Qualität der Forschung zu E-Zigaretten – Bestandsaufnahme und Verbesserungsvorschläge

Ute Mons | Universität zu Köln, Medizinische Fakultät & Universitätsklinikum Köln

22. BfR-Forum Verbraucherschutz „Chancen und Risiken der E-Zigarette“ | 28. bis 29. April 2022

Transparenz-Erklärung

- Bezüglich finanzieller Interessenskonflikte:
  - Keinerlei finanzielle oder sonstige Zuwendungen von oder Beziehungen zu pharmazeutischen, E-Zigaretten- oder Tabakunternehmen
  - Meine Forschungsprojekte sind durch öffentliche oder Stiftungsgelder finanziert (derzeit: DFG, Marga und Walter Boll-Stiftung)
  - Gehalt von der Universität zu Köln und dem Deutschen Krebsforschungszentrum, vereinzelt Honorare für Fortbildungsvorträge von medizinischen Fachgesellschaften
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  - Mitglied mehrerer wissenschaftlicher Fachgesellschaften, wie der Deutschen Gesellschaft für Epidemiologie (DGEpi), Deutsche Gesellschaft für Medizinische Soziologie (DGMS), Deutsche Krebsgesellschaft (DKG)
  - (Passives) Mitglied bei Bündnis 90/Die Grünen

Bestandsaufnahme

Bandbreite wissenschaftlichen Fehlverhaltens

BBC NEWS

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Health | Coronavirus

Ivermectin: How false science created a Covid 'miracle' drug

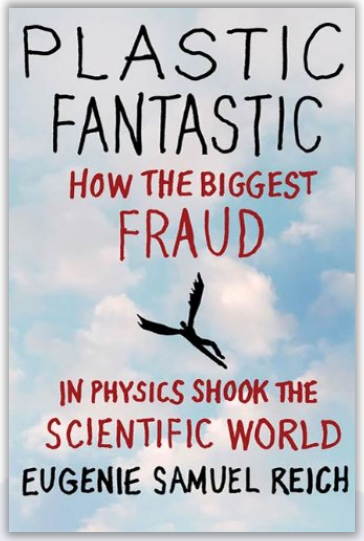
By Rachel Schraer & Jack Goodman
BBC Reality Check

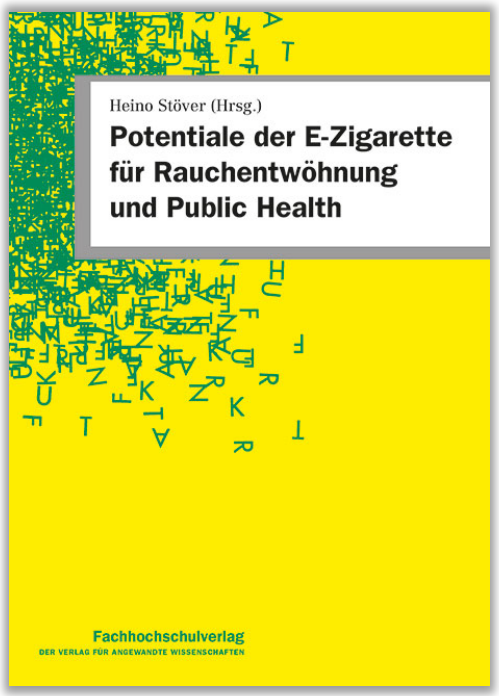
The Retraction Watch Leaderboard

Who has the most retractions? Here's our unofficial list (see notes on methodology), which we'll update as more information comes to light:

1. Yoshitaka Fujii (total retractions: 183) See also: Final report of investigating committee, our reporting, additional coverage
2. Joachim Boldt (163) See also: Editors-in-chief statement, our coverage
3. Hironobu Ueshima (117) See also: our coverage
4. Yoshihiro Sato (106) See also: our coverage
5. Ali Nazari (86) See also: our coverage
6. Jun Iwamoto (82) See also: our coverage
7. Diederik Stapel (58) See also: our coverage
8. Yuhji Saitoh (53) See also: our coverage
9. Adrian Maxim (48) See also: our coverage
10. Chen-Yuan (Peter) Chen (43) See also: SAGE, our coverage

Schlechte wissenschaftliche Praxis → Betrug und Fälschung





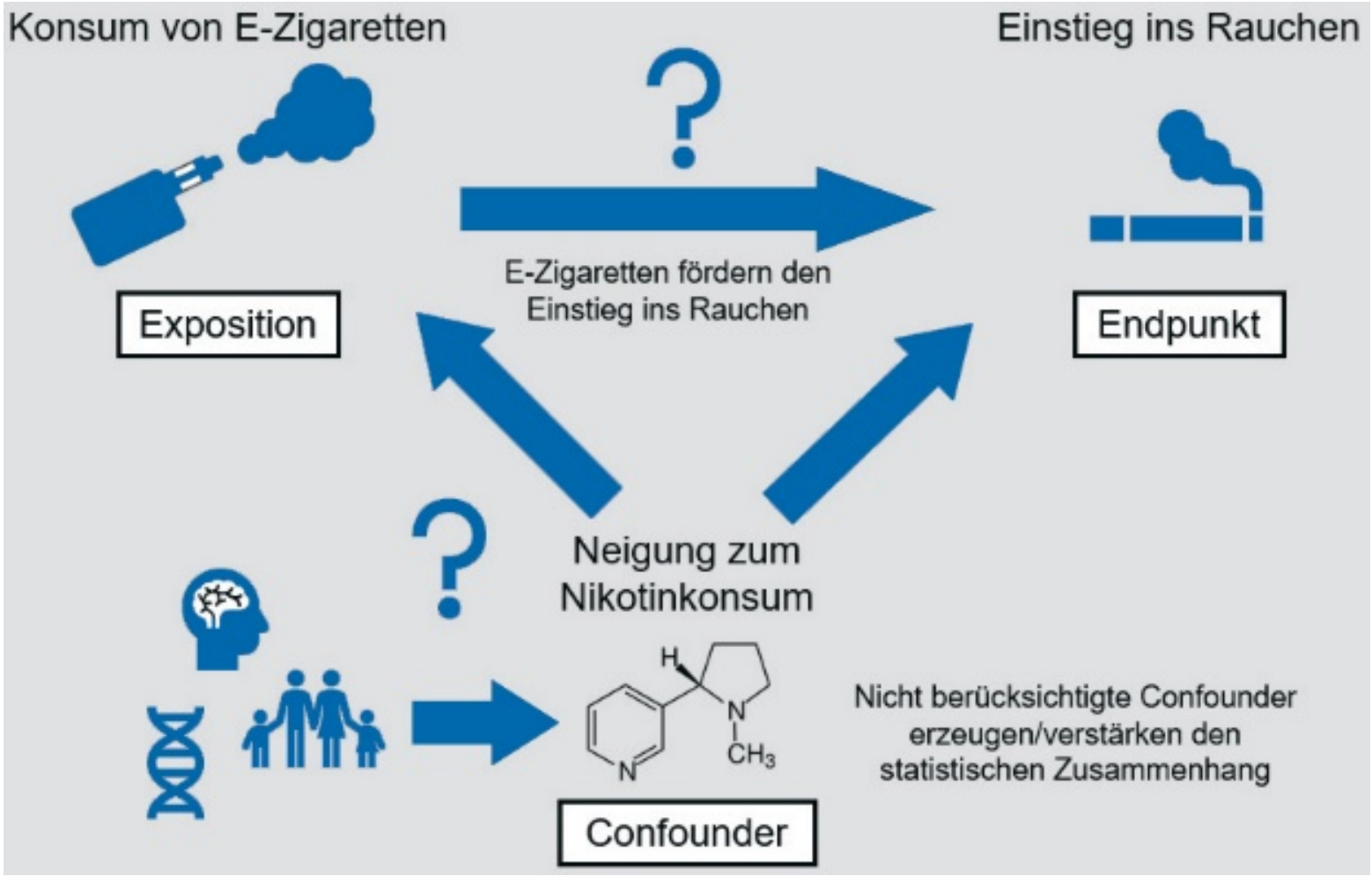
- Fehlerquellen von Beobachtungsstudien
  - Bias (Selektionsbias, Informationsbias)
  - Confounding (durch Störfaktoren)
  - Umgekehrte Kausalität
- Probleme in der Interpretation und Präsentation
  - Überinterpretation: Kausale Schlussfolgerungen ziehen, obwohl es plausible alternative Erklärungen (→ Fehlerquellen) gibt
  - Überbewertung: Irreführende Eindrücke hinsichtlich der Größe oder Bedeutung von Effekten erzeugen
  - Überverallgemeinerung: Unberechtigte Verallgemeinerung der Studienergebnisse über die Grundgesamtheit, Studienbedingungen und -instrumente hinaus
  - „Cherry Picking“: Selektives Berichten oder Hervorheben von Ergebnissen, die eine bestimmte Sichtweise unterstützen

Wo treten häufig Probleme auf?

- Beim Studiendesign
  - Unzureichende Vorkehrungen zur Minimierung von Bias und/oder Confounding
  - Ungeeignete Analysemethoden
  - Nutzung von für Fragestellung eigentlich ungeeigneten Daten/Instrumenten
- Bei der Datenanalyse
  - p-hacking
  - HARKing
- Im Manuskript von Originalarbeiten/Übersichtsarbeiten
  - Bei der Interpretation und Diskussion der Ergebnisse
  - Im Abstract
- In Pressemitteilungen zu Fachartikeln
- In Stellungnahmen/Positionspapieren

Methodische Mängel im Studiendesign

Studien zu E-Zigaretten und Gateway



Methodische Mängel im Studiendesign

Studien zu E-Zigaretten und Gateway

Nicotine and Tobacco Research, 2022, **24**, 710–718
https://doi.org/10.1093/ntr/ntab243
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Original Investigation

SRNT OXFORD

Is Adolescent E-Cigarette Use Associated With Subsequent Smoking? A New Look

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Abstract

Introduction: Prospective studies have consistently reported a strong association between e-cigarette use and subsequent cigarette smoking but many failed to adjust for important risk factors.

Methods: Using longitudinal data from the Population Assessment of Tobacco and Health (PATH) Study, we employed multivariable logistic re gressions to assess the adolescent vaping-to-smoking relationship, with four regressions (Models 1–4) sequentially adding more risk factors.

Our sample included all waves (waves 1–5) of the PATH Study.

Results: The association between ever e-cigarette use and subsequent cigarette smoking decreased substantially in magnitude when addin more control variables, including respondents' sociodemographic characteristics, exposure to tobacco users, cigarette susceptibility, and behav ioral risk factors. Using the most recent data (waves 4–4.5 and waves 4.5–5), this association was not significant in the most complete mode (Model 4). Using wave 4.5–5 data, the adjusted odds ratio (aOR) for ever e-cigarette use at initial wave and subsequent past 12-month smokin declined from 4.07 (95% confidence interval [CI, 2.86–5.81) in Model 1, adjusting only for sociodemographic characteristics, to 1.35 (95% C 0.84–2.16) in Model 4, adjusting for all potential risk factors. Similarly, the aOR of ever e-cigarette use and past 30-day smoking at wave 5 de creased from 3.26 (95% CI, 1.81–5.86) in Model 1 to 1.21 (95% CI, 0.59–2.48) with all covariates (Model 4).

Conclusions: Among adolescent never cigarette smokers, those who had ever used e-cigarettes at baseline, compared with never e-cigarett users, exhibited modest or non-significant increases in subsequent past 12-month or past 30-day smoking when adjusting for behavioral ris factors.

Introduction

Cigarette smoking among US adolescents has steadily de creased over the last quarter century. In 2020, 4.6% of high school and 1.6% of middle school students reported having smoked in the past 30 days.[1] However, while smoking has declined, in recent years electronic cigarettes have become popular. In 2019, 27.5% of high school and 10.5% of middle school students used e-cigarettes (vaped) in the past 30 days.[2] Although these rates dropped substantially in 2020 and 2021, e-cigarettes remain the most popular nicotine or tobacco product among US adolescents.[1,3]

One concern is that e-cigarette use may lead young people to try cigarettes when, absent the experience of vaping, they would not have done so. Studies have found strong associ ations between youth and young adult vaping and subsequent cigarette smoking.[4–22] In a meta-analysis of nine US studies, Soneji et al.[23] reported that the pooled odds ratio for sub sequent use of cigarettes among previously non-smoking vapers, compared to youth who had never vaped or smoked, was 3.50 (95% CI, 2.38–5.16). The ratio was 4.28 (95% CI, 2.52–7.27) for "current" use of cigarettes (having smoked in the past 30 days).[22] A systematic review by Khouja et al.,[24] covering 17 studies of youth and young adults, found strong evidence for a significant association between e-cigarette use and later smoking with an odds ratio of 4.59 (95% C 3.60–5.85).

An essential question, prompted by these findings, is whethe these associations reflect a causal relationship, which thes studies per se cannot determine. There are two competing view of the relationship. The gateway hypothesis posits that the us of e-cigarettes causes the subsequent use of conventional cig arettes.[25–27] In contrast, the common liability theory suggest that youth who vape and subsequently smoke would have trie cigarettes in the absence of vaping, since the two behaviors re flect a common propensity for risky behaviors.[28–30] Note tha none of the authors of the prospective studies explicitly clai that their study supports either theory about the relationshi between vaping and subsequent cigarette smoking.[4–22] Indeed the vast majority do not even mention the competing views However, others have interpreted these findings as implyin support for the gateway theory. For example, referring to th Khouja et al. review,[24] a prominent anti-vaping scholar/activ ist wrote a blog post entitled "Convincing analysis that e-cig are a gateway to cigarette smoking from studies around th world."[31] However, Khouja et al. concluded "[F]indings fro published studies do not provide clear evidence that this is ex plained by a gateway effect rather than shared common cause of both e-cigarette use and smoking."[24]

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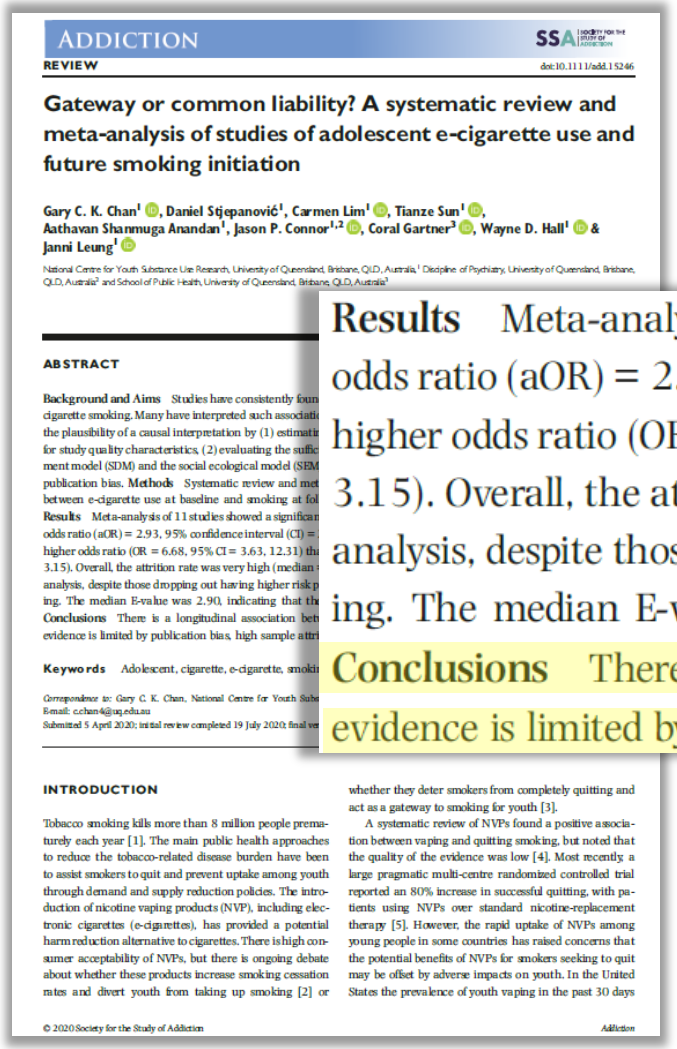
Table 4. Weighted Association of Ever E-Cig Use (Initial Wave) With Subsequent Past 30-Day Cigarette Use (Next Wave) Among US Youth in the PATH Study

Waves	Reported subsequent past 30-day cigarette smoking			
	Model 1 aOR (95% CI)	Model 2 aOR (95% CI)	Model 3 aOR (95% CI)	Model 4 aOR (95% CI)
Waves 1–2	4.32 (2.42–7.70) $p < .001$	3.74 (2.04–6.84) $p < .001$	2.45 (1.36–4.42) $p = .003$	1.41 (0.64–3.09) $p = .39$
Waves 2–3	5.71 (3.11–10.49) $p < .001$	3.36 (1.84–6.13) $p < .001$	2.80 (1.58–4.96) $p = .001$	1.41 (0.67–2.98) $p = .37$
Waves 3–4	6.04 (3.89–9.36) $p < .001$	3.72 (2.43–5.68) $p < .001$	3.04 (2.00–4.63) $p < .001$	2.16 (1.18–3.97) $p = .01$
Waves 4–4.5	4.14 (2.71–6.32) $p < .001$	2.71 (1.72–4.26) $p < .001$	2.30 (1.45–3.66) $p = .001$	1.11 (0.57–2.16) $p = .75$
Waves 4.5–5	3.26 (1.81–5.86) $p < .001$	1.78 (1.01–3.11) $p = .05$	1.53 (0.87–2.69) $p = .14$	1.21 (0.59–2.48) $p = .60$

Notes.
All bolded aORs are significant at $p < .05$.
Control variables in each model:
Model 1: Sociodemographic variables.
Model 2: Model 1 + exposure to tobacco users (family tobacco use, secondhand smoke, friends' tobacco use).
Model 3: Model 2 + cigarette susceptibility.
Model 4: Model 3 + behavioral risk factors (ever use of other tobacco products, past 12-month use of alcohol and marijuana).

Methodische Mängel im Studiendesign

Studien zu E-Zigaretten und Gateway



ADDICTION

REVIEW

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Gateway or common liability? A systematic review and meta-analysis of studies of adolescent e-cigarette use and future smoking initiation

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ABSTRACT

Background and Aims Studies have consistently foun
cigarette smoking. Many have interpreted such associati
the plausibility of a causal interpretation by (1) estimati
for study quality characteristics, (2) evaluating the suffic
ment model (SDM) and the social ecological model (SEM
publication bias. **Methods** Systematic review and met
between e-cigarette use at baseline and smoking at fol
Results Meta-analysis of 11 studies showed a significan
odds ratio (aOR) = 2.93, 95% confidence interval (CI) =
higher odds ratio (OR = 6.68, 95% CI = 3.63, 12.31) tha
3.15). Overall, the attrition rate was very high (median
analysis, despite those dropping out having higher risk p
ing. The median E-value was 2.90, indicating that th
Conclusions There is a longitudinal association betw
evidence is limited by publication bias, high sample attri

Keywords Adolescent, cigarette, e-cigarette, smoki

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INTRODUCTION

Tobacco smoking kills more than 8 million people prematurely each year [1]. The main public health approaches to reduce the tobacco-related disease burden have been to assist smokers to quit and prevent uptake among youth through demand and supply reduction policies. The introduction of nicotine vaping products (NVP), including electronic cigarettes (e-cigarettes), has provided a potential harm reduction alternative to cigarettes. There is high consumer acceptability of NVPs, but there is ongoing debate about whether these products increase smoking cessation rates and divert youth from taking up smoking [2] or whether they deter smokers from completely quitting and act as a gateway to smoking for youth [3].

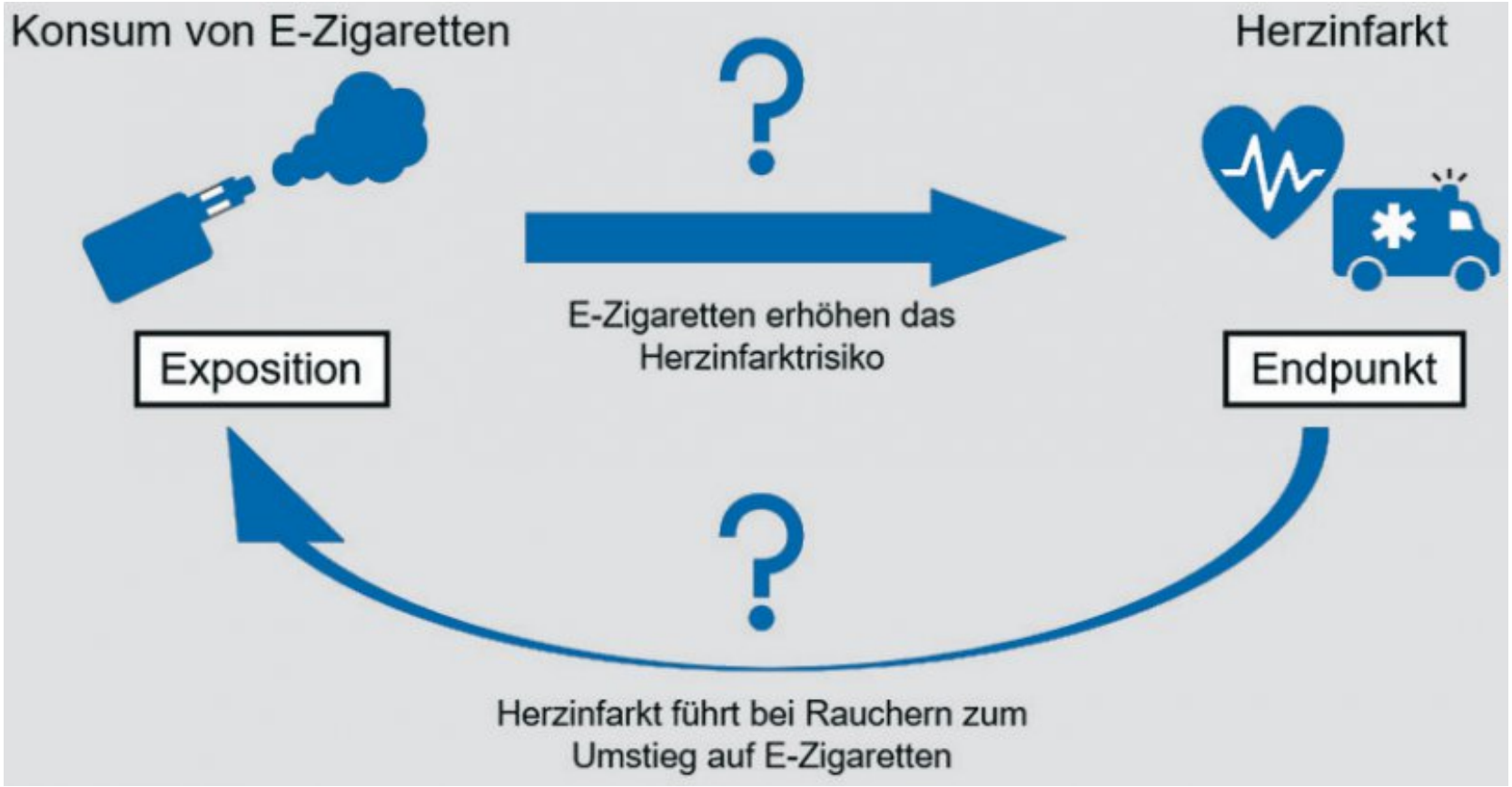
A systematic review of NVPs found a positive association between vaping and quitting smoking, but noted that the quality of the evidence was low [4]. Most recently, a large pragmatic multi-centre randomized controlled trial reported an 80% increase in successful quitting, with patients using NVPs over standard nicotine-replacement therapy [5]. However, the rapid uptake of NVPs among young people in some countries has raised concerns that the potential benefits of NVPs for smokers seeking to quit may be offset by adverse impacts on youth. In the United States the prevalence of youth vaping in the past 30 days

Results Meta-analysis of 11 studies showed a significant longitudinal association between vaping and smoking [adjusted odds ratio (aOR) = 2.93, 95% confidence interval (CI) = 2.22, 3.87]. Studies with sample sizes < 1000 had a significantly higher odds ratio (OR = 6.68, 95% CI = 3.63, 12.31) than studies with sample sizes > 1000 (OR = 2.49, 95% CI = 1.97, 3.15). Overall, the attrition rate was very high (median = 30%). All but one study reported results from complete sample analysis, despite those dropping out having higher risk profiles. Only two studies comprehensively adjusted for confounding. The median E-value was 2.90, indicating that the estimates were not robust against unmeasured confounding.

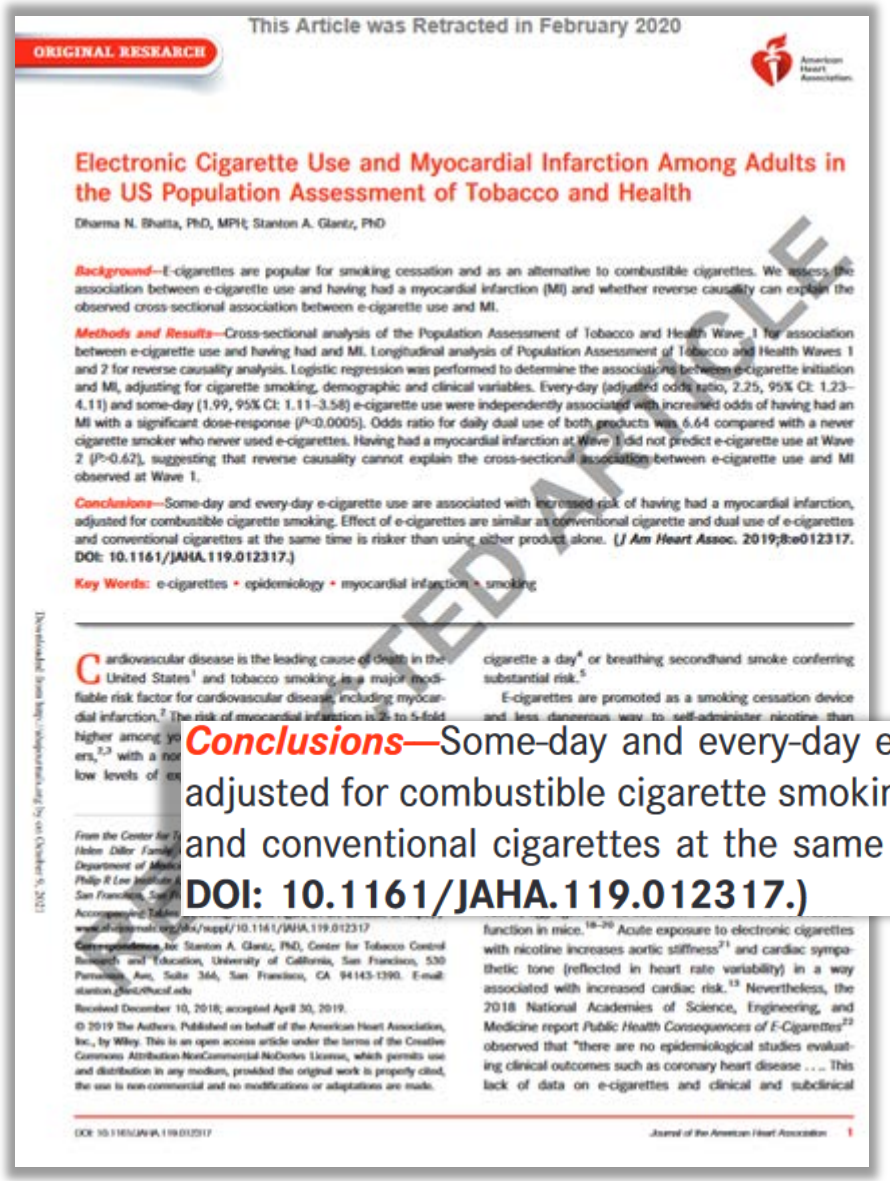
Conclusions There is a longitudinal association between adolescent vaping and smoking initiation; however, the evidence is limited by publication bias, high sample attrition and inadequate adjustment for potential confounders.

Methodische Mängel im Studiendesign

Studien zu E-Zigaretten und Gesundheitsrisiken



Beispiel Herzinfarkt-Studie



This Article was Retracted in February 2020

ORIGINAL RESEARCH

Electronic Cigarette Use and Myocardial Infarction Among Adults in the US Population Assessment of Tobacco and Health

Dharma N. Bhatta, PhD, MPH; Stanton A. Glantz, PhD

Background—E-cigarettes are popular for smoking cessation and as an alternative to combustible cigarettes. We assess the association between e-cigarette use and having had a myocardial infarction (MI) and whether reverse causality can explain the observed cross-sectional association between e-cigarette use and MI.

Methods and Results—Cross-sectional analysis of the Population Assessment of Tobacco and Health Wave 1 for association between e-cigarette use and having had and MI. Longitudinal analysis of Population Assessment of Tobacco and Health Waves 1 and 2 for reverse causality analysis. Logistic regression was performed to determine the associations between e-cigarette initiation and MI, adjusting for cigarette smoking, demographic and clinical variables. Every-day (adjusted odds ratio, 2.25, 95% CI: 1.23–4.11) and some-day (1.99, 95% CI: 1.11–3.58) e-cigarette use were independently associated with increased odds of having had an MI with a significant dose-response ($P<0.0005$). Odds ratio for daily dual use of both products was 6.64 compared with a never cigarette smoker who never used e-cigarettes. Having had a myocardial infarction at Wave 1 did not predict e-cigarette use at Wave 2 ($P>0.62$), suggesting that reverse causality cannot explain the cross-sectional association between e-cigarette use and MI observed at Wave 1.

Conclusions—Some-day and every-day e-cigarette use are associated with increased risk of having had a myocardial infarction, adjusted for combustible cigarette smoking. Effect of e-cigarettes are similar as conventional cigarette and dual use of e-cigarettes and conventional cigarettes at the same time is risker than using either product alone. **(*J Am Heart Assoc*. 2019;8:e012317. DOI: 10.1161/JAHA.119.012317.)**

Key Words: e-cigarettes • epidemiology • myocardial infarction • smoking

Cardiovascular disease is the leading cause of death in the United States[1] and tobacco smoking is a major modifiable risk factor for cardiovascular disease, including myocardial infarction.[2] The risk of myocardial infarction is 2- to 5-fold higher among yo… ers,[2,3] with a no… low levels of ex… cigarette a day[4] or breathing secondhand smoke conferring substantial risk.[5]

E-cigarettes are promoted as a smoking cessation device and less dangerous way to self-administer nicotine than … function in mice.[18–20] Acute exposure to electronic cigarettes with nicotine increases aortic stiffness[21] and cardiac sympathetic tone (reflected in heart rate variability) in a way associated with increased cardiac risk.[13] Nevertheless, the 2018 National Academies of Science, Engineering, and Medicine report *Public Health Consequences of E-Cigarettes*[22] observed that "there are no epidemiological studies evaluating clinical outcomes such as coronary heart disease . . .. This lack of data on e-cigarettes and clinical and subclinical

From the Center for T… Helen Diller Family … Department of Medi… Philip R Lee Institute … San Francisco, San F…

Accompanying Tab… www.ahajournals.org/doi/suppl/10.1161/JAHA.119.012317

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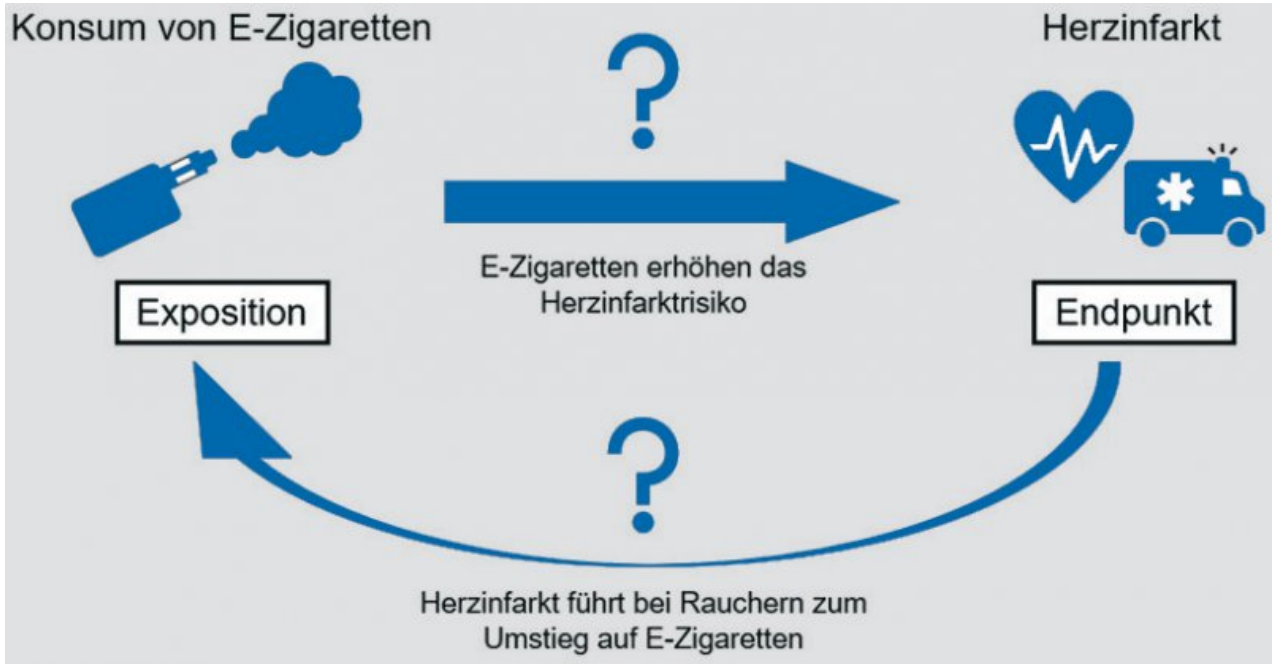

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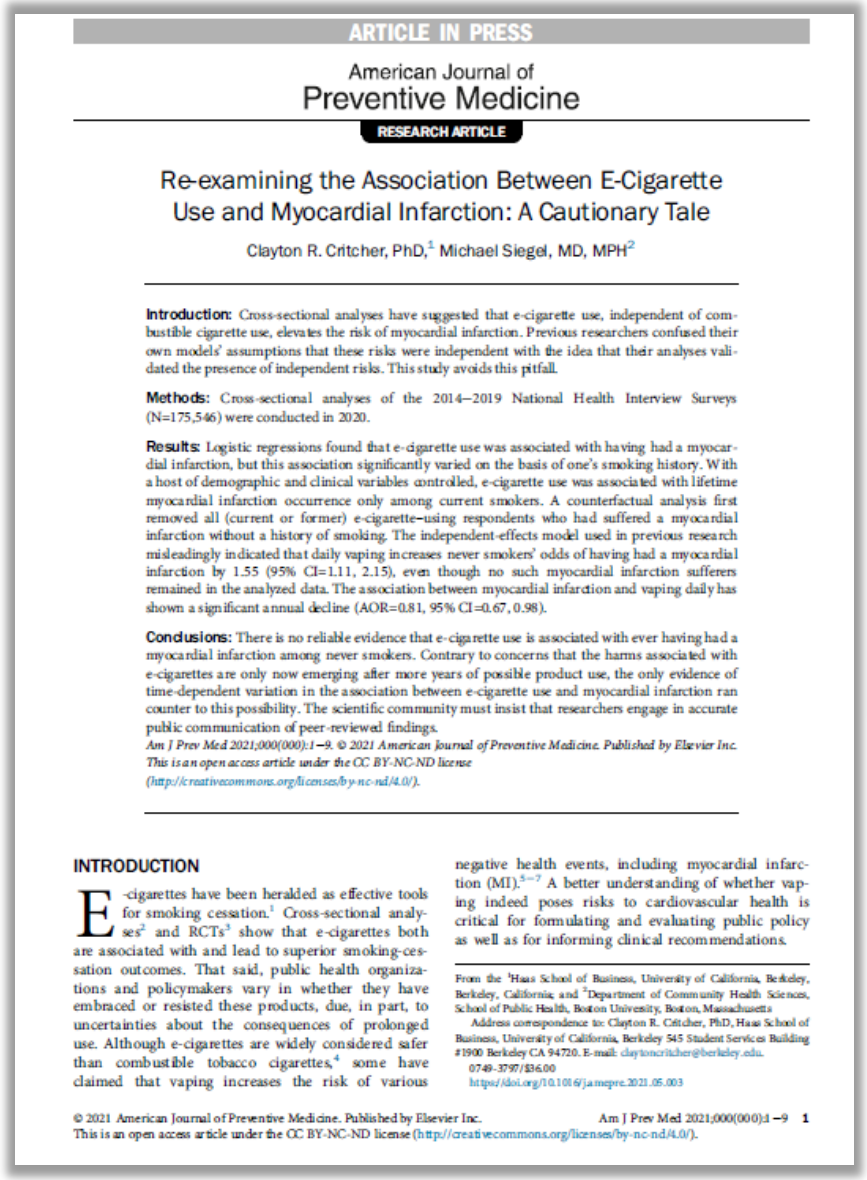
Beispiel Herzinfarkt-Studie



ARTICLE IN PRESS

American Journal of
Preventive Medicine

RESEARCH ARTICLE

Re-examining the Association Between E-Cigarette Use and Myocardial Infarction: A Cautionary Tale

Clayton R. Critcher, PhD,[1] Michael Siegel, MD, MPH[2]

Introduction: Cross-sectional analyses have suggested that e-cigarette use, independent of combustible cigarette use, elevates the risk of myocardial infarction. Previous researchers confused their own models' assumptions that these risks were independent with the idea that their analyses validated the presence of independent risks. This study avoids this pitfall.

Methods: Cross-sectional analyses of the 2014–2019 National Health Interview Surveys (N=175,546) were conducted in 2020.

Results: Logistic regressions found that e-cigarette use was associated with having had a myocardial infarction, but this association significantly varied on the basis of one's smoking history. With a host of demographic and clinical variables controlled, e-cigarette use was associated with lifetime myocardial infarction occurrence only among current smokers. A counterfactual analysis first removed all (current or former) e-cigarette–using respondents who had suffered a myocardial infarction without a history of smoking. The independent-effects model used in previous research misleadingly indicated that daily vaping increases never smokers' odds of having had a myocardial infarction by 1.55 (95% CI=1.11, 2.15), even though no such myocardial infarction sufferers remained in the analyzed data. The association between myocardial infarction and vaping daily has shown a significant annual decline (AOR=0.81, 95% CI=0.67, 0.98).

Conclusions: There is no reliable evidence that e-cigarette use is associated with ever having had a myocardial infarction among never smokers. Contrary to concerns that the harms associated with e-cigarettes are only now emerging after more years of possible product use, the only evidence of time-dependent variation in the association between e-cigarette use and myocardial infarction ran counter to this possibility. The scientific community must insist that researchers engage in accurate public communication of peer-reviewed findings.

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INTRODUCTION

E-cigarettes have been heralded as effective tools for smoking cessation.[1] Cross-sectional analyses[2] and RCTs[3] show that e-cigarettes both are associated with and lead to superior smoking-cessation outcomes. That said, public health organizations and policymakers vary in whether they have embraced or resisted these products, due, in part, to uncertainties about the consequences of prolonged use. Although e-cigarettes are widely considered safer than combustible tobacco cigarettes,[4] some have claimed that vaping increases the risk of various negative health events, including myocardial infarction (MI).[5–7] A better understanding of whether vaping indeed poses risks to cardiovascular health is critical for formulating and evaluating public policy as well as for informing clinical recommendations.

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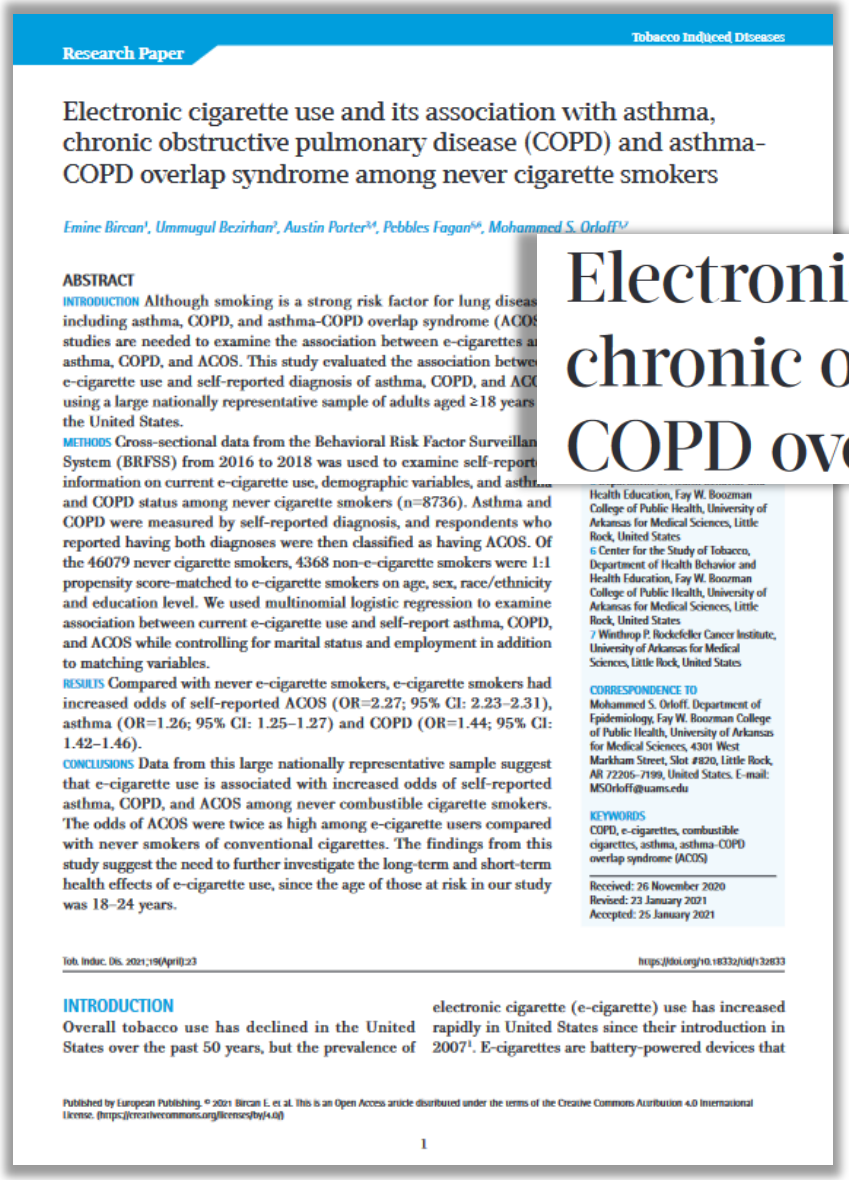
https://doi.org/10.1016/j.amepre.2021.05.003

Conclusions: There is no reliable evidence that e-cigarette use is associated with ever having had a myocardial infarction among never smokers. Contrary to concerns that the harms associated with e-cigarettes are only now emerging after more years of possible product use, the only evidence of time-dependent variation in the association between e-cigarette use and myocardial infarction ran counter to this possibility. The scientific community must insist that researchers engage in accurate public communication of peer-reviewed findings.

Beispiel COPD-Studie



Tobacco Induced Diseases

Research Paper

Electronic cigarette use and its association with asthma, chronic obstructive pulmonary disease (COPD) and asthma-COPD overlap syndrome among never cigarette smokers

Emine Bircan[1], Ummugul Bezirhan[2], Austin Porter[3,4], Pebbles Fagan[5,6], Mohammed S. Orloff[7]*

ABSTRACT

INTRODUCTION Although smoking is a strong risk factor for lung diseas
including asthma, COPD, and asthma-COPD overlap syndrome (ACOS
studies are needed to examine the association between e-cigarettes a
asthma, COPD, and ACOS. This study evaluated the association betwe
e-cigarette use and self-reported diagnosis of asthma, COPD, and AC
using a large nationally representative sample of adults aged ≥18 years
the United States.

METHODS Cross-sectional data from the Behavioral Risk Factor Surveillan
System (BRFSS) from 2016 to 2018 was used to examine self-report
information on current e-cigarette use, demographic variables, and asth
and COPD status among never cigarette smokers (n=8736). Asthma and
COPD were measured by self-reported diagnosis, and respondents who
reported having both diagnoses were then classified as having ACOS. Of
the 46079 never cigarette smokers, 4368 non-e-cigarette smokers were 1:1
propensity score-matched to e-cigarette smokers on age, sex, race/ethnicity
and education level. We used multinomial logistic regression to examine
association between current e-cigarette use and self-report asthma, COPD,
and ACOS while controlling for marital status and employment in addition
to matching variables.

RESULTS Compared with never e-cigarette smokers, e-cigarette smokers had
increased odds of self-reported ACOS (OR=2.27; 95% CI: 2.23–2.31),
asthma (OR=1.26; 95% CI: 1.25–1.27) and COPD (OR=1.44; 95% CI:
1.42–1.46).

CONCLUSIONS Data from this large nationally representative sample suggest
that e-cigarette use is associated with increased odds of self-reported
asthma, COPD, and ACOS among never combustible cigarette smokers.
The odds of ACOS were twice as high among e-cigarette users compared
with never smokers of conventional cigarettes. The findings from this
study suggest the need to further investigate the long-term and short-term
health effects of e-cigarette use, since the age of those at risk in our study
was 18–24 years.

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KEYWORDS
COPD, e-cigarettes, combustible cigarettes, asthma, asthma-COPD overlap syndrome (ACOS)

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INTRODUCTION

Overall tobacco use has declined in the United States over the past 50 years, but the prevalence of electronic cigarette (e-cigarette) use has increased rapidly in United States since their introduction in 2007[1]. E-cigarettes are battery-powered devices that

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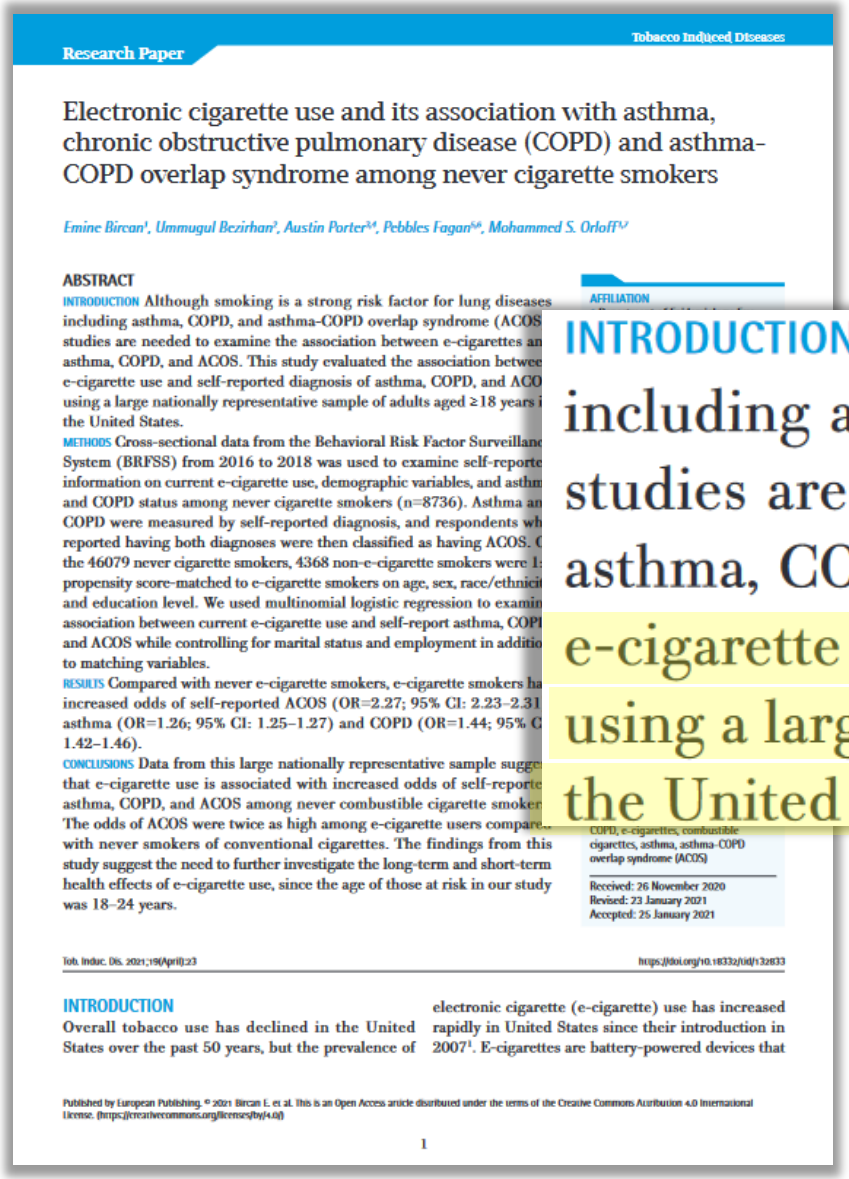
Beispiel COPD-Studie



Research Paper

Tobacco Induced Diseases

Electronic cigarette use and its association with asthma, chronic obstructive pulmonary disease (COPD) and asthma-COPD overlap syndrome among never cigarette smokers

Emine Bircan[1], Ummugul Bezirhan[2], Austin Porter[3,4], Pebbles Fagan[5,6], Mohammed S. Orloff[1,7]

ABSTRACT

INTRODUCTION Although smoking is a strong risk factor for lung diseases including asthma, COPD, and asthma-COPD overlap syndrome (ACOS studies are needed to examine the association between e-cigarettes an asthma, COPD, and ACOS. This study evaluated the association betwee e-cigarette use and self-reported diagnosis of asthma, COPD, and ACO using a large nationally representative sample of adults aged ≥18 years i the United States.

METHODS Cross-sectional data from the Behavioral Risk Factor Surveillanc System (BRFSS) from 2016 to 2018 was used to examine self-reporte information on current e-cigarette use, demographic variables, and asthm and COPD status among never cigarette smokers (n=8736). Asthma an COPD were measured by self-reported diagnosis, and respondents wh reported having both diagnoses were then classified as having ACOS. C the 46079 never cigarette smokers, 4368 non-e-cigarette smokers were 1: propensity score-matched to e-cigarette smokers on age, sex, race/ethnici and education level. We used multinomial logistic regression to examin association between current e-cigarette use and self-report asthma, COP and ACOS while controlling for marital status and employment in additio to matching variables.

RESULTS Compared with never e-cigarette smokers, e-cigarette smokers ha increased odds of self-reported ACOS (OR=2.27; 95% CI: 2.23–2.31 asthma (OR=1.26; 95% CI: 1.25–1.27) and COPD (OR=1.44; 95% C 1.42–1.46).

CONCLUSIONS Data from this large nationally representative sample sugge that e-cigarette use is associated with increased odds of self-reporte asthma, COPD, and ACOS among never combustible cigarette smoker The odds of ACOS were twice as high among e-cigarette users compare with never smokers of conventional cigarettes. The findings from this study suggest the need to further investigate the long-term and short-term health effects of e-cigarette use, since the age of those at risk in our study was 18–24 years.

AFFILIATION

COPD, e-cigarettes, combustible cigarettes, asthma, asthma-COPD overlap syndrome (ACOS)

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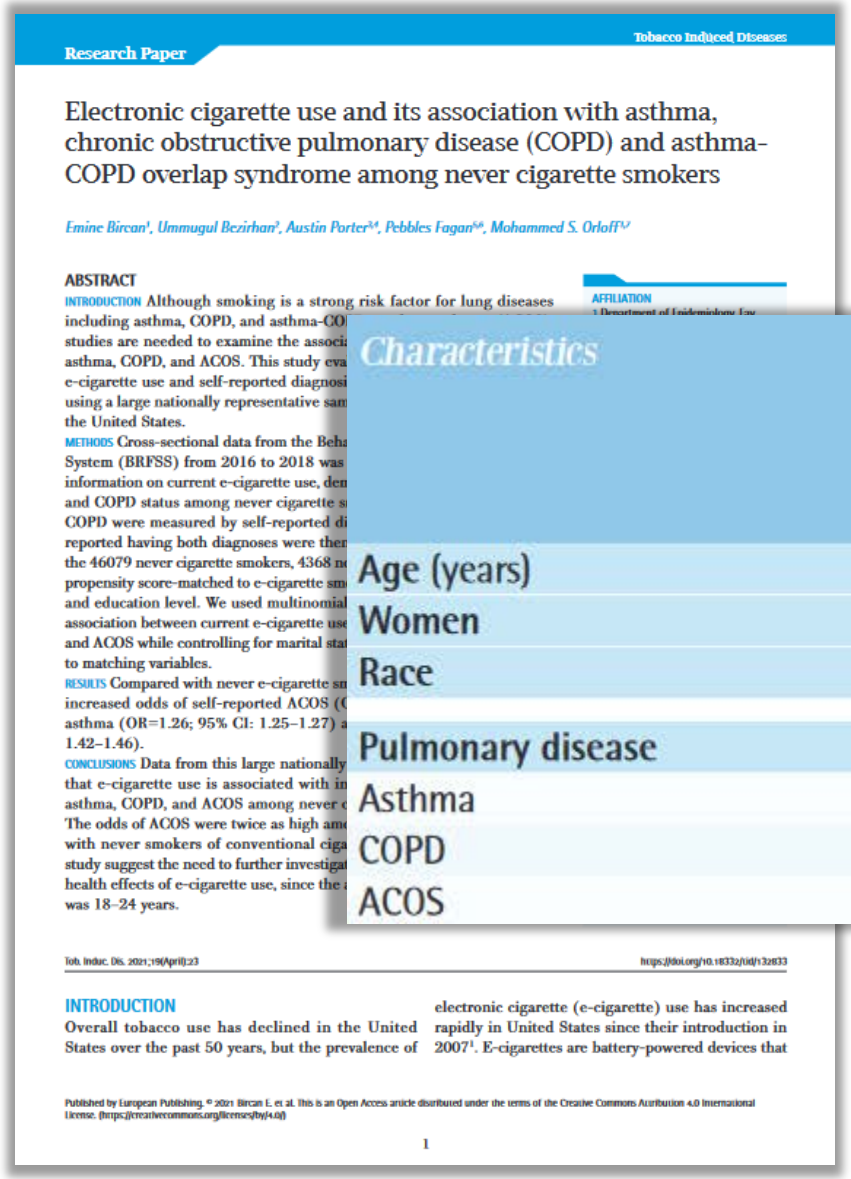

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1 Department of Epidemiology, Law

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Characteristics	E-cigarette use status		p
	Smokers (N=4368) n (%)	Never smokers (N=4368) n (%)	
Age (years)	18–24	18–24	-
Women	1504 (34.40)	1504 (34.40)	-
Race			-
Pulmonary disease			<0.001
Asthma	430 (9.80)	314 (7.20)	
COPD	90 (2.10)	58 (1.30)	
ACOS	66 (1.50)	31 (0.70)	

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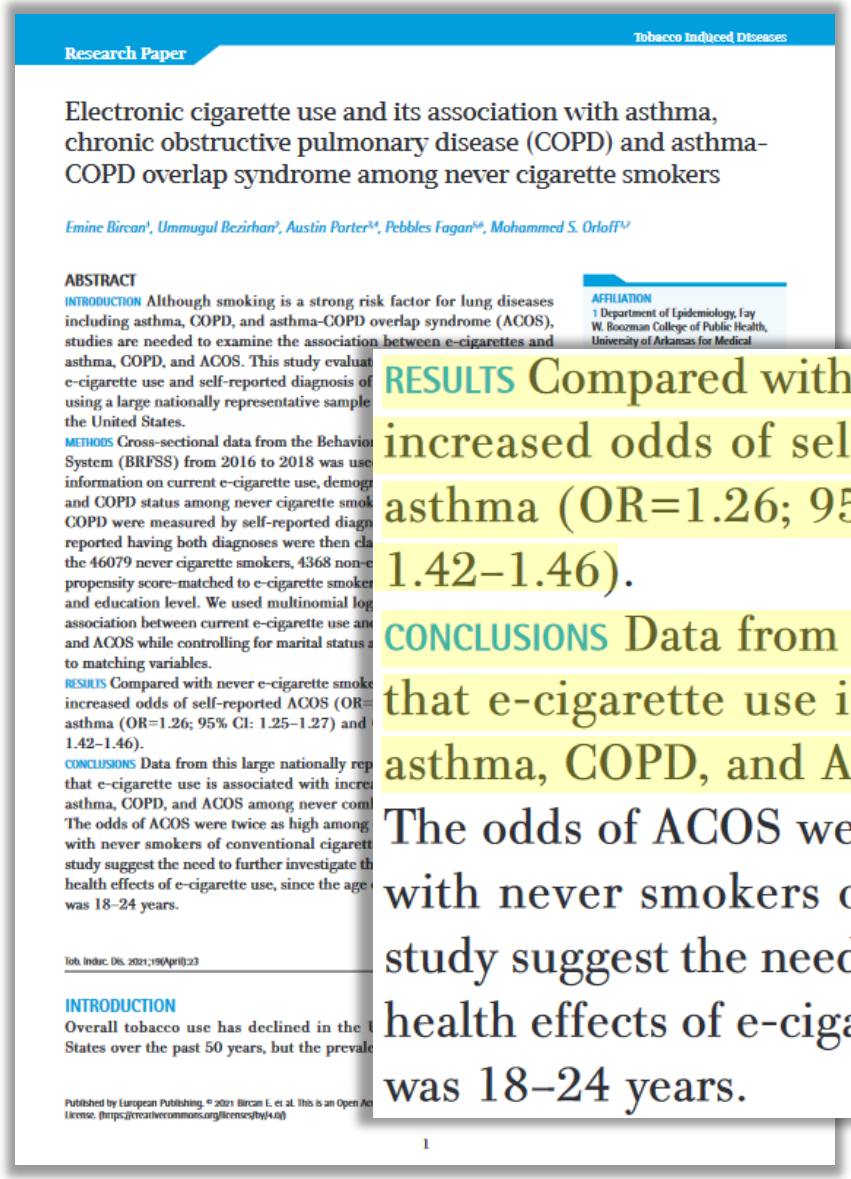

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Strukturelle Ursachen und Verbesserungsvorschläge

Vorschläge zur Förderung einer besseren wissenschaftlichen Praxis

Es braucht eine bessere Ausbildung

Problem: In der wissenschaftlichen Lehre und Ausbildung wird (wenn überhaupt…) wissenschaftliches Arbeiten vermittelt, aber nicht notwendigerweise gute wissenschaftliche Praxis

Lösung: Gute wissenschaftliche Praxis muss in der wissenschaftlichen Lehre/Ausbildung vermittelt und konsequent bei Forschungsprojekten/Abschlussarbeiten eingefordert werden

Vorschläge zur Förderung einer besseren wissenschaftlichen Praxis

Es braucht bessere Evaluations-Metriken und einen Abbau verzerrter Anreizsysteme

Problem: Aktuelles Wissenschaftssystem honoriert hohe Zahl an Publikationen („publish or perish“) und Publikation in renommierten Fachzeitschriften, die bevorzugt Publikationen mit hohem Neuigkeitswert publizieren → Sorgfalt bleibt auf der Strecke, auch zweifelhafte Ergebnisse werden veröffentlicht

Lösung: Evaluations-Metriken sollten Qualität und/oder Impact von Publikationen honorieren statt Quantität (Bsp. Top10-Angabe bei DFG-Anträgen, Berücksichtigung der tatsächlichen Zitationen statt Journal Impact Factor…)

Vorschläge zur Förderung einer besseren wissenschaftlichen Praxis

Es braucht bessere Mechanismen der Selbstkontrolle

Problem: Intransparente (einseitig verblindete) Begutachtungssysteme begünstigen verzerrte Publikations-Entscheidungen

Lösung: Unverblindete und offene Begutachtungssysteme mit Veröffentlichung sämtlicher Gutachten und Autorenrepliken erhöhen Transparenz des Peer-Review-Systems und ermöglichen kritische Überprüfung

Vorschläge zur Förderung einer besseren wissenschaftlichen Praxis

Es braucht offenere und transparentere Wissenschaft

Problem: Auswertungsfehler, unwissenschaftliche Praktiken wie p-hacking und HARKing sowie Betrug sind im Rahmen des Peer Review schwer zu erkennen

Lösung: „Open Science“-Praxis, in deren Rahmen Analyseprotokolle vor Durchführung der Studie registriert werden und Daten und Analyseskripte öffentlich zugänglich gemacht werden, erschweren Betrug und unwissenschaftliche Praktiken und ermöglichen Identifikation von Fehlern

Umfassendes Verständnis von Interessenskonflikten und Einforderung von Transparenz notwendig

Abschließende Überlegungen

- Fragwürdige Studien schaden der Glaubwürdigkeit der Tabakkontrolle → Zweck heiligt nicht die Mittel
- Wir bleiben alle mal hinter dem wissenschaftlichen Anspruch zurück → Gute Wissenschaft erfordert ein ständiges Hinterfragen der eigenen Arbeit und der Arbeit anderer ➔ wissenschaftliche Selbstkontrolle
- Studienlage entwickelt sich stetig weiter → regelmäßige ergebnis-offene Neubewertung unter Berücksichtigung der Studienqualität erforderlich
- Alle Akteure im Wissenschaftssystem (Drittmittelgeber, Hochschulen, Fachzeitschriften, Lehrende, Forschende…) sind aufgefordert, zur Umsetzung struktureller Änderungen beizutragen:
  - Bessere Ausbildung
  - Bessere Evaluations-Metriken und Abbau verzerrter Anreizsysteme
  - Bessere Mechanismen der Selbstkontrolle
  - Offenere und transparentere Wissenschaft

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Prof. Doug Altman
1948-2018

„We need less research, better research and research done for the right reasons.“