The Development of Tools to Measure Norms Towards Smoking, Nicotine Use, and the Tobacco Industry

Authors

Katherine East[1,3]
Dr. Sara Hitchman[1,3]
Martine Stead[2,3]
Anne Marie MacKintosh[2,3]
Professor Ann McNeill[1,3]

1 Addictions Department, King's College London
2 School of Health Sciences, University of Stirling
3 UK Centre for Tobacco & Alcohol Studies

Address for correspondence:
Ann McNeill, Professor of Tobacco Addiction,
National Addiction Centre
Addictions Department
Institute of Psychiatry, Psychology & Neuroscience (IoPPN)
King's College London
Email: ann.mcneill@kcl.ac.uk

RESOURCES AND CONTRIBUTIONS

DISCLAIMER

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EXECUTIVE SUMMARY

Background

E-cigarette use has increased and there are now estimated to be 2.8 million current e-cigarettes users in Great Britain. There are concerns that this increase in e-cigarette use could lead to the renormalisation of smoking ordinary tobacco cigarettes, although to date there is no evidence of this as current smoking among adults continues to decline and fewer youth are taking up smoking. Nevertheless, the concern that the increasing popularity of e-cigarettes may have a negative impact on smoking prevalence, suggests a need to monitor if norms towards smoking are changing. Generally, norms are thought of the beliefs people hold about how other people behave and how they themselves should behave, and these in turn influence people's attitudes and ultimately their intentions and behaviour. For the purposes of this report, norms were categorized into: Descriptive interpersonal norms; descriptive societal norms; injunctive interpersonal norms and injunctive societal norms.

Objective

The objective of this study was to develop two tools (sets of measures) to monitor norms towards smoking (including second-hand smoke), nicotine use and the tobacco industry, one for youth and one for adults. The Public Health Research Consortium (PHRC) commissioned researchers at King's College London and the University of Stirling to design the tools which were developed over three key stages: desk reviews of current measures, cognitive testing, and finally pilot testing. Natcen carried out the cognitive testing in consultation with the research team. Experts and other stakeholders were consulted at each stage.

Stages and structure of report

Chapter 2 describes the first stage that included three desk reviews to identify current measures of norms towards smoking, nicotine use and the tobacco industry in the research literature and measures that have been used in national surveys. The desk reviews of the research literature also assessed any evidence of the measures' validity and reliability, specifically, whether the norms measures predicted smoking behaviour. From these reviews and following consultation with experts and Natcen, 46 measures were shortlisted for cognitive testing, 31 measures for youth, and 31 for adults, including 16 measures which were the same across youth and adults. These shortlisted measures included some new measures of norms which were developed where gaps in the existing measures were found.

Chapter 3 describes the second stage that involved cognitive testing of the shortlisted measures in 20 youth and 20 adults. Cognitive testing aims to establish the comprehension of the measures and response options and whether the measures were eliciting the information that was intended. Following the cognitive testing, changes were made to some measures, one new measure was developed, and some measures were dropped. The newly shortlisted measures were then discussed with experts and the survey companies involved in the pilot testing, and further refinements were made. This resulted in 13 measures for pilot

testing with youth, and 11 measures for pilot testing with adults; seven measures were the same for youth and adults.

Chapter 4 describes the third stage that involved piloting some of the measures in three cross-sectional national surveys which were implemented in March/April 2016: one survey with youth and two with adults. The youth tool was added to the Action on Smoking and Health (ASH) Smokefree Great Britain (GB) Youth survey, and the adult tool was added to the ASH Smokefree GB Adult survey and the Smoking Toolkit Survey, carried out across England and led by Professor Robert West. The ASH surveys are online surveys and the toolkit a household survey. The pilot testing data were assessed to examine the reliability and validity of the measures, specifically, the association between the measures and smoking behaviour.

Following further consultation, Chapter 5 summarises the final sets of norms measures chosen for the tools based on their overall reliability and validity, and coverage of the specified categories of norms. The final youth tool included (seven) measures and the final adult tool included (six) measures; three measures were the same across both tools.

It is envisioned that the recommended measures that form the final tools will be added to national surveys to monitor changes in these norms.

CONTENTS

CHAPTER 1. INTRODUCTION

1.1 Background

E-cigarette Use

Electronic cigarette (e-cigarette) use has increased in Great Britain (Dockrell et al., 2013, ASH, 2015b, ASH 2016). However, regular use of e-cigarettes is mostly confined to adult smokers and ex-smokers. The proportion of youth 11-18 years trying e-cigarettes increased from 4% in 2013 to 10% in 2016 (ASH 2016). However, regular use remains low with 2.4% of youth reporting using e-cigarettes at least once a month and 0.5% using e-cigarettes weekly, the vast majority of them being smokers (ASH, 2015a). Among adults, current use (self-identified as currently using) of e-cigarettes among never smokers has remained low with 0.2% reporting use in 2016, and no change since 2013 (ASH, 2016). Among smokers, current use increased from 6.7% in 2012 to 19.4% in 2016 (ASH 2016). Among ex-smokers current use has similarly increased from 3.7% in 2012 to 18.8% in 2016 (ASH 2016). Among smokers who report current use, 45% use e-cigarettes daily, 21% a few times a week, and 14% once a weekly, with the rest using less than daily (ASH, 2016). Ex-smokers report much higher levels of daily use, with 88% reporting daily use, 5% using a few times a week, and 3% using once a week, with the rest using less than weekly (ASH, 2016).

E-cigarette Marketing

During the same period that e-cigarette use increased, research also found that marketing of e-cigarettes was increasing (Bauld et al., 2014). However, this research was conducted prior to the implementation of the European Union Tobacco Products Directive (EUTPD, 2014) in May 2016 which significantly enhanced restrictions on advertising. Prior to the EUTPD, e-cigarette marketing was allowed in all outlets, with some restrictions on content set by the committee of advertising practice, including that it had to be clear that it was an e-cigarette and not an ordinary cigarette in the advertisement, people in the ads could not appear under 25 years old, and false claims could not be made (e.g., healthier). Restrictions on the hours of e-cigarette advertising on television also existed. After the EUTPD was implemented, e-cigarette advertising restrictions increased. In England, Wales, and Northern England, e-cigarette advertising is now only allowed at the point of sale, on billboards, and flyers (i.e., no cross-border advertising). In Scotland, the Nicotine & Tobacco Bill was passed by the Scottish Parliament on March 1st which includes a number of provisions, including limiting e-cigarette advertisements to point of sale only. The regulations have yet to be drafted.

Use of E-cigarettes in Public Places

Unlike ordinary cigarettes, there are currently no restrictions on the use of e-cigarettes in public places in the UK at the national level. However, voluntary bans on the use of e-cigarettes in most public transportation, and some other public places exist (individual workplaces, restaurants, pubs, etc.).

E-cigarettes and Concerns about the Renormalisation of Smoking
Due to the rise in e-cigarette use, e-cigarette marketing, and the use of e-cigarettes in public places, concerns have been raised that e-cigarette use may renormalize smoking; that is, e-cigarettes may lead to an increase in the uptake of smoking among youth and decrease smoking cessation among adults by renormalising smoking (Fairchild et al., 2010).

What is renormalisation?
Renormalisation is a word used to describe the process of norms towards a behaviour going from negative to positive, e.g., a behaviour that was considered to be 'not normal' becoming 'normal' again. Norms can be defined in various ways. Generally, norms are thought of the beliefs people hold about how other people behave and how they themselves should behave (Ajzen, 1991; Terry & Hogg, 1996). These perceptions then are thought to influence people's attitudes (positive or negative feelings towards events/actions, objects, or other people), and ultimately their intentions and behaviour.

Types of Norms
Norms can be classified and described in different ways. For the purposes of this report, we have classified norms into the following types:

1. **Descriptive Norms**

   a. *Descriptive interpersonal norms* are beliefs that people hold about how people who are important to them behave. For example, a person's perception of the number of their close friends or family members that smoke.
   b. *Descriptive societal norms* are beliefs that people hold about how society behaves. For example, a person's perception of the proportion of people in a community, city, or country that smokes.

2. **Injunctive Norms**
   a. *Injunctive interpersonal norms* are beliefs that people hold about how people who are important to them think they should behave. For example, a person's belief about whether their family believes they should or should not smoke.
   b. *Injunctive societal norms* are beliefs that people hold about how society thinks they should behave. For example, a person's belief about whether society approves of smoking.

Is there any evidence that e-cigarettes have renormalised smoking in the UK?
To date, there is no evidence that e-cigarettes have increased smoking prevalence through the renormalisation of smoking in the UK. Current smoking prevalence among adults 16+ in England dropped from 20% in 2012 when e-cigarette use become prevalent to 18.5% in 2016 (Smokers' Toolkit, 2016). And, smoking among youth aged 15 in England, has fallen from 10% in 2012 to 8% in 2014 (ASH, 2015a; Ipsos Mori, 2015). Additionally, in 2014 less than one in five 11-15 year olds in England said they had smoked once, the lowest percentage since the first survey in 1982 (Health and Social Care Information Centre, 2014). Nevertheless, there are a variety of factors that influence smoking

prevalence, for example, the budget devoted to strong anti-smoking mass media campaigns, or the price of tobacco, and it is difficult to separate the impact of these different influences on prevalence which may act synergistically. For example, media campaigns can be used to ensure smoking remains denormalised and that the enormous harms of smoking continue to be understood. Policies can also be put in place that further discourage smoking, and ensure that people understand that e-cigarettes are different than smoking and are much less harmful to health (Levy et al., 2016).

Given concerns that the increasing popularity of e-cigarettes could renormalise smoking, there is a need to continue surveillance and ensure an early warning system is in place to signal any changes in smoking norms, before any sustained increases in smoking can be measured, or to help explain such increases in smoking.

Model of how e-cigarettes may Renormalise Smoking
Below is a hypothesised model of how e-cigarettes could renormalise smoking. The model was developed when this project was proposed because at the time concerns about e-cigarettes renormalising smoking were not accompanied by any explanation of the mechanisms. Since this time, the authors have not become aware of any models or detailed explanations of the mechanisms. However, a model to test whether e-cigarette use is a catalyst for smoking was published. This model includes a hypothesis that e-cigarettes may lead to increased smoking without requiring the initiation of e-cigarettes first, via renormalisation. They propose that seeing more individuals using a product (i.e., e-cigarettes) that looks like smoking and being used in way similar to smoking cigarettes could renormalise smoking (Schneider & Diehl, 2015).

The model and mechanisms proposed are illustrated in Figure 1.1, although there is also likely to be an interaction between the various mechanisms (Mead et al., 2014).
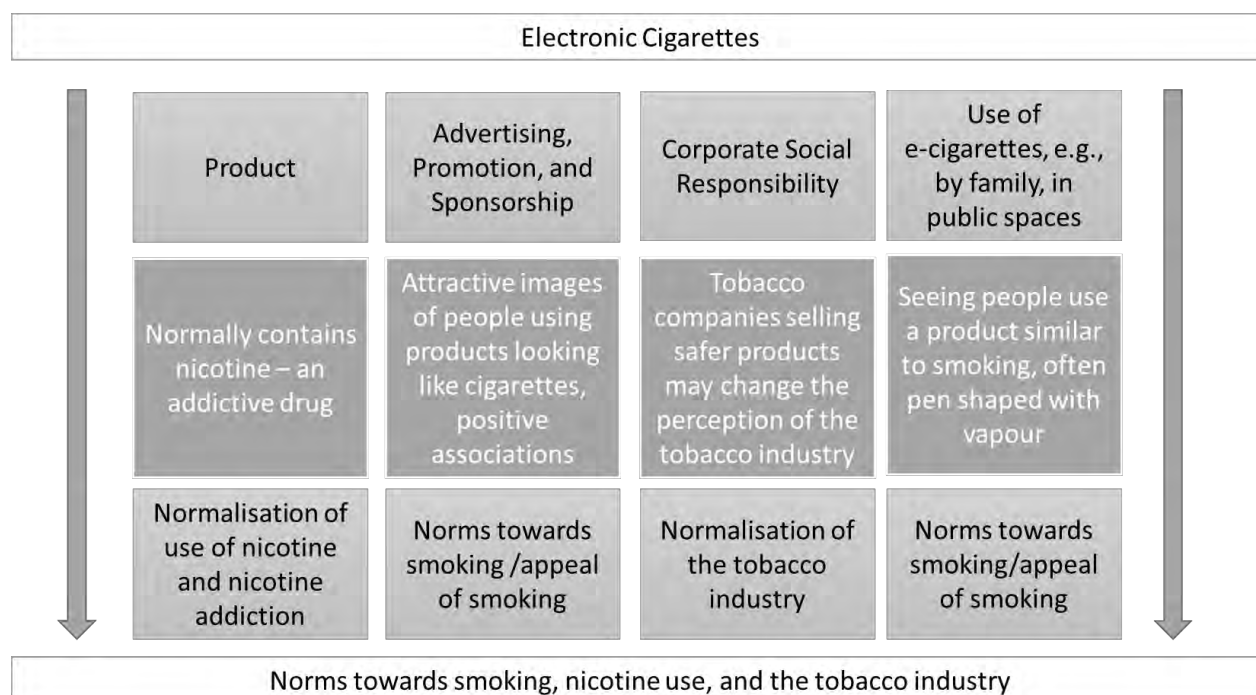
Figure 1.1 Hypothesised model of how e-cigarettes may renormalise smoking, nicotine use and the tobacco industry

Descriptions of Boxes in Figure 1.1

Product. Because e-cigarettes typically contain nicotine, they may renormalise the use of nicotine, lead to/sustain nicotine addiction, and renormalise smoking.

E-cigarette advertising, promotion, and sponsorship. There are worries that advertising for e-cigarettes, because of its similarities with smoking advertising (attractive people using e-cigarettes, lifestyle advertising), serves to renormalize smoking with its glamorous and appealing images. Internationally, approaches to e-cigarette advertising vary from complete prohibition through to no restrictions. The situation in the UK was described above.

Corporate responsibility. The tobacco industry's involvement in the e-cigarette market has caused many to question their interests and whether they have only entered the e-cigarette market to manipulate it, and sustain the sales of ordinary cigarettes(World Health Organization, 2014). It is also possible that the tobacco industry is interested in building goodwill (improving their reputation through acts of corporate social responsibility) amongst the public and stakeholders by producing safer nicotine products – essentially, renormalising an industry that has been denormalised. On the other hand, the tobacco industry's involvement in the e-cigarette business might, in the long term, accelerate a move away from tobacco cigarettes in preference of less harmful products, further denormalising smoking. The tobacco industry has now acquired several of the most popular brands of e-cigarette and launched their own brands in some cases. So far, a licence for one novel nicotine delivery product (voke) and one e-cigarette (e-voke) has been granted by the Medicines and Healthcare products Regulatory Agency

(MHRA); both voke and e-voke are produced by British American Tobacco. The tobacco industry has also developed several novel electronic tobacco products that contain tobacco and launched them in test markets. As stated above, it is also possible that e-cigarettes may be serving more to normalise these types of alternative nicotine and tobacco products than to renormalise smoking.

Use of e-cigarettes. Overall, there is a concern that use of e-cigarettes in public spaces may counteract the denormalisation effect of smoke-free laws (World Health Organization, 2014). The World Health Organisation recently called for a ban on using e-cigarettes in indoor public places, and several jurisdictions have now enacted bans. In the UK no national regulations have been introduced to limit the use of e-cigarettes in public places as described above. Although, the mechanism for a renormalisation effect is uncertain, it is thought that this might be because seeing someone use a product that looks somewhat similar to an ordinary cigarette, where the user exhales inhaled vapour, may lead to people changing their norms about smoking (Bandura, 1971; Schneider & Diehl, 2015) . This could also happen if people use e-cigarettes in family homes given the known modelling effect of smoking by adults and influential figures on young people (Bandura, 1971).

1.2   Objectives and Key Research Questions

Concern over whether e-cigarettes are renormalising smoking created a need for a tool to allow the Department of Health (DH) to collect data to monitor norms towards smoking, nicotine use and the tobacco industry over time, as an early warning system for any changes in perceptions of smoking.

The objective of the study was therefore to develop a tool to measure norms towards smoking (including second-hand smoke), norms towards nicotine use, and norms towards the tobacco industry in the UK. The tool was envisaged to be a set of measures to be used in national surveys in the UK. Two tools were developed, one tailored to adults (18 years and above) and one to youth (11-17 years). It was anticipated that the final tools would consist of five or six norms measures: three or four assessing norms towards smoking, one assessing norms around nicotine use, and one assessing norms around the tobacco industry.

The key research questions to address this objective of the report:

1.   What measures have been used in previous research and surveys to assess norms towards:
    a) smoking ordinary tobacco cigarettes (including second-hand smoke)
    b) nicotine use
    c) the tobacco industry
2.   Based on previous research, which measures of norms have evidence of validity and reliability for predicting smoking-related outcomes in youth and adults?
3.   Which measures are most suitable to use in a tool to measure norms towards smoking, nicotine use and the tobacco industry in national surveys?

1.3 Report and Project Progress

Several stages were involved in the development of the tools and each stage was written as a separate chapter for this report. A group of experts (Professors James Thrasher, Geoffrey Fong, Robert West and Ron Borland) were also consulted at appropriate stages during the development of the measures. Figure 1.2 depicts the stages involved in the project process.

Chapter 2: Desk review of the literature and surveys. To address Research Questions 1 and 2, three separate desk reviews were conducted to identify and evaluate the measures or tools currently available for measuring norms towards (a) smoking, (b) nicotine use, and (c) the tobacco industry. Any evidence of the measures' validity and reliability was also obtained and those with good validity and reliability prioritised. Existing UK surveys in the fields of public health and tobacco research were also scanned for measures currently being used. From these methods, 31 youth measures and 31 adult measures (with 16 overlapping) were selected and discussed within the research team, with NatCen and experts. They were modified as necessary before being put forward for cognitive testing.

Chapter 3: Cognitive testing. To address Research Question 3, the measures selected in the desk review of the literature and the surveys were cognitively tested by NatCen. NatCen tested the measures to assess comprehension of the measures and response options and whether the measures were eliciting the information that was intended. After the cognitive testing, 13 youth measures and 11 adult measures were selected to pilot in national surveys (with seven overlapping). Again these were discussed with Natcen, experts and the survey firms to finalise the measures before piloting.

Chapter 4: Pilot. To address Research Question 3 further, the measures selected from the cognitive testing were piloted in three national surveys (two adult, one youth) to assess further the validity and reliability of the measures.

Chapter 5: Discussion and Recommendations. To address the objective of the report, chapter 4 recommends the final measures to be included in national surveys to measure norms which could indicate an upwards shift in the renormalisation of smoking. Seven measures were chosen for youth, six for adults with three measures the same across the two tools.
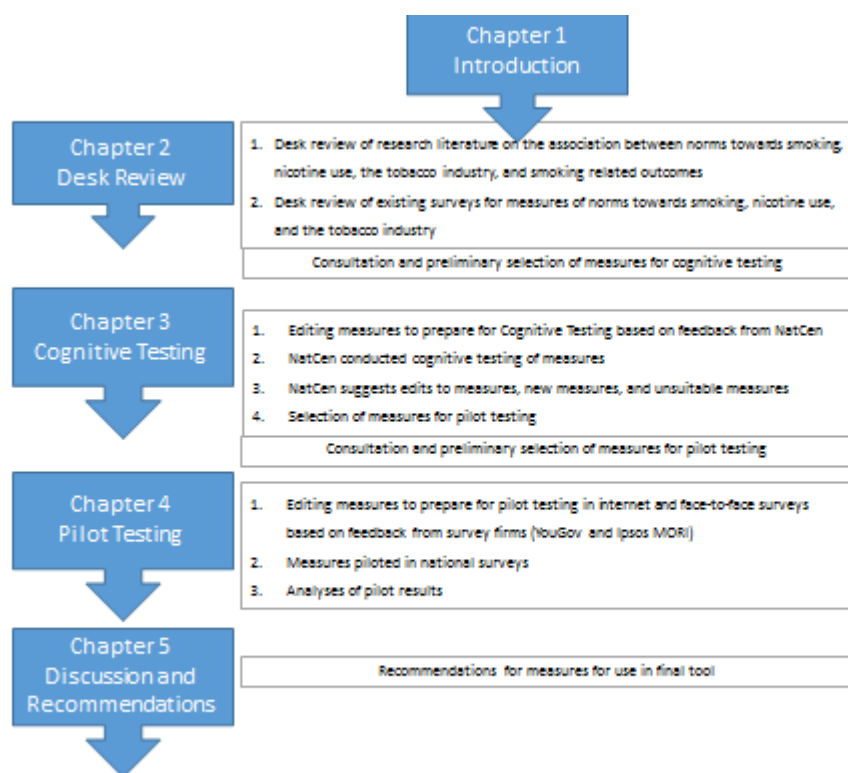
Figure 1.2 Project process and chapters

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CHAPTER 2. DESK REVIEWS OF THE LITERATURE AND SURVEYS

2.1 Objectives: Desk Reviews of the Literature and Surveys

2.1.1 Objectives: Desk Reviews of the Literature

Desk reviews were conducted to identify and assess what measures were currently available for measuring norms towards (a) smoking (including second-hand smoke), (b) nicotine use, and c) the tobacco industry, and any evidence of the reliability and validity of the measures.

2.1.2 Objectives: Desk Review of Surveys

A desk review of key UK surveys of tobacco use was conducted for measures of norms towards (a) smoking, (b) nicotine use and the (c) tobacco industry in order to: 1) check whether newer or unpublished measures not yet identified in the literature review existed; 2) identify whether measures identified in the literature review were also being used in current UK surveys; and 3) identify which surveys might be suitable for piloting the norms measures.

2.2 Methods: Desk Reviews of the Literature

2.2.1 Expert consultation on the Desk Review of the Literature

Experts were consulted on the parameters of the desk reviews and whether they were aware of any similar reviews. Two key findings emerged: 1) the breadth of the review topics would result in a vast amount of literature that would be too large to review in the timescale; and 2) one expert had recently carried out a review of social norms towards smoking (hereafter referred to as the Thrasher Review) but had not published it.

To address finding 1) from the expert consultation, online databases were scanned to identify the size of the literature base using the terms listed in Appendix 1 (all appendices available upon request), with the search limited to human studies in English from 1990 to September 2015: a) 22,594 records emerged for norms towards smoking (6,855 PubMed, 15,739 EMBASE), b) 1728 records emerged for norms towards the use of nicotine products (506 PubMed, 1222 EMBASE) and c) 400 records emerged for norms towards the tobacco industry (200 PubMed, 200 EMBASE).

To address finding 2) from the expert consultation, the existing Thrasher Review was obtained and given the vast amount of literature and the short time scale, the findings of the Thrasher Review were used as the basis for the desk review of a) norms towards smoking. Full reviews were still conducted for b) norms towards nicotine use, and c) norms towards the tobacco industry.

2.2.2 Details of Search and Screening Strategies for the Desk Reviews

The desk reviews were limited to studies that included quantitative survey designs (experimental and qualitative were excluded) because of the volume of the literature and because the objective was to develop measures to be used in national surveys. Surveys could be administered via any mode. The search was also limited to articles in English, additionally all questionnaires/surveys/norms measures must have been conducted in English.

One reviewer (KE) screened the articles for inclusion and exclusion criteria at the (a) title and abstract level, then at (b) full-text level. Full manuscripts of any abstracts considered relevant were obtained. Any concerns over whether the study met inclusion criteria were resolved by discussion within the main project team (KE, SH & AM). Duplicates within and across databases were removed.

Full details on the search and screening criteria for the desk reviews are provided below.

a)   Norms towards smoking

Search Strategy. Articles from the Thrasher Review were used to identify literature assessing the relation between norms towards smoking, which was part of a larger effort to establish and recommend common measures for tobacco research (see https://www.phenxtoolkit.org/index.php?pageLink=browse.conceptualgroups&id=3258&breadcrumbs= 3258). The Thrasher Review was conducted between September and November 2014 and involved searches using PubMed, Science Direct and Google Scholar for articles in English using the following search terms which covered the norms discussed in the Introduction: social norms (including societal

norms), subjective norms (including injunctive norms, perceived disapproval), descriptive norms (including descriptive quitting norms, peer prevalence, perceived prevalence), behavioural norms, social modelling, theory of planned behaviour and social acceptability. No search limits were placed. Relevant articles were identified by a reviewer from Thrasher's research group and included in a database if they included a type of norm as a predictor and the outcome was a smoking behaviour or related cognition as described above. Bibliographies from these articles were also reviewed. Articles cited were evaluated for inclusion if they showed evidence of addressing the relationship between norms and smoking. The Thrasher Review identified 89 articles, which were then screened against the present review's inclusion criteria listed below.

Inclusion criteria:

Predictors. Articles were only included if the predictor variable(s) included self-reported measures of descriptive or injunctive norms (as described in the introductory chapter) towards smoking or second-hand smoke. To be as inclusive as possible at this stage, if an article assessing norms also included attitudinal measures, these data were also extracted. If articles also included self-reported measures of descriptive and injunctive norms and personal attitudes *towards the tobacco industry and nicotine use*, these were extracted as part of searches (b) and (c).

Outcomes. Any measure of cigarette smoking or quitting behaviour or cognition related to cigarette smoking initiation, quitting, or behavior was of interest. This includes, but was not limited to, susceptibility to smoking, smoking initiation, number of cigarettes smoked per day, quitting behaviours and relapse to smoking.

b)   *Norms towards nicotine use*

Search Strategy. A systematic review was carried out. The initial search terms (Appendix 1) were expanded to encompass a more comprehensive list of search terms to include the measures covered in the Thrasher review. PubMed and EMBASE were searched from 1990 to January 2016, and studies were limited to English language with human participants (Appendix 2).

Inclusion criteria:

Predictors. Articles were included if the predictor variable(s) included self-reported measures of descriptive, injunctive norms or personal attitudes towards nicotine use. Attitudes were included here due to the lack of literature assessing descriptive and injunctive norms towards nicotine use. As above, if articles also included self-reported measures of descriptive and injunctive norms *towards smoking and the tobacco industry*, or personal attitudes *towards the tobacco industry*, these were extracted as part of searches (a) and (c).

Outcomes. Any measure of behaviour or cognition related to cigarette smoking, as above.

c) ***Norms towards the tobacco industry***

Search Strategy. A systematic review was carried out. The initial search terms (Appendix 1) were enhanced to encompass a more comprehensive list of search terms. PubMed and EMBASE were searched from 1990 to September 2015, and studies were limited to English language with human participants (Appendix 2).

Inclusion criteria:

> *Predictors.* Articles were included if the predictor variable(s) included self-reported measures of descriptive, injunctive norms or personal attitudes towards the tobacco industry. Attitudinal measures were included for the same reason as above, due to the lack of literature assessing descriptive and injunctive norms towards the tobacco industry. As above, if articles also included self-reported measures of descriptive and injunctive norms towards smoking and nicotine use, or personal attitudes towards nicotine use, these were extracted as part of searches (a) and (b).

> *Outcomes.* Any measure of behaviour or cognition related to cigarette smoking, as above.

2.2.3   Data extraction for the Desk Reviews of the Literature

Data from each study meeting the inclusion criteria were extracted by one reviewer (KE). An extraction database was generated and included: author(s), year, title, objectives, theoretical basis, conflicts of interest, country, setting, population, recruitment method, inclusion/exclusion criteria of article, tobacco/nicotine product (e.g. cigarettes only, cigarettes plus cigars, cigarettes plus e-cigarettes), study design (including follow-up length), sampling strategy, participant details (number, contextual information, demographics, smoking status), method of data collection, details of norms measures (norm type, item wording, response format, details of coding), outcome details and definition/measurement, statistical methods used, results (including bivariate and multivariate relationships between norms and outcome measures, covariates in multivariate model), assessment details of psychometric properties of norms measures (reliability and validity, and evidence of pilot testing), risk of bias (selective reporting, response rate, attrition, adjustment for confounding, follow-up length, statistical methods, other potential bias).

Where full, original item wording and/or data were not available from the article manuscript, authors were contacted. Up to three emails were sent per author; if the author(s) did not respond, data were coded as missing.

2.2.4   Data synthesis for the Desk Reviews of the Literature

Measures included in the Synthesis

A second database was generated listing all measures of norms per article with their wording and response format. Norms measures were only included in this database if there was a statistically significant association between the measure and a smoking-related outcome. Each norms measure was

described using a points system to identify measures with the strongest association with smoking-related outcomes, and those with the strongest reliability and validity overall. The aim was to create a hierarchy of norms measures, with those having the strongest validity and reliability at the top in order to enable for easy identification of the measures most suitable for use in surveys.

For the purposes of analysis, norms measures were grouped into types and subtypes:

3. **Descriptive Norms**

   a. *Descriptive interpersonal norms* are beliefs that people hold about how people who are important to them behave. For example, a person's perception of the number of their close friends or family members that smoke.
   b. *Descriptive societal norms* are beliefs that people hold about how society behaves. For example, a person's perception of the proportion of people in a community, city, or country that smokes.

4. **Injunctive Norms**
   a. *Injunctive interpersonal norms* are beliefs that people hold about how people who are important to them think they should behave. For example, a person's belief about whether their family believes they should or should not smoke.
   b. *Injunctive societal norms* are beliefs that people hold about how society thinks they should behave. For example, a person's belief about whether society approves of smoking.

5. **Personal attitudes** towards smoking, nicotine use or the tobacco industry.

Scoring the Measures

For each norms measure, the following factors were extracted and scored:

1. **Association with smoking-related outcome(s).** The strength of the relation between the norms measure and the associated smoking-related outcomes (e.g. smoking progression, current smoking behaviour, intention to quit). One to three points were provided for the strength of relationship: one point indicated a weak relationship, two points a moderate relationship, and three points a strong relationship.

2. **Design and follow-up length.** Whether the study was cross-sectional or longitudinal. If longitudinal, length of follow-up period between baseline when the norms measures were first assessed and the final follow-up, was documented using one to four points: Studies with a follow-up ≤six months received one point, six months to one year received two points, > 12months to two years received three points, and >two years received four points. Studies that were cross-sectional received no points.

3. **Analysis.** Whether multivariate or univariate analyses were used. If multivariate analyses were used, only this was reported; however if only univariate analyses were used this was reported.

4. **Validity.** Any assessment of validity by the authors. One point was provided for assessment of content (e.g. via focus groups or qualitative interviews) and concurrent (whether the measure agrees with previously validated measures) validity. One to two points were provided for assessment of construct validity (the degree to which the measure assess what it claims, scored by one point for established correlations with other relevant measures, and two points for an established factor analysis or principal components analysis).

5. **Reliability.** One to four points were provided for assessment of internal consistency via Cronbach's alpha: one point was awarded for α=0.00-0.69, two for α=0.70-0.79, three for α=0.80-0.89, and four for α=0.90-1.00. If assessment of internal consistency was inappropriate, such as if a measure was stand-alone, it is not reported; however, if internal consistency was appropriate and not reported in the original article, this is noted.

Other potential sources of bias and other comments were also noted.

Priority was placed on the following factors in the following order: (1) Wording stated for the measures; any measures where wording was not stated and could not be ascertained directly from emailing authors were not shortlisted; (2) Face validity (whether the measures met the aim of the report: to assess norms towards smoking, nicotine use and the tobacco industry and were appropriate for use in UK surveys); (3) Longitudinal studies with long follow-up lengths; (4) Strong association(s) with smoking-related outcome(s); (5) Validity and reliability (Cronbach's alpha, if applicable) overall; (6) Minimal bias; (7) Multivariate analyses.

2.3 Methods: Desk Reviews of the Surveys

In addition to the research literature, existing surveys in the field of public health and tobacco research were scanned to identify measures of norms towards smoking (including second-hand smoke), nicotine use, and the tobacco industry:

- Youth Tobacco Policy Survey (YTPS, 2014).
- Smoking, Drinking and Drug use (SDD, 2005-2014).
- Integrated Household Survey (IHHS, 2009-2012).
- Scottish Health Survey (SHS, 2003-2013).
- Welsh Health Survey (WHS, 2003-2013).
- Health Survey for England (HS4E, 2000-2013).
- Office of National Statistics Opinions and Lifestyle Survey (ONS, 2003-2009).
- Continuous Household Survey Northern Ireland (CHHS, 2006-2014).
- Smoking Toolkit Survey (STS, 2006-2016).
- Action on Smoking and Health (ASH, 2010-2016).
- International Tobacco Control Project 4 Country Survey (ITC-4C, 2002-2014).
- ITC Netherlands Survey (ITC-NL, 2008-2015).
- Scottish Social Attitudes Survey (SSAS, 1999-2015).

The ITC Netherlands Survey, although not a UK survey, was also included as it included large sections assessing norms.

2.4 Methods: Consultation and shortlisting of measures

In order to finalise the measures and draw up new measures to fill gaps where there was a lack of existing literature, we consulted with NatCen (the organization that was commissioned to carry out cognitive testing of the shortlisted items with both youth and adults) and experts. NatCen are Britain's largest independent social research agency, and carry out numerous projects including the Health Survey for England, Scottish Health Survey and the Smoking, Drinking and Drug Use Survey. In addition to large national surveys, they also have experience in qualitative projects and mixed methods research. They were therefore well placed to advise on all facets of this project, from measure development and re-development to cognitive testing and identifying appropriate measures for the pilot survey.The results of the review are separated for measures of norms towards (1) smoking, (2) nicotine use, and (3) the tobacco industry. These are then further separated by results of studies assessing youth and adults. Some of the studies identified for measures of norms towards smoking were also identified for measures of norms towards the tobacco industry, and vice versa.

2.5 Results: Desk Reviews of the Literature and Surveys

2.5.1   Articles Identified from the Desk Review of the Literature

2.5.1.1 **Articles Assessing Norms Towards Smoking Identified from the Desk Review of the Literature**
The desk review of the literature revealed 89 potentially relevant articles (Figure 2.1). Two additional articles were identified after articles were screened at full-text level: (1) de Vries et al., 2002, a report frequently cited in the identified articles, and (2) Hitchman et al., 2014, a paper published by one of this project's authors after the Thrasher Review search had been conducted. Of these, 36 met the inclusion criteria and were included in the review (28 youth articles, eight adult articles). See data extraction tables for included studies in Appendix 3.

```
┌─────────────────────┐
│ Articles screened at │
│ title/abstract level │          ┌──────────────┐
│        N=89          │─────────▶│   Excluded   │
└─────────────────────┘          │     N=37     │
           │                     └──────────────┘
           ▼
┌─────────────────────┐
│ Screened at full-text│
│        level         │
│        N=52          │
└─────────────────────┘
                                 ┌──────────────┐
┌─────────────────────┐          │   Excluded   │
│ Additional items     │────────▶│ Articles: N=17│
│ identified           │         └──────────────┘
│ Articles: N=2        │
│ (de Vries et al., 2002;
│ Hitchman et al., 2014)│
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│      Included        │
│   Articles: N=37     │
└─────────────────────┘
      │           │
      ▼           ▼
┌──────────┐  ┌──────────┐
│  Youth   │  │  Adult   │
│Articles: │◀▶│Articles: │
│  N=29    │  │   N=8    │
└──────────┘  └──────────┘
```
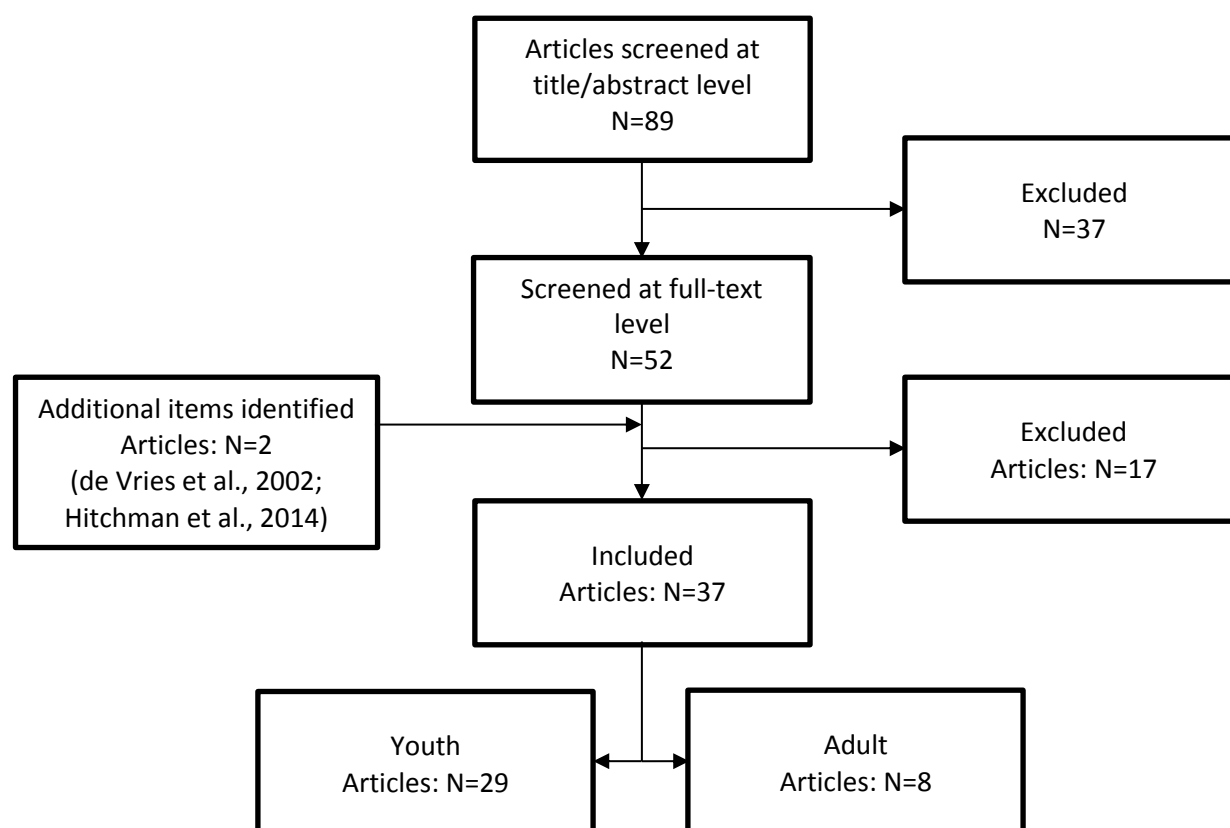
Figure 2.1 Screening and selection process for the desk review of literature assessing norms towards smoking

Youth

Twenty nine articles were identified for youth; 28 were published academic papers, whilst one (identified at a later stage in the screening process) was a report (de Vries et al., 2002). One of the

published academic papers (Kremers et al., 2004) was included in the de Vries (2002) report, however the academic paper provided more in-depth detail about the study and additional information important for the current review, thus both were included. Twenty four articles used data from the USA, two from the UK, two from six EU countries (Finland, Denmark, UK, Netherlands, Spain & Portugal) and one from Australia. Of the 29 articles, 16 used longitudinal data and 13 used cross-sectional data; 24 used questionnaires administered in schools, whilst five used household questionnaires administered over-the-phone. Further details of the included studies are available in Appendix 3.

Smoking-related outcomes examined in relation to norms included smoking status (n=10), smoking uptake/initiation (n=4), smoking progression/trajectory (n=3), daily smoking behaviour or past week/month smoking behaviour (n=4), smoking involvement (n=1), smoking cessation (n=1), intention to smoke (n=7) and susceptibility to smoking (n=3). The sum of the numbers for norms and smoking-related outcomes is each more than 29 because many studies included multiple outcome measures.

Adult

Eight articles were identified for adults. Two articles used data from Canada, USA, UK and Australia, whilst five used data from the USA, and one from the UK only. Of the eight articles, three used longitudinal data and five used cross-sectional data. Five used household questionnaires administered over-the-phone, whilst two used questionnaires administered face-to-face at university, and one used online questionnaires. Five studies used adults ≥18 years, whilst two used young adults age 18-30 years, and one used first year college students where age was not stated. Further details of the included studies are available in Appendix 3.

Smoking-related outcomes examined in relation to norms included: smoking status (n=1), smoking frequency (n=1), intention to quit (n=6), quit attempts and quit success (n=1), intention to smoke (n=1), susceptibility to smoking (n=1) and smoking cessation self-efficacy (n=1). As with the youth results, the sum of the numbers for norms and smoking-related outcomes is each more than eight, as many studies included more than one norm and outcome measure.

2.5.1.2 Articles Assessing Norms Towards Nicotine Use Identified from the Desk Review of the Literature

The desk review of the literature revealed 2793 potentially relevant articles (Figure 2.2). No articles met the inclusion criteria specified. Therefore, the surveys and experts were consulted to help develop measures assessing norms towards the use of nicotine products.
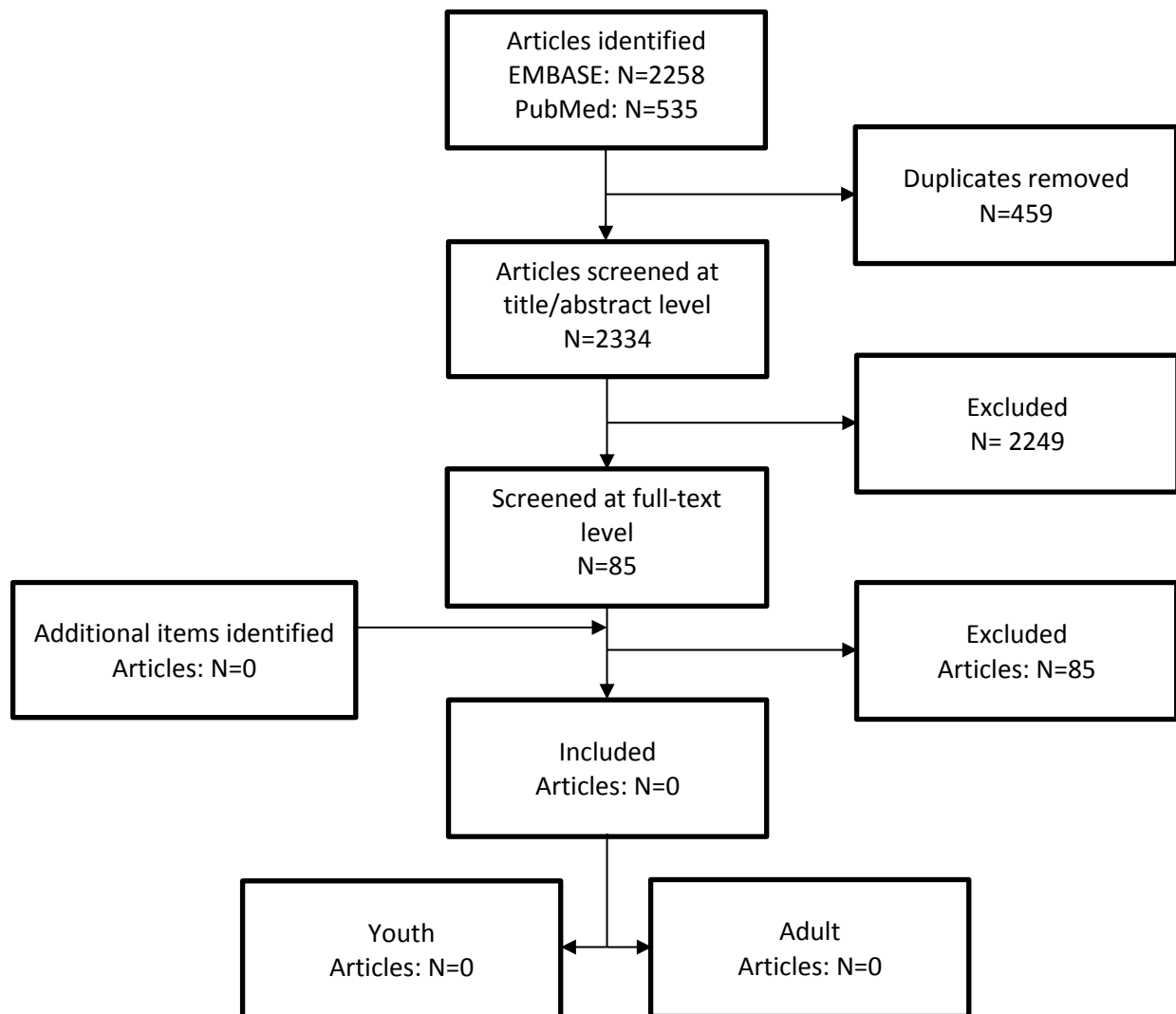
Figure 2.2 Screening and selection process for the desk review of literature assessing norms towards nicotine use

2.5.1.3 Articles Assessing Norms Towards the Tobacco Industry Identified from the Desk Review of the Literature

The desk review of the literature revealed 473 potentially relevant articles (Figure 2.3). Three additional articles were identified after articles were screened at full-text level from the social norms search. Of these, 13 met the inclusion criteria and were included in the review (nine youth, one adult, two young adult, and one youth/young adult). Data extraction tables for included studies are presented in Appendix 3.

```
                    ┌──────────────────────┐
                    │  Articles identified  │
                    │   EMBASE: N=273       │
                    │   PubMed: N=200       │
                    └──────────┬───────────┘
                               │           ┌──────────────────────┐
                               ├──────────▶│  Duplicates removed   │
                               │           │        N=141          │
                               ▼           └──────────────────────┘
                    ┌──────────────────────┐
                    │ Articles screened at  │
                    │ title/abstract level  │
                    │        N=332          │
                    └──────────┬───────────┘
                               │           ┌──────────────────────┐
                               ├──────────▶│      Excluded         │
                               │           │        N=227          │
                               ▼           └──────────────────────┘
                    ┌──────────────────────┐
                    │  Screened at full-text │
                    │        level          │
                    │        N=55           │
                    └──────────┬───────────┘
  ┌───────────────────────┐    │           ┌──────────────────────┐
  │ Additional items       │───▶├──────────▶│      Excluded         │
  │ identified             │    │           │   Articles: N=45      │
  │ Articles: N=3          │    ▼           └──────────────────────┘
  └───────────────────────┘ ┌──────────────────────┐
                            │      Included         │
                            │   Articles: N=13      │
                            └──────────┬───────────┘
              ┌──────────────────┐  ◀──┴──▶  ┌──────────────────┐
              │     Youth         │          │      Adult        │
              │ Articles: N=10*   │          │ Articles: N=4*    │
              └──────────────────┘          └──────────────────┘
```
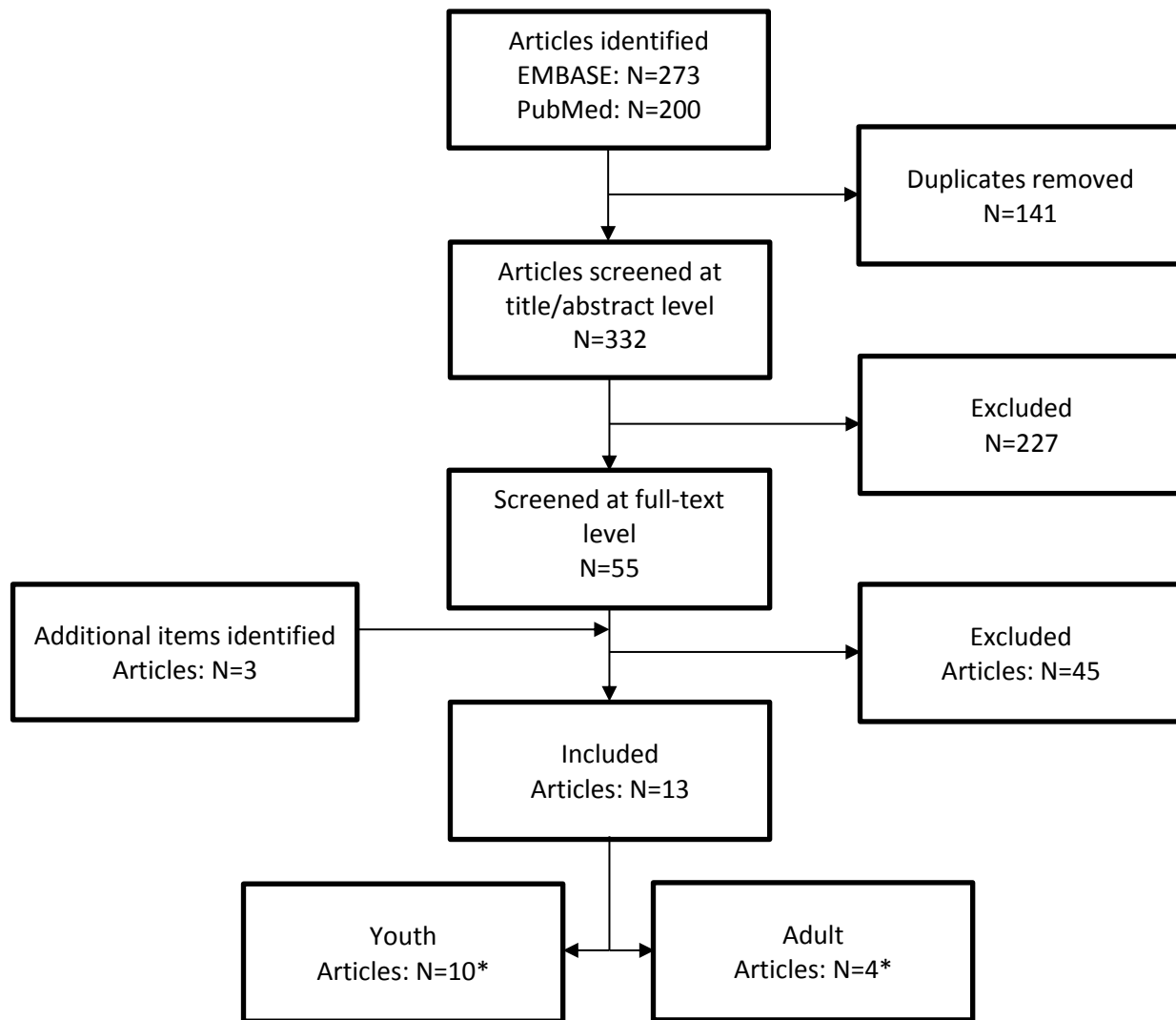
Figure 2.3 Screening and selection process for the desk review of literature assessing norms towards the tobacco industry. *One article assessed both youth and adults.

Youth

Ten articles were identified for youth. One article assessed both youth and young adults. Nine articles used data from the US and one from New Zealand. Of the 10 articles, two used longitudinal data and eight used cross-sectional data. Nine used household questionnaires administered over-the-phone, whilst only one used questionnaires administered in schools. Further details of the included studies are available in Appendix 3.

Adult

Four articles were identified for adults. Of these, two articles were restricted to young adults, one was youth and young adults, and one was all adults age 18+. One article used data from Canada, US, UK and Australia, whilst three used data from the US. One article used longitudinal data and three used cross-sectional data. All four articles used telephone surveys. Further details of the included studies are available in Appendix 3.

Only one article assessed any actual norms towards the tobacco industry, therefore the extracted articles for this search were broadened to include those which also assess attitudes. Six articles extracted within the tobacco industry norms review were also included within the social norms review. For both youth and adults, the articles measured a range of norms and smoking-related outcomes. The sum of the numbers for norms and smoking-related outcomes is each more than 10 (youth) and 4 (adult) as many studies included more than one norm and outcome measure.

2.5.2 Surveys Assessing Norms Towards Smoking, Nicotine Use and the Tobacco Industry Identified from the Desk Review of Existing UK Surveys

Of the 13 surveys identified, four were excluded as they did not include any norms measures (the IHHS, SHS, WHS and SSAS) and therefore these are not discussed further. Of the nine remaining surveys, two focused exclusively on youth, five exclusively adult, and two included both youth and adult respondents. Details of the included surveys are presented in Table 2.1.

Table 2.1 Details of existing UK surveys containing measures of norms towards smoking, nicotine use and the tobacco industry. Survey details, respondent details and norms assessed are documented.

	Survey details			Respondent details		
	Years	**Country**	**Mode of administration**	**Age**	**Smoking status**	**Norms assessed**
Youth only						
Smoking, Drinking and Drug use (SDD)	2005-2014	England	Self-completion in schools	11-15	Smokers and non-smokers	• Descriptive and injunctive norms towards smoking • Attitudes towards smoking
Youth Tobacco Policy Survey (YTPS)	2014	UK	Household: self-completion or face-to-face interview	11-16	Smokers and non-smokers	• Descriptive norms towards smoking • Descriptive and injunctive norms towards nicotine use
Adult only						
Office of National Statistics Opinions and Lifestyle Survey (ONS)	2003-2009	Great Britain	Household face-to-face interview	16+	Smokers and non-smokers	• Injunctive norms towards smoking and attitudes towards smoking
Continuous Household Survey (CHHS)	2006-2009	Northern Ireland	Household face-to-face interview	16+	Smokers and non-smokers	• Attitudes towards smoking
Action on Smoking and Health (ASH)	2014	Great Britain	Online	18+	Smokers and non-smokers	• Descriptive norms towards smoking • Attitudes towards smoking and the tobacco industry
International Tobacco Control Project 4 Country (ITC-4C)	2002-2014	USA, Canada, UK & Australia	Online and telephone	18+	Smokers	• Descriptive and injunctive towards smoking • Attitudes towards smoking, nicotine use and the tobacco industry
Smoking Toolkit Study (STS)	2006-2016	England	Household face-to-face interview	16+	Smokers and non-smokers	• Descriptive norms towards smoking
Youth and adult						
ITC-Netherlands (ITC-NL)	2008-2015	Netherlands	Online/telephone	15+	Smokers	• Descriptive and injunctive norms towards smoking • Attitudes towards smoking and the tobacco industry
Health Survey for England (HSE)	2011-2013	England	Household	All	Smokers and nonsmokers	• Descriptive norms towards smoking

2.5.3 Youth Norms Towards Smoking Shortlisted for Cognitive Testing From the Desk Review of the Literature and Surveys

There was a vast amount of literature assessing the relation between norms towards smoking and smoking-related outcomes in youth. As described in Section 2.2.4 (Data synthesis), norms were grouped into types and subtypes: descriptive norms (interpersonal and societal), injunctive norms (interpersonal and societal), and personal attitudes towards smoking. Interpersonal norms were further split by reference group (e.g. friends, family, siblings) due to their large number.

For each subtype of norm, significant associations between individual norm measures and smoking-related outcomes are displayed for each included study in Tables 2.2 to 2.17 as well as relevant norms measures identified from the surveys. Non-significant relationships are not presented but are available from the data extraction tables in Appendix 3. The measures are presented from high to low scoring per norm category based on their validity and reliability scores from the data synthesis. The exact wording of each measure and response format is presented unless wording was not stated (WNS). Measures with WNS were not considered further and therefore placed at the bottom of each table. Survey measures were listed subsequently and were used to inform revisions of shortlisted measures and the development of new measures. Box 1 presents the key to each table.

Table Key for tables 2.2 to 2.30 (both adult and youth)

WNS=wording not stated. N/A=not applicable (in the context of Cronbach's alpha (A), this means measures were single items and therefore a test of internal reliability was not applicable.

Association with smoking-related outcome(s): ✓ = OR (odds ratio) <2 or >0.5; F<10; β/B<0.2; t<3; v=low proportion of variance explained. ✓ ✓ OR=2-5 or 0.2-0.5 (inclusive); F=10-100 (inclusive); β/B=0.2-0.6 (inclusive); t=3-10 (inclusive); v=medium proportion of variance explained. ✓ ✓ ✓ OR = >5 or <0.2; F>100; β/B >0.6; t>10; v=high proportion of variance explained. *p<.05, **p<.01, ***p<.001. Not all studies reported a statistical coefficient; for such studies only the p value is indicated.

Design and follow-up (F/U) length: C = cross-sectional, L = longitudinal, ✓ = ≤6 months, ✓ ✓ = 6 months to 1 year (inclusive), ✓ ✓ ✓ = 1 year to 2 years (inclusive), ✓ ✓ ✓ ✓ = ≥2 years.

Analysis: M=multivariate, U=univariate.

Validity & reliability: Validity: ✓ = validity established, except for construct validity where ✓ = construct validity established via correlations with relevant measures, and ✓ ✓ = construct validity established via factor analysis. Reliability (Cronbach's α): ✓ = α=0.00-0.69; ✓ ✓ = α=0.70-0.79; ✓ ✓ ✓ = α=0.80-0.89; ✓ ✓ ✓ ✓ = α=0.90-1.00. If assessment of internal consistency is inappropriate, such as if a measure is stand-alone, it is not reported.

Surveys: SDD = smoking, drinking and drug use; YTPS=Youth Tobacco Policy Survey; ONS = Office of National Statistics Opinions and Lifestyle Survey; ASH = Action on Smoking and Health; ITC-4C = International Tobacco Control Project 4 Country, STS = Smoking Toolkit Study, ITC-NL = ITC-Netherlands; HSE = Health Survey for England.

The final selected measures are shaded in Tables 2.2 to 2.17 below. The rationale for the final selection of measures within each norm category is described in the section below.

Descriptive Interpersonal Norms

Perceived friends' smoking (Table 2.2). The most common norm identified in the smoking search was "perceived friends' smoking", in which there were 23 norm measures from the literature associated with a range of smoking-related outcomes. The large number of significant measures and the consistent associations both cross-sectionally and longitudinally suggest that perceived friends' smoking is a commonly used measure robustly associated with smoking-related outcomes. The measure **"How many of your five closest friends smoke?"** was shortlisted for cognitive testing for the following reasons: (1) It was modestly associated longitudinally with smoking initiation (Simons-Morton, 2002) and associated cross-sectionally with smoking stage (Szabo et al., 2006), ever smoking and current smoking (Buller et al., 2003), (2) "Five" was considered superior to a lower number such as three or four, as it would allow for a broader range of close friends, and (3) Asking about "closest" friends was considered superior to "best" friends, as this was the wording used in the YTPS.

Table 2.2 Smoking review outcomes and survey measures (youth): Association with friends' smoking measures and smoking-related outcomes, with details of design, analysis, validity and reliability, and bias and other comments. Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Does your best friend smoke (0 or 1, no or yes) de Vries et al. (2002)	*: Smoking status (committer < immotive < progressive/preparer)	L ✓ ✓	M	Content: ✓ Construct: ✓	
Of your four best male friends, how many of them smoke? (none/any) Distefan et al. (1998)	✓OR*: Smoking progression (never->experimentation, experimentation->established)	L ✓ ✓ ✓ ✓	M	Concurrent: ✓ Construct: ✓	
Of your four best female friends, how many of them smoke? (none/any) Distefan et al. (1998)	✓OR*: Smoking progression (experimentation->established)	L ✓ ✓ ✓ ✓	M	Concurrent: ✓ Construct: ✓	Not predictive of never-> experimentation
How many of your friends do you think smoke cigarettes? (None, Less Than Half, Half, More Than Half, All) Nichols et al. (2006)	✓OR*: Smoking initiation 8th-9th grade	L ✓ ✓ ✓	M		Not predictive of 7th-8th grade initiation
How many of your five closest friends smoke? (0/1/2/3/4/5) Simons-Morton (2002)	✓OR*: Smoking initiation (W1 non-recent smoker -> W2 recent smoker)	L ✓ ✓	M		
How many of your 5 closest friends smoke? (0-5, no friends to 5 friends) Szabo et al. (2006)	✓ ✓ ✓OR*: Smoking stage (susceptible, experimental, current vs. non-susceptible; current vs. experimental; and experimental vs. susceptible)	C	M		
How many of your friends who are boys use tobacco products? How many of your friends who are girls use tobacco products? (none, a few of them, some of them, most of them, all of them) Pokorny et al. (2004)	✓ ✓OR***: Current smoking	C	M		
How many of your three best friends have tried smoking a cigarette, even one puff? (0-3, none to 3 friends) Jackson (1997)	✓ ✓F***: Smoking stage (abstinence->initiation->experimentation)	C	U		
How many of your four closest friends smoke cigarettes? (1-6, none, one, two, three, four, not sure) De Vries et al. (2002)	✓ ✓β/B*: Smoking involvement (combination of smoking status and intention)	C	M	Construct: ✓ ✓	
How many of your best friends smoke cigarettes? (4-point scale, none, a few, some, a lot) Unger et al. (2000)	✓ ✓OR*: Ever smoking	C	M	Construct: ✓	
How many of your friends smoke? (none, some, half, most, all) Eisenberg & Forster (2003)	✓ ✓OR***: Smoking behaviour (past month/past week/daily)	C	M	Construct: ✓	
WNS: Participants indicated how many of their friends smoke (none, few, half, most, all) Smith et al. (2007)	✓OR**: Intention to try smoking in the next 30 days and 6 months	C	M	Concurrent: ✓ Construct: ✓	
How many of your best friends smoke cigarettes? (4-point scale, none, a few, some, a lot) Unger et al. (2001)	✓β/B ***: Current smoking and smoking susceptibility	C	M		

Continued below…

Table 2.2 Smoking review outcomes and survey measures (youth): Association with friends' smoking measures and smoking-related outcomes, with details of design, analysis, validity and reliability, and bias and other comments. Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How many of 5 closest friends smoke? (1/2/3/4/5/don't know) Buller et al. (2003)	✓X^2***: Ever smoking and current vs. past use of cigarettes	C	U		X^2 not appropriate for this comparison
WNS: Participants indicated the number of their four best friends that smoke cigarettes (0-4) Bernat et al. (2008)	✓✓OR*: Smoking trajectory (ns -> trier/occ user/early/late onset/decliner)	L✓✓✓✓	M		
WNS: Number of friends who tried smoking (none, 1, 2 ≥1) Flay et al. (1998)	✓OR***: Smoking stage (never users, triers, experimenters, regular)	L✓✓✓✓	M		
WNS: At least 1 of 3 best friends smoked daily Hu et al. (2006)	✓OR*** daily smoking and ✓ ✓OR*** lifetime dependence	L✓✓✓✓	M		Not associated with current dependence
WNS: Close friend smoking Forrester et al. (2006)	✓OR*: Smoking uptake	L✓✓✓	M		
WNS: Number of friends who tried smoking (none, 1, 2 ≥1) Flay et al. (1998)	✓OR***: Smoking stage (never users, triers, experimenters, regular)	L✓✓✓✓	M		
WNS: At least 1 of 3 best friends smoked daily Hu et al. (2006)	✓OR*** daily smoking and ✓ ✓OR*** lifetime dependence	L✓✓✓✓	M		Not associated with current dependence
WNS: Close friend smoking Forrester et al. (2006)	✓OR*: Smoking uptake	L✓✓✓	M		
WNS: Best friend smokes/friend in general smoke Kremers et al. (2004)	✓v: Progression to immotive, progressive & contemplator stages (intention)	L✓✓	U	Content: ✓ Construct: ✓	*p* values not reported
WNS, 2 items: Smoking status of best friend, and how often respondent is around kids who smoke Hampson et al. (2007)	**: Intention to smoke	L✓✓✓	M	Construct: ✓ α=Not reported	
WNS, 2 items: Smoking status of best friend, and how often respondent is around kids who smoke Ellickson et al. (2003)	***: Smoking frequency in past month	L✓✓	M		
WNS: Friend smoking (yes/no) Primack et al. (2006) and (2007)	✓✓✓OR* Current smoking and ✓✓OR* smoking susceptibility	C	M	06: Concurrent: ✓	
WNS: Of four best male friends, how many smoke? Wang et al. (1995)	✓✓✓OR* Male current smoking (vs. never)	C	M		
WNS: Of four best female friends, how many smoke? Wang et al. (1995)	✓✓✓OR*: Female current smoking (vs. never)	C	M		
WNS: Participants indicated how many of their friends smoke (none, few, half, most, all) Smith et al. (2007)	✓OR**: Intention to try smoking in the next 30 days and 6 months	C	M	Concurrent: ✓ Construct: ✓	
Survey item wording and response format					**Survey**
As far as you know, how many of your closest friends smoke at least one cigarette a week? Please tick one box only. (1 –All of them, 2 – Most of them, 3 – About half of them, 4 – A few of them, 5 – None of them, 9 – I'm not sure)					YTPS

Perceived parental smoking (Table 2.3). Fourteen measures of "perceived parental smoking" were significantly associated with a range of smoking-related outcomes. In general, measures accounted for the smoking behaviour of both parents (either referring to "parents", or "father" and "mother" separately and then combining the answers); there were only two instances in which father's and mother's smoking was assessed separately and found to be predictive. The de Vries (2002) measure **"Does your mother/father smoke"** was shortlisted for cognitive testing for the following reasons: (1) It was modestly associated longitudinally with smoking stage and status in two separate studies within the de Vries (2002) report, and (2) It asked simply about "mother" or "father" rather than narrowing them to "resident mother/father" or broadening it to "stepmother/stepfather". The YTPS broadened the definition of parents by asking about carers: "mum/female carer" and "dad/male carer". The definition of "parents" was an issue that was assessed further when appraising measures in the cognitive testing.

Table 2.3 Smoking review outcomes and survey measures (youth): Association with perceived parental smoking measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Has she [resident mother] ever smoked cigarettes? Has he [resident father] ever smoked cigarettes? (yes/no/don't know) - then coded 0/1/both smoke Hu et al. (2006)	✓ OR***: Ever smoked daily, lifetime dependence and current dependence	L ✓✓✓✓	M		
Does your mother/father smoke (0 or 1, no or yes) De Vries et al. (2002)	✓ OR*: Smoking stage (never -> experimenter/daily), *: smoking frequency	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓	
Does your mother smoke (0 or 1, no or yes) De Vries et al. (2002)	*: Smoking status (committer -> immotive -> progressive/preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓	
Does your father smoke (0 or 1, no or yes) De Vries et al. (2002)	*: Smoking status (committer -> immotive -> progressive/preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓	
Does your father (or male guardian) smoke? (yes, no, don't know, does not apply) Eisenberg & Forster (2003)	✓ OR***: Smoking behaviour (past month/past week/daily)	C	M	Construct: ✓	
Does your mother (or female guardian) smoke? (yes, no, don't know, does not apply) Eisenberg & Forster (2003)	✓ OR: Smoking behaviour (past month*/past week***/daily***)	C	M		
Does your mother/stepmother/adopted mother/female caregiver smoke? Does your father/stepfather/adopted father/male caregiver smoke? (yes/no) Szabo et al. (2006)	✓ OR*: Smoking stage (susceptible, experimental, current vs. non-susceptible; and current vs. experimental)	C	M		Not associated with experimental vs. susceptible
WNS: Participants indicated if their mother/stepmother and father/stepfather smoke cigarettes (yes/no) Bernat et al. (2008)	✓✓ OR*: Smoking trajectory (nonsmoker-> trier/occasional/early onset/late onset/decliner)	L ✓✓✓✓	M	α=Not reported	
WNS: Perceived parental smoking (no/one/both) Flay et al. (1998)	✓ OR: Smoking stage (triers*, experimenters*, regular*** vs. never users)	L ✓✓✓✓	M		
WNS: Parental smoking Forrester et al. (2006)	✓ OR***: Smoking uptake	L ✓✓✓	M		
WNS: Father smokes/mother smokes Kremers et al. (2004)	✓ v: Progression to immotive stage of smoking (no intention to start or not)	L ✓✓	U	Content: ✓ Construct: ✓✓	*p* values not reported
WNS: Parental smoking (one or both smokers, both nonsmokers) Jackson (1997)	✓✓ F*: Smoking stage (abstinence->initiation->experimentation)	C	U		
WNS: Parental smoking (yes/no) Primack et al. (2006) and (2007)	06: ✓✓ OR*: Current smoking 07: ✓ OR*: Current smoking	C	M	06: Concurrent: ✓	Not associated with susceptibility
Survey item wording and response format					**Survey**
Does your mum/female [dad/male] carer smoke at all nowadays? Please tick one box only. (Yes, No, I do not have/see this person, I'm not sure)					YTPS

Perceived sibling smoking (Table 2.4). Nine measures of "perceived sibling smoking" were significantly associated with a range of smoking-related outcomes. Reference group varied, such that some measures referred to "sibling" smoking, some to "brother(s)/sister(s)", some to one or the other, and some exclusively to "older brothers and sisters or "older sister." Sibling was associated with various smoking-related outcomes and can be considered a robust measure. The de Vries et al. (2002) measure **"Does your brother(s)/sister(s) smoke?"** was shortlisted for cognitive testing for the following reasons: (1) It was the sibling measure most strongly associated with a smoking-related outcome, (2) It was the only sibling measure assessed longitudinally that stated the exact wording, (3) Being from the de Vries (2002) report, it was consistent with the parental smoking measure, and (4) It was similar to the measure used in the YTPS.

Table 2.4 Smoking review outcomes and survey measures (youth): Association with perceived sibling smoking measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Does your brother(s)/sister(s) smoke? (0 or 1, no or yes) De Vries et al. (2002)	✓OR*: Smoking cessation, experimenter/daily smoker vs. never smoker, *:smoking status (committer < immotive < progressive/preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓	
Do you have any older brothers or sisters who smoke? (yes, no, don't know, does not apply) Eisenberg & Forster (2003)	✓OR***: Smoking behaviour (past month/past week/daily)	C	M	α=✓	
WNS: Sibling smoking Forrester et al. (2006)	✓OR***: Smoking uptake	L ✓✓✓	M		
WNS: Sibling smoking (1-5, none to all/nearly all) Epstein et al. (2007)	***: Intention to smoke	L ✓✓✓	U	Content: ✓	
WNS: Older sister smoking Wilkinson & Abraham (2004)	✓b&t *: Intention to smoke	C	M	Construct: ✓ Face: ✓	Not associated with W2 smoking behaviour
WNS: Sibling smoking (yes/no) Primack et al. (2006) and (2007)	✓OR*: Current smoking	C	M	06: Concurrent: ✓	Not associated with susceptibility
Survey item wording and response format					**Survey**
Do you have any brothers or sisters who smoke? Please tick one box only. (Yes, No, I do not have/see this person, I'm not sure)					YTPS

Perceived family smoking (Table 2.5). One measure assessed perceived parent and older sibling smoking within the same set of measures. This was modestly associated with smoking initiation from 7th-8th grade, but not 8th-9th grade. However, it is possible that these results are due to a survival effect, whereby those who had not already initiated smoking by grade 8 were then unlikely to initiate smoking by grade 9. This measure also included the response option "used to but quit," which was not assessed in any of the other measures. Whilst, it was possible that combining parental and older sibling smoking in one measure was more efficient than asking both separately, this measure was not shortlisted for cognitive testing as we had selected measures assessing parental and sibling smoking separately from the de Vries (2002) report. No measures from existing UK surveys were identified.

Table 2.5 Smoking review outcomes (youth): Association with perceived the family smoking measure and smoking initiation, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Does your mother/father/older sibling smoke cigarettes? (No, Don't Know, Used To But Quit, Yes) Nichols et al. (2006)	✓OR*: Smoking initiation 7th-8th grade	L ✓✓✓	M	α=Not reported	Not associated with 8th-9th grade initiation

Grouped descriptive interpersonal norms (Table 2.6). One measure assessed parental, sibling, friend, classmates and teachers smoking all within the same set of items. This was cross-sectionally associated with intention to smoke. This measure was not selected as the separate norms measures had already been identified to be longitudinally associated with smoking-related outcomes and were shortlisted instead. No measures from existing UK surveys were identified.

Table 2.6 Smoking cigarette review outcomes (youth): Association with grouped descriptive interpersonal norms and intention to smoke, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Do the following people smoke? Mother, father, siblings, best friend (-4 to 0, do smoke to do not smoke); How many of the following people smoke? Friends, classmates, teachers (most smoke, a lot smoke, half smoke, few smoke, none smoke) Markham et al. (2004)	✓✓t ***: Intention to smoke	C	M		

Descriptive Societal Norms

Perceived peer smoking prevalence (Table 2.7). Perceived prevalence measures were also very common, with 16 smoking-related outcome associations overall. There were numerous reference group variants on this measure, and the number used to assess perceived prevalence varied. The two Flay et al. (1998) measures "**(a) Out of every 100 students your age, how many do you think have tried smoking cigarettes? (b) Out of every 100 students your age, how many do you think smoke cigarettes at least once a week?**" were shortlisted for cognitive testing for the following reasons: (1) They were the perceived prevalence measures most strongly associated with a smoking-related outcome, (2) They assessed percentage of students without explicitly asking respondents to estimate a percentage, which is likely to be easier for younger respondents, and (3) They asked about "students your age", which is much broader than the commonly used alternative "people in your year", and similar to the YTPS and SDD phrasing "people your age". Whether the word "people" or "students" is more appropriate was discussed with NatCen. The Flay et al. (1998) measure assessing adult norms is included in Table 2.8 in the subcategory *Societal smoking prevalence.*

Table 2.7 Smoking review outcomes and survey measures (youth): Association with perceived peer prevalence measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
3 items: (a) Out of every 100 students your age, how many do you think have tried smoking cigarettes? (b) Out of every 100 students your age, how many do you think smoke cigarettes at least once a week? (c) Out of every 100 adults, how many do you think smoke cigarettes at least once a week? Flay et al. (1998)	✓ OR***: Experimenter/regular vs. never user	L ✓✓✓✓	M	α=✓✓	No difference between triers vs. never users
Do people in the same school year smoke? (0-4, almost nobody smokes to almost everybody smokes) De Vries et al. (2002)	✓ OR*: Experimenter/daily smoker vs. never smoker	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓	
In your opinion, how many people your age smoke cigarettes? (1-5, none to all/nearly all) Epstein et al. (2007)	***: Intention to smoke	L ✓✓✓	U	Content: ✓	
What percentage of eighth graders smoke? [asked by gender] (Almost none, less than half, about half, more than half, nearly all) Simons-Morton (2002)	✓ OR*: Smoking initiation (W1 non-recent smoker -> W2 recent smoker)	L ✓✓	M	Construct: ✓	Response options don't match measure
What percentage of 12th graders/8th graders/college students smoke cigarettes at least once a month? (0-100%) Primack et al. (2007)	✓ OR*: Current smoking	C	M	Content: ✓ Concurrent: ✓ Construct: ✓✓ α=✓	
Of all the [4th or 6th] graders at your school, how many do you think have tried smoking a cigarette? (0-3, none to most or all) Jackson (1997)	✓✓ F***: Smoking stage (abstinence->initiation->experimentation)	C	U		
Out of every 100 students your age, how many do you think smoke cigarettes once a month or more? (11 point scale, none of them to about 100) Unger et al. (2001)	✓ β/B ***: Current smoking and smoking susceptibility	C	M		
What is your best guess about the percent of students in your grade at school who smoke or use smokeless tobacco? (0%-20%, 21-40%, 41-60%, 61%-80%, 81%-100%) Eisenberg & Forster (2003)	✓ OR: Past week* and daily*** smoking behaviour	C	M	Construct: ✓	Not associated with past month smoking
Out of 100 students, how many do you think have tried smoking cigarettes/smoke at least once a week? (all/most/some/none) Buller et al. (2003)	✓ X^2***: Ever smoking, and current vs. past smoking	C	U		X^2 not a good test for this comparison
In your community, how many people your age do you think have had a cigarette in the last 30 days? (none, few, half, most, all) Smith et al. (2007)	✓ OR*: Intention to try smoking in the next 30 days	C	M		
How many [students your age in your school, of your close friends] smoke cigarettes at least once a week? (Visual analogue, 0% (None)-100% (All) in 10% intervals) Gunther et al. (2006)	***: Smoking susceptibility	C	M	Construct: ✓ α=✓✓✓	Alternative explanations possible, void cause & effect
WNS: Participants indicated the number of teenagers their age they think smoke Bernat et al. (2008)	✓✓ OR*: Smoking status (Trier/occasional/early onset/late onset/decliner vs. nonsmoker)	L ✓✓✓✓	M		

Continued below…

Table 2.7 Smoking review outcomes and survey measures (youth): Association with perceived peer prevalence measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
WNS: Perceived percentage of smoking by same-aged peers (5-point scale, indeces not stated) Forrester et al. (2006)	✓OR***: Smoking uptake	L ✓✓✓	M		
WNS: Estimate the percentage of grade eight students in his/her school who smoke cigarettes (direct open-end response) Ellickson et al. (2003)	✓OR: Smoking frequency in past month	L ✓✓	M		
WNS: Indicate what proportion of their school's students smoke cigarettes (1-5, none to all) Carvajal et al. (2000)	✗ F/U, ✓✓OR* baseline: Ever smoking (vs. never)	L ✓✓	M	Content: ✓	Not predictive of current smoking in total sample
WNS: Indicate how often they notice teens smoking in 12 different locales (inc. homes, school, work, shopping centre) (never, occasionally, often) Eisenberg & Forster (2003)	✓OR***: Smoking behaviour (past month/past week/daily)	C	M	Content: ✓	

Survey item wording and response format					Survey
Can you read the statements on both sides of this card and give me the number that best describes what you think? (1-Hardly anyone my age smokes to 5-Most people my age smoke)					YTPS
How many 15 year olds, do you think smoke at least one cigarette a week? (1-None; 2-Very few; 3 -A few 4- About half; 5- Most; 6- Almost all; 7-All; 9-I'm not sure)					YTPS
Thinking about people your own age, how many of them do you think smoke cigarettes? (All of them , Most, but not all, About half, Only a few, None of them)					SDD

Perceived societal smoking prevalence (Table 2.8). Three measures of perceived societal prevalence were associated with smoking-related outcomes. None of these were selected given we had already shortlisted two measures for assessing peer smoking prevalence and data on perceived societal prevalence were much less common, suggesting that this is a less frequently assessed norm.

Table 2.8 Smoking review outcomes and survey measures (youth): Association with perceived societal prevalence of smoking measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
3 items: (a) Out of every 100 students your age, how many do you think have tried smoking cigarettes? (b) Out of every 100 students your age, how many do you think smoke cigarettes at least once a week? (c) Out of every 100 adults, how many do you think smoke cigarettes at least once a week? Flay et al. (1998)	✓OR***: Experimenter/regular vs. never user	L ✓✓✓✓	M	α=✓✓	No difference between triers vs. never users
What percentage of all people in the US smoke cigarettes at least once a month? Primack et al. (2007)	✓OR*: Current smoking	C	M	Content: ✓ Concurrent: ✓ Construct: ✓✓ α=✓	Not associated with susceptibility to smoking
WNS: Participants indicated the number of adults they think smoke Bernat et al. (2008)	✓OR*: Smoking trajectory (ns -> trier/occ user/early/late onset/decliner)	L ✓✓✓✓	M		
Survey item wording and response format					**Survey**
Can you read the statements on both sides of this card and give me the number that best describes what you think? (1- Hardly anyone my parents' age smokes to 5- Most people my parents' age smoke)					YTPS
Do you find that you are often near people who are smoking in any of these places? (list of places) (No, Yes, No answer/refused, Don't know, Item not applicable)					HSE

Injunctive Interpersonal Norms

There were fewer data available on injunctive than descriptive norms across all reference categories.

Perceived friends' attitudes towards smoking (Table 2.9). Whilst the relationship between smoking-related outcomes and friends' descriptive norms is well-established, it is less so for friends' injunctive norms. Five measures of perceived friends' attitudes were associated with smoking-related outcomes. The wording of "friend" was inconsistent for each measure, and three measures referred to the importance of "smoking", "not smoking" or "staying off cigarettes", with two measures simply referring to friends' approval, or how friends would feel about smoking. The Carvajal et al. (2000) measure **"How would your close friends feel about you smoking cigarettes? How important are your close friends' feelings about you smoking cigarettes?"** was shortlisted for the following reasons: (1) It was the friends' attitudes measure most strongly associated with a smoking-related outcome, (2) It was the only longitudinal measure to state the exact item wording. The response options were not stated for this measure, however the approve-disapprove scale used in the YTPS was used, in addition to discussions with NatCen.

Table 2.9 Smoking review outcomes and survey measures (youth): Association with perceived friends' attitudes measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How would your close friends feel about you smoking cigarettes? (response format not stated). How important are your close friends' feelings about you smoking cigarettes? (response format not stated) Carvajal et al. (2000)	✓✓OR*: Ever smoking (vs. never)	L✓✓	M	Content: ✓ α=Not reported	Not predictive of current smoking in total sample
According to my friends/most people my age, it is very important for me to not smoke cigarettes (4-point scale, strongly agree to strongly disagree) Primack et al. (2007)	✓OR***: Current smoking, ✓OR*: susceptibility to smoking	C	M	Content: ✓ Concurrent:✓ Construct: ✓ α=✓✓✓	
How important do the following people think it is for you to stay off cigarettes (best friend)? (1-4, very important to not important at all) Buller et al. (2003)	✓t: Ever smoking*** and current vs. past use*** of cigarettes, and susceptibility to smoking in never** and past* users	C	U		
WNS: Perceived friends' approval of smoking yes/no Flay et al. (1998)	✓✓OR***: Smoking stage (never user vs. experimenter/regular)	L✓✓✓✓	M	α=Not reported	No difference between triers vs. never users
WNS: Perceptions on whether peers (best friend/friends in general) think they should smoke or not Kremers et al. (2004)	✓v: Progression to immotive stage of smoking (no intention to start or not)	L✓✓	U	Content: ✓ Construct: ✓ α=✓✓	p values not reported
Survey item wording and response format					**Survey**
Can you read the statements on both sides of this card and give me the number that best describes what you think? 1-My friends disapprove of smoking to 5-My friends approve of smoking					YTPS

Perceived parental attitudes towards smoking (Table 2.10). Nine measures of perceived parental attitudes were associated with smoking-related outcomes. As with the descriptive norms for parents, the reference category varied between "parents", "father/mother" and in one instance just "mother". The de Vries et al. (2002) measure **"My father/mother thinks that..."** was shortlisted for cognitive testing for the following reasons: (1) It was longitudinally associated with both smoking cessation and smoking status, and (2) It was from the de Vries et al. (2002) report from which the parental descriptive norm measure was selected and is therefore consistent. Although the Carjaval et al. (2000) measure was more predictive of a smoking-related outcome and the equivalent was used for perceived friends' attitudes, this measure did not have a response format and therefore the de Vries et al. (2002) measure was preferred. Furthermore, Wilkinson et al. (2004) assessed a very similar measure to the selected measure in conjunction with sibling smoking and found it to be predictive of intention to smoke. No measures from existing UK surveys were identified.

Table 2.10 Smoking review outcomes (youth): Association with perceived parental attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How would your parents feel about you smoking cigarettes? (response format not stated). How important are your parents' feelings about you smoking cigarettes? (response format not stated) Carvajal et al. (2000)	✓✓OR*: Ever smoking (vs. never) and current smoking (vs. non-current)	L ✓✓	M	α=Not reported	
My father/mother thinks that… (-3 to +3, I certainly shouldn't smoke to I certainly should smoke) De Vries et al. (2002)	✓OR**: Smoking cessation, *: Smoking status (committer > immotive > progressive/contemplator/preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓✓	
How does your (mother/father) feel about you using tobacco products? Forrester et al. (2006)	✓OR*: Smoking susceptibility	L ✓✓✓	M		Not associated with smoking uptake
According to my parents, it is very important for me to not smoke cigarettes (4-point scale, strongly agree to strongly disagree) Primack et al. (2007)	✓OR***: Current smoking, ✓OR*: susceptibility to smoking	C	M	Content: ✓ Concurrent: ✓ Construct: ✓✓ α=✓✓✓	
How important do the following people think it is for you to stay off cigarettes (mother)? (1-4, very important to not important at all) Buller et al. (2003)	✓t*: Ever smoking and current vs. past use of cigarettes	C	U		Not associated with susceptibility
WNS: Perceived parental approval (yes/no) Flay et al. (1998)	✓OR*: Smoking stage (never user vs. experimenter)	L ✓✓✓✓	M		No difference between triers/regular vs. never users
WNS: Perceptions on whether parents (father/mother) think they should smoke or not Kremers et al. (2004)	✓v: Progression to the contemplator stage of smoking (intention)	L ✓✓	U	Content: ✓ Construct: ✓✓ α=✓✓	p values not reported
WNS: How much trouble they anticipated if their parents knew they were smoking Jackson (1997)	✓✓F**: Smoking stage (abstinence->initiation->experimentation)	C	U		

Perceived sibling attitudes towards smoking (Table 2.11). There was only one measure of perceived sibling attitudes associated with a smoking-related outcome, which was **"my brother(s)/sister(s) think that…"** (de Vries et al., 2002). This was longitudinally associated with smoking cessation. No other article assessing perceived sibling attitudes was available, therefore this measure was shortlisted for cognitive testing; it was also consistent with the above perceived parental attitudes measure. No measures from existing UK surveys were identified.

Table 2.11 Smoking review outcomes (youth): Association with a perceived sibling attitude measure and smoking cessation, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
My brother(s)/sister(s) thinks that… (-3 to +3, I certainly shouldn't smoke to I certainly should smoke) De Vries et al. (2002)	✓OR**: Smoking cessation	L ✓✓	M	Content: ✓ Construct: ✓ ✓ α=✓	

Perceived family attitudes towards smoking (Table 2.12). One measure (Wilkinson et al., 2004) assessed perceived parent and sibling smoking attitudes within the same set of measures. "My mother/father/siblings think(s) I..." was longitudinally associated with intention to smoke, but not with actual smoking behavior at follow-up. This suggests that perhaps sibling and parent smoking should not be assessed together when aiming to predict smoking behaviour. This measure was not shortlisted for cognitive testing as the de Vries et al. (2002) measure(s) assessing mother/father and brother(s)/sister(s) perceived attitudes separately were included. The SDD measures were not shortlisted as it was felt that very few families would encourage youth to smoke, and the three different measures dependent on the smoking status of the respondent (including whether the respondent was a secret smoker) would consume a large amount of resources and was therefore avoided for the current project.

Table 2.12 Smoking review outcomes and survey measures (youth): Association with a perceived family attitude measure and intention to smoke, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
My mother/father/siblings _____ (thinks I definitely should not smoke to doesn't mind whether I smoke or not) Wilkinson & Abraham (2004)	✓ ✓ β/B&t **: Intention to smoke	C	M	Construct:✓ α=✓ ✓ ✓	No items predictive of wave 2 smoking
Survey item wording and response format					**Survey**
Non-smokers: How do you think your family would feel if you started smoking? (They would try to stop me, They would try to persuade me not to smoke, They would do nothing, They would encourage me to smoke, I don't know) Smokers: How does your family feel about you smoking? (They try to stop me, They try to persuade me not to smoke, They do nothing, They encourage me to smoke, They don't know I smoke) Secret smokers: How do you think your family would feel if they knew that you smoked? (They would try to stop me, They would try to persuade me not to smoke, They would do nothing, They would encourage me to smoke, I don't know)					SDD

Pressure to smoke (Table 2.13). Eight measures of pressure to smoke were associated with smoking-related outcomes (smoking progression, smoking status, smoking cessation, smoking stage and intention to smoke). The de Vries (2002) measure **"Have you ever felt pressure from people in the same school year to smoke?"** was selected as it was the measure most strongly associated with smoking cessation in all respondents and experimental/daily smoking in females longitudinally. No measures from existing UK surveys were identified.

Table 2.13 Smoking review outcomes (youth): Association with pressure to smoke measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Have you ever felt pressure from people in the same school year to smoke? (0-4, never to many times) De Vries et al. (2002)	✓OR**: Smoking cessation (both sexes), ✓OR*: Experimenter/ daily smoker vs. never smoker (girls only)	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓✓	Experimenter/ daily vs. never smoker result was only significant in girls
Have you ever felt pressure from your brother(s), sister(s) to smoke? (0-4, never to many times) De Vries et al. (2002)	✓OR*: Experimenter vs. never smoker	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓	Result was only significant in boys only, not girls
Have you ever felt pressure from your best friend/friends/people in your school year to smoke? (0-4, never to many times) De Vries et al. (2002)	*: Smoking status (committer < immotive < progressive/ contemplator/ preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓✓	
Have you ever felt pressure from your father/mother/brother(s)/sister(s)/ teachers) to smoke? (0-4, never to many times) De Vries et al. (2002)	*: Smoking status (committer < immotive < progressive/ contemplator/preparer)	L ✓✓	M	Content: ✓ Construct: ✓✓ α=✓✓	
How often have you felt pressure to smoke from mother, father, brother(s), sister(s), friends, best friend, class mates, teachers, relatives (-4 to 0, very often to never) Markham et al. (2004)	✓✓t ***: Intention to smoke	C	M		
WNS: Perceived pressure from peers (best friend/friends) Kremers et al. (2004)	✓v: Progression to immotive & contemplator stages (intention)	L ✓✓	U	Content: ✓ Construct: ✓✓ α=✓✓	*p* values not reported
WNS: How many of their 3 best friends had ever "bugged" them to try smoking (0-3, none to 3 friends) Jackson (1997)	✓✓f *: Smoking stage (abstinence->initiation)	C	U		

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Grouped injunctive interpersonal norms (Table 2.14). Two measures assessed interpersonal norms within the same set of items. The de Vries et al. (2002) measure, focusing on siblings, friends, peers and teachers, was longitudinally associated with smoking status, whilst the Markham et al. (2004), focusing on parents, siblings and friends, was cross-sectionally predictive of intention to smoke. No measures were selected from this category as measures assessing interpersonal norms separately had been selected from previous categories. No measures from existing UK surveys were identified.

Table 2.14 Smoking review outcomes (youth): Association with two groups of injunctive interpersonal norms and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
My ___ (brother(s), sister(s), friends, best friend, people in the same school year, teachers) thinks that… (-3 to +3, I certainly shouldn't smoke to I certainly should smoke) <div align=right>De Vries et al. (2002)</div>	*: Smoking status (committer > immotive > progressive/ contemplator/ preparer)	L ✓ ✓	M	Content: ✓ Construct: ✓ ✓ α= ✓ ✓	
What do the following people think about you smoking? Most people who are important to me, mother, father, brother(s), sister(s), friends, best friend (-3 to +3, definitely think I should smoke to definitely think I should not smoke, 0=uncertain) <div align=right>Markham et al. (2004)</div>	✓ ✓ t ***: Intention to smoke	C	M		

Injunctive societal norms

Perceived community attitudes towards smoking (Table 2.15). Two measures assessed perceived community attitudes, but each was unique in terms of their reference group. One asked about "people in your community care about students in your grade using tobacco products" and the other asked about "most people your own age" caring about "you" staying off cigarettes. Both measures were only assessed cross-sectionally, therefore predictive validity could not be ascertained. The Eisenberg and Forster (2003) measure **"How much do you think people in your community care about students in your grade using tobacco products?"** was shortlisted for cognitive testing as this was the only one assessed in a multivariate analysis. No measures from existing UK surveys were identified.

Table 2.15 Smoking review outcomes (youth): Association with perceived community attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How much do you think people in your community care about students in your grade using tobacco products? (7 options, care very little to care a great deal) Eisenberg & Forster (2003)	✓OR*: Past month/week smoking behaviour	C	M	Construct: ✓	Not associated with daily smoking
How important do the following people think it is for you to stay off cigarettes (most people your own age)? (1-4, very important to not important at all) Buller et al. (2003)	✓t*: Ever smoking and current vs. past use of cigarettes, and susceptibility to smoking in never users	C	U		

Perceived acceptability of teenage smoking (Table 2.16). One measure found that perceived acceptability of teenage smoking in 12 different locales was associated with past month and past week smoking behaviour; however this measure was not associated with daily smoking behaviour. This measure was not selected as it was considered too long and complex for the envisaged project tool. The ITC-NL measure was not selected as variations of measures dependent on the smoking group would consume a large amount of resources. However, the YTPS measure was used to inform the development of a measure assessing perceived societal attitudes towards smoking.

Table 2.16 Smoking review outcomes and survey measures (youth): Association with the perceived acceptability of teenage smoking measure and past month/week smoking, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
WNS: The perception that adults thought it is unacceptable for teens to smoke in 12 different locales (e.g. homes, school, work, shopping centre) (most people think it's OK to most people think it's not OK) Eisenberg & Forster (2003)	✓OR*: Past month & week smoking behaviour	C	M	Construct: ✓	Not associated with daily smoking
Survey item wording and response format					**Survey**
Can you read the statements on both sides of this card and give me the number that best describes what you think? 1-On the whole, people are encouraged to smoke these days to 5-On the whole, people are discouraged from smoking these days					YTPS
On the first of July 2008 the hospitality industry has become smoke-free. That means that you can only smoke inside if there's a special smoking room. In most cases you will have to smoke outside. How do you feel when you're smoking outside? When smoking outside… (a) You're ashamed if others see you smoking (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know) (b) You think that bypassers judge you negatively (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)					ITC-NL

Personal attitudes (Table 2.17)

Three measures found a relationship between personal attitudes and smoking-related outcomes. All three measures focused on whether smoking is "cool", whilst Primack et al. (2007) also focused on smoking being popular amongst the elite. Personal attitudes were predictive of intention to smoke longitudinally (Hampson et al., 2007) and cross-sectionally (de Vries et al., 2002), and current smoking and susceptibility to smoking (Primack et al., 2007). The Farrelly et al. (2007) measure **"Smoking cigarettes makes people your age look cool or fit in"** was shortlisted for cognitive testing for the following reasons: (1) The only personal attitudes measure assessed longitudinally used phrases not commonly used in the UK by adolescents such as "neat" and "kids", (2) The selected measure was associated with intention to smoke, and (3) The SDD measure referred to looking "cool", suggesting this term is appropriate for use in UK surveys.

Table 2.17 Smoking review outcomes and survey measures (youth): Association with personal attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded.See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Kids who smoke cigarettes are "cool or neat", "exciting", or "liked by other kids" (no, maybe, yes) Hampson et al. (2007)	**: Intention to smoke	L ✓✓✓	M	Construct: ✓ α=Not reported	
Smoking cigarettes makes people your age look cool or fit in (1-5, strongly agree to strongly disagree) Farrelly et al. (2002)	✓✓OR***: Intention to smoke	C	M		
4-item scale: Most successful businesspeople smoke cigarettes at least once a month; In general, more "cool" people smoke cigarettes than "uncool" people; Wealthy people are more likely to smoke cigarettes than poor people ; My favourite celebrities probably smoke cigarettes at least once a month (all 4-point scale, strongly agree to strongly disagree) Primack et al. (2007)	✓OR*: Current smoking, susceptibility to smoking	C	M	Content: ✓ Concurrent: ✓ Construct: ✓✓ α=✓	

Survey item wording and response format	Survey
Can you read the statements on both sides of this card and give me the number that best describes what you think? 1- Smoking looks unattractive to 5-Smoking looks attractive	YTPS
People of my age smoke to look cool in front of their friends (true/false)	SDD
Smokers are more fun than non-smokers (true/false)	SDD
Do you think it is OK for someone your age to do the following? Try smoking a cigarette to see what it's like (1-3, It's OK, It's not OK, Don't know) Do you think it is OK for someone your age to do the following? Smoke cigarettes once a week (1-3, It's OK, It's not OK, Don't know)	SDD
On the first of July 2008 the hospitality industry has become smoke-free. That means that you can only smoke inside if there's a special smoking room. In most cases you will have to smoke outside. How do you feel when you're smoking outside? When smoking outside... (a) You're unhappy with yourself for smoking (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know) (b) You regret that you're still smoking. (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know) (c) You're proud of yourself for still smoking, in spite of everything (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	ITC-NL

2.5.4 Adult Norms Towards Smoking Shortlisted for Cognitive Testing From the Desk Review of the Literature and Surveys

Adult norms were grouped into the same types and subtypes as youth norms. There was much less literature assessing the relation between norms towards smoking and smoking-related outcomes amongst adults compared with youth. Thus, measures identified from previous surveys are frequently referred to and used to inform shortlisted measures.

Results for adult measures of norms towards smoking are presented in Tables 2.18 to 2.36, in the same format as the youth measures. Only measures significantly associated with a smoking-related outcome are presented; non-significant measures can be seen in Appendix 3. The rationale for the final selection of measures within each norm category is described in the section below, with the final selected measures shaded.

Descriptive Interpersonal Norms

Perceived friends' smoking (Table 2.18). Unlike the youth data, this measure amongst adults was not common with only three measures being associated with smoking-related outcomes. Measures were associated longitudinally with quit success and smoking frequency, and cross-sectionally with intentions to quit and smoking cessation self-efficacy. The Hitchman et al., 2014 measure **"Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are cigarette smokers?"** was shortlisted for cognitive testing for the following reasons: (1) It was modestly, longitudinally associated with quit success and cross-sectionally associated with intention to quit, (2) It was consistent with the youth measure in asking about "five closest friends", and (3) the Hitchman et al. (2014) study used data from the existing ITC surveys, which are established international surveys developed by tobacco researchers, suggesting that the measures within it are based on expert knowledge.

Table 2.18 Smoking review outcomes and survey measures (adult): Association with perceived friends smoking measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are cigarette smokers? (0, 1, 2, 3, 4, 5, Don't know) Hitchman et al. (2014)	✓OR*: W1 intentions to quit, W2 quit success	L ✓✓	M		
WNS [3 people with whom participants spent the most time with bar RP] (0-6, does not smoke (0) to smokes a moderate amount (3) to smokes a lot (6)) Etcheverry & Agnew (2008)	***: Smoking frequency (average number of cigarettes monthly)	L ✓✓	M	Construct: ✓	Young adults only
How common is smoking among your best friends? (1-7, not common to very common); How socially acceptable is smoking among your best friends? (1-7, very unacceptable to very acceptable) Phua (2013)	✓B*: Smoking cessation self-efficacy	C	M	α=✓✓✓	
Survey item wording and response format					**Survey**
Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are smokers? (0-5, Not applicable, Don't know)					ITC4C
Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are smokers? (0-5, or don't know)					ITC-NL

Perceived partner smoking (Table 2.19). One measure was identified from the literature but did not state wording. Therefore, the ITC 4 Country measure **"Does your partner or spouse currently smoke?"** was shortlisted for cognitive testing for the following reasons: (1) The only measure from the academic literature assessing partner smoking did not state item wording, (2) Specifically asking about "currently" smoking was more specific than the ITC Netherlands survey which did not specify "currently", (3) Asking about partner smoking would apply to all respondents who had a partner, whereas asking about partner "thinking about quitting" or having quit would only be applicable to a subset, and (4) as stated above, the ITC four country survey is an established international survey developed by tobacco researchers.

Table 2.19 Smoking review outcomes and survey measures (adult): Association with the perceived partner smoking measure and smoking frequency, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
WNS (0-6, does not smoke (0) to smokes a moderate amount (3) to smokes a lot (6)) Etcheverry & Agnew (2008)	**: Smoking frequency (average number of cigarettes monthly)	L ✓✓	M		Young adults only
Survey item wording and response format					**Survey**
Does your partner or spouse currently smoke? (Yes, No, Not applicable, Don't know)					ITC4C
Does your partner or spouse smoke? (Yes, No, Don't know)					ITC-NL
Is your partner or spouse thinking about quitting smoking, or planning to quit, within the next 12 months? (Yes, No, Not applicable, Don't know)					ITC4C ITC-NL
When did your spouse or partner quit? (Enter days, weeks, months, years)					ITC4C

Grouped descriptive interpersonal norms (Table 2.20). One measure assessed a range of different reference groups' (relatives, friends, people you party with, co-workers) smoking behaviour. This was associated cross-sectionally with current smoking and smoking susceptibility, however it was felt that "people you party with" was not an appropriate reference group for many adults, and a measure had already been selected for perceived friends' smoking. Therefore this measure was not shortlisted for cognitive testing. Three measures were identified from existing UK surveys. The STS format was used to inform the shortlisted measure, as assessing partner/friends/colleagues smoking within the same measure was used in national surveys and may therefore be appropriate for use in the currently developing tool. The ITC-NL measures were not selected as these referred to norms towards quitting rather than smoking and is therefore beyond the scope of the present project.

Table 2.20 Smoking review outcomes and survey measures (adult): Association with the grouped descriptive interpersonal norms and smoking frequency, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Among close relatives/close friends/people you party with/your co-workers, do... all of them smoke, most of them smoke, most of them do not smoke, or do none of them smoke (all of them smoke, most of them smoke, most of them do not smoke, none of them smoke, don't know [refuse to answer]) Ling (2007)	✓✓✓OR: Current smoking ✓OR: Susceptibility to smoking and intention to quit	C	M	Concurrent: ✓ α=✓	Young adults only
Survey item wording and response format					**Survey**
Which, if any, of the following apply to you? 1. I have a partner who smokes, 2. I have a few close friends who smoke, 3. I have a lot of close friends who smoke, 4. I have a few colleagues who smoke, 5. I have a lot of colleagues smoke					STS
Of the people you regularly see, how many have quit smoking within the last 6 months? (1 Nobody, 2 A few, 3 Half of them, 4 Most, 5 All, 9 Don't know)					ITC-NL
Of the people you regularly see, how many have tried to quit smoking within the last 6 months but failed? (1 Nobody, 2 A few, 3 Half of them, 4 Most, 5 All, 9 Don't know)					ITC-NL

Descriptive societal norms

Two measures were identified assessing descriptive societal norms. One measure from the ASH survey assessed perceived regional prevalence. The measure **"**In your opinion, what proportion of people smoke in the South West? (1-4, More than 60%, Between 50% and 60%, Between 25% and 50%, Between 10% and 25%)" explicitly referred to people in the South West and was therefore too specific for the current project. The STS and HSE surveys assessed being in the presence of smoking: STS "Current smokers: Other than yourself, does anyone regularly smoke cigarettes or use an e-cigarette in your presence, such as at your home, work, car or other places that you visit regularly? (1. Yes – cigarettes only, 2. Yes – e-cigarettes only, 3. Yes – both cigarettes and e-cigarettes, 4. No – neither cigarettes nor e-cigarettes)"; HSE "Do you find that you are often near people who are smoking in any of these places? (list of places) (No, Yes, No answer/refused, Don't know, Item not applicable). These measures was not shortlisted as the SHS measure referred to both ordinary tobacco cigarettes and e-cigarettes, and was only applicable to smokers, and the HSE measure was very lengthy in asking about various places.

Descriptive and injunctive interpersonal norms

Perceived family smoking and attitudes (Table 2.21). One measure assessed both perceived family smoking and family attitudes towards smoking, which was associated with smoking cessation self-efficacy. This measure was not shortlisted for cognitive testing, as the perceived family smoking component used common-uncommon response options which was envisaged not to produce accurate results in instances where a respondent worked with a small number of family members. Furthermore, this measure was only associated cross-sectionally with smoking cessation self-efficacy which is not a preferred outcome in smoking-related research. No survey measures were identified for this category

Table 2.21 Smoking review outcomes (adult): Association with the perceived family smoking and attitudes measure and smoking cessation self-efficacy, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How common is smoking among your family members? (1-7, not common to very common); How socially acceptable is smoking among your family members? (1-7, very unacceptable to very acceptable) Phua (2013)	✓ b *: Smoking cessation self-efficacy	C	M	α=✓✓✓✓	

Perceived colleagues' smoking and attitudes (Table 2.22). As with family smoking, one measure assessed both perceived colleagues' smoking and colleagues' attitude towards smoking, which was associated with smoking cessation self-efficacy. This measure was not shortlisted for the reasons described in ***Family smoking and attitudes***. No survey measures were identified for this category.

Table 2.22 Smoking review outcomes (adult): Association with the perceived colleagues' smoking and attitudes measure and smoking cessation self-efficacy, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
How common is smoking among your colleagues? (1-7, not common to very common); How socially acceptable is smoking among your colleagues? (1-7, very unacceptable to very acceptable) Phua (2013)	✓ b *: Smoking cessation self-efficacy	C	M	α=✓ ✓ ✓	

Injunctive interpersonal norms

Perceived friends' attitudes (Table 2.23). Two measures assessing perceived friends' attitudes towards smoking were predictive of smoking-related outcomes (smoking frequency and smoking cessation self-efficacy). The Etcheverry and Agnew (2008) measure **"Do you think this person [3 people who participants spend most time with] would approve or disapprove of your smoking?"** was shortlisted for cognitive testing for the following reasons: (1) It was longitudinally associated with smoking frequency, (2) The alternative was only cross-sectionally associated with smoking cessation self-efficacy. However, within the original article respondents were asked to write down three people participants spent the most time with (except romantic partner), then this measure was applied to each of those three people. As this would be too complex and time-consuming for a simple survey tool, this measure would need revising before shortlisting for cognitive testing. Two measures from the ITC Netherlands survey and one from the ITC four country survey assessed perceived friends' attitudes. The phrase "disapprove of smoking" within the ITC Netherlands survey was used to inform revision of the Etchevvery and Agnew (2008) measure shortlisted for cognitive testing. However, the other two survey measures were not selected as they referred to smokers only and therefore would only apply to a subset of the population.

Table 2.23 Smoking review outcomes and survey measures (adult): Association with perceived friends' attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Do you think this person would approve or disapprove of your smoking? [3 people with whom participants spent the most time with bar RP] (-3 to +3, strong disapproval to strong approval of smoking) Etcheverry & Agnew (2008)	***: Smoking frequency (average number of cigarettes monthly)	L ✓✓	M	Construct: ✓	Young adults only
Supposing you are a smoker, how would your best friends respond if they know about your smoking/if you smoke cigarettes around them? (1-7, strong disapproval to strong approval) Phua (2013)	✓✓b *: Smoking cessation self-efficacy	C	M	α=✓✓✓	
Survey item wording and response format					**Survey**
Your friends disapprove of smoking (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree).					ITC-NL
If 1-5, ask: In the last year, how many of them have talked about wanting to quit? (0-5)					ITC-4C
Smokers: Your smoking bothers your friends Quitters: You smoking bothered your friends (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC-NL

Perceived partner attitudes (Table 2.24). One measure (Etcheverry & Agnew, 2008) assessed perceived partner's attitudes towards smoking and found it to be associated with smoking frequency longitudinally. The measure **"Do you think this person [partner] would approve or disapprove of your smoking?"** was shortlisted as it was the only measure within this category and was consistent with the measure assessing friends' attitudes. One measure from the ITC Netherlands survey, and one from the ITC four country survey assessed partner's attitudes, however these were towards quitting rather than smoking and are therefore beyond the scope of the present project.

Table 2.24 Smoking review outcomes and survey measures (adult): Association with the perceived partner attitude measure and smoking frequency, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Do you think this person would approve or disapprove of your smoking? (-3 to +3, strong disapproval to strong approval of smoking) Etcheverry & Agnew (2008)	*: Smoking frequency (average number of cigarettes monthly)	L✓ ✓	M	Construct: ✓	Young adults only

Perceived family attitudes (Table 2.25). One measure assessed perceived family attitudes towards smoking and found it to be associated with smoking cessation self-efficacy cross-sectionally. This measure was not shortlisted for cognitive testing as it was agreed within the research team to adapt the Etcheverry and Agnew (2008) friend/partner smoking measure to family and colleagues for consistency. The ITC Netherlands and ITC four country surveys included two measures of perceived family attitudes. The measure "Your family disapproves of smoking" was used to inform the shortlisted tool as this was applicable to both smokers and non-smokers.

Table 2.25 Smoking review outcomes and survey measures (adult): Association with perceived family attitudes and smoking cessation self-efficacy, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Supposing you are a smoker, how would your family members respond if they know about your smoking/if you smoke cigarettes around them? (1-7, strong disapproval to strong approval) Phua (2013)	✓b*: Smoking cessation self-efficacy	C	M	α=✓✓✓	
Survey item wording and response format					**Survey**
Your family disapproves of smoking (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC-NL
Smokers: Your smoking bothers your family. Quitters: You smoking bothered your family (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC-NL

Perceived colleagues' attitudes (Table 2.26). A measure analogous to that of perceived family attitudes was used to assess perceived colleagues' attitudes towards smoking and found to be associated with smoking cessation self-efficacy cross-sectionally. This measure were not shortlisted for cognitive testing as it was agreed within the research team to adapt the Etcheverry and Agnew (2008) perceived friend/partner smoking measure to family and colleagues for consistency. No survey measures were identified for this category.

Table 2.26 Smoking review outcomes (adult): Association with perceived colleagues' attitudes and smoking cessation self-efficacy, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Supposing you are a smoker, how would your colleagues respond if they know about your smoking/if you smoke cigarettes around them? (1-7, strong disapproval to strong approval) Phua (2013)	✓ b*: Smoking cessation self-efficacy	C	M	α=✓✓✓	

Grouped injunctive interpersonal norms (Table 2.27). One measure consisting of multiple items assessed interpersonal and community injunctive norms together. This was cross-sectionally associated with intention to quit, and due to the complex nature of the measure was not shortlisted for cognitive testing. The ITC Netherlands and ITC four country surveys included three measures of perceived family and friends attitudes, however these were all norms towards quitting rather than smoking and were therefore beyond the scope of the present project.

Table 2.27 Smoking review outcomes and survey measures (adult): Association with the grouped measures of injunctive interpersonal norms and smoking cessation self-efficacy, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Most people who are important to me/Most members of my family/My friends/My coworkers/My spouse/My boyfriend or girlfriend/My friends who smoke/The cigarette companies think I should quit smoking (1-7, WNS) I want to do what most members of my family/my friends who don't smoke/my coworkers/my spouse/my boyfriend or girlfriend/my friends who smoke/the cigarette companies think I should do. Bledsoe (2006)	✓ ✓ b: Intention to quit	C	M	α=Not reported.	Statistical analysis unclear; short communication only
Survey item wording and response format					**Survey**
Current smokers: In the past 6 months, have each of the following things led you to think about quitting? Recent quitters: To what extent, if at all, were each of the following things reasons for your quit attempt? Ex-smokers: To what extent, if at all, have each of the following things helped you to stay quit? That close friends and family disapprove(d) of your smoking (1-Not at all, 2-Somewhat, 3-Very much, Not applicable, Don't know)					ITC4C ITC-NL
Smokers: Suppose that you would like to quit smoking. How supportive do you think your friends and OTHER members of your family than your partner would be? Quitters: How supportive were your friends and OTHER members of your family than your partner of your quit attempt? (1 Very supportive, 2 Somewhat supportive, 3 A little supportive, 4 Not at all supportive, 9 Don't know)					ITC-NL
Smokers: Suppose that you would like to quit smoking. How supportive do you think your friends and members of your family would be? Quitters: How supportive were your friends and members of your family of your quit attempt? (1 Very supportive, 2 Somewhat supportive, 3 A little supportive, 4 Not at all supportive, 9 Don't know)					ITC-NL

Grouped injunctive interpersonal and societal norms (Table 2.28). Two measures consisting of an identical set of three items assessed interpersonal and societal norms together. The three items **"People who are important to me believe I should not smoke; Society disapproves of me smoking; There are fewer and fewer places I feel comfortable smoking"** were shortlisted for cognitive testing for the following reasons: (1) They were longitudinally associated with smoking abstinence longitudinally, and intention to quit both longitudinally and cross-sectionally, (2) They were predictive in two independent studies, and (3) The studies used data from the ITC Four Country and ITC Netherlands surveys, which were developed by tobacco experts. It was acknowledged that perhaps one of the three items could be dropped, and this was to be discussed within the research team and with the experts. The alternative two survey measures assessed norms towards quitting and were therefore beyond the scope of the present review.

Table 2.28 Smoking review outcomes and survey measures (adult): Association with the grouped measures of injunctive interpersonal and societal norms and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
People who are important to me believe I should not smoke; Society disapproves of me smoking; There are fewer and fewer places I feel comfortable smoking (1-5, strongly disagree to strongly agree) Hammond et al. (2006)	✓OR*: Abstinence at F/U and intention to quit at baseline	L✓ ✓	M	Construct: ✓ α=Not reported.	
People who are important to me believe I should not smoke; Society disapproves of smoking; There are fewer and fewer places where I feel comfortable smoking (1-5, strongly agree to strongly disagree) Brown et al. (2009)	✓b: Intention to quit	L✓ ✓	M	α=✓	
Survey item wording and response format					**Survey**
People who are important to you believe that you should not smoke (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC4C ITC-NL
Smokers: Thinking about the people who are important to you -- how do you think most of them would feel about your quitting smoking within the next 6 months? Quitters: Thinking about the people who are important to you -- how do you think most of them feel about you staying quit within the next 6 months? (1 Strongly disapprove, 2 Disapprove, 3 Neutral, 4 Approve, 5 Strongly approve, 9 Don't know)					ITC-NL
During the last year has anybody been trying to get you to quit smoking? (Yes/No) If yes: Who has been trying to get you to quit smoking? (1) Partner/spouse, (2) Parents, (3) Children, (4) Sibling, (5) Friend, (6) Work mate, (7) Other					ONS

Injunctive societal norms (Table 2.29)

The ITC Netherlands and ITC four country surveys assessed six measures of perceived societal attitudes towards smoking. Three measures from this category were shortlisted for cognitive testing. The measures **"Society disapproves of smoking"** and **"There are fewer and fewer places where you [would] feel comfortable about smoking"** were assessed and selected in the literature by an article using ITC four country data (Hammond et al., 2006). Therefore, this measure is suitable within both international surveys and academia. The ITC Netherlands survey measure **"People who smoke are more and more marginalized by society"** was also shortlisted for cognitive testing for the following reasons: (1) It assessed stigma over and above norms and was thought to elicit interesting results, (2) It assessed injunctive societal norms on a different dimension from "society disapproves of smoking" and similar measures, as it would require respondents to think about public policy factors such as not smoking indoors. The first ITC Netherlands measure assessing whether smokers and nonsmokers have a positive or negative attitude towards quitting smoking refers to norms towards quitting rather than smoking and was therefore beyond the scope of the present project.

Table 2.29 Survey measures (adult) identified for injunctive societal norms. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Survey item wording and response format	Survey
How often in the last year, have you talked to (1) smokers, (2) non-smokers about (a) smoking, (b) quitting smoking? (1 Never, 2 Rarely, 3 Sometimes, 4 Often, 5 Very often, 9 Don't know) On the whole, were these conversations positive or negative towards quitting smoking? (1 (Almost) all positive, 2 Mostly positive, 3 Sometimes positive, sometimes negative, 4 Mostly negative, 5 (Almost) all negative, 9 Don't know)	ITC-NL
Society disapproves of smoking (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C ITC-NL
Current smokers: There are fewer and fewer places where you feel comfortable about smoking. Current non-smokers: There are fewer and fewer places where you would feel comfortable about smoking. (Both: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C ITC-NL
In the last six months, how often have you been told that your cigarette smoke bothers other people? In the last 6 months, how often have you noticed that your cigarette smoke bothers other people by non-verbal signs (e.g. coughing, nose holding, hand waving)? (Both: Never, Once, A few times, Don't know)	ITC-NL
Smokers (not thinking about quitting): Even though you mentioned that you are not currently planning to quit, in the past 6 months, have each of the following things led you to think about quitting. Smokers (thinking about quitting): In the past 6 months, have each of the following things led you to think about quitting. That society disapproves of smoking? (1 Not at all, 2 Somewhat, 3 Very much, 9 Don't know)	ITC4C ITC-NL
Recent quitters: To what extent, if at all, were each of the following things reasons for your quit attempt? Ex-smokers: To what extent, if at all, have each of the following things helped you to stay quit That society disapproves of smoking? (1-Not at all, 2-Somewhat, 3-Very much, 7-Not applicable, 8-Refused, 9-Don't know)	ITC4C
In the last 6 months, how often have you hidden yourself while smoking so that others don't criticize you? (1 Never 2 Once 3 A few times 9 Don't know)	ITC-NL
People who smoke are more and more marginalized (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC-NL

Personal attitudes (Table 2.30)

Two measures of personal attitudes towards smoking were associated with smoking-related outcomes (intention to quit and intention to smoke). However, the first measure (Brown et al., 2009) was not consistently associated with quit intentions , and the second (Richardson et al., 2010), which used terms such as "cool" and "fit in" had been previously selected for youth and was not applicable to older adults. Therefore neither was shortlisted for cognitive testing.

Sixteen measures of personal attitudes towards smoking or quitting were identified from existing surveys. The ITC four country measure **"Smoking makes it easier for you to socialize"** was shortlisted for cognitive testing for the following reasons: (1) It assesses social norms whilst also assessing personal attitudes, as for some respondents smoking may be a social activity, whilst for others it may not, and (2) the ITC four country survey is an established international survey developed by tobacco experts. The ASH measure **"I like the thought of smoking becoming a thing of the past for future generations"** was also selected for the following reasons: (1) As the final tool is envisaged to be used over time to assess norms longitudinally, it would be interesting to see how this measure changes across generations, and (2) it assesses how respondents perceive the trajectory of smoking being "common" or "normal" over time. The ITC four country and Netherlands measure **"Are you bothered by secondhand smoke?"** was selected as (1) We envisaged the tool containing a measure of norms towards secondhand smoke, and as no norms had been identified from the literature and surveys we selected a measure of personal attitudes towards secondhand smoke, and (2) as above, the ITC four country survey is an established international survey developed by tobacco experts. The Continuous Household Survey measure **"To what extent are you bothered or not bothered by tobacco smoke inside public places?"** was selected as an alternative to the ITC measure, as it was similar yet specified smoke in public places, and cognitive testing can be used to determine which is preferred.

Table 2.30 Smoking review outcomes and survey measures (adult): Association with the personal attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Do you support or oppose a total ban on smoking inside pubs? (1-4, strongly support to strongly oppose) Do you think that bans on smoking in pubs are a good thing or bad thing? (1-4, very bad to very good) Brown et al. (2009)	✓✓b: Intention to quit (Scotland only)	L✓✓	M	α=✓✓✓	Did not influence quit intentions in the UK
Smoking cigarettes makes people your age look cool or fit in (1-5, strongly agree to strongly disagree) Richardson et al. (2010)	✓✓OR**: Intention to smoke	C	M		Young adults only, and did not predict intention to quit

Survey item wording and response format					Survey
Smoking makes it easier for you to socialize (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC4C
I like the thought of smoking becoming a thing of the past for future generations (1-6, Strongly agree, Agree, Neither agree nor disagree, Disagree, Strongly disagree, Don't know)					ASH
Are you bothered by secondhand smoke? (Yes, No, Not applicable, Refused, Don't know)					ITC4C ITC-NL
To what extent are you bothered or not bothered by tobacco smoke inside public places? (Question not asked, Bothered a great deal, Bothered a fair amount, Bothered a little, Not at all bothered, Don t know, Refused, Don't Know)					CHHS
You have strong mixed emotions both for and against smoking, all at the same time (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC4C
You disapprove of smoking (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC-NL
What is your overall opinion of smoking? Is it . . . ? (1 Very positive, 2 Positive, 3 Neither positive nor negative, 4 Negative, 5 Very negative, 7 Not applicable, 8 Refused, 9 Don't know)					ITC4C ITC-NL
You think of smokers as being nice people/determined/free (unrestrained by social pressure)/pathetic or pitiful/persevering/addicted? (1-7, very to not at all)					ITC-NL
Smoking is sociable (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC-NL
Since you quit, has your confidence in relating to other people in social situations improved, [got (AU)/ gotten (CA, US, UK) worse or stayed the same?					ITC4C
Smoker: Smoking is an important part of your life. Ex-smoker: Smoking was an important part of your life. (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC4C
Smoking is no more risky than lots of other things that people do (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)					ITC4C
How does second-hand smoke bother you? Watery eyes? The smell? Allergies? Asthma? Itching? Stuffy nose? Coughing? In some other way?					ITC4C

Continued below…

Survey item wording and response format	Survey
Smokers: (a) To continue smoking, (b) To quit smoking within the next 6 months would (1) fit how you think of yourself, (2) fit how you want to live, (3) fit the lifestyle you want for yourself. Quitters: (a) To start smoking again (b) To stay quit in the next 6 months would (1) fit how you think of yourself, (2) fit how you want to live, (3) fit the lifestyle you want for yourself. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	ITC-NL
In general, do you mind if other people smoke near you, or not? (Yes, No, It depends) If yes, why is that? (1) Affects my breathing/makes my asthma worse, (2) Makes me cough, (3) Gives me a headache, (4) Makes my clothes smell, (5) Gets in my eyes, (6) Unpleasant smell, (7) Makes me feel sick, (8) Bad for my health, (9) Other. OR Please specify 'it depends'	ONS
"How acceptable do you think it is … (1 Very unacceptable, 2 Unacceptable, 3 Not unacceptable, and not acceptable, 4 Acceptable, 5 Very acceptable, 9 Don't know) For someone to smoke in the street? For someone to smoke in a pub? For someone to smoke in a restaurant? For someone to smoke in the presence of children? For someone to smoke in their own car in the presence of non-smoking passengers?"	ONS

2.5.5 Youth Norms Towards the Tobacco Industry Shortlisted for Cognitive Testing From the Desk Review of the Literature and Surveys

There was less literature assessing the relation between norms towards the tobacco industry and smoking-related outcomes compared to norms towards smoking in youth. Where possible, norms were grouped into the same types and subtypes as the youth and adult smoking norms. However, for some categories no norms were identified due to the lack of literature. No measures of norms towards the tobacco industry were identified from existing UK surveys for youth.

Results for youth measures of norms towards the tobacco industry are presented in Tables 2.31 to 2.33, in the same format as the youth and adult measures of norms towards smoking. Only measures significantly associated with a smoking-related outcome are presented; non-significant measures can be seen in Appendix 3. The rationale for the final selection of measures within each norm category is described in the section below, with the final selected measures shaded**.**

Descriptive interpersonal norms

Perceived peer attitudes towards the tobacco industry (Table 2.31). Four measures of perceived peer attitudes were associated with a smoking-related outcome (smoking status). However, all of these measures were part of the same article (Sly et al., 2002) and were only assessed cross-sectionally. Given that alternative measures (see below) were assessed longitudinally and that only two or three tobacco industry measures could be shortlisted for cognitive testing, none of the perceived peer attitude measures were selected.

Table 2.31 Tobacco industry review outcomes (youth): Association with the perceived peer attitude measures and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
If people your age who smoked realized they were being used by tobacco companies just to make money, they would probably stop smoking (agree/disagree) Sly et al. (2000)	✓OR**: Smoking status	C	M		
Most people your age really dislike tobacco advertising (agree/disagree) Sly et al. (2000)	✓OR*: Smoking status	C	M		
Most people your age think it is okay to work for tobacco companies (agree/disagree) Sly et al. (2000)	✓OR*: Smoking status	C	M		
Most people your age do not like tobacco companies (agree/disagree) Sly et al. (2000)	✓OR*: Smoking status	C	M		

Personal attitudes

Personal attitudes towards the tobacco industry (Table 2.32). The most common tobacco industry norm was personal attitudes towards the tobacco industry as a business, in which twelve measures were associated with a range of smoking-related outcomes. The Farrelley et al. (2002) measure **"I would like to see cigarette companies go out of business"** was shortlisted for cognitive testing for the following reasons: (1) It was the only measure longitudinally associated with a smoking-related outcome (intention to smoke in the next year), and (2) It was also included in a set of measures associated with smoking status (Hersey et al., 2003, 2005) and smoking involvement (Thrasher & Jackson, 2006) cross-sectionally. The Thrasher measure (Thrasher et al., 2006; Thrasher & Jackson, 2006) **"How do you feel about cigarette companies?"** was also selected, for the following reasons: (1) It was associated with current smoking, susceptibility to smoking and smoking involvement, and (2) It was a neutral measure in comparison with alternative leading measures. This measure was also shortlisted for the adult tool in addition to the youth due to the lack of alternative options from the adult data.

Table 2.32 Tobacco industry review outcomes (youth): Association with measures of personal attitudes towards the tobacco industry and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
I would like to see cigarette companies go out of business (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) Farrelly et al. (2002)	✓ OR: Intention to smoke in the next year	L✓ ✓	M		
Cigarette companies deny that cigarettes cause cancer and other harmful diseases (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) Farrelly et al. (2002)	✓ OR: Intention to smoke in the next year	L✓ ✓			
Cigarette companies lie; Cigarette companies try to get young people to start smoking; I would like to see cigarette companies go out of business; I would not work for a cigarette company; I feel angry with cigarette companies (1-5, strongly agree, agree, disagree, strongly disagree, no opinion); How do you feel about cigarette companies? (1-5, like a lot to dislike a lot) Thrasher et al. (2006)	✓ ✓ ✓ b ***: Current smoking and smoking susceptibility	C	Not reported	α=✓ ✓	
Tobacco companies should have the same right to market their products as other companies have to market their products (agree/disagree) Sly et al. (2000)	✓ ✓ OR***: Smoking status	C	M		
Tobacco companies should have the same right to sell cigarettes as other companies have to sell their products; I would believe it if a tobacco company said they had made a safer cigarette (agree, disagree, don't know) McCool et al. (2011)	✓ ✓ OR***: Current smoking and susceptibility to smoking	C	M	Construct: ✓ α=Not reported	
Cigarette companies should have the right to sell; Cigarette companies should have the right to make money; I would like to see Cigarette companies go out of business; How much do you like Cigarette companies? (1-5, like a lot to dislike a lot) ; The government should let companies sell; I would not work for a cigarette company (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) Hersey et al. (2003)	✓ ✓ b** : Smoking status (closed/open to smoking, prior experimenters, early/established smokers)	C	M	Concurrent: ✓ Construct: ✓ α=✓	Also assessed young adults, results refer to youth + young adult
I would like to see cigarette companies go out of business; I would not work for a cigarette company; On a scale from 1 to 5, how much do you like cigarette companies? (1-5, strongly agree to strongly disagree) Hersey et al. (2005)	✓ ✓ b*: Smoking status (closed/open to smoking, prior experimenters, early/established smokers)	C	M	Construct: ✓ ✓ α=Not reported	
I would like to see Cigarette companies go out of business; I would not work for a cigarette company; I feel angry with Cigarette companies (1-5, strongly agree, agree, disagree, strongly disagree, no opinion); How do you feel about Cigarette companies? (1-5, like a lot to dislike a lot) Thrasher & Jackson (2006)	✓ ✓ b*: Smoking involvement (susceptible, noncurrent, experimenter, regular)	C	M	Construct: ✓ α=Not reported	

Table 2.32 Tobacco industry review outcomes (youth): Association with measures of personal attitudes towards the tobacco industry and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The Measures shortlisted for cognitive testing are shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Tobacco companies try to cover-up all the bad things they have done; Tobacco companies are evil; Tobacco companies use advertising to fool people your age into smoking; Tobacco companies are targeting you; You can fight back against tobacco companies (4-point scale, strongly agree to strongly disagree) Arheart et al. (2004)	✓ ✓ OR: Current smoking and intention to smoke	C	Not reported	Construct: ✓ ✓ α=✓ ✓	
If a company is in the business of advertising, there is nothing wrong with them making money from TCs by advertising their products (agree/disagree) Sly et al. (2000)	✓ OR**: Smoking status	C	M		
Tobacco companies do good things for people your age like sponsoring concerts, sporting events, and give away free things (agree/disagree) Sly et al. (2000)	✓ OR**: Smoking status	C	M		
Tobacco companies have not tried to mislead people your age to get them to buy their products any more than other companies have to market their products (agree/disagree) Sly et al. (2000)	✓ OR**: Smoking status	C	M		

Personal attitudes towards the tobacco industry being responsible for children smoking (Table 2.33).
Seven studies included measures assessing whether the tobacco industry should be blamed for children smoking which were associated with smoking-related outcomes. Of these, only one was assessed longitudinally (Bernat et al., 2008); however this measure consisted of three separate items. The single measure **"Tobacco companies should not be blamed for young people smoking"** (Sly et al., 2000) was shortlisted for cognitive testing as it was associated cross-sectionally with smoking status, was similar to other measures used in this category and had good face validity. This measure was also shortlisted for the adult tool due to the lack of literature.

Table 2.33 Tobacco industry review outcomes (youth): Association with measures of personal attitudes towards the tobacco industry being responsible for children smoking and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Cigarette companies are trying to get young people to smoke; Cigarette companies get too much blame for young people smoking; Cigarette companies are making too much money off of young people (0-4, strongly agree to strongly disagree) Bernat et al. (2008)	✓ OR: Smoking transition (nonsmoker -> occasional/early onset/late onset/decliner)	L ✓✓✓✓	M	α=Not reported	
Tobacco companies should not be blamed for young people smoking (agree/disagree) **Sly et al. (2000)**	**✓✓ OR***: Smoking status**	**C**	**M**		
The supporters of tobacco, such as advertising companies and movie and television producers who show characters smoking, should not be blamed for kids smoking (agree/disagree) Sly et al. (2000)	✓✓ OR***: Smoking status	C	M		
Tobacco companies are responsible for people starting to smoke; Tobacco companies try to get young people to start smoking (agree, disagree, don't know) McCool et al. (2011)	✓ OR***: Current smoking and susceptibility to smoking	C	M	Construct: ✓ α=Not reported	
If someone smokes, they have bought into the tobacco industry's advertising; Teens who smoke have been influenced by tobacco advertising (1-4) Dunn et al. (2004)	***: Smoking susceptibility	C	M	α=Not reported	
Tobacco companies should be blamed for kids smoking; Tobacco companies get too much blame for young people smoking (1-4) Dunn et al. (2004)	**: Smoking susceptibility	C	M	α=Not reported	
Telling people about what tobacco companies do will change the way people think about smoking; If young people who smoke realized they were being used by tobacco companies just to make money, they would probably stop smoking (1-4) Dunn et al. (2004)	*: Smoking susceptibility	C	M	α=Not reported	

2.5.6 Adult Norms Towards the Tobacco Industry Shortlisted for Cognitive Testing From the Desk Review of the Literature and Surveys

There were fewer measures of norms towards the tobacco industry for adults compared to youth from the literature, but more from the surveys. Where possible, norms were grouped into the same types and subtypes as the youth and adult smoking norms. However, for some categories no norms were identified due to the lack of literature.

Results for adult measures of norms towards the tobacco industry are presented in Tables 2.34 to 2.36, in the same format as the youth and adult measures of norms towards smoking. Only measures significantly associated with a smoking-related outcome are presented; non-significant measures can be seen in Appendix 3. The rationale for the final selection of measures within each norm category is described in the section below, with the final selected measures shaded.

Personal attitudes

Personal attitudes towards the tobacco industry (Table 2.34). Five measures of personal attitudes towards the tobacco industry were identified from the literature and 10 from existing UK surveys. The measure **"I would like to see cigarette companies go out of business"** was shortlisted for cognitive testing for the following reasons: (1) It was cross-sectionally associated with intention to smoke and intention to quit (Richardson et al., 2010), (2) It was part of a set of items associated cross-sectionally associated with smoking status (Hersey et al., 2003) in youth and young adults, and (3) It was the same measure shortlisted for the youth tool. However, as these studies used either youth and/or young adults, it was possible that these norms were not appropriate for use with adults; this was noted to be tested within the cognitive interviews.

Table 2.34 Tobacco industry review outcomes and survey measures (adult): Association with measures of personal attitudes towards the tobacco industry and smoking-related outcomes, with details of design, analysis, reliability and validity, and bias and other comments. The measure shortlisted for cognitive testing is shaded. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Tobacco companies can be trusted to tell the truth; Tobacco companies should take responsibility for the harm caused by smoking; Tobacco companies have tried to convince the public that there is little or no health risk from secondhand smoke (1-5, strongly disagree to strongly agree) Hammond et al. (2006)	✓ OR***: Intention to quit at W1	L✓ ✓	M	Construct: ✓ α=Not reported	Did not predict abstinence at W2
Cigarette companies should have the right to sell; Cigarette companies should have the right to make money; I would like to see Cigarette companies go out of business; How much do you like Cigarette companies? (1-5, like a lot to dislike a lot) ; The government should let companies sell; I would not work for a cigarette company (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) Hersey et al. (2003)	✓ ✓b **: Smoking status (closed/open to smoking, prior experimenters, early/established smokers)	C	M	Concurrent: ✓ Construct: ✓ α=✓	Also assessed youth, results refer to youth + young adult
I would like to see cigarette companies go out of business (1-5, strongly agree to strongly disagree) Richardson et al. (2010)	✓ ✓ OR**: Intention to not smoke and intention to quit	C	M		Young adult only
Cigarette companies deny that cigarettes are addictive (1-5, strongly agree to strongly disagree) Richardson et al. (2010)	✓ OR**: Intention to quit	C	M		Young adult only
Cigarette companies lie (1-5, strongly agree to strongly disagree) Richardson et al. (2010)	✓ OR**: Intention to quit	C	M		Young adult only

Survey item wording and response format	Survey
Tobacco companies should be allowed to advertise and promote cigarettes as they please (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C
Tobacco companies should not be allowed to promote cigarettes at all, but merely make them available to adults who want to smoke them (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C
TCs can be trusted to tell the truth (Strongly support, Tend to support, Neither support nor oppose, Tend to oppose, Strongly oppose, Don't know)	ASH
TCs behave ethically (Strongly support, Tend to support, Neither support nor oppose, Tend to oppose, Strongly oppose, Don't know)	ASH
TCs should take responsibility for the harm caused by smoking (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C ITC-NL
TCs have tried to convince the public that there is little or no health risk from second-hand smoke (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C
TCs can be trusted to tell the truth about the dangers of their products (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C ITC-NL
Tobacco companies have tried to convince the public that there is little or no health risk from second-hand smoke (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	ITC-NL
In the last month -- since [1M Anchor] -- how often, if at all, did you ... Think about the bad conduct of tobacco companies? (Never, Rarely, Sometimes, Often, Very Often)	ITC4C
TCs have done everything they can to reduce the harm caused by smoking (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C

Personal attitudes towards the tobacco industry being responsible for children smoking (Table 2.35).
One measure was identified from the review of the literature, however this measure was considered
outdated as policies preventing tobacco companies from targeting young people are currently
paramount. Therefore the youth measure **"Tobacco companies should not be blamed for young people
smoking"** was shortlisted for the adult tool. No survey measures were identified for this category.

Table 2.35 Tobacco industry review outcomes (adult): Association with a measure of personal attitudes towards the tobacco
industry being responsible for children smoking and intention to quit, with details of design, analysis, reliability and validity, and
bias and other comments. See Table Key in Section 2.5.3.

Review item wording and response format	Association with smoking-related outcome(s)	Design & F/U length	Analysis	Validity & Reliability	Bias and other comments
Cigarette companies try to get young people to start smoking (1-5, strongly agree to strongly disagree) Richardson et al. (2010)	✓OR** Intention to quit	C	M		Young adult only

Personal attitudes towards government action towards the tobacco industry (Table 2.36). Nine survey measures assessed attitudes towards government action, however given continuously updated government policies these were not shortlisted for cognitive testing as they would not be able to be used to assess changes in norms over time.

Table 2.36 Tobacco industry survey measures (adult): personal attitudes towards government action towards the tobacco industry measures identified from existing UK surveys. See Table Key in Section 2.5.3.

Survey item wording and response format	Survey
How strongly, if at all, do you support or oppose the following? (1) All Government health policy should be protected from the influence of the tobacco industry and its representatives. (2) Public sector pension schemes should not invest in tobacco companies (Strongly support, Tend to support, Neither support nor oppose, Tend to oppose, Strongly oppose, Don't know)	ASH
Which ONE of the following statements best describes your view? 1) The likelihood of lost profits to tobacco companies SHOULD be taken into account by the Government when deciding whether to go ahead with measures to reduce smoking, 2) The likelihood of lost profits to tobacco companies should NOT be taken into account by the Government when deciding whether to go ahead with measures to reduce smoking, 3) Don't know	ASH
Tobacco products should be more tightly regulated (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, not applicable, refused, don't know)	ITC4C
Which ONE of the following statements best describes your view? 1) Political parties SHOULD accept financial or in kind donations from the tobacco industry, 2) Political parties should NOT accept financial or in kind donations from the tobacco industry, 3) Don't know	ASH
The government should do more to tackle the harm done by smoking (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C
Do you support or oppose the government suing tobacco companies to recover health care costs caused by tobacco use? (Strongly support, Support, Oppose, Strongly oppose, Not applicable, Refused, Don't know)	ITC4C
Would you support or oppose a total ban on tobacco products within 10 years, if the government provided assistance such as cessation clinics to help smokers quit? (Strongly support, Support, Oppose, Strongly oppose, Not applicable, Refused, Don't know)	ITC4C
Tobacco products should be more tightly regulated (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	ITC-NL
If effective nicotine substitutes that are not smoked became available, the government should then set a date to ban cigarette sales in ten years' time (strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree)	ITC4C

2.6 Results: Consultation with experts and NatCen

Recommendations were made to revise some of the measures to improve clarity and NatCen informed us of the appropriateness of measures shortlisted for cognitive testing. Six new measures were proposed from one of the experts (Professor Robert West) to assess descriptive and injunctive societal norms towards smoking for both youth and adults. It was agreed that similar measures also be developed for the use of e-cigarettes to assess norms towards these as a form of nicotine. Additionally, one completely new measure was developed to assess personal attitudes towards nicotine use because none existed. These recommendations are described in Tables 2.37 (youth) and 2.38 (adults).

All original questions referring to smoking were refined by changing "smoking" to "smoking tobacco cigarettes", to ensure that there was no confusion between smoking cigarettes and vaping e-cigarettes.

2.7 Discussion

Based on the findings from the desk reviews of the literature and surveys, subsequent data synthesis and discussions with NatCen and experts, 31 measures for youth and 31 measures for adults were selected, with 16 measures overlapping for both youth and adults. The final measures put into the cognitive testing are shown below in Tables 2.37 (youth) and 2.38 (adults).

2.7.1 Strengths and limitations of the desk reviews

Whilst we followed the PRISMA guidance where possible, the rapid desk review of the literature on norms towards smoking did not use all the prescribed systematic review methods due to the time-limited nature of the project and the vast amount of literature. We therefore consulted with experts in the field and used existing UK surveys to corroborate measures identified within the literature. Full systematic review methods were applied for the tobacco industry and nicotine use searches although unpublished studies were not searched given time constraints.

The statistical analyses used across the articles were inconsistent. We therefore were unable to compare the studies directly and developed a hierarchy in which we prioritised those with the strongest association with a smoking-related outcome, and evidence of validity and reliability. Although there was some subjectivity involved in the points system we developed, we prioritised measures for which there was some evidence longitudinally for predictive reliability and validity, to meet our aim of identifying which measures were most predictive of smoking-related behaviours and cognitions. Despite this, predictive validity is limited as it is influenced by several other aspects of a study (e.g. sample size, design, quality of the outcome measure, study population, data collection, model form), which due to the time-limited nature of the project and vast number of relevant studies identified we were not able to explore further. In addition, for the purposes of identifying a short list of measures to put into cognitive testing, the methods we used to identify which measures were associated with smoking-related outcomes were reductionist and focussed solely on significant outcomes.

There was a lack of flexibility in the desk review due to the vast number of measures identified and lack of time. Therefore, we did not aim to modify measure wording at this phase, rather we used the cognitive testing phase to amend measures selected from the review process.

Table 2.37 Youth norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with adult measures)

ORIGINAL MEASURES & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Descriptive interpersonal norms towards smoking (2 measures)	
How many of your five closest friends smoke? (0/1/2/3/4/5) • NatCen recommended adding "Think of your five closest friends" and re-wording the measure to fit this. • "Don't know" was added as a response option was added for those who don't have five friends and to prevent respondents making a forced choice. • Added "cigarettes" for clarity.	Think of your five closest friends. How many of your five closest friends smoke cigarettes? • 0 • 1 • 2 • 3 • 4 • 5 • Don't know
Does your mother, father, brother(s), sister(s) smoke (0 or 1, no or yes). • Mother and father were broadened to female and male carers respectively, in conjunction with the YTPS. • NatCen recommended asking all family-related measures together in a grid format, adding "other family member", and adding "none of these".	Who smokes in your family? Tick all that apply. • Mother (female carer) • Father (male carer) • Brother • Sister • Other family member • None of these
Descriptive societal norms towards smoking (3 measures, 2 newly developed)	
Out of every 100 students your age, how many do you think (a) have tried smoking cigarettes? (b) smoke cigarettes at least once a week? • NatCen recommended testing with every 10 and 100 students, as 100 may be difficult for the younger population; NatCen was to test which alternative was preferred. • "Smoke at least once a week" was prioritized over "tried smoking cigarettes", as regular smoking would be a superior measure of norms.	Out of every 10 students your age, how many do you think smoke cigarettes at least once a week? _____ Or Out of every 100 students your age, how many do you think smoke cigarettes at least once a week? _____
Newly developed • An expert suggested a measure assessing perceived commonality of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days smoking cigarettes is … • Very common • Common • Neither common, nor rare • Rare • Very rare Or *In the past year would you say that smoking cigarettes has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know

Continued below…

Table 2.37 Youth norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with adult measures)

ORIGINAL MEASURES & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Injunctive interpersonal norms towards smoking (7 measures)	
How would your close friends feel about you smoking cigarettes? And How important are your close friends' feelings about you smoking cigarettes? (response formats not stated). • This measure was also adapted to apply to smoking respondents. • The response format was developed based on the item wording, as it could not be obtained from the original measure. • "Don't know" was added as a response option for those who don't have close friends and to prevent respondents making a forced choice.	*If doesn't smoke:* How would your close friends feel about you smoking cigarettes? *If smokes:* How do your close friends feel about you smoking cigarettes? • Strongly approve • Weakly approve • Neither approve, nor disapprove • Weakly disapprove • Strongly disapprove • Don't know And *If doesn't smoke:* How important would your close friends' feelings be about you smoking cigarettes? *If smokes:* How important are your close friends' feelings about you smoking cigarettes? • Very important • Quite important • Not important at all • Quite unimportant • Very unimportant • Don't know
My father, mother, brother(s), sister(s) think(s) that… (-3 to +3, I certainly shouldn't smoke to I certainly should smoke) • Mother and father were broadened to female and male carers respectively, in conjunction with the YTPS. • Divided into four separate measures. • A "this does not apply to me" option was added to prevent respondents making a forced choice. • Added "cigarettes" for clarity.	(a) My father (male carer) thinks that… (b) My mother (female carer) thinks that… (c) My brother(s) think(s) that… (d) My sister(s) think(s) that… • I certainly shouldn't smoke cigarettes • I probably shouldn't smoke cigarettes • I neither should, nor should not smoke cigarettes • I probably should smoke cigarettes • I certainly should smoke cigarettes • This does not apply to me
Have you ever felt pressure from people in the same school year to smoke? (0-4, never to many times) • NatCen recommended changing measure to assess frequency, as the original measure's response options did not fit well with the original measure; NatCen suggested frequency works well with younger populations. • "Don't know" added to prevent respondents making a forced choice. • Added "cigarettes" for clarity.	How often, if at all, have you felt pressure from people in the same school year to smoke cigarettes? • Never • Rarely • Sometimes • Fairly often • Very often • Don't know

Continued below…

Table 2.37 Youth norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with adult measures)

ORIGINAL MEASURES & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Injunctive societal norms towards smoking (6 measures, 4 newly developed)	
How much do you think people in your community care about students in your grade using tobacco products? (7 options, care very little to care a great deal). • "Students" changed to "people"; not all may be students. • NatCen recommended changing "people in your community" to "society", as younger respondents may not understand "community". • NatCen recommended changing the measure to assess approval/disapproval rather than "caring", as "caring" does not indicate the direction of the norm. • Seven response options were changed to five and re-worded to make the measure easier for younger respondents • Added "don't know" to prevent respondents making a forced choice. • NatCen recommended an alternative measure assessing the extent to which society disapproves of smoking, as asking directly about disapproval would elicit greater variation in responses. • Added "cigarettes" for clarity. • NatCen was to test both of these measures to determine which was preferred.	In general, do you think society approves or disapproves of people your age smoking cigarettes? • Strongly approves • Weakly approves • Society neither approves, nor disapproves • Weakly disapproves • Strongly disapproves • Don't know Or How much do you think society disapproves of people your age smoking cigarettes? • Not at all • A little bit • Moderately • Very much • Extremely • Don't know
Newly developed • An expert suggested a measure assessing perceived acceptability of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days smoking cigarettes is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or *In the past year would you say that smoking cigarettes has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know
Newly developed • An expert suggested a measure assessing perceived normality of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*How normal do you think it is to smoke cigarettes? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or *In the past year would you say that smoking cigarettes has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know

Continued below…

Table 2.37 Youth norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with adult measures)

ORIGINAL MEASURES & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Personal attitudes towards smoking (2 measures)	
Smoking cigarettes makes people your age look cool or fit in (1-5, strongly agree to strongly disagree) • NatCen recommended separating the measure as "look cool" and "fit in" are two unique constructs. • "Don't know" added to prevent respondents making a forced choice.	Smoking cigarettes makes people your age (a) look cool, (b) fit in • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know
Descriptive societal norms towards nicotine use (2 measures, both newly developed)	
Newly developed • An expert suggested a measure assessing perceived commonality of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days using electronic cigarettes or vaping devices is … • Very common • Common • Neither common, nor rare • Rare • Very rare • Don't know Or *In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know
Injunctive societal norms towards nicotine use (5 measures, all newly developed)	
Newly developed • The measure attempted to assess whether people believe that use of nicotine was normal by assessing whether nicotine in non-tobacco forms (e.g. e-cigarettes, gum, patches) was perceived as being equivalent to caffeine i.e. a mild stimulant whose consumption is generally viewed as socially acceptable.	*Nicotine in non-tobacco forms is a normal drug to use like caffeine • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know
Newly developed • An expert suggested a measure assessing perceived acceptability of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days using electronic cigarettes or vaping devices is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or *In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know

Continued below…

Table 2.37 Youth norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with adult measures)

ORIGINAL MEASURES & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Newly developed • An expert suggested a measure assessing perceived normality of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*How normal do you think it is to use electronic cigarettes or vaping devices? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or *In the past year would you say that using electronic cigarettes or vaping devices has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know
Personal attitudes towards the tobacco industry (3 measures)	
I would like to see cigarette companies go out of business (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) • "Cigarette companies" was changed to "tobacco companies" to use the correct British term. • "No opinion" was changed to "neither agree, nor disagree" to be consistent with the other measures. • "Don't know" added to prevent respondents making a forced choice.	*I would like to see tobacco companies go out of business • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know
How do you feel about tobacco companies? (1-6, I like them a lot, I like them, I neither like them, nor dislike them, I dislike them, I dislike them a lot) • Unchanged, other than adding "don't know" option to prevent respondents making a forced choice.	*How do you feel about tobacco companies? • I like them a lot • I like them • I neither like them, nor dislike them • I dislike them • I dislike them a lot • Don't know
Tobacco companies should not be blamed for young people smoking (agree/disagree) • NatCen recommended measure and response format were re-worded to avoid the use of a negative, which may confuse younger respondents. • "Don't know" added to prevent respondents making a forced choice.	*Do you think tobacco companies should be blamed for young people smoking cigarettes? • Definitely • Probably • Probably not • Definitely not • Don't know

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Descriptive interpersonal norms towards smoking (3 measures)	
Does your partner or spouse currently smoke? (Yes, no, don't know, not applicable) • No changes made from original except adding "cigarettes" for clarity.	Does your partner or spouse currently smoke cigarettes? • Yes • No • Don't know • Not applicable
How common is smoking among your family members/best friends/colleagues (1-7, not common to very common) • This measure would not be appropriate if respondents had small families/number of best friends, therefore NatCen recommended the response option "none" to "all". • The STS measure "Which, if any, of the following apply to you? I have (1) a partner, (2) a few close friends, (3) a lot of close friends, (4) a few colleagues, (5) a lot of colleagues who smoke(s)" informed this measure. • Added "cigarettes" for clarity.	How many of your (a) family members, (b) friends, (c) colleagues smoke cigarettes? • None • A few • Some • Most • All • Not applicable • Don't know
Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are cigarette smokers. • Unchanged.	Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are cigarette smokers? • 0 • 1 • 2 • 3 • 4 • 5 • Don't know
Descriptive societal norms towards smoking (2 measures, both newly developed)	
Newly developed • An expert suggested a measure assessing perceived commonality of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days smoking cigarettes is … • Very common • Common • Neither common, nor rare • Rare • Very rare • Don't know Or *In the past year would you say that smoking cigarettes has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know

Continued below…

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Injunctive interpersonal norms towards smoking (3 measures)	
Do you think this person [3 people who participants spend most time with] would approve or disapprove of your smoking? • Two measures were generated as a variant of this, both adding specific reference groups so that the effect of family vs. friend vs. colleague norms was clear. • The first variant used a "tick all that apply" approach to ensure the measure was concise. • The second variant used a likert scale to elicit a range of responses per reference group. • Both added "cigarettes" for clarity. • NatCen was to test which alternative was preferred	Which of the following people disapprove of smoking cigarettes? Tick all that apply: • Your family • Your partner/ spouse • Your friends • Your colleagues • None of the above Or My (a) family, (b) partner, (c) spouse, (d) friends, (e) colleagues believe I should not smoke cigarettes • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know • Not applicable
People who are important to me believe I should not smoke (1-5, strongly disagree to strongly agree). • Added "cigarettes" for clarity. • "Don't know" added to prevent respondents making a forced choice.	People who are important to me believe I should not smoke cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know
Injunctive societal norms towards smoking (7 measures, 4 newly developed)	
Society disapproves of me smoking (1-5, strongly disagree to strongly agree). • Changed "me smoking" to "smoking" to be applicable to smokers and nonsmokers. • Added "cigarettes" for clarity. • "Don't know" added to prevent respondents making a forced choice.	Society disapproves of smoking cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know
There are fewer and fewer places I feel comfortable smoking • Added "cigarettes" for clarity. • "Don't know" added to prevent respondents making a forced choice.	There are fewer and fewer places I feel comfortable smoking cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know
People who smoke are more and more marginalised • Added "cigarettes" for clarity. • "Don't know" added to prevent respondents making a forced choice.	People who smoke cigarettes are more and more marginalised • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know

Continued below…

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Newly developed • An expert suggested a measure assessing perceived acceptability of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days smoking cigarettes is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or *In the past year would you say that smoking cigarettes has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know
Newly developed • An expert suggested a measure assessing perceived normality of smoking, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*How normal do you think it is to smoke cigarettes? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or *In the past year would you say that smoking cigarettes has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know
Personal attitudes towards smoking (6 measures, 4 newly developed)	
Smoking makes it easier for you to socialize (Strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree). • Changed the measure to assess broad attitudes towards socialization, not just whether it makes it easier for the respondent per se to socialise. • Added "cigarettes" for clarity. • "Don't know" added to prevent respondents making a forced choice.	Smoking cigarettes makes it easier to socialise • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know
I like the thought of smoking becoming a thing of the past for future generations • Unchanged except adding "cigarettes".	I like the thought of smoking cigarettes becoming a thing of the past for future generations • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know

Continued below…

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Newly developed measures to assess stigma surrounding smoking - The research team felt it was important to have a measure assessing stigma surrounding smoking, yet none were found within the review. - Live with and date were selected, as they both involve being within direct and persistent contact with a smoker.	I would (a) live with (b) date a cigarette smoker - Strongly agree - Agree - Neither agree, nor disagree - Disagree - Strongly disagree - Don't know
Are you bothered by secondhand smoke? (Yes, No, Don't know) Or To what extent are you bothered or not bothered by tobacco smoke inside public places? (Bothered a great deal, Bothered a fair amount, Bothered a little, Not at all bothered, Don t know, Refused, Don't Know) - Both of these measures were adapted. - The first was changed to "how do you feel", as "bothered" could be considered to make the question leading. - The second measure retained the word "bother" as NatCen recommended testing it, and they were to explore whether respondents preferred the non-leading term "feel" or the alternative "bother". - The term "public places" was specified in the revised version. - The response options were changed on NatCen's recommendations - NatCen was to test which alternative was preferred.	(a) How do you feel about second hand cigarette smoke? Or (b) To what extent are you bothered or not bothered by second hand cigarette smoke in outdoor public places e.g. at bus stops, outside pubs, on the street? - It doesn't bother me at all - It doesn't bother me too much - It bothers me a fair amount - It bothers me a great deal - Don't know
Descriptive societal norms towards nicotine (2 measures, both newly developed)	
Newly developed An expert suggested a measure assessing perceived commonality of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days using electronic cigarettes or vaping devices is … - Very common - Common - Neither common, nor rare - Rare - Very rare - Don't know Or *In the past year would you say that the use of electronic cigarettes or vaping devices has become… - Much more common - More common - Stayed about the same - Less common - Much less common - Don't know
Injunctive societal norms towards nicotine (5 measures, all newly developed)	
Newly developed This measure attempted to assess whether people believe that use of nicotine was normal by assessing whether nicotine in non-tobacco forms (e.g. e-cigarettes, gum, patches) was perceived as being equivalent to caffeine i.e. a mild stimulant whose consumption is generally viewed as socially acceptable.	*Nicotine in non-tobacco forms is a normal drug to use like caffeine - Strongly agree - Agree - Neither agree, nor disagree - Disagree - Strongly disagree - Don't know

Continued below…

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Newly developed • An expert suggested a measure assessing perceived acceptability of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*Do you think that these days using electronic cigarettes or vaping devices is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or *In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know
Newly developed • An expert suggested a measure assessing perceived normality of e-cigarettes, therefore two new measures were developed, and NatCen was to test which alternative was preferred.	*How normal do you think it is to use electronic cigarettes or vaping devices? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or *In the past year would you say that using electronic cigarettes or vaping devices has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know
Personal attitudes towards the tobacco industry (3 measures)	
I would like to see cigarette companies go out of business (1-5, strongly agree, agree, disagree, strongly disagree, no opinion) • "Cigarette companies" was changed to "tobacco companies" to use the correct British term. • "No opinion" was changed to "neither agree, nor disagree" to be consistent with the other measures. • "Don't know" added to prevent respondents making a forced choice.	*I would like to see tobacco companies go out of business • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know
How do you feel about tobacco companies? (I like them a lot, I like them, I neither like them, nor dislike them, I dislike them, I dislike them a lot) • "Don't know" added to prevent respondents making a forced choice.	*How do you feel about tobacco companies? • I like them a lot • I like them • I neither like them, nor dislike them • I dislike them • I dislike them a lot • Don't know

Continued below…

Table 2.38 Adult norms measures shortlisted for cognitive testing following consultation with research team, NatCen & experts (shaded = newly developed; * = overlap with youth measures)

ORIGINAL MEASURE & REVISIONS AFTER CONSULTATION	REVISED MEASURES SHORTLISTED FOR COGNITIVE TESTING
Tobacco companies should not be blamed for young people smoking (agree/disagree) • NatCen recommended this measure and response format were re-worded in youth to avoid the use of a negative, which may confuse younger respondents. The wording was then also kept consistent for adults. • "Don't know" added to prevent respondents making a forced choice.	*Do you think tobacco companies should be blamed for young people smoking cigarettes? • Definitely • Probably • Probably not • Definitely not • Don't know

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CHAPTER 3. COGNITIVE INTERVIEWING: QUALITATIVE ASSESSMENT OF THE SHORTLISTED MEASURES

3.1 Introduction

The objective of this stage was to cognitively test the norms measures developed through the process described in Chapter 2. Cognitive testing was used to establish the comprehension of the measures and response options, and whether the measures were eliciting the information that was intended. Cognitive interviews explore the conscious thought processes that participants engage in when being asked to answer survey measures or complete tasks. The method involves two common techniques: think aloud and probing. In the think aloud technique participants are asked to think aloud as they go about completing a task, such as answering a survey question. In the probing method, an interviewer asks the participant open measures about what they are thinking and doing as they go about trying to complete the task. Probing questions can focus on particular issues, such as comprehension.

The cognitive interviews were conducted by NatCen and the methods, sample and recruitment are described below. A summary of findings and recommendations for each measure are then reported in Table 3.2 for youth and Table 3.3 for adults.

3.2 Methods

3.2.1 Sampling and recruitment

Forty cognitive interviews were conducted, twenty with participants aged 11 to 18, and twenty with adult participants (aged 18 and over) in England. In both groups, half of the participants were smokers and half non-smokers. In the case of the youth sample, smokers were considered those who have tried smoking.

The youth participants were recruited through telephone screening of youth who took part in the HSE in 2013 and 2014 who agreed to be re-contacted, and through door-step screening. Consent was sought both from the youth and their parents for participation in the study. Adult participants were recruited through door-step screening using a short screening questionnaire. Quotas were set to ensure participants varied by sex, age, location, smoking behaviour, and, in the case of the adult sample, highest qualification (A-level or above vs. GCSE or below). Eight participants were recruited in each of the following areas which were covered by five separate interviewers: London, Cumbria, East Sussex, Manchester and Nottingham. A breakdown of the participants recruited is provided in Table 3.1 below.

Table 3.37 Participant numbers by age groups, sex and smoking status for cognitive testing

	Youth (N=20)	Adults (N=20)
Sex	Male: 10	Male: 11
	Female: 10	Female: 9
Age	11-13: 10	18-34: 9
	14-16: 6	35-54: 3
	17: 4	55+: 8
Smoking status	Tried: 9	Smoker: 10
	Never tried: 11	Nonsmoker: 10
Highest qualification		A-level or above: 9
		GCSE or below: 11

3.2.2 Interview Protocol

The youth and adult norms measures described in the previous chapter were tested. At the beginning of each interview, all participants were asked permission to record the interviews, and they were then asked to complete the self-completion questionnaire (comprised of the norms measures), and to allow the interviewers to watch and probe as they answered each measure. They were invited to 'think aloud' whilst completing the self-completion questionnaire and were encouraged to voice issues they encountered with the measures as they proceeded. While completing the questionnaire, participants were asked a series of probes designed to explore their understanding of key terms used in the measures and to understand how they went about answering the measures. Observation techniques were also utilised to establish how participants completed the questionnaires, such as whether they followed the routing as instructed, whether they answered all measures, and whether they appeared to read all the appropriate measures and answer categories.

Appendix 4 presents the interview protocol for the youth and Appendix 5 presents the protocol for adults. All appendices are available upon request.

3.3 Analysis

The interviewers made notes on each of their cognitive interviews in a structured 'notes-template' document. The notes template was organised by test measure (norms measure) and the key measurement issues to be explored. All notes contained verbatim references to the original interview recordings. An interviewer debrief exercise was also arranged in which interviewers provided feedback headline findings to the researchers based on all the interviews they had conducted to date. The interviewer notes, the completed test questionnaires and the debriefing discussion with the main project team (KCL) were all reviewed as part of the analysis process.

Notes were analysed using the Framework approach. Framework is a form of content analysis developed by NatCen. A matrix was set up in word listing the areas under investigation across the page and cases down the page. The matrix also included a summary of the characteristics of each participant; such as their gender, age and smoking status. Thus data could be read horizontally, as a complete case record for an individual, or vertically, by measure under investigation, looking across all cases.

Once the matrix was populated, the data were reviewed and the full range of problems with each measure was explored. For each measure, a recommendation was made on the optimal wording.

Consultation

Recommended norms measures following the cognitive testing were discussed between NatCen and the main project team, and experts as appropriate, before finalizing the norms measures to be used in pilot testing.

3.4 Norms measures and results

Across all measures, the testing sought to explore whether the phrase 'smoking' was understood to refer to smoking tobacco cigarettes or whether 'smoking cigarettes' or 'smoking tobacco cigarettes was preferable. NatCen recommended it was better to use the latter term throughout.

The measures used, developed from the literature reviews and consultation are shown in column one of Tables 3.2 and 3.3 for youth and adults respectively. The second column details any specific findings from the cognitive testing and the third column the measures recommended for pilot testing following discussions with the main project team, NatCen and the experts as appropriate.

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Descriptive interpersonal norms towards smoking (2 measures shortlisted for pilot)		
Think of your five closest friends. How many of your five closest friends smoke cigarettes? • 0 • 1 • 2 • 3 • 4 • 5 • Don't know	• "Friends you spend the most time with" was preferred to "closest friends" • "Three" was easier than "five for those with smaller social networks • Added "don't want to say" as a response option • The time reference on a regular basis" was added	Please think of the three friends you spend most time with. How many of them smoke tobacco cigarettes on a regular basis? • 0 (none of them) • 1 • 2 • 3 (all of them) • Don't know • Don't want to say
Who smokes in your family? Tick all that apply. • Mother (female carer) • Father (male carer) • Brother • Sister • Other family member • None of these	• A time reference should be added • For consistency purposes, the measure should read "smoke (tobacco) cigarettes", rather than just "smoke"	Who in your family, if anyone, smokes tobacco cigarettes at the moment? Please tick all that apply (a) Mother (or female carer) (b) Father (or male carer) (c) Brother or sister • Yes • No • Nobody in my family smokes tobacco cigarettes • Don't know • Don't want to say
Descriptive societal norms towards smoking (2 measures shortlisted for pilot)		
Out of every 10 students your age, how many do you think smoke cigarettes at least once a week? _____ Or Out of every 100 students your age, how many do you think smoke cigarettes at least once a week? _____	• NatCen explored which one of these options was easier and whether an open measure was a suitable format (i.e. where participants are asked to give a number) and if not whether a visual analogue scale would be preferable as an alternative (a showcard with a separate visual analogue scale was used to illustrate the different formats available). • Although either could be used, participants declared it was easier to think conceptually about how many people smoked out of ten, rather than a hundred. Change "at least once a week" to "on a regular basis" or "regularly" – this would include special events, such as parties, but not make the participants think about out of the ordinary events that would happen on a weekend. The measure could be answered as an open question or visual analogue scale use online with a slider bar (depending on the software being used).	Out of every 10 people your age, on average how many do you think smoke tobacco cigarettes on a regular basis? • 0 (none of them) • 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • 10 (all of them) • Don't know

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Do you think that these days smoking cigarettes is … • Very common • Common • Neither common, nor rare • Rare • Very rare Or In the past year would you say that smoking cigarettes has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know	• Testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and individual concepts. • The measures on commonality worked well for both adults and young people. Both groups had a consistent understanding of the meaning of the measure and participants gave varied answers to the measures (either common, rare or neither). • The first measure was selected but with amendments: The phrase "these days" was recommended to be dropped, and "uncommon" was preferred over "rare" as a response option • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	Do you think that smoking tobacco cigarettes is… • Very uncommon • Uncommon • Neither common, nor uncommon • Common • Very common • Don't know
Injunctive interpersonal norms towards smoking (1 measure shortlisted for pilot)		
(a) My father (male carer) thinks that… (b) My mother (female carer) thinks that… (c) My brother(s) think(s) that… (d) My sister(s) think(s) that… • I certainly shouldn't smoke cigarettes • I probably shouldn't smoke cigarettes • I neither should, nor should not smoke cigarettes • I probably should smoke cigarettes • I certainly should smoke cigarettes • This does not apply to me	• The testing aimed to explore how young people interpreted terms such as 'carer' and 'brother/sister 'if they had step-siblings and how they answered if they felt that siblings had varying views on smoking. It also explored responses to the mid-point response 'I neither should nor should not smoke' and to the 'this does not apply to me' option. • These measures were combined with those below to form one stem – see below comments.	[Please imagine that you smoke tobacco cigarettes]. How do each of the following people feel about you smoking tobacco cigarettes? (a) Your parents (b) Your siblings (c) Your close friends • Strongly disapprove • Disapprove • Neither approve or disapprove • Approve • Strongly approve • Not applicable • Don't know

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
If doesn't smoke: How would your close friends feel about you smoking cigarettes? *If smokes:* How do your close friends feel about you smoking cigarettes? • Strongly approve • Weakly approve • Neither approve, nor disapprove • Weakly disapprove • Strongly disapprove • Don't know And *If doesn't smoke:* How important would your close friends' feelings be about you smoking cigarettes? *If smokes:* How important are your close friends' feelings about you smoking cigarettes? • Very important • Quite important • Not important at all • Quite unimportant • Very unimportant • Don't know	• Adapted to fit in above measure. • The follow up measure in each case was consistently misunderstood and difficult to comprehend. • It should be reworded "If you were to smoke cigarettes, how important…." Or build on the answer from the previous measure thus: You said that your close friends would <<INSERT ANSWER FROM PREVIOUS QUESTION>> of you smoking. How important would your close friends' feelings about it be to you? You said that your close friends <<INSERT ANSWER FROM PREVIOUS QUESTION>> of you smoking. How important are your close friends' feelings about you smoking cigarettes?	• See above
How often, if at all, have you felt pressure from people in the same school year to smoke cigarettes? • Never • Rarely • Sometimes • Fairly often • Very often • Don't know	• The testing assessed whether the response options used were adequate (i.e. the relative frequency scale Never-Very often) • Drop the phrase 'in the same school year' as those age 16+ may no longer be in school. Instead the measure could say "people your age" • Drop "if at all" because there is a "never" response option • NatCen recommended the following: How often have you felt pressure from people your age to smoke cigarettes? (Never, rarely, sometimes, fairly often, very often, don't know), but this was dropped following consultation with YouGov and IPSOS due to the limited number we could test	NOT SHORTLISTED FOR PILOT due to limited number we could test

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Injunctive societal norms towards smoking (1 measure shortlisted for pilot)		
In general, do you think society approves or disapproves of people your age smoking? • Strongly approves • Weakly approves • Society neither approves, nor disapproves • Weakly disapproves • Strongly disapproves • Don't know	• Testing explored: which measure is easier to understand and answer, which would collect more varied responses, what young people understand by "society", and whether the response options could be improved • "Society" was not consistently understood and some participants said that this word made the measure tricky. Some confused society with what institutions endorsed (e.g. age of sale law for children's smoking, so strongly disapproves) • NatCen recommended "the general public". However, in discussions with ASH and IPSOS, this measure was altered to that in the next column, as it was felt that "people in general" was simpler for all age groups. • The same response options were kept, as these tested well. • "People your age" was changed to "people" for consistency with adults.	In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? • Strongly approves • Approves • Neither approves, nor disapproves • Disapproves • Strongly disapproves • Don't know
How much do you think society disapproves of people your age smoking cigarettes? • Not at all • A little bit • Moderately • Very much • Extremely • Don't know	• Young people were confused by the negative phrasing and the scale direction	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Do you think that these days smoking cigarettes is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or In the past year would you say that smoking cigarettes has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know	• Testing explored the differences between acceptable, normal and common (see other similar measures) and the individual concepts • Social acceptability was perceived variably depending on whether participants thought of their friends, most people, society or institutions • The second measure was not needed as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate • As an alternative, NatCen recommended: What do most people think about smoking cigarettes? (Most people strongly disapprove, Most people disapprove, Most people neither disapprove not approve, Most people approve, Most people strongly approve, Don't know). However, this was very similar to the measure "In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes?". That measure was considered superior as it tested better and avoided the term social acceptability, which was problematic	NOT SHORTLISTED FOR PILOT
How normal do you think it is to smoke cigarettes? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or In the past year would you say that smoking cigarettes has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know	• Testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts • Considered by NatCen to be the most problematic measures with multiple meanings and some participants viewing the term 'normal' inappropriate • Also the response scale inappropriate, what does 'very normal' mean? • Therefore this measure was dropped • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Personal attitudes towards smoking (2 measures shortlisted for pilot)		
Smoking cigarettes makes people your age (a) look cool, (b) fit in • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Some participants struggled to answer this and the following measures because they were not sure whether the measures asked what their opinion was, or what others would think about it; when probed, some declared that the answer they gave was their opinion, while others chose the option they thought others would support. • Add "in my opinion" at the start would make it clear that young people's own views were being sought, rather than their perceptions of what others might think. • This and the item below were viewed as being distinct so both can be retained space permitting	To what extent do you agree or disagree with the following statements: (a) In my opinion, smoking tobacco cigarettes makes people my age look cool (b) In my opinion, smoking tobacco cigarettes makes people my age fit in • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know
DESCRIPTIVE SOCIETAL NORMS TOWARDS NICOTINE USE (1 measure shortlisted for pilot)		
Do you think that these days using electronic cigarettes or vaping devices is … • Very common • Common • Neither common, nor rare • Rare • Very rare • Don't know Or In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know	• As with smoking, testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts, and additionally to explore understanding of the terms "electronic cigarettes or vaping devices" • The measures on commonality worked well for both adults and young people. Both groups had a consistent understanding of the meaning of the measure and participants gave varied answers to the measures (either common, rare or neither). • The concept of electronic cigarettes or vaping devices was understood • For consistency with the above equivalent smoking measure, the first measure was selected but with amendments: The phrase "these days" was recommended to be dropped, and "uncommon" was preferred over "rare" as a response option • The second measure was not needed for the same reasons as the equivalent smoking measure above: as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	Do you think that the use of electronic cigarettes or vaping devices is… • Very uncommon • Uncommon • Neither common, nor uncommon • Common • Very common • Don't know

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Injunctive societal norms towards nicotine use (3 measures shortlisted for pilot)		
Nicotine in non-tobacco forms is a normal drug to use like caffeine • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Testing explored what respondents understood by "nicotine in non-tobacco forms" and "normal" • 11/24 young people answered "Don't Know" or left it blank. Two further participants answered "Neither agree nor disagree" but on probing said they had picked this option as they did not understand the measure • This measure was placed before the e-cigarettes measure in the testing, and if both were to be included it might be better after such measures to help with comprehension of the concept • The term 'drug' was to be avoided. For young people this word had connotations of illegal substances, leading to confusion. • Providing examples of nicotine in non-tobacco forms (e.g. e-cigarette, nicotine gum) was tested as an alternative to the word "drug" in the final three adults (two female smokers age 18-34, one male non-smoker age 55+) following consultation between the research team and NatCen. Respondents preferred the measure with examples • "Normal" has multiple interpretations. Some participants considered the normality of nicotine use as a quit aid, whereas others considered it as a stimulant. There were ambivalent views on the normality of nicotine depending on why the product is being used; separate measures may be required for use as a quit aid vs. stimulant • Based on the above, revisions are shown in the next column	(a) In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee. (b) In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking. • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Do you think that these days using electronic cigarettes or vaping devices is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know	• As with smoking, testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts, and additionally to explore understanding of the terms "electronic cigarettes or vaping devices" • Generally these concepts were understood • However similar issues were raised concerning the terms acceptable, normal and common as in the cigarette measures and hence wording changes to this measure and those below needed to match those of the similar smoking measures • The second measure was not needed for the same reasons as the equivalent smoking measure above: as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? • Strongly disapprove • Disapprove • Neither approve or disapprove • Approve • Strongly approve • Don't know
How normal do you think it is to use electronic cigarettes or vaping devices? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or In the past year would you say that using electronic cigarettes or vaping devices has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know	• Testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts • Considered by NatCen to be the most problematic measures with multiple meanings and some participants viewing the term 'normal' inappropriate • Also the response scale inappropriate, what does 'very normal' mean? • Therefore this measure was dropped • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.2 Youth cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.37)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Personal attitudes towards the tobacco industry (1 measure shortlisted for pilot)		
I would like to see tobacco companies go out of business • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Testing was to explore whether participants understand the phrase "tobacco companies" and, to assess which phrasing is better, "tobacco companies" vs. "cigarette companies" and whether participants understand these items and whether they have an opinion on them. • Generally well understood. • This measure was preferred following consultation as only one measure could be piloted for this category • Response options were reversed to be consistent with other measures	I would like to see tobacco companies go out of business. • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know
How do you feel about tobacco companies? • I like them a lot • I like them • I neither like them, nor dislike them • I dislike them • I dislike them a lot • Don't know	• See above • Generally tested well, however the responses this measure elicited were only on the negative and neutral side of the scale, and hence utility can be questioned • From the cognitive interviewing we suspect that should the measure be retained, there would be a strong skew to the neutral or negative responses as even smokers who were pro-smoking did not necessarily actively 'like' tobacco companies	NOT SHORTLISTED FOR PILOT
Do you think tobacco companies should be blamed for young people smoking cigarettes? • Definitely • Probably • Probably not • Definitely not • Don't know	• See above • Testing also explored what was understood by the term 'young people', both in the adult sample and in the young people sample • Generally tested well but for some this was a very complicated measure (eg advertising could be blamed) and hard to give a simple answer	NOT SHORTLISTED FOR PILOT

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Descriptive interpersonal norms towards smoking (1 measure shortlisted for pilot)		
Does your partner/spouse currently smoke cigarettes? • Yes, • No • Don't know • Not applicable	• Testing established that these concepts were easy to understand • A combination of all three descriptive interpersonal norms measures was deemed appropriate following cognitive testing, with some modifications	Think of the five people you feel most close to. These could be your partner, family members, friends, colleagues or acquaintances. Thinking of these FIVE people, how many of them, if any, are tobacco cigarette smokers? • 0 – None • 1 • 2 • 3 • 4 • 5 – All of them • Don't know
How many of your (a) family members, (b) friends, (c) colleagues smoke cigarettes? • None • A few • Some • Most • All • Not applicable • Don't know	• Testing established that these concepts were easy to understand • A combination of all three descriptive interpersonal norms measures was deemed appropriate following cognitive testing, with some modifications	See above
Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are cigarette smokers? • 0 • 1 • 2 • 3 • 4 • 5 • Don't know	• Testing established that these concepts were easy to understand • A combination of all three descriptive interpersonal norms measures was deemed appropriate following cognitive testing, with some modifications	See above

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Descriptive societal norms towards smoking (1 measure shortlisted for pilot)		
Do you think that these days smoking cigarettes is … • Very common • Common • Neither common, nor rare • Rare • Very rare • Don't know Or In the past year would you say that smoking cigarettes has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know	• Testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and individual concepts. • The measures on commonality worked well for both adults and young people. Both groups had a consistent understanding of the meaning of the measure and participants gave varied answers to the measures (either common, rare or neither). • The first measure was selected but with amendments: The phrase "these days" was recommended to be dropped, and "uncommon" was preferred over "rare" as a response option • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	Do you think that smoking tobacco cigarettes is… • Very uncommon • Uncommon • Neither common, nor uncommon • Common • Very common • Don't know
Injunctive interpersonal norms towards smoking (1 measure shortlisted for pilot)		
Which of the following people disapprove of smoking cigarettes? Tick all that apply: • Your family • Your partner/ spouse • Your friends • Your colleagues • None of the above Or My (a) family, (b) partner, (c) spouse, (d) friends, (e) colleagues believe I should not smoke cigarettes • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know • Not applicable	• Testing explored which format of measure is preferred, when it comes to assessing the attitudes of family and friends • There would be issues with the first measure if for example, the person didn't have e.g partner/spouse – there needed to be a not applicable option • The colleague option could be deleted – not many respondents felt that their colleague's opinions mattered to them • There were problems with the second measure's scale i.e. it is negatively phrased and considered a leading measure, therefore an approve-disapprove response option was preferred • A modified version merging and adapting the two measures was recommended by NatCen – it was also adapted to be applicable to both smokers and nonsmokers	(Please imagine that you smoke tobacco cigarettes). How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? (a) Your immediate family (b) Your close friends (c) Your partner/spouse • Strongly disapprove • Disapprove • Neither approve or disapprove • Approve • Strongly approve • Not applicable • Don't know

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
People who are important to me believe I should not smoke cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know	• As above, the modified version was prioritized as there were problems with the scale being negatively phrased • The modified version was also prioritized as it specifically asked about various groups, as opposed to "people who are important to me"	NOT SHORTLISTED FOR PILOT
Injunctive societal norms towards smoking (2 measures shortlisted for pilot)		
Society disapproves of smoking cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know	• Testing explored: which measure is easier to understand and answer, which would collect more varied responses, what adults understand by "society", and whether the response options could be improved • Similar problems were found in adults as in youth: "society" was not consistently understood • NatCen recommended "the general public" over "society". However, in discussions with ASH and IPSOS, this measure was altered to that in the next column, as it was felt that "people in general" was simpler for all age groups.	In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? • Strongly disapprove • Disapprove • Neither approve or disapprove • Approve • Strongly approve • Don't know
There are fewer and fewer places I feel comfortable smoking cigarettes • Strongly disagree • Disagree • Neither agree, nor disagree • Agree • Strongly agree • Don't know	• This measure tested well, however NatCen recommend it be reframed so it is no longer negatively phrased	I feel more uncomfortable smoking tobacco cigarettes in public these days. [CURRENT SMOKERS ONLY] • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know
People who smoke cigarettes are more and more marginalised • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• The term marginalised was not easily understood, and a similar alternative could not be found, therefore this measure was dropped	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Do you think that these days smoking cigarettes is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or In the past year would you say that smoking cigarettes has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know	• Testing explored the differences between acceptable, normal and common (see other similar measures) and the individual concepts • Social acceptability was perceived variably depending on whether participants thought of their friends, most people, society or institutions • The second measure was not needed as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate • As an alternative, NatCen recommended: What do most people think about smoking cigarettes? (Most people strongly disapprove, Most people disapprove, Most people neither disapprove not approve, Most people approve, Most people strongly approve, Don't know). However, this was very similar to the measure "In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes?". That measure was considered superior as it tested better and avoided the term social acceptability, which was problematic.	NOT SHORTLISTED FOR PILOT
How much do you think society disapproves of people your age smoking cigarettes? • Not at all • A little bit • Moderately • Very much • Extremely • Don't know	• In the young people sample, younger respondents were confused by the negative phrasing and the scale direction. This measure was dropped for consistency.	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
How normal do you think it is to smoke cigarettes? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or In the past year would you say that smoking cigarettes has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know	• Testing explored the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts • Considered by NatCen to be the most problematic measures with multiple meanings and some participants viewing the term 'normal' inappropriate • Also the response scale inappropriate, what does 'very normal' mean? • Therefore this measure was dropped • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	NOT SHORTLISTED FOR PILOT
Personal attitudes towards smoking (1 measure shortlisted for pilot)		
Smoking cigarettes makes it easier to socialise • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Generally tested well, but only for smokers • This measure was dropped as it only tested well for smokers, and ideally we wanted measures which were suitable for both smokers and nonsmokers	NOT SHORTLISTED FOR PILOT
I like the thought of smoking cigarettes becoming a thing of the past for future generations • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• In general this measure worked as intended. • Some participants commented that the statement was slightly long-winded but all participants were able to understand it and pick appropriate answer options • It was suggested that the statement might be clearer if it was reframe as "To help future generations, I like the idea of smoking cigarettes becoming a thing of the past" • However, due to the limited number of measures allowed in the pilot this was dropped – it was thought to be considering the future of smoking, rather than the present, and as these measures were to be used over time it would not be as appropriate as alternatives	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
I would live with a cigarette smoker • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Testing explored whether people are thinking hypothetically about living with another person when answering • "Disagree" responses were provided both by those with negative attitudes to living with a smoker, and to living with someone new in general • This measure was prioritized over "dating a smoker", as more respondents could relate to it and answered the measure as intended • "Live" was clarified with "new lodger or housemate", to overcome issues relating to living with someone new in general, and NatCen recommended revised response options based on smoker vs. nonsmoker housemates	Please imagine that you need to find a new lodger or housemate. Would you…? • Only live with a non-smoker • Prefer a non-smoker but consider a smoker • Have no preference between smokers and non-smokers • Prefer a smoker but consider a non-smoker • Only live with smoker • Don't know
I would date a cigarette smoker • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• As above, testing explored whether people are thinking hypothetically about being single when answering • "Disagree" responses were provided both by those with negative attitudes to dating smokers, and to dating a new person in general • There was some ambiguity in relation to the smoking status of a partner or spouse as opposed to a lodger, therefore this measure was dropped and the "living with a smoker" measure prioritised	NOT SHORTLISTED FOR PILOT
(a) How do you feel about second hand cigarette smoke? Or (b) To what extent are you bothered or not bothered by second hand cigarette smoke in outdoor public places e.g. at bus stops, outside pubs, on the street? • It doesn't bother me at all • It doesn't bother me too much • It bothers me a fair amount • It bothers me a great deal • Don't know	• Testing explored: understanding of "second hand cigarette smoke", "bothered", response options (wording and whether further options i.e. a middle option) were required, and which of the two measures (if either) are preferred • Both were generally well understood • Three answer options could be used instead of four (i.e. 'It does not bother me at all,' 'it bothers me a little' or 'it bothers me a lot') • NatCen concluded that a hybrid measure probably would work best • However, these were both dropped as there was a limited number we could test, assessing norms towards secondhand smoke was not the main aim of this report, and the "living with smoker" would tap into the idea of both stigma and secondhand smoke	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Descriptive societal norms towards nicotine use (1 measure shortlisted for pilot)		
Do you think that these days using electronic cigarettes or vaping devices is … • Very common • Common • Neither common, nor rare • Rare • Very rare • Don't know Or In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more common • More common • Stayed about the same • Less common • Much less common • Don't know	• As with smoking, testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts, and additionally to explore understanding of the terms "electronic cigarettes or vaping devices" • The measures on commonality worked well for both adults and young people. Both groups had a consistent understanding of the meaning of the measure and participants gave varied answers to the measures (either common, rare or neither). • The concept of electronic cigarettes or vaping devices was understood • For consistency with the above equivalent smoking measure, the first measure was selected but with amendments: The phrase "these days" was recommended to be dropped, and "uncommon" was preferred over "rare" as a response option • The second measure was not needed for the same reasons as the equivalent smoking measure above: as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	Do you think that the use of electronic cigarettes or vaping devices is… • Very uncommon • Uncommon • Neither common, nor uncommon • Common • Very common • Don't know
Injunctive societal norms towards nicotine use (2 measures shortlisted for pilot)		
Nicotine in non-tobacco forms is a normal drug to use like caffeine • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Testing explored what respondents understood by "nicotine in non-tobacco forms" and "normal" • 9/20 adults answered "Don't Know" to this measure and two participants changed their answer during probing • Providing examples of nicotine in non-tobacco forms (e.g. e-cigarette, nicotine gum) was tested as an alternative to the word "drug" in the final three adults (two female smokers age 18-34, one male non-smoker age 55+) following consultation between the research team and NatCen. Respondents preferred the measure with examples • Overall, the issues with this measure were very similar to the ones raised with youth and the two new measures recommended for youth were also recommended for adults	(a) In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee. (b) In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking. • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Do you think that these days using electronic cigarettes or vaping devices is … • Very socially acceptable • Socially acceptable • Neither socially acceptable, nor socially unacceptable • Socially unacceptable • Very socially unacceptable • Don't know Or In the past year would you say that the use of electronic cigarettes or vaping devices has become… • Much more socially acceptable • More socially acceptable • Stayed about the same • Less socially acceptable • Much less socially acceptable • Don't know	• As with smoking, testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts, and additionally to explore understanding of the terms "electronic cigarettes or vaping devices" • Generally these concepts were understood • However similar issues were raised concerning the terms acceptable, normal and common as in the cigarette measures and hence wording changes to this measure and those below needed to match those of the similar smoking measures • The second measure was not needed for the same reasons as the equivalent smoking measure above: as it will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? • Strongly disapprove • Disapprove • Neither approve or disapprove • Approve • Strongly approve • Don't know
How normal do you think it is to use electronic cigarettes or vaping devices? • Very normal • Normal • Neither normal, nor not normal • Not normal • Not at all normal • Don't know Or In the past year would you say that using electronic cigarettes or vaping devices has become… • Much more normal • More normal • Stayed about the same • Less normal • Much less normal • Don't know	• Testing sought to explore the differences between the terms acceptable, normal and common (see other similar measures) and the individual concepts • Considered by NatCen to be the most problematic measures with multiple meanings and some participants viewing the term 'normal' inappropriate • Also the response scale inappropriate, what does 'very normal' mean? • Therefore this measure was dropped • The second measure was not needed because this measure will be used over time and participants didn't really frame answers about the past year which was difficult to demarcate	NOT SHORTLISTED FOR PILOT

Continued below…

Table 3.3 Adult cognitive testing findings and measures selected for pilot testing following consultation with research team, NatCen and experts. Measures shortlisted for pilot are shaded.

COGNITIVE TEST MEASURES (from column 2 table 2.38)	FINDINGS AFTER TESTING AND CONSULTATION	REVISED MEASURES SHORTLISTED FOR PILOT
Personal attitudes towards the tobacco industry (1 measure shortlisted for pilot)		
I would like to see tobacco companies go out of business • Strongly agree • Agree • Neither agree, nor disagree • Disagree • Strongly disagree • Don't know	• Testing was to explore whether participants understand the phrase "tobacco companies" and, to assess which phrasing is better, "tobacco companies" vs. "cigarette companies" and whether participants understand these items and whether they have an opinion on them • Generally well understood • This measure was preferred following consultation as only one measure could be piloted for this category • Response options were reversed to be consistent with other measures	I would like to see tobacco companies go out of business. • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree • Don't know
How do you feel about tobacco companies? • I like them a lot • I like them • I neither like them, nor dislike them • I dislike them • I dislike them a lot • Don't know	• See above • Generally tested well, however the responses this measure elicited were only on the negative and neutral side of the scale, and hence utility can be measured • From the cognitive interviewing we suspect that should the measure be retained, there would be a strong skew to the neutral or negative responses as even smokers who were pro-smoking did not necessarily actively 'like' tobacco companies	NOT SHORTLISTED FOR PILOT
Do you think tobacco companies should be blamed for young people smoking cigarettes? • Definitely • Probably • Probably not • Definitely not • Don't know	• See above • Testing also explored what was understood by the term 'young people', both in the adult sample and in the young people sample • Generally tested well but for some this was a very complicated measure (eg advertising could be blamed) and hard to give a simple answer	NOT SHORTLISTED FOR PILOT

3.5 Discussion

Based on these findings, 13 measures for youth and 11 measures for adults were selected for pilot testing, with seven measures overlapping between youth and adult (Tables 3.2 and 3.3). The term "tobacco" was added to "ordinary cigarettes" to read "ordinary tobacco cigarettes" within all measures based on findings from the cognitive testing.

3.5.1 Strengths and limitations of cognitive testing

Forty interviews were planned for the cognitive testing given the time constraints, 20 with youth and 20 with adults. Whilst a larger sample might have raised additional concerns with the measures, there was remarkable consistency in the issues raised within each measure allowing for modifications to be developed. Two new nicotine norm measures were developed during the testing at an interim briefing session between NatCen and the main project team which therefore resulted in more limited testing to be carried out; both measures appeared to raise few issues for youth and adult and were put into the pilot testing. Consultation with the survey companies and experts enabled further modifications to be made to increase clarity.

CHAPTER 4. PILOT TESTING OF THE YOUTH AND ADULT NORMS MEASURES

4.1 Introduction

The objective of this stage was to test the norms measures developed through the processes described in Chapters 2 and 3 in national surveys of youth and adults in order to assess their validity and reliability.

4.2 Methods for pilot testing

For the pilot phase of this project, the shortlisted measures were added to three national, cross-sectional surveys in the UK: (1) the Smoking Toolkit Study (STS), (2) the Action on Smoking and Health (ASH) Smokefree Great Britain (GB) Youth survey, and (3) the ASH Smokefree GB Adult survey.

The validity and the reliability of the norms measures were then tested. First, basic descriptive statistics for each measure were examined. The predictive validity of each measure was tested by examining the association between smoking status and each of the measures, adjusting for gender, education, region, and e-cigarette use. The construct validity of the measures was then tested using principal component analysis (PCA).

Surveys used in pilot testing

We selected the STS and ASH surveys as they were going into the field in March 2016 and both survey firms provide data within a few weeks of implementation. These timings also fitted well with the overall project timing. In addition, the surveys would provide an assessment of whether the measures were valid and reliable across two formats: face-to-face interviews (STS) and online surveys (ASH). The STS survey was only carried out for adults aged 16 years of age and above; therefore we had two surveys for adults and one for youth.

4.2.1 Action on Smoking and Health (ASH) Smokefree GB Youth Survey

The ASH Smokefree GB Youth survey is an annual cross-sectional internet survey conducted in the Spring. The ASH Smokefree GB Youth Survey covers a wide range of smoking behaviour, perceptions and tobacco control policies, and consists of a sample of approximately 2,500 youth age 11-18 (inclusive) in GB each year.

Respondents age 16-18 are sampled directly from YouGov's online panel using the same strategy as the adult ASH data (see Section 4.1.2). Respondents age 11-15 are recruited via adult YouGov participants; emails are sent to parents or legal guardians from the YouGov panel, asking them to read the information about the survey and pass it on to their child if they consented. The fieldwork for the 2016 survey was conducted between March and April 2016, and a total of 2,331 respondents were obtained.

Measures

All 13 shortlisted youth norms measures (Table 3.2) were piloted in the ASH Smokefree GB Youth Survey. In order to test the reliability and validity of the norms measures, the following measures from the survey were also used in the analyses including smoking status and e-cigarette use, and demographics: gender, age, social grade, and government region. Table 4.1 compares the demographic, smoking status and e-cigarette use measures between the youth ASH, adult ASH and STS surveys.

Smoking status was assessed with the following question: "Which of the following best applies to you?" Responses were coded as follows: Never smoker ("I have never smoked cigarettes, not even a puff or two"), Tried once ("I have only ever tried smoking cigarettes once"), Used to but don't currently smoke ("I used to smoke sometimes but I never smoke cigarettes now"),

Occasional smoker ("I sometimes smoke cigarettes now but less than once a week"), Regular smoker ("I usually smoke between one and six cigarettes a week" or "I usually smoke more than six cigarettes a week"). The remainder responded "Don't want to say".

E-cigarette use was assessed with a similar question: "Which of the following statements BEST applies to you?" Responses were coded as follows: Never tried ("I have never used an e-cigarette"), Tried but not using now ("I have only tried an e-cigarette once or twice"), Nondaily ("I use e-cigarettes sometimes, but no more than once a month" or "I use e-cigarettes more than once a month, but less than once a week" or "I use e-cigarettes more than once a week but not every day") and Daily ("I use e-cigarettes every day"). The remainder responded "Don't want to say".

Demographics. Measures included gender, age, social grade, and government region. Age was continuous from 11 to 18. Gender was recorded as male or female. Socio-economic status of the parents was recorded in two categories: ABC1, which includes managerial, professional and intermediate occupations; and C2DE, which includes small employers and own account workers, lower supervisory and technical occupations, and semi-routine and routine occupations, never workers and long-term unemployed. Government region categories were: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East of England, London, South East, South West, Wales, Scotland. These were categorised into London, North England (North East, North West, Yorkshire and the Humber, East Midlands, West Midlands), South England (East of England, South East, South West), Wales and Scotland.

4.2.2 Action on Smoking and Health (ASH) Smokefree GB Adult Survey

The ASH Smokefree GB Adult survey is an annual cross-sectional internet survey conducted in the Spring. The ASH Smokefree GB Adult survey covers a wide range of smoking behaviour, perceptions and tobacco control policies. The adult survey consists of nationally representative sample of approximately 12,000 adults age 18+ in GB each year.

Participants were recruited via a large online panel of survey participants maintained by YouGov, a commercial research and polling company. This panel consists of around 816,000 UK adults (aged 18+) recruited from a variety of sources – due to the strength of the YouGov brand name, most of the panellists have signed up organically, usually due to media coverage but also because of word of mouth or through existing member referrals. Members are also recruited via standard advertising (google adwords, etc.) and strategic partnerships with a broad range of websites. Members of the panel consent to completing surveys for YouGov in return for a modest financial incentive, and additional ethical approval was not sought due to this pre-existing consent.

YouGov employ an active sampling method, drawing a sub-sample from the panel that is representative of British adults in terms of age, gender, social class and type of newspaper (YouGov 2016). Respondents are contacted by email and invited to take part in an online survey. The fieldwork for the 2016 survey was conducted between 2nd to 23rd March 2016, and a total of 12,157 respondents were obtained.

Measures

All 11 shortlisted adult norms measures (Table 3.3) were piloted in the ASH Smokefree GB Adult Survey. In order to test the reliability and validity of the norms measures, the measures below from the survey were also used in the analyses including smoking status and e-cigarette use, and demographics: gender, age, social grade, ethnicity, and government region. Table 4.1 compares the demographic, smoking status and e-cigarette use measures between the ASH youth, ASH adult and STS surveys.

Smoking status was assessed with the following question: "Which of the following best applies to you? I have never smoked; I used to smoke but I have given up now; I smoke but I don't smoke every day; I smoke every day". These respondents were categorized as Never smoker, Ex-smoker, Nondaily smoker and Daily smoker respectively.

E-cigarette use was assessed with an analogous question: "Which of the following statements BEST applies to you? I have never heard of e-cigarettes and have never tried them; I have heard of e-cigarettes but have never tried them; I have tried e-cigarettes but do not use them (anymore); I have tried e-cigarettes and still use them; Don't know". Respondents who answered "I have never heard…never tried them" and "I have heard…never tried them" were combined and categorized as Never Tried. Of those who answered "I have tried e-cigarettes and still use them", respondents were categorized into Daily e-cigarette users if they answered "Everyday", or Nondaily e-cigarette users if they answered "3-4 times a week; Once a week; Once or twice a month; Less than once a month" to the question "You told us that you either used to use or still use e-cigarettes…How OFTEN did you use/ do you currently use e-cigarettes?".

Demographics. Measures included gender, age, ethnicity, social grade, and government region. Age was recorded in categories (18 -24; 25-34; 35-44; 45-54; 55 years and over) and gender was recorded as male or female. Socio-economic status was recorded in five categories: AB, C1, C2, D, E. These were dichotomized into: ABC1, which includes higher and intermediate managerial, administrative and professional occupations and supervisory, clerical and junior managerial, administrative, professional occupations; and C2DE, which includes skilled manual occupations and semi-skilled & unskilled manual occupations, Unemployed and lowest grade occupations. Government region categories were: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East of England, London, South East, South West, Wales, Scotland. These were re-categorised into London, North England (North East, North West, Yorkshire and the Humber, East Midlands, West Midlands), South England (East of England, South East, South West), Wales and Scotland.

4.2.3   Smoking Toolkit Study (STS)
The STS is a continuing series of monthly face-to-face, computer-assisted household surveys, nationally representative of adults age 16 and above in England. Each month involves a new sample of approximately 1,800 respondents. The fieldwork for the 2016 monthly surveys was carried out by IPSOS-MORI.

Each monthly baseline sample was designed to be representative of the population of England aged 16+ by taking a random selection of localities (of approximately 250 households) after stratification by a geo-demographic analysis of the population. Each monthly survey typically includes ~150 localities. Interviewers visited households within each selected locality, starting at a

random location, and interviewed one member per household to fill quotas on sex, age, working status and tenure. These quotas were tailored to each area based on census data to minimise differences in the probability of participation. For more information see Fidler et al. (2011). Recruitment for the March 2016 survey ran for one month. A total of 1,685 respondents were obtained.

Measures
All 11 shortlisted adult norms measures (Table 3.3) were assessed in the STS March 2016 survey. In addition to the social norms, a core set of questions are included in each STS survey. The core measures used in the analysis to test the norms measures are described below. Table 4.1 compares the demographic, smoking status and e-cigarette use measures between the youth ASH, adult ASH and STS surveys.

Smoking status was assessed with the following question: "Which of the following best applies to you? I smoke cigarettes (including hand-rolled) every day, I smoke cigarettes (including hand-rolled), but not every day; I do not smoke cigarettes at all, but I do smoke tobacco of some kind (e.g. pipe or cigar); I have stopped smoking completely in the last year; I stopped smoking completely more than a year ago; I have never been a smoker (i.e. smoked for a year or more); Don't Know". Those who responded "I smoke…every day" and "I smoke…but not every day" were combined due to small numbers of nondaily smokers (n=32) and coded as Current smokers. Those who responded "I stopped smoking completely in the last year", or "I stopped smoking completely more than a year ago" were coded as Ex-smokers. Those who responded "I do not smoke cigarettes at all, but I do smoke tobacco of some kind (e.g. pipe or cigar)" were excluded from the analysis, as only four respondents selected this option.

E-cigarette use was assessed using a combination of questions. If respondents answered "Electronic cigarette" to any of the following, they were coded as Current e-cigarette users: "Whether using products to help cut down the amount smoked; Whether regularly use products in situations where NOT ALLOWED to smoke; Whether use products to stop smoking, cut down, or any other reasons; Can I check, are you using any of the following?".

Demographics. Measures included gender, age, ethnicity, social grade, education, and government region. Social grade categories were: AB = higher and intermediate professional/managerial, C1= supervisory, clerical, junior managerial/administrative/professional, C2 = skilled manual workers, D = semi-skilled and unskilled manual workers, and E = on state benefit, unemployed, lowest grade workers. These are dichotomised into ABC1 and C2DE in the current analyses. Education categories were: No formal qualifications, GCSE/O-Level/CSE, Vocational qualifications (NVQ1+2), A-level or equivalent (NVQ3), Bachelor degree or equivalent (NVQ4), Masters/PhD or equivalent, Other, Still studying, Don't know. Vocational qualifications and A-Level or equivalent were combined, and Other (n=14 current smokers) and Still Studying (n=5 current smokers) were combined due to small sample sizes. Government region categories were: North, Midlands, East, London, South, but were categorized into London, North (North and Midlands) and South (East and South) due to differences in smoking prevalence rates and item responses between these three groups.

Table 4.1. ASH youth, ASH adult, and STS sample descriptives

Smoking status	
ASH youth	Current smoker; Tried or used to smoke; Never smoker
ASH adult	Daily smoker; Nondaily smoker; Ex-smoker; Never smoker
STS	Current smoker; Ex-smoker; Never smoker
E-cigarette use	
ASH youth	Current user; Tried but not currently using; Never user
ASH adult	Daily user; Nondaily user; Tried but not currently using; Never user
STS	Current user; Non-current user
Gender	Male; Female
Ethnicity	White; BME
Social grade	ABC1; C2DE
Age	
ASH youth	Continuous (11-17)
ASH adult	18-24; 25-34; 35-44; 45-54; 55+
STS	Continuous (16-94)
Education (STS only)	None; GCSE; A-levels/Vocational; Undergraduate degree; Postgraduate degree; Other/still studying
Government region	
ASH youth and adult	London; North England; South England; Wales; Scotland
STS	London; North England; South England

4.3 Statistical analysis

All analyses were carried out using SPSS 22 (IBM Corp, 2013) by King's College London. Each survey was analysed separately due to differences in survey methodology. First, demographic characteristics, smoking and e-cigarette use status of the samples were examined. Second, basic descriptive statistics were conducted to examine response spread by smoking status. Third, the association between each norms measure and smoking status was tested in univariate (unadjusted) and multivariate (adjusted) regression analyses to test validity of the measures. Fourth, a principal components analysis (PCA) was conducted to test the construct validity of the measures.

The STS data were weighted to be representative of the English population on the dimensions of age, social grade, region, tenure, ethnicity, and working status within gender. These dimensions were derived from a combination of the English 2011 census, Office for National Statistics mid-year estimates, and an annual random probability survey conducted for the National Readership Survey. The ASH youth data were weighted to be representative of the British population on the dimensions of age, gender and region, while the ASH adult data were weighted on age and gender interlocked, social grade, newspaper readership, region and ethnicity. These dimensions were only derived from the Office for National Statistics census data.

Reporting of demographic characteristics, smoking status and e-cigarette status, and basic descriptive statistics use both unweighted and weighted data. Where assessing response spread, results were split by smoking status (youth: ever smokers [current, tried and used to] vs. never smokers; adult: current smokers [daily & nondaily] vs. current non-smokers [ex & never]).

All regression analyses use unweighted data, as there was little difference in the analyses for weighted vs. unweighted data. The norms measures were set as the dependent variable and demographics, smoking status and e-cigarette use set as the independent variables. For all multivariate regressions, the ENTER method was used. Significant p values for STS and ASH youth data were set at p<.05, whilst for ASH adult data due to the large sample size they were set at p<.01. Smoking status was divided into ever vs. never smoking for youth, and current smoker vs. current non-smoker for adults. The measures most strongly related to smoking status (and e-cigarette use) were considered the most valid; valid measures were also expected to be associated with socio-demographic information.

To test the construct validity of the measures, a PCA was conducted using unweighted data for the same reason as above. PCAs were conducted separately for both smokers (youth: ever smokers [current, tried and used to], adult: current smokers [daily & nondaily]) and non-smokers (youth: never smokers, adult: current non-smokers [ex & never]) to identify which measures loaded onto common components. If theoretically related measures load onto a common component, construct validity can be inferred. Six principal components analyses (PCA) with direct oblimin rotations were used to identify which measures loaded onto common components. Separate PCAs were run for each sample (ASH youth, ASH adult, STS adult) and for non-smokers and smokers, as it was expected that different components of norms measures would emerge for smokers and non-smokers. A direct oblimin rotation was used because it was anticipated that components would be correlated with one another given that their underlying constructs are all

norms. Cronbach's alpha to assess reliability was calculated for all measures combined, and then separately for each component elicited from the PCA; again, separately for smokers and non-smokers.

The youth measure "Who in your family, if anyone, smokes tobacco cigarettes at the moment? Please tick all that apply: Mother (or female carer), Father (or male carer), Brother or sister" was combined to form a measure of family smoking. Family smoking was coded 0 (no-one in family smokes) to 3 (everyone in family smokes).

"Don't want to say" responses were coded as missing throughout all analyses. "Don't know" and "Not applicable" responses were further coded as missing for all variables entered into the regressions and PCA.

4.4 Results

4.4.1 Youth demographics

Table 4.2 presents the demographic characteristics of respondents. Mean age was 14.6 years, approximately half of the sample was male. The prevalence of regular smoking was 2.4% and daily e-cigarette use was 0.4%.

Table 438.2 Youth demographics and smoking and e-cigarette status (N=2331). Data are unweighted unless specified.

	n **(weighted %)** *(unweighted %)*
Age	
11	238 **(11.6)** *(10.2)*
12	267 **(11.9)** *(11.5)*
13	286 **(12.3)** *(12.3)*
14	269 **(12.5)** *(11.5)*
15	266 **(12.8)** (11.4*)*
16	128 **(12.8)** (5.5)
17	281 **(12.8)** (12.1)
18	596 **(13.3)** (25.6)
MEAN (SD)	**14.6 (2.9)** *15.0 (2.5)*
Gender	
Male	1069 **(51.3)** *(45.9)*
Region	
London	293 **(11.3)** *(12.6)*
North	1150 **(52.0)** (49.3*)*
South	556 **(23.0)** (23.9*)*
Wales	120 **(5.2)** (5.1*)*
Scotland	212 **(8.5)** (9.1*)*
Social grade	
C2DE	747 (**32.6)** *(32.8)*
Smoking status	
Never	1791 **(80.9)** (77.9*)*
Tried once	267 **(10.1)** *(11.6)*
Used to but don't currently	80 **(3.5)** (3.5*)*
Occasional (<1 per week)	79 **(2.6)** (3.4*)*
Regular (1-6 per week and > 6 per week)	82 **(2.9)** (3.6*)*
E-cig use	
Never tried	1874 **(87.0)** *(85.3)*
Tried but not using now	219 **(10.2)** *(11.6)*
Non-daily	50 **(2.3)** *(2.6)*
Daily	10 **(0.4)** *(0.4)*

4.4.2   Youth tool validity

Number of smoking friends

Measure: Please think of the three friends you spend most time with. How many of them smoke tobacco cigarettes on a regular basis? (0 (none of them) – 3(all of them), DK). "Don't want to say" responses were excluded from these analyses.

Table 4.3 Perceived number of smoking friends by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
None	1801 (78.4)	207 (47.9)	1589 (86.2)
1	236 (10.3)	113 (26.6)	120 (6.5)
2	95 (4.1)	54 (12.4)	38 (2.0)
3 – all of them	63 (2.8)	44 (10.1)	18 (1.0)
Don't know	101 (4.4)	15 (3.5)	78 (4.2)
TOTAL	2296 (100)	433 (100.0)	1843 (100.0)

More than three quarters (78%) of the youth participants indicated that, of the three friends they spend most time with, none smoked. Around a tenth indicated having one smoking friend while 4% indicated having two friends who smoked and 3% indicated that all three friends smoked. A small proportion (4%) was unsure how many smoked.

Table 4.4 Multiple regression: Perceived number of smoking friends by smoking status[a] (N=2195).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	1.53 (1.1)			
Tried or used to	0.56 (0.8)	**-0.74 (-0.86, -0.62)**	**0.06**	**<.001**
Never smokers	0.14 (0.5)	**-1.03 (-1.15, -0.91)**	**0.06**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.1, all appendices available upon request), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate a greater number of smoking acquaintances. DK responses were excluded from the analysis.

Table 4.4 presents the results of the multivariate analysis testing the relationship between the number of smoking acquaintances (among the three friends they spend most time with) by respondents' smoking status. Table A6.1 presents the full multivariate regression tables. There was strong evidence that never smokers had fewer smoking acquaintances than current smokers. Those who had tried or used to smoke also had fewer smoking acquaintances than current smokers.

Family smoking

Measure: Who in your family, if anyone, smokes tobacco cigarettes at the moment? Please tick all that apply: Mother (or female carer); Father (or male carer); Brother or sister; (for each: Yes, No, Nobody in my family smokes tobacco cigarettes, DK,). *"Don't want to say" responses were excluded from these analyses.*

Table 4.5 Perception of family smoking (parents and siblings) by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
None	1761 (75.6)	266 (60.5)	1467 (78.9)
One	412 (17.7)	115 (26.2)	295 (15.9)
Two	133 (5.7)	46 (10.5)	85 (4.6)
Three or more (both parents and at least one sibling)	25 (1.1)	13 (2.9)	12 (0.6)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

More than three quarters (76%) of participants in the youth survey had non-smoking parents and siblings. Just under a fifth (18%) had one smoker in the family while 6% had two and only 1% had three or more smokers in the family. Among never smokers, 79% had non-smoking families, while the proportion of ever smokers with non-smoking families was 61%.

Table 4.6 Multiple regression: Perception of family smoking (parents and siblings) by smoking status[a] (N=2331).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	0.66 (0.8)			
Tried or used to	0.52 (0.8)	-0.09 (-0.21, 0.04)	0.18	.180
Never smokers	0.27 (0.6)	**-0.31 (-0.44, -0.18)**	**0.06**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.2), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate a higher estimate. DK responses were excluded from the analysis.

Table 4.6 presents the results of the multivariate analysis testing the relationship between family smoking and smoking status. Table A6.2 presents the full multivariate regression table. Never smokers had fewer smokers in the family than the current smokers. There was no evidence of any difference in family smoking between current smokers and those who had tried or used to smoke.

Number of smoking peers

Measure: Out of every 10 people your age, on average how many do you think smoke tobacco cigarettes on a regular basis? (0 (none of them), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (all of them), DK).

Table 4.7 Perceived number of smoking peers by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
0 - None	261 (11.2)	17 (3.9)	242 (13.0)
1	340 (14.6)	31 (7.0)	308 (16.6)
2	418 (17.9)	72 (16.4)	342 (18.4)
3	396 (17.0)	88 (20.1)	306 (16.4)
4	290 (12.4)	92 (21.0)	195 (10.5)
5	156 (6.7)	48 (10.8)	108 (5.8)
6	92 (3.9)	26 (5.8)	64 (3.5)
7	66 (2.8)	22 (4.9)	44 (2.4)
8	22 (0.9)	10 (2.3)	11 (0.6)
9	8 (0.4)	5 (1.0)	3 (0.2)
10 – all of them	10 (0.4)	4 (0.9)	6 (0.3)
Don't know	271 (11.6)	26 (6.0)	230 (12.4)
TOTAL	2331 (100)	440 (100)	1859 (100)

When asked, on a scale of zero (none) to ten (all), how many people their own age smoke, the most frequent response was two in every ten, with almost a fifth (18%) giving this response (Table 4.7). Among ever smokers, the most frequent response was four (21%) while never smokers most frequently perceived it to be two in every ten (18%). Overall, more than a tenth (12%) were unsure, with this ranging from 6% among ever smokers to 12% among never smokers.

Table 4.8 Multiple regression: Perceived number of smoking peers by smoking status[a] (N=2060).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	4.52 (2.1)			
Tried or used to	3.28 (1.8)	**-0.60(-0.98, -0.23)**	**0.19**	**.001**
Never smokers	2.51 (1.9)	**-0.77 (-1.14, -0.41)**	**0.19**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.3), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate a higher perceived number of smokers. DK responses were excluded from the analysis.

Table 4.8 presents the results of the multivariate analysis testing the relationship between perceptions of prevalence of smoking (among every ten persons of their own age) and smoking status. Table A6.3 presents the full multivariate regression tables. There was strong evidence that never smokers had lower perceptions of the prevalence of youth smoking than current smokers. Those who had tried or used to smoke also had lower perceptions of smoking prevalence among their own age group than current smokers.

Smoking is common

Measure: Do you think that smoking tobacco cigarettes is… (Very uncommon, Uncommon, Neither common, nor uncommon, common, very common, DK).

Table 4.9 Perceived smoking commonality by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Very common	502 (21.5)	119 (26.9)	374 (20.1)
Common	1088 (46.7)	205 (46.6)	876 (47.1)
Neither…	381 (16.4)	70 (15.9)	306 (16.5)
Uncommon	232 (10.0)	33 (7.6)	198 (10.7)
Very uncommon	23 (1.0)	5 (1.2)	17 (0.9)
Don't know	105 (4.5)	7 (1.7)	89 (4.8)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Overall, smoking was perceived to be common, with almost half (47%) considering it to be common and a further 22% considering it to be very common. Less than a fifth (16%) perceived it to be neither common nor uncommon, while one in ten (10%) perceived it to be uncommon and only 1% considered smoking to be very uncommon. A small proportion (5%) was unsure how common smoking is.

Table 4.10 Multiple regression: Perceived smoking commonality by respondents' smoking status[a] (N=2226).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	4.11 (0.9)			
Tried or used to	3.84 (0.9)	-0.18 (-0.37, 0.00)	0.09	.053
Never smokers	3.79 (0.9)	**-0.21 (-0.395, -0.03)**	**0.09**	**.025**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.4), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.10 presents the results of the multivariate analysis testing the relationship between perceived commonality of smoking and smoking status and e-cigarette use. Table A6.4 presents the full multivariate regression table. Never smokers perceived smoking to be less common compared with current smokers. There was weak evidence for a difference between current smokers and those who had tried or used to smoke.

Parental approval of smoking

Measure: (Please imagine that you smoke tobacco cigarettes). How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? Your parents, Your siblings, Your close friends: (Strongly disapprove, Disapprove, Neither approve or disapprove, Approve, Strongly approve, DK). "Not applicable" responses were excluded from these analyses.

Table 4.11 Perceived parental approval of smoking by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly approve	19 (0.8)	9 (2.0)	10 (0.5)
Approve	20 (0.9)	9 (2.1)	11 (0.6)
Neither…	100 (4.4)	51 (11.7)	48 (2.6)
Disapprove	281 (12.4)	88 (20.0)	193 (10.4)
Strongly disapprove	1800 (79.8)	253 (57.4)	1547 (83.2)
Don't know	36 (1.6)	9 (1.9)	28 (1.5)
TOTAL	2255 (100.0)	440 (100.0)	1859 (100.0)

Overall, youth participants perceived that their parents disapproved of them smoking (or would disapprove if they were to smoke). The vast majority (80%) perceived strong disapproval while a further 12% indicated that their parents would disapprove. Less than 2% were unsure about the level of parental approval/disapproval. Even among ever smokers, most perceived parental disapproval, though 12% perceived that their parents would neither approve nor disapprove and 4% that they would approve or strongly approve.

Table 4.12 Multiple regression: Perceived parental approval of smoking by respondents' smoking status[a] (N=2218).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	1.91 (1.2)			
Tried or used to	1.49 (0.8)	**-0.15 (-0.28, -0.02)**	**0.06**	**.021**
Never smokers	1.20 (0.6)	**-0.37 (-0.50, -0.25)**	**0.06**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.5), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.12 presents the results of the multivariate analysis testing the relationship between perceived parental approval of smoking and smoking status. Table A6.5 presents the full multivariate regression table. There was strong evidence that, compared with current smokers, never smokers perceived that their parents would be more disapproving of them smoking. Those who had tried smoking or used to smoke also perceived greater parental disapproval of them smoking than the current smokers did.

Sibling approval of smoking

Measure: as above.

Table 4.13 Perceived sibling approval of smoking by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly approve	11 (0.6)	5 (1.5)	6 (0.4)
Approve	34 (1.7)	15 (3.4)	19 (1.0)
Neither…	243 (11.9)	94 (21.4)	149 (8.0)
Disapprove	468 (23.0)	110 (24.9)	358 (19.3)
Strongly disapprove	1206 (59.3)	151 (34.2)	1056 (56.8)
Don't know	71 (3.5)	14 (3.1)	58 (3.1)
TOTAL	2033 (100.0)	388 (100.0)	1645 (100.0)

Overall, youth participants perceived that their siblings disapproved of them smoking (or would disapprove if they were to smoke). More than a tenth (12%) perceived that siblings would neither approve nor disapprove while 3% responded that they were unsure.

Table 4.14 Multiple regression: Perceived sibling approval of smoking by smoking status[a] (N=1962).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	2.38 (1.0)			
Tried or used to	1.77 (0.9)	**-0.38 (-0.54, -0.21)**	**0.08**	**<.001**
Never smokers	1.46 (0.7)	**-0.52 (-0.68, -0.36)**	**0.08**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.6), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.14 presents the results of the multivariate analysis testing the relationship between perceived sibling approval of smoking and participants' smoking status. Table A6.6 presents the full multivariate regression table. There was strong evidence that, compared with current smokers, never smokers perceived that their siblings would be more disapproving of them smoking. Those who had tried smoking or used to smoke also perceived greater sibling disapproval of them smoking than the current smokers did.

Friends' approval of smoking

Measure: as above.

Table 4.15 Perceived friends' approval of smoking by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly approve	15 (0.7)	5 (1.5)	6 (0.4)
Approve	62 (2.8)	15 (3.4)	19 (1.0)
Neither…	496 (23.0)	94 (21.4)	149 (8.0)
Disapprove	674 (31.3)	110 (24.9)	358 (19.3)
Strongly disapprove	908 (42.2)	151 (34.2)	1056 (56.8)
Don't know	106 (4.7)	14 (3.1)	58 (3.1)
TOTAL	2260 (100.0)	388 (100.0)	1645 (100.0)

While most thought that friends would disapprove of them smoking (31% disapprove and 42% strongly disapprove) more than a fifth (23%) perceived that friends would neither approve nor disapprove, with this particularly evident among the ever smokers (21%).

Table 4.16 Multiple regression: Perceived friends' approval of smoking by smoking status[a] (N=2154).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	2.98 (0.9)			
Tried or used to	2.22 (0.9)	**-0..45 (-0.62, -0.28)**	**0.09**	**<.001**
Never smokers	1.75 (0.8)	**-0.80 (-0.97, -0.63)**	**0.09**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.7), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.16 presents the results of the multivariate analysis testing the relationship between friends' approval of smoking and smoking status. Table A6.7 presents the full multivariate regression tables. There was strong evidence that, compared with current smokers, never smokers and those who had tried or used to smoke perceived that their friends would be more disapproving of them smoking.

Public approval of smoking

Measure: In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? (Strongly disapprove, disapprove, neither approve or disapprove, approve, strongly approve, DK).

Table 4.17 Perceived public approval of smoking by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly approve	26 (1.1)	9 (1.9)	16 (0.9)
Approve	83 (3.6)	26 (5.9)	52 (2.8)
Neither…	385 (16.5)	97 (22.1)	281 (15.1)
Disapprove	982 (42.1)	198 (45.0)	780 (41.9)
Strongly disapprove	728 (31.2)	98 (22.2)	628 (33.8)
Don't know	128 (5.5)	13 (2.9)	102 (5.5)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Overall, participants perceived there to be public disapproval of smoking, with 42% considering that the public disapprove and a further 31% perceiving the public to strongly disapprove. Less than a fifth (17%) thought that the public neither approve nor disapprove while only 4% thought they approve and even fewer (1%) that they strongly approve. A small percentage (6%) responded that they were unsure.

Table 4.18 Multiple regression: Perceived public approval of smoking by smoking status[a] (N=2203).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	2.42 (1.0)			
Tried or used to	2.08 (0.9)	-0.15 (-0.32, 0.02)	0.09	.090
Never smokers	**1.89 (0.8)**	**-0.26 (-0.43, -0.09)**	**0.09**	**.003**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.8), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.18 presents the results of the multivariate analysis testing the relationship between perceived public approval of smoking and smoking status and e-cigarette use. Table A6.8 presents the full multivariate regression table. The data revealed that, compared with current smokers, never smokers perceive smoking to be less publically approved. There was no evidence for a difference between current smokers and those who had tried or used to smoke.

Smoking makes people look cool

To what extent do you agree or disagree with the following statements: In my opinion, smoking tobacco cigarettes makes people my age look cool (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.19 Smoking makes youth look cool by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly agree	88 (3.8)	25 (5.7)	61 (3.3)
Agree	288 (12.4)	80 (18.2)	198 (10.7)
Neither…	223 (9.6)	87 (19.7)	135 (7.2)
Disagree	518 (22.2)	97 (21.9)	416 (22.4)
Strongly disagree	1137 (48.8)	145 (33.0)	989 (53.2)
Don't know	77 (3.3)	6 (1.4)	61 (3.3)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Overall there was disagreement that smoking makes young people look cool. More than a fifth disagreed with the statement while a further 49% disagreed strongly. A tenth neither agreed nor disagreed with the statement while 12% agreed and a further 4% strongly agreed.

Table 4.20 Multiple regression: Smoking makes youth look cool by smoking status[a] (N=2254).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	2.95 (1.2)			
Tried or used to	**2.19 (1.3)**	**-0.36 (-0.60, -0.12)**	**0.12**	**.004**
Never smokers	**1.85 (1.2)**	**-0.67 (-0.91, -0.43)**	**0.12**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.9), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.20 presents the results of the multivariate analysis testing the relationship between perceptions that smoking makes youth look cool and smoking status and e-cigarette use. Table A6.9 presents the full multivariate regression table. Never smokers and those who had tried or used to smoke had lower levels of agreement with this statement.

Smoking makes people fit in

To what extent do you agree or disagree with the following statements: In my opinion, smoking tobacco cigarettes makes people my age fit in (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.21 Smoking makes youth fit in by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly agree	80 (3.4)	25 (5.7)	54 (2.9)
Agree	373 (16.0)	102 (23.3)	260 (14.0)
Neither…	315 (13.5)	102 (23.2)	209 (11.2)
Disagree	566 (24.3)	106 (24.0)	457 (24.6)
Strongly disagree	893 (38.3)	96 (21.8)	793 (42.7)
Don't know	104 (4.5)	8 (1.9)	86 (4.6)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Overall there was disagreement that smoking makes youth fit in, with almost a quarter (24%) disagreeing and a further 38% strongly disagreeing. However, 16% agreed that it does make youth fit in and a further 3% strongly agreed. More than a tenth (14%) neither agreed nor disagreed and 5% responded that they were unsure.

Table 4.22 Multiple regression: Smoking makes youth fit in by smoking status[a] (N=2227).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	3.13 (1.1)			
Tried or used to	2.47 (1.2)	**-0.33 (-0.575 -0.09)**	**0.12**	**.008**
Never smokers	2.05 (1.2)	**-0.57 (-0.81, -0.33)**	**0.12**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.10), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.22 presents the results of the multivariate analysis testing the relationship between agreeing that smoking makes youth fit in and smoking status and e-cigarette use. Table A6.10 presents the full multivariate regression table. Never smokers and those who had tried or used to smoke had lower agreement with this statement than the current smokers.

Using e-cigarettes is common

Measure: Do you think that using e-cigarettes is… (Very uncommon, Uncommon, Neither common, nor uncommon, common, very common, DK).

Table 4.23 Perceived commonality of e-cigarettes by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Very common	305 (13.1)	78 (17.8)	220 (11.9)
Common	1132 (48.6)	229 (52.9)	893 (48.0)
Neither…	434 (18.6)	76 (17.3)	353 (19.0)
Uncommon	270 (11.6)	42 (9.6)	227 (12.7)
Very uncommon	28 (1.2)	5 (1.2)	19 (1.0)
Don't know	162 (6.9)	9 (2.1)	146 (7.9)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Overall, e-cigarette use was perceived to be common with almost half (49%) considering it to be common and a further 13% considering it to be very common. Almost a fifth (19%) thought it was neither common nor uncommon while 12% considered it to be very uncommon and 1% very uncommon. Seven per cent responded that they were unsure.

Table 4.24 Multiple regression: Perceived commonality of e-cigarettes by smoking status[a] (N=2169).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	3.91 (0.9)			
Tried or used to	3.72 (0.9)	0.01 (-0.16, 0.19)	0.09	.871
Never smokers	3.62 (0.9)	-0.03 (-0.20, 0.15)	0.09	.774

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.11), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.24 presents the results of the multivariate analysis testing the relationship between perceived commonality of e-cigarette use and smoking status and e-cigarette use. Table A6.11 presents the full multivariate regression table. There was no evidence of any association between smoking status and perceived commonality of e-cigarette use (p>0.05).

Public approval of e-cigarettes

Measure: In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? (Strongly disapprove, disapprove, neither approve nor disapprove, approve, strongly approve, DK).

Table 4.25 Perceived public approval of e-cigarettes by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly approve	45 (1.9)	20 (4.5)	25 (1.3)
Approve	332 (14.3)	92 (20.8)	235 (12.6)
Neither…	868 (37.2)	169 (38.3)	694 (37.3)
Disapprove	645 (27.7)	116 (26.3)	526 (28.3)
Strongly disapprove	249 (10.7)	32 (7.3)	215 (11.6)
Don't know	191 (8.2)	12 (2.8)	165 (8.9)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Perceptions of public approval of e-cigarette use were mixed. The most frequent response, given by more than a third (37%) was that people neither approve nor disapprove of e-cigarettes. Over a quarter (28%) thought that people disapprove of e-cigarettes while a further 11% thought they strongly disapprove. Fourteen per cent thought that people approve, while a further 2% thought people strongly approve of e-cigarettes. Just under a tenth (8%) were unsure about public approval of e-cigarettes.

Table 4.26 Multiple regression: Perceived public approval of e-cigarettes by smoking status[a] (N=2140)

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	3.06 (0.9)			
Tried or used to	2.81 (1.0)	0.05 (-0.135, 0.24)	0.10	.574
Never smokers	2.60 (0.9)	0.02 (-0.17, 0.21)	0.10	.841

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.12), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived public approval. DK responses were excluded from the analysis.

Table 4.26 presents the results of the multivariate analysis testing the relationship between perceived public approval of e-cigarette use and smoking status and e-cigarette use. Table A6.12 presents the full multivariate regression table. There was no evidence of any relationship between smoking status and perceived acceptability of e-cigarette use (p>0.05).

Using nicotine for boost

Measure: In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.27 Using nicotine for a boost by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly agree	69 (3.0)	25 (5.6)	43 (2.3)
Agree	335 (14.4)	107 (24.4)	222 (12.0)
Neither…	465 (19.9)	90 (20.3)	366 (19.7)
Disagree	681 (29.2)	122 (27.8)	554 (29.8)
Strongly disagree	499 (21.4)	63 (14.4)	432 (23.3)
Don't know	283 (12.1)	33 (7.5)	241 (13.0)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Views on the acceptability of using nicotine to for a boost were also mixed, with around half (51%) disagreeing that it is OK, a fifth (20%) neither agreeing nor disagreeing and just under a fifth (17%) agreeing that it is OK. More than a tenth (12%) were unsure of their opinion on this.

Table 4. 28 Multiple regression: Using nicotine for boost by smoking status[a] (N=2048).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	3.22 (1.1)			
Tried or used to	**2.59 (1.1)**	**-0.36 (-0.59, -0.13)**	**0.12**	**.002**
Never smokers	**2.31 (1.1)**	**-0.49 (-0.72, -0.265)**	**0.12**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.13), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.28 presents the results of the multivariate analysis testing the relationship between agreeing with the statement "In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee" and smoking status. Table A6.13 presents the full multivariate regression table. The youth data revealed that never smokers and those who had tried or used to smoke felt that it was less acceptable to use nicotine for a boost compared with current smokers.

Using nicotine to quit

Measure: In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.29 Using nicotine to quit smoking by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly agree	391 (16.8)	124 (28.3)	263 (14.2)
Agree	1023 (43.9)	203 (46.2)	813 (43.7)
Neither…	354 (15.2)	62 (14.1)	281 (15.1)
Disagree	168 (7.2)	18 (4.0)	150 (8.1)
Strongly disagree	174 (7.5)	15 (3.3)	156 (8.4)
Don't know	222 (9.5)	18 (4.1)	196 (10.5)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Views on the acceptability of using nicotine to quit smoking were somewhat mixed. While more than half (61%) perceived it to be OK, 15% gave a neutral response and 15% disagreed that it was OK. A tenth were unsure of their opinion on this.

Table 4.30 Multiple regression: Using nicotine to quit by smoking status[a] (N=2109).

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	4.12 (0.8)			
Tried or used to	3.89 (1.0)	-0.04 (-0.26, 0.18)	0.11	.709
Never smokers	3.53 (1.1)	-0.115 (-0.33, 0.10)	0.11	.302

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.14), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.30 presents the results of the multivariate analysis testing the relationship between perceived acceptability of using nicotine to quit and smoking status and e-cigarette use. Table A6.14 presents the full multivariate regression table. There was no evidence for an effect of smoking status (p>0.05).

Tobacco companies go out of business

Measure: I would like to see tobacco companies go out of business (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.31 Tobacco companies go out of business by smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Ever smoker n(%)	Never smoker n(%)
Strongly agree	795 (34.1)	119 (27.0)	672 (36.1)
Agree	651 (27.9)	104 (23.7)	542 (29.1)
Neither…	487 (20.9)	119 (27.1)	362 (19.5)
Disagree	145 (6.2)	50 (11.4)	92 (4.9)
Strongly disagree	64 (2.7)	23 (5.1)	40 (2.1)
Don't know	189 (8.1)	25 (5.7)	152 (8.2)
TOTAL	2331 (100.0)	440 (100.0)	1859 (100.0)

Most participants in the youth survey (62%) indicated agreement with the statement "I would like to see tobacco companies go out of business" (Table 4.33). While over a quarter (28%) agreed with the statement a further third (34%) indicated strong agreement. Less than a tenth disagreed, comprising 6% disagreeing and a further 3% strongly disagreeing. Approximately a fifth (21%) held a neutral view while a further 8% were unsure.

Table 4.32 Multiple regression: Tobacco companies go out of business by smoking status[a] (N=2142)

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
Current smokers (ref)	2.93 (1.1)			
Tried or used to	3.87 (1.1)	**0.76 (0.54, 0.97)**	**0.11**	**<.001**
Never smokers	4.00 (1.0)	**0.86 (0.64, 1.07)**	**0.11**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 6, Table A6.15), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.32 presents the results of the multivariate analysis testing the relationship between agreeing with the statement "I would like to see tobacco companies go out of business" and smoking status and e-cigarette use. Table A6.15 presents the full multivariate regression table. Never smokers and those who had tried or used to smoke wanted to see tobacco companies go out of business more so than current smokers.

4.4.3 Youth tool construct validity/reliability

PCA was run on 14 of the 15 items. The item regarding agreement with "I would like to see tobacco companies go out of business" was excluded from the analysis as it had initially caused difficulties with convergence and loaded poorly on the components.

Never smokers

For youth never smokers, the PCA revealed a 5-component solution, with eigenvalues of 3.31, 1.59, 1.39, 1.33 and 1.03, explaining 23.68%, 11.35%, 9.94%, 9.48% and 7.38% respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.70) and Bartlett's test of sphericity ($X^2(91)=3247.699$, $p<.001$) suggest that PCA was appropriate.

Table 4.33 shows the responses, component loadings, and communalities for each item within the youth never smoker sample. Five components emerged (PC = principal component youth never smokers): PC1 (consisting of injunctive interpersonal and societal norms towards smoking), PC2 (consisting of descriptive societal norms towards smoking and nicotine use), PC3 (personal attitudes towards smoking), PC4 (personal attitudes and injunctive societal norms towards nicotine use) and PC5 (descriptive interpersonal norms towards smoking).The estimated number of smokers in the family did not load sufficiently on any of the components. Components were only modestly correlated with each other, with the maximum correlation coefficient being 0.25 between PC1 and PC4. Cronbach α scores for all 14 items and each of the five components are indicated within Table 4.35. The 14 item scale was internally consistent with a Cronbach α score of 0.73 which exceeds the recommended threshold of 0.7 for an acceptable reliability score. Two of the five scales, PC1 and PC3 were internally consistent, with Cronbach α scores of 0.86 and 0.72, respectively. The other three scales fell below the recommended acceptable alpha. The reliability scores for PC2, PC4 and PC5 were lower, being 0.58, 0.59 and 0.25 respectively.

Table 4.3339 Principal Components Analysis: Responses, component loadings and Cronbach's α for ASH youth never smokers. All data are unweighted.

		Component loading					Communalities
	Mean (SD)	1	2	3	4	**5**	
PC1							
Parental approval of smoking	1.18 (0.5)	**0.80**	-0.08	0.02	-0.11	0.00	0.60
Sibling approval of smoking	1.49 (0.7)	**0.84**	-0.01	0.09	-0.03	0.03	0.67
Friends approval of smoking	1.79 (0.8)	**0.67**	-0.01	-0.08	0.02	0.20	0.56
Public approval of smoking	1.89 (0.8)	**0.51**	0.09	-0.29	0.21	-0.22	0.54
PC2							
Smoking is common	3.8 (0.9)	-0.04	**0.82**	-0.05	-0.10	0.07	0.68
Using e-cigarettes is common	3.66 (0.9)	-0.07	**0.81**	0.01	-0.05	-0.04	0.64
PC3							
Smoking makes youth look cool	1.89 (1.2)	0.05	-0.02	**-0.86**	0.05	0.03	0.78
Smoking makes youth fit in	2.12 (1.2)	0.01	0.05	**-0.87**	0.07	0.11	0.81
PC4							
Using nicotine for boost	2.34 (1.1)	0.01	-0.10	-0.13	**0.69**	0.10	0.54
Using nicotine to quit	3.57 (1.1)	-0.15	-0.10	0.06	**0.82**	0.04	0.63
Public approval of e-cigarettes	2.64 (0.9)	0.21	0.16	-0.20	**0.57**	-0.19	0.57
PC5							
Number of smoking acquaintances	0.17 (0.5)	0.14	-0.10	0.04	0.11	**0.81**	0.72
Perceived prevalence of youth smoking	2.67 (1.9)	0.00	0.26	-0.24	-0.04	**0.62**	0.58
Smokers in family	0.26 (0.6)	0.13	0.33	0.30	0.33	0.07	0.34
Cronbach's α	0.73[a]	0.72	0.58	0.86	0.59	0.25	

[1]Component loadings are reported in **bold** if >0.40 or <-0.40.
[a] Cronbach's alpha for all 14 items

Ever smokers

For the youth who had ever smoked, PCA was also run on 14 of the 15 items. The item regarding agreement with "I would like to see tobacco companies go out of business" was excluded from the analysis as it had initially caused difficulties with convergence and loaded poorly on the components. For youth ever smokers, the PCA again revealed a 5-component solution, with eigenvalues of 3.94, 1.58, 1.41, 1.22 and 1.1, explaining 28.12%, 11.30%, 10.07%, 8.69% and 7.85% respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.745) and Bartlett's test of sphericity ($X^2(91)=1134.79$, $p<.001$) suggest that PCA was appropriate.

Table 4.34 shows the responses, component loadings, and communalities for each item within the youth ever smoker sample. Five components emerged (PC = principal component youth ever smokers): PC1 (consisting of injunctive and descriptive interpersonal norms towards smoking), PC2 (consisting of descriptive interpersonal and societal norms towards smoking and nicotine use), PC3 (personal attitudes towards smoking), PC4 (personal attitudes towards nicotine use) and PC5 (injunctive societal norms towards smoking and nicotine). Components were only modestly correlated with each other, with the maximum correlation coefficient being 0.21 between PC1 and PC2. Cronbach α scores for all 14 items and each of the five components are indicated within Table 4.36. The 14 item scale was internally consistent with a Cronbach α score of 0.81 which exceeds the recommended threshold of 0.7 for an acceptable reliability score. Two of the five scales, PC1 and PC3 were internally consistent, with Cronbach α scores of 0.75 and 0.815 respectively. The other three scales fell below the recommended acceptable alpha. The scale for PC5 had a Cronbach α score of 0.65 while the reliability scores for PC4 and PC2 were lower being 0.54 and 0.49 respectively.

Table 4.34 Principal Components Analysis: Responses, component loadings and Cronbach's α for ASH youth ever smokers. All data are unweighted.

| | Mean (SD) | Component loading | | | | | Communalities |
		1	2	3	4	5	
PC1							
Parental approval of smoking	1.60 (0.9)	**0.70**	-0.06	0.15	-0.12	**0.42**	0.71
Sibling approval of smoking	1.98 (0.9)	**0.82**	-0.05	0.01	0.01	0.14	0.71
Friends approval of smoking	2.47 (1.0)	**0.74**	0.05	-0.24	0.17	-0.14	0.73
Number of smoking acquaintances	0.91 (1.0)	**0.55**	0.38	-0.16	0.11	-0.27	0.63
PC2							
Perceived prevalence of youth smoking	3.60 (2.0)	0.18	**0.63**	-0.13	0.04	-0.18	0.53
Smoking is common	3.94 (0.9)	-0.06	**0.82**	-0.09	-0.15	0.02	0.68
Using e-cigarettes is common	3.74 (0.9)	-0.24	**0.68**	-0.11	0.09	0.26	0.59
Smokers in family	0.64 (0.9)	0.12	**0.48**	0.28	0.03	0.08	0.31
PC3							
Smoking makes youth look cool	2.42 (1.2)	0.07	-0.01	**-0.84**	-0.04	0.16	0.77
Smoking makes youth fit in	2.72 (1.2)	0.02	0.06	**-0.88**	0.00	0.05	0.81
PC4							
Using nicotine for boost	2.81 (1.1)	0.15	-0.07	-0.02	**0.72**	0.25	0.66
Using nicotine to quit	3.92 (0.9)	-0.10	-0.01	0.07	**0.89**	-0.10	0.77
PC5							
Public approval of e-cigarettes	2.89 (1.0)	0.01	0.13	-0.11	0.18	**0.72**	0.66
Public approval of smoking	2.23 (0.9)	0.23	0.09	-0.27	-0.04	**0.65**	0.69
Cronbach's α	0.81[a]	0.75	0.49	0.82	0.54	0.65	

[1] Component loadings are reported in **bold** if >0.40 or <-0.40.
[a] Cronbach's alpha for all 14 items

4.4.4   Adult demographics

Table 4.35 presents the demographic characteristics of the adult STS and ASH respondents. The modal age was 55+ years in both samples, and approximately half were male. The prevalence of daily smoking was 17% in the STS sample and 11% in the ASH sample. The prevalence of current e-cigarette use was 6% in the STS sample and the prevalence of daily plus nondaily use was 7% in the ASH sample. Differences in smoking prevalence are likely due to the measure used to assess smoking prevalence, in particular the way ex-smokers are defined.

Table 4.35 Adult demographics by survey (STS N=1685, ASH N=12157). Data are unweighted unless specified.

		STS n **(weighted %)** *(unweighted %)*		**ASH** n **(weighted %)** *(unweighted %)*
Age	16-24	245 **(14.3)** *(14.5)*	18-24	1181 **(12.0)** *(9.7)*
	25-34	256 **(16.8)** *(15.2)*	25-34	1056 **(14.1)** *(8.7)*
	35-44	236 **(16.6)** *(14.0)*	35-44	1733 **(19.2)** *(14.3)*
	45-54	258 **(17.4)** *(15.3)*	45-54	2281 **(19.8)** *(18.8)*
	55+	690 **(34.9)** *(40.9)*	55+	5906 **(35.0)** *(48.6)*
	MEAN (SD)	**47.03 (18.77)** *48.55 (19.30)*		
Ethnicity	White	1445 **(86.0)** *(85.8)*	White (vs. BME)	11477 **(87.5)** *(94.4)*
	Don't know	3 **(0.2)** *(0.2)*		
Gender	Male	862 **(51.1)** *(51.2)*	Male (vs. female)	5745 **(48.0)** *(47.3)*
Region	London	309 **(14.8)** *(18.3)*	London	1279 **(12.8)** *(10.5)*
	North	849 **(47.2)** *(50.4)*	North	4751 **(41.2)** *(39.1)*
	South	518 **(38.0)** *(30.7)*	South	4028 **(32.4)** *(33.1)*
			Wales	1048 **(5.0)** *(8.6)*
			Scotland	1051 **(8.6)** *(8.6)*
Social grade	C2DE	780 **(45.5)** *(46.3)*	C2DE (vs. ABC1)	4640 **(45.0)** *(38.2)*
Education	None	258 **(13.5)** *(15.4)*	Not assessed	
	GCSE	342 **(19.7)** *(20.4)*		
	A-Level/Vocational	521 **(31.2)** *(31.0)*		
	Bachelor	334 **(21.7)** *(19.9)*		
	Masters/PhD	116 **(7.8)** *(6.9)*		
	Other/Still studying	108 **(6.0)** *(6.4)*		
Smoking status	Never	1039 **(61.9)** *(61.7)*	Never	6099 **(52.8)** *(50.2)*
	Ex	323 **(19.3)** *(19.2)*	Ex	4354 **(32.2)** *(35.8)*
	Nondaily	37 **(2.0)** *(2.2)*	Nondaily	409 **(3.8)** *(3.4)*
	Daily	286 **(16.9)** *(17.0)*	Daily	1295 **(11.2)** *(10.7)*
E-cig use	Current	98 **(5.7)** *(5.8)*	Never tried	10199 **(81.7)** *(83.9)*
			Tried	1148 **(10.8)** *(9.4)*
			Nondaily use	207 **(1.9)** *(1.7)*
			Daily use	445 **(3.7)** *(3.7)*
			Don't know	150 **(1.9)** *(1.2)*

4.4.5   Adult tool validity

Number of smoking acquaintances

Measure: Think of the five people you feel most close to. These could be your partner, family members, friends, colleagues or acquaintances. Thinking of these FIVE people, how many of them, if any, are tobacco cigarette smokers? (0-None, 1, 2, 3, 4, 5-All of them, DK).

Table 4.36 Perceived number of smoking acquaintances response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
None	661 (39.7)	46 (14.6)	615 (45.5)
1	354 (21.3)	53 (16.9)	301 (22.3)
2	263 (15.8)	57 (18.2)	206 (15.2)
3	203 (12.1)	75 (23.9)	128 (9.5)
4	87 (5.2)	40 (12.7)	47 (3.5)
5 – all of them	78 (4.7)	42 (13.4)	36 (2.7)
Don't know	19 (1.1)	1 (0.3)	18 (1.3)
TOTAL	1665 (100.0))	314 (100.0)	1351 (100.0)
ASH			
None	6536 (53.8)	364 (20.0)	6172 (59.7)
1	2529 (20.8)	369 (20.2)	2160 (20.9)
2	1435 (11.8)	435 (23.9)	1000 (9.7)
3	717 (5.9)	288 (15.8)	429 (4.2)
4	219 (1.8)	119 (6.5)	100 (1.0)
5 – all of them	259 (2.1)	156 (8.6)	103 (1.0)
Don't know	461 (3.8)	93 (5.1)	368 (3.6)
TOTAL	12156 (100.0)	1824 (100.0)	10332 (100.0)

Table 4.36 presents the response spread split by survey type for the variable "Think of the five people you feel most close to. These could be your partner, family members, friends, colleagues or acquaintances. Thinking of these FIVE people, how many of them, if any, are tobacco cigarette smokers?". The proportion of don't know responses was low. Most nonsmokers had no friends who smoked, whilst most smokers had 0-3 friends who smoked.

Table 4.37 Multiple regression: Perceived number of smoking acquaintances by smoking status[a]

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1646)				
Current smokers (ref)	**2.44 (1.6)**			
Ex-smokers	**1.09 (1.4)**	**-0.78 (-1.00, -0.56)**	**0.11**	**<.001**
Never	**1.10 (1.3)**	**-0.96 (-1.14, -0.77)**	**0.09**	**<.001**
ASH (N=11856)				
Daily (ref)	**2.08 (1.5)**			
Nondaily	**1.54 (1.4)**	**-0.51 (-0.63, -0.39)**	**0.06**	**<.001**
Ex-smokers	**0.83 (1.1)**	**-1.09 (-1.17, -1.02)**	**0.04**	**<.001**
Never	**0.52 (0.9)**	**-1.34 (-1.41, -1.26)**	**0.04**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.1 and A7.2),
[b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate a greater number of smoking acquaintances. DK responses were excluded from the analysis.

Table 4.37 presents the results of the multivariate analysis testing the relationship between the number of smoking acquaintances and smoking status, split by survey. Tables A7.1 and A7.2 present the full multivariate regression tables. Both STS and ASH data produced strong evidence that ex and never smokers have fewer smoking acquaintances than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers had fewer smoking friends than daily smokers.

Smoking is common

Measure: Do you think that smoking tobacco cigarettes is… (Very uncommon, Uncommon, Neither common, nor uncommon, common, very common, DK).

Table 4.38 Perceived commonality of smoking response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Very common	273 (16.4)	55 (17.6)	218 (16.1)
Common	807 (48.5)	149 (47.6)	658 (48.7)
Neither common nor uncommon	284 (17.1)	65 (20.8)	219 (16.2)
Uncommon	237 (14.2)	39 (12.5)	198 (14.6)
Very uncommon	23 (1.4)	3 (1.0)	20 (1.5)
Don't know	41 (2.5)	2 (0.6)	39 (2.9)
TOTAL	1665 (100.0)	313 (100.0)	1352 (100.0)
ASH			
Very common	2161 (17.8)	273 (15.0)	1888 (18.3)
Common	5729 (47.1)	810 (44.4)	4919 (47.6)
Neither common nor uncommon	2478 (20.4)	473 (25.9)	2005 (19.4)
Uncommon	1224 (10.1)	197 (10.8)	1027 (9.9)
Very uncommon	67 (0.6)	13 (0.7)	54 (0.5)
Don't know	498 (4.1)	58 (3.2)	440 (4.3)
TOTAL	12157 (100.0)	1824 (100.0)	10333 (100.0)

Table 4.38 presents the response spread split by survey type for the variable "Do you think that smoking tobacco cigarettes is… (common-uncommon)". The proportion of don't know responses was low overall. Most both smokers and nonsmokers felt that smoking was common.

Table 4.39 Multiple regression: Perceived commonality of smoking by survey and smoking status[a]

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1622)				
Current use	3.69 (0.9)			
Ex-smokers	3.47 (1.0)	0.00 (-0.16, 0.16)	0.08	.964
Never	3.71 (1.0)	0.11 (-0.03, 0.24)	0.07	.116
ASH (N=11790)				
Daily (ref)	**3.65 (0.9)**			
Nondaily	3.61 (0.9)	0.00 (-0.11, 0.10)	0.05	.927
Ex-smokers	**3.70 (0.9)**	**0.09 (0.02, 0.15)**	**0.03**	**.008**
Never	**3.81 (0.9)**	**0.22 (0.15, 0.28)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.3 and A7.4), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.39 presents the results of the multivariate analysis testing the relationship between perceived commonality of smoking and smoking status, split by survey. Tables A7.9 and A7.10 present the full multivariate regression tables. STS data revealed no evidence for any effect of smoking status (p>.05), whilst ASH data revealed strong evidence that never smokers and ex-smokers perceive smoking to be more common compared with daily smokers. The ASH data did not reveal a difference between nondaily and daily smokers.

Family approval of smoking

Measure: (Please imagine that you smoke tobacco cigarettes). How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? Your immediate family/Your close friends/Your partner/spouse (Strongly disapprove, Disapprove, Neither approve or disapprove, Approve, Strongly approve, DK). "Not applicable" responses were excluded from these analyses.

Table 4.40 Perceived family approval of smoking response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly approve	11 (0.7)	6 (1.9)	5 (0.4)
Approve	80 (4.9)	35 (11.4)	45 (3.4)
Neither approve nor disapprove	298 (18.1)	128 (41.6)	170 (12.7)
Disapprove	552 (33.6)	97 (31.5)	455 (34.1)
Strongly disapprove	679 (41.3)	39 (12.7)	640 (47.9)
Don't know	24 (1.5)	3 (1.0)	21 (1.6)
TOTAL	1644 (100.0)	308 (100.0)	1336 (100.0)
ASH			
Strongly approve	102 (0.9)	28 (1.6)	74 (0.7)
Approve	190 (1.6)	92 (5.4)	98 (1.0)
Neither approve nor disapprove	1742 (14.9)	685 (40.1)	1057 (10.6)
Disapprove	2801 (24.0)	490 (28.7)	2311 (23.2)
Strongly disapprove	6493 (55.6)	311 (18.2)	6182 (62.0)
Don't know	345 (3.0)	102 (6.0)	243 (2.4)
TOTAL	11673 (100.0)	1708 (100.0)	9965 (100.0)

Table 4.40 presents the response spread split by survey type for the variable "How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? Your immediate family". The proportion of don't know responses was low overall, although higher at 6% in the ASH smoking sample. Most nonsmokers felt their family would strongly disapprove of them smoking, whilst most smokers felt their family neither approved nor disapproved of them smoking.

Table 4.41 Multiple regression: Perceived family approval of smoking by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1622)				
Current use	**2.58 (0.9)**			
Ex-smokers	**1.73 (0.8)**	**-0.78 (-0.92, -0.63)**	**0.07**	**<.001**
Never	**1.72 (0.9)**	**-0.85 (-0.97, -0.73)**	**0.06**	**<.001**
ASH (N=11434)				
Daily (ref)	**2.46 (0.9)**			
Nondaily	**2.22 (0.9)**	**-0.29 (-0.38, -0.20)**	**0.05**	**<.001**
Ex-smokers	**1.66 (0.9)**	**-0.78 (-0.83, -0.72)**	**0.03**	**<.001**
Never	**1.43 (0.7)**	**-0.97 (-1.03, -0.91)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.3 and A7.4), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.41 presents the results of the multivariate analysis testing the relationship between family approval of smoking and smoking status, split by survey. Tables A7.3 and A7.4 present the full multivariate regression tables. Both STS and ASH data produced strong evidence that ex and never smokers' families would disapprove of them smoking more so than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers' families would also disapprove of them smoking more so than daily smokers.

Friends' approval of smoking

Measure: as above.

Table 4.42 Perceived friends' approval of smoking response options split by survey and smoking status.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly approve	12 (0.7)	5 (1.6)	7 (0.5)
Approve	123 (7.5)	58 (18.5)	65 (4.9)
Neither approve nor disapprove	521 (31.6)	201 (64.0)	320 (24.0)
Disapprove	506 (30.7)	35 (11.1)	471 (35.3)
Strongly disapprove	457 (27.7)	12 (3.8)	445 (33.4)
Don't know	28 (1.7)	3 (1.0)	25 (1.9)
TOTAL	1647 (100.0)	314 (100.0)	1333 (100.0)
ASH			
Strongly approve	118 (1.0)	41 (2.3)	77 (0.8)
Approve	269 (2.3)	152 (8.7)	117 (1.2)
Neither approve nor disapprove	3746 (32.0)	1123 (64.3)	2623 (26.3)
Disapprove	3194 (27.2)	235 (13.5)	2959 (29.7)
Strongly disapprove	3921 (33.4)	92 (5.3)	3829 (38.4)
Don't know	475 (4.1)	104 (6.0)	371 (3.7)
TOTAL	11723 (100.0)	1747 (100.0)	9976 (100.0)

Unweighted n and weighted % are presented.

Table 4.42 presents the response spread split by survey type for the variable "How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? Your close friends". The proportion of don't know responses was low overall, although higher at 6% in the ASH smoking sample. Most nonsmokers felt their close friends would disapprove or strongly disapprove of them smoking, whilst most smokers felt their close friends neither approved nor disapproved of them smoking.

Table 4.43 Multiple regression: Perceived friends' approval of smoking by survey and smoking status[a]

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1618)				
Current use	**2.58 (0.9)**			
Ex-smokers	**1.73 (0.8)**	**-0.73 (-0.87, -0.59)**	**0.07**	**<.001**
Never	**1.72 (0.9)**	**-0.91 (-1.03, -0.79)**	**0.06**	**<.001**
ASH (N=11379)				
Daily (ref)	**2.93 (0.7)**			
Nondaily	**2.76 (0.8)**	**-0.25 (-0.35, -0.16)**	**0.05**	**<.001**
Ex-smokers	**2.09 (0.9)**	**-0.75 (-0.81, -0.69)**	**0.03**	**<.001**
Never	**1.82 (0.9)**	**-1.04 (-1.10, -0.97)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette status (see Appendix 7, Tables A7.5 and A7.6), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.43 presents the results of the multivariate analysis testing the relationship between friends approval of smoking and smoking status, split by survey. Tables A7.5 and A7.6 present the full multivariate regression tables. Both STS and ASH data produced strong evidence that ex and never smokers' friends would disapprove of them smoking more so than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers' friends would also disapprove of them smoking more so than daily smokers.

Partner approval of smoking

Measure: as above

Table 4.44 Perceived Partner approval of smoking response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly approve	11 (0.8)	5 (2.0)	6 (0.5)
Approve	97 (6.8)	44 (17.2)	53 (4.5)
Neither approve nor disapprove	257 (18.0)	109 (42.6)	148 (12.6)
Disapprove	431 (30.1)	62 (24.2)	369 (31.4)
Strongly disapprove	606 (42.4)	30 (11.7)	576 (49.1)
Don't know	28 (2.0)	6 (2.3)	22 (1.9)
TOTAL	1430 (100.0)	256 (100.0)	1174 (100.0)
ASH			
Strongly approve	149 (1.5)	47 (3.6)	102 (1.2)
Approve	321 (3.2)	173 (13.1)	148 (1.7)
Neither approve nor disapprove	1647 (16.3)	595 (45.0)	1052 (12.0)
Disapprove	1850 (18.3)	247 (18.7)	1603 (18.3)
Strongly disapprove	5861 (58.1)	206 (15.6)	5655 (64.5)
Don't know	268 (2.7)	55 (4.2)	213 (2.4)
TOTAL	10096 (100.0)	1323 (100.0)	8773 (100.0)

Table 4.44 presents the response spread split by survey type for the variable "How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? Your partner/spouse". The proportion of don't know responses was low overall. Most nonsmokers felt their partner/spouse would strongly disapprove of them smoking, whilst most smokers felt their partner/spouse neither approved nor disapproved of them smoking.

Table 4.45 Multiple regression: Perceived partner approval of smoking by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1388)				
Current use	**2.73 (1.0)**			
Ex-smokers	**1.74 (0.9)**	**-0.81 (-0.98, -0.65)**	**0.08**	**<.001**
Never	**1.73 (0.9)**	**-0.85 (-0.99, -0.72)**	**0.07**	**<.001**
ASH (N=9933)				
Daily (ref)	**2.78 (1.0)**			
Nondaily	**2.42 (1.0)**	**-0.38 (-0.49, -0.27)**	**0.06**	**<.001**
Ex-smokers	**1.69 (0.9)**	**-0.95 (-1.02, -0.88)**	**0.04**	**<.001**
Never	**1.43 (0.8)**	**-1.18 (-1.25, -1.11)**	**0.04**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.7 and A7.8), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.45 presents the results of the multivariate analysis testing the relationship between friends approval of smoking and smoking status, split by survey. Tables A7.7 and A7.8 present the full multivariate regression tables. Both STS and ASH data produced strong evidence that ex and never smokers' partners would disapprove of them smoking more so than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers' partners would also disapprove of them smoking more so than daily smokers.

Public approval of smoking

Measure: In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? (Strongly disapprove, disapprove, neither approve nor disapprove, approve, strongly approve, DK).

Table 4.46 Perceived public approval of smoking response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly approve	13 (0.8)	5 (1.6)	8 (0.6)
Approve	119 (7.2)	31 (9.9)	88 (6.5)
Neither approve nor disapprove	385 (23.1)	115 (36.6)	270 (20.0)
Disapprove	873 (52.5)	131 (41.7)	742 (55.0)
Strongly disapprove	227 (13.6)	24 (7.6)	203 (15.0)
Don't know	47 (2.8)	8 (2.5)	39 (2.9)
TOTAL	1664 (100.0)	314 (100.0)	1350 (100.0)
ASH			
Strongly approve	197 (1.6)	47 (2.6)	150 (1.5)
Approve	311 (2.6)	107 (5.9)	204 (2.0)
Neither approve nor disapprove	2706 (22.3)	658 (36.1)	2048 (19.8)
Disapprove	5586 (45.9)	708 (38.8)	4878 (47.2)
Strongly disapprove	2841 (23.4)	232 (12.7)	2609 (25.3)
Don't know	516 (4.2)	73 (4.0)	443 (4.3)
TOTAL	12157 (100.0)	1825 (100.0)	10332 (100.0)

Table 4.46 presents the response spread split by survey type for the variable "In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes?". The proportion of don't know responses was low overall. Most smokers and nonsmokers felt that the public disapproved of people smoking.

Table 4.47 Multiple regression: Perceived public approval of smoking by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1615)				
Current use	**2.55 (0.8)**			
Ex-smokers	**2.20 (0.7)**	**-0.23 (-0.37, -0.10)**	**0.07**	**.001**
Never	**2.20 (0.8)**	**-0.28 (-0.39, -0.17)**	**0.06**	**<.001**
ASH (N=11769)				
Daily (ref)	**2.46 (0.9)**			
Nondaily	2.41 (0.9)	-0.11 (-0.20, -0.02)	0.05	.021
Ex-smokers	**2.08 (0.8)**	**-0.27 (-0.33, -0.22)**	**0.03**	**<.001**
Never	**2.00 (0.8)**	**-0.40 (-0.46, -0.34)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.11 and A7.12),
[b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.47 presents the results of the multivariate analysis testing the relationship between perceived public approval of smoking and smoking status, split by survey. Tables A7.11 and A7.12 present the full multivariate regression tables. Both STS and ASH data revealed that ex and never smokers perceive smoking as less publically approved than current (STS) and daily (ASH) smokers. ASH data provided only weak evidence that nondaily smokers perceive smoking as less publically approved than daily smokers.

Uncomfortable smoking in public

Measure: I feel more uncomfortable smoking tobacco cigarettes in public these days. [CURRENT SMOKERS ONLY] (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.48 Uncomfortable smoking by survey.

Response options	Smokers n(%)
STS	
1. Strongly agree	52 (16.6)
2. Agree	66 (21.0)
3. Neither agree nor disagree	56 (17.8)
4. Disagree	80 (25.5)
5. Strongly disagree	59 (18.8)
X. Don't know	1 (0.3)
TOTAL	314 (100.0)
ASH	
1. Strongly agree	285 (15.6)
2. Agree	511 (28.0)
3. Neither agree nor disagree	352 (19.3)
4. Disagree	388 (21.3)
5. Strongly disagree	221 (12.1)
X. Don't know	67 (3.7)
TOTAL	1824 (100.0)

Unweighted n and weighted % are presented.

Table 4.48 presents the response options split by survey type for the variable "I feel more uncomfortable smoking in public these days". As this was only asked of smokers, the response spread is only available for this group. The number of don't know responses was low, and most responses overall were for agree, suggesting that smokers do feel uncomfortable smoking in public.

Table 4.49 Multiple regression: Uncomfortable smoking in public by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
ASH (N=1652)				
Daily (ref)	3.07 (1.3)			
Nondaily	3.37 (1.2)	0.27 (0.12, 0.42)	0.08	.001

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Table A7.13), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate greater discomfort smoking in public. DK responses were excluded from the analysis.

Table 4.49 presents the results of the multivariate analysis testing the relationship between comfort smoking in public and smoking status for only the ASH survey. Only the ASH data were appropriate for use here, as only daily and nondaily smoking could be compared; the STS data did not have a sufficient sample size for this comparison. Table A7.13 present the full multivariate regression tables. Nondaily smokers feel more uncomfortable smoking in public compared with daily smokers.

Living with smoker

Measure: Please imagine that you need to find a new lodger or housemate. Would you…? (Only live with a non-smoker, Prefer a non-smoker but consider a smoker, Have no preference between smokers and non-smokers, Prefer a smoker but consider a non-smoker, Only live with smoker, DK).

Table 4.5400 Living with smoker response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Only non-smoker	927 (55.6)	895 (66.1)	697 (67.6)
Prefer non-smoker	252 (15.1)	215 (15.9)	165 (16.0)
No preference	397 (23.8)	182 (13.4)	117 (11.3)
Prefer smoker	36 (2.2)	21 (1.6)	20 (1.9)
Only smoker	22 (1.3)	17 (1.3)	17 (1.6)
Don't know	33 (2.0)	24 (1.8)	15 (1.5)
TOTAL	1667 (100.0)	1354 (100.0)	1031 (100.0)
ASH			
Only non-smoker	7024 (57.8)	143 (7.8)	6881 (66.6)
Prefer non-smoker	2865 (23.6)	404 (22.2)	2461 (23.8)
No preference	1600 (13.2)	982 (53.8)	618 (6.0)
Prefer smoker	146 (1.2)	124 (6.8)	22 (0.2)
Only smoker	36 (0.3)	22 (1.2)	14 (0.1)
Don't know	487 (4.0)	149 (8.2)	338 (3.3)
TOTAL	12158 (100.0)	1824 (100.0)	10334 (100.0)

Table 4.50 presents the response options split by survey type for the variable "Please imagine that you need to find a new lodger or housemate. Would you…?". The number of don't know responses was low overall, except for the ASH smoking sample where 8% of respondents were unsure. Most respondents in the STS sample and in the ASH nonsmoking sample would only live with a non-smoker, whilst most respondents in the ASH smoking sample had no preference.

Table 4.41 Multiple regression: Living with smoker by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1630)				
Current smokers	**2.75 (0.8)**			
Ex-smokers	**1.58 (0.8)**	**-1.00 (-1.14, -0.86)**	**0.07**	**<.001**
Never	**1.52 (0.9)**	**-1.13 (-1.25, -1.01)**	**0.06**	**<.001**
ASH (N=11830)				
Daily (ref)	**2.82 (0.8)**			
Nondaily	**2.33 (0.8)**	**-0.56 (-0.63, -0.50)**	**0.04**	**<.001**
Ex-smokers	**1.50 (0.7)**	**-1.20 (-1.24, -1.16)**	**0.02**	**<.001**
Never	**1.31 (0.6)**	**-1.38 (-1.43, -1.34)**	**0.02**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.14 and A7.15),
[b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger preference to live with a smoker. DK responses were excluded from the analysis.

Table 4.51 presents the results of the multivariate analysis testing the relationship between wanting to live with a smoker and smoking status, split by survey. Tables A7.14 and A7.15 present the full multivariate regression tables. Both STS and ASH data produced strong evidence that ex and never smokers would rather live with a non-smoker than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers would also prefer to live with non-smoker than daily smokers.

Using e-cigarettes is common

Measure: Do you think that the use of electronic cigarettes or vaping devices is… (Very uncommon, Uncommon, Neither common, nor uncommon, common, very common, DK).

Table 4.52. Perceived commonality of e-cigarettes response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Very common	244 (14.6)	62 (19.7)	182 (13.5)
Common	888 (53.3)	163 (51.7)	725 (53.6)
Neither common nor uncommon	277 (16.6)	59 (18.7)	218 (16.1)
Uncommon	159 (9.5)	20 (6.3)	139 (10.3)
Very uncommon	19 (1.1)	4 (1.3)	15 (1.1)
Don't know	80 (4.8)	7 (2.2)	73 (5.4)
TOTAL	1667 (100.0)	315 (100.0)	1352 (100.0)
ASH			
Very common	1721 (14.2)	224 (12.3)	1497 (14.5)
Common	5351 (44.0)	826 (45.3)	4525 (43.8)
Neither common nor uncommon	2951 (24.3)	500 (27.4)	2451 (23.7)
Uncommon	1411 (11.6)	194 (10.6)	1217 (11.8)
Very uncommon	124 (1.0)	20 (1.1)	104 (1.0)
Don't know	598 (4.9)	61 (3.3)	537 (5.2)
TOTAL	12156 (100.0)	1825 (100.0)	10331 (100.0)

Table 4.52 presents the response spread split by survey type for the variable "Do you think that the use of electronic cigarettes or vaping devices is… (common-uncommon)". The proportion of don't know responses was low overall. Most both smokers and nonsmokers felt that e-cigarette use was common.

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Table 4.53 Multiple regression: Perceived commonality of e-cigarettes by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1585)				
Current use	3.85 (0.9)			
Ex-smokers	3.74 (0.9)	0.07 (-0.08, 0.22)	0.08	.332
Never	3.71 (0.9)	-0.04 (-0.16, 0.09)	0.06	.565
ASH (N=11674)				
Daily (ref)	**3.58 (0.9)**			
Nondaily	3.63 (0.9)	0.04 (-0.07, 0.14)	0.05	0.481
Ex-smokers	**3.65 (0.9)**	**0.17 (0.11, 0.23)**	**0.03**	**<.001**
Never	**3.60 (0.9)**	**0.16 (0.09, 0.23)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.16 and A7.17), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.53 presents the results of the multivariate analysis testing the relationship between perceived commonality of e-cigarette use and smoking status, split by survey. Tables A7.16 and A7.17 present the full multivariate regression tables. STS data revealed no evidence for an effect of smoking status; however ASH data provided strong evidence that ex and never smokers perceive e-cigarette use to be more common than daily smokers.

Public approval of e-cigarettes

Measure: In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? (Strongly disapprove, disapprove, neither approve or disapprove, approve, strongly approve, DK).

Table 4.54. Perceived public approval of e-cigarettes response options split by survey and smoking status. Weighted data are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly approve	38 (2.3)	11 (3.5)	27 (2.0)
Approve	414 (24.8)	89 (28.3)	325 (24.0)
Neither approve nor disapprove	657 (39.4)	146 (46.5)	511 (37.8)
Disapprove	394 (23.6)	45 (14.3)	349 (25.8)
Strongly disapprove	54 (3.2)	6 (1.9)	48 (3.6)
Don't know	109 (6.5)	17 (5.4)	92 (6.8)
TOTAL	1666 (100.0)	314 (100.0)	1352 (100.0)
ASH			
Strongly approve	246 (2.0)	45 (2.5)	201 (2.0)
Approve	1224 (10.1)	245 (13.4)	979 (9.5)
Neither approve nor disapprove	5917 (48.7)	1002 (54.9)	4915 (47.6)
Disapprove	3007 (24.7)	343 (18.8)	2664 (25.8)
Strongly disapprove	938 (7.7)	57 (3.1)	881 (8.5)
Don't know	825 (6.8)	132 (7.2)	693 (6.7)
TOTAL	12157 (100.0)	1824 (100.0)	10333 (100.0)

Table 4.54 presents the response spread split by survey type for the variable "In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices?". The proportion of don't know responses was low in the STS smoker sample, but slightly higher in the STA nonsmoker sample and the ASH sample. Most both smokers and nonsmokers felt that the general public neither approved, nor disapproved of using e-cigarettes.

Table 4.55 Multiple regression: Perceived public approval of e-cigarettes by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1553)				
Current use	**3.18 (0.8)**			
Ex-smokers	2.99 (0.8)	-0.10 (-0.25, 0.05)	0.08	.205
Never	**2.93 (0.9)**	**-0.19 (-0.31, -0.06)**	**0.06**	**.003**
ASH (N=11434)				
Daily (ref)	**2.94 (0.8)**			
Nondaily	2.91 (0.7)	-0.10 (-0.20, -0.01)	0.05	.034
Ex-smokers	**2.74 (0.8)**	**-0.11 (-0.16, -0.05)**	**0.03**	**<.001**
Never smokers	**2.65 (0.9)**	**-0.18 (-0.24, -0.12)**	**0.03**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.18 and A7.19), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger perceived approval. DK responses were excluded from the analysis.

Table 4.55 presents the results of the multivariate analysis testing the relationship between perceived public approval of e-cigarette use and smoking status, split by survey. Tables A7.18 and A7.19 present the full multivariate regression tables. Both ASH and STS data revealed strong evidence that never smokers perceived smoking as less publically approved than current (STS) and daily (ASH) smokers. Only ASH data revealed strong evidence that ex-smokers perceived smoking as less publically approved than daily smokers.

Using nicotine to quit

Measure: In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.56 Using nicotine to quit response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly agree	409 (24.6)	99 (31.5)	310 (22.9)
Agree	757 (45.5)	135 (43.0)	622 (46.0)
Neither agree nor disagree	253 (15.2)	44 (14.0)	209 (15.5)
Disagree	140 (8.4)	20 (6.4)	120 (8.9)
Strongly disagree	55 (3.3)	11 (3.5)	44 (3.3)
Don't know	51 (3.1)	5 (1.6)	46 (3.4)
TOTAL	1665 (100.0)	314 (100.0)	1351 (100.0)
ASH			
Strongly agree	3013 (24.8)	624 (34.2)	2389 (23.1)
Agree	5260 (43.3)	732 (40.1)	4528 (43.8)
Neither agree nor disagree	2026 (16.7)	316 (17.3)	1710 (16.6)
Disagree	621 (5.1)	36 (2.0)	585 (5.7)
Strongly disagree	477 (3.9)	28 (1.5)	449 (4.4)
Don't know	761 (6.3)	90 (4.9)	671 (6.5)
TOTAL	12158 (100.0)	1826 (100.0)	10332 (100.0)

Table 4.56 presents the response options split by survey type for the variable "In my opinion, it is OK for people to use nicotine in non-tobacco (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking." The number of don't know responses was low overall, but slightly higher in the ASH sample. Most both smokers and nonsmokers sample strongly agreed/agreed that it was OK for people to use nicotine to quit.

Table 4.57 Multiple regression: Using nicotine to quit by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1609)				
Current use	3.94 (1.0)			
Ex-smokers	3.91 (1.0)	0.06 (-0.11, 0.23)	0.09	.485
Never	3.75 (1.0)	-0.07 (-0.21, 0.07)	0.07	.335
ASH (N=11549)				
Daily (ref)	**4.08 (0.9)**			
Nondaily	4.10 (0.9)	-0.08 (-0.19, 0.04)	0.06	.177
Ex-smokers	3.89 (1.0)	-0.07 (-0.14, 0.00)	0.04	.058
Never	**3.76 (1.0)**	**-0.18 (-0.25, -0.10)**	**0.04**	**<.001**

[a]Adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.20 and A7.21), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.57 presents the results of the multivariate analysis testing the relationship between perceived acceptability of using nicotine to quit and smoking status, split by survey. Tables A7.20 and A7.21 present the full multivariate regression tables. STS data found no evidence for an effect of smoking status, whilst ASH data only found strong evidence for a difference between never and daily smokers, with daily smokers feeling it was more acceptable to use nicotine to quit smoking.

Using nicotine for boost

Measure: In my opinion, it is OK to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.58 Using nicotine for boost response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
Strongly agree	191 (11.5)	60 (19.1)	131 (9.7)
Agree	589 (35.3)	131 (41.7)	458 (33.9)
Neither agree nor disagree	408 (24.5)	57 (18.2)	351 (25.9)
Disagree	307 (18.4)	46 (14.6)	261 (19.3)
Strongly disagree	109 (6.5)	13 (4.1)	96 (7.1)
Don't know	63 (3.8)	7 (2.2)	56 (4.1)
TOTAL	1667 (100.0)	314 (100.0)	1353 (100.0)
ASH			
Strongly agree	1071 (8.8)	337 (18.5)	734 (7.1)
Agree	2288 (18.8)	566 (31.0)	1722 (16.7)
Neither agree nor disagree	3201 (26.3)	531 (29.1)	2670 (25.8)
Disagree	2782 (22.9)	177 (9.7)	2605 (25.2)
Strongly disagree	1833 (15.1)	85 (4.7)	1748 (16.9)
Don't know	982 (8.1)	128 (7.0)	854 (8.3)
TOTAL	12157 (100.0)	1824 (100.0)	10333 (100.0)

Table 4.58 presents the response options split by survey type for the variable "In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee." The number of don't know responses was low overall, but slightly higher in the ASH sample. Most both smokers and nonsmokers in the STS sample, and smokers in the ASH sample agreed that it was OK for people to use nicotine to give you a boost, whilst nonsmokers in the ASH sample either agreed nor disagreed, or disagreed, with this statement.

Table 4.59 Multiple regression: Using nicotine for boost by survey and smoking status[a]

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1598)				
Current use	**3.58 (1.1)**			
Ex-smokers	3.37 (1.1)	-0.11 (-0.30, 0.07)	0.09	.227
Never	**3.16 (1.1)**	**-0.23 (-0.38, -0.07)**	**0.08**	**.004**
ASH (N=11339)				
Daily (ref)	**3.55 (1.1)**			
Nondaily	3.45 (1.1)	-0.11 (-0.24, 0.02)	0.07	.090
Ex-smokers	**2.88 (1.2)**	**-0.51 (-0.59, -0.43)**	**0.04**	**<.001**
Never	**2.58 (1.2)**	**-0.67 (-0.76, -0.59)**	**0.04**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.22 and A7.23), [b]Unstandardised B, CI=confidence interval. Unweighted data were used for all analyses except the mean and SD, which were weighted. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.59 presents the results of the multivariate analysis testing the relationship between perceived acceptability of using nicotine for a boost and smoking status, split by survey. Tables A7.22 and A7.23 present the full multivariate regression tables. There is strong evidence that never smokers think it is less acceptable to use nicotine for a boost than current (STS) and daily (ASH) smokers. However, the STS data did not provide any evidence for other smoking group differences (p>.05). The ASH data provided strong evidence for a difference between ex and daily smokers, but not nondaily and daily smokers.

Tobacco companies go out of business

Measure: I would like to see tobacco companies go out of business (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, DK).

Table 4.60 Tobacco companies go out of business response options split by survey and smoking status. Unweighted n and weighted % are presented.

Response options	All n(%)	Smoker n(%)	Nonsmoker n(%)
STS			
1. Strongly agree	293 (17.6)	22 (7.0)	271 (20.1)
2. Agree	339 (20.4)	39 (12.4)	300 (22.2)
3. Neither agree nor disagree	429 (25.8)	59 (18.8)	370 (27.4)
4. Disagree	370 (22.2)	103 (32.8)	267 (19.8)
5. Strongly disagree	175 (10.5)	85 (27.1)	90 (6.7)
X. Don't know	59 (3.5)	6 (1.9)	53 (3.9)
TOTAL	1665 (100.0)	314 (100.0)	1351 (100.0)
ASH			
1. Strongly agree	3195 (26.3)	16 (8.9)	3033 (29.4)
2. Agree	2369 (19.5)	170 (9.3)	2199 (21.3)
3. Neither agree nor disagree	3624 (29.8)	525 (28.8)	3099 (30.0)
4. Disagree	1332 (11.0)	417 (22.9)	915 (8.9)
5. Strongly disagree	913 (7.5)	454 (24.9)	459 (4.4)
X. Don't know	725 (6.0)	97 (5.3)	628 (6.1)
TOTAL	12158 (100.0)	1825 (100.0)	10333 (100.0)

Table 4.60 presents the response options split by survey type and smoking status for the statement "I would like to see tobacco companies go out of business". The number of don't know responses was low overall but slightly higher for the ASH nonsmoker sample. Most smokers disagreed, or neither agreed nor disagreed, that tobacco companies should go out of business, whilst most nonsmokers neither agreed nor disagreed with the statement.

Table 4.61 Multiple regression: tobacco companies go out of business by survey and smoking status[a].

Smoking status	Mean (SD)	B (95% CI)[b]	SE	p
STS (N=1603)				
Current smokers (ref)	**2.38 (1.2)**			
Ex-smokers	**3.03 (1.2)**	**0.64 (0.44, 0.85)**	**0.10**	**<.001**
Never smokers	**3.39 (1.2)**	**0.87 (0.70,1.04)**	**0.09**	**<.001**
ASH (N=11586)				
Daily smokers (ref)	**2.37 (1.2)**			
Nondaily smokers	**2.94 (1.3)**	**0.55 (0.42, 0.69)**	**0.07**	**<.001**
Ex-smokers	**3.46 (1.2)**	**1.09 (1.01, 1.18)**	**0.04**	**<.001**
Never smokers	**3.79 (1.1)**	**1.33 (1.24, 1.41)**	**0.04**	**<.001**

[a]adjusting for demographics and e-cigarette use (see Appendix 7, Tables A7.24 and A7.25), [b]Unstandardised B, CI=confidence interval. Higher values indicate stronger agreement with the statement. DK responses were excluded from the analysis.

Table 4.61 presents the results of the multivariate analysis testing the relationship between agreeing with the statement "I would like to see tobacco companies go out of business" and smoking status, split by survey. Tables A7.24 and A7.25 present the full multivariate regression table. Both STS and ASH data revealed that ex and never smokers wanted to see tobacco companies go out of business more so than current (STS) and daily (ASH) smokers. Furthermore, ASH data revealed that nondaily smokers also wanted to see tobacco companies go out of business more so than daily smokers.

4.4.6   Adult tool construct validity/reliability

Four principal components analyses (PCA) with direct oblimin rotations were used to identify which measures loaded onto common components. Separate PCAs were run for each sample (STS and ASH) and for non-smokers and smokers.

STS nonsmokers

PCA on the 12 items for STS non-smokers revealed a clear 4-component solution, with eigenvalues of 3.11, 1.61, 1.42 and 1.06, explaining 25.88%, 13.40%, 11.86% and 8.84% of variance respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.73) and Bartlett's test of sphericity ($X^2(66)=2696.09$, $p<.001$) suggests that PCA was appropriate.

Table 4.62 shows the responses, component loadings, and communalities for each item within the STS non-smoker sample. Four components emerged (PC = principal component adult STS nonsmokers): PC1 (consisting of descriptive and injunctive interpersonal norms and personal attitudes towards smoking), PC2 (personal attitudes towards nicotine use), PC3 (descriptive societal norms towards smoking and nicotine use), and PC4 (injunctive societal norms towards smoking and nicotine use). Tobacco companies go out of business was not loaded highly (>0.40) onto any components. Components were only modestly correlated with each other. Only one scale (PC1) was internally consistent and above the recommended threshold of 0.7 for an acceptable reliability score. Cronbach's α for all variables was 0.57, suggesting only mediocre internal consistency for all measures.

Table 4.62 Principal Components Analysis: Responses, component loadings and Cronbach's α for STS adult nonsmokers. All data are unweighted.

	Mean (SD)	Component loading[1]				Communalities
		1	2	3	4	
PC1						
Partner approval of smoking	1.76 (0.9)	**0.83**	-0.03	-0.04	0.13	0.73
Family approval of smoking	1.74 (0.8)	**0.82**	-0.12	-0.05	0.12	0.72
Friends approval of smoking	2.01 (0.9)	**0.75**	-0.04	-0.08	0.25	0.68
Number of smoking acquaintances	1.13 (1.3)	**0.57**	0.02	0.25	-0.10	0.37
Living with smoker	1.53 (0.9)	**0.56**	0.09	0.02	-0.07	0.32
PC2						
Using nicotine for boost	3.18 (1.1)	0.12	**0.84**	-0.02	-0.05	0.74
Using nicotine to quit	3.75 (1.0)	-0.12	**0.84**	0.02	0.13	0.74
PC3						
Smoking is common	3.67 (1.0)	0.16	-0.04	**0.79**	-0.11	0.65
Using e-cigarettes is common	3.73 (0.9)	0.02	0.09	**0.77**	0.10	0.60
PC4						
Public approval of e-cigarettes	2.94 (0.9)	-0.08	0.20	0.06	**0.85**	0.77
Public approval of smoking	2.18 (0.8)	0.28	-0.11	-0.01	**0.68**	0.60
Tobacco companies out of business	3.31 (1.2)	-0.32	-0.11	0.37	0.06	0.26
Cronbach's α	0.57[a]	0.76	0.66	0.51	0.52	

[1] Component loadings are reported in **bold** if >0.40 or <-0.40.
[a] Cronbach's alpha for all 14 items

STS smokers

PCA on the 13 items for STS smokers revealed a clear 5-component solution, with eigenvalues of 3.08, 1.37, 1.72, 1.20 and 1.08, explaining 23.70%, 10.57%, 13.23%, 9.20% and 8.30% of variance respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.66) and Bartlett's test of sphericity ($X^2(78)=642.88$, p<.001) suggests that PCA was appropriate.

Table 4.63 shows the responses, component loadings, and communalities for each item within the STS smoker sample. Five components emerged (PC = principal component adult STS smokers): PC1 (consisting of injunctive interpersonal norms towards smoking), PC2 (personal attitudes towards nicotine use), PC3 (descriptive societal norms towards smoking and nicotine use), PC4 (injunctive societal norms towards smoking and nicotine use), and PC5 (tobacco companies and living with smoker). Number of smoking acquaintances was not loaded highly (>0.40) onto any components. Components were only modestly correlated with each other, with the maximum correlation coefficient being -0.23 between PC1 and PC4. Only one scale (PC1) was internally consistent and above the recommended threshold of 0.7 for an acceptable reliability score. Cronbach's α for all variables was 0.43, suggesting relatively low internal consistency for all measures.

Table 4.63 Principal Components Analysis: Responses, component loadings and Cronbach's α for STS adult smokers. All data are unweighted.

| | Mean (SD) | Component loading[1] | | | | | Communalities |
		1	2	3	4	5	
PC1							
Partner approval of smoking	2.76 (1.0)	**0.88**	-0.07	-0.02	0.07	-0.02	0.74
Family approval of smoking	2.62 (0.9)	**0.87**	0.07	-0.10	0.01	-0.02	0.76
Friends approval of smoking	3.05 (0.7)	**0.80**	-0.02	0.03	-0.07	-0.11	0.71
PC2	3.53 (1.1)						
Using nicotine for boost		0.14	**-0.91**	-0.07	-0.08	-0.04	0.80
Using nicotine to quit	3.90 (1.0)	-0.09	**-0.85**	0.17	0.01	-0.02	0.78
PC3							
Smoking is common	3.68 (1.0)	-0.08	-0.01	**0.85**	-0.15	-0.01	0.74
Using e-cigarettes is common	3.85 (0.9)	-0.04	-0.08	**0.82**	0.23	0.06	0.74
PC4							
Uncomfortable smoking in public	3.07 (1.4)	0.26	0.05	0.11	**0.79**	0.14	0.63
Public approval of smoking	2.55 (0.8)	0.32	0.16	0.04	**-0.61**	0.03	0.63
Public approval of e-cigarettes	3.18 (0.8)	0.26	-0.07	0.10	**-0.55**	0.21	0.45
PC5							
Tobacco companies out of business	2.41 (1.2)	0.05	0.04	0.12	0.08	**0.79**	0.65
Living with smoker	2.75 (0.8)	0.12	-0.02	0.07	0.10	**-0.63**	0.42
Number of smoking acquaintances	2.42 (1.6)	0.18	0.23	0.29	-0.21	-0.30	0.40
Cronbach's α	0.43	0.83	0.69	0.57	-0.08	-0.39	

[1]Component loadings are reported in **bold** if >0.40 or <-0.40.

[a] Cronbach's alpha for all 14 items

ASH nonsmokers

PCA on the 12 items for ASH nonsmokers revealed a clear 4-component solution, with eigenvalues of 3.49, 1.30, 1.57 and 1.05, explaining 29.08%, 10.79%, 13.11% and 8.72% of variance respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.77) and Bartlett's test of sphericity ($X^2(66)=21537.91$, $p<.001$) suggests that PCA was appropriate.

Table 4.64 shows the responses, component loadings, and communalities for each item within the ASH nonsmoker sample. Four components emerged (PC = principal component adult ASH nonsmokers): PC1 (consisting of descriptive and injunctive interpersonal norms and personal attitudes towards smoking), PC2 (personal attitudes towards nicotine use), PC3 (descriptive societal norms towards smoking and nicotine use), and PC4 (injunctive societal norms towards smoking and nicotine use). Tobacco companies go out of business was not loaded highly (>0.40) onto any components. Components were only modestly correlated with each other, with the maximum correlation coefficient being 0.26 between PC1 and PC2. Only one scale (PC1) was internally consistent and above the recommended threshold of 0.7 for an acceptable reliability score. Cronbach's α for all variables was 0.61, suggesting mediocre internal consistency for all measures.

Table 4.64 Principal Components Analysis: Responses, component loadings and Cronbach's α for ASH adult nonsmokers. All data are unweighted.

	Mean (SD)	1	2	3	4	Communalities
		Component loading[1]				
PC1						
Family approval of smoking	1.48 (0.8)	**0.84**	-0.12	-0.04	-0.10	.729
Partner approval of smoking	1.49 (0.8)	**0.82**	-0.07	-0.03	-0.05	.681
Friends approval of smoking	1.85 (0.9)	**0.72**	-0.06	-0.09	-0.19	.627
Number of smoking acquaintances	0.59 (1.0)	**0.60**	0.15	0.22	0.22	.448
Living with smoker	1.34 (0.6)	**0.56**	0.22	-0.04	-0.01	.436
PC2						
Using nicotine to quit	3.77 (1.0)	-0.07	**0.85**	-0.02	-0.03	.634
Using nicotine for boost	2.67 (1.2)	0.08	**0.75**	-0.02	-0.06	.697
PC3	3.73 (0.9)					
Smoking is common		-0.01	-0.05	**0.86**	-0.08	.732
Using e-cigarettes is common	3.58 (0.9)	0.01	0.01	**0.85**	-0.06	.714
PC4	1.99 (0.8)					
Public approval of smoking		0.15	-0.11	0.09	**-0.85**	.729
Public approval of e-cigarettes	2.65 (0.8)	-0.08	0.22	0.10	**-0.81**	.769
Tobacco companies out of business	3.66 (1.2)	-0.18	-0.13	0.15	0.27	.210
Cronbach's α	0.61	0.77	0.57	0.65	0.69	

[1]Component loadings are reported in **bold** if >0.40 or <-0.40.
[a]Cronbach's alpha for all 14 items

ASH smokers

PCA on the 13 items for ASH smokers revealed a clear 5-component solution, with eigenvalues of 3.16, 1.58, 1.43, 1.22 and 1.03, explaining 24.29%, 12.19%, 10.97%, 9.36% and 7.94% of variance respectively before rotation. The Kaiser-Meyer-Olkin (KMO) measure (0.70) and Bartlett's test of sphericity ($X^2(78)=2449.12$, $p<.001$) suggests that PCA was appropriate.

Table 4.65 shows the responses, component loadings, and communalities for each item within the STS non-smoker sample. Five components emerged (PC = principal component adult ASH smokers): PC1 (consisting of descriptive and injunctive interpersonal norms towards smoking), PC2 (personal attitudes towards nicotine use), PC3 (descriptive societal norms towards smoking and nicotine use), PC4 (injunctive societal norms towards smoking and nicotine use), and PC5 (uncomfortable smoking in public, tobacco companies, living with smoker). Components were only modestly correlated with each other, with the maximum correlation coefficient being -0.29 between PC1 and PC5. None of the measures were above the reliability threshold. Cronbach's α for all variables was 0.51, suggesting mediocre internal consistency for all measures.

Table 4.65 Principal Components Analysis: Responses, component loadings and Cronbach's α for ASH smokers. All data are unweighted.

| | Mean (SD) | Component loading[1] | | | | | Communalities |
		1	2	3	4	5	
PC1							
Family approval of smoking	2.41 (0.9)	**0.80**	-0.03	-0.03	0.13	0.02	0.69
Friends approval of smoking	2.87 (0.7)	**0.78**	-0.01	-0.05	0.14	0.07	0.63
Partner approval of smoking	2.68 (1.0)	**0.68**	0.07	0.01	0.11	-0.01	0.53
Number of smoking acquaintances	1.90 (1.5)	**0.64**	-0.03	0.17	-0.19	-0.05	0.46
PC2							
Using nicotine to quit	4.13 (0.8)	0.00	**0.85**	0.07	-0.05	0.05	0.73
Using nicotine for boost	3.58 (1.1)	-0.01	**0.84**	-0.02	0.09	-0.05	0.71
PC3							
E-cigarettes are common	3.55 (0.9)	-0.05	0.08	**-0.84**	0.04	-0.01	0.71
Smoking is common	3.60 (0.9)	0.10	-0.04	**-0.82**	0.00	0.00	0.70
PC4							
Public approval of e-cigarettes	2.92 (0.8)	0.01	0.16	0.02	**-0.87**	0.02	0.79
Public approval of smoking	2.38 (0.9)	0.20	-0.14	0.05	**-0.78**	-0.12	0.78
PC5							
Uncomfortable smoking in public	3.13 (1.3)	0.12	0.16	-0.07	-0.14	**0.78**	0.62
Tobacco companies out of business	2.44 (1.2)	-0.03	-0.13	0.02	0.06	**0.75**	0.59
Living with smoker	2.70 (0.8)	0.39	0.08	-0.15	-0.10	**0.46**	0.47
Cronbach's α	0.51	0.67	0.61	0.31	0.22	-0.10	

[1]Component loadings are reported in **bold** if >0.40 or <-0.40.
[a]Cronbach's alpha for all 14 items

4.5 Discussion

4.5.1   Overview of findings

Pilot testing of the (1) 13 shortlisted measures for youth using the ASH Smokefree GB Youth survey and (2) 11 shortlisted measures for adults using the ASH Smokefree GB Adult and Smoking Toolkit Surveys was carried out. To test the predictive validity of the measures, the relation with smoking status, and each of the individual measures, was explored. Several measures were found to be related to smoking status. Additionally, in the youth and adult surveys, the same measures showed similar relationships with smoking status. PCA was used to test the construct validity of the measures. In the PCA, the measures were found to group into categories similar to how they had been categorised initially (e.g., injunctive norms grouped together). Injunctive interpersonal norms generally loaded together with high internal consistency; personal attitudes towards nicotine also loaded together but with lower internal consistency. Similar to the findings above, there was also some consistency across the different surveys in the PCA results. The final chapter uses the results of the pilot testing above to select the norms measures that showed the most consistent and promising validity and reliability scores to be used in the youth and adult tool for measuring norms towards smoking.

4.5.2   Strengths and limitations

Limitations include, that the measures could only be tested using cross-sectional surveys, and that only limited tests of validity and reliability were conducted due to time constraints. Future research should test the predictive validity of the measures in cohort surveys and test the measures for other types of validity and reliability. Additionally, the generalisability of the ASH results are limited as the YouGov panel would only include individuals who have access to the internet and are willing to engage in online surveys; however, these limitations were balanced out by the STS results, which were face-to-face household surveys.

Strengths include, that the measures for testing were carefully selected based on previous research and where there were gaps, experts were consulted to develop new measures. The measures also went through extensive cognitive testing for comprehension of the measures and response options, and whether the measures were eliciting the information that was intended. Additionally, despite that three different surveys were utilized with different survey methodology, two using online procedures and the third a face-to-face household survey, the relations between the shortlisted measures and smoking status were generally consistent across the different surveys.

4.7 References

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CHAPTER 5 DISCUSSION AND RECOMMENDATIONS

5.1 Introduction

The previous chapter presented the results of pilot testing of the tool of 13 measures selected for youth and 11 measures selected for adults; both tools had been developed from the desk reviews, cognitive testing and consultation with experts and stakeholders. The objective of this final stage was to summarise and compare measures within and across the two populations and to develop a shortlist of measures for use in youth and adult surveys.

5.2 Methods

For the youth measures, summary scores of the relationship between the measures and smoking behaviour, as well as the PCA loadings are presented in Table 5.1.

For the adult measures, summary scores of the relationship between the measures and smoking behaviour, as well as the PCA loadings are presented in Table 5.2.

Priority to those shortlisted was given to those with greatest predictive validity (i.e. the measures were related cross-sectionally to smoking status), ensuring also a reasonable spread of measures across the components and categories. The measures shortlisted for the final tools are highlighted in both tables.

Table 5.1 Youth measures included in pilot testing - final selected adult norms measures selected for tool are highlighted (significant relations are in bold).

Measure	Related to smoking status?	N(%) DK	Current smoker	Tried smoking	Never smoker	Never smoker	Ever smoker
			Mean (SD)			**Factors & loadings**	
Descriptive interpersonal norms towards smoking							
Please think of the three friends you spend most time with. How many of them smoke tobacco cigarettes on a regular basis? *(Higher values indicate more smoking friends)*	**All p=<.001**	101 (4.4)	1.50 (0.57)	0.57 (0.81)	0.14 (0.48)	PC5 0.81	PC1 0.55
Who in your family, if anyone, smokes tobacco cigarettes at the moment? Please tick all that apply. Mother (female carer)/Father (male carer) /Brother or sister *(Higher values indicate more smoking family members*)	**Never vs current*** Tried vs. current ns	0	0.66 (0.8)	0.52 (0.8)	0.27 (0.6)	Weak loading	PC2 0.48
Descriptive societal norms towards smoking							
Out of every 10 people your age, on average how many do you think smoke tobacco cigarettes on a regular basis? *(higher values indicate greater perceived prevalence)*	**All p=<.001**	271 (11.6)	4.53 (2.0)	3.53 (1.8)	2.60 (1.9)	PC5 0.62	PC2 0.63
Do you think that smoking tobacco cigarettes is… common-uncommon *(Higher values indicate more common)*	**Never vs. current*** Tried vs current ns	105 (4.5)	4.11 (0.9)	3.84 (0.9)	3.79 (0.9)	PC2 0.82	PC2 0.82
Injunctive interpersonal norms towards smoking							
How do each of the following people feel about you smoking tobacco cigarettes? *(Higher values indicate stronger approval)*	**Never vs. current*** **Tried vs. current***						
Your parents		36 (1.6%)	1.81 (1.0)	1.48 (0.8)	1.20 (0.6)	PC1 0.80	PC1 0.70
Your siblings	**All***	71 (3.5%)	2.38 (1.0)	1.80 (0.9)	1.46 (0.7)	PC1 0.84	PC1 0.82
Your close friends	**All***	106 (4.7%)	2.90 (0.89)	2.24 (0.90)	1.75 (0.81)	PC1 0.67	PC1 0.74
Injunctive societal norms towards smoking							
In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? *(Higher values indicate stronger approval)*	**Never vs. current**** Tried vs. current ns	128 (5.5)	2.42 (1.0)	2.08 (0.9)	1.89 (0.8)	PC1 0.51	PC5 0.65
Personal attitudes towards smoking							
In my opinion, smoking tobacco cigarettes makes people my age look coolᵞ *(Higher values indicate stronger agreement)*	**Never vs. current*** **Tried vs. current****	77 (3.3)	2.95 (1.2)	2.19 (1.3)	1.85 (1.2)	PC3 0.86	PC3 0.84
In my opinion, smoking tobacco cigarettes makes people my age fit in *(Higher values indicate stronger agreement)*	**Never vs. current*** **Tried vs. current****	104 (4.5)	3.13 (1.1)	2.47 (1.2)	2.05 (1.2)	PC3 0.87	PC3 0.88
Descriptive societal norms towards nicotine							
Do you think that the use of electronic cigarettes or vaping devices is… common-uncommon *(Higher values indicate more common)*	All ns	162 (6.9)	3.91 (0.9)	3.72 (0.9)	3.62 (0.9)	PC2 0.81	PC2 0.68

Table 5.1 Youth measures included in pilot testing - final selected adult norms measures selected for tool are highlighted (significant relations are in bold).

Measure	Related to smoking status?	N(%) DK	Mean (SD)			Factors & loadings	
			Current smoker	Tried smoking	Never smoker	Never smoker	Ever smoker
Injunctive societal norms towards nicotine							
In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? *(Higher values indicate stronger approval)*	All ns	191 (8.2)	3.06 (0.9)	2.81 (1.0)	2.60 (0.9)	PC4 0.57	PC5 0.72
Personal attitudes towards nicotine							
In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee. *(Higher values indicate stronger agreement)*	**Never vs. current*** **Tried vs. current****	283 (12.1)	3.22 (1.1)	2.59 (1.1)	2.31 (1.1)	PC4 0.82	PC4 0.72
In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking. *(Higher values indicate stronger agreement)*	All ns	222 (9.5)	4.12 (0.8)	3.89 (1.0)	3.53 (1.1)	PC4 0.69	PC4 0.89
Personal attitudes towards the tobacco industry							
I would like to see tobacco companies go out of business. *(Higher values indicate stronger agreement)*	All***	189 (8.1)	2.98 (1.1)	3.84 (1.1)	4.00 (1.0)	EXCLUDED	EXCLUDED

ᵞSimilar to the SDD: "People of my age smoke to look cool in front of their friends". PC=principal component. DK=don't know. ***p≤.001, **p<.01,*p<.05.

5.3 Summary of youth pilot tool

Norms towards smoking

There were six possible measures to choose from in this category (two descriptive interpersonal norms, two descriptive societal norms and one injunctive interpersonal and one injunctive societal norm). One measure was selected from each of the four norms towards smoking categories. For the two norm categories where there was more than one measure (descriptive interpersonal and descriptive societal), selection was made based on the measure being related to smoking status consistently across different comparisons (never smokers versus current smokers; tried versus current smokers).The two norm categories for which there was only one measure (injunctive interpersonal and injunctive societal) were related to smoking status except for the comparison between tried versus current smokers for the injunctive societal norm measure. Both were selected.

Personal attitudes toward smoking

There were two possible measures in this category. The measure about smoking making people their age 'look cool' was selected over 'fit in'. Whilst both were associated with smoking status, 'look cool' was selected because this was a similar measure to one already being used in a UK survey (SDD).

Norms towards nicotine

There were two possible measures (a descriptive and an injunctive societal norm) in this category. These measures were not chosen as neither was related to smoking status.

Personal attitudes towards nicotine

There were two possible measures in this category. The measure about using nicotine in non-tobacco forms to give a boost was chosen as it was related to smoking status, whereas the nicotine in non-tobacco forms for trying to quit was not selected as it was not related to smoking status.

Personal attitudes towards the tobacco industry

There was only one measure in this category 'I would like to see tobacco companies go out of business'. This was shown to be related to smoking status and was therefore selected.

Table 5.2. Adult measures included in pilot testing - final selected adult norms measures selected for tool are highlighted (significant relations are in **bold**).

Measure	Survey	Related to smoking status?	# (%) DK	Mean (SD)					Factors & loadings	
				Never smoker	Ex-smoker	Current smoker	Nondaily smoker	Daily smoker	Non-smoker	Current smoker
Descriptive interpersonal norms towards smoking										
Think of the five people you feel most close to. These could be your partner, family members, friends, colleagues or acquaintances. Thinking of these FIVE people, how many of them, if any, are tobacco cigarette smokers?ᵞ *(Higher values indicate more smoking acquaintances)*	STS	**All*****	20 (1.2)	1.10 (1.3)	1.09 (1.4)	2.44 (1.6)			PC1 0.57	Weak loading
	ASH	**All*****	301 (2.5)	0.52 (0.9)	0.83 (1.1)		1.54 (1.4)	2.08 (1.5)	PC1 0.60	PC1 0.64
Descriptive societal norms towards smoking										
Do you think that smoking tobacco cigarettes is… common-uncommon *(Higher values indicate more common)*	STS	All ns	44 (2.6)	3.71 (1.0)	3.47 (1.0)	3.69 (0.9)			PC3 0.79	PC3 0.85
	ASH	**Daily vs. never***** **Ex vs. daily**** Nondaily vs daily ns	367 (3.0)	3.81 (0.9)	3.70 (0.9)		3.61 (0.9)	3.65 (0.9)	PC3 0.86	PC3 0.82
Injunctive interpersonal norms towards smoking										
How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes? *(Higher values indicate stronger approval)*										
Your immediate family	STS	**All*****	25 (1.5)	1.72 (0.9)	1.73 (0.8)	2.58 (0.9)			PC1 0.82	PC1 0.87
	ASH	**All*****	275 (2.3)	1.43 (0.7)	1.66 (0.9)		2.22 (0.9)	2.46 (0.9)	PC1 0.84	PC1 0.80
Your close friends	STS	**All*****	31 (1.9)	1.99 (0.9)	2.11 (0.9)	3.03 (0.7)			PC1 0.75	PC1 0.80
	ASH	**All*****	396 (3.4)	1.82 (0.9)	2.09 (0.9)		2.76 (0.8)	2.93 (0.7)	PC1 0.72	PC1 0.78
Your partner/spouseᵞ	STS	**All*****	30 (2.1)	1.73 (0.9)	1.74 (0.9)	2.73 (1.0)			PC1 0.83	PC1 0.88
	ASH	**All*****	197 (1.9)	1.43 (0.8)	1.69 (0.9)		2.42 (1.0)	2.78 (1.0)	PC1 0.82	PC1 0.68
Injunctive societal norms towards smoking										
In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes? *(Higher values indicate stronger approval)*	STS	**All*****	51 (3.1)	2.20 (0.8)	2.20 (0.7)	2.55 (0.8)			PC4 0.68	PC4 0.61
	ASH	(All*** except ex vs daily*)	388 (3.2)	2.00 (0.8)	2.08 (0.8)		2.41 (0.9)	2.46 (0.9)	PC4 -0.85	PC4 0.78
I feel more uncomfortable smoking tobacco cigarettes in public these days. (smokers only)ᵞᵞ *(Higher values indicate stronger agreement)*	STS	N/A	1 (0.3)	N/A	N/A	N/A			N/A	PC4 0.79
	ASH	**All*****	52 (3.1)	N/A	N/A		3.37 (1.2)	3.07 (1.3)	N/A	PC5 0.78
Personal attitudes towards smoking										
Please imagine that you need to find a new lodger or housemate. Would you…? *(Higher values indicate stronger preference of smoker)*	STS	**All*****	36 (2.2)	1.52 (0.9)	1.58 (0.8)	2.75 (0.8)			PC1 0.56	PC5 0.63
	ASH	**All*****	327 (2.7)	1.31 (0.6)	1.50 (0.7)		2.33 (0.8)	2.82 (0.8)	PC1 0.56	PC5 0.46

Continued below…

Table 5.2. Adult measures included in pilot testing - final selected adult norms measures selected for tool are highlighted (significant relations are in **bold**).

Measure	Survey	Related to smoking status?	# (%) DK	Mean (SD)					Factors & loadings	
				Never smoker	Ex-smoker	Current smoker	Nondaily smoker	Daily smoker	Non-smoker	Current smoker
Descriptive societal norms towards nicotine										
Do you think that the use of electronic cigarettes or vaping devices is… common-uncommon *(Higher values indicate more common)*	STS	All ns	81 (4.9)	3.71 (0.9)	3.74 (0.9)	3.85 (0.9)			PC3 0.77	PC3 0.82
	ASH	**Never & ex vs. daily*** Nondaily vs. daily ns	483 (4.0)	3.60 (0.9)	3.65 (0.9)		3.63 (0.9)	3.58 (0.9)	PC3 0.85	PC3 0.84
Injunctive societal norms towards nicotine										
In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices? *(Higher values indicate stronger approval)*	STS	**Never vs. current (p=.003)** Ex vs. current ns	113 (6.8)	2.93 (0.9)	2.99 (0.8)	3.18 (0.8)			PC4 0.85	PC4 0.55
	ASH	**Never & ex vs. daily*** Nondaily vs daily ns	723 (5.9)	2.65 (0.9)	2.74 (0.8)		2.91 (0.7)	2.94 (0.8)	PC4 -0.81	PC4 0.87
Personal attitudes towards nicotine										
In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give you a boost, like drinking caffeine in coffee. *(Higher values indicate stronger agreement)*	STS	**Never vs. current**** Ex vs. current ns	68 (4.1)	3.16 (1.1)	3.37 (1.1)	3.58 (1.1)			PC2 0.84	PC2 0.91
	ASH	**Never & ex vs. daily*** Nondaily vs. daily ns	818 (6.7)	2.58 (1.2)	2.88 (1.2)		3.45 (1.1)	3.55 (1.1)	PC2 0.75	PC2 0.84
In my opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) if they are trying to quit smoking. *(Higher values indicate stronger agreement)*	STS	All ns	57 (3.4)	3.75 (1.0)	3.91 (1.0)	3.94 (1.0)			PC2 0.84	PC2 0.85
	ASH	**Never vs. daily*** Ex & nondaily vs. daily ns	608 (5.0)	3.76 (1.0)	3.89 (1.0)		4.10 (0.9)	4.08 (0.9)	PC2 0.85	PC2 0.85
Personal attitudes towards the tobacco industry										
I would like to see tobacco companies go out of business. *(Higher values indicate stronger agreement)*	STS	**All***	63 (3.8)	3.39 (1.2)	3.03 (1.2)	2.38 (1.2)			Weak loading	PC5 0.79
	ASH	**All***	571 (4.7)	3.79 (1.1)	3.46 (1.2)		2.94 (1.3)	2.37 (1.2)	Weak loading	PC5 0.75

[Y]Adapted from ITC Four Country and ITC Netherlands [YY]Adapted from ITC Netherlands. PC=Principal Component. DK=don't know. ***p≤.001, **p<.01, *p<.05.

5.4 Summary of adult pilot tool

Norms towards smoking

There were five possible measure in this category (one descriptive interpersonal norm, one descriptive societal norm, one injunctive interpersonal and two injunctive societal norms). The descriptive interpersonal norm and the injunctive interpersonal norm measures were both consistently related to smoking status and were selected. The descriptive societal norm measure was not selected as it was not consistently related to smoking status. Of the two injunctive societal norms, only one (the same measure as used in youth (people in general approve) was selected over the discomfort smoking in public measure which could only be asked of smokers.

Personal attitudes toward smoking

There was one possible measure in this category. The measure about taking on a lodger or housemate who smoked was consistently associated with smoking status and was selected.

Norms towards nicotine

There were two possible measures (a descriptive and an injunctive societal norm) in this category. Whilst most of the comparisons were significant, these measures were not shortlisted because the similar ones for youth were not predictive and the measures focused on electronic cigarettes specifically, rather than nicotine more generally.

Personal attitudes towards nicotine

There were two possible measures in this category. The measure about using nicotine in non-tobacco forms to give a boost was chosen as it was related to smoking status in some of the comparisons across both STS and ASH and was selected for the youth measure.

Personal attitudes towards the tobacco industry

There was only one measure in this category 'I would like to see tobacco companies go out of business'. This was shown to be related to smoking status and was therefore selected.

5.5   Final selected tools

5.5.1   Overview of findings

Seven measures were shortlisted for youth; six measures for adults. Three measures were the same across both tools, two were similar.

Where appropriate, the phrases 'in your opinion' and 'in my opinion' were made consistent to read 'in your opinion'. These measures are shown in Table 5.3 (youth) and 5.4 (adult) with the common measures across the two tools represented with *. In addition to norms measures, personal attitudes towards smoking, nicotine use and the tobacco industry were included. All measures shortlisted were related to smoking status

5.5.2   Application of tools

As the purpose of the proposed tools is primarily for monitoring, their application is strongly advised to be in consistent form: using exact measure wording, response options and format, each of which is reported in Table 5.3 (youth) and 5.4 (adult). Regarding both the youth and adult injunctive interpersonal norms measures, discussions were held with YouGov and concluded that these can also be presented in a grid format if preferred. As we did not test any effect of measure order as part of this report, we cannot advise on this; however measure order was never intended to be fixed, and will depend on the format of the survey these measures are incorporated within. For example the smoking norms measures may want to be included alongside other measures relating to smoking status and other smoking-related perceptions and cognitions, whilst the nicotine and tobacco industry norms measures may want to be included alongside other measures relating to electronic cigarettes and nicotine products, and industry/corporate responsibility measures, respectively.

5.5.3   Overall strengths and limitations

The pilot testing results were generally very consistent between the measures for adults and youth. With the two adult samples, measures were prioritised if they were related to smoking and to a lesser extent, whether they were consistent across the different surveys, even though the surveys had different sample sizes and modes of delivery.

The research presented spans a number of different stages which were carried out within a period of 12 months. Given the time frame, it was not possible to carry out a full systematic review of the smoking norms (although full systematic reviews of the nicotine and tobacco industry norms were carried out) nor do extensive cognitive or pilot testing. Nevertheless, there was remarkable consistency in the issues raised in the cognitive testing allowing for modifications to be made and explored further during the testing and hence all measures selected for the final tool were cognitively tested to some extent. Overall given the different types of testing utilised in this project, we believe that the measures we selected are both reliable and valid.

5.5.4   Overall conclusions

We have developed two tools for assessing norms and attitudes towards smoking, nicotine use and the tobacco industry. Seven measures were shortlisted for youth and six for adults, with three measures common to both tools. The individual measures in the tools should not be used in isolation. In the introductory chapter we proposed a model by which norms could change and

influence smoking. This model involved several pathways and hence having measures about smoking, nicotine use and the tobacco industry together will provide a more comprehensive picture about any shift in attitudes and beliefs concerning smoking, nicotine and the tobacco industry.

The database of measures of norms towards smoking generated through the desk reviews and the review of surveys provides a comprehensive picture of how norms have been measured over the last 25 years and should be further interrogated. Future research should also test the predictive validity of the measures in the two tools cohort surveys and test the measures for other types of validity and reliability.

5.5.5   Dissemination strategy and future research

This report will be published on the PHRC website. A PhD studentship has been secured for the research assistant (KE) who worked on this project to complete a systematic review of the smoking norms and do further analysis and testing of the selected measures. We will seek feedback from the UK Centre for Tobacco & Alcohol Studies Smokers' Panel (http://ukctas.net/public-engagement.html) in early 2017. Some shortlisted measures have been and will be placed in other national and international surveys and we will endeavour to test some measures in cohorts where feasible. The individual chapters of this report will therefore be updated, where appropriate, and we will seek to publish them in peer-reviewed academic papers. In addition to the shortlisted measures, we will produce a longlist of the most promising measures we identified across the other two stages. We invite researchers to test both the shortlisted and longlisted measures where resources permit. We will post both of these on our website and on the Open Science Framework (osf.io/mz4cx) with a user guide and invite researchers to inform us when the measures are utilised so that we can continue to update our tool and share learning and data on norms contemporaneously. Whilst we have therefore recommended a shortlist of measures which could be used, the research should be viewed as dynamic and ongoing and we will feedback further findings to the Department of Health and other stakeholders as the data are collected and analysed.

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Table 5.3. Final youth norms measures. * = overlap with adult measures

Descriptive interpersonal norms towards smoking

Please think of the three friends you spend most time with. How many of them smoke tobacco cigarettes on a regular basis?
- 0 (none of them)
- 1
- 2
- 3(all of them)
- Don't know
- Don't want to say

Descriptive societal norms towards smoking

Out of every 10 people your age, on average how many do you think smoke tobacco cigarettes on a regular basis?
- 0 (none of them)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (all of them)
- Don't know

Injunctive interpersonal norms towards smoking

(Please imagine that you smoke tobacco cigarettes). How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes?
(a) Your parents
(b) Your siblings,
(c) Your close friends.
- Strongly disapprove
- Disapprove
- Neither approve nor disapprove
- Approve
- Strongly approve
- Don't know

Injunctive societal norms towards smoking

*In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes?
- Strongly disapprove
- Disapprove
- Neither approve nor disapprove
- Approve
- Strongly approve
- Don't know

Personal attitudes towards smoking

In your opinion, smoking tobacco cigarettes makes people your age look cool
- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Don't know

Continued below…

Table 5.3. Final youth norms measures. * = overlap with adult measures

*In your opinion, do people in general approve or disapprove of people using electronic cigarettes or vaping devices?
- Strongly disapprove
- Disapprove
- Neither approve nor disapprove
- Approve
- Strongly approve
- Don't know

Personal attitudes towards nicotine

*In your opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give them a boost, like drinking caffeine in coffee.
- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Don't know

Personal attitudes towards the tobacco industry

*To what extent do you agree or disagree with the following statement: I would like to see tobacco companies go out of business
- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Don't know

Table 5.4. Final adult norms measures. * = overlap with youth measures

Descriptive interpersonal norms towards smoking

Think of the five people you feel most close to. These could be your partner, family members, friends, colleagues or acquaintances. Thinking of these FIVE people, how many of them, if any, are tobacco cigarette smokers?
- 0 (none of them)
- 1
- 2
- 3
- 4
- 5(all of them)
- Don't know
- Don't want to say

Injunctive interpersonal norms towards smoking

(Please imagine that you smoke tobacco cigarettes). How do (you think) each of the following people (would) feel about you smoking tobacco cigarettes?
- (a) Your immediate family
- (b) Your close friends
- (c) Your partner/spouse.
  - Strongly disapprove
  - Disapprove
  - Neither approve nor disapprove
  - Approve
  - Strongly approve
  - Don't know

Injunctive societal norms towards smoking

*In your opinion, do people in general approve or disapprove of people smoking tobacco cigarettes?
- Strongly disapprove
- Disapprove
- Neither approve nor disapprove
- Approve
- Strongly approve
- Don't know

Personal attitudes towards smoking

Please imagine that you need to find a new lodger or housemate. Would you…?
- Only live with a non-smoker
- Prefer a non-smoker but consider a smoker
- Have no preference between smokers and non-smokers
- Prefer a smoker but consider a non-smoker
- Only live with a smoker
- Don't know

Personal attitudes towards nicotine

*In your opinion, it is OK for people to use nicotine in non-tobacco forms (e.g. by using e-cigarettes or nicotine gum) to give them a boost, like drinking caffeine in coffee
- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Don't know

Continued below…

Table 5.4. Final adult norms measures. * = overlap with youth measures

Personal attitudes towards the tobacco industry
*To what extent do you agree or disagree with the following statement: I would like to see tobacco companies go out of business •   Strongly disagree •   Disagree •   Neither agree nor disagree •   Agree •   Strongly agree •   Don't know