=15)	Android (n=125)	Both (n=140)
Five A Guidelines	ASK	12 (80.0%)	106 (84.8%)	118 (84.3%)
	ADVISE	9 (60.0%)	60 (48.0%)	69 (49.3%)
	ASSESS	3 (20.0%)	12 (9.6%)	15 (10.7%)
	ASSIST	6 (40.0%)	40 (32.0%)	46 (32.9%)
	ARRANGE	5 (33.3%)	9 (7.2%)	14 (10.0%)
Level of Adherence	None (0)	0 (0.0%)	9 (7.2%)	9 (6.4%)
	Low (1-2)	8 (53.3%)	84 (67.2%)	92 (65.7%)
	Medium (3-4)	6 (40.0%)	30 (24.0%)	36 (25.7%)
	High (5)	1 (6.7%)	2 (1.6%)	3 (2.1%)

Supplementary Table 3. Characteristics of all mobile applications included in the review.

Name of App	App Developer	Platform	Price (Euro)	Rating	No. Of Ratings	Total no. of gamification strategies (out of 7)	Total no. of gamification tactics (out of 9)	Adherence Five As (out of 5)
QuitNow! Quit smoking	Fewlaps	Android	0	4.29	35045	5	7	3
Smoke Free, quit smoking now and stop for good	The Quit Smoking Specialists	Android	0	4.66	32875	4	7	4
Quit Tracker: Stop Smoking	despDev	Android	0	4.59	29512	4	7	2
Stop Smoking - EasyQuit free	Mario Hanna	Android	0	4.80	28823	5	6	4
Get Rich or Die Smoking	Tobias Gruber	Android	0	4.56	12363	5	7	1
Stop Smoking - quit smoking, be smoke free	The Quit Smoking Professionals	Android	0	4.38	6353	5	6	2
QuitNow! PRO - Stop smoking	Fewlaps	Android	2.95	4.58	5718	5	7	3
aha!Smokefree	aha!dev	Android	0	4.29	3534	2	6	1
STOP Cigarettes - Quit smoking	academiacea	Android	0	4.11	2395	4	6	4
Quit Smoking Now: Quit Buddy!	HQmedia	Android	0	4.04	1296	3	6	2
Quit Smoking Tracker GOLD - stop smoking app	The Quit Smoking Professionals	Android	3.49	4.49	1080	5	6	2
Breathe Now -Stop Smoking Free	Peytu	Android	0	4.13	976	4	6	1
Smoking Log	Cory Charlton	Android	0	4.30	724	4	5	1
I Give Up Smoking	Bamyasoft	Android	0	4.50	672	4	6	2
Quit smoking	Andeko	Android	0	4.38	580	3	5	3
Quit Smoking with Stop Tobacco Mobile Trainer	Iteration Mobile & Vialsoft Apps	Android	0	4.44	463	7	10	4
Quit Genius 🧠 Best way to quit smoking for good	Digital Therapeutics	Android	0	4.62	351	7	8	5
Quitify for quit smoking!	SpanishApps	Android	0	4.34	345	6	6	4
Stop Smoking - EasyQuit Pro	Mario Hanna	Android	3.09	4.71	327	5	6	4
Get Rich or Die Smoking Gold	Tobias Gruber	Android	2.44	4.49	224	5	7	1

Quit-Smoking Coach	Brainlag Studios	Android	1.29	4.37	167	4	6	3
Quit Smoking	Lydia Games	Android	0	4.42	154	3	4	2
ExSmoker - Stop Smoking Now	Antonio Sánchez Díaz	Android	0	4.11	133	6	7	1
Kwit - quit smoking for good - smoking cessation	Kwit SAS	Android	0	4.16	126	5	7	1
Quit Smoking	Morisson Software	Android	0	4.07	122	2	4	1
STOPCigarettesPRO Quit Smoking	academiacea	Android	2.9	4.51	106	4	6	4
Breathe Now - Stop smoking	Peytu	Android	1.29	4.47	75	4	6	1
Reduce and Stop Smoking	Limpla	Android	0	4.17	69	4	6	3
QuitGuide - Quit Smoking	ICF International	Android	0	4.15	65	5	6	4
Tobacco Kills	liger	Android	0	4.00	61	3	7	1
Quit Smoking - Goodbye Tobacco	Your Health	Android	0	4.39	57	3	6	2
Quit smoking	AGI Applications	Android	0	4.29	56	3	4	2
Smoke - quit Pro	NikNormSoft	Android	1.69	4.87	55	4	6	2
Vapertrack	Incoherent Solutions	Android	0	4.39	54	3	6	1
Just Quit Smoking Hyperactive	Kostyantín Petrov	Android	0	4.38	34	5	6	1
Stop-tobacco	Université de Genève	Android	0	4.74	23	3	6	3
Quit Smoking 3D!	UD4M Games	Android	0.59	4.42	19	5	9	2
Quit Smoking Forever	pi9soft	Android	0	4.11	18	5	6	2
Quit smoking Pro	Led Scrolling App	Android	1.19	4.53	17	3	6	1
SmokeOut	Asier Murciego	Android	0	4.29	17	4	9	0
Beat Smoking - Quit Smoking	Prodocity	Android	0	4.07	14	4	5	4
Quit Smoking Now	SwiftKay Development	Android	0	4.07	14	4	6	1
Quit smoking	ZeroZig	Android	0.59	4.31	13	5	7	1
Quit For Treats - Stop Smoking	SelaSela	Android	0	4.36	11	5	5	2
Quit Smoking Helper App	osthoro	Android	0	4.44	9	4	6	2
Quitty	Playing for Health	Android	2.09	4.50	8	4	8	0
StopSmoking - Quit smoking	Optimum Design	Android	0	4.38	8	6	7	0
SimpleQuit: Quit Smoking App	Alex Elarbee	Android	0	4.38	8	3	6	1

Quit Smoking smartly - quit smoking app free	Zexa Software	Android	0	4.43	7	2	3	3
ExSmoker - Stop Smoking Now	Antonio Sánchez Díaz	Android	3.49	4.17	6	6	7	1
Done with Smoking	Abdulkarim Alrahili	Android	0	4.83	6	3	4	2
Peer Challenge	SliderNet	Android	0	4.20	5	7	5	3
Quit Smoking ! Smoking Kills	Groax Technology	Android	0	5.00	5	3	4	3
Give up smoking	mochiba	Android	0	4.40	5	2	3	3
IHaveBeenSmokeFreeFor...	Anacletus	Android	0	4.40	5	3	4	2
Quit Smoke	Utkarsh Khare	Android	0	4.80	5	5	6	2
Stop smoking helper	Roxoft	Android	0	4.47	88	4	6	3
100 Tips to stop	Cap morco studio	Android	0	4.40	89	5	7	1
Stop Smoking B Happy	Jeffrey Forte	Android	0	4.11	9	4	5	3
I'm Free	Bellotti Alessandro	Android	0	4.29	7	5	6	1
FitSmoke	D@v Consulting	Android	0	4.00	6	5	7	3
Qwit (Quit Smoking)	Team Geny	Android	0	4.05	9217	3	4	2
SmokeFree - quit smoking slowly	MotiveBite Studio	Android	0	4.39	6724	2	5	2
Quit Smoking: Cessation Nation	Ron Horner	Android	0	4.52	6383	1	4	1
Time To Quit Smoke	VantusMantus	Android	0	4.25	5417	1	3	1
QUIT SMOKING	Mastersoft Ltd	Android	0	4.36	4350	2	3	2
Quit Smoking	HC	Android	0	4.73	3497	2	3	1
Quit smoking - Smokerstop	Titus J. Brinker	Android	0	4.54	3154	2	5	1
No smoking	antonfil84	Android	0	4.62	2722	1	3	2
Qwit Pro LICENSE, Stop Smoking	Team Geny	Android	0.59	4.30	2247	3	4	2
Cigarette Analytics	Alvakos	Android	0	4.35	1324	1	2	2
Smokenote - Quit Smoking	NXCARE	Android	0	4.09	748	2	2	1
SmokeLess!	Kroaqs	Android	0	4.41	704	2	2	1
smoke less	David M.	Android	0	4.32	692	1	2	1
Drop It! Quit Smoking	Nikola Mladenovic	Android	0	4.64	496	2	2	2
Stop Smoking	Drd	Android	0	4.15	496	3	4	1
Kick the Habit: Quit Smoking	IcySpark	Android	0	4.00	223	2	2	1

myQuitTime - Stop Smoking	Arete Appware	Android	0	4.06	218	3	4	1
Smoke - quit	NikNormSoft	Android	0	4.62	188	2	2	2
Smokenote Pro - Quit Smoking	NXCARE	Android	2.09	4.16	183	2	2	1
Quit Smoking -No smoking day	PIONE STUDIO	Android	0	4.15	179	3	2	1
Tracy: Quit smoking!	RSTeam Apps	Android	0	4.53	109	1	2	2
Cigarette Control & Counter	vostrop	Android	0.79	4.21	106	2	4	1
Smotivator - Quit Smoking	Balauris	Android	0	4.17	76	2	4	1
SOS Challenge	Les Évadés	Android	0	4.25	69	1	2	1
Quit Smoking Save Life	Dubai Games Studio	Android	0	4.07	54	1	2	1
Puff Away-Stop Smoking Today	Hexpress Healthcare Ltd	Android	0	4.26	42	2	2	2
No Smoking - The Game	S.O.S. Games	Android	0	4.47	36	4	4	1
Stop Smoking (Wear support)	TedSoft	Android	0	4.44	34	3	4	2
Smoke Meter	Kotrots	Android	0	4.32	28	1	2	1
Smoke TherApp	Basicks Studio	Android	0	4.22	27	3	5	3
Smoking Timer (Free)	Mogilas	Android	0	4.04	27	1	2	2
Quit smoking today!	PWR Developers	Android	0	4.48	23	3	4	1
Quit Smoking, NeverSmoking P	SR Mind	Android	8.56	4.10	21	3	4	3
Smoking-Counter App	Mobile Computing Team	Android	0	5.00	20	1	2	1
Quit Smoking (Save Health)	WRP Solution	Android	0	4.31	16	2	4	1
Quit Tobacco	Memsta Apps	Android	0	4.31	13	3	4	2
Left Smoke! free	LumisiAppsAndroid	Android	0	4.23	13	2	4	3
Good Bye Smoking	Milind Audichya	Android	0	4.82	11	3	4	1
Quit4GoodLife (Smoking Cessation - Quit Smoking)	technology Digest inc	Android	0	4.18	11	5	4	3
Smokifree :How to quit smoking	CZ GAMES	Android	0	4.60	10	1	2	1
Quit smoking forever - Easy Way App	studio FX	Android	0	4.11	9	2	4	1
Quit smoking	Plmn Pn	Android	0	4.13	8	2	4	1
Quit Smoking Slowly - Gradually	Software Freelancer	Android	0	5.00	8	3	4	2
Smokestop - Quit Smoking	Twenty1Media	Android	0	4.29	7	1	2	3

Smoking Statistics	Vivek.V	Android	0	4.50	6	1	2	3
Quit smoking: iQuitSmoking App	SBLMNL	Android	0	4.33	6	4	4	1
Stay Quit Coach	US Department of Veterans Affairs (VA)	Android	0	4.50	6	4	4	4
20 to Quit Best smoking app	Quit smoking	Android	0.59	4.00	6	4	4	2
Cigarette calculator	ShakeJ	Android	0	4.62	55	1	2	1
Smokefree 2017	Oliver Seibert	Android	0	4.41	29	2	4	1
Smoke Log	develophamar	Android	0	4.42	19	1	2	1
DONT SMOKE ! Free Game	insprino	Android	0	4.20	10	2	5	0
Quit Smoking	BlindheartCreations	Android	0	4.07	46	0	0	0
Stop Smoking with Allen Carr	Arcturus Digital Ltd	Android	2.99	4.13	39	3	2	2
How To Quit Smoking	AXON	Android	0	4.29	28	0	0	1
Quit Smoking Counter	MindSaver.ru	Android	0	4.09	23	0	0	0
Stop Smoking (How To Guide)	Simov	Android	0	4.50	18	0	0	1
Quit Smoking	Expert Health Studio	Android	0	4.25	8	0	0	3
Quit Smoking Helper	Parobin Apps	Android	0	4.25	8	0	0	2
Quit Smoking	VorteX	Android	0	4.00	8	0	0	0
Smoker	RealAppsEs	Android	0	4.38	8	1	2	0
Smoking Cessation - SRIOR	MAGNA HEALTH SOLUTIONS	Android	0	4.00	6	0	0	5
Cigarette Counter	BR Consulting	Android	0.6	4.00	6	0	0	1
SmokingTimer	PSYLEN	Android	0	4.00	17	0	0	0
Smoke Free - Quit Smoking Now	David Crane	iOS	0	4.70	6500	5	6	4
LIVESTRONG MyQuit Coach	LIVESTRONG.COM	iOS	0	4.50	68	5	5	1
My Last Cigarette - Stop Smoking, Stay Quit!	Mastersoft Ltd	iOS	0.99	4.70	153	1	2	1
Smokefree	Public Health England	iOS	0	4.50	2500	5	6	3
Stoptober	Public Health England	iOS	0	4.40	2100	5	6	3
Quit Smoking - My Last Cigarette	Mastersoft Ltd	iOS	0	4.50	323	1	2	1
Quit It Lite - stop smoking today	digitalsirup GmbH	iOS	0	4.70	9	3	7	2
Kwit - Quit smoking cigarettes	KWIT	iOS	0	4.60	135	5	8	1

Quit Genius - quit smoking	Digital Therapeutics Ltd	iOS	0	4.50	120	7	8	5
Quit Smoking Now: Stop Forever	TreePie LLC	iOS	0	5.00	7	4	6	3
The Stop Switch Lite	Tim smale	iOS	0	5.00	8	3	4	3
Smoke FREE - Non Smoking	sg-pages	iOS	0	4.30	223	4	4	1
QuitNow!	Fewlaps, S.C	iOS	0	4.60	144	6	6	3
Quit Smoking - Butt Out	Ellisapps Inc.	iOS	0	4.30	6	1	2	2
Quit Smoking !!!	Dennis Ebbinghaus	iOS	0	4.10	13	1	2	2