Smoking attitudes in patients referred to a city - wide urgent ENT head-and-neck cancer service: An exploratory study looking at current smokers

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Abstract

Objectives: Smoking is a risk factor for head and neck cancer (HNC). Referral for suspected HNC can be an opportunity for reassessing smoking behaviour. This study examined attitudes towards smoking in patients referred urgently with suspected HNC.

Methods: 98 smokers were referred urgently for suspected HNC. Patients completed the Fagerstrom Test for Nicotine Dependence (FTND) and the Perceived Risk and Benefits Questionnaire (PRBQ).

Results: *FTND*: Higher education background had a lower dependence score (p = 0.02). Men were more likely to have higher dependence scores (p = 0.02). *PRBQ*: Women scored higher for concerns regarding negative effects of smoking cessation (p = 0.01). Perceived health benefits of smoking cessation were greater in those with higher education (p = 0.03).

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Conclusions: Men are more nicotine dependent. Women are concerned about perceived side-effects of smoking cessation. Patients with a higher education are more receptive to cessation interventions and should be identified early.

Keywords:

Head and neck neoplasms, Smoking, Smoking cessation, Tobacco use disorder

Introduction

Smoking is a risk factor for many forms of head and neck cancer [1,2]. It can be difficult to change perceptions regarding smoking and this presents a barrier to the cessation process. Referral to hospital clinic with suspected cancer can cause a high degree of anxiety[3,4]. Outpatient appointments can represent 'teachable moments'[5–7], where patients may examine their lifestyle and behavioural choices and be more suggestive to changing their habits. This tends to be under-utilised in cancer diagnoses[5,6], and may present an opportunity to develop tools to assess and help patients with smoking cessation.

Willpower is an essential component in the process of smoking cessation[8,9] and the first stage in the change model of overcoming addictions[10]. Although there have been significant advances in medical smoking cessation therapy, evidence suggests that smokers believe willpower is essential and sufficient to quit[8]. A lack of willingness or non-recognition of a behaviour as problematic can lead to lack of engagement with cessation services. This can be referred to as the pre-contemplative stage[10]. The contemplative stage is where individuals consider options for cessation and this may be influenced by significant

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life events[10]. Referral for a suspected cancer can be one such life event and understanding patient attitudes at this stage could be crucial in helping them quit smoking.

A number of tools have been developed to assess patient's attitudes, perceptions and dependence towards smoking, including the Fagerstrom Test for Nicotine Dependence (FTND). The FTND consists of 6 questions with a total score of 0-10, from which patients are categorised using their cumulative score into one of five categories, with an increasing score indicative of greater dependence on nicotine.

Another questionnaire that examines attitudes towards smoking cessation is the 39-item Perceived Risk and Benefits Questionnaire (PRBQ)[11]. The 39 questions are divided into sections assessing perceived risks and benefits of smoking cessation with scores on a 7-point Likert Scale. An average perceived risk and average perceived benefit score for each patient is calculated. A greater perceived risk of negative side effects from quitting suggests lower cessation motivation, whereas greater perceived benefit is positively associated with motivation to quit.

In this study we set out to analyse the perceptions of current smokers referred to the urgent ENT clinic for assessment of a potential head and neck cancer.

Materials and methods

Current smokers referred by primary or secondary care during January to June 2019 with suspected head and neck cancer, were asked to complete the FTND and PBRQ, prior to being seen by medical staff. The PBRQ specifically mentions risk of lung cancer, this was modified after discussion with the developer of the questionnaire to include the phrase

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"throat or lung cancer", but otherwise was used in its original form. Data was anonymously collated and questionnaire scores calculated.

Two-tailed T-tests were used to assess for significant differences in smoking behaviour and scores for FTND and PRBQ between genders. T-tests were also conducted to relate the FTND and PBRQ scores with patient demographics, smoking history and outcomes. Chi squared testing was used to determine significant difference in the categorical variables such as methods used to quit smoking, longest duration of cessation and clinical outcomes.

Research ethics were not required following consultation using the online tool from the NHS health authority and Medical Research council website[12].

Results and analysis

There were 98 patients included, 55(56.1%) were females. Patient demographics displayed in Table I. The average age was 50.8 years old (median 53, SD 14.46, range 21-82). The mean reported years of smoking was 28.8 (median 30, range 3-61). 15(15%) reported current or previous cannabis use. 15(15.3%) patients had cancer (five laryngeal, five pharyngeal, one thyroid and 4 lymphomas). Men were significantly more likely to have a malignancy than women ($p = 0.01$). On average participants had made 3 previous attempts to stop smoking with willpower being overall the most popular method. There was no significant difference in the methods used to stop smoking between males and. Out of seven patients in this study that had never previously attempted to quit, six were male. There was no significant association between gender and the longest length of smoking cessation ($p = 0.88$).

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Table I: Population characteristics

	Overall (n=98)	Female (n=55)	Male (n=43)	P value
Mean Age (year)	50.84	50.44	51.35	0.76
Mean Years smoked	28.82	28.70	28.98	0.92
Higher education attained	45	27	18	0.43
Previous or current Cannabis smokers	15	7	8	0.33
Previous methods to stop				0.87
Will Power	44	27	17	
Nicotine replacement therapy	36	21	15	
Medication	22	14	8	
eCigarette or vape	39	21	18	
Final Diagnosis				0.01
Benign	83	51	32	

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Malignancy	15	4	11	

The FTND

The average FTND total score was 3.5 (SD 2.05, range 0-9) with no significant difference between males and females (p = 0.53).

Patients with a higher education background had a lower mean FTND score (p = 0.02). There was no significant association with cannabis use (p = 0.14) or alcohol intake (p = 0.76). Pearson's correlation had no association between FTND score and age (r = 0.19, p = 0.97) or years smoked (r = 0.34, p = 1.00).

There was no significant difference in the average FTND score between individuals with malignant and benign outcomes (p = 0.94), this finding held for subgroup analysis by gender (Females p = 0.75, Males p = 0.72). There was no significant difference in mean FTND scores between males and females with malignant outcomes.

The PRBQ

Women had a higher overall total perceived risk (4.3 vs 3.9) and benefit (5.1 vs 5.0) scores but there were no significant differences between the genders (p = 0.12 and 0.75 respectively). Women had a significantly higher score for concerns regarding risks of negative effects of smoking cessation compared to men (p = 0.02). The PRBQ scores are displayed in Table II.

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Table II: PRBQ averages for male and female gender

PRBQ table of averages (SD)	Overall	Female	Male	P value for Gender
Perceived Risk of:				
Weight gain	4.30 (1.65)	4.47 (1.73)	4.07 (1.50)	0.23
Negative affect	4.62 (1.74)	5 (1.68)	4.14 (1.71)	*0.02
Poor concentration	3.80 (1.63)	3.93 (1.57)	3.63 (1.68)	0.37
Social ostracism	3.14 (1.81)($**)	3.36 (1.94)	2.86 (1.66)	0.18
Reduced enjoyment	3.82 (1.87)($*)	3.89 (1.88)	3.720 (1.88)	0.66
Increased Craving	4.49 (1.91)	4.65 (1.90)	4.279 (1.91)	0.33
Average total perceived risk score	4.12 (1.35)($*)	4.31 (1.41)	3.883 (1.22)	0.12
Perceived Benefit of:				
Health	5.02 (1.93)(&*)($*)	5.25 (1.96)	4.72 (1.88)	0.18
General wellbeing	5.05 (1.91)($**)(£*r)	5.15 (1.91)	4.93 (1.92)	0.58
Self-esteem	4.94 (2.04)	5 (2.08)	4.86 (2.01)	0.74

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Financial	5.23 (2.11)($*)	5.18 (2.12)	5.30 (2.12)	0.78
Physical appeal	4.96 (1.93)	4.95 (1.88)	4.98 (1.99)	0.94
Social approval	5.06 (1.95)	5.05 (1.94)	5.07 (1.96)	0.97
Average total perceived benefit score	5.09 (1.88)($*)	5.15 (1.89)	5.02 (1.88)	0.75

& = significant for higher education, $ = significant for cannabis use, £ = correlation with years smoked, * = $p < 0.05$, ** = $p < 0.01$, r = -0.2214

Patients who had been in higher education perceived greater health benefits from smoking cessation on average (p = 0.03). Participants who had ever smoked cannabis were significantly less likely to perceive risk of social ostracism (p = 0.01), loss of enjoyment (p = 0.02) and overall risk of negative effects (p = 0.03) from smoking cessation. Cannabis smokers also perceived that smoking cessation resulted in greater health benefits (p = 0.02), general well-being (p = 0.01), financial benefit with quitting (p = 0.05) and overall benefits (p = 0.03). Patients who had smoked for a longer duration perceived fewer general well-being benefits of smoking cessation, p = 0.015 (**r = - 0.221)**. There was no correlation between age and any of the PRBQ question categories.

No significant differences were found in any of the question categories between individuals with malignant and benign outcomes, this finding held for subgroup analysis by gender. There was no significant difference in any of the PRBQ question set means between males and females with malignant outcomes.

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Discussion

Main clinical findings

It is encouraging that large proportions of our population have low nicotine dependence, as this has a greater likelihood of quitting smoking successfully[13]. Information about degree of nicotine dependence is useful in identifying patients who might require more support for smoking cessation.

Mean PRBQ scores in our population identified a greater number of perceived benefits of smoking cessation than risks; mean of 5.1 vs 4.1 out of 7 respectively. Studies have shown greater perceived benefit to be positively correlated with pre-treatment motivation to stop smoking with the converse being true for a high perceived risk score in both men and women[11]. Other studies have shown smokers with higher perceived risk score to experience higher levels of craving, withdrawal and depression during short-term abstinence[14]. In our sample population, 30(30.6%) scored maximally on total perceived benefits and 4(4.1%) scored maximally on total perceived risk scores of smoking cessation.

Overall, there were few statistically significant gender-based differences in our sample population, although we have seen evidence of males having a higher overall FTND score[15]. Women were significantly more likely to have a perceived risk of negative effects from smoking cessation using the PRBQ ($p = 0.01$), a finding also seen in the literature[11,16,17].

Participants with higher education were significantly less dependent on nicotine based on the FTND score ($p = 0.02$) and more aware of the health benefits of smoking cessation ($p = 0.03$). Studies have shown general Health Education to be as effective as hypnosis, Cognitive Behavioural Therapy/Behaviour Modification, environmental changes and other methods

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for smoking cessation among those with[18] and without cancer[19–22] cancer. This suggests that increasing health literacy surrounding smoking cessation at our clinics may positively impact nicotine dependence.

Previous or current history of cannabis smoking both reduced the perceived risks and increased the perceived benefits of smoking cessation. A recent study supports lower nicotine dependence in cannabis users[23], another study indicates that cannabis and e-cigarette co-users make more attempts to quit[24]. In the literature different motives have been identified for cannabis use[25,26]. One study found that individuals whose motivation to smoke cannabis was creative expansion, smoked fewer cigarettes per day[27]. Such individuals may be more susceptible to cessation interventions and identifying this subgroup early could be the key to success. Studies show that personalised feedback based approaches are better at sustaining cessation efforts in smokers[28,29] which supports a tailored approach to our patients. There are several studies that show no difference in nicotine dependence between cannabis and non-cannabis users[30–32].

Final diagnosis of malignancy seemed to have little to no impact on smoking perceptions based on the FTND and PRBQ. This would be explained by the fact that patients completed the questionnaires prior to assessment and management at the urgent head and neck clinic. However, future studies should assess changes in smoking perception after patients have received their final diagnosis to determine if it has a significant impact. Previous literature shows that cancer is an under-utilised 'teachable' opportunity for smoking interventions[5,6]. Continuing smoking after cancer diagnosis is shown to have a substantial negative effect on treatment response and survival[6]. Although it is difficult to identify the optimum timing for

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the ‘teachable moment’ in cancer patients[33], early assessment, tailoring and follow-up would give the best chance of breakthrough before the known “information overload” associated with cancer diagnosis and treatment can occur. Established literature suggests early intervention for smoking cessation is more likely to be successful in head and neck cancer patients[34] and other cancers[35–37]. Although only a small proportion of our cohort had a final malignant diagnosis, we would argue that the process of a referral to and assessment at a specialist cancer clinic alone can be enough to act as a ‘teachable moment’ for many of these patients.

FTND

The FTND has been widely validated in assessing cigarette addiction [38]. Despite this, the FTND lacks aspects of dependence such as cessation attempts without success and desire to reduce use[39]. Additionally, the scoring system is dichotomous and research has suggested revisions such as Likert scale responses which could lead to improvements in reliability and stronger association with outcomes[40,41]. However, the FTND has been shown to be a valid predictor of smoking cessation[13], therefore, using it as a tool in patient to determine nicotine dependence can help guide individualised cessation support. Wilcox et al determined a cut off score of 7 or greater to indicate nicotine dependence[39]. Our results show that a relatively low nicotine dependence with a median score of 3 (interquartile range=3). Finally, both in our study and previous literature the FTND has been found to be completed well with few missing answers indicating a good degree of acceptability[41].

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PRBQ

The PRBQ was developed in 2005 by McKee et al due to a lack of standardised questionnaires that explored smokers perceived risks and benefits of cessation[11]. Gender differences have notably been seen in various studies with larger differences observed in treatment seeking populations[11,42,43] and mental illness[44]. Females have been found to have higher perceived risk scores particularly surrounding weight gain[11,42–45] which is validated by our population. Our results show females perceive a greater risk of negative side-effects of smoking cessation, similar to previous literature[11]. This increased perceived risk of negative effect is linked to a greater expectation of the difficulty of remaining abstinent, decreased expectation of cessation success and lower confidence for quitting[43]. NRT has been found to have specific protective effects on cessation among women concerned about weight gain and men concerned about withdrawal[45] which would both be applicable to our sample population given that a combined total of 31(31.6%) patient in were scoring maximally (7/7) in these two categories.

Another study in Malaysian smokers seeking treatment found no association between risks and benefit scores to cessation[46] but went on to implement smoking cessation counselling as well as free NRT and found that those with the greatest decrease in perceived advantage of smoking based on the DBQ (Decision Balance questionnaire) had a significantly higher rate of cessation at 2 months[47]. This demonstrates that a change in perception is achievable and can lead to more successful cessation.

Further research is required to link perception scores to those of preparedness to quit smoking[10]. Other research shows that preparedness to quit increases perceived importance

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of, readiness to and confidence toward cessation which in turn increases both quit attempts and successful change[48].

Conclusions

This is the first study to assess smoking attitudes in the setting of an urgent ENT referral for suspected head and neck cancer. We aimed to develop a better understanding of characteristics and attitudes of our smoking patient population at the time of referral. Standardised smoking surveys as part of specialist referrals to the head and neck cancer clinics could be an effective and pragmatic way of identifying patients that may be more receptive to cessation interventions and quitting successfully. Our findings suggest that men are more nicotine dependent and therefore may need more support, women are more likely to benefit from counselling regarding the perceived negative side-effects of smoking cessation. Patients with a history of cannabis use as well as those with higher education are more susceptible to cessation interventions and should be identified early.

Referrals to specialist cancer services can be a turning point for many patients irrespective of the final diagnosis. Taking full advantage during this time to maximise opportunity and tailoring advice and management for each patient, may improve success in smoking cessation.

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Summary

- Referral to a specialist service for suspected cancer can be an opportunity for reassessing smoking behaviour.
- The aim of this study was to determine individual intervention needs for patients referred urgently to ENT and identify smokers that may be more susceptible to early cessation efforts.
- Men are more nicotine dependent and may require additional cessation support.
- Women may require additional counselling about regarding negative effects of smoking cessation, for example, nicotine craving or weight gain.
- Patients with a higher education are more receptive to cessation interventions and should be identified early.

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