



## Case Study: Can't quit smoking? It might be to do with how sad you are



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<https://www.bps.org.uk/research-digest/cant-quit-smoking-it-might-be-do-how-sad-you-are>

### Article

New research from Harvard University has found that sadness, more than other emotions, could play a key role in tobacco addiction. While it's known that emotions affect behaviour and health, this study focused on how specific negative emotions like sadness might lead to increased smoking. This study aimed to investigate the specific role of sadness, compared to other emotions, in tobacco addiction and smoking cravings.'

In the first study, data from a 20 year old national survey of over 10,000 people was analysed. The results showed that sadness was the only emotion that predicted whether someone smoked, even 10 to 20 years later. This suggests a long-term connection between sadness and tobacco use.

In study 2425 smokers were randomly assigned to watch one of three film clips designed to induce sadness (from Up), disgust (from Trainspotting), or a neutral emotion (furniture making). They then wrote about personal experiences matching the emotion and rated their cigarette cravings before and after. Results: Participants exposed to sadness showed increased cigarette cravings compared to disgust and neutral groups.

In study 3760 participants watched sad or neutral videos and chose between immediate smaller cigarette puffs or delayed larger puffs to measure impatience and craving. Results : Those in the sadness condition were more impatient, preferring immediate cigarette puffs over waiting for more.

In study 4158 smokers abstained for 8 hours, then watched sad or neutral videos before smoking through a device that measured puff size, speed, and duration. Results: Smokers in the sadness condition smoked more intensely (larger, faster, longer puffs) after abstinence. Disgust tended to reduce cravings but not significantly.

In conclusion Sadness specifically increases tobacco craving, impatience, and smoking intensity more than other negative or neutral emotions. This suggests that tobacco addiction is strongly linked to emotional states, particularly sadness, which has important implications for designing effective smoking cessation programs.

To access the full paper, please visit the article and follow the link at the very bottom: <https://www.pnas.org/doi/10.1073/pnas.1909888116>

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### Links to Specification

#### 3.2.1 Correlational research

- The use of the correlational research method in psychology including co-variables (study 1).

#### 8.1.6 Individual differences

- Biological and social factors in drug misuse can include effects dependent on differences in the individual such as personality.

#### 8.2.2 Human drug studies

- Two research methods using humans to study drugs.

#### 8.6 Issues and debates.

- Practical issues in the design and implementation of research.
- Reductionism
- Psychology as science

### Recommended revision and research activities:

1. Describe the mode of action of nicotine.
2. Describe the correlational research method.

**Challenge task:** How could the results of this study be used within society?

Compare the four studies in the 'Can't quit smoking study'. What are the similarities and the differences in how each study was carried out?

### Exam style questions\*

1. State the **two** operationalised variables from study 1 of the 'Can't quit smoking' study. (2).
2. Explain **one** weakness of using a correlational research method for study 1 of the 'Can't quit smoking' study. (2).
3. Explain **two** strengths of the 'Can't quit smoking' study' (4)

[\(Click here to view Model Response sections\)](#)

### Additional questions for which the content of the article can be used as part of a response

Evaluate **one** learning explanation of nicotine addiction. (8).

Assess reductionism in the explanation of behaviour. (8).

\*Exam style questions are not necessarily the exact format of those that will appear in the qualification examination papers but are written to elicit student responses that meet the assessment criteria, which are exemplified by the answers provided. The length of response in the answers is not indicative of expected student responses, and are provided to support centre teaching, student practice and self-assessment.





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### Exam style questions:

1. State the **two** variables from study 1 of the 'Can't quit smoking' study. (2).

*Smoking status, measured as whether the participants currently did or did not smoke and sadness measured on a 5-point Likert scale, the higher the score the sadder the participants.*

2. Explain **one** weakness of using a correlational research method for study 1 of the 'Can't quit smoking' study. (2).

*One weakness of using a correlational research method is that it does not tell us the cause and effect between sadness and smoking, it could be that smoking causes the sadness or that sadness caused the smoking or that another factor causes both the sadness and smoking reducing the internal validity of the findings.*

3. Explain **two** strengths of the 'Can't quit smoking' study

*One strength is that study 2 had a diverse sample of 425 current smoker, with a mix of males, females and non-binary and an age range of 18 to 79 years old, which increases the generalisability of the results as the sample is representative of adult smokers in America.*

*Another strength is in study 4 there was objective data in the form of a carbon monoxide test to confirm that the participants had not smoked in the past 8 hours increasing the validity of the study due to the control of extraneous variables, as it ensures that the results were due to seeing the sad or neutral video and not due to level of craving due to when they last had a cigarette.*

#### Marks awarded and commentary

Q1. This answer gets both marks. Both variables are clearly stated and operationalised, smoking status is operationalised as do or not smoke (1) and sadness is operationalised as the Likert scale being 5 points and the higher the score the sadder the participant (1).

Q2. This answer gets both marks. It is clearly linked to details from the study so is not a generic answer. It gets the first mark for identifying it does not tell us causes and effect, with the link being the words sadness and smoking (1). It then goes on to exemplify this weakness by explaining how either could cause the other or there could be a third factor, so it gains the AO3 mark (1).

Q3. This answer gets all four marks. Both strengths have been linked to details from this study, so the answers are not generic. The first strength identified that the study had a diverse sample with a description of the sample used in study 2 (1). This is then exemplified as the answer explain why this is a strength in terms of generalisability as the sample is representative of the target population (1).

The second strength is identified as the fact that there is objective data, and what that objective data is so increasing validity (1). The answer then exemplifies this statement by explaining how it increases validity, as they know their results are due to what they were measuring and not another variable (1).





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### Additional questions for which the content of the article can be used as part of a response

1. Evaluate **one** learning explanation of nicotine addiction. (8).

The following paragraphs could form part of the answer to this question:

*AO1. One learning theory for nicotine addiction is social learning theory which states that we observe our role models behaviour, in this case smoking and will then replicate that behaviour especially if they are vicariously reinforced for it. In the case of smoking the vicarious reinforcement may come from our role model appearing to become more relaxed when the smoke or being told they look cool when they have a cigarette.*

*AO3. Social learning theory is not a complete explanation of nicotine addiction; there may be other reasons why people smoke such as their emotional state as found by Dorison et al. who found that sadness increased nicotine substance misuse in terms of craving and volume of smoking.*

2. Assess reductionism in the explanation for human behaviour. (8).

The following paragraphs could form part of the answer to this question:

*AO1. Reductionism focuses on studying single aspects and explanations of human behaviour, such as in laboratory experiments where the focus is on a clearly operationalised independent variable, such as in Dorison et al. where the dependent variable was sadness, and not other emotion was investigated in study 4.*

*AO3. However, an issue with reductionism is that some psychologists argue that humans are more complex than single aspects, and it a combination of several factors together that explain human behaviour, such as when explaining nicotine addiction is may be a combination of genes such as the A1 variant, social factors such as negative life events and sadness that increases the desire to smoke. Therefore, reductionism is not a good way to explain human behaviour.*

### Level awarded and commentary

#### Evaluate one treatment for heroin addiction. (8).

The first paragraph demonstrates accurate and thorough knowledge and understanding about social learning theory in relation to nicotine addiction. (AO1) Other similarly structured paragraphs may focus on retention, imitation, replication, intrinsic and extrinsic motivation, and types of vicarious reinforcement. The second paragraph displays a well-developed, logical evaluation using the results of this study to support an alternative explanation for nicotine addiction, with a mini conclusion at the end of the paragraph (AO3). Other similarly structured paragraphs that use supporting studies, opposing studies and other alternative explanations would lead to a level 4 response overall..

#### Assess whether human behaviour is due to nature. (8).

The first paragraph show accurate knowledge and understanding of reductionism in relation to laboratory experiments as well as how the 'Can't quit smoking fits into that knowledge and understanding (A)1).Other similarly structured paragraphs could include a definition of holism, the use of theories that could apply to reductionism such as hormones, neurotransmitter and the use of theories that could apply to holism such as Freud's theory. The second paragraph displays a well-developed, logical assessment with a judgement at the end of it (AO3). Other similarly structured paragraphs focussing on arguments about how how reductionism can and cannot human behaviour that present a balanced assessment with judgements would lead to a level 4 response overall.

