Primary Health Care Research & Development

cambridge.org/phc

Tobacco and electronic cigarette products: awareness, cessation attitudes, and behaviours among general practitioners

Faraz Mughal[1,2], Ahmed Rashid[3] and Mohammed Jawad[4]

[1]GP & Honorary Research Fellow, Unit of Academic Primary Care, Warwick Medical School, University of Warwick, Coventry, UK, [2]NIHR In-Practice Fellow, Research Institute for Primary Care and Health Sciences, Keele University, Staffordshire, UK, [3]UCL Medical School, Royal Free Hospital, Hampstead, London, UK and [4]Public Health Policy Evaluation Unit, Imperial College London, Hammersmith, UK

Research

Cite this article: Mughal F, Rashid A, Jawad M. (2018) Tobacco and electronic cigarette products: awareness, cessation attitudes, and behaviours among general practitioners. *Primary Health Care Research & Development* **19**: 605–609. doi: 10.1017/S1463423618000166

Accepted: 28 May 2017
Revised: 30 January 2018
Accepted: 13 February 2018
First published online: 8 June 2018

Key words:
electronic cigarette; general practice; general practitioner; smokeless tobacco; waterpipe tobacco smoking

Author for correspondence:
Faraz Mughal, NIHR In-Practice Fellow, Research Institute for Primary Care and Health Sciences, Keele University, Staffordshire ST5 5BG, UK. E-mail: farazm@doctors.org.uk

Abstract

Background: Little is known around how general practitioners (GP) approach tobacco products beyond traditional cigarettes. *Aim:* To examine GP perceptions of tobacco and electronic cigarette (EC) products, and their attitudes and behaviours towards product cessation. *Method:* A 13-item self-completed anonymous questionnaire measured awareness of waterpipe tobacco smoking (WTS) and smokeless tobacco (ST). Cessation advice provision, referral to cessation services, and the harm perception of these products were asked using five-point Likert scales that were dichotomised on analysis. Correlates of cessation advice were analysed using regression models. *Findings:* We analysed 312 responses, of whom 63% were aware of WTS and between 5–32% were aware of ST products. WTS and ST were considered less harmful than cigarettes by 82 and 68% of GPs, respectively. WTS, ST, and EC users were less advised ($P < 0.001$) and referred ($P < 0.001$) to cessation services compared to cigarette users. Ethnic minority and senior GPs were more likely to provide cessation advice for WTS and ST users compared to younger white GPs. GPs who were recent tobacco users were less likely to give cessation advice to cigarette users (adjusted odds ratios 0.17, 95% confidence interval 0.03–0.99, $P < 0.049$). *Conclusions (implications for practice and research):* GPs had lower harm perception, gave less cessation advice, and made less referrals for WTS and ST users compared to cigarettes. Our findings highlight the need for targeted tobacco education in general practice. More research is needed to explore GP perceptions in depth as well as patient perspectives.

Background

General practitioners (GPs) have long held a role in cigarette cessation by providing advice and treatment to their patients (Zwar and Richmond, 2006). A patient encounter offers the GP an opportunity to record cigarette smoking status and to provide brief interventions. The National Institute for Health and Care Excellence (NICE, 2006) recommend that GPs provide appropriate opportunistic advice on cigarette cessation, assess a patient's commitment to quit, offer nicotine replacement therapy (NRT) or behavioural support, and provide self-help material or referral to National Health Service (NHS) Stop Smoking Services (SSS). Patients who receive behavioural support from NHS SSS are three times more likely to quit cigarettes compared with being seen at their GP practice (Dobbie *et al.*, 2015). Simple primary care measures such as NRT vouchers could encourage supported quit attempts in cigarette smokers (Watson *et al.*, 2010).

Novel tobacco and non-tobacco products are becoming increasingly common in Western settings; in the United Kingdom, it is estimated that 12% of the adult population have tried waterpipe tobacco smoking (WTS), 1% are smokeless tobacco (ST) users, and 21% of smokers currently use electronic cigarettes (EC) (Grant *et al.*, 2014; Beard *et al.*, 2016; Leon *et al.*, 2016).

WTS also known as shisha, hookah, and narghile, involves smoking flavoured tobacco, the smoke of which is bubbled through water prior to inhalation (Kotecha *et al.*, 2016). Its harms are well documented; lung and cardiovascular disease, and carbon monoxide poisoning to list some (Maziak, 2015). There are low levels of WTS enquiry in UK general practice settings (Jawad *et al.*, 2014; Mughal *et al.*, 2014).

ST is the oral consumption of tobacco. It is commonly chewed and mixed with other ingredients such as areca nut, betal leaf, and lime, with a varying spectrum of harm ('Snus' in Norway versus 'paan' in India) (Critchley and Unal, 2003). ST is associated with oral cancers, dental disease, and cardiovascular disease (Critchley and Unal, 2003). NICE (2012) encourages GPs to ask about ST, inform patients of the harms, refer to specialist services if appropriate, and record outcomes in patient notes.

EC allow users to consume nicotine without the toxins in tobacco smoke (Britton, 2016). The role of EC in smoking cessation has been rigorously debated. Recent research suggests a

© Cambridge University Press 2018.

CAMBRIDGE UNIVERSITY PRESS

significant association between EC use and successful quitting and a 2016 Cochrane review highlighted that EC can aid smokers to stop in the long term, however, the long-term safety of EC remains unknown (Beard *et al*., 2016; Hartmann-Boyce *et al*., 2016). The Royal College of General Practitioners (RCGP) recognise EC as safer than conventional cigarettes and encourage GPs to recommend EC to patients if other cessation methods have failed in conjunction with support from SSS (Roope, 2016).

While WTS and ST are associated with adverse, cigarette-like health outcomes (Siddiqi *et al*., 2015; Waziry *et al*., 2016), EC are recommended as an appropriate cessation aid (Roope, 2016). Yet, decisions around tobacco cessation can be confusing, with some evidence showing that users may consider WTS an appropriate cessation aid to cigarettes (Asfar *et al*., 2008), and EC an inappropriate cessation aid to cigarettes (Rooke *et al*., 2016). A paucity of research explores the views and actions of GPs and training GPs in the United Kingdom towards tobacco cessation beyond traditional cigarettes, with little focus on WTS, ST, and EC which are rising in prevalence (Grant *et al*., 2014; Jawad *et al*., 2014; Beard *et al*., 2016; Leon *et al*., 2016). This study aimed to examine GP and GP trainee perceptions of tobacco and EC products and their attitudes and behaviours towards cessation.

Methods

Design, sample, and setting

A cross-sectional study of GPs and GP trainees in England was undertaken between January and May 2016. An electronic anonymous self-administered questionnaire designed from the literature was developed and piloted amongst a representative sample of five GPs in the West Midlands for relevance and acceptability. Questionnaire items were reworded and reordered following pilot. The questionnaire was disseminated nationally through RCGP e-bulletins, Solihull and Birmingham Cross-City Clinical Commissioning Group (CCGs) newsletters, Vocational Training Schemes, Health Education England (HEE) distribution lists, and on authors' personal Twitter accounts.

Questionnaire and measures

The questionnaire consisted of 13 items. Six items gathered sociodemographic characteristics such as GP status (GP/GP trainee), years in clinical practice (five year increments from 0 to 40 years), region of clinical practice (17 UK deanery regions), sex, ethnic group (17 UK census ethnicities), and past-30-day tobacco use (Yes/No).

All remaining questions used five-point Likert scales. Three items enquired about awareness of tobacco products and consultation barriers. One enquired about the awareness of WTS and five ST products (paan, ghutka, betal quid, khaini, and zarda) with answers ranging from 'Not at all aware' to 'Extremely aware'; and another enquired about four barriers (lack of knowledge, confidence, time, and information) to discussing WTS during a consultation with answers ranging from 'Strongly disagree' to 'Strongly agree'.

Two items enquired about GP attitudes. One enquired about the harm perception of four products (cigarettes, WTS, ST, and EC) with answers ranging from 'Very harmless' to 'Very harmful', and an additional 'I don't know' option; and another enquired about the suitability of five cessation aids (NRT, varenicline/bupropion, WTS, ST, and EC) for a patient finding it difficult to quit cigarettes.

Finally, two items enquired about GP behaviour. One enquired about whether users of four products (cigarettes, WTS, ST, and EC) would be given cessation advice during a consultation, with answers ranging from 'Never' to 'Always'; and the other enquired about whether users of these same four products would be routinely referred to cessation services (NHS SSS or in-practice smoking clinics), with answers ranging from 'Strongly disagree' to 'Strongly agree'.

Statistical analysis

Prior to analysis we removed observations from GPs based in Scotland ($n = 14$) and Wales ($n = 6$) (due to the low response), and one observation from a GP practising abroad. This left 312 complete observations from England for analysis. In 2014, there were 59 011 registered GPs and 10 795 GP trainees (General Medical Council, 2015). Due to small numbers we collapsed the variable 'region' into seven groups (London, West Midlands, East of England, Thames Valley, South West [Severn], East Midlands, and Other), the variable 'years in clinical practice' into three groups (less than five, five to ten, and more than 10), and the variable 'ethnicity' into four groups (White, South Asian, Arab, and Other). To simplify analysis, we dichotomised all response options to questions involving a Likert scale. The dichotomisation of Likert scales was based on Cronbach's α scores, indicating the best dichotomisation permutation based on internal consistency.

We reported the frequency and percentages of all categorical data variables and compared between-product harm perception and GP cessation behaviour using χ^2 tests (against cigarettes only). We then constructed four logistic regression models (one for each of cigarettes, WTS, ST, and EC) to determine the correlates of giving cessation advice in a consultation. The correlates included GP status, sex, region, years of clinical practice, ethnicity, past-30-day tobacco use, and the harm perception towards that product. Correlates were eliminated in a backward stepwise approach set at $P < 0.05$, and were presented as adjusted odds ratios with 95% confidence intervals. All P-values were adjusted for multiple comparisons using the false discovery rate method (Benjamini and Hochberg, 1995).

We used Stata 13.0 (StataCorp) for all statistical analyses.

Findings

Sample characteristics

Table 1 shows the sample characteristics. In general, our sample consisted mainly of white (57.3%), female (64.6%), GP trainees with less than five years' in clinical practice. Over half the sample (53.3%) were either from London or the West Midlands. About one in ten respondents (10.7%) were past-30-day tobacco users.

Awareness and consultation barriers

Awareness of WTS was reported by 62.5%. Barriers to discussing WTS in consultations included lack of information (76.3%), knowledge (62.8%), confidence (61.4%), and time (56.1%). Awareness of ST was lower: paan (32.0%), betel nut (23.5%), ghutka (10.4%), zarda (5.8%), and khaini (5.2%).

Attitudes: harm perception and cessation

Nearly all respondents reported cigarettes as harmful to health (96.8%), and this incrementally and significantly decreased to 82.0% for WTS, 68.3% for ST, and 35.0% for EC ($P < 0.001$ for χ^2 comparisons for each product against cigarettes).

Table 1. Sample characteristics ($n = 312$)[a]

Characteristics	% (*n*)
GP status	
GP trainee	61.8 (189)
GP	38.2 (117)
Sex	
Female	64.6 (201)
Male	35.4 (110)
Region	
London	29.0 (88)
West Midlands	24.3 (74)
East of England	12.8 (39)
Thames Valley	11.5 (35)
South West (Severn)	5.6 (17)
East Midlands	4.9 (15)
Other	11.8 (36)
Years in clinical practice	
Less than five	43.5 (134)
Five to ten	27.3 (84)
More than 10	29.2 (90)
Ethnicity	
White	57.3 (177)
South Asian	31.1 (96)
Arab	3.6 (11)
Other	8.1 (25)
Past-30-day tobacco use	
No	89.3 (275)
Yes	10.7 (33)

[a]Variables may not total 312 due to missing data.

While 95.8% endorsed NRT as a cigarette cessation aid, this incrementally decreased to 71.4% for varenicline/bupropion, 33.8% for EC, 2.9% for ST, and 2.6% for WTS. Less than 2% (1.6%) endorsed none of these products as cigarette cessation aids.

Behaviour: cessation advice and referral

Nearly all respondents reported giving cessation advice to cigarette users during consultations (98.1%), and this incrementally and significantly declined to 33.7% for EC, 16.6% for WTS, and 11.8% for ST ($P < 0.001$ for χ^2 comparisons for each product against cigarettes).

Over half (59.6%) reported routinely referring cigarette users to cessation services, and again this incrementally and significantly decreased to 9.7% for WTS, 5.2% for ST, and 4.9% for EC ($P < 0.001$ for χ^2 comparisons for each product against cigarettes).

Table 2. Odds ratios of giving cessation advice by product and clinician characteristics

Product users	Characteristics of clinician	Adjusted odds ratio (95% CI)	*P*-value
Cigarette	Past-30-day tobacco use	0.17 (0.03–0.99)	0.049
WTS	GPs	2.57 (1.31–5.04)	0.006
	South Asian	3.33 (1.67–6.65)	0.037
	Arab	5.18 (1.10–24.39)	0.001
ST	>10 years clinical work	2.87 (1.27–6.48)	0.011
	South Asian	7.68 (3.19–18.45)	0.017
	Arab	8.87 (1.47–53.51)	<0.001
EC	GPs	1.81 (1.08–3.05)	0.026
	Perceive EC as harmful	1.96 (1.16–3.23)	0.012
	South Asian	0.44 (0.24–0.80)	0.007

CI = confidence interval; WTS = waterpipe tobacco smoking; ST = smokeless tobacco; EC = electronic cigarette.

Table 2 shows correlates for clinicians giving cessation advice for four products by clinician characteristic. The odds of giving cessation advice to cigarette users were lower in past-30-day tobacco users (versus non-users). The odds of giving cessation advice to WTS users were higher in GPs (versus GP trainees) and those of South Asian (versus white) or Arab ethnicity (versus white). The odds of giving cessation advice to ST users were higher in GPs with over 10 years' clinical practice (versus less than five years), and those of South Asian (versus white) and Arab ethnicity (versus white). The odds of giving cessation advice to EC users were higher in GPs (versus GP trainees), those who considered EC harmful to health (versus not harmful), and the odds were lower in those of South Asian ethnicity (versus white).

Discussion

Summary of findings

This cross-sectional study among 312 GP doctors in England showed that around two-thirds were aware of WTS but there were substantial barriers to discussing WTS in consultations including a lack of; information, knowledge, confidence, and time. ST awareness was generally low, although a third were aware of paan and a quarter of betal nut. Worryingly, GPs had lower harm perception, gave less cessation advice, and made less referrals for WTS and ST users compared to cigarettes. About a third thought EC were at least as harmful as cigarettes and only a third endorsed EC as an appropriate cessation aid. Variations in GP characteristics associated with cessation advice for each product included GPs of ethnic minorities and more senior GPs having higher odds of providing cessation advice for WTS and ST users.

WTS and ST are primarily used in patients from Arab and/or South Asian communities which can explain the overall low awareness, specifically for GPs who may not work within these communities (Siddiqi *et al.*, 2013). The attitudes and behaviours of GPs towards WTS, ST, and EC could be explained by a lack of knowledge and confidence on these products (Jawad *et al.*, 2014; Hammal *et al.*, 2016). Ethnic minority GPs may be influenced by

cultural experiences with ST and WTS and the experience gained through working more clinical years could explain the greater odds of providing cessation advice.

Strengths and limitations

To our knowledge this is the first study to measure GPs' awareness, attitudes, and behaviours towards cessation across a multitude of tobacco and non-tobacco products. This gives us important insights to understand how and why certain GPs exhibit attitudes and behaviours to particular products, and provides a platform to explore these further in studies. Including GP trainees allows us to identify gaps in training and education and explore an inter-generational perspective towards cessation in primary care settings.

The main limitation is that this convenience sample is unlikely to be nationally representative and thus generalisable to the England GP population. Our recruitment methods, however, reached several regions in England aided by social media. Another limitation is social desirability bias, although we were unable to account for this in our study design. Finally, the questionnaire was not statistically validated and it is unclear whether measurement biases are present, however, we tried to mitigate this by pre-piloting our survey which helped improve its face and content validity.

Comparison with existing literature

In this study, harm perception towards WTS among GPs was better than that identified previously by a study among GPs in England, but the provision of cessation advice was lower (Jawad *et al*., 2014). This may be due to the non-standardisation of questions used to assess perceptions and behaviours to WTS, in addition to variation in sampling methods.

Comparing our findings to international ST studies is challenging due to the range of products. For example, Snus which is common in Sweden and Norway, is generally considered a less harmful form of tobacco use than south Asian ST (Ramström *et al*., 2016). Norwegian GPs who feel ST is less harmful than cigarette smoking recommend ST as a smoking cessation aid (Lund and Scheffels, 2012). In India, where ST products are more likely to reflect those asked for in our survey, only a minority of physicians were shown to document a ST history (Panda *et al*., 2013).

More generally, two-thirds of GPs in Turkey do not feel discussing smoking cessation is effective and there are varied smoking cessation practices amongst GPs across Europe (Helgason and Lund, 2002; Barengo *et al*., 2005; Gokirmak *et al*., 2010). Discussions are felt to be too time consuming and ineffective (Vogt *et al*., 2005). GPs want to protect the doctor–patient relationship and prefer to offer smoking cessation advice where patient presentations are smoking related or when the relationship between patient and doctor is felt to be robust (Coleman *et al*., 2000). We identified that nearly all (98%) provide cessation advice to cigarette users.

Since the inception of the UK NHS smoking cessation strategy the proportion of GPs deeming NRT to be a suitable cessation aid has risen from 77 to 96% identified in this study (McEwen *et al*., 2001). McEwen *et al*. (2005) identified in 2005 that 70% of GPs 'regularly refer' cigarette smokers to smoking cessation services in comparison to 60% in this study. Some primary care practitioners in America recommend the use of EC in cigarette cessation which interestingly mirrors the finding of a third of our respondents supporting the use of EC in cigarette cessation (Bascombe *et al*., 2016).

GPs who use cigarettes give less tobacco cessation advice to their patients than GPs who do not smoke (53 versus 69%) (Pretti *et al*., 2006). This resonates with our finding amongst GPs who have used tobacco in the past 30 days.

Conclusions (implications for research and practice)

We found low levels of cessation advice and referrals to cessation services, with substantial inter-product variation. A greater emphasis on tobacco cessation beyond cigarettes is needed in primary care.

Qualitative work exploring GP attitudes in depth would be important and may generate new hypotheses to explain the variations observed in this survey. Analysing general practice records for tobacco use status and cessation patterns would allow for longitudinal analysis, offering an insight into behaviours over time. This study has focused on GPs and further research is needed to understand the perspectives of the patient in general practice and other primary care workers.

To address the rising tide of WTS and ST, the harms of these products need greater visibility in general practice (Jawad *et al*., 2016). An educational tool and patient decision aid for general practice can be made that can assist staff working in tobacco cessation to build knowledge and confidence enabling more constructive discussions with patients. The low awareness and perception of harm of ST is concerning, with the low awareness likely to be related to the perception of harm and cessation behaviours. We appreciate there are many guidelines for a GP to be familiar with in conjunction with workload pressures, however, we do feel especially amongst South Asian patients that ST should be enquired about (NICE, 2012; Torjesen, 2012).

NHS SSS provide GPs with an opportunity to signpost patients for cessation treatment and we encourage GPs to utilise their local services for patients who use WTS, ST, and EC. Practices should revisit their new patient registration template to ensure tobacco status is asked and recorded. This provides an opportunity to provide cessation management. The RCGP GP Curriculum must include the growing use of different tobacco forms and EC and emphasise the need for training GPs to be competent in this area. It should not be overlooked that GPs may be tobacco users also and that support must be accessible, acceptable, and tailored to their needs. More needs to be done to highlight the role EC has in tobacco cessation with an element of caution on the long-term risks.

Acknowledgements. The authors would like to acknowledge Joanne Reeve, Lion Shahab, and Samuel Finnikin for providing comments on an early draft of the survey. The authors would like to thank the RCGP, HEE, Birmingham Cross-City CCG, and Solihull CCG for distributing the questionnaire electronically. The authors would also like to thank all the doctors who completed the questionnaire. F.M. is an NIHR In-Practice Fellow. The views expressed in this paper are those of the author and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care. The Public Health Policy Evaluation Unit at Imperial College London is supported by funding from the NIHR School of Public Health Research.

Financial Support. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Conflicts of Interest. None.

Ethical Standards. Ethical approval was not sought but this research adhered to the ethical standards of the Helsinki Declaration of 1975, as revised in 2008.

References

Asfar T, Weg MV, Maziak W, Hammal F, Eissenberg T and Ward KD (2008) Outcomes and adherence in Syria's first smoking cessation trial. *American Journal of Health Behavior* **32**, 146–156.

Barengo NC, Sandstrom HP, Jormanainen VJ and Myllykangas MT (2005) Attitudes and behaviours in smoking cessation among general practitioners in Finland 2001. *Sozial- Und Praventivmedizin* **50**, 355–360.

Bascombe TMS, Scott KN, Ballard D, Smith SA, Thompson W and Berg CJ (2016) Primary healthcare provider knowledge, beliefs and clinic-based practices regarding alternative tobacco products and marijuana: a qualitative study. *Health Education Research* **31**, 375–383.

Beard E, West R, Michie S and Brown J (2016) Association between electronic cigarette use and changes in quit attempts, success of quit attempts, use of smoking cessation pharmacotherapy, and use of stop smoking services in England: time series analysis of population trends. *British Medical Journal* **13**, 354.

Benjamini Y and Hochberg Y (1995) Controlling the false discovery rate: a practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological)* **57**, 289–300.

Britton J (2016) Electronic cigarettes and smoking cessation in England. *British Medical Journal* **13**, 354.

Coleman T, Murphy E and Cheater F (2000) Factors influencing discussion of smoking between general practitioners and patients who smoke: a qualitative study. *British Journal of General Practice* **50**, 207–210.

Critchley JA and Unal B (2003) Health effects associated with smokeless tobacco: a systematic review. *Thorax* **58**, 435–443.

Dobbie F, Hiscock R, Leonardi-Bee J, Murray S, Shahab L, Aveyard P, Coleman T, McEwen A, McRobbie H, Purves R and Bauld L (2015) Evaluating Long-Term Outcomes of NHS Stop Smoking Services (ELONS): a prospective cohort study. *Health Technology Assessment* **19**, 1–156.

General Medical Council (2015) Chapter one: our data on doctors working in the UK. Retrieved 28 December 2016 from http://www.gmc-uk.org/Chapter_1_SOMEP_2015.pdf_63501394.pdf

Gokirmak M, Ozturk O, Bircan A and Akkaya A (2010) The attitude toward tobacco dependence and barriers to discussing smoking cessation: a survey among Turkish general practitioners. *International Journal of Public Health* **55**, 177–183.

Grant A, Morrison R and Dockrell MJ (2014) Prevalence of waterpipe (Shisha, Narghille, Hookah) use among adults in Great Britain and factors associated with waterpipe use: data from cross-sectional Online Surveys in 2012 and 2013. *Nicotine & Tobacco Research* **16**, 931–938.

Hammal F, Wild TC and Finegan BA (2016) Knowledge about the waterpipe (hookah), a qualitative assessment among community workers in a major urban center in Canada. *Journal of Community Health* **41**, 689–696.

Hartmann-Boyce J, McRobbie H, Bullen C, Begh R, Stead LF and Hajek P (2016) Electronic cigarettes for smoking cessation. *Cochrane Database of Systematic Reviews* **9**, Cd010216.

Helgason AR and Lund KE (2002) General practitioners' perceived barriers to smoking cessation-results from four Nordic countries. *Scandinavian Journal of Public Health* **30**, 141–147.

Jawad M, Choaie E, Brose L, Dogar O, Grant A, Jenkinson E, McEwen A, Millett C and Shahab L (2016) Waterpipe tobacco use in the United Kingdom: a cross-sectional study among university students and stop smoking practitioners. *PLoS One* **11**, e0146799.

Jawad M, Hamilton FL, Millett C, Albeyatti A and Ananthavarathan P (2014) Knowledge and attitudes of waterpipe tobacco smoking among GPs in England. *The British Journal of General Practice* **64**, 222–223.

Kotecha S, Jawad M and Iliffe S (2016) Knowledge, attitudes and beliefs towards waterpipe tobacco smoking and electronic shisha (e-shisha) among young adults in London: a qualitative analysis. *Primary Health Care Research & Development* **17**, 166–174.

Leon ME, Lugo A, Boffetta P, Gilmore A, Ross H, Schuz J, La Vecchia C and Gallus S (2016) Smokeless tobacco use in Sweden and other 17 European countries. *European Journal of Public Health* **26**, 817–821.

Lund I and Scheffels J (2012) Perceptions of the relative harmfulness of Snus among Norwegian general practitioners and their effect on the tendency to recommend snus in smoking cessation. *Nicotine & Tobacco Research* **14**, 169–175.

Maziak W (2015) Rise of waterpipe smoking. *British Medical Journal* **17**, 350.

McEwen A, Akotia N and West R (2001) General practitioners' views on the English national smoking cessation guidelines. *Addiction* **96**, 997–1000.

McEwen A, West R, Owen L and Raw M (2005) General practitioners' views on and referral to NHS smoking cessation services. *Public Health* **119**, 262–268.

Mughal F, Meki A and Kassamali RH (2014) Shisha: is this addressed within smoking cessation in general practice? *British Journal of General Practice* **64**, 173.

National Institute for Health and Care Excellence (NICE) (2006) Smoking: brief interventions and referrals [PH1]. Retrieved 17 December 2016 from https://www.nice.org.uk/guidance/ph1

National Institute for Health and Care Excellence (NICE) (2012) Smokeless tobacco: South Asian communities [PH93]. Retrieved 10 December 2016 from https://www.nice.org.uk/guidance/ph39

Panda R, Persai D, Mathur M and Sarkar BK (2013) Perception and practices of physicians in addressing the smokeless tobacco epidemic: findings from two states in India. *Asian Pacific Journal of Cancer Prevention* **14**, 7237–7241.

Pretti G, Roncarolo F, Bonfanti M, Bettinelli E, Invernizzi G, Ceccarelli M, Carreri V and Tenconi MT (2006) Survey among GP's about their smoking habits, opinions and behaviours in smoking prevention in Lombardy (Northern Italy). *Epidemiologia e Prevenzione* **30**, 343–347.

Ramström L, Borland R and Wikmans T (2016) Patterns of smoking and snus use in Sweden: implications for public health. *International Journal of Environmental Research and Public Health* **13**, 1110.

Rooke C, Cunningham-Burley S and Amos A (2016) Smokers' and ex-smokers' understanding of electronic cigarettes: a qualitative study. *Tobacco Control* **25** (e1), e60–e66.

Roope R (2016) To vape or not to vape? The RCGP position on e-cigarettes. Retrieved 28 December 2016 from http://www.rcgp.org.uk/clinical-and-research/clinical-news/to-vape-or-not-to-vape-the-rcgp-position-on-ecigarettes.aspx

Siddiqi K, Gupta PC, Prasad VM, Croucher R and Sheikh A (2013) Smokeless tobacco use by south Asians. *Lancet Global Health* **1**, e71.

Siddiqi K, Shah S, Abbas SM, Vidyasagaran A, Jawad M, Dogar O and Sheikh A (2015) Global burden of disease due to smokeless tobacco consumption in adults: analysis of data from 113 countries. *BMC Medicine* **13**, 194.

Torjesen I (2012) GPs must try to help patients give up smokeless tobacco products to reduce oral cancer. *British Medical Journal* **345**, e6535.

Vogt F, Hall S and Marteau TM (2005) General practitioners' and family physicians' negative beliefs and attitudes towards discussing smoking cessation with patients: a systematic review. *Addiction* **100**, 1423–1431.

Watson D, Bullen C, Clover M, McRobbie H, Parag V and Walker N (2010) Impact on quit attempts of mailed general practitioner 'brief advice' letters plus nicotine replacement therapy vouchers. *Journal of Primary Health Care* **2**, 4–10.

Waziry R, Jawad M, Ballout RA, Al Akel M and Akl EA (2016) The effects of waterpipe tobacco smoking on health outcomes: an updated systematic review and meta-analysis. *International Journal of Epidemiology* **46**, 32–43.

Zwar NA and Richmond RL (2006) Role of the general practitioner in smoking cessation. *Drug and Alcohol Review* **25**, 21–26.