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Does viewing false messages about e-cigarette harms on Twitter change current smokers' perceptions of e-cigarettes in the US and the UK? A randomised controlled experiment

Submission date
05/06/2020

Recruitment status
No longer recruiting

Registration date
09/06/2020

Overall study status
Completed

Last Edited
19/07/2023

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
There is lots of information about e-cigarettes online, especially on social media. This type of information may be hindering efforts to reduce tobacco smoking and in turn result in more cases of cancer. Researchers would like to find out how information about e-cigarettes impacts on people's attitudes towards using e-cigarettes. They have created a questionnaire designed to find out what people think about e-cigarettes after seeing different types of information about e-cigarettes.

Who can participate?
Current smokers aged 18 years or older, living in the US or the UK who do not currently use e-cigarettes or a vaping device.

What does the study involve?
Participants are asked to complete an online questionnaire about e-cigarette use. Participants are then shown some information related to the health impacts of e-cigarettes on separate screens. Following the information messages, they are then asked to complete a second questionnaire about e-cigarette use.

What are the possible benefits and risks of participating?
There are no risks associated with taking part in this study. The researchers added a debrief summary of the latest evidence relating to the relative/absolute harms of e-cigarettes and also provided a link to stopping smoking services in their region. The results from this study will help researchers to better understand how information impacts on people's beliefs about e-cigarettes /vapes, which in turn could help with smoking cessation programmes and reduce cancer.

Where is the study run from?
University of Bristol (UK)

When is the study starting and how long is it expected to run for?
March 2019 to December 2019

Who is funding the study?
Cancer Research UK

Who is the main contact?
Dr Caroline Wright
caroline.wright@bristol.ac.uk

Contact information

Type(s)
Scientific

Contact name
Dr Caroline Wright

ORCID ID
https://orcid.org/0000-0002-4321-4872

Contact details
Population Health Sciences
Bristol Medical School
University of Bristol
BF4, Barley House
Oakfield Grove
Bristol
United Kingdom
BS8 2BN
+44 (0)117 3314011
caroline.wright@bristol.ac.uk

Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
CRUK28664

Study information

Scientific Title
Examining prevalence, mechanism of action and effects of e-cigarette misinformation on Twitter

Study objectives

Exposure to misinformation about e-cigarette harms on Twitter among current smokers in the United States (US) and the United Kingdom (UK) will result in increased misperceptions of e-cigarette harms.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 05/08/2019, additional amendment approved 11/12/2019, further amendment approved 30/04/2020, University of Bristol Faculty of Health Sciences Research Ethics Committee (FREC, University of Bristol Faculty of Health Sciences, First Floor South, Senate House, Tyndall Avenue, Bristol, BS8 1TH, UK; +44 (0)117 331 8197, +44 (0)117 928 9089; Liam.McKervey@bristol.ac.uk), ref: 80323

Study design
Randomized controlled experiment using an online survey instrument

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Prevention of cancer through smoking cessation

Interventions
Following eligibility screening and providing informed consent, participants first complete baseline measures of study outcomes. Participants are randomized into one of four experimental conditions in a 1:1:1:1 ratio using the in-built least-fill randomiser function on the Prodege survey platform:
1. Messages that e-cigarettes are as or more harmful than regular cigarettes
2. Messages that e-cigarettes are completely harmless
3. Messages conveying uncertainty about e-cigarettes
4. Control: messages about physical activity

Participants are told they would be shown different types of health-related information and asked about their opinions about e-cigarettes. After randomization to a condition, they view one tweet at a time in random order and are asked brief questions (perceived effectiveness, liking and sharing, and their emotions) about each tweet. They next complete post-test measures of the study outcomes, current tobacco use behaviours, health information exposure and (social) media use, and socio-demographic and psychological characteristics.

Intervention Type
Behavioural

Primary outcome(s)
Measured pre-exposure (baseline) and post-exposure:
1. Smoking cessation contemplation ladder: participants provide a score reflecting their likelihood of quitting smoking from 0 (no thought of quitting) to 10 (taking action to quit)
2. Risk perceptions of combustible tobacco: participants were asked to give a score reflecting

the likelihood that smoking combustible tobacco will result in lung cancer, heart disease, mouth or throat cancer, chronic obstructive pulmonary disorder (COPD) and stroke from 1 (extremely unlikely) to 5 (extremely likely)
3. Risk perceptions of electronic cigarettes: participants were asked to give a score reflecting the likelihood that smoking combustible tobacco will result in lung cancer, heart disease, mouth or throat cancer, chronic obstructive pulmonary disorder (COPD) and stroke from 1 (extremely unlikely) to 5 (extremely likely)
4. Perceived relative harm of e-cigarettes compared to smoking regular cigarettes: participants were asked: Compared to smoking regular cigarettes, would you say that e-cigarettes/vapes are much less harmful (1) - much more harmful (5).
5. Intentions to purchase electronic cigarettes in the next month: How probable is it that you will purchase an e-cigarette/vape in the next month? 0 (no chance) to 10 (certain)
6. Knowledge about electronic cigarettes: participants' given statement about e-cigarettes e.g. E-cigarettes do not contain any of the toxic chemicals that can be found in regular cigarettes and asked if the statement is (1) true, (20) false, or (3) don't know.

Key secondary outcome(s))

1. Perceived effectiveness of exposure condition: participants' were asked after viewing each exposure to rate how much they disagree or agree with the following statements about the message they just saw: this message is worth remembering, this message grabbed my attention, this message is powerful, this message is informative, this message is meaningful to me, this message is convincing.
2. Intentions to reply/retweet/like/share message (Tweets): participants were asked after each exposure are you likely to reply/retweet/like/share this message.
3. Emotional responses to exposure condition: participants were asked after each exposure: when thinking about e-cigarettes, does the message you just saw make you feel: scared, hopeful, worried, happy, angry, relieved
4. Self-efficacy to quit smoking, participants were asked at the end of the questionnaire: How confident are you that you can quit using tobacco? Not at all confident, Not very confident, Somewhat confident, Confident, Very confident & Completely confident
5. Prior exposure to e-cigarette misinformation, participants were asked at the end of the questionnaire
6. Level of trust for information on e-cigarettes: participants were asked at the end of the questionnaire
7. Exposure to conflicting information about e-cigarettes: participants were asked at the end of the questionnaire
8. Information seeking about e-cigarettes: participants were asked at the end of the questionnaire
9. Perceived addictiveness of cigarettes and e-cigarettes: participants were asked at the end of the questionnaire
10. Social media and internet use: participants were asked at the end of the questionnaire
11. Self-identity; participants were asked: How much do you agree or disagree with each of the following statements: I am very sensitive to criticism by others. Answers: strongly disagree (1) - strongly agree (5). Measured once, post-exposure.
12. Epistemic beliefs about facts and science: participants' were asked a series of questions about their intuition, need to see evidence and beliefs about how truth/facts and power/politics interact. Measured once, post-exposure.

Completion date

05/12/2019

Eligibility

Key inclusion criteria
1. Participants' must be current smokers
2. Aged 18 years or older
3. Living in either the US or UK
4. Who are not currently using e-cigarettes or a vaping device

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
2400

Key exclusion criteria
1. Not aged 18 years or older
2. Did not live in either the US or UK
3. Were not current smokers
4. Were currently using e-cigarettes or vaping device

Date of first enrolment
08/11/2019

Date of final enrolment
28/11/2019

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Bristol
Bristol Medical School

Barley House
Oakfield Grove
Bristol
United Kingdom
BS8 2BN

Sponsor information

Organisation
University of Bristol

ROR
https://ror.org/0524sp257

Funder(s)

Funder type
Charity

Funder Name
Cancer Research UK

Alternative Name(s)
CR_UK, Cancer Research UK - London, Cancer Research UK (CRUK), CRUK

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
Following the completion of the research and subsequent publications, instructions for accessing the data will be made available on Dr Caroline Wright's homepage on the University of Bristol website (and CRUK website if requested).
Requests for data will be fielded by Dr Caroline Wright (caroline.wright@bristol.ac.uk) and shared with other researchers, provided a satisfactory data-sharing agreement has been

completed by the requesting researcher. The data-sharing agreement will impose appropriate limitations on the secondary use of the data, with reference to the 'Samples and Data for Cancer Research: Template for Access Policy Development' document. The researchers also plan to upload the data to a data repository site.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/09/2021	13/09/2021	Yes	No
Results article		21/12/2021	22/12/2021	Yes	No
Results article		24/11/2022	19/07/2023	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes