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Smoking Cessation  
Leadership Center



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University of California  
San Francisco

# The Epidemiology and Treatment of Smoking in People with Mental Illness

Gemma Taylor, PhD, Reader at University of Bath, UK

September 8, 2022

# Moderator

**Catherine Bonniot**

Deputy Director

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University of California, San Francisco

A National Center of Excellence for Tobacco-  
Free Recovery

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# Disclosures

*This UCSF CME activity was planned and developed to uphold academic standards to ensure balance, independence, objectivity, and scientific rigor; adhere to requirements to protect health information under the Health Insurance Portability and Accountability Act of 1996 (HIPAA); and include a mechanism to inform learners when unapproved or unlabeled uses of therapeutic products or agents are discussed or referenced.*

*All speakers, planning committee members and reviewers have disclosed they have no relevant financial relationships to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

**Catherine Bonniot Saucedo, Anita Browning, Christine Cheng, Brian Clark, Pamela Ling, MPH, MD, Jennifer Matekuare, Ma Krisanta Pamatmat, MPH, Jessica Safier, MA, Gemma Taylor, PhD, and Aria Yow, MA.**

# Thank you to our funders



# September: National Recovery Month



<https://www.samhsa.gov/recovery-month>

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- All participants will be in **listen only mode** and **the audio will be streaming via your computers**.
- Please **make sure your computer speakers are on** and adjust the volume accordingly.
- If you do not have speakers, please click on the link, **'Listen by Phone'** listed on the left side of your screen, for the dial-in number.
- **This webinar is being recorded** and will be available on SCLC's website, along with a PDF of the slide presentation.
- Use the **'ASK A QUESTION' box** to send questions at any time to the presenter.

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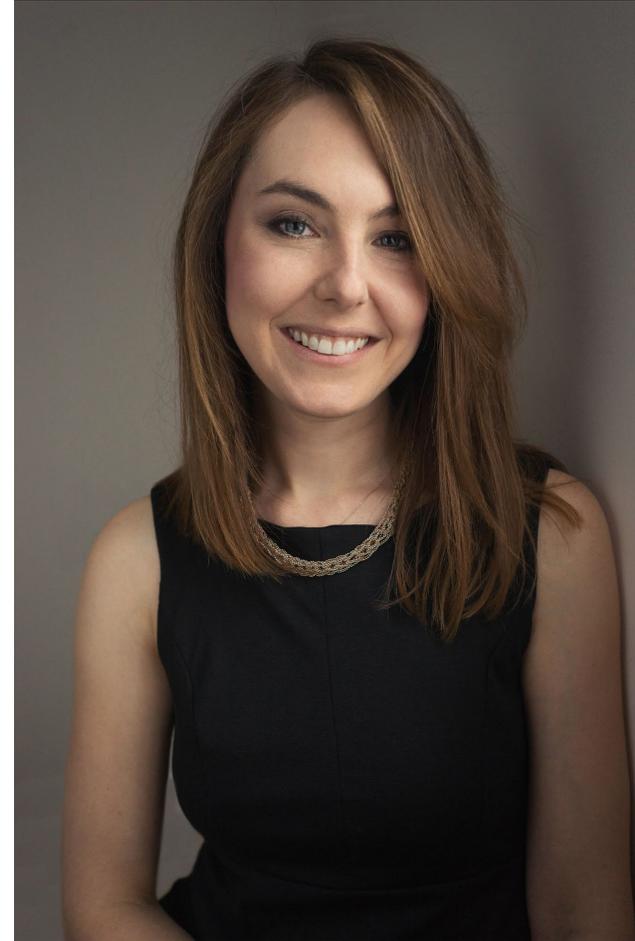
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# Today's Presenter

**Gemma Taylor, PhD**

Reader

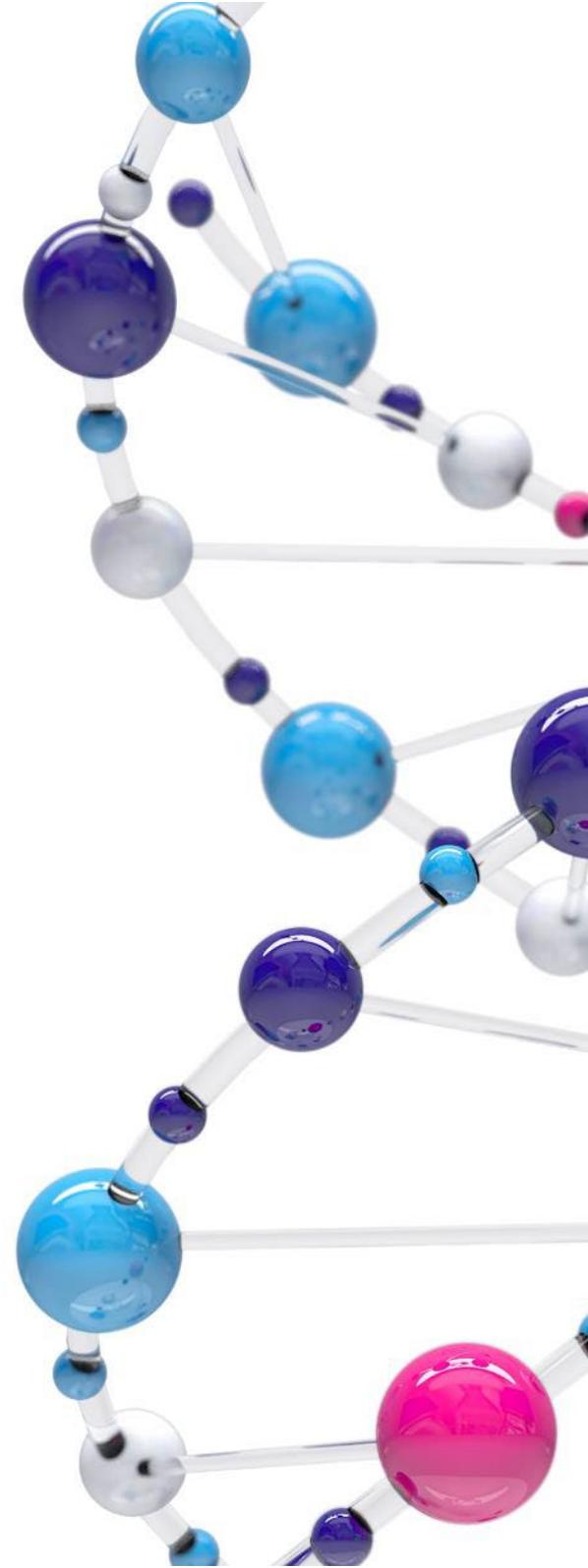
University of Bath



# THE EPIDEMIOLOGY AND TREATMENT OF SMOKING IN PEOPLE WITH MENTAL ILLNESS

DR GEMMA TAYLOR, PHD

 @GemmaMJTaylor



# DISCLOSURES AND FUNDING

- This work was partially supported by the National Institute for Health Research (NIHR), via Cochrane Infrastructure funding to the Tobacco Addiction Group.
- I receive funding from a Cancer Research UK Population Researcher Postdoctoral Fellowship award (reference: C56067/A21330) and Cancer Research UK project award (reference: PPRCPJT\100023).
- I report previous funding from Pfizer (GRAND scheme) for an unrelated project.
- I am employed by a scientific consulting company (HEOR) doing work unrelated to this project.

# OVERVIEW

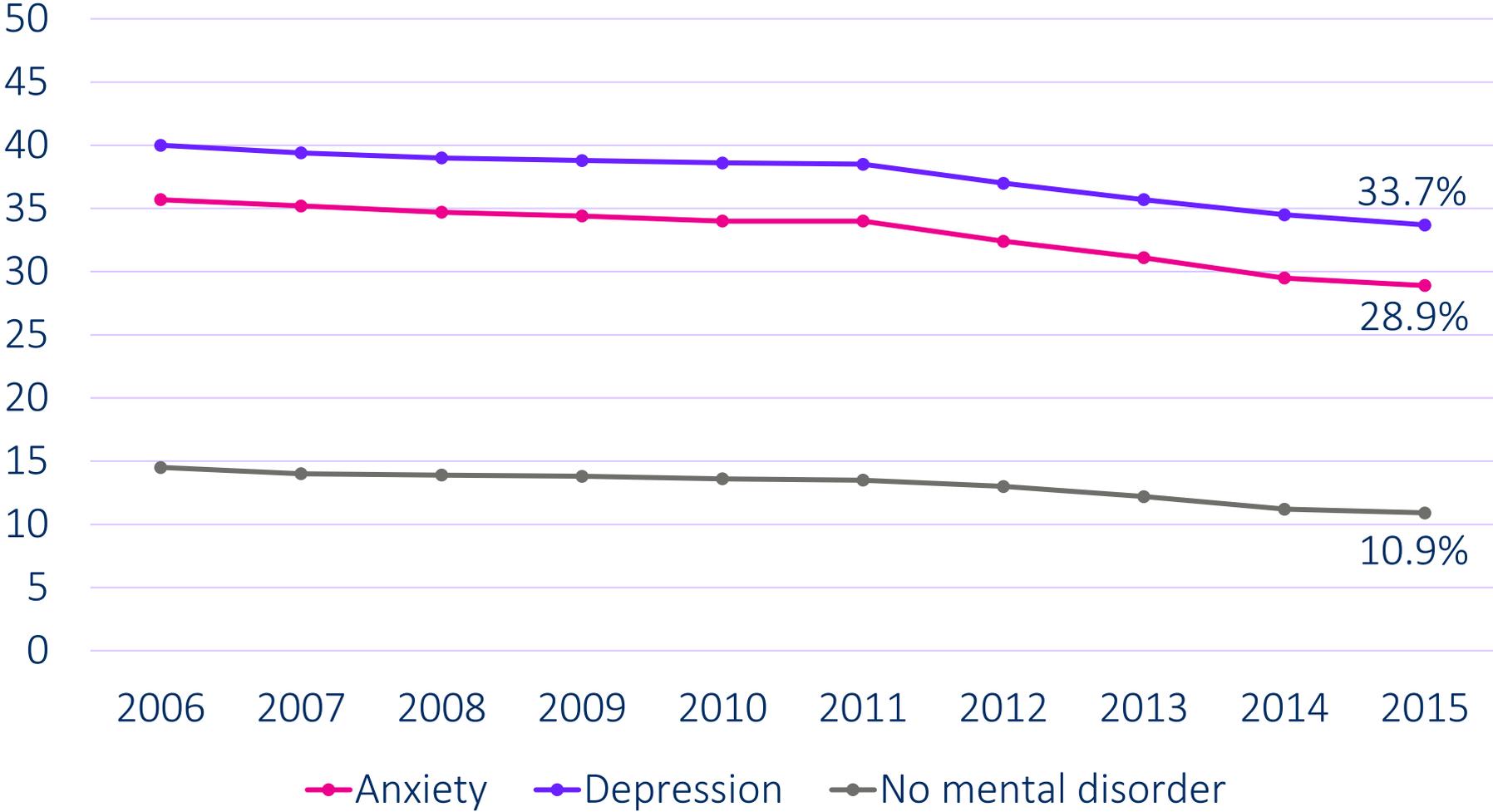
- 1) Why is this an important research area?
- 2) A Cochrane systematic review about the association between quitting smoking and mental ill-health.
- 3) The ESCAPE pilot trial – intEgrating Smoking Cessation treatment As part of usual Psychological care for dEpression and anxiety.

\*QR codes throughout – scan with phone camera!\*

*“I was signed off work with depression. I was asked if I smoked and I was encouraged not to try and quit... I was given anti-depressants instead.”*

- Smoker with depression, male, aged 37

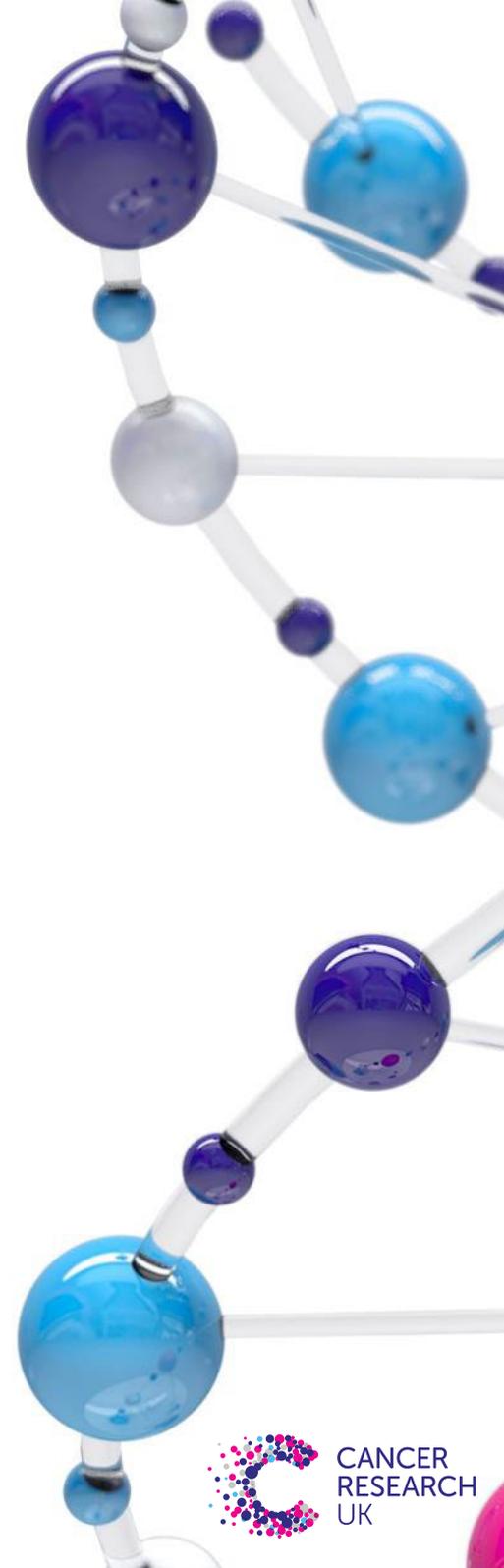
# UK SMOKING PREVALENCE IN PEOPLE WITH AND WITHOUT ANXIETY AND DEPRESSION, 2006-2015



# RATIONALE

People with mental illness:

- Smoke more, are more heavily addicted, and suffer from worse withdrawal
- Less responsive to standard treatments
- Experience a reduction in life expectancy up to 17.5 years
- They are as motivated to quit as the general population



# RATIONALE

- A common perception that smoking helps people to manage stress and may be a form of 'self-medication'.
- However, there are biologically plausible reasons why smoking may worsen mental health through neuroadaptations arising from chronic smoking, leading to frequent nicotine withdrawal symptoms (e.g., anxiety, low mood, irritability).
- Therefore, quitting smoking may help to improve rather than worsen mental health.



**Cochrane**  
**Library**

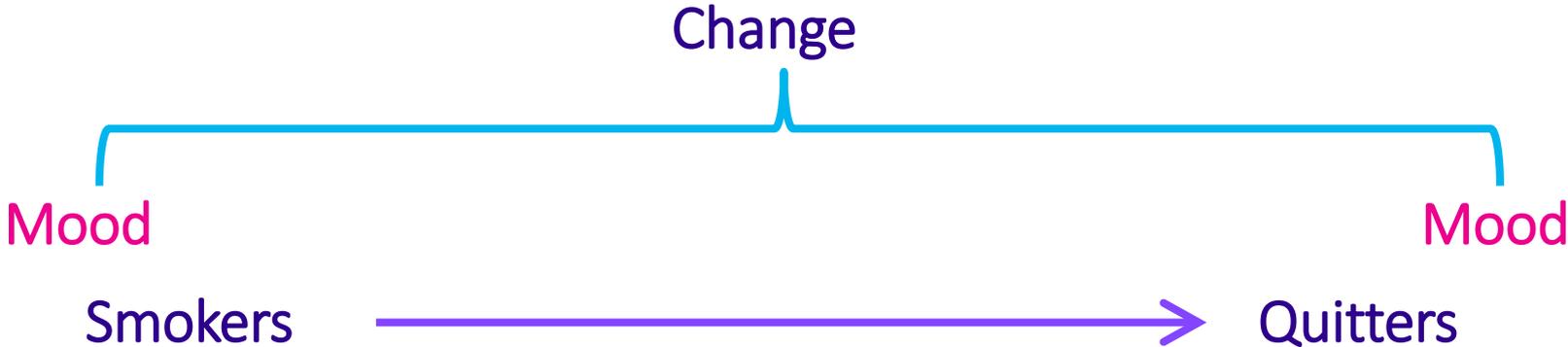
Cochrane Database of Systematic Reviews



## Smoking cessation for improving mental health (Review)

Taylor GMJ, Lindson N, Farley A, Leinberger-Jabari A, Sawyer K, te Water Naudé R, Theodoulou A, King N, Burke C, Aveyard P

# OBJECTIVES



Baseline to follow-up (6 weeks>)

# METHODS

## STUDIES:

- Controlled before-after studies
- RCTs analysed by smoking status at follow-up
- Longitudinal cohort studies
- At least 6 weeks follow-up

## PARTICIPANTS:

- Adults who smoked tobacco (using studies own definition)
- No restrictions by population type, or comorbidities

# METHODS

## EXPOSURE:

- Quitting smoking (any definition, e.g., self report, bio-validated, preference for most stringent definition)

## CONTROL:

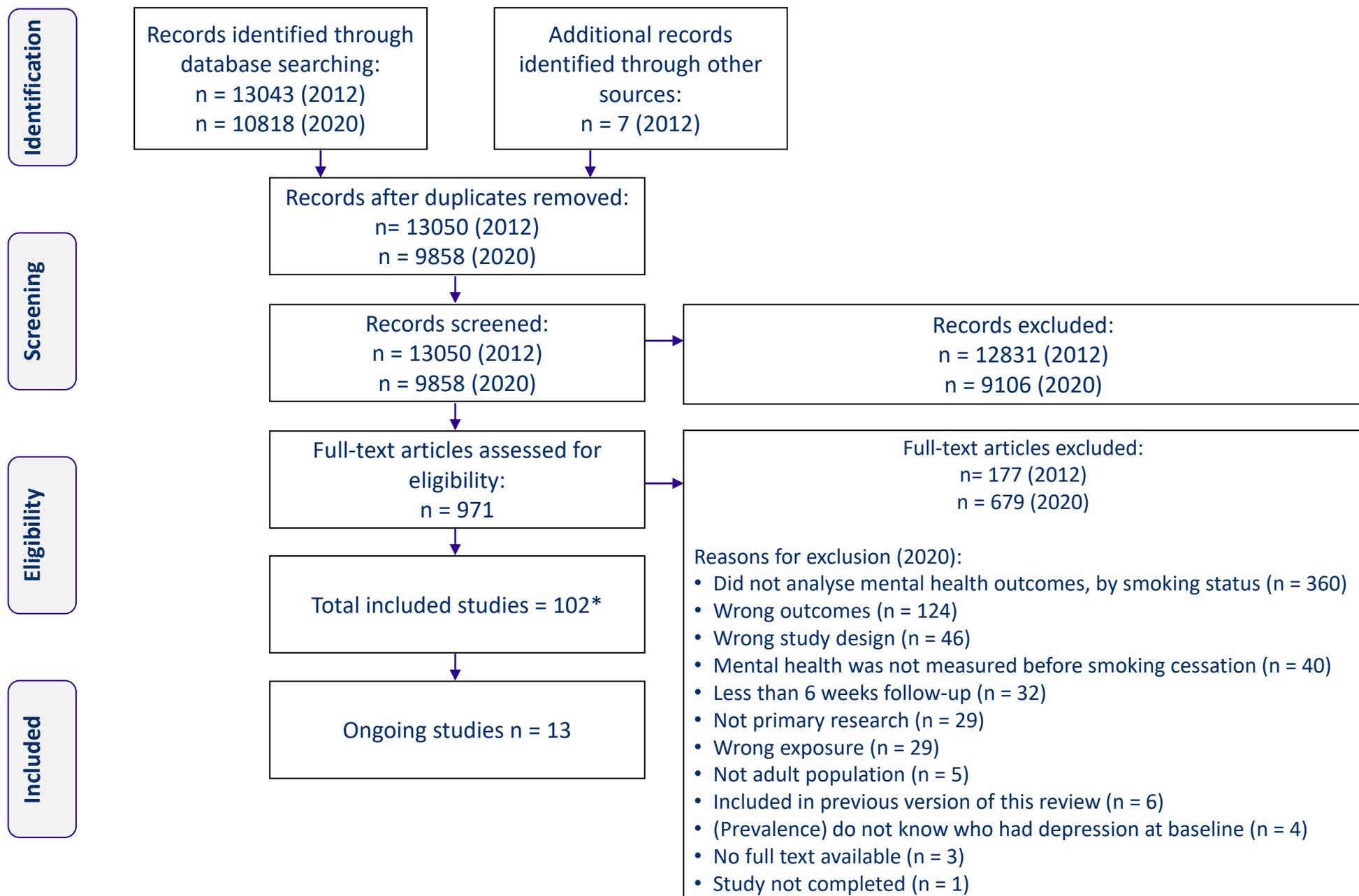
- Continued smoking



# METHODS - SEARCHES

- Updated our previous review, inception to April 12 2012 (Taylor, 2014)
- Searched April 13 2012 to January 7 2020: Cochrane tobacco addiction group register, Cochrane central register of controlled trials, Medline, Embase, PsycInfo, clinicaltrials.gov, International Clinical Trials Registry Platform
- Translated non-English studies

Figure 1. Study Flow Diagram 2020



\*40 of these studies were identified through the 2012 literature searches

# RESULTS

## Search results:

- Screened 22,908 titles and abstracts
- Read 971 full-text studies

## Included studies:

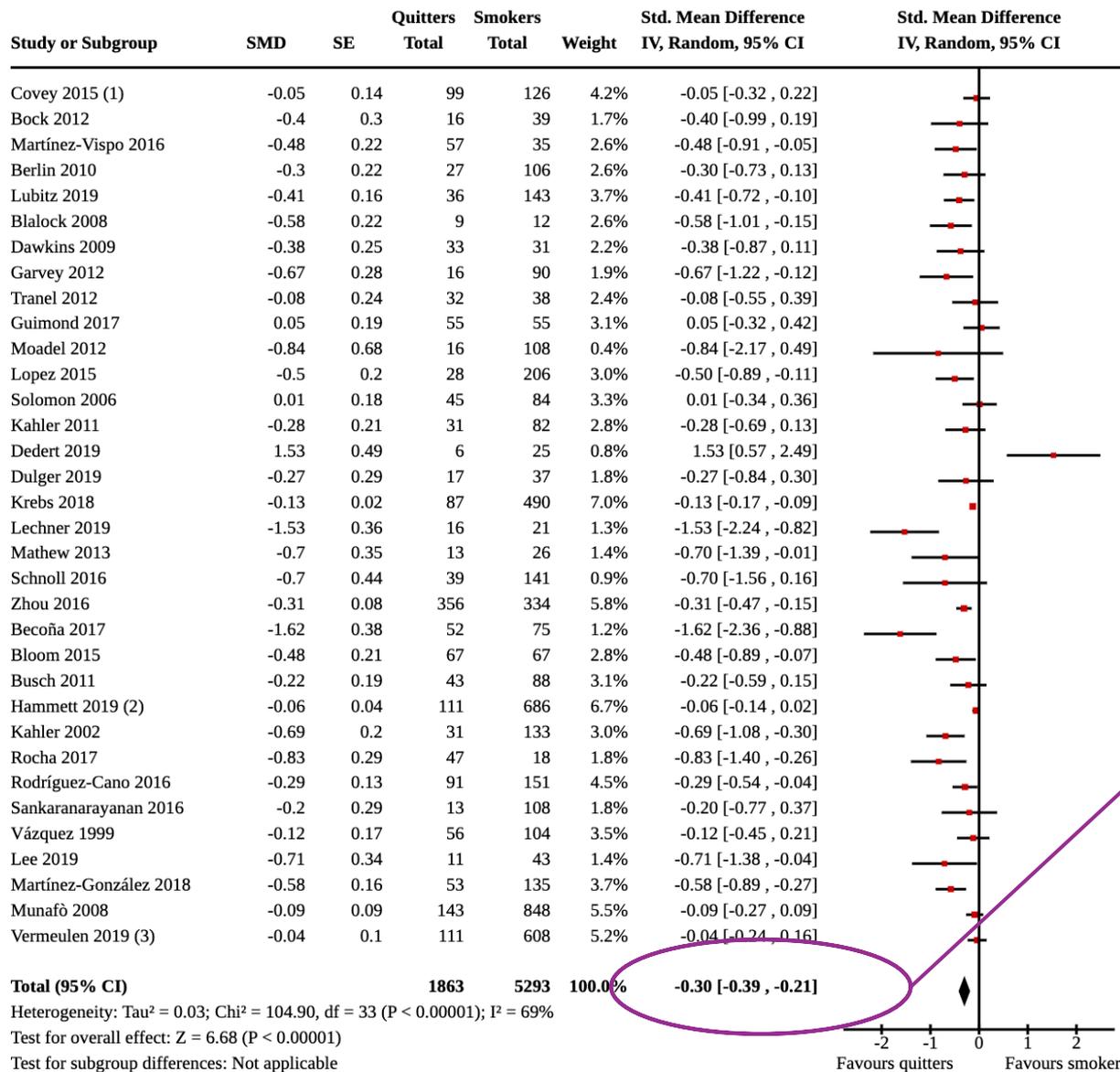
- Included 102 studies\*
- 73 meta-analysed
- 31 narrative synthesis

## Included participants:

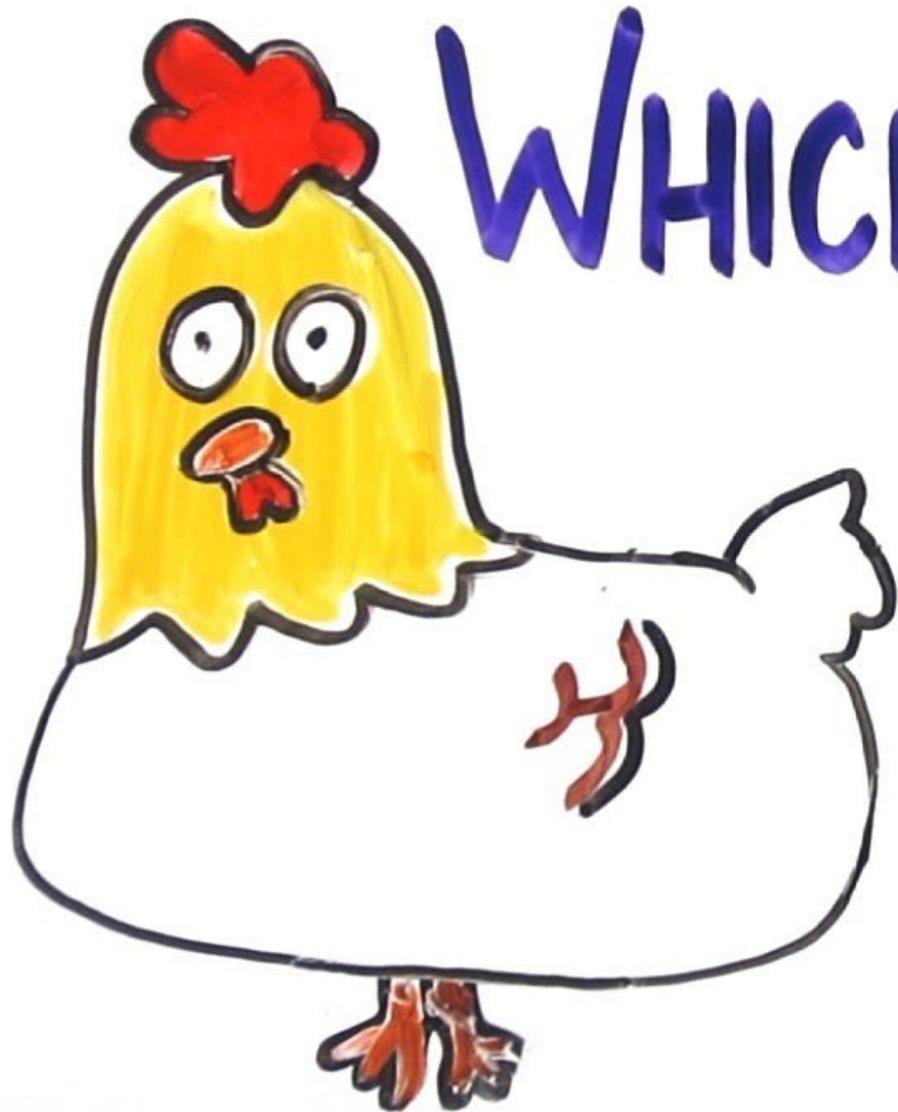
- >169,500 participants included\*\*
- >42,000 participants meta-analysed\*\*

\*2 studies were included in the meta-analysis and narrative review because they reported data suitable for meta-analysis for one outcome, and data only suitable for narrative synthesis for another outcome)\*\* not possible to give exact Ns as some studies did not report total N analysed.

# DIFFERENCE IN CHANGE IN DEPRESSION, BETWEEN QUITTERS AND CONTINUING SMOKERS, SMD (95% CI)



-0.30 (-0.39, -0.21), I<sup>2</sup>=69%

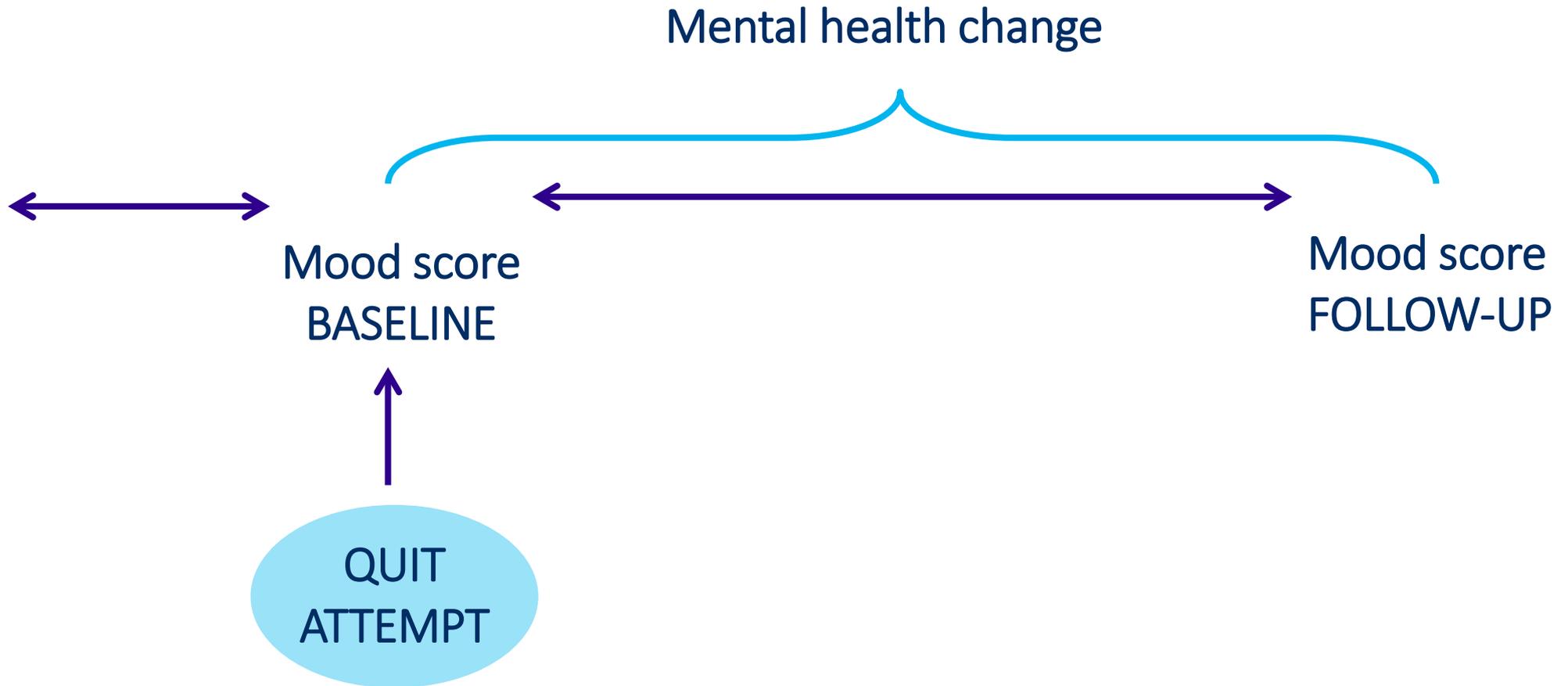


WHICH CAME FIRST

OR  
THE



# Reverse causality



# SUMMARY OF FINDINGS

- Evidence that smoking cessation is associated with improved mental health across 6 different outcomes.
- Strong evidence that mental health does not worsen as a result of quitting smoking.
- Findings robust to multiple sensitivity and subgroup analyses.

# QUITTING SMOKING COMPARED TO TAKING ANTIDEPRESSANTS





# PILOT & FEASIBILITY QUESTIONS

Does offering smoking cessation treatment impact on completing usual care?

Do participants engage with the smoking cessation treatment?

Can we conduct a smoking cessation intervention trial in this setting?



# IMPROVING ACCESS TO PSYCHOLOGICAL THERAPIES (IAPT)

- Treat common mental illness (mood, OCD, anxiety)
- Receive 1.5 million referrals each year
- Assess 1 million patients each year
- 50% receive therapy
- Evidence based therapies (CBT)

***NHS***



# METHODS



- Pre-registered and published (ISRCTN99531779)
- ESCAPE is a pragmatic randomised and controlled, multicentre, acceptability, feasibility and implementation trial with nested qualitative methods
- Conducted across 4 English regions and included 6 IAPT services

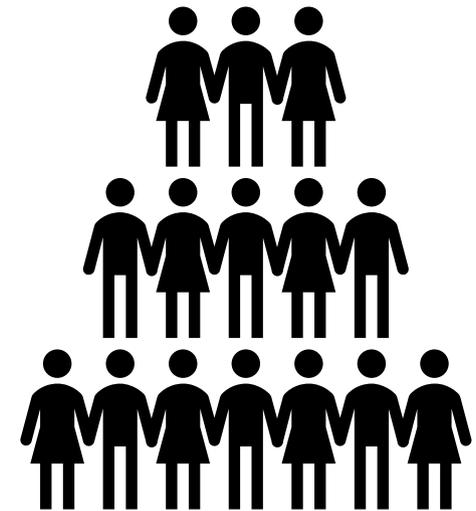
# PARTICIPANTS

## Inclusion:

- Aged 18+ years
- Depression and/or anxiety (PHQ-9 score of  $\geq 10$  and/or GAD-7 score of  $\geq 8$ )
- Other mental health comorbidities permitted
- Self-reported daily tobacco smokers of  $\geq 1$  year

## Exclusion:

- Had already started IAPT treatment
- Pregnant/breastfeeding
- Considered “too unwell”



# INTERVENTION BASIC STRUCTURE



Parallel treatment of smoking and mental health, in IAPT.



Delivered by IAPT therapists during usual therapy sessions during individual sessions.



IAPT service users with depression and/or anxiety, who smoke daily.



5-15 minutes per therapy session, 6+ sessions.

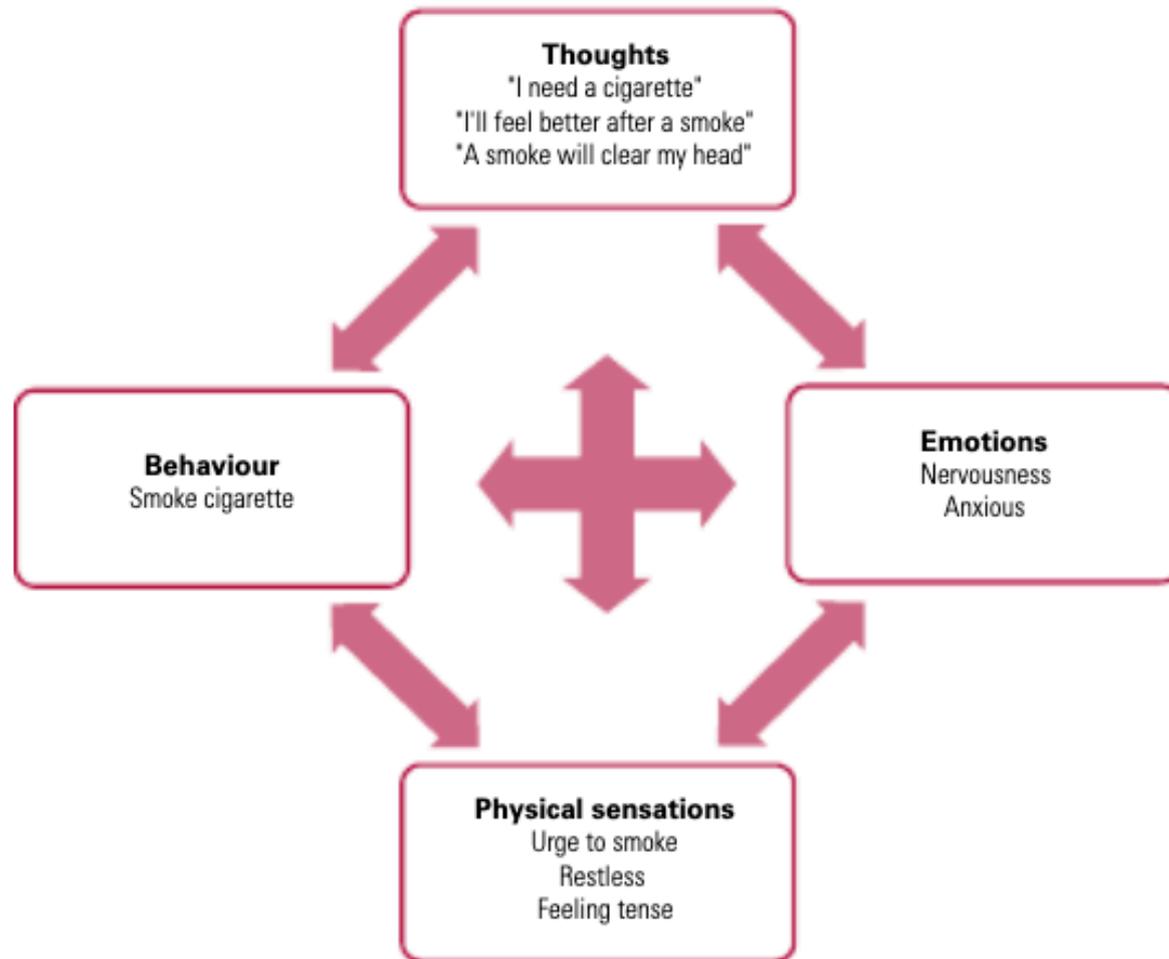


Smoking cessation medication + behavioural support.



TAU + delayed referral to smoking cessation services.

# INTEGRATED INTERVENTION CBT

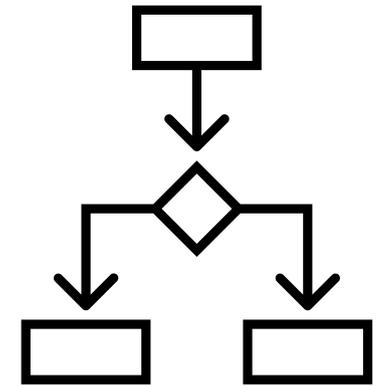


**FIG 3** The anxiety cycle in smoking: the trigger is an anxiety-provoking event.



# OUTCOMES

- 3- & 6-month follow-up
- IAPT treatment completion
- Quit attempts
- 7-day point prevalence smoking cessation (saliva cotinine or exhaled-CO verified)
- Depression scores (PHQ-9)
- Anxiety scores (GAD-7)
- Treatment satisfaction
- Recruitment rates



## Baseline and pre-clinical\* characteristics

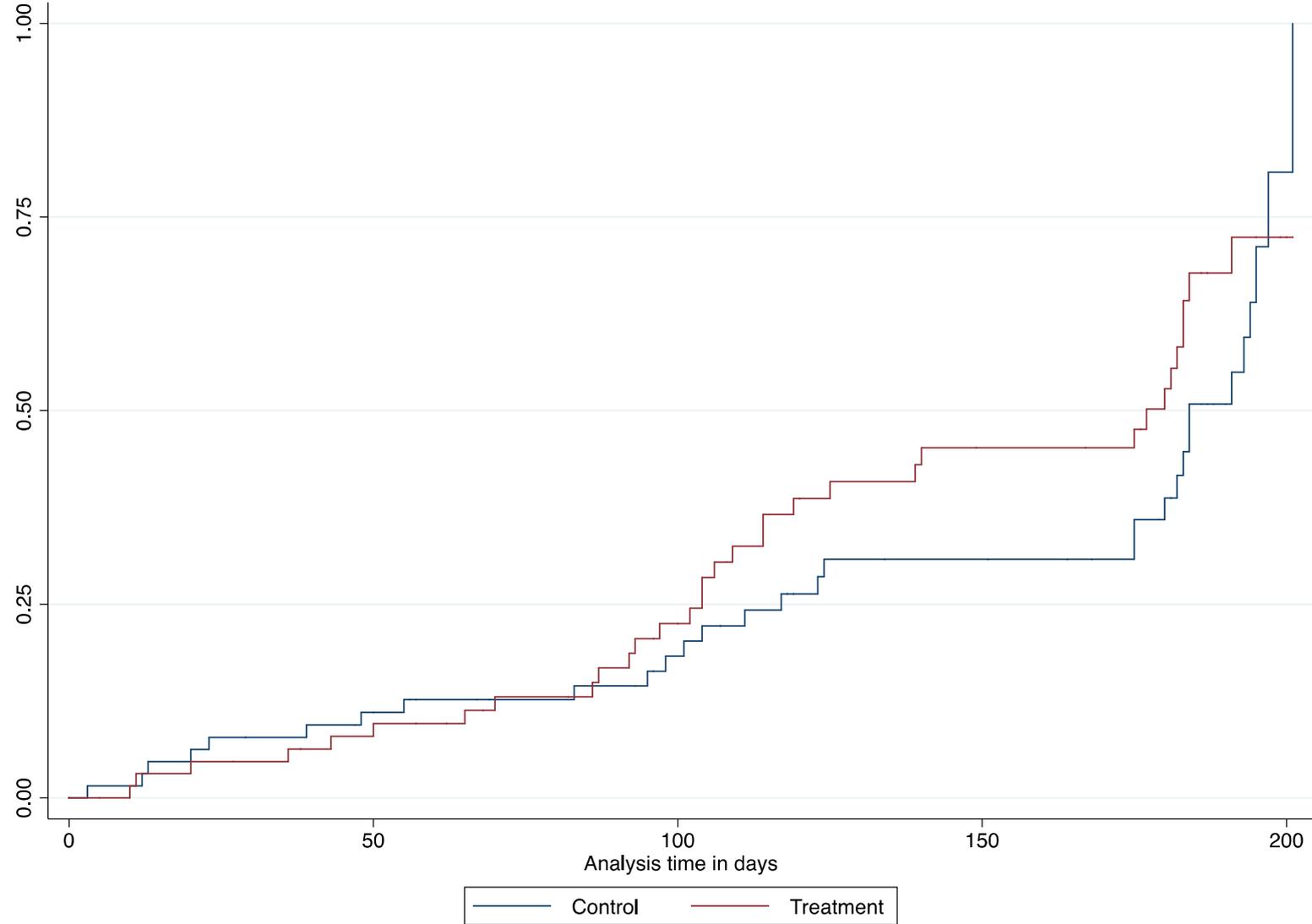
		Control N=67	Treatment N=68
Age in years		33.7 (11.9)	37.4 (13.3)
Gender, N (%)	Male	27 (40.3%)	22 (32.4%)
	Female	40 (59.7%)	46 (67.6%)
Ethnicity, N (%)	White	60 (89.6%)	61 (89.7%)
	Mixed	4 (6.0%)	3 (4.4%)
	Indian	1 (1.5%)	1 (1.5%)
	Pakistani	2 (3.0%)	1 (1.5%)
	Bangladeshi	0 (0.0%)	1 (1.5%)
	Other	0 (0.0%)	1 (1.5%)
Highest level of education, N (%)	Some high school	1 (1.6%)	1 (1.5%)
	GCSE/O-grade/equivalent	15 (24.6%)	18 (26.9%)
	A-level equivalent	6 (9.8%)	12 (17.9%)
	Apprenticeship	5 (8.2%)	3 (4.5%)
	Other vocational	13 (21.3%)	14 (20.9%)
	Degree	16 (26.2%)	14 (20.9%)
	Higher degree	5 (8.2%)	5 (7.5%)
IMD		18.1 (12.9)	18.3 (12.4)
PHQ-9*		14.9 (5.8)	14.0 (6.1)
GAD-7*		13.7 (4.7)	12.3 (5.1)
Comorbid anxiety, N (%)*	No	34 (50.7%)	41 (61.2%)
	Yes	33 (49.3%)	26 (38.8%)
Comorbid panic attacks, N (%)*	No	58 (86.6%)	59 (88.1%)
	Yes	9 (13.4%)	8 (11.9%)
Comorbid OCD, N (%)*	No	60 (89.6%)	61 (91.0%)
	Yes	7 (10.4%)	6 (9.0%)
Other comorbid mental health condition, N (%)*	No	55 (82.1%)	55 (82.1%)
	Yes	12 (17.9%)	12 (17.9%)
HIS*		2.1 (1.6)	2.6 (1.6)
CPD*		13.1 (7.8)	15.7 (8.4)
Previous number of quit attempts		5.0 (7.0)	3.7 (6.7)

IMD = Index of Multiple Deprivation score, PHQ-9 = Patient Health Questionnaire, GAD-7 = Generalised Anxiety Disorder Questionnaire, OCD = obsessive-compulsive disorder, HSI = Heaviness of Smoking Index, CPD = Cigarettes per day

# MAIN ACCEPTABILITY AND FEASIBILITY OUTCOMES AT 3- AND 6-MONTHS FOLLOW-UP

	3-month follow-up, N (%)		6-month follow-up, N (%)	
	Control	Treatment	Control	Treatment
	N=67	N=68	N=67	N=68
Bio-verified self-reported 7-day smoking abstinence	1 (1.5%)	8 (11.8%)	4 (6.0%)	10 (14.7%)
IAPT treatment completion	13 (19.4%)	11 (16.2%)	21 (31.3%)	16 (23.5%)

# SURVIVAL CURVE: NUMBER OF DAYS TO TREATMENT COMPLETION, BY TRIAL ARM, N=135



# LIMITATIONS

- Trial still in progress - data incomplete
- Unable to collect implementation data
- Blinding was unsuccessful in 13-15% of follow-ups
- Predominately recruited white, educated, women in their 30s

# SUMMARY OF FINDINGS

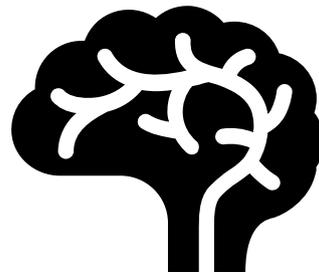
- We recruited at an acceptable rate across 4 NHS trusts.
- Attrition was what we expected (33%).
- Practitioners and participants reported that they accepted and were satisfied with the intervention.
- Offering smoking cessation treatment did not impact on engagement with the trial, or with usual IAPT treatment.
- Participants engaged with the smoking cessation treatment.
- Evidence of intervention promise for a future smoking cessation trial.

# How does smoking worsen mental health, and how does quitting improve mental health?



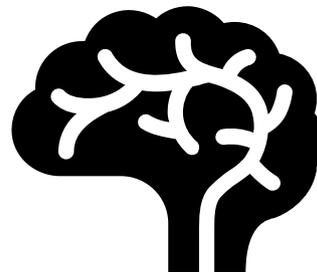
# Biological pathways – neurotransmitter systems

- Constant fluctuation in withdrawal-induced psychological symptoms is associated with damage in neurotransmitter pathways, which could increase the risk of mental ill-health.
- After breaking the tobacco withdrawal cycle, through smoking cessation, these systems recover in the same way that other systems damaged by smoking reverse after smoking cessation.
- Smoking damages every organ in the body – so of course it damages the brain.



# Biological pathways - inflammation and oxidative stress

- Oxidative stress and inflammation underly the progression of depression, anxiety and bipolar disorder
- It is well established that smoking has long-term effects on the oxidative stress burden
- Crucially, the association showed a dose-response pattern, such that higher levels of daily smoking led to higher concentrations of oxidative stress biomarkers
- Evidence that those who had stopped smoking for more than 10 years had similar oxidates stress biomarker levels as never smokers



# FINAL THOUGHTS

- It's highly likely that smoking damages the brain like it damages other organs in the body.
- There's consistent evidence that stopping smoking is linked to improvements in mental health.
- People who smoke can be reassured that stopping smoking will not worsen and may improve their mood, by reducing anxiety, depression, and stress.
- Clinicians should be reassured that encouraging and supporting smoking cessation in their patients will not worsen and may improve mood.
- There is no reason to fear that people with psychological disorders will have their condition worsened by smoking cessation.

# DISSEMINATION

Public Health England

Health Matters

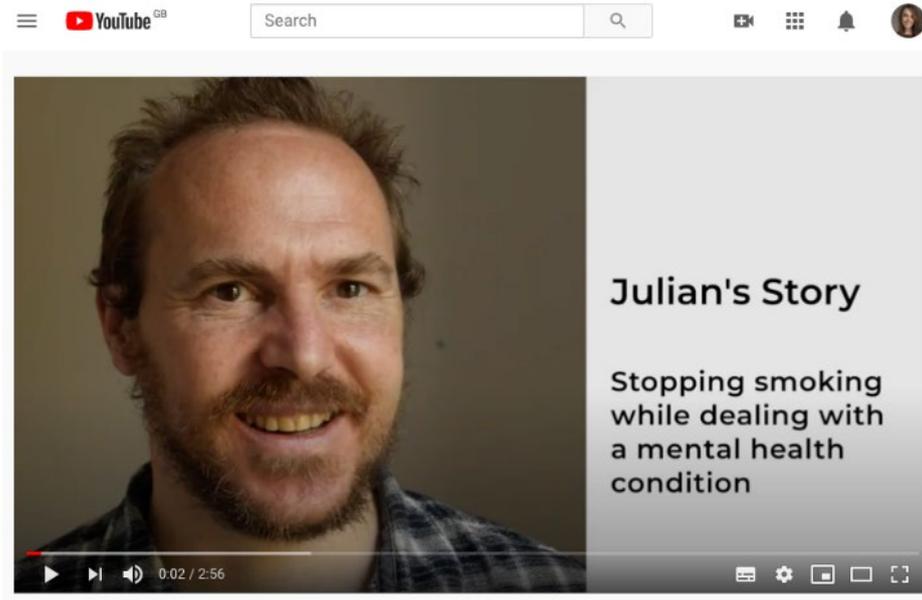
## Benefits of stopping smoking for people with poor mental health

For people with a mental health condition, smoking cessation improves both physical and mental health and reduces the risk of premature death.



**Stop smoking support** is effective for people with poor mental health

**Stopping smoking can** be as effective as antidepressants & reduce the amount of psychiatric medication needed

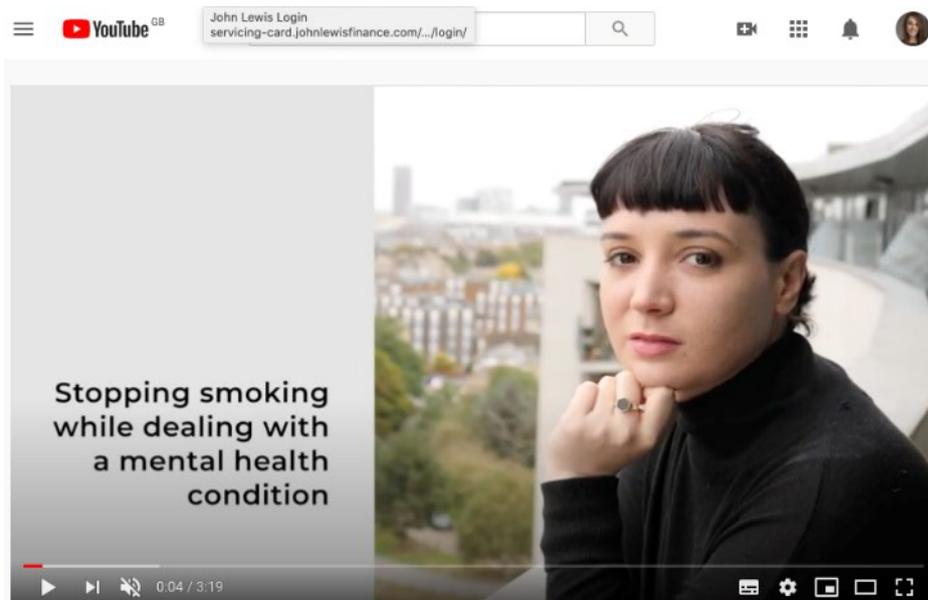


YouTube GB Search

**Julian's Story**

Stopping smoking while dealing with a mental health condition

0:02 / 2:56



YouTube GB

John Lewis Login  
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Stopping smoking while dealing with a mental health condition

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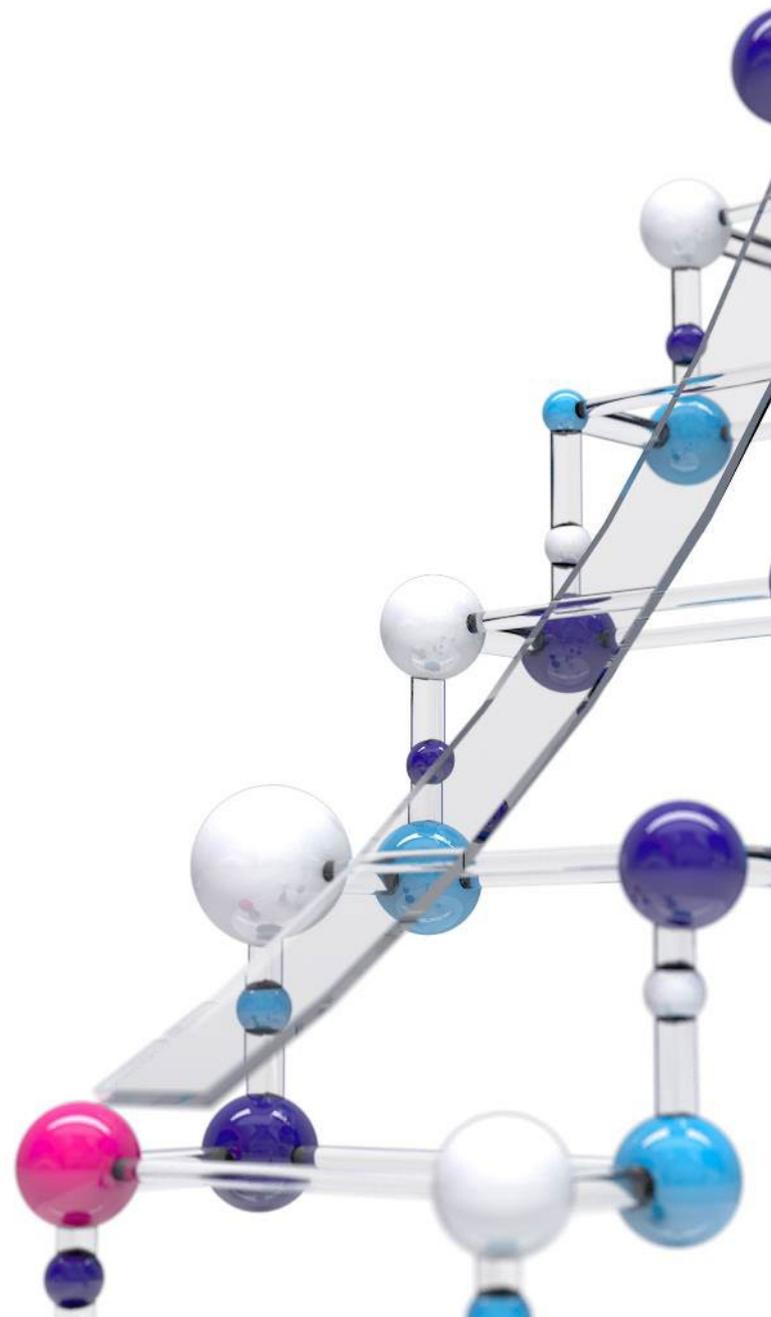
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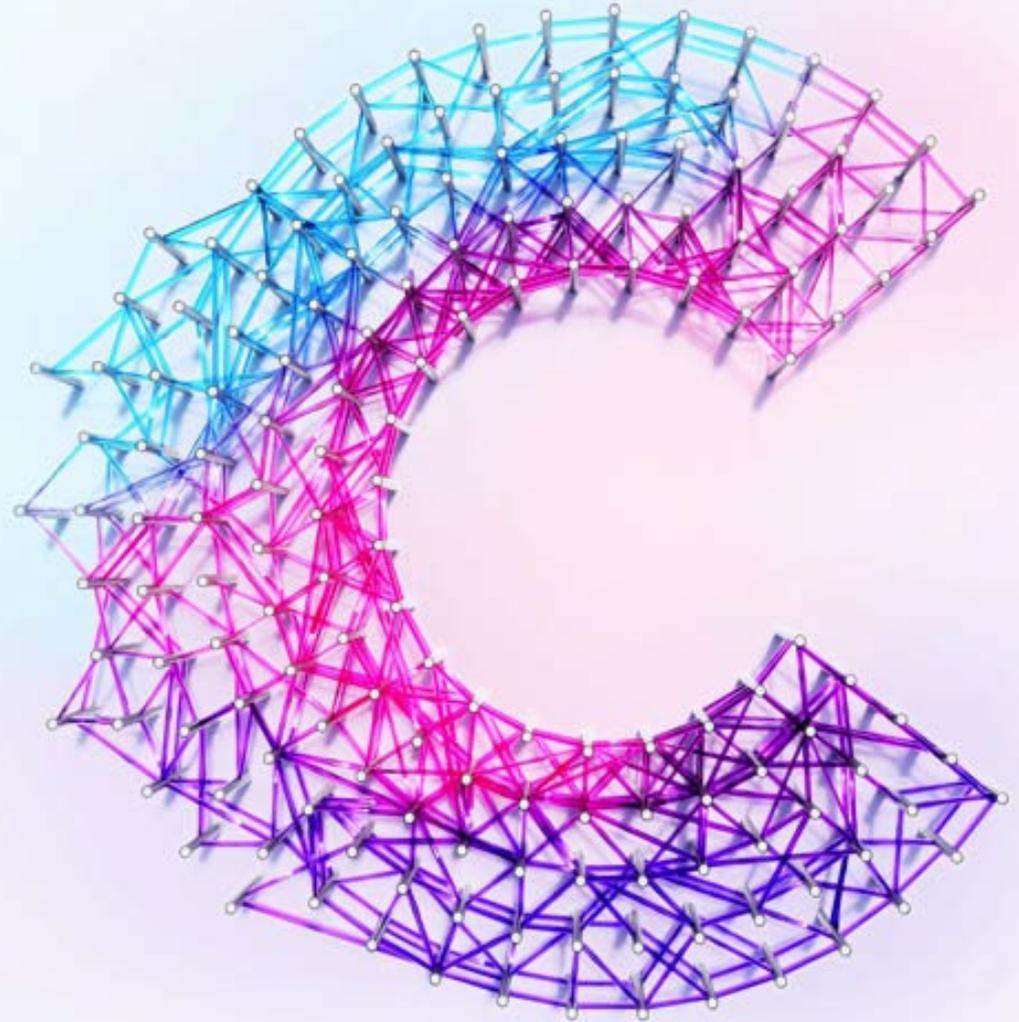
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# Q&A

- Submit questions via the **'Ask a Question' box**



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Visit [CABHWI.ucsf.edu](http://CABHWI.ucsf.edu) for more information

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Visit SCLC's website at: <https://smokingcessationleadership.ucsf.edu/free-cmec-es-webinar-collections>

## Free 1-800 QUIT NOW cards

Take Control

**1-800-QUIT-NOW**

Call. It's free. It works.

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For details on your state services, go to: <http://map.naquitline.org>



✓ Refer your clients to cessation services

# Post Webinar Information

- You will receive the following in our post webinar email:
  - ✓ Webinar recording
  - ✓ PDF of the presentation slides
  - ✓ Instructions on how to claim FREE CME/CEUs
  - ✓ Information on certificates of attendance
  - ✓ Other resources as needed
- All of this information will be posted to our website at <https://SmokingCessationLeadership.ucsf.edu>





SCLC's next live webinar is co-hosted with the National Behavioral Health Network on Tobacco and Cancer Control (NBHN) entitled, "***Journey to a Tobacco-free Certified Community Behavioral Health Clinic (CCBHC): A Conversation***"

- **Tuesday, September 20, 2022, 12:30 – 1:30 pm EDT**
- Registration will open soon

# Contact us for free technical assistance



- **Visit** us online at [smokingcessationleadership.ucsf.edu](https://smokingcessationleadership.ucsf.edu)
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