Year in Review

가톨릭대학교 부천성모병원
호흡기내과 강혜선

CONTENTS

- E-cigarette
- Smoking cessation

CONTENTS

- E-cigarette (208 articles)
  - respiratory disease
  - cardiovascular disease
  - mental health
  - Covid-19 infection
  - attitude for e-cigarettes

CONTENTS

- Smoking cessation (2007 articles)
  - various cessation methods
  - Varenicline
  - specific populations
  - biomarkers for cigarette smoke

Respiratory symptom & lung function

ORIGINAL ARTICLE

Association of Electronic Cigarette Use with Respiratory Symptom Development among U.S. Young Adults Wave 2-5

Wubin Xie[1], Alayna P. Tackett[2], Jonathan B. Berlowitz[1], Alyssa F. Harlow[3], Hasmeena Kathuria[4], Panagis Galiatsatos[5], Jessica L. Fetterman[6,7,8], Junhan Cho[2], Michael J. Blaha[9,10], Naomi M. Hamburg[6,7,8], Rose Marie Robertson[8], Andrew P. DeFilippis[11], Michael E. Hall[12], Aruni Bhatnagar[13], Emelia J. Benjamin[3,6,7,8], and Andrew C. Stokes[1,8]

[1]Department of Global Health, [3]Department of Epidemiology, School of Public Health, Boston University, Boston, Massachusetts; [4]The Pulmonary Center, [6]Evans Department of Medicine, [7]Whitaker Cardiovascular Institute, School of Medicine, Boston University, Boston, Massachusetts; [2]Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, California; [5]Pulmonary and Critical Care Medicine, Johns Hopkins School of Medicine, Baltimore, Maryland; [8]American Heart Association Tobacco Regulation and Addiction Center, Dallas, Texas; [9]Ciccarone Center for the Prevention of Cardiovascular Disease, Johns Hopkins Medical Institutions, Baltimore, Maryland; [10]Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland; [11]Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee; [12]Division of Cardiovascular Diseases, School of Medicine, University of Mississippi Medical Center, Jackson, Mississippi; and [13]Department of Medicine, University of Louisville, Louisville, Kentucky

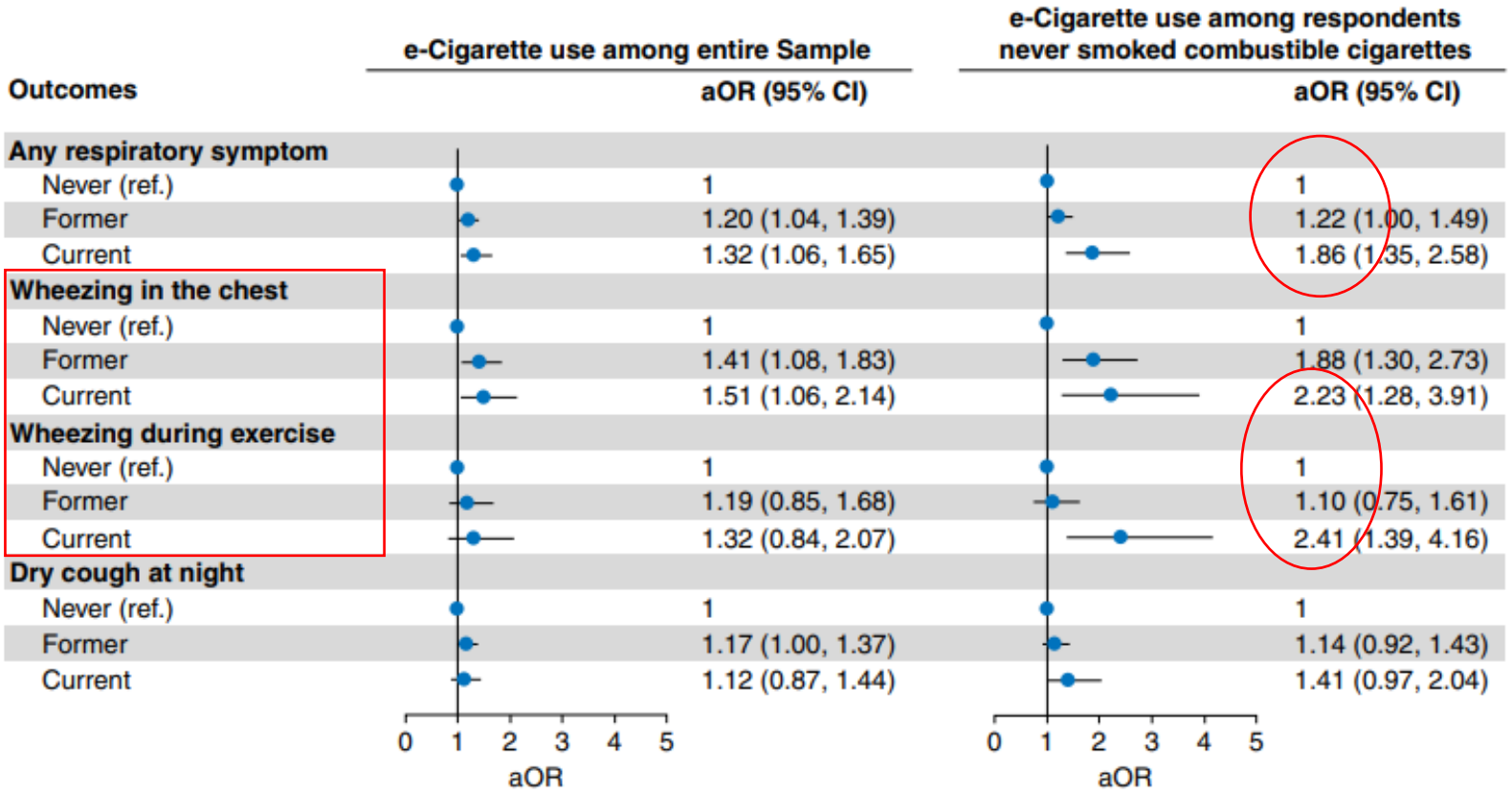
PATH (population assessment of tobacco and health) study from 2013-2019
Young adults aged 18–24 years at baseline with no prevalent respiratory disease or symptoms were included in the analyses.

Am J Respir Crit Care Med 2022 Vol. 205 Issue 11 Pages 1320-1329

Population Assessment of Tobacco and Health Study 2014–2019

Variables*	n†	%†	95% CI
Time-invariant covariates ($N_{individual}$ = 6,378)			
Female sex	3,247	49.0	47.5–50.5
Race			
White	4,076	70.2	68.8–71.6
Black	1,072	14.7	13.8–15.7
Other	905	15.1	13.8–16.3
Time-variant covariates at exposure waves 2–4 ($N_{observation}$ = 13,083)			
Age, mean and SD	21	2.0	20.9–21.0
Cigarette smoking			
Never	9,840	80.6	79.9–81.3
Former	776	6.3	5.8–6.7
Current, some days	737	5.5	5.1–5.9
Current, every day	1,026	7.6	7.1–8.0
Current use of traditional or filtered cigar	229	1.6	1.4–1.8
Current use of cigarillo	334	2.0	1.8–2.3
Current use of other combustible tobacco (hookah or pipe)	536	4.2	3.8–4.5
Recreational drug use in the past 12 mo	628	4.9	4.6–5.3
Marijuana use			
Never	8,564	69.5	68.7–70.3
Ever, not used in the past 30 d	1,319	9.8	9.3–10.3
Ever, used in the past 30 d	2,931	20.7	20.0–21.4
Exposed to secondhand smoking at home or at workplace	5,836	44.4	43.5–45.2
Body mass index, kg/m^2			
<18.5	572	4.4	4.0–4.7
18.5–24.9	6,339	50.6	49.7–51.4
25.0–29.9	3,201	25.5	24.8–26.3
⩾30.0	2,697	19.5	18.8–20.2
Time-varying e-cigarette use characteristics‡ ($N_{observation}$ = 13,083)			
E-cigarette use status, established use			
Never	10,205	79.2	78.6–79.9
Former	2,080	15.2	14.6–15.8
Current	798	5.6	5.2–6.0
Current e-cigarette and cigarette use patterns§			
Nonuse	10,189	83.7	83.1–84.4
E-cigarette only	427	3.2	2.9–3.5
Cigarette only	1,417	10.5	10.0–11.1
Dual use	346	2.5	2.3–2.8
Cigarette, e-cigarette use patterns			
Never cigarette, never/former e-cigarette	9,528	78.4	77.7–79.2
Never cigarette, current e-cigarette	312	2.2	1.9–2.5
Former cigarette, never/former e-cigarette	661	5.3	4.9–5.7
Former cigarette, current e-cigarette	115	1.0	0.8–1.2
Current cigarette, never/former e-cigarette	1,417	10.5	10.0–11.1
Current cigarette, current e-cigarette	346	2.5	2.3–2.8

ECs use and respiratory symptoms



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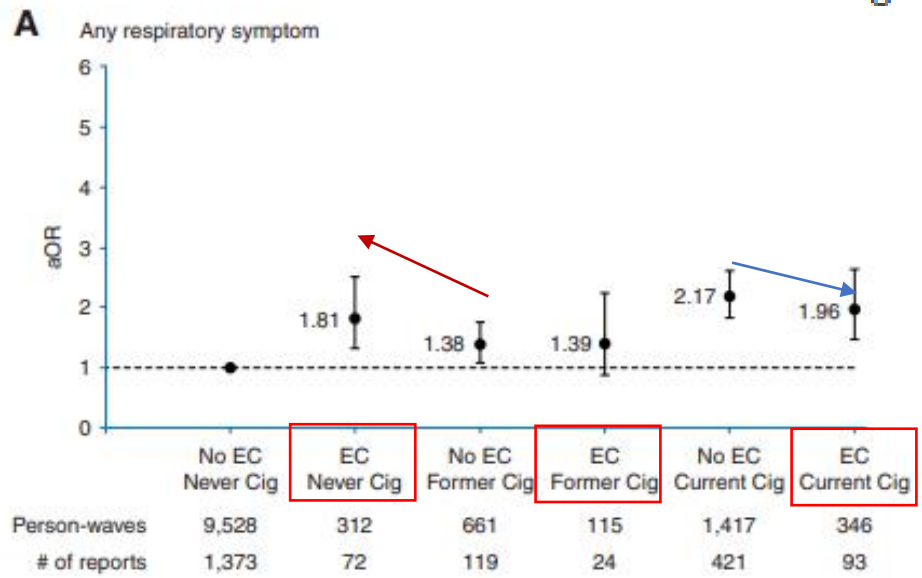
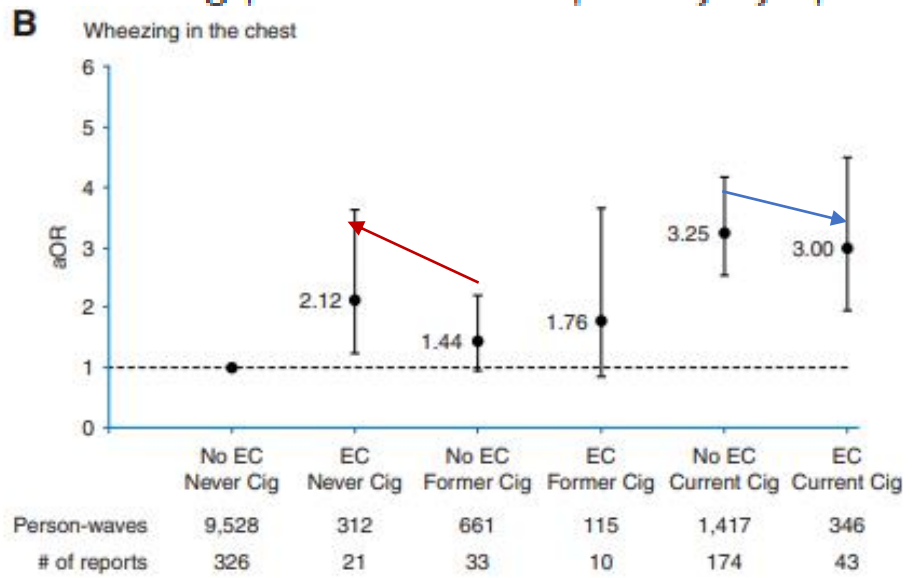
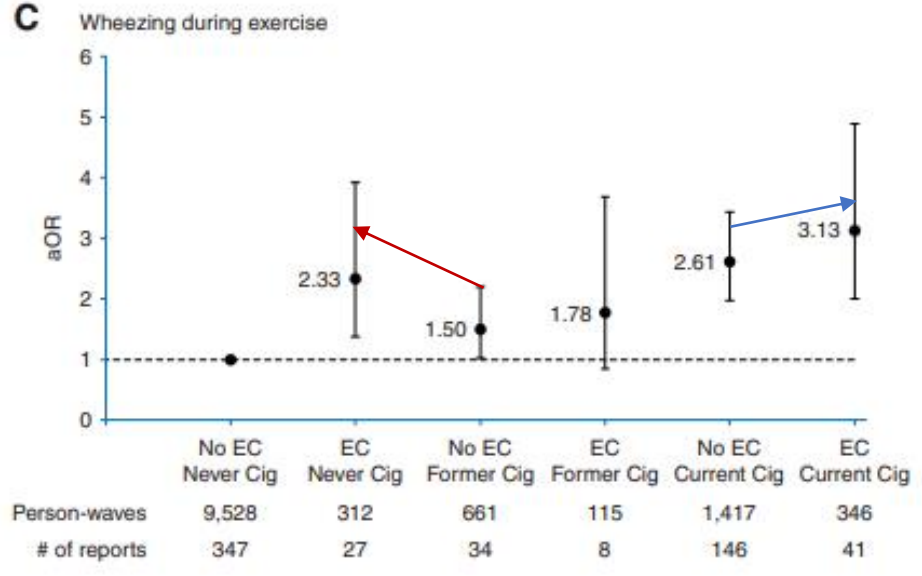
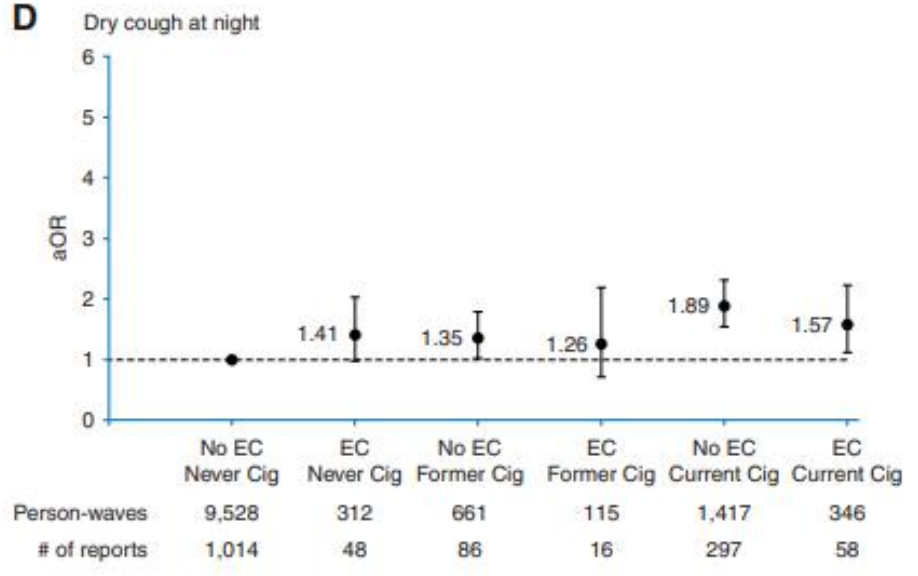
Multivariable-adjusted association of electronic cigarette (e-cigarette) use and cigarette smoking patterns with respiratory symptom









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Nicotine and Tobacco Research, 2022, **XX**, 1–12
https://doi.org/10.1093/ntr/ntac080
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Original Investigation

Tobacco Use and Respiratory Symptoms Among Adults: Findings From the Longitudinal Population Assessment of Tobacco and Health (PATH) Study 2014–2016 Wave 2-3

James D Sargent MD[1], Michael J. Halenar MPH[2], Kathryn C. Edwards PhD[2], Steven Woloshin MD[3], Lisa Schwartz MD[3,*], Jennifer Emond PhD[1], Susanne Tanski MD[1], Kristie A. Taylor PhD[2], John P. Pierce PhD[4], Jason Liu ScD[2], Maciej L. Goniewicz PhD PharmD[5], Raymond Niaura PhD[6], Gabriella Anic PhD[7], Yanling Chen MD PhD[7], Priscilla Callahan-Lyon MD[7], Lisa D. Gardner PhD[7], Theresa Thekkudan PhD[7], Nicolette Borek PhD[7], Heather L. Kimmel PhD[8], K. Michael Cummings PhD[9], Andrew Hyland PhD[5], Mary Brunette MD[1]

[1]Geisel School of Medicine at Dartmouth, The C. Everett Koop Institute at Dartmouth, Lebanon, NH, USA
[2]Westat, Rockville, MD, USA
[3]Dartmouth Institute for Health Policy and Clinical Practice, The C. Everett Koop Institute at Dartmouth, The Lisa Schwartz Foundation, Lebanon, NH, USA
[4]Moore's Cancer Center, University of California at San Diego, San Diego, CA, USA
[5]Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA
[6]New York University, New York, NY, USA
[7]U.S. Food and Drug Administration, Center for Tobacco Products, Bethesda, MD, USA
[8]National Institute on Drug Abuse, National Institutes of Health, Bethesda, MD, USA
[9]Medical University of South Carolina, Charleston, SC, USA

Corresponding Author: James D. Sargent, MD, Geisel School of Medicine at Dartmouth, The C. Everett Koop Institute at Dartmouth, 1 Medical Center Drive, Lebanon, NH 03766, USA. Telephone: 909-921-6018; Fax: 603-653-9090; E-mail: James.D.Sargent@Dartmouth.edu
*Deceased 29 November 2018.

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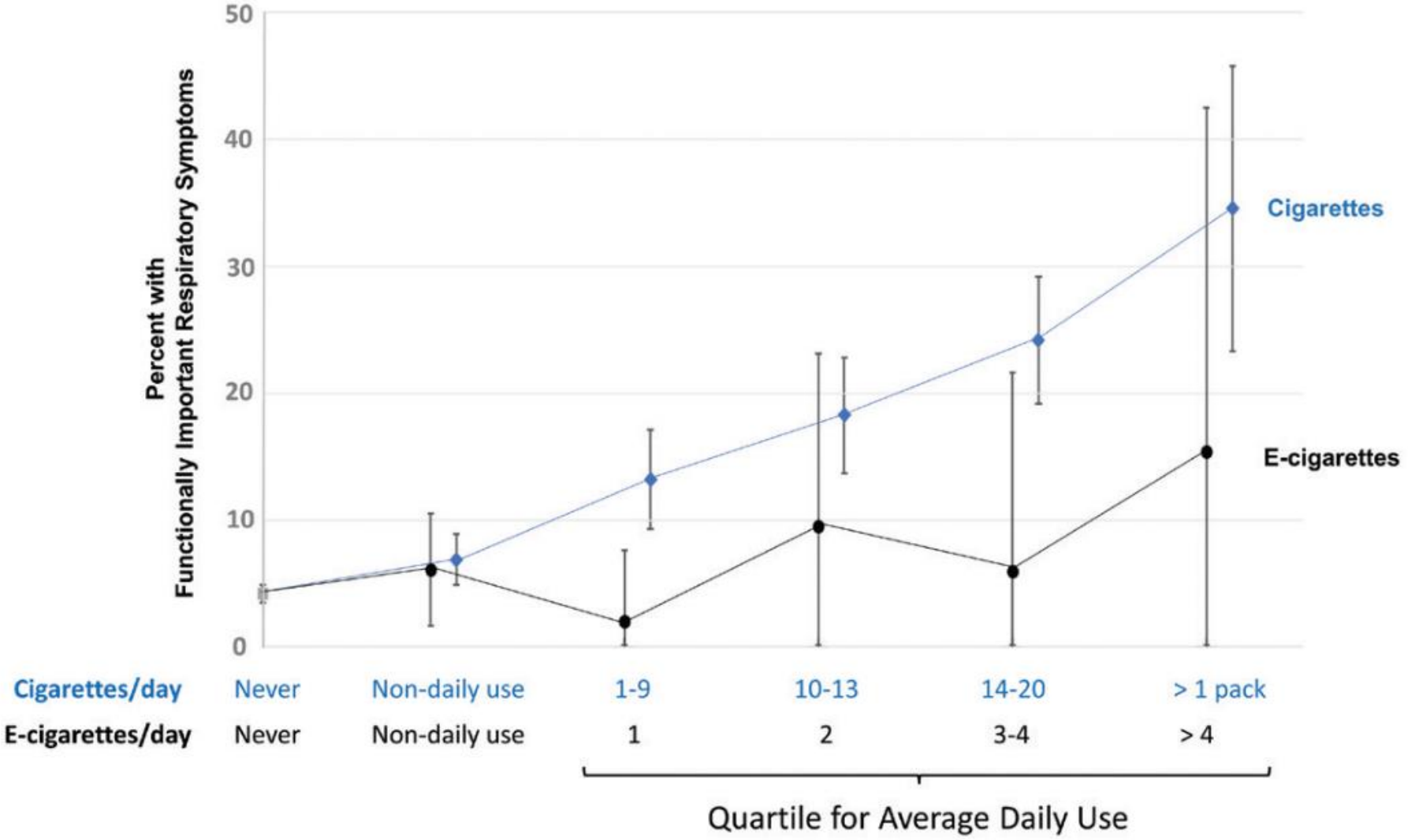
Relation between the intensity of tobacco product use and weighted percentage with functionally respiratory symptoms



Nicotine Tob Res 2022

Cross-sectional association

Table 2. Weighted Cross-sectional Associations Between Current Tobacco Product Use and Functionally Important Respiratory Symptoms at Wave 2 of the Population Assessment of Tobacco and Health (PATH) Study,[a] and Influence of Key Confounders

Risk factor at baseline	Key Confounders[b] Included in Multivariable Regression									
	No key confounders		Cigarette pack years		Second-hand smoke		Current marijuana use		Full multivariable model	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
Wave 2 past month tobacco use[c]										
Never	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Former	1.28	[1.03, 1.60]	0.96	[0.77, 1.21]	1.28	[1.02, 1.59]	1.23	[0.99, 1.53]	0.93[d]	[0.74, 1.17]
Exclusive use categories										
Cigarette	3.82	[3.18, 4.60]	2.65	[2.18, 3.21]	3.55	[2.96, 4.26]	3.52	[2.92, 4.25]	2.34	[1.92, 2.85]
E-cigarette	1.53	[0.98, 2.40]	1.14	[0.73, 1.79]	1.51	[0.96, 2.39]	1.39	[0.90, 2.14]	1.05[d]	[0.67, 1.63]
Cigars	1.04	[0.63, 1.73]	0.87	[0.51, 1.48]	1.04	[0.63, 1.72]	0.94	[0.56, 1.58]	0.78[d]	[0.45, 1.36]
Smokeless	0.86	[0.55, 1.34]	0.79	[0.51, 1.22]	0.86	[0.55, 1.34]	0.84	[0.54, 1.31]	0.77[d]	[0.50, 1.20]
Hookah	1.00	[0.60, 1.67]	0.85	[0.51, 1.41]	1.00	[0.60, 1.67]	0.92	[0.55, 1.53]	0.78[d]	[0.47, 1.29]
Multiple use categories										
Cigarette + e-cigarette	3.69	[2.85, 4.78]	2.52	[1.97, 3.22]	3.29	[2.52, 4.29]	3.33	[2.56, 4.33]	2.13	[1.64, 2.77]
Combustible only	3.45	[2.78, 4.29]	2.61	[2.11, 3.22]	3.24	[2.61, 4.03]	2.85	[2.24, 3.63]	2.08	[1.64, 2.64]
Other[e] combustible + noncombustible	3.29	[2.67, 4.05]	2.48	[2.00, 3.08]	3.04	[2.45, 3.76]	2.75	[2.19, 3.44]	2.00	[1.58, 2.53]
Other smoke-related exposures										
Cigarette pack years (per each additional 5 pack years)	N/A	N/A	1.13	[1.10, 1.17]	N/A	N/A	N/A	N/A	1.13	[1.09, 1.16]
Second-hand smoke exposure(per each additional 5 hours/week)	N/A	N/A	N/A	N/A	1.03	[1.02, 1.04]	N/A	N/A	1.02	[1.01, 1.03]

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longitudinal association - worsening

Table 3. Effect of Cut-off Level for Respiratory Index on the Longitudinal Association Between Wave 2 Tobacco Use and Worsening Functionally Important Respiratory Symptoms at Wave 3, Population Assessment of Tobacco and Health (PATH) Study[a]

Risk factor at baseline	Worsening of respiratory symptoms over time							
	Model 1: Respiratory index cutoff ≥3[b]				Model 2: Respiratory index cutoff ≥2[b]			
	Asymptomatic Wave 2 → Symptomatic Wave 3				Asymptomatic Wave 2 → Symptomatic Wave 3			
	(Unweighted N = 14 713) → (5% became symptomatic)				(Unweighted N = 13 956) → (8% became symptomatic)			
	Unweighted N	Worsen %	Adjusted RR[c]	95% CI	Unweighted N	Worsen %	Adjusted RR[c]	95% CI
Wave 2 past month tobacco use[d]								
Never	5638	3%	Ref	Ref	5499	5%	Ref	Ref
Former	2131	4%	1.21[e]	[0.82, 1.80]	2036	8%	1.32[e]	[0.97, 1.79]
Exclusive use categories								
Cigarette	2671	12%	2.80	[2.08, 3.76]	2444	16%	2.25	[1.81, 2.81]
E-cigarette	304	7%	1.58[e]	[0.84, 2.96]	284	12%	1.63	[1.02, 2.59]
Cigars	523	3%	0.81[e]	[0.44, 1.50]	501	4%	0.70[e]	[0.42, 1.18]
Smokeless tobacco	421	4%	1.03[e]	[0.55, 1.90]	410	10%	1.48[e]	[0.98, 2.25]
Hookah	307	3%[†]	0.90	[0.23, 3.52]	305	5%[†]	1.03[e]	[0.48, 2.21]
Multiple use categories								
Cigarette + e-cigarette	640	13%	2.64	[1.88, 3.70]	567	17%	2.20	[1.67, 2.89]
Combustible only	1086	9%	1.85[e]	[1.31, 2.61]	999	14%	1.93	[1.50, 2.50]
Other[f] combustible + non-combustible	933	9%	2.03[e]	[1.35, 3.05]	854	12%	1.64[e]	[1.19, 2.27]
Other smoke-related exposures								
Cigarette pack years (per each additional 5 pack years)	14, 713	N/A	1.07	[1.02, 1.13]	13 956	N/A	1.06	[1.03, 1.11]
Second-hand smoke exposure (per each additional 5 h/ week)	14 713	N/A	1.04	[1.02, 1.05]	13 956	N/A	1.03	[1.01, 1.04]

Nicotine Tob Res 2022

longitudinal association - improving

Risk factor at baseline	Improvement of respiratory symptoms over time							
	Model 1: Respiratory index cutoff ≥ 3[b]				Model 2: Respiratory index cutoff ≥ 2[b]			
	Symptomatic Wave 2→Asymptomatic Wave 3				Symptomatic Wave 2→Asymptomatic Wave 3			
	(Unweighted N = 1582) → (29% became asymptomatic)				(Unweighted N = 2339) → (21% became asymptomatic)			
	Unweighted N	Improve %	Adjusted RR[c]	95% CI	Unweighted N	Improve %	Adjusted RR[c]	95% CI
Wave 2 past month tobacco use[d]								
Never	250	36%	Ref	Ref	389	25%	Ref	Ref
Former	160	28%	0.89	[0.61, 1.30]	255	26%	1.19[e]	[0.83, 1.71]
Exclusive use categories								
Cigarette	559	26%	0.86	[0.63, 1.18]	786	13%	0.57	[0.40, 0.82]
E-cigarette	23	47%[†]	1.64[e]	[1.04, 2.58]	43	32%	1.59[e]	[0.89, 2.85]
Cigars	25	29%[†]	0.87	[0.35, 2.20]	47	36%	1.43[e]	[0.87, 2.37]
Smokeless tobacco	29	21%[†]	0.76	[0.36, 1.59]	40	23%	1.32[e]	[0.71, 2.47]
Hookah	14	43%[†]	1.28	[0.56, 2.95]	16	32%	1.60	[0.54, 4.71]
Multiple use categories								
Cigarette + e-cigarette	152	28%	0.95	[0.64, 1.42]	225	15%	0.72	[0.47, 1.11]
Combustible only	180	23%	0.78	[0.50, 1.21]	267	17%	0.76	[0.52, 1.11]
Other[f] combustible + noncombustible	185	25%	0.91	[0.61, 1.34]	264	20%	0.97[e]	[0.67, 1.39]
Other smoke-related exposures								
Cigarette pack years (per each additional 5 pack years)	1582	N/A	0.89	[0.84, 0.94]	2339	N/A	0.92	[0.87, 0.98]
Second-hand smoke exposure (per each additional 5 hrs/week)	1582	N/A	0.98	[0.96, 1.01]	2339	N/A	0.96	[0.94, 0.99]
Past-month marijuana use[g]								
No	1128	30%	Ref	Ref	1682	22%	Ref	Ref
Yes	454	25%	0.86	[0.67, 1.11]	657	17%	0.87	[0.65, 1.17]

Nicotine Tob Res 2022

Open access Original research

BMJ Open

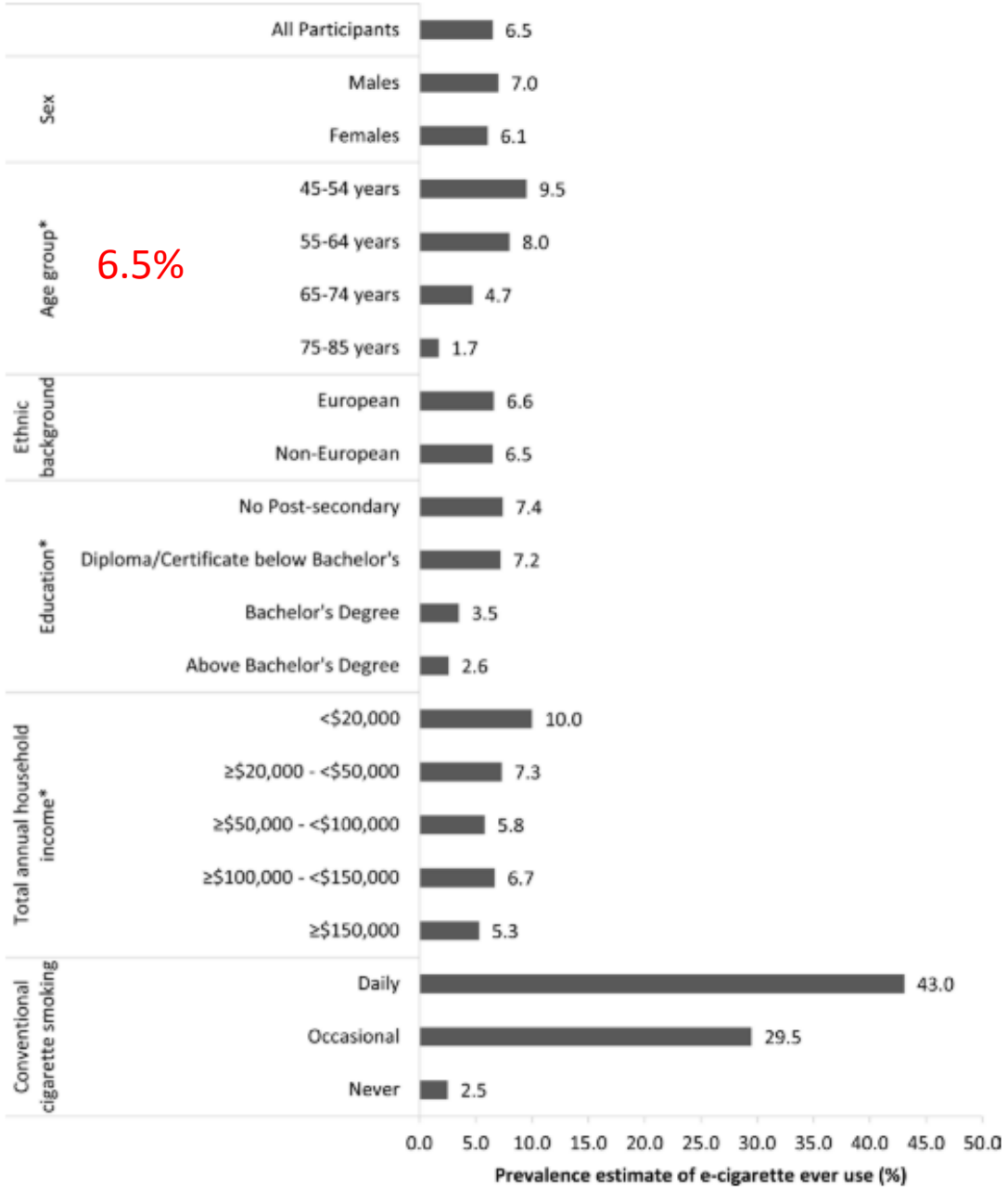
Impact of electronic cigarette ever use on lung function in adults aged 45–85: a cross-sectional analysis from the Canadian Longitudinal Study on Aging

Divya Joshi ,[1] MyLinh Duong,[2] Susan Kirkland,[3] Parminder Raina[1]

- A national stratified sample of 44 817 adults living in Canadian provinces.

BMJ Open 2021 Vol. 11 Issue 10 Pages e051519

- Perentage of adults who ever used an ECs



BMJ Open 2021 Vol. 11 Issue 10 Pages e051519

ECs use and lung function

Table 2 Association between ever using an e-cigarette and obstructive and restrictive lung function impairment relative to normal lung function (n=19 057)

	Obstructive lung function impairment		Restrictive lung function impairment	
	OR*	95% CI	OR*	95% CI
Model 1*				
E-cigarette ever use vs e-cigarette never use	2.10	1.57 to 2.08	1.02	0.80 to 1.31
Model 2*				
E-cigarette ever use vs e-cigarette never use among smokers with 15+ pack years	2.40	1.69 to 3.41	1.24	0.92 to 1.67
E-cigarette ever use vs e-cigarette never use among smokers with 0–14 pack-years	1.81	0.93 to 3.52	0.74	0.42 to 1.30
Model 3*				
15+ pack years and e-cigarette ever use vs None	7.43	5.30 to 10.38	2.23	1.68 to 2.96
15+ pack years and no e-cigarette use vs None	3.07	2.45 to 3.86	1.82	1.56 to 2.12
0–14 pack-years and e-cigarette ever use vs None	1.60	0.85 to 3.01	0.54	0.33 to 0.90
0–14 pack-years and no e-cigarette use vs None	1.05	0.82 to 1.35	0.79	0.67 to 0.92

- Limitation : cross-sectional survey

BMJ Open 2021 Vol. 11 Issue 10 Pages e051519

cardiovascular disease

Circulation
Volume 145, Issue 20, 17 May 2022; Pages 1557-1559
https://doi.org/10.1161/CIRCULATIONAHA.121.057369

American Heart Association.

RESEARCH LETTER

E-Cigarette Use and Risk of Cardiovascular Disease: A Longitudinal Analysis of the PATH Study (2013–2019)

Jonathan B. Berlowitz, BA, Wubin Xie, DrPH, MPH, Alyssa F. Harlow, PhD, MPH, Naomi M. Hamburg, MD, Michael J. Blaha, MD, MPH, Aruni Bhatnagar, PhD, Emelia J. Benjamin, MD, ScM, and Andrew C. Stokes, PhD

Table. Associations of Cigarette and E-Cigarette Use With Incident Cardiovascular Disease (Table view)

	Compared with nonuse				Compared with exclusive smoking	
	Nonuse (n=14 832)	Exclusive e-cigarette use (n=822)	Exclusive smoking (n=6515)	Dual use (n=1858)	Exclusive e-cigarette use	Dual use
Any cardiovascular disease*						
Incident cases, n	764	41	569	113		
Incidence rate, per 1000 person-years (95% CI)†	8.0 (7.3, 8.7)	9.7 (6.4, 13.0)	14.8 (13.2, 16.3)	17.1 (13.6, 20.7)		
Age-, sex-, and race and ethnicity–adjusted HR (95% CI)‡	Reference	1.16 (0.82, 1.66)	1.78 (1.55, 2.04)	1.85 (1.48, 2.32)	0.66 (0.46, 0.94)	1.04 (0.83, 1.30)
Multivariable-adjusted HR (95% CI)§	Reference	1.00 (0.69, 1.45)	1.53 (1.30, 1.79)	1.54 (1.21, 1.96)	0.66 (0.46, 0.94)	1.01 (0.81, 1.26)
Myocardial infarction, heart failure, or stroke						
Incident cases, n	222	15	242	40		
Incidence rate, per 1000 person-years (95% CI)†	2.5 (2.1, 2.9)	4.0 (1.8, 6.2)	6.9 (5.8, 8.0)	7.1 (4.6, 9.6)		
Age-, sex-, and race and ethnicity–adjusted HR (95% CI)‡	Reference	1.55 (0.87, 2.76)	2.57 (2.07, 3.20)	2.49 (1.71, 3.64)	0.60 (0.34, 1.07)	0.97 (0.67, 1.40)
Multivariable-adjusted HR (95% CI)§	Reference	1.35 (0.75, 2.42)	2.20 (1.73, 2.81)	2.08 (1.40, 3.09)	0.61 (0.34, 1.09)	0.94 (0.65, 1.36)

Circulation Volume 145, Issue 20, 17 May 2022; Pages 1557-1559

Klonizakis et al. BMC Medicine (2022) 20:276
https://doi.org/10.1186/s12916-022-02451-9

BMC Medicine

RESEARCH ARTICLE Open Access

Medium- and longer-term cardiovascular effects of e-cigarettes in adults making a stop-smoking attempt: a randomized controlled trial

Markos Klonizakis[1,2*], Anil Gumber[1,2], Emma McIntosh[1] and Leonie S. Brose[3,4]

BMC Med 2022 Vol. 20 Issue 1 Pages 276

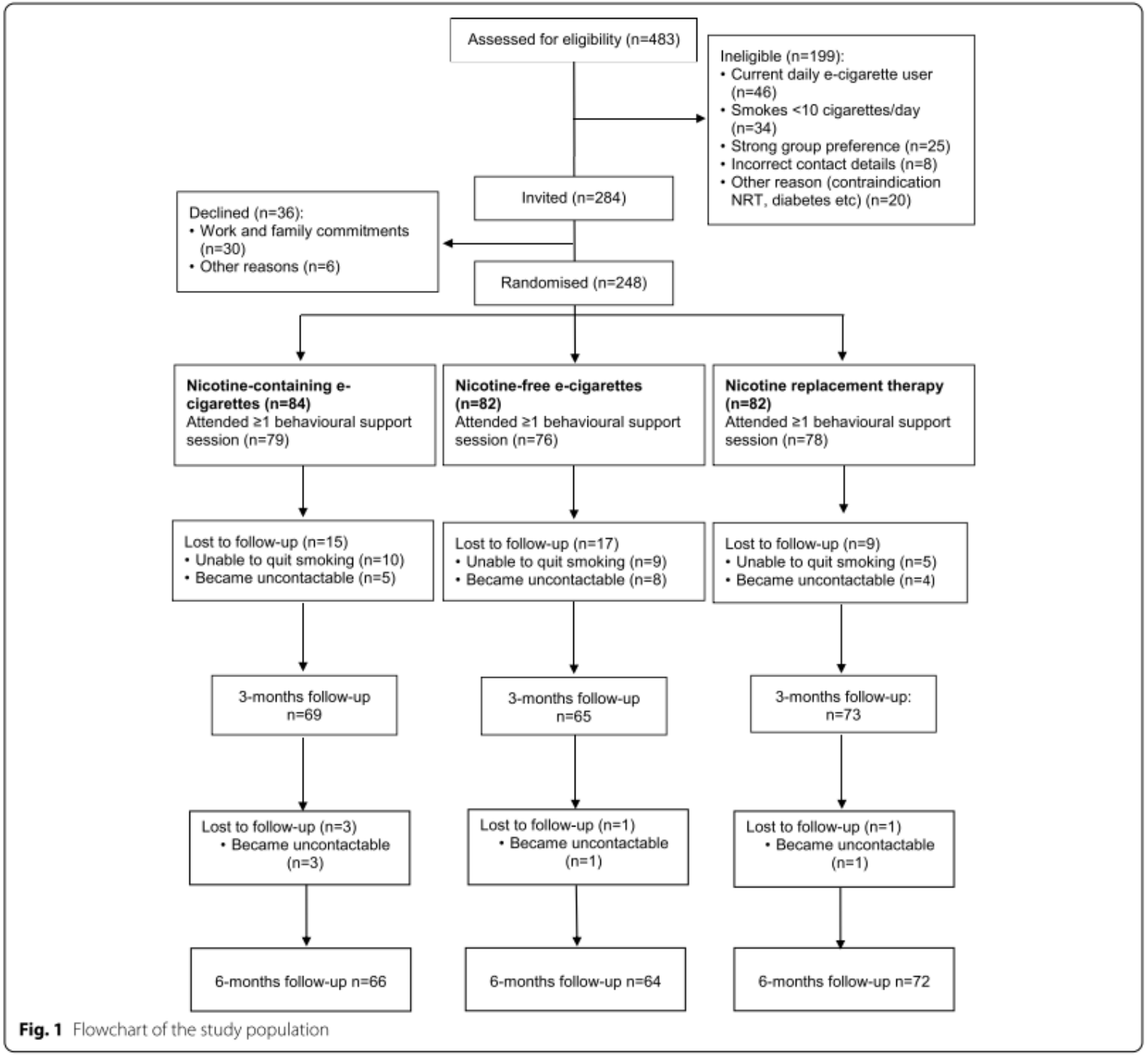


Fig. 1 Flowchart of the study population

Peak cutaneous vascular conductance responses to Ach

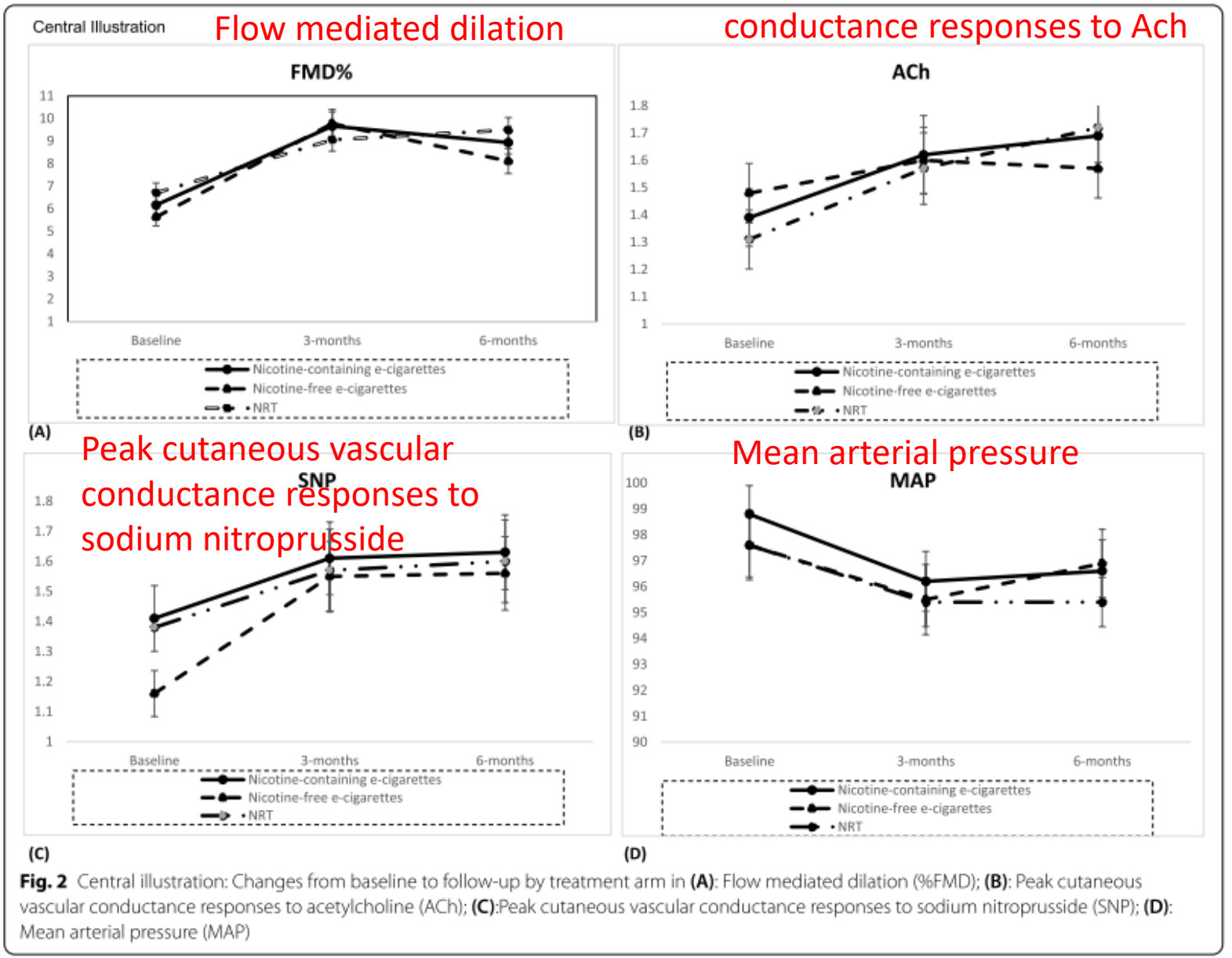


Fig. 2 Central illustration: Changes from baseline to follow-up by treatment arm in **(A)**: Flow mediated dilation (%FMD); **(B)**: Peak cutaneous vascular conductance responses to acetylcholine (ACh); **(C)**:Peak cutaneous vascular conductance responses to sodium nitroprusside (SNP); **(D)**: Mean arterial pressure (MAP)

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Change of secondary outcome variables over baseline

Table 5 Change of secondary outcome variables over baseline

Variables—change over baseline	Nicotine replacement therapy (NRT)				Nicotine-containing e-cigarettes				Nicotine-free e-cigarettes			
	Mean difference	95% CI		*p* value	Mean difference	95% CI		*p* value	Mean difference	95% CI		*p* value
		Lower	Upper			Lower	Upper			Lower	Upper	
CO (reduction in parts per million)												
3 months over baseline	10	8	11	< .001	9	7	11	< .001	7	5	9	< .001
6 months over baseline	8	6	10	< .001	9	7	11	< .001	6	4	8	< .001
TC/HDL ratio (reduction)												
3 months over baseline	0.89	− 0.16	1.91	0.09	0.18	− 0.02	0.39	0.08	0.11	− 0.14	0.36	0.39
6 months over baseline	0.78	− 0.27	1.80	0.15	0.23	0.06	0.40	0.009	0.01	− 0.23	0.24	0.97
QRISK (reduction in %)												
3 months over baseline	1.8	0.9	2.7	< .001	1.6	0.6	2.6	0.002	2.1	1.2	3.0	< .001
6 months over baseline	0.9	− 0.4	2.3	0.164	1.8	0.8	2.7	< .001	1.7	0.7	2.7	0.001

BMC Med 2022 Vol. 20 Issue 1 Pages 276

Circulation Research

AHA SCIENTIFIC STATEMENT

Cardiopulmonary Consequences of Vaping in Adolescents: A Scientific Statement From the American Heart Association

Loren E. Wold, PhD, FAHA, Chair; Robert Tarran, PhD, Vice Chair; Laura E. Crotty Alexander, MD; Naomi M. Hamburg, MD, FAHA; Farrah Kheradmand, MD; Gideon St. Helen, PhD; Joseph C. Wu, MD, PhD, FAHA; on behalf of the American Heart Association Council on Basic Cardiovascular Sciences; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Hypertension; and Stroke Council

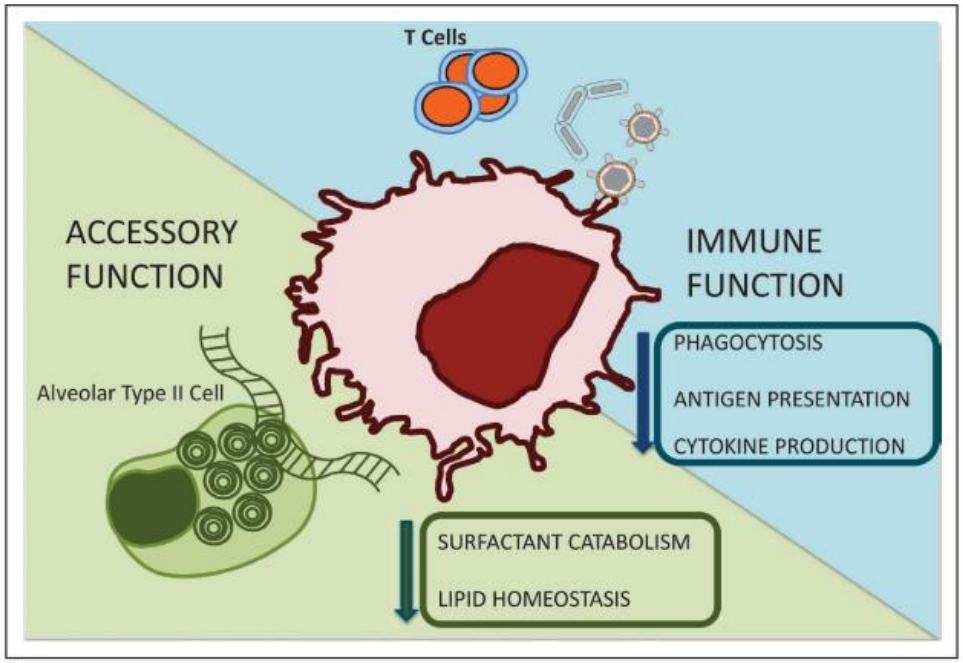
ABSTRACT: Although the US Food and Drug Administration has not approved e-cigarettes as a cessation aid, industry has at times positioned their products in that way for adults trying to quit traditional cigarettes; however, their novelty and customizability have driven them into the hands of unintended users, particularly adolescents. Most new users of e-cigarette products have never smoked traditional cigarettes; therefore, understanding the respiratory and cardiovascular consequences of e-cigarette use has become of increasing interest to the research community. Most studies have been performed on adult e-cigarette users, but the majority of these study participants are either former traditional smokers or smokers who have used e-cigarettes to switch from traditional smoking. Therefore, the respiratory and cardiovascular consequences in this population are not attributable to e-cigarette use alone. Preclinical studies have been used to study the effects of naive e-cigarette use on various organ systems; however, almost all of these studies have used adult animals, which makes translation of health effects to adolescents problematic. Given that inhalation of any foreign substance can have effects on the respiratory and cardiovascular systems, a more holistic understanding of the pathways involved in toxicity could help to guide researchers to novel therapeutic treatment strategies. The goals of this scientific statement are to provide salient background information on the cardiopulmonary consequences of e-cigarette use (vaping) in adolescents, to guide therapeutic and preventive strategies and future research directions, and to inform public policymakers on the risks, both short and long term, of vaping.

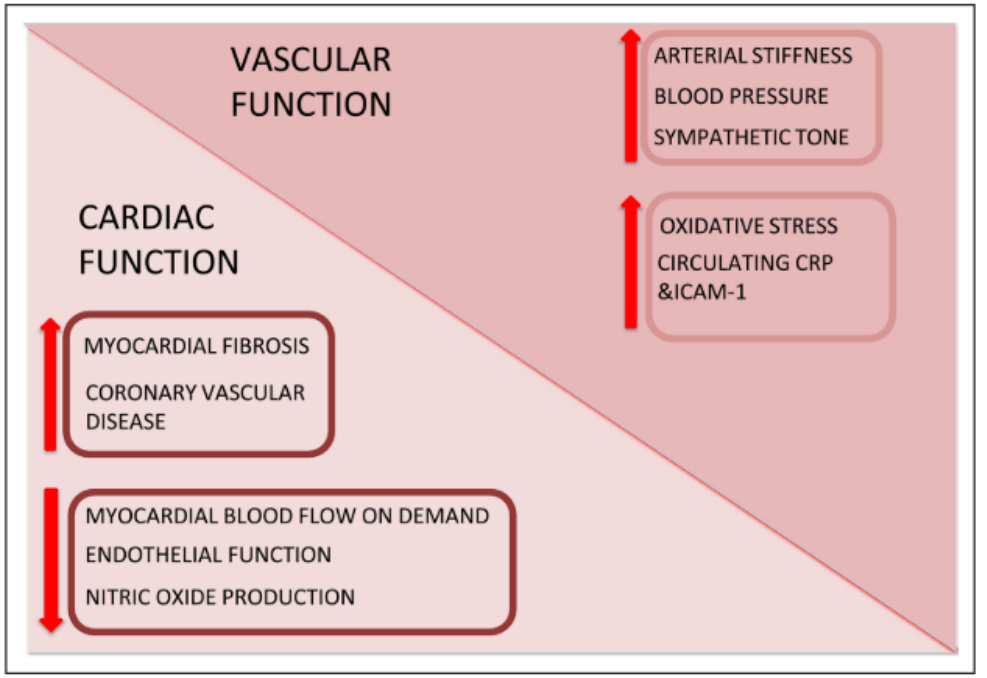
Circ Res 2022 Vol. 131 Issue 3 Pages e70-e82

Table 2. Cardiovascular Effects of E-Cigarette Use

Cardiovascular effect	Change	Groups	Reference
BP and HR; Age range, 21–45 y	No change in SBP, DBP, or HR	E-cigarette smokers, cigarette smokers, and non-smokers	Fetterman et al,[60] 2020
Tone; Age range, 21–45 y	Increased sympathetic, decreased vagal	Habitual e-cigarette smokers vs nonsmokers	Moheimani et al,[61] 2017
Pulse-wave velocity; Age range, 21–45 y	No change	E-cigarette and cigarette smokers vs nonsmokers	Fetterman et al,[60] 2020
Augmentation index; Age range, 21–45 y	Increase	E-cigarette and cigarette smokers vs nonsmokers	Fetterman et al,[60] 2020

Circ Res 2022 Vol. 131 Issue 3 Pages e70-e82





Circ Res 2022 Vol. 131 Issue 3 Pages e70-e82

covid-19 infection

International Epidemiological Association

International Journal of Epidemiology, 2022, 1062–1072
https://doi.org/10.1093/ije/dyac028
Advance Access Publication Date: 18 February 2022
Original article

OXFORD

COVID-19

Association between smoking, e-cigarette use and severe COVID-19: a cohort study

Min Gao,[1,2,3†] Paul Aveyard ,[1,2*†] Nicola Lindson ,[1] Jamie Hartmann-Boyce,[1,2] Peter Watkinson,[2,4] Duncan Young,[4] Carol Coupland,[5] Ashley K Clift ,[1] David Harrison,[6] Doug Gould,[6] Ian D Pavord,[2,7] Margaret Smith[1,2] and Julia Hippisley-Cox[1]

[1]Nuffield Department of Primary Care Health Sciences, Radcliffe Observatory Quarter, University of Oxford, Oxford, UK, [2]NIHR Oxford Biomedical Research Centre, Oxford University Hospitals NHS Foundation Trust, Oxford, UK, [3]School of Public Health, Peking University Health Science Centre, Beijing, China, [4]Nuffield Department of Clinical Neurosciences, John Radcliffe Hospital, University of Oxford, Oxford, UK, [5]Faculty of Medicine & Health Sciences, University of Nottingham, Nottingham, UK, [6]Intensive Care National Audit & Research Centre (ICNARC), Napier House, London, UK and [7]Nuffield Department of Medicine, University of Oxford, Oxford, UK

24 January 2020 until 30 April 2020
7 869 534 people representative of the population of England with smoking status

Int J Epidemiol 2022 Vol. 51 Issue 4 Pages 1062-1072

Smoking status and severe COVID-19

Table 2 Association between smoking status and risk of severe COVID-19

Category	Number with outcome (cumulative incidence expressed as %)	Unadjusted HR (95% CI)	HR (95% CI) adjusted for demographic factors and non-smoking-related morbidity	HR (95% CI) adjusted for demographic factors, non-smoking-related morbidity, BMI, and smoking-related morbidity
Outcome hospitalization				
Never smoked	8133 (0.17%)	1 (reference)	1 (reference)	1 (reference)
Stopped smoking	5006 (0.29%)	1.66 (1.61 to 1.72)	1.20 (1.16 to 1.25)	1.07 (1.03 to 1.11)
Smoking 1 to 9 cigarettes/day	902 (0.08%)	0.48 (0.44 to 0.51)	0.67 (0.62 to 0.72)	0.64 (0.60 to 0.69)
Smoking 10 to 19 cigarettes/day	120(0.06%)	0.33 (0.28 to 0.40)	0.50 (0.42 to 0.60)	0.49 (0.41 to 0.59)
Smoking ≥20 cigarettes/day	92 (0.10%)	0.56 (0.45 to 0.68)	0.65 (0.53 to 0.80)	0.61 (0.49 to 0.75)
Outcome ICU admission				
Never smoked	937 (0.02%)	1 (reference)	1 (reference)	1 (reference)
Stopped smoking	518 (0.03%)	1.49 (1.34 to 1.66)	1.25 (1.12 to 1.40)	1.17 (1.04 to 1.31)
Smoking 1 to 9 cigarettes/day	60 (0.01%)	0.28 (0.21 to 0.36)	0.29 (0.22 to 0.37)	0.31 (0.24 to 0.41)
Smoking 10 to 19 cigarettes/day	5 (<0.01%)	0.12 (0.05 to 0.29)	0.14 (0.06 to 0.34)	0.15 (0.06 to 0.37)
Smoking ≥20 cigarettes/day	7 (0.01%)	0.37 (0.17 to 0.77)	0.36 (0.17 to 0.75)	0.36 (0.17 to 0.76)
Outcome death				
Never smoked	3108 (0.07%)	1 (reference)	1 (reference)	1 (reference)
Stopped smoking	2342 (0.13%)	2.04 (1.93 to 2.15)	1.31 (1.24 to 1.38)	1.17 (1.10 to 1.24)
Smoking 1 to 9 cigarettes/day	295 (0.03%)	0.41 (0.36 to 0.46)	0.88 (0.78 to 1.00)	0.79 (0.70 to 0.89)
Smoking 10 to 19 cigarettes/day	40 (0.02%)	0.29 (0.21 to 0.40)	0.73 (0.53 to 1.00)	0.66 (0.48 to 0.90)
Smoking ≥20 cigarettes/day	32 (0.03%)	0.51 (0.36 to 0.72)	0.88 (0.62 to 1.25)	0.77 (0.54 to 1.10)

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ECs and severe COVID-19

Table 3 Association between e-cigarette use and severe COVID-19 outcomes among people who currently or previously smoked

	People currently or previously smoking ($n = 3\,151\,099$)			People who had previously smoked ($n = 1\,748\,966$)		
	Number with outcome (cumulative incidence expressed as %)	Unadjusted HR (95% CI)	HR (95% CI) adjusted for demographic factors and smoking	Number with outcome	Unadjusted HR (95% CI)	HR (95% CI) adjusted for demographic factors and smoking
Outcome hospitalization						
Not using e-cigarettes	6011 (0.19%)	1 (reference)	1 (reference)	4934(0.29%)	1 (reference)	1 (reference)
Using e-cigarettes	109 (0.17%)	0.85 (0.70 to 1.03)	1.06 (0.88 to 1.28)	72(0.20%)	0.71 (0.56 to 0.89)	1.02 (0.81 to 1.29)
Outcome ICU admission						
Not using e-cigarettes	579 (0.02%)	1 (reference)	1 (reference)	507(0.03%)	1 (reference)	1 (reference)
Using e-cigarettes	11 (0.02%)	0.89 (0.49 to 1.62)	1.04 (0.57 to 1.89)	11(0.03%)	1.05 (0.58 to 1.91)	1.20 (0.66 to 2.20)
Outcome death						
Not using e-cigarettes	2671 (0.09%)	1 (reference)	1 (reference)	2318(0.14%)	1 (reference)	1 (reference)
Using e-cigarettes	38 (0.06%)	0.67 (0.48 to 0.92)	1.12 (0.81 to 1.55)	24(0.07%)	0.50 (0.34 to 0.75)	1.03 (0.69 to 1.54)

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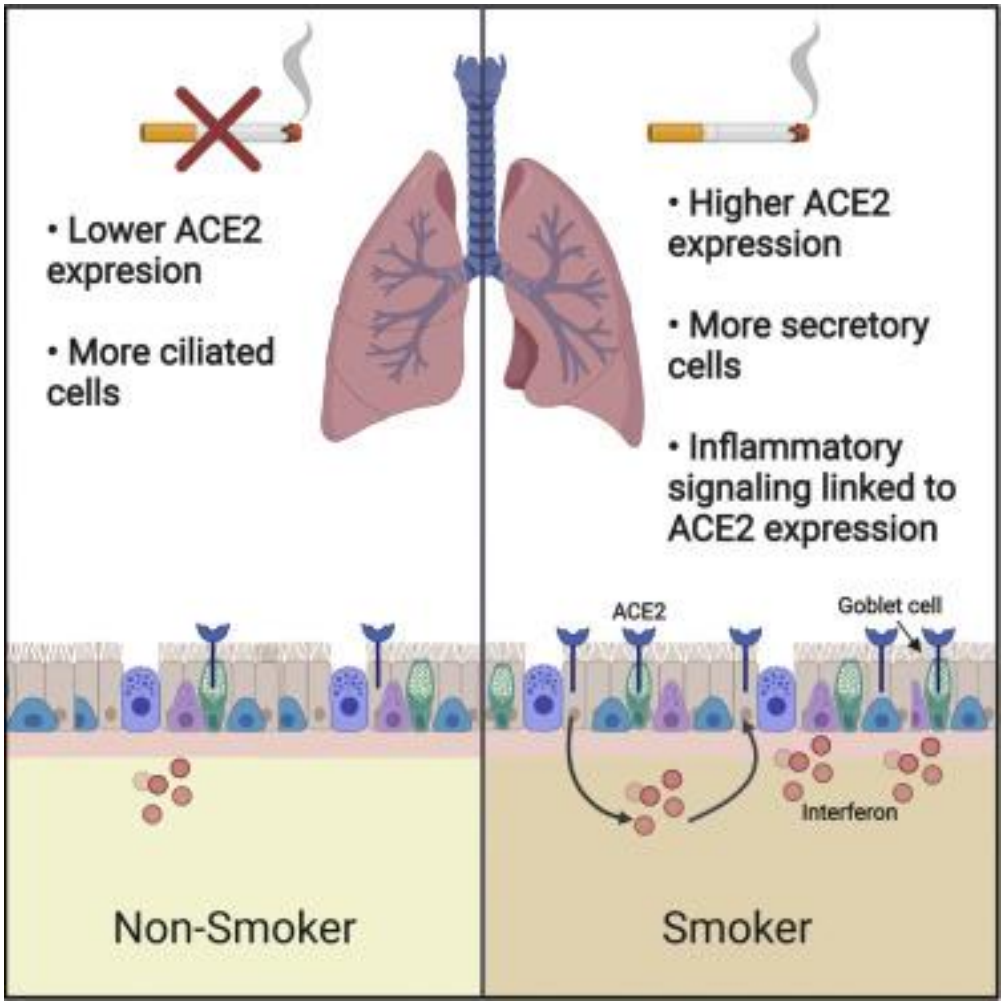
nicotine ↓ the ACE2 receptor, to which SARS-CoV-2 attaches

Vs.

quitting smoking ↓ ACE2 levels



Developmental Cell Volume 53, Issue 5, 8 June 2020, Pages 514-529.e3

Drug and Alcohol Dependence 229 (2021) 109144

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

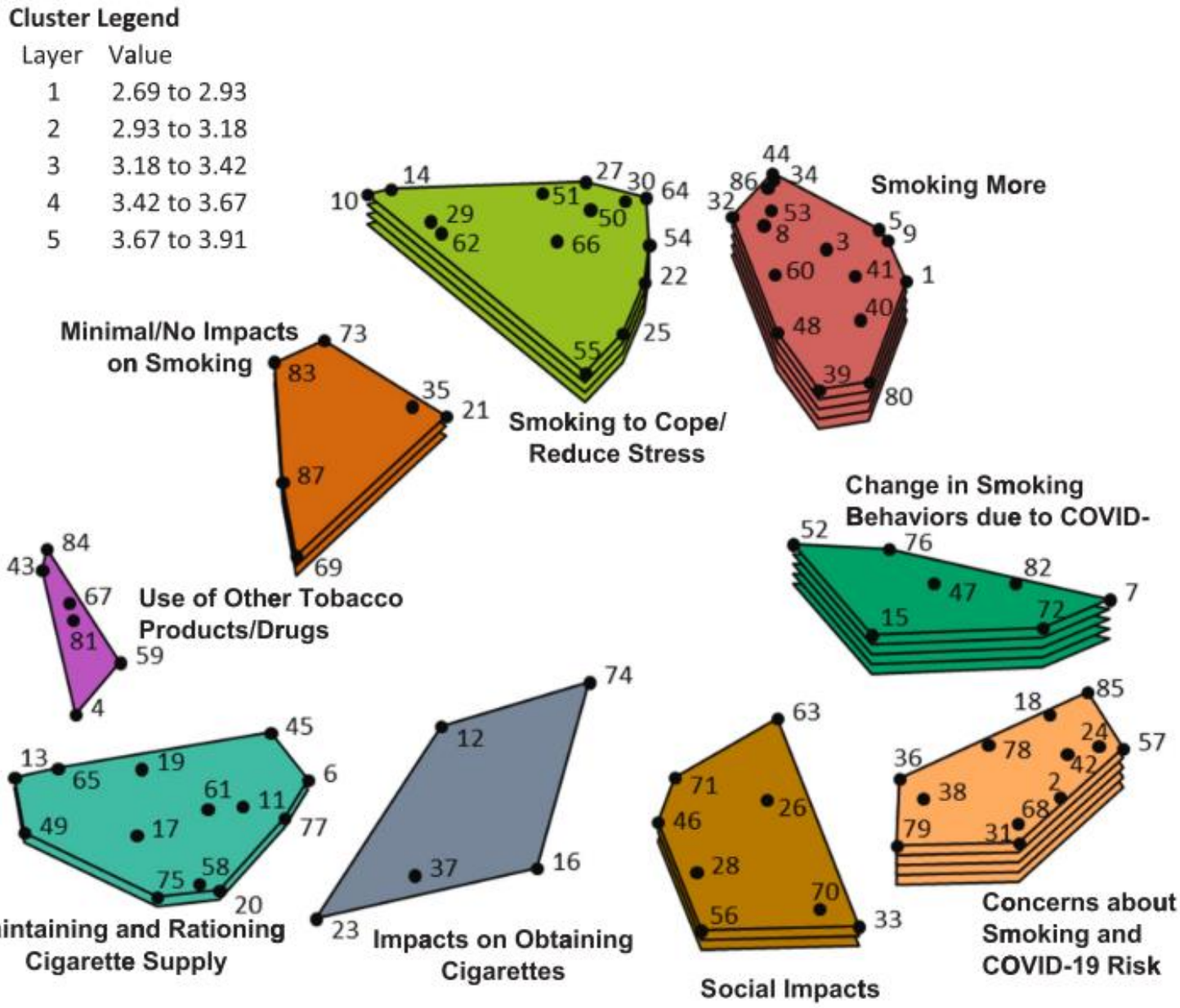
Impacts of COVID-19 on cigarette use, smoking behaviors, and tobacco purchasing behaviors

Sarah F. Maloney [a], Madison Combs [a], Rebecca Lester Scholtes [a], Megan Underwood [a], Barbara Kilgalen [a], Eric K. Soule [b], Alison B. Breland [a,*]

[a] Center for the Study of Tobacco Products, Department of Psychology, Virginia Commonwealth University, 100W. Franklin St. Suite 200, Richmond, VA 23220, USA
[b] Department of Health Education and Promotion, College of Health and Human Performance, East Carolina University, 1000 East 1st Street, Greenville, NC 27858, USA

- Cigarette smokers across U.S. were recruited to complete this online, multi-step study.
- Of the 126 participants who were invited to participate in this study

Drug Alcohol Depend 2021 Vol. 229 Issue Pt B Pages 109144



Drug Alcohol Depend 2021 Vol. 229 Issue Pt B Pages 109144

Smoking More		**3.91**
	1. I have increased my smoking since COVID-19/ Coronavirus.	4.95
Concerns about Smoking and COVID-19 Risk		**3.73**
	57. I believe if I were to get COVID-19/Coronavirus, my smoking would make it worse for me.	4.89
Change in Smoking Behaviors due to COVID-19		**3.69**
	52. I know I need to quit, but I am not ready to quit right now.	5.11
Smoking to Cope/Reduce Stress		**3.63**
	10. Smoking keeps me calm.	5.66
Social Impacts		**3.32**
	28. I share fewer cigarettes since I do not come into contact with as many people.	5.15
Minimal/No Impacts on Smoking Behaviors		**3.24**
	73. Even though COVID-19/Coronavirus worries me, my addiction will not let me stop.	5.13

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Maintaining and Rationing Cigarette Supply		**2.95**
	17. My income is now limited but I am still purchasing tobacco.	4.94
Impacts on Obtaining Cigarettes		**2.83**
	23. I purchased cigarettes and tobacco products I needed ahead of the stay at home orders.	4.18
Use of Other Tobacco Products/Drugs		**2.69**
	4. I will buy any related/similar brand of cigarettes if my usual is not available.	4.26

Drug Alcohol Depend 2021 Vol. 229 Issue Pt B Pages 109144

Addictive Behaviors 126 (2022) 107170

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

Concurrent use of e-cigarettes and cannabis and associated COVID-19 symptoms, testing, and diagnosis among student e-cigarette users at four U. S. Universities

Ashley L. Merianos [a,*], Alex M. Russell [b], E. Melinda Mahabee-Gittens [c], Adam E. Barry [d], Meng Yang [e], Hsien-Chang Lin [e]

[a] School of Human Services, University of Cincinnati, Cincinnati, OH, USA
[b] Department of Health, Human Performance, & Recreation, University of Arkansas, 308 HPER Building, Fayetteville, AR 72703, USA
[c] Division of Emergency Medicine, Cincinnati Children's Hospital Medical Center, College of Medicine, University of Cincinnati, Cincinnati, OH 45229, USA
[d] Department of Health and Kinesiology, Texas A&M University, College Station, TX 77843-4243, USA
[e] Department of Applied Health Science, Indiana University School of Public Health - Bloomington, Bloomington, IN, 47405, USA

- 18–26-year-old college ECs users during October-December 2020 (N = 800)
- Over half of student e-cigarette users (52.0%) concurrently used cannabis.

Addict Behav 2022 Vol. 126 Pages 107170

Associations of Frequency of E-Cigarette and Cannabis Use with COVID-19 Symptoms, Testing, and Diagnosis among College Student E-Cigarette Users.

	COVID-19 Symptoms			COVID-19 Test			COVID-19 Diagnosis		
	n (%)	AOR[a]	95% CI	*n* (%)	AOR[a]	95% CI	*n* (%)	AOR[a]	95% CI
Frequency of Current E-Cigarette and Cannabis Use									
Infrequent exclusive e-cigarette use (1–5 days)	3 (3.1)	Ref	Ref	74 (75.5)	Ref	Ref	8 (10.8)	Ref	Ref
Intermediate exclusive e-cigarette use (6–29 days)	13 (7.2)	1.79	0.47–6.79	155 (85.6)	1.05	0.54–2.04	18 (11.6)	1.61	0.63–4.10
Daily exclusive e-cigarette use (30 days)	4 (3.8)	1.79	0.38–8.48	88 (83.8)	1.39	0.67–2.91	12 (13.6)	1.34	0.49–3.66
Infrequent concurrent e-cigarette and cannabis use (1–2 times)	24 (18.8)	**4.72***	**1.31–17.00**	115 (89.8)	1.98	0.91–4.29	17 (14.8)	1.67	0.65–4.29
Intermediate concurrent e-cigarette and cannabis use (3–9 times)	29 (24.8)	**5.10***	**1.37–18.97**	105 (89.7)	1.36	0.60–3.08	23 (21.9)	**2.88***	**1.13–7.35**
Frequent concurrent e-cigarette and cannabis use (≥ 10 times)	41 (24.0)	**7.44****	**2.06–26.84**	147 (86.0)	1.02	0.51–2.05	37 (25.2)	**3.22***	**1.32–7.87**

Abbreviations: e-cigarette, electronic cigarette; coronavirus disease 2019, COVID-19; AOR, adjusted odds ratio; CI, confidence interval; Ref, reference category.

[a] Logistic regression adjusting for age, sex, race/ethnicity, sexual orientation, university site, fraternity/sorority membership, current residence, current combustible cigarette smoking, current cigar smoking, and current smokeless tobacco use. $^{**}p < 0.01$, $^{*}p < 0.05$.

Addict Behav 2022 Vol. 126 Pages 107170

alternative as smoking cessation

Addictive Behaviors 127 (2022) 107217

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

Short Communication

Is smoking reduction and cessation associated with increased e-cigarette use? Findings from a nationally representative sample of adult smokers in Australia

Tianze Sun [a,b,e,*], Carmen C.W. Lim [a,b], Brienna N. Rutherford [a,b], Benjamin Johnson [a,b], Janni Leung [a,b,c], Coral Gartner [e], Wayne D. Hall [a], Jason P. Connor [a,d], Gary C.K. Chan [a]

[a] National Centre for Youth Substance Use Research, The University of Queensland, Australia
[b] School of Psychology, The University of Queensland, Australia
[c] National Drug and Alcohol Research Centre, University of New South Wales, Australia
[d] Discipline of Psychiatry, The University of Queensland, Australia
[e] NHMRC Centre of Research Excellence on Achieving the Tobacco Endgame, School of Public Health, Faculty of Medicine, The University of Queensland, Australia

- Data from the 2019 National Drug Strategy Household Survey (N = 22,015)
- The sample was restricted to 3868 adults who had smoked within the past year

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ECs use and smoking status/reduction

Associations between frequency of e-cigarette use and smoking status (top) and smoking reduction (bottom) among past year smokers.

	Smoking status							
	Occasional smoking (Ref: current daily smoking)				Recent former smoker (Ref: current daily smoking)			
	RRR	95% CI	Adjusted RRR	95% CI	RRR	95% CI	Adjusted RRR	95% CI
E-cigarette (Ref: no use)								
Occasional e-cigarette use	1.61	(0.99, 2.63)	1.17	(0.68, 2.03)	0.66	(0.36, 1.19)	0.60	(0.32, 1.12)
Daily e-cigarette use	1.67	(0.90, 3.12)	1.44	(0.75, 2.75)	2.27***	(1.45, 3.55)	2.16***	(1.30, 3.58)
	Cigarette Reduction among current daily smokers							
	OR	95% CI	Adjusted OR	95% CI				
E-cigarette (Ref: no use)								
Occasional e-cigarette use	0.91	(0.42, 2.00)	1.22	(0.81, 1.85)				
Daily e-cigarette use	3.46*	(1.02, 11.79)	2.83***	(1.53, 5.22)				

RRR = relative risk ratios, OR = odds ratios, CI = confidence interval, Adjusted model included covariate factors (sex, age, sexuality, indigeneity, language, marital status, high school completion, health, psychological distress, employment, income, Regionality, and socio-economic index for area), *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Addict Behav 2022 Vol. 127 Pages 107217

Open access Original research

BMJ Open

Overall quit in triple users of conventional cigarette, e-cigarette and heated tobacco product among healthy adults: a Korea Medical Institute health check-up study

Hye Won Yun,[1,2] Keum Ji Jung ,[2] Sun Ha Jee,[2] Heejin Kimm [2]

- A questionnaire was conducted on 89 360 adults who visited the Korea Medical Institute health check- ups in Seoul, Korea, from May 2018 to September 2019.
- Cross-sectional study
- Among 38 812 ever smokers, 9252 were ever triple users of CC, EC and HTP.

BMJ Open 2022 Vol. 12 Issue 7 Pages e051865

Table 3 Demographic characteristics according to smoking cessation patterns of current triple use, single or dual product quit and overall quit of tobacco products including CC, EC and HTP (n=9252)

		57.6% Current triple use (n=5329)	Single or dual product quit (n=3547)	Overall quit (n=376)	P value
		n (%)	n (%)	n (%) 4.1%	
Sex	Men	4905 (58.0)	3216 (38.0)	337 (4.0)	<0.0001
	Women	424 (53.4)	331 (41.7)	39 (4.9)	
Age group	20–29	692 (46.6)	752 (50.7)	40 (2.7)	<0.0001
	30–39	2068 (55.0)	1547 (41.2)	143 (3.8)	
	40–49	1926 (65.9)	907 (31.1)	88 (3.0)	
	50–59	584 (63.3)	283 (30.7)	55 (6.0)	
	≥60	59 (35.3)	58 (34.7)	50 (29.9)	
Marriage	Unmarried	1456 (53.5)	1182 (43.5)	82 (3.0)	<0.0001
	Married	3017 (59.9)	1785 (35.5)	232 (4.6)	
	Etc*	220 (55.6)	163 (41.2)	13 (3.3)	
	Missing	636 (57.7)	417 (37.8)	49 (4.5)	
Education	Under high school graduate	924 (51.8)	767 (43.0)	93 (5.2)	<0.0001
	College graduate	3195 (59.1)	2021 (37.4)	195 (3.6)	
	Master's degree	574 (60.1)	342 (35.8)	39 (4.1)	
	Missing	636 (57.7)	417 (37.8)	49 (4.5)	
Monthly income per household (US$)	<3077	846 (50.1)	759 (44.9)	85 (5.0)	<0.0001
	3077–4836	1584 (58.6)	1021 (37.8)	99 (3.7)	
	≤4837	2263 (60.3)	1350 (35.9)	143 (3.8)	
	Missing	636 (57.7)	417 (37.8)	49 (4.5)	
Ever drinking	Yes	5009 (57.3)	3374 (38.6)	353 (4.0)	<0.0001
	No	320 (62.0)	173 (33.5)	23 (4.5)	

*Etc: divorced, separation or bereavement.
BMI, body mass index; CC, conventional cigarettes; EC, e-cigarettes; HTP, heated tobacco products.

Table 4 Factors related to overall quit compared with single or dual product quit of tobacco products including CC, EC and HTP (n=3923)

		OR for overall quit
		OR (95% CI)
Sex	Men	1.0
	Women	1.7 (1.1 to 2.5)
Age (years)	20–39	1.0
	40–59	1.3 (1.0 to 1.7)
	≥60	8.5 (5.2 to 13.8)
Marriage	Unmarried	1.0
	Married	1.7 (1.3 to 2.3)
	Etc*	0.9 (0.5 to 1.9)
Education	Under high school graduate	1.0
	College graduate	0.9 (0.7 to 1.3)
	Master's degree	1.1 (0.7 to 1.6)
Monthly income per household (US$)	<3077	1.0
	3077–4836	0.9 (0.7 to 1.3)
	≤4837	1.0 (0.7 to 1.4)
Ever drinking	Yes	1.0
	No	0.9 (0.6 to 1.6)
BMI†	Underweight	1.0
	Normal	1.6 (0.6 to 4.0)
	Overweight	1.6 (0.6 to 4.2)
	Obesity	1.6 (0.6 to 4.2)
Hypertension	No	1.0
	Yes	0.7 (0.4 to 1.2)
Diabetes	No	1.0
	Yes	1.0 (0.6 to 1.6)
Hyperlipidaemia	No	1.0
	Yes	0.3 (0.1 to 0.9)

BMJ Open 2022 Vol. 12 Issue 7 Pages e051865

tobacco cessation pharmacotherapies

Received: 4 November 2020 | Accepted: 11 August 2021

DOI: 10.1111/add.15675

REVIEW

ADDICTION SSA

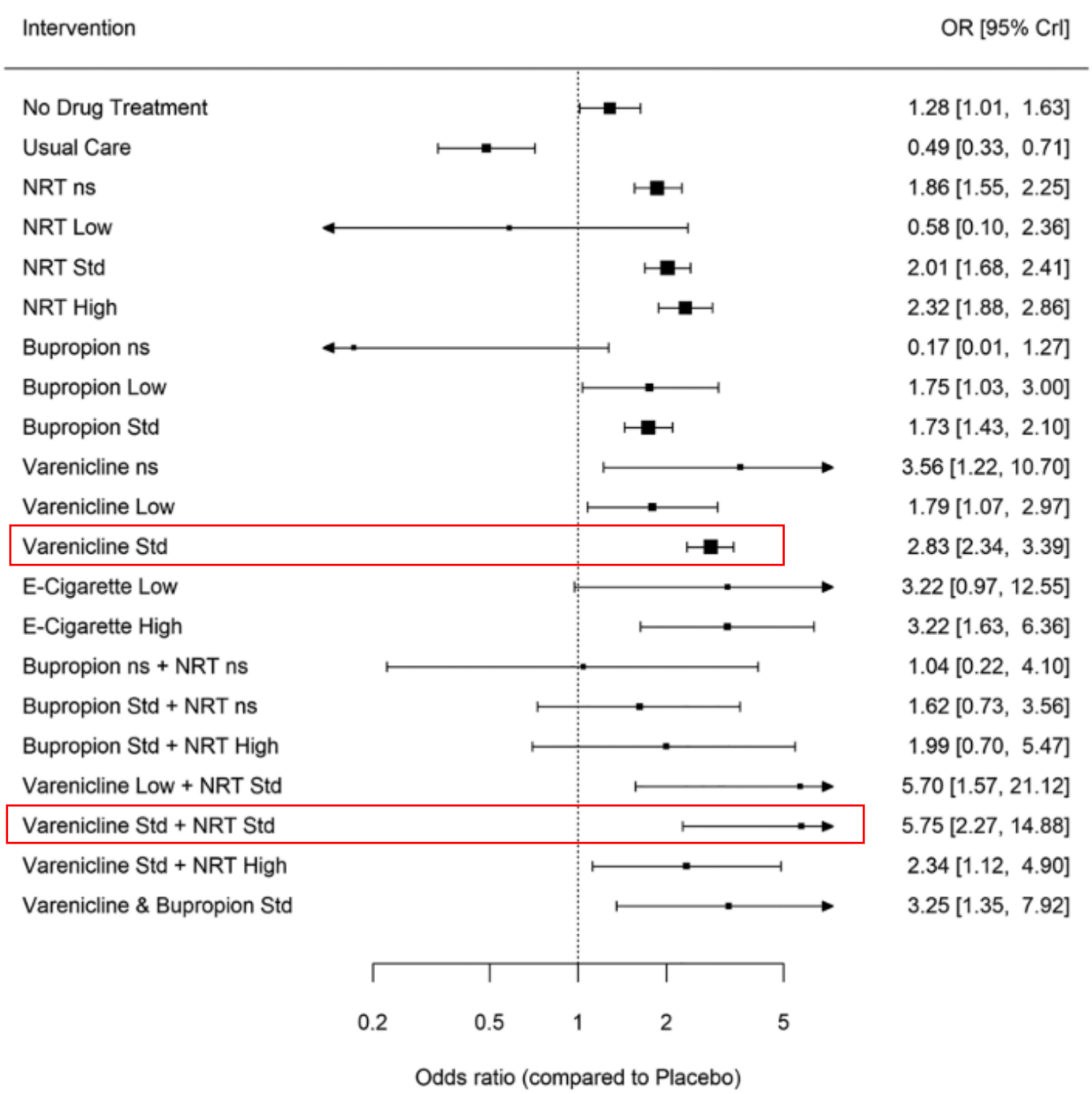
Comparative clinical effectiveness and safety of tobacco cessation pharmacotherapies and electronic cigarettes: a systematic review and network meta-analysis of randomized controlled trials

Kyla H. Thomas[1] | Michael N. Dalili[1] | José A. López-López[2,1] | Edna Keeney[3] | David M. Phillippo[1] | Marcus R. Munafò[4,5] | Matt Stevenson[6] | Deborah M. Caldwell[1] | Nicky J. Welton[1]

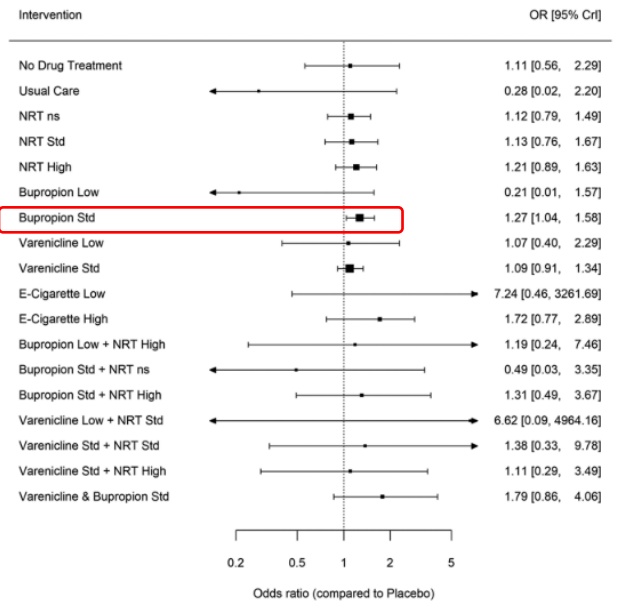
- 363 trials for effectiveness and 355 for safety

Addiction 2022 Vol. 117 Issue 4 Pages 861-876

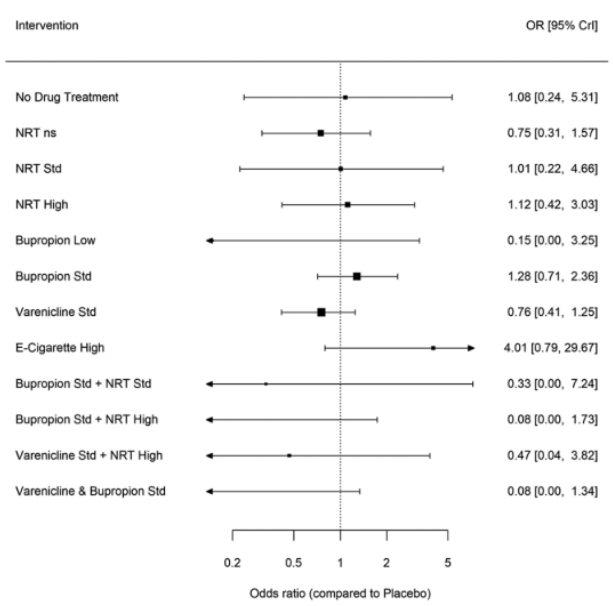
Sustained abstinence



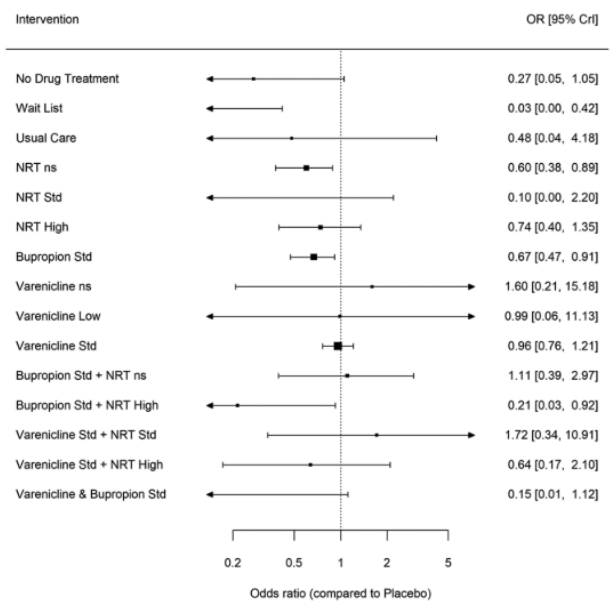
Adverse events



SAE



cardiovascular



neuropsychiatric

Addiction 2022 Vol. 117 Issue 4 Pages 861-876

behavioral therapy intervention

Nicotine and Tobacco Research, 2022, **XX**, 1–10
https://doi.org/10.1093/ntr/ntac113
Advance access publication 26 April 2022
Original Investigation

Long-Term Effectiveness of a Clinician-Assisted Digital Cognitive Behavioral Therapy Intervention for Smoking Cessation: Secondary Outcomes From a Randomized Controlled Trial

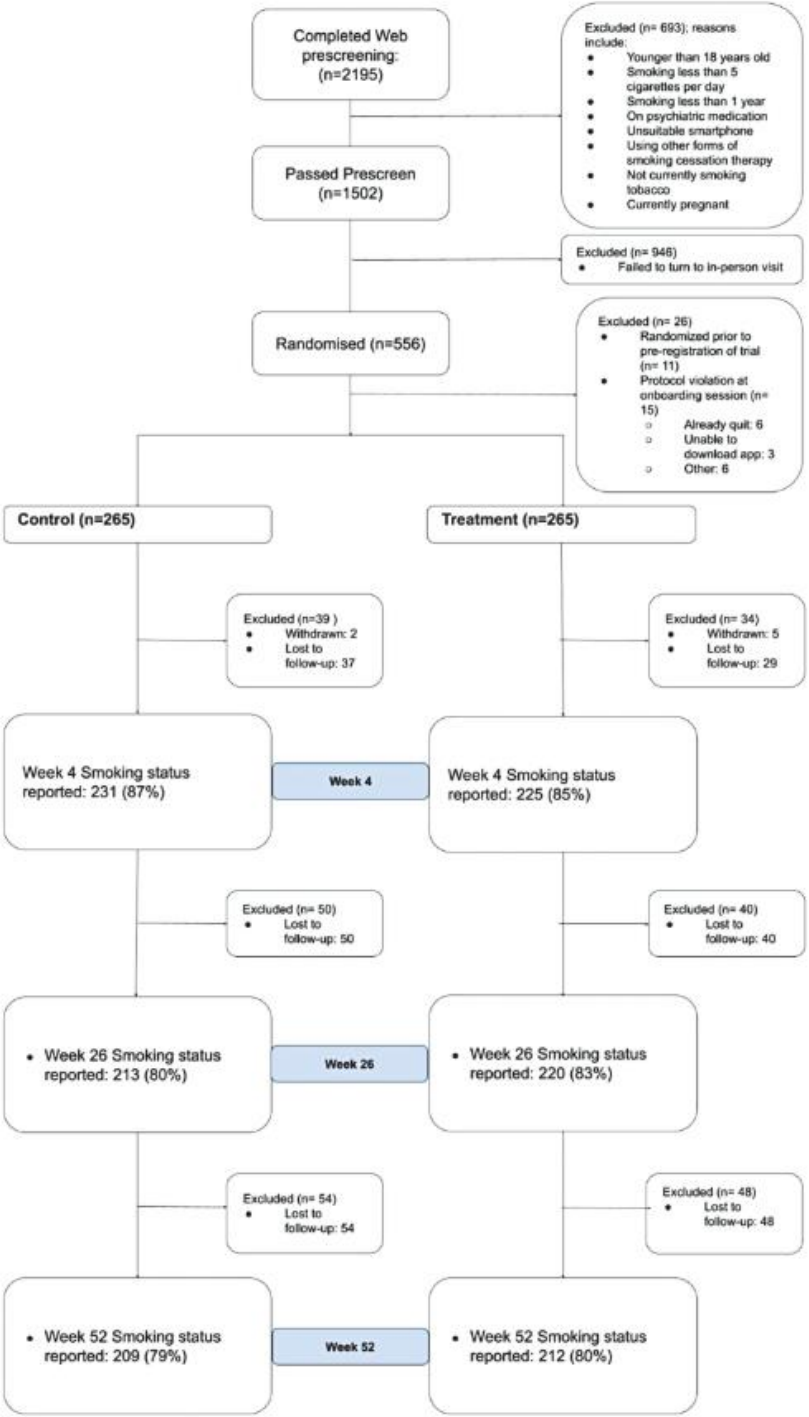
Jamie Webb MRes[1], Sarrah Peerbux MSc[2], Alfonso Ang PhD[1,3], Sarim Siddiqui MBBS[1], Yusuf Sherwani MBBS[1], Maroof Ahmed MBBS[1], Hannah MacRae DClinPsych[1], Hannah Puri BSc[1], Azeem Majeed MD[2], Suzette Glasner PhD[1,3]

[1]Department of Clinical Affairs, Digital Therapeutics, Inc., San Francisco, CA, USA
[2]School of Medicine, Imperial College London, London, UK
[3]Integrated Substance Abuse Programs, David Geffen School of Medicine, UCLA, Los Angeles CA, USA

Corresponding Author: Jamie Webb, MRes, Digital Therapeutics Inc., 2443 Fillmore St, San Francisco, CA, USA. Telephone: 628-214-2718; E-mail: jamie@quitgenius.com

- Quit Genius, a digital, clinician-assisted CBT intervention or very brief advice (VBA)

Nicotine Tob Res 2022

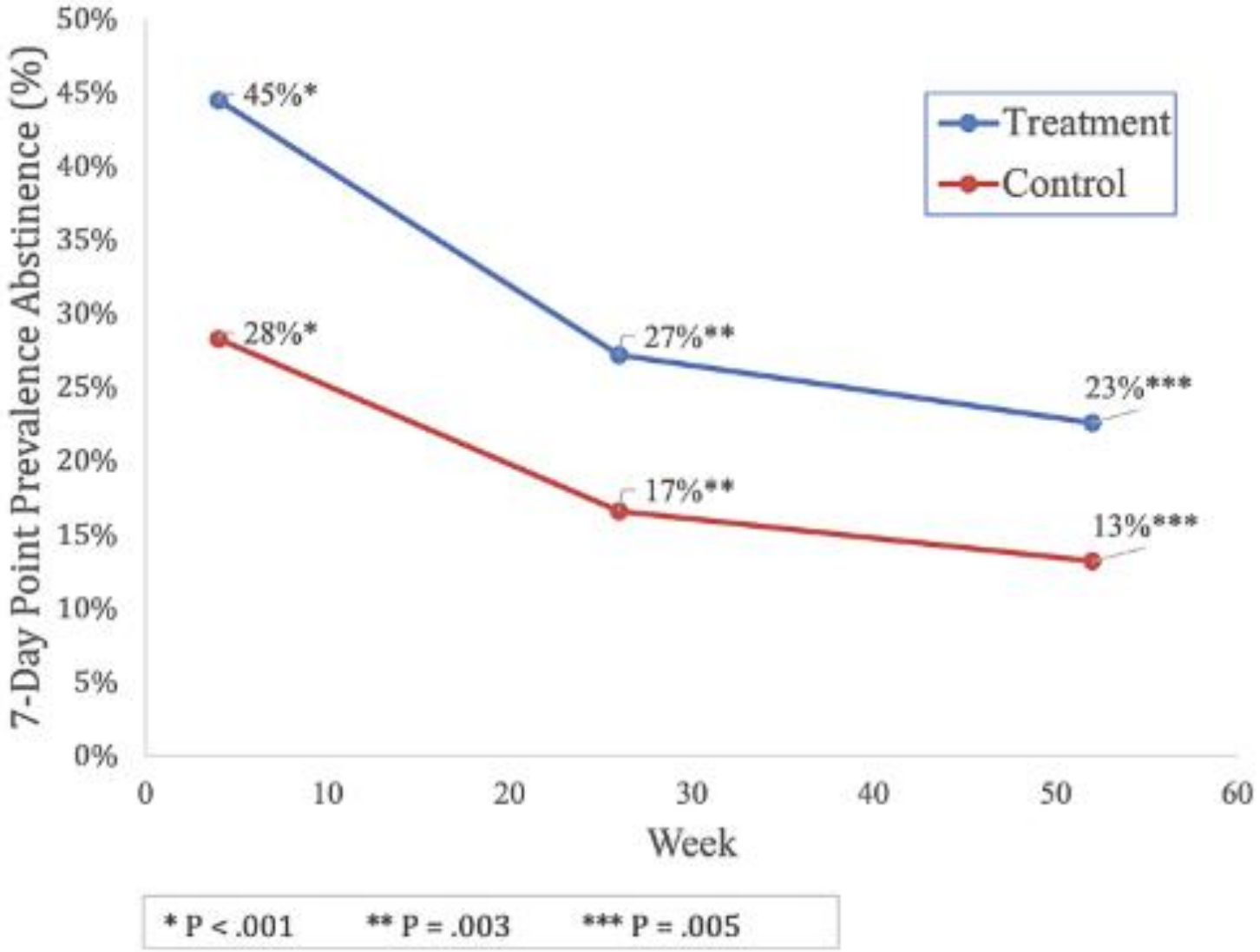


otine Tob Res 2022

Quit genius

- smartphone app with self-guided CBT content
- quit coach who provided asynchronous messaging to reinforce CBT skills.
  - promoting smoking cessation, including encouraging medication adherence, goal setting and self-monitoring

Nicotine Tob Res 2022



Nicotine Tob Res 2022

Received: 20 May 2021 | Accepted: 11 October 2021

DOI: 10.1111/add.15721

RESEARCH REPORT

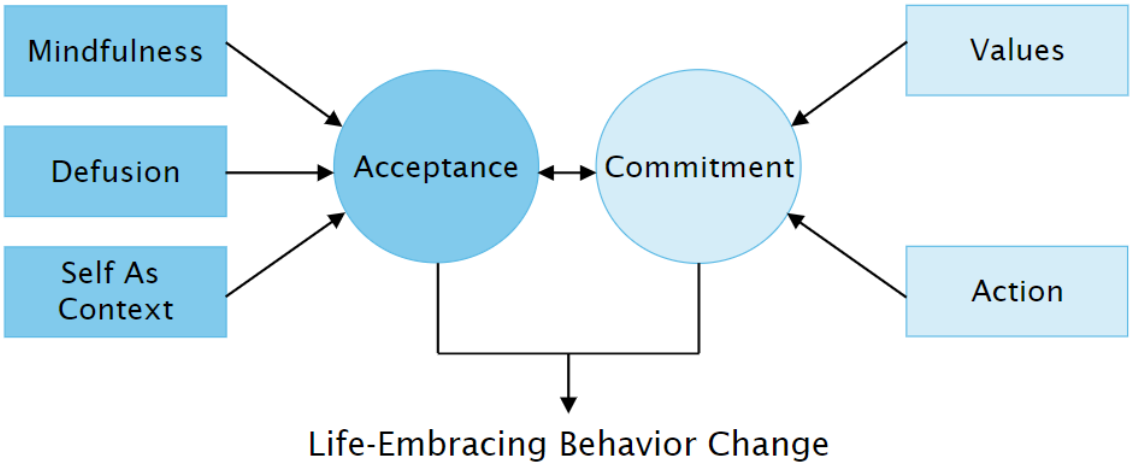
ADDICTION SSA

Efficacy and utilization of an acceptance and commitment therapy-based smartphone application for smoking cessation among Black adults: secondary analysis of the iCanQuit randomized trial

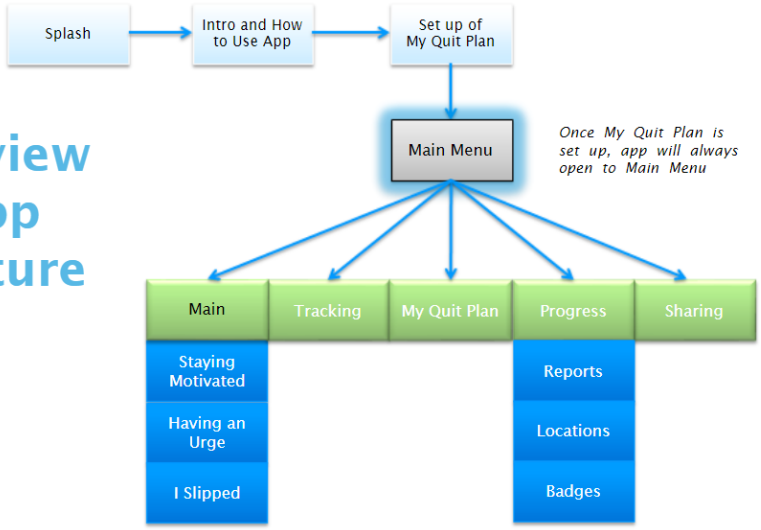
Margarita Santiago-Torres[1] | Kristin E. Mull[1] | Brianna M. Sullivan[1] | Diana Kwon[1,2] | Nicolle L. Nollen[3] | Michael J. Zvolensky[4,5,6] | Jonathan B. Bricker[1,2]

Addiction 2022 Vol. 117 Issue 3 Pages 760-771

Acceptance & Commitment Lead to Life-Embracing Behavior Change



Overview of App Structure



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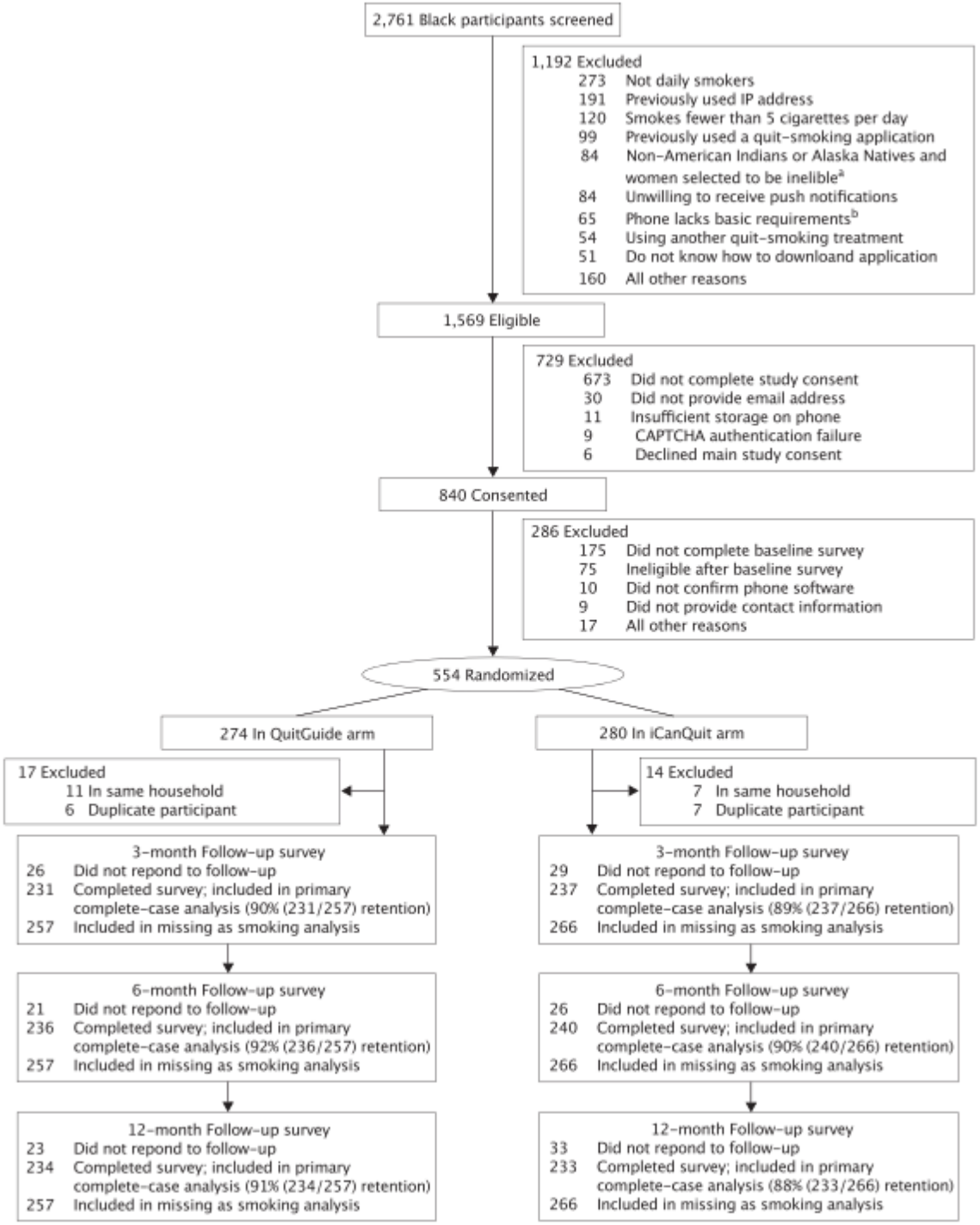

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Issue 3 Pages 760-771

TABLE 2 Smoking cessation outcome by follow-up time point[a]

Smoking cessation outcome[b]	No. (%) or Mean (SD)			OR (95% CI)	P value
	Overall (n = 523)	QuitGuide (n = 257)	iCanQuit (n = 266)		
12-month outcomes					
30-d PPA	112/467 (24%)	46/234 (20%)	66/233 (28%)	1.60 (1.03, 2.46)	0.035
30-d PPA, missing-as-smoking[c]	112/523 (21%)	46/257 (18%)	66/266 (25%)	1.50 (0.98, 2.30)	0.063
7-d PPA	148/467 (32%)	68/234 (29%)	80/233 (34%)	1.27 (0.86, 1.89)	0.233
Prolonged abstinence[d]	41/385 (11%)	12/194 (6%)	29/191 (15%)	2.86 (1.40, 5.82)	0.004
30-d PPA of all tobacco products[e]	95/467 (20%)	36/233 (15%)	59/234 (25%)	1.83 (1.15, 2.91)	0.011
6-month outcomes					
30-d PPA	99/476 (21%)	33/236 (14%)	66/240 (28%)	2.40 (1.50, 3.85)	<0.001
7-d PPA	150/476 (32%)	64/236 (27%)	86/240 (36%)	1.50 (1.01, 2.23)	0.043
3-month outcomes					
30-d PPA	72/468 (15%)	26/231 (11%)	46/237 (19%)	1.99 (1.17, 3.37)	0.011
7-d PPA	122/468 (26%)	43/231 (19%)	79/237 (33%)	2.26 (1.47, 3.48)	<0.001

Addiction 2022 Vol. 117 Issue 3 Pages 760-771

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https://doi.org/10.1093/ntr/ntac087
Advance access publication 3 April 2022
Original Investigation

Do Smokers' Perceptions of the Harmfulness of Nicotine Replacement Therapy and Nicotine Vaping Products as Compared to Cigarettes Influence Their Use as an Aid for Smoking Cessation? Findings from the ITC Four Country Smoking and Vaping Surveys

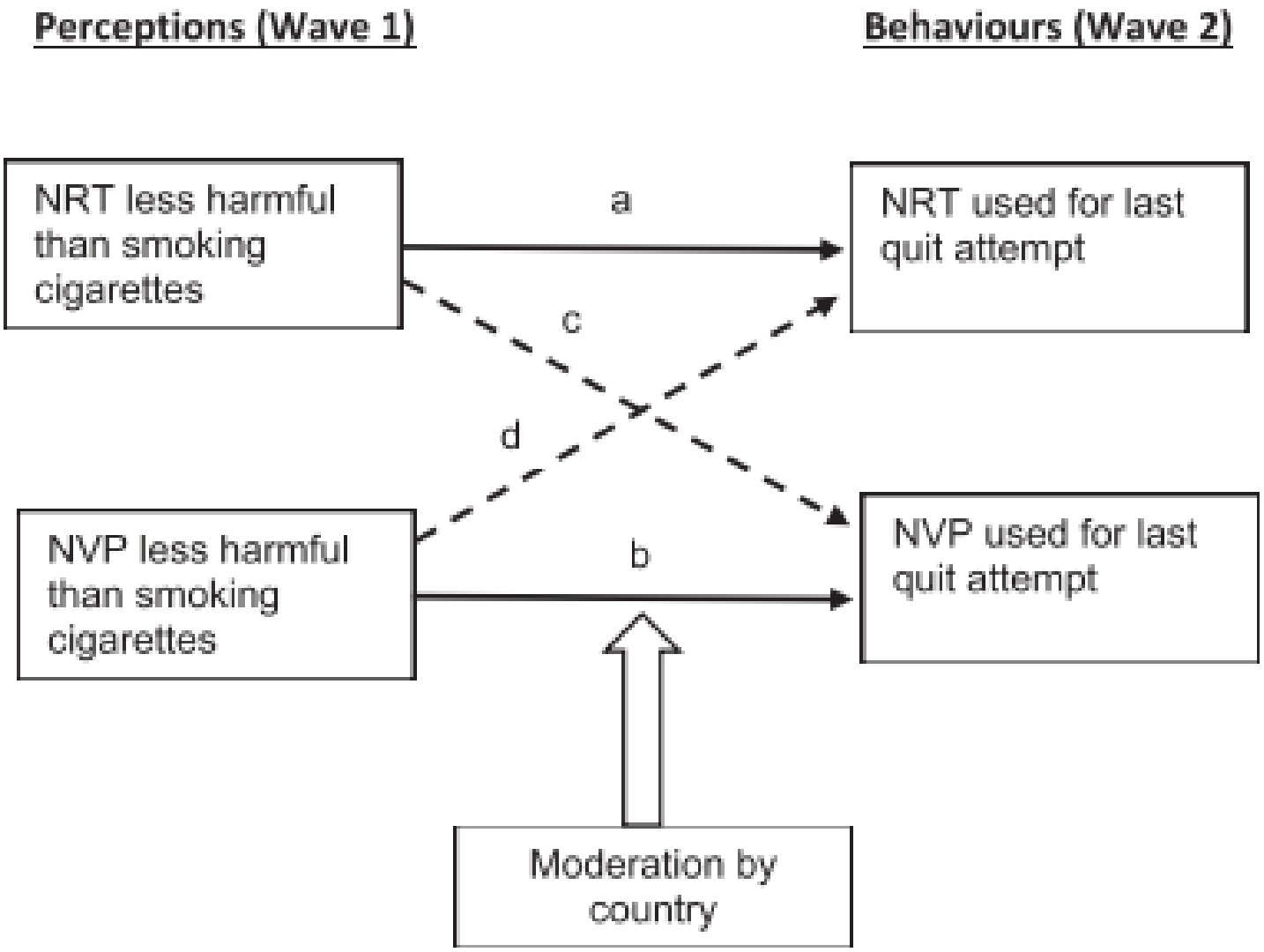
Hua-Hie Yong PhD[1], Shannon Gravely PhD[2], Ron Borland PhD[3], Coral Gartner PhD[4], K. Michael Cummings PhD[5], Katherine East PhD[2,6], Scott Tagliaferri MClinExPhys[1], Tara Elton-Marshall PhD[7], Andrew Hyland PhD[8], Maansi Bansal-Travers PhD[8], Geoffrey T. Fong PhD[2,9]

[1]Department of Psychology, Deakin University, Geelong, VIC, Australia
[2]Department of Psychology, University of Waterloo, Waterloo, ON, Canada
[3]Melbourne Centre for Behaviour Change, School of Psychological Sciences, The University of Melbourne, Melbourne, VIC, Australia
[4]School of Public Health, The University of Queensland, Brisbane, QLD, Australia
[5]Department of Psychiatry & Behavioral Sciences, Medical University of South Carolina, Charleston, SC, USA
[6]National Addiction Centre, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK
[7]School of Epidemiology and Public Health, University of Ottawa, Ottawa, ON, Canada
[8]Department of Health Behavior, Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA
[9]Ontario Institute for Cancer Research, MaRS Centre, Toronto, ON, Canada

Corresponding Author: Hua Yong, PhD, 1 Gheringhap Street, Geelong, VIC 3220, Australia. Telephone: +61-3-9244-6909; Fax: +61-3-9244-6858; E-mail: hua.yong@deakin.edu.au

Nicotine Tob Res 2022 Vol. 24 Issue 9 Pages 1413-1421

data from Waves 1 (2016) and 2 (2018) of the ITC Four Country and Vaping (ITC 4CV) Surveys (N=1315)



Nicotine Tob Res 2022 Vol. 24 Issue 9 Pages 1413-1421

Table 2. Prospective Association Between Wave 1 Nicotine Product Harm Perceptions and Wave 2 Choice of Nicotine Product used as an Aid for Last Quit Attempts Among Baseline Daily Smokers Smoking 10+ Cigarettes per day who had made a Quit Attempt by Wave 2 (N = 1289^).

Wave 1 Predictors	Wave 2 NRT use vs other/no aids [a] aRRR (95% CI)	Wave 2 NVP use vs other/no aids [b] aRRR (95% CI)	Wave 2 Both NRT & NVP use vs other/no aids [c] aRRR (95% CI)
NRT Relative Harm Perception			
Much Less harmful	**3.79 (2.16, 6.66)*****	1.51 (0.88, 2.61)	**1.96 (1.03, 3.73)***
Somewhat Less harmful	**1.98 (1.15, 3.42)***	1.47 (0.89, 2.05)	1.16 (0.62, 2.15)
Equal/More harmful	*Reference*	*Reference*	*Reference*
Do not know	0.98 (0.45, 2.11)	1.69 (0.85, 3.36)	0.82 (0.29, 2.25)
NVP Relative Harm Perception			
Much Less harmful	**0.34 (0.20, 0.60)*****	**2.11 (1.29, 3.45)****	1.29 (0.71, 2.35)
Somewhat Less harmful	0.69 (0.46, 1.05)	1.34 (0.88, 2.05)	1.20 (0.72, 2.01)
Equal/More harmful	*Reference*	*Reference*	Reference
Do not know	0.64 (0.38, 1.07)	**0.53 (0.29, 0.96)***	**0.32 (0.14, 0.75)****

NVP: Better nicotine delivery & behavioral substitutability than NRT

Nicotine Tob Res 2022 Vol. 24 Issue 9 Pages 1413-1421

Published in final edited form as:
Addiction. 2022 April ; 117(4): 1095–1104. doi:10.1111/add.15725.

Strategies to enhance the effects of pictorial warnings for cigarettes: Results from a discrete choice experiment

James F. Thrasher[1,2], **Farahnaz Islam**[3], **Edna Arillo-Santillán**[2], **Rosibel Rodriguez-Bolaños**[2], **Belen Saenz de Miera Juarez**[4], **James W. Hardin**[5], **Inti Barrientos-Gutierrez**[6]

[1]Department of Health Promotion, Education & Behavior, Arnold School of Public Health, University of South Carolina, Columbia, SC, USA.

[2]Department of Tobacco Research, Center for Population Health Research, National Institute of Public Health, Cuernavaca, Mexico.

[3]Department of Epidemiology and Biostatistics, Arnold School of Public Health, University of South Carolina, Columbia, SC, USA.

[4]Department of Economics, Autonomous University of Baja California Sur, La Paz, Mexico

[5]Department of Epidemiology & Biostatistics, Arnold School of Public Health, University of South Carolina, Columbia, SC, USA.

[6]Evaluation and Surveys Research Center, National Institute of Public Health, Mexico City, Mexico.

Addiction 2022 Vol. 117 Issue 4 Pages 1095-1104

“젖병에 꽁초 가득”…담뱃값 경고 그림, 더 끔찍하게 바꾼다

입력 2022-06-20 18:06 | 업데이트 2022-06-20 22:00

제4기 담뱃갑 경고그림 및 문구 표기내용

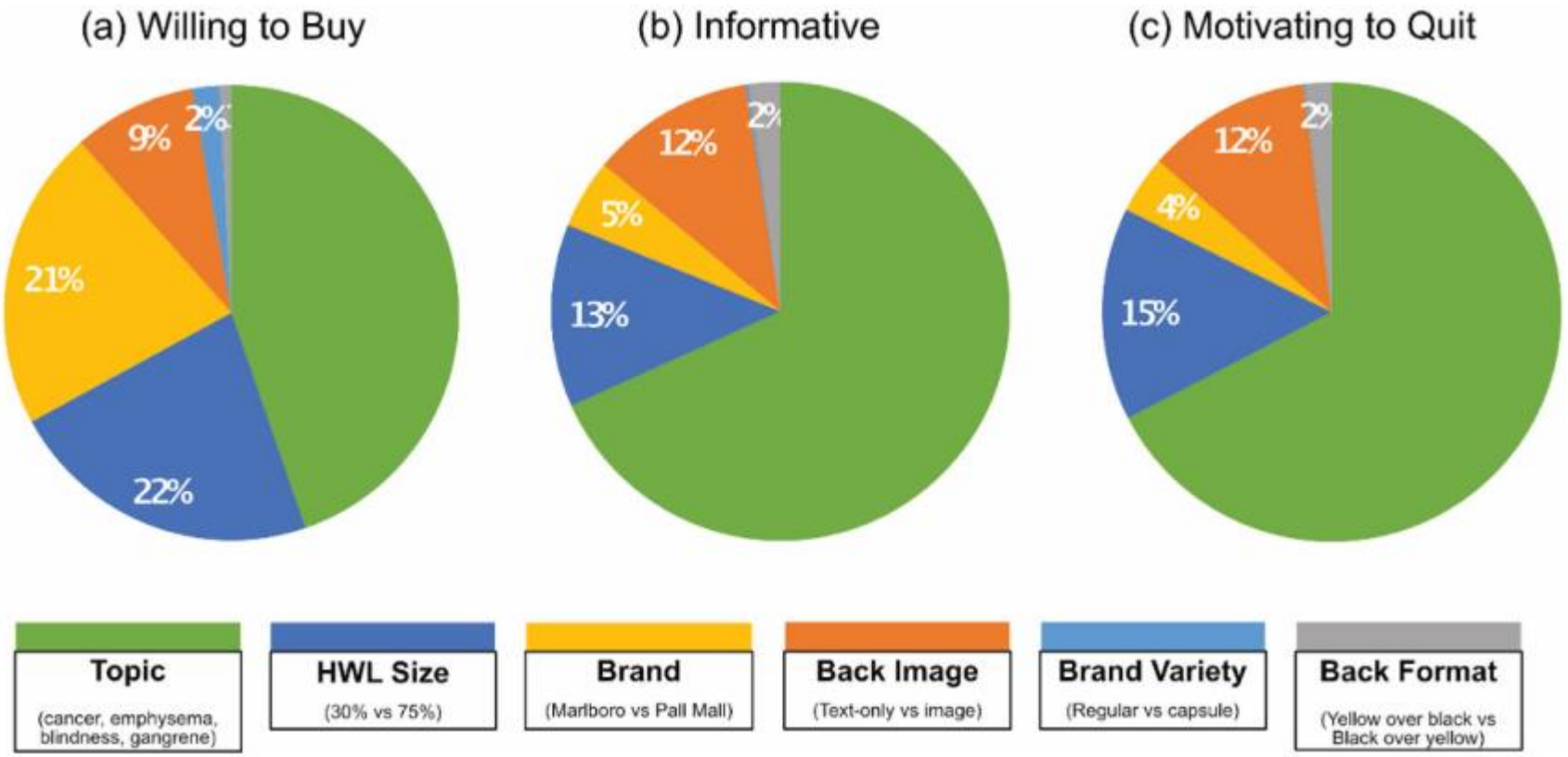
붙임 2

제4기 담뱃갑 경고그림 및 경고문구 표기 지침 (매뉴얼) (발췌)

Set 1

Set 2

Addiction 2022 Vol. 117 Issue 4 Pages 1095-1104



		Willing to Buy n=654 Coef. (SE)	Informative n=699 Coef. (SE)	Motivating to Quit n=694 Coef. (SE)
Small	No picture	ref	ref	ref
	Picture	−0.248 (0.026) ***	0.393 (0.025) ***	0.416 (0.026) ***
Large	No picture	−0.387 (0.028) ***	0.416 (0.028) ***	0.473 (0.028) ***
	Picture	−0.318 (0.031) ***	0.405 (0.031) ***	0.444 (0.031) ***
Overall p-value		*<0.001*	*<0.001*	*<0.001*

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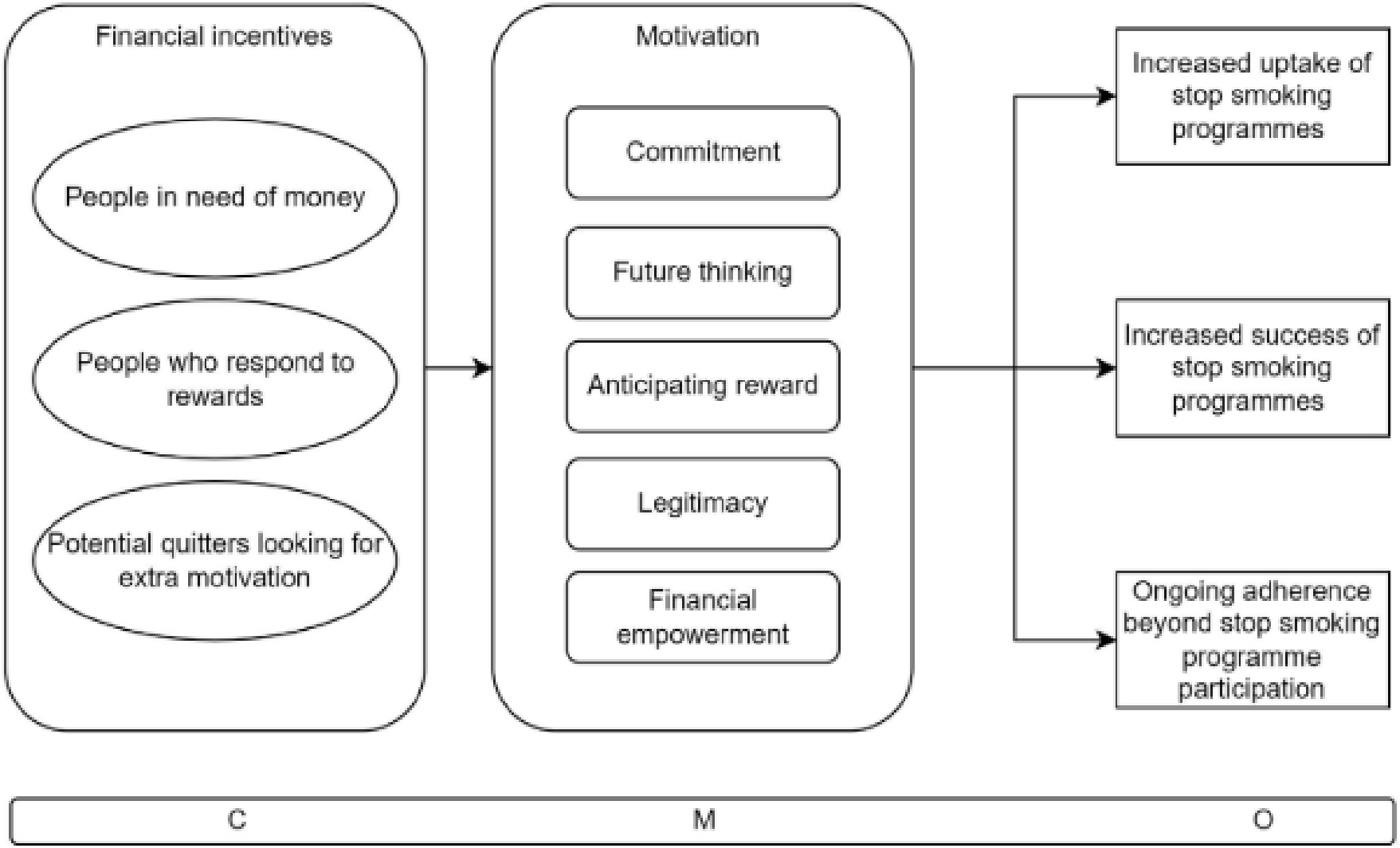
BMJ Open

How and why do financial incentives contribute to helping people stop smoking? A realist review protocol

Rikke Siersbaek ,[1] Sarah Parker,[1] Paul Kavanagh,[2,3] John Alexander Ford ,[4] Sara Burke[1]

BMJ Open 2022 Vol. 12 Issue 6 Pages e060457



BMJ Open 2022 Vol. 12 Issue 6 Pages e060457

BMJ Open

Cohort profile for the Loma Linda University Health BREATHE programme: a model to study continuously incentivised employee smoking cessation

Pramil N Singh ,[1,2] Olivia Moses,[2,3] Wendy Shih,[2] Mark Hubbard[3]

BMJ Open 2022 Vol. 12 Issue 4 Pages e053303

Enrolment

Enrolment

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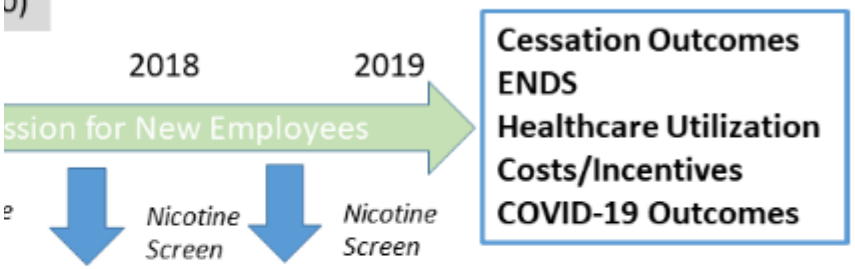


Reward-based incentives

Programmes at CVS Pharmacy[8 9] and Blue Cross/Blue Shield[10] have used a reward-based mechanism (US$100 to US$800 in value), whereby at key smoking cessation milestones (quit date set, quit date, 14-day/30-day/6-month point prevalence abstinence) reward points are earned towards (1) subsidised copayments and costs for prescription and over the counter cessation aids and (2) redemption as cash credits for groceries and personal items in selected stores.

Cash-based incentives

Direct cash-based incentives include models that provide cash payments for attending a health assessment for smoking cessation (ie, US$50 for a first appointment and setting a quit date) and then provide payments on achieving abstinence goals (amounts summing from US$120 to in excess of US$800 for long-term abstinence).[7]

Deposit-based incentives

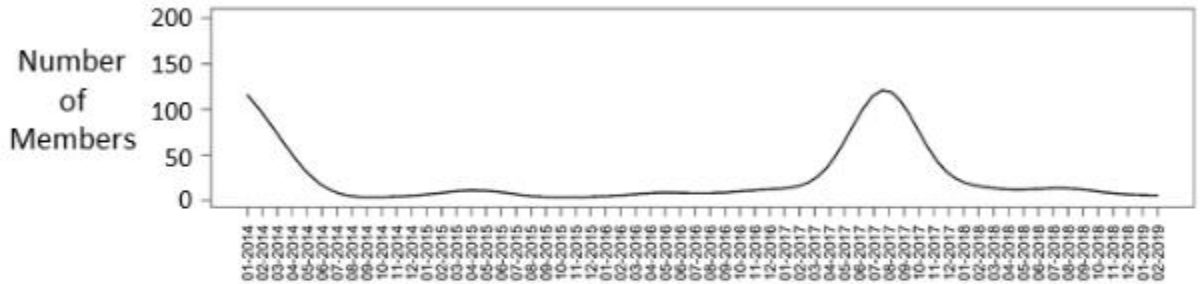
Under deposit-based incentives, subjects deposit money into a health savings account and are refunded on achieving abstinence goals.[8]

Competition and lottery-based incentives

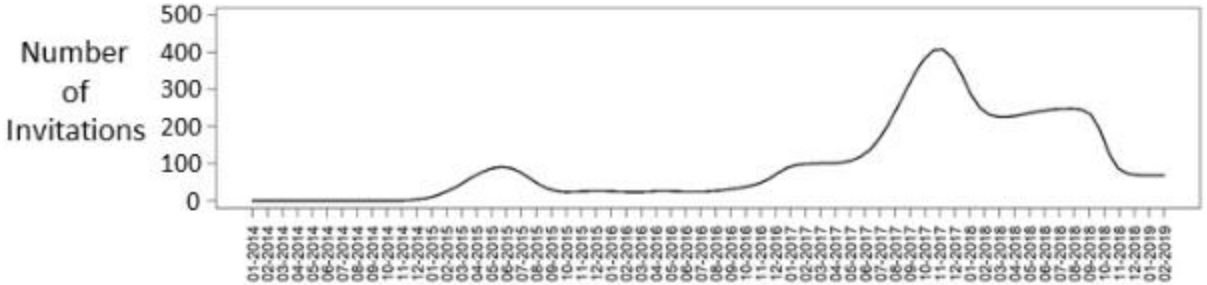
This incentive model included designs, where groups of employees compete against each other for cash prizes given to the highest cessation rate.[11] Also, in lottery-based incentive programmes ('Quit and Win'), an individual employee in the cessation group is eligible to win a cash prize.[11]

Open 2022 Vol. 12 Issue 4 Pages e053303

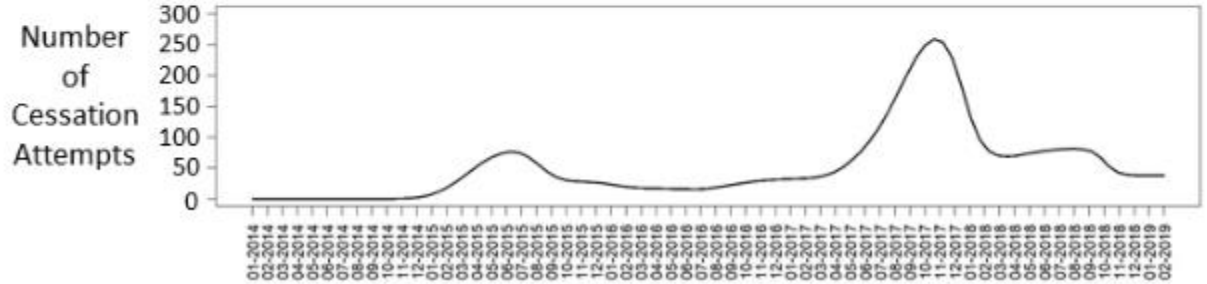
Employees Screening Positive for Tobacco



Employees Invited to Incentivized Smoking Cessation through the Health Plan



Smoking Cessation Attempts by Employees Participating in Incentivized Smoking Cessation through the Health Plan



BMJ Open 2022 Vol. 12 Issue 4 Pages e053303

varenicline

JAMA Network Open™

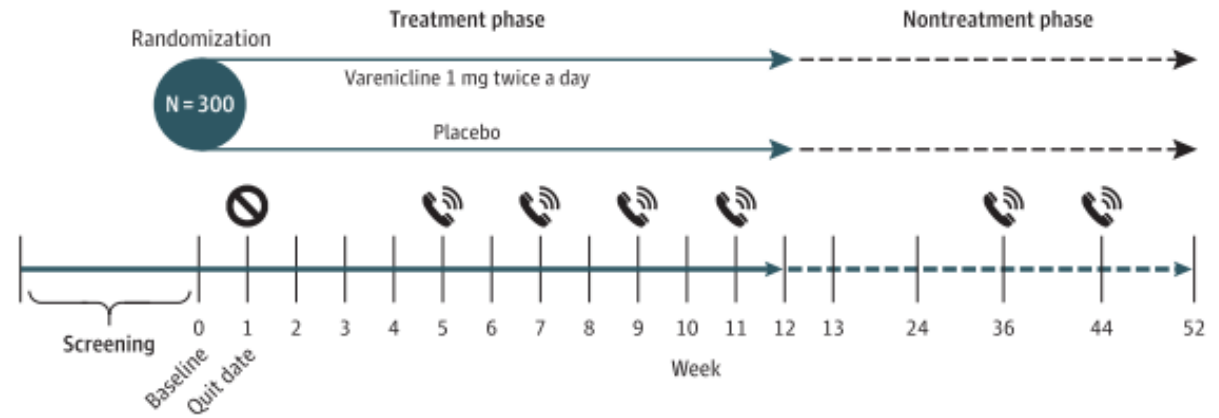
Original Investigation | Diabetes and Endocrinology

Efficacy and Safety of Varenicline for Smoking Cessation in Patients With Type 2 Diabetes

A Randomized Clinical Trial

Cristina Russo, MD; Magdalena Walicka, MD, PhD; Pasquale Caponnetto, PhD; Fabio Cibella, MD; Marilena Maglia, MD; Angela Alamo, MD; Davide Campagna, MD; Lucia Frittitta, MD, PhD; Maurizio Di Mauro, MD, PhD; Grazia Caci, MD; Arkadiusz Krysinski, MD, PhD; Edward Franek, MD, PhD; Riccardo Polosa, MD, PhD

Figure 2. Schematic Diagram of the Study Design



JAMA Netw Open 2022 Vol. 5 Issue 6 Pages e2217709

Figure 3. Continuous Abstinence Rates for Weeks 9 to 12, 9 to 24, and 9 to 52

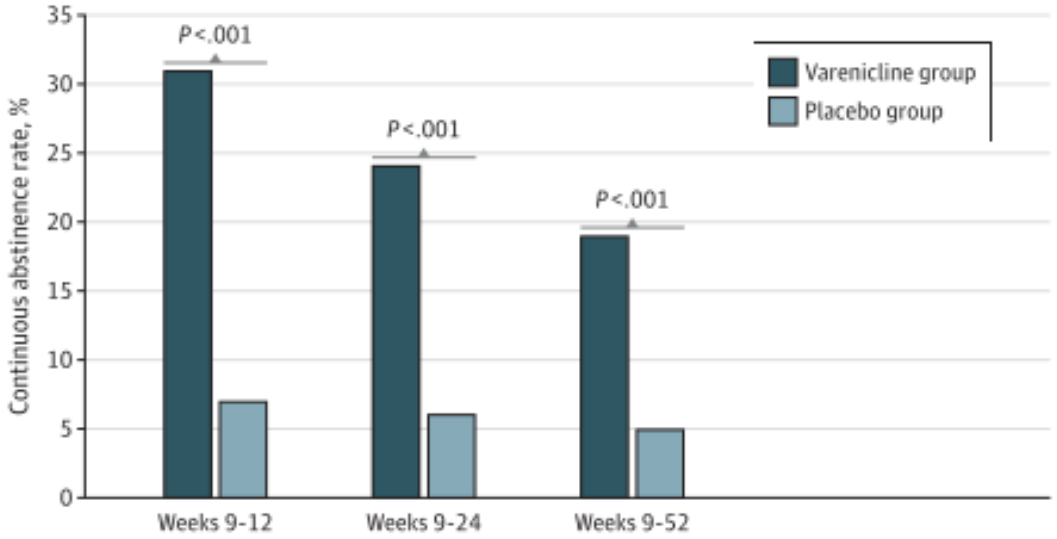


Table 2. Primary and Secondary Efficacy Outcomes

Outcome	Varenicline group, No. (%)	Placebo group, No. (%)	OR (95% CI)	*P* value
CAR at weeks				
9-12	47 (31.3)	11 (7.3)	5.77 (2.85-11.66)	<.001
9-24	36 (24.0)	9 (6.0)	4.95 (2.29-10.70)	<.001
9-52	28 (18.7)	9 (5.3)	4.07 (1.79-9.27)	<.001
7-d point prevalence, wk				
12	60 (40.0)	16 (11.0)	7.67 (3.91-15.05)	<.001
24	43 (29.0)	13 (8.3)	4.44 (2.17-9.07)	<.001
52	35 (23.7)	14 (9.5)	3.27 (1.57-6.78)	<.001

JAMA Netw Open 2022 Vol. 5 Issue 6 Pages e2217709

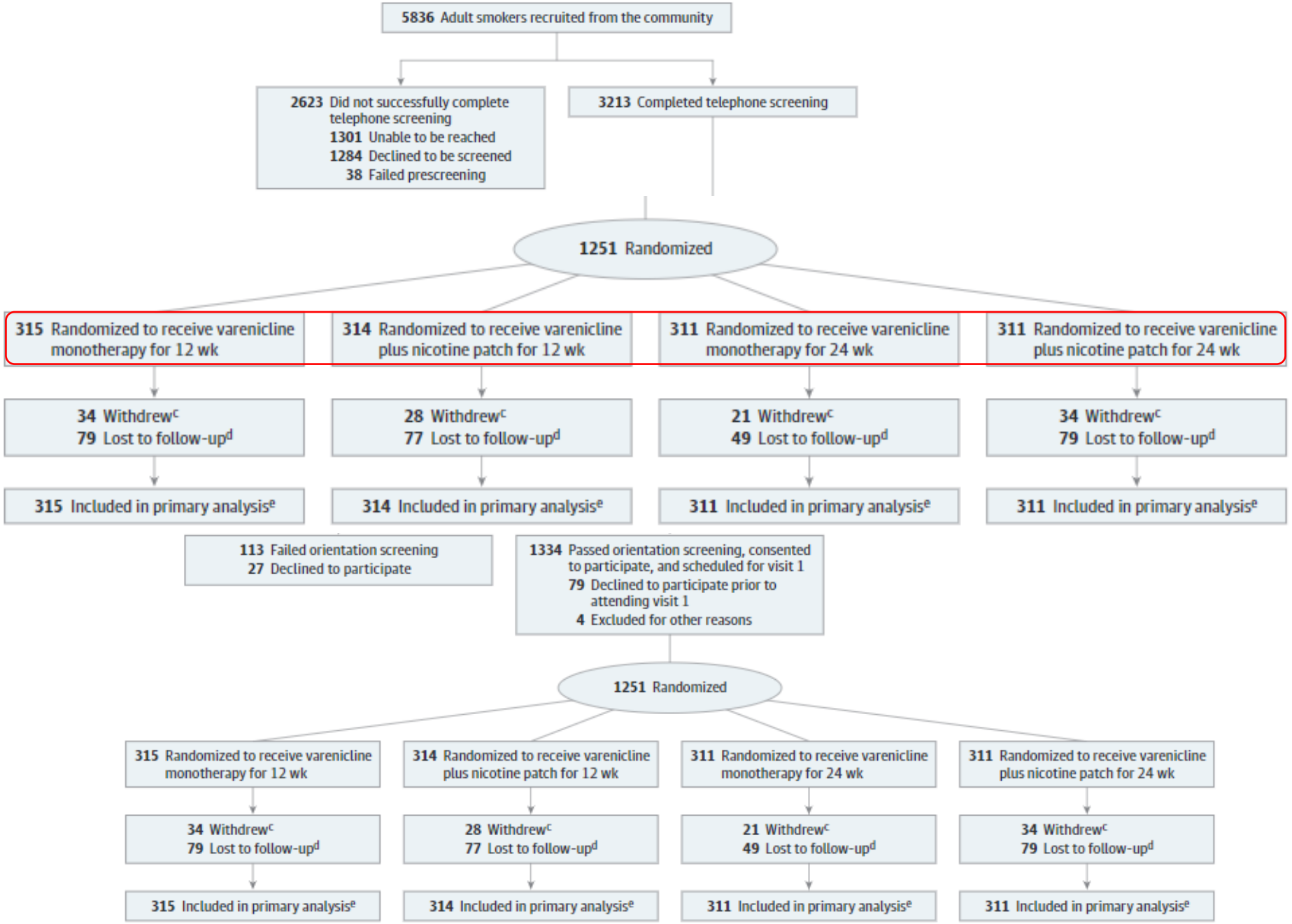
Research

JAMA | Original Investigation

Effects of Combined Varenicline With Nicotine Patch and of Extended Treatment Duration on Smoking Cessation
A Randomized Clinical Trial

Timothy B. Baker, PhD; Megan E. Piper, PhD; Stevens S. Smith, PhD; Daniel M. Bolt, PhD; James H. Stein, MD; Michael C. Fiore, MD

Jama 2021 Vol. 326 Issue 15 Pages 1485-1493



Jama 2021 Vol. 326 Issue 15 Pages 1485-1493

7-day PPA rates week 23 and 52

Table 2. Biochemically Confirmed 7-Day Point Prevalence Abstinence Rates at Weeks 23 and 52 and Prolonged Abstinence Rates by Treatment Main Effects of Medication Type and Duration

	Abstinent, No. (%)[a]				Main effects						
	Medication type		Medication duration		Medication type		Medication duration		Site-adjusted OR (95% CI)[c]		
	Varenicline monotherapy (n = 626)	Varenicline plus nicotine patch (n = 625)	12 wk (n = 629)	24 wk (n = 622)	Abstinence RD for monotherapy vs combination therapy, % (95% CI)[b]	P value	Abstinence RD for 12 wk vs 24 wk, % (95% CI)[b]	P value	Medication type of monotherapy vs combination therapy	Medication duration of 12 wk vs 24 wk	Medication type × medication duration interaction
7-d point prevalence abstinence[d]											
At 23 wk	136 (21.7)	156 (25.0)	140 (22.3)	152 (24.4)	−3.2 (−7.9 to 1.5)	.18	−2.2 (−6.9 to 2.5)	.37	1.1 (0.96 to 1.2)	1.1 (0.9 to 1.2)	1.0 (0.9 to 1.2)
At 52 wk[e]	155 (24.8)	152 (24.3)	153 (24.3)	154 (24.8)	0.4 (−4.3 to 5.2)	.85	−0.4 (−5.2 to 4.3)	.86	1.0 (0.9 to 1.1)	1.0 (0.9 to 1.2)	1.0 (0.9 to 1.2)
Prolonged abstinence											
At 23 wk[f]	137 (21.9)	139 (22.2)	138 (21.9)	138 (22.2)	−0.4 (−5.0 to 4.2)	.90	−0.3 (−4.8 to 4.4)	.93	1.0 (0.9 to 1.2)	1.0 (0.9 to 1.2)	1.1 (0.9 to 1.2)
At 52 wk[g]	101 (16.1)	104 (16.6)	102 (16.2)	103 (16.6)	−0.5 (−4.6 to 3.6)	.83	−0.3 (−4.5 to 3.8)	.89	1.0 (0.9 to 1.2)	1.0 (0.9 to 1.2)	1.1 (0.96 to 1.3)

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Adverse events

Table 4. Adverse Events Among Participants During the First 12 Weeks of Treatment

Adverse event[a]	Adverse event, No. (%)				Adverse event RD, % (95% CI)[b]		
	Treatment duration of 12 wk		Treatment duration of 24 wk				
	Varenicline monotherapy (n = 300)	Varenicline plus nicotine patch (n = 305)	Varenicline monotherapy (n = 307)	Varenicline plus nicotine patch (n = 295)	Varenicline monotherapy vs varenicline plus nicotine patch for 12 wk	Varenicline monotherapy for 12 wk vs 24 wk	Varenicline monotherapy for 12 wk vs varenicline plus nicotine patch for 24 wk
Insomnia	88 (29.3)	93 (30.5)	83 (27.0)	72 (24.4)	−1.2 (−8.5 to 6.1)	2.3 (−4.9 to 9.5)	4.9 (−2.2 to 12.0)
Nausea	72 (24.0)	92 (30.2)	95 (30.9)	73 (24.7)	−6.2 (−13.2 to 0.9)	−6.9 (−14.0 to 0.1)	−0.8 (−7.7 to 6.2)
Changes in mood	48 (16.0)	50 (16.4)	50 (16.3)	53 (18.0)	−0.4 (−6.3 to 5.5)	−0.3 (−6.1 to 5.6)	−2.0 (−8.0 to 4.1)
Skin rash	34 (11.3)	53 (17.4)	30 (9.8)	51 (17.3)	−6.0 (−11.6 to −0.5)	1.6 (−3.3 to 6.5)	−6.0 (−11.6 to −0.3)
Headache	20 (6.9)	12 (3.9)	17 (5.5)	16 (5.4)	2.7 (−0.8 to 6.3)	1.1 (−2.7 to 4.9)	1.2 (−2.6 to 5.1)
Itching or hives	9 (3.0)	40 (13.1)	14 (4.6)	39 (13.2)	−10.1 (−14.4 to −5.9)	−1.6 (−4.6 to 1.5)	−10.2 (−14.5 to −5.9)

Jama 2021 Vol. 326 Issue 15 Pages 1485-1493

specific population

ORIGINAL RESEARCH

Annals of Internal Medicine

Postdiagnosis Smoking Cessation and Reduced Risk for Lung Cancer Progression and Mortality

A Prospective Cohort Study

Mahdi Sheikh, MD, PhD; Anush Mukeriya, MD, DSc; Oxana Shangina, PhD; Paul Brennan, PhD; and David Zaridze, MD, DSc

Background: Lung cancer is the leading cause of cancer death worldwide, and about one half of patients with lung cancer are active smokers at diagnosis.

Objective: To determine whether quitting smoking after diagnosis of lung cancer affects the risk for disease progression and mortality.

Design: Prospective study of patients with non–small cell lung cancer (NSCLC) who were recruited between 2007 and 2016 and followed annually through 2020.

Setting: N.N. Blokhin National Medical Research Center of Oncology and City Clinical Oncological Hospital No. 1, Moscow, Russia.

Patients: 517 current smokers who were diagnosed with early-stage (IA-IIIA) NSCLC.

Measurements: Probabilities of overall survival, progression-free survival, and lung cancer–specific mortality and hazard ratios (HRs) for all-cause and cancer-specific mortality.

Results: During an average of 7 years of follow-up, 327 (63.2%) deaths, 273 (52.8%) cancer-specific deaths, and 172 (33.7%) cases of tumor progression (local recurrence or metastasis) were recorded. The adjusted median overall survival time was 21.6 months higher among patients who had quit smoking than those who continued smoking (6.6 vs. 4.8 years, respectively; $P = 0.001$). Higher 5-year overall survival (60.6% vs. 48.6%; $P = 0.001$) and progression-free survival (54.4% vs. 43.8%; $P = 0.004$) were observed among patients who quit than those who continued smoking. After adjustments, smoking cessation remained associated with decreased risk for all-cause mortality (HR, 0.67 [95% CI, 0.53 to 0.85]), cancer-specific mortality (HR, 0.75 [CI, 0.58 to 0.98]), and disease progression (HR, 0.70 [CI, 0.56 to 0.89]). Similar effects were observed among mild to moderate and heavy smokers and patients with earlier and later cancer stages.

Limitation: Exposure measurements were based on self-reported questionnaires.

Conclusion: Smoking cessation after diagnosis materially improved overall and progression-free survival among current smokers with early-stage lung cancer.

Primary Funding Source: International Agency for Research on Cancer.

Ann Intern Med. 2021;174:1232-1239. doi:10.7326/M21-0252 **Annals.org**
For author, article, and disclosure information, see end of text.
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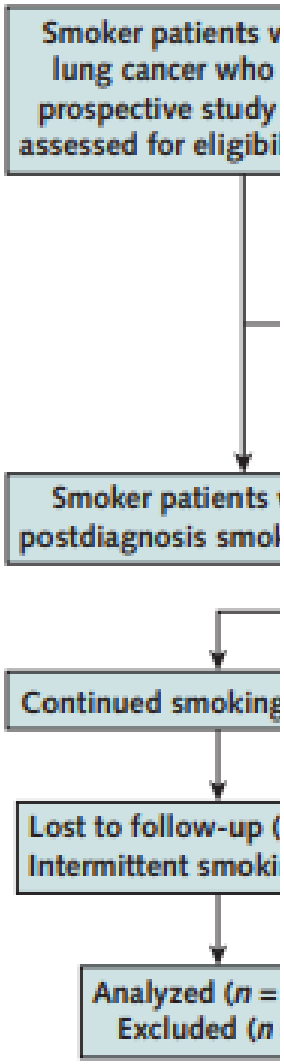
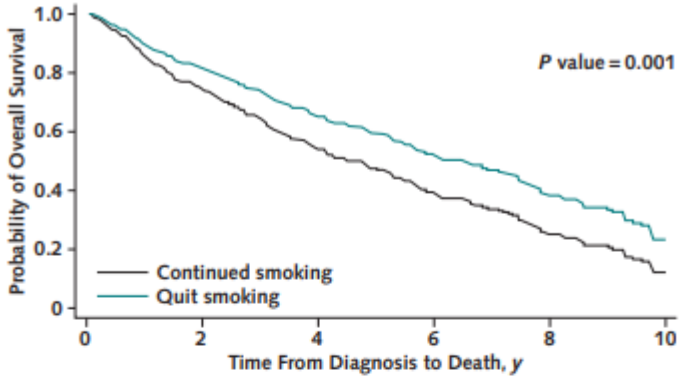


Table 1. Baseline Demographic and Clinical Characteristics and Postenrollment Treatments

Characteristic	All Patients	Patients Who Continued Smoking	Patients Who Quit Smoking
Participants, *n* (%)	517 (100.0)	297 (57.4)	220 (42.5)
Mean age (SD), *y*	61.3 (7.9)	60.9 (7.5)	61.9 (8.4)
Gender, *n* (%)			
Male	458 (88.5)	264 (88.8)	194 (88.1)
Female	59 (11.4)	33 (11.1)	26 (11.8)
Education, *n* (%)			
University education	174 (33.6)	97 (32.6)	77 (35.0)
School education	343 (66.3)	200 (67.3)	143 (65.0)
Median BMI (IQR), *kg/m*^{2}	24.9 (22.5-28.0)	24.4 (22.2-27.9)	25.8 (23.1-28.3)
Chronic diseases, *n* (%)*			
No	343 (66.3)	194 (65.3)	149 (67.7)
Yes	174 (33.6)	103 (34.6)	71 (32.2)
Regular alcohol drinking, *n* (%)			
Never	143 (27.6)	86 (28.9)	57 (25.9)
Former	102 (19.7)	46 (15.4)	56 (25.4)
Current	272 (52.6)	165 (55.5)	107 (48.6)
Median cumulative cigarettes smoked (IQR), *pack-years*	46.9 (36.0-57.1)	47.0 (36.0-57.2)	46.0 (35.7-57.0)
Histology, *n* (%)			
Squamous cell carcinoma	307 (59.3)	177 (59.6)	130 (59.0)
Adenocarcinoma	172 (33.2)	99 (33.3)	73 (33.1)
Neuroendocrine tumors	38 (7.3)	21 (7.0)	17 (7.7)
Tumor stage, *n* (%)			
IA	139 (26.8)	75 (25.2)	64 (29.0)
IB	152 (29.4)	91 (30.6)	61 (27.7)
IIA	63 (12.1)	40 (13.4)	23 (10.4)
IIB	49 (9.4)	26 (8.7)	23 (10.4)
IIIA	114 (22.0)	65 (21.8)	49 (22.2)
Surgery, *n* (%)			
No	60 (11.6)	39 (13.1)	21 (9.5)
Yes	457 (88.3)	258 (86.8)	199 (90.4)
Chemotherapy, *n* (%)			
No	401 (77.5)	231 (77.7)	170 (77.2)
Yes	116 (22.4)	66 (22.2)	50 (22.7)
Radiation therapy, *n* (%)			
No	404 (78.1)	234 (78.7)	170 (77.2)
Yes	113 (21.8)	63 (21.2)	50 (22.7)



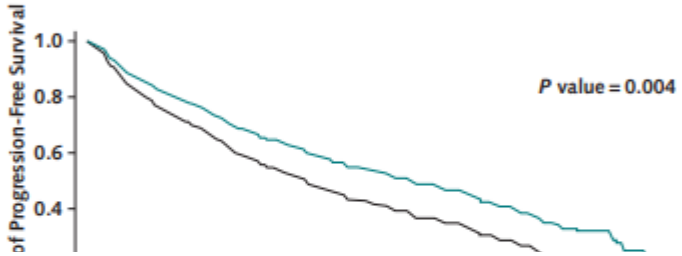


Table 3. Association Between Quitting Smoking Postdiagnosis and Outcomes Among Patients With Early-Stage Non-Small Cell Lung Cancer

Variable	Patients Who Continued Smoking	Patients Who Quit Smoking	*P* Value
Patients, *n* (%)	297 (57.4)	220 (42.5)	
All-cause mortality*			
Cases (total deaths), *n* (%)	204 (62.3)	123 (37.6)	
Adjusted hazard ratio (95% CI)	1.00 (reference)	0.67 (0.53-0.85)	0.001
Disease progression (tumor recurrence or death)*			
Cases (total deaths), *n* (%)	216 (63.1)	126 (36.8)	
Adjusted hazard ratio (95% CI)	1.00 (reference)	0.70 (0.56-0.89)	0.004
Lung cancer-specific mortality*†			
Cases (total deaths), *n* (%)	171 (62.6)	102 (37.3)	
Adjusted cause-specific hazard ratio (95% CI)	1.00 (reference)	0.75 (0.58-0.98)	0.040

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BMC Pulmonary Medicine

RESEARCH Open Access

Smoking cessation by combined medication and counselling: a feasibility study in lung cancer patients

Christian Reinhardt[1], Markus Harden[2], Christoph Herrmann-Lingen[3], Achim Rittmeyer[1,4] and Stefan Andreas[1,4*]

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Baseline characteristics

	NRT[a] (n = 39)	Varenicline (n = 35)	NM[b] (n = 6)	Total (n = 80)
Sex				
Female	11 (28.2%)	11 (31.4%)	2 (33.3%)	24 (30%)
Male	28 (71.8%)	24 (68.6%)	4 (66.7%)	56 (70%)
Age (years)	62.9 (± 8.4)	62.6 (± 7.8)	59.5 (± 4.9)	62.6 (± 7.9)
BMI (kg/m^2)	25.9 (± 4.8)	25.2 (± 4.8)	24.8 (± 5.3)	25.5 (± 4.8)
Score of Fagerstroem Test	4.7 (± 2.2) (13 missing)	4.9 (± 2.4) (2 missing)	4.0 (± 1.4) (4 missing)	4.8 (± 2.3) (19 missing)
PackYears	41.92 (± 18)	49.58 (± 27.51)	36.9 (± 9.6)	44.9 (± 22.5)
At least one attempt for smoking cessation	18 (46.2%)	18 (51.4%)	1 (16.7%)	37 (46.3%)
Current smoking at study entry	26 (66.7%)	31 (88.6%)	1 (16.7%)	58 (72.5%)
Quit smoking within 4 weeks before study entry	13 (33.3%)	4 (11.4%)	5 (83.3%)	22 (27.5%)
ECOG**				
0	7	7	2	16
1	25	25	2	52
2	1	0	0	1
Lung-Cancer Stage				
NSCLC I–II	7 (18%)	6 (17.1%)	1 (16.7%)	14 (17.5%)
NSCLC III–IV	17 (43.6%)	20 (57.1%)	2 (33.3%)	39 (49%)
SCLC	15 (38.5%)	9 (25.7%)	3 (50%)	27 (34%)
Lung-Cancer Therapy				
Surgery	10 (25.6%)	5 (14.3%)	1 (16.7%)	16 (20%)
Chemotherapy or radiochemotherapy	29 (74.4%)	29 (82.9%)	5 (83.3%)	63 (78.8%)
Radiotherapy	0	1 (2.9%)	0	1 (1.2%)

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	Week 12			Week 26		
	Smoking	Abstinent	Total	Smoking	Abstinent	Total
NRT[a]	27 (71.1%)	11 (28.9%)	38 (52.8%)	25 (69.4%)	11 (30.6%)	36 (53.7%)
Varenicline	16 (55.2%)	13 (44.8%)	29 (40.3%)	18 (66.7%)	9 (33.3%)	27 (40.3%)
NM[b]	2 (40%)	3 (60%)	5 (6.9%)	2 (50%)	2 (50%)	4 (6%)
Total	45 (62.5%)	27 (37.5%)	72 (100%)	45 (67.2%)	22 (32.8%)	67 (100%)

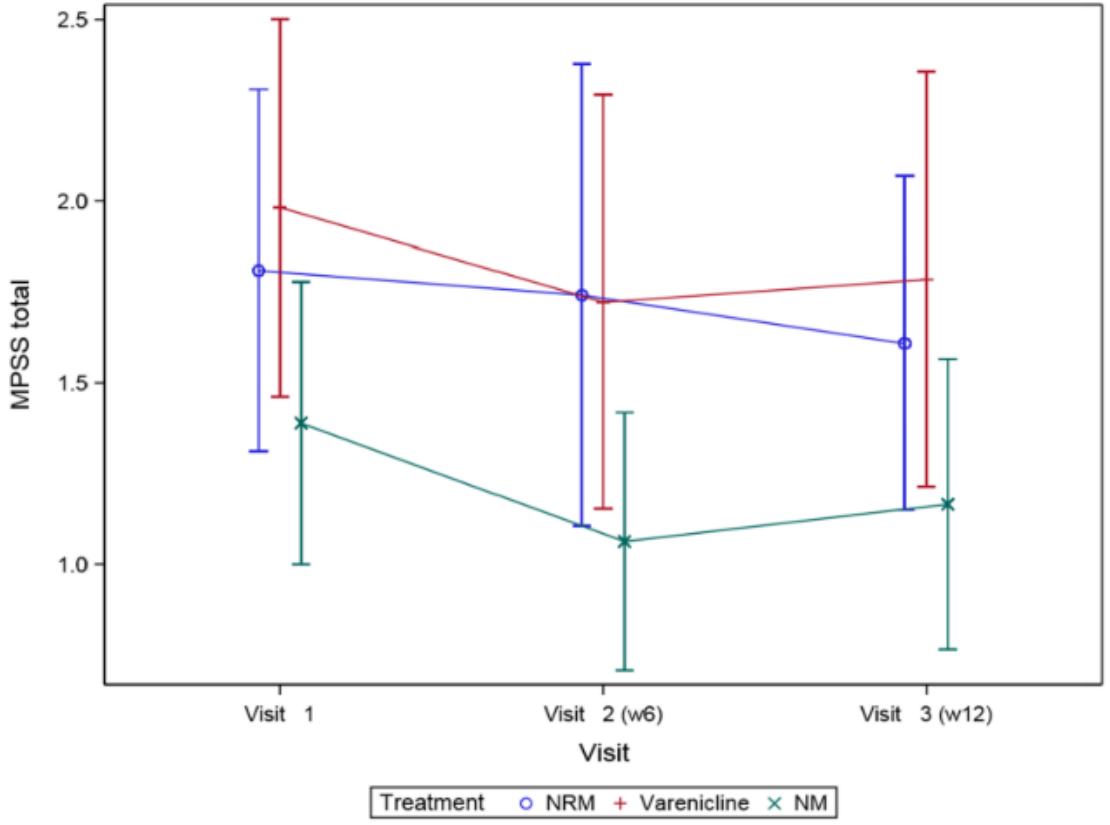

Fig. 2 MPSS (± standard deviation) during treatment period. *NRT* Nicotine replacement therapy, *NM* no medication

PLOS ONE

RESEARCH ARTICLE

Smoking cessation after cancer diagnosis reduces the risk of severe cancer pain: A longitudinal cohort study

Chie Taniguchi[1☯*], Akihiko Narisada[2☯], Hideo Tanaka[3,4☯], Hiroki Iida[5‡], Mami Iida[6‡], Rina Mori[1], Ayako Nakayama[1], Kohta Suzuki[2,7☯]

1 College of Nursing, Aichi Medical University, Nagakute, Aichi, Japan, **2** Institute for Occupational Health Science, Aichi Medical University, Nagakute, Aichi, Japan, **3** Public Health Center of Neyagawa City, Neyagawa, Osaka, Japan, **4** Shiga University of Medical Science, Otsu, Shiga, Japan, **5** Department of Anesthesiology and Pain Medicine, Central Japan International Medical Center, Minokamo, Gifu, Japan, **6** Department of Internal Medicine and Cardiology, Gifu Prefectural General Medical Center, Gifu, Gifu, Japan, **7** Department of Health and Psychosocial Medicine, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan

☯ These authors contributed equally to this work.
‡ HI and MI also contributed equally to this work.
* c-taniguchi@aichi-med-u.ac.jp

- Opioids can act as a surrogate index for evaluating the incidence of severe cancer pain

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Table 1. Characteristics of the study subjects (n = 591).

		Non-smoker (n = 383)		Abstainer (n = 75)			Current smoker (n = 133)			Total (n = 591)	
		n	%	n	%	p-value	n	%	p-value	n	%
Age	<60 y	309	80.7	61	81.3	0.895	107	80.5	0.954	477	80.7
	≥60 y	74	19.3	14	18.7		26	19.6		114	19.3
Gender	Female	142	37.1	10	13.3	<0.001	11	8.3	<0.001	163	27.6
	Male	241	62.9	65	86.7		122	91.7		428	72.4
Alcohol consumption	None/sometimes	317	82.8	60	80.0	0.566	82	61.6	<0.001	459	77.7
	Every day	66	17.2	15	20.0		51	38.4		132	22.3
BMI at the time of cancer pain	<18.5	33	8.6	9	12.0	0.522	15	11.3	0.394	57	9.6
	≥18.5 < 25	275	71.8	46	61.3		83	62.4		404	68.4
	≥25	75	19.6	20	26.7		35	26.3		130	22.0
Cancer type [a]	Not tobacco-related cancer	216	56.4	33	44.0	0.049	53	39.9	0.001	302	51.1
	Tobacco-related cancer	167	43.6	42	56.0		80	60.1		289	48.9
Duration [b]	mean (SD)	24.1	(26.3)	39.1	(29.6)	<0.001	23.1	(26.3)	0.441	25.8	(27.2)

Proportion of those who do not use strong opioids

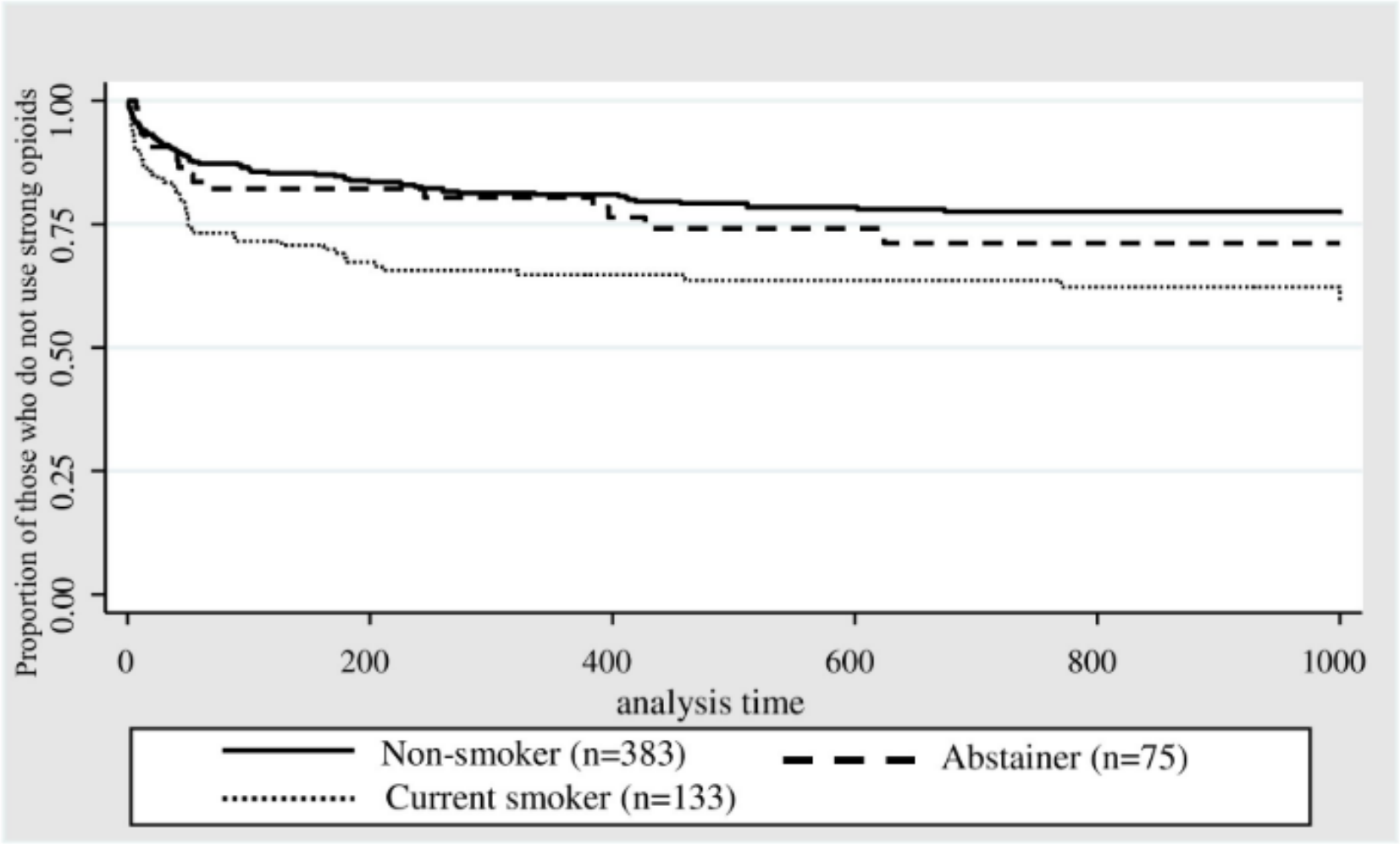

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Table 4. HR for strong opioid use taking current smokers as the reference.

	HR	p-value	[95% CI]
Current smoker	ref		
Abstainer	0.56	0.039	[0.32–0.97]
Non-smoker	0.63	0.017	[0.44–0.92]
Pattern 1			
Current smoker	ref		
Abstainer	0.61	0.014	[0.41–0.90]
Non-smoker	0.58	0.018	[0.37–0.91]
Pattern 2			
Current smoker	ref		
Abstainer	0.56	0.053	[0.31–1.01]
Non-smoker	0.63	0.032	[0.41–0.96]
Pattern 3			
Current smoker	ref		
Abstainer	0.43	0.014	[0.22–0.84]
Non-smoker	0.51	0.007	[0.31–0.83]

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SUMMARY

- **E-cigarette**
  - Respiratory symptoms and lung function
  - Covid-19 infection
  - Attitude for e-cigarettes
- **smoking cessation**
  - **varenicline**
  - **various cessation methods**
  - **specific population – lung cancer**

Thank you

- 경청해 주셔서 고맙습니다.