

# Effects of varenicline and cognitive bias modification on responses to smoking cues

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		<input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 30/01/2014	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
<b>Last Edited</b> 18/01/2019	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Many smokers find quitting smoking extremely difficult and failure rates are high. It has been shown that cues associated with smoking (e.g., cigarette packets, smell of smoke) can lead to cigarette cravings. Also, smokers may find that their attention is drawn to smoking cues significantly more than other objects or cues in the environment. This capturing of attention by smoking-related cues is an example of what is known as a 'cognitive bias'. Cognitive biases for smoking cues may lead to increased craving for cigarettes and interfere with attempts to stop smoking. Given this link between cognitive bias and smoking, programmes aimed at reducing cognitive bias are considered promising targets for quitting smoking. Recent research indicates that it is possible to 'train' attention away from drug cues using a computer-based programme known as cognitive bias modification (CBM). Therefore in this study we propose to find out the impact of a CBM procedure on the brain's responses to smoking-related cues. Additionally, a licenced smoking cessation drug, varenicline, has also been proposed to change responses to smoking-related cues. Varenicline may therefore increase the effects of CBM on responses to smoking cues.

### Who can participate?

The study will enrol regular daily smokers (at least 10 cigarettes or 15 roll-ups per day), who smoke within one hour of waking in the morning.

### What does the study involve?

The participants will be randomly allocated to either a training group or a drug group. Participants in the drug group will be randomly allocated to receive either varenicline or a placebo (dummy) tablet. Participants in the training group will be randomly allocated to receive either CBM to induce cognitive bias away from smoking-related cues, CBM to induce cognitive bias towards smoking-related cues, or a treatment designed to induce no change in cognitive bias. They will undergo a brain scan to find out the responses to smoking-related cues and cognitive bias towards smoking-related cues. Cigarette craving and nicotine withdrawal will also be analysed.

### What are the potential benefits and risks of participation?

Information we get from this study may help us to understand and treat cigarette smokers who

have difficulty stopping in the future. The study medication (varenicline) is a licensed smoking cessation aid. It has been associated with some side effects. The more common side effects are fatigue, sleeplessness/abnormal dreams and vomiting, which may cause discomfort but are not considered dangerous or life-threatening.

Where will the study be run from?

The study will be run from Clinical Research and Imaging Centre (CRICBristol), University of Bristol, Bristol, UK.

When is the study starting and how long will it be expected to run for?

The study ran from August 2012 to February 2013.

Who is funding the study?

The study funded by Pfizer Inc. (UK).

Who is the main contact?

Dr Sally Adams

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## Contact information

**Type(s)**

Scientific

**Contact name**

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## Additional identifiers

**Protocol serial number**

UoB:1407

## Study information

**Scientific Title**

Effects of varenicline and cognitive bias modification on neural response to smoking-related cues

**Study objectives**

1. We hypothesise that experimental procedures designed to induce cognitive bias towards smoking-related cues will lead to an increase in neural response to smoking-related cues, in brain

regions previously implicated in cue reactivity in cigarette smokers.

2. We hypothesise that experimental procedures designed to induce cognitive bias away from smoking-related cues will lead to a decrease in neural response to smoking-related cues, in brain regions previously implicated in cue reactivity in cigarette smokers.

3. We hypothesise that experimental procedures designed to induce cognitive bias away from smoking-related cues will lead to a decrease in cognitive bias from pre-training to post-training.

4. We hypothesise that experimental procedures designed to induce cognitive bias towards smoking-related cues will lead to an increase in cognitive bias from pre-training to post-training.

5. We hypothesise that changes in the neural response to smoking-related cues relative to neutral cues, and changes in attentional bias, will be greatest in those trained to attend away from smoking-related cues and treated with varenicline.

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

NRES Committee Brent, London, 07/02/2012, ref: 11/LO/1726

## **Study design**

Randomised controlled trial

## **Primary study design**

Interventional

## **Study type(s)**

Treatment

## **Health condition(s) or problem(s) studied**

Smoking cessation

## **Interventions**

Participants are randomised to the training group or the drug group

### **Drug group:**

Participants would receive either varenicline or placebo in tablet form. Varenicline would be taken as 0.5 mg once daily for days 1-3, and 0.5 mg twice daily for days 4-6, and 0.5 mg once daily for day 7, consistent with standard dosing regimen for smoking cessation. All outcome measures would be assessed on day 7.

### **Training group:**

Participants are randomised to three groups:

1. An experimental condition designed to induce cognitive bias away from smoking-related cues
2. An experimental condition designed to induce cognitive bias towards smoking-related cues
3. A control condition designed to induce no change in cognitive bias

## **Intervention Type**

Drug

## **Phase**

Not Applicable

**Drug/device/biological/vaccine name(s)**

Varenicline

**Primary outcome(s)**

1. Neural responses to smoking-related cues
2. Cognitive bias

**Key secondary outcome(s)**

1. Questionnaire of Smoking Urges
2. Minnesota Nicotine Withdrawal Scale (MNWS)

**Completion date**

28/02/2013

**Eligibility****Key inclusion criteria**

1. Smokes > 10 manufactured cigarettes or > 15 roll up cigarettes per day
2. Smokes within one hour of waking
3. Aged between 18 and 40 years
4. Able to attend all of the study session
5. English as first language or equivalent level of fluency

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Female volunteers who are pregnant or breast feeding
2. Female volunteers not using adequate contraception
3. Volunteers who do not currently have a GP
4. Current or previous substance or alcohol misuse or dependence [other than nicotine]
5. Alcohol use in excess of 35 Units/week if female or 50 Units/week if male
6. Caffeine use  $\geq$  8 cups per day
7. Significant current or past psychiatric illness (Axis 1 or 2 psychiatric diagnoses) as diagnosed by a psychiatrist
8. Clinically significant abnormality including cardiology risk factors and history of arrhythmia (as assessed by self-report)
9. Ongoing use of medication (i.e. intake of any medication within 8 weeks of study, with

exception of local treatment and occasional paracetamol or non-steroidal anti-inflammatory drugs, e.g., aspirin or ibuprofen)

10. Smokers actively trying to give up smoking during the study period

11. Uncorrected visual impairment (including colour-blindness)

12. Uncorrected auditory impairment

13. Condition that makes MRI scanning unsafe (e.g. metallic implants; history of metal-working)

14. Unable to tolerate scanning environment (as established during a short anatomical MRI scan on day 0)

15. Hypersensitivity to Champix

**Date of first enrolment**

23/07/2012

**Date of final enrolment**

28/02/2013

## Locations

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

**University of Bristol**

Bristol

United Kingdom

BS8 1TU

## Sponsor information

**Organisation**

University of Bristol (UK)

**ROR**

<https://ror.org/0524sp257>

## Funder(s)

**Funder type**

Industry

**Funder Name**

Pfizer

**Alternative Name(s)**

Pfizer Inc., Pfizer Consumer Healthcare, Davis, Charles Pfizer & Company, Warner-Lambert, King Pharmaceuticals, Wyeth Pharmaceuticals, Seagen, Pfizer Inc

**Funding Body Type**

Government organisation

**Funding Body Subtype**

For-profit companies (industry)

**Location**

United States of America

**Funder Name**

University of Bristol (UK)

**Alternative Name(s)**

Universitas Bristolensis, bristoluniversity, bristoluni

**Funding Body Type**

Government organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

United Kingdom

## Results and Publications

### Individual participant data (IPD) sharing plan

#### IPD sharing plan summary

#### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	07/10/2014	18/01/2019	Yes	No
<a href="#">Protocol article</a>	protocol	07/10/2014		Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes