

Brief tobacco cessation interventions: Practices, opinions, and attitudes of healthcare professionals

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ABSTRACT

INTRODUCTION Although brief smoking cessation interventions that follow the 5As algorithm (Ask, Advise, Assess, Assist, Arrange) can trigger smokers to quit, routine delivery remains low in Europe. This study aimed to identify the extent of smoking cessation practices of healthcare professionals interested in tobacco cessation, and their opinions and attitudes.

METHODS A quantitative, cross-sectional survey design was adopted. Healthcare professionals (n=133) who attended one of ten training sessions on brief interventions for smoking cessation, held every month between September 2018 and June 2019 in Malta, were recruited. Univariate logistic regression and non-parametric tests were carried out to identify associations by participants' characteristics. Potential confounders were ruled out following multivariate analyses.

RESULTS Most participants were female nurses who had never smoked. While most professionals reportedly asked (76.3%), advised (83.5%) and assessed (70.5%) patients for cessation, fewer provided assistance (40.9%) and arranged follow-up (24.2%). Compared to other participants, doctors were more likely to have counselled patients over the previous week. Most professionals were favourably disposed towards counselling patients to quit, however, they claimed they had insufficient time to do so. Although most found it difficult to get clients to quit, former smokers were more likely to disagree when compared to those who never smoked (OR=6.86; 95% CI: 2.17–21.71; p=0.001).

CONCLUSIONS While more initiatives to train healthcare professionals in providing smoking cessation interventions are recommended, lack of sufficient time, being an organisational barrier, requires healthcare management exploration and action. Given that former smokers were more confident in helping patients quit, engaging them in training activities would be of added value.

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INTRODUCTION

The World Health Organisation (WHO) European Region reports the highest prevalence rate of tobacco use¹, where tobacco is responsible for 0.7 million deaths each year². Smokers who quit can significantly reduce their risk of developing smoking-attributable diseases³. Additionally, smoking cessation can reduce all-cause mortality risk, particularly that from cardiovascular and respiratory diseases, and tobacco-

related cancers⁴.

Article 14 of the WHO Framework Convention on Tobacco Control (WHO FCTC) stipulates that members should ensure that all tobacco users are identified and provided with at least brief advice during a health interaction⁵. Screening for tobacco use and subsequent personalised brief advice often proves to be opportunistic, as the identified smoker might not be seeking tobacco cessation support^{3,6}.

As tobacco dependence has been classified as a disease⁶⁻⁹, every healthcare professional has the duty to diagnose and treat the patient just as he/she would do for other chronic diseases⁶.

The 5As (Ask, Advise, Assess, Assist, Arrange) algorithm summarises all the activities that healthcare professionals can do in order to carry out brief smoking cessation interventions^{6,10}. These five strategies are about: asking all patients about smoking status; advising those who smoke to quit; assessing readiness to quit; assisting them with making a quit plan; and arranging follow-up. Receipt of the 5As was found to be significantly associated with the increased use of recommended counselling and cessation medication¹¹, and with greater patient satisfaction¹². Receipt of 'ask'¹³ and the latter four of the 5As¹⁴ was associated with an increased likelihood of a quit attempt. Nonetheless, patients' recall of brief smoking cessation assistance was found to be low in some European countries^{13,15,16}, warranting the need for investigation of the bigger picture.

Although the prevalence of tobacco use in Europe appears to be decreasing slowly¹⁷, in Malta the smoking prevalence rate has remained practically unchanged at 24%². Malta, like some other European countries, lacks national tobacco cessation clinical guidelines³, which healthcare professionals can follow, leaving much to guess as to what is happening in practice. Consequently, this study aimed to:

- Identify the extent of tobacco cessation practices of healthcare professionals interested in tobacco cessation;
- Investigate the participants' opinions about counselling patients to stop, and examine their attitudes about healthcare professionals and smoking, and their role in tobacco control; and
- Identify any differences by gender, smoking status, and other professional characteristics.

METHODS

Study design and measures

A descriptive cross-sectional survey was carried out. The widely used and psychometrically sound instrument 'Nurses Helping Smokers Quit' was utilised¹⁸. The original questionnaire had a very good level of reliability ($\alpha=0.92$)¹⁹. It was adapted, tested for validity by experts in nursing in tobacco control and re-tested for reliability (93% of the kappa values

were >0.7)^{18,20}. In this study, all questions/statements were directed to healthcare professionals instead of nurses, while participants were asked to indicate their profession. Otherwise, the tool was left as originally set:

- Assessing information on gender, professional characteristics and smoking status;
- Looking at frequency (always, usually, sometimes, rarely, or never) of delivery of ten listed tobacco cessation interventions and identifying the estimated number of patients helped during the previous week (ranging: none, 1-2, 3-5, >5);
- Assessing agreement to eight positively worded and five negatively worded opinions about counselling patients to quit smoking by means of a Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree); and
- Identifying attitudes about healthcare professionals and smoking, and their role in tobacco control (three positively worded attitudes, to which participants rated their agreement, and two linear scale questions, which participants rated from 'least important' to 'most important')¹⁸.

To ensure its validity for distribution amongst healthcare professionals in Malta, the questionnaire was assessed for face validity by a doctor, a nurse, a pharmacist and an allied healthcare professional, and by two public health consultants. No changes were required.

Study participants

Healthcare professionals, who attended one of ten training sessions on brief interventions for smoking cessation, held every month between September 2018 and June 2019 in Malta, were included as potential study participants. Several strategies (mainly mailshots and advertisements) were used for recruiting healthcare professionals, who were interested in tobacco cessation, to these educational sessions. In all, 150 healthcare professionals attended these training sessions and were provided with the questionnaire, which they filled in before the commencement of the training session.

In order to be eligible to this study, they had to be health workers who provided direct patient care to adult patients (aged ≥ 18 years) during a typical working day. Respondents who were health workers with no direct patient care, or who cared only for paediatric patients, were excluded.

This study was part of a training project on brief

smoking cessation interventions for healthcare professionals in the public service, held by the Health Promotion and Disease Prevention Directorate within the Department for Health Regulation/Superintendence of Public Health, Ministry for Health, Malta. An information letter was attached to each questionnaire, providing details on the aims of the audit and the training session. It also invited participants to write their email address, which was the sole personal identifier, to be used for long-term evaluation of the training project. Filling in the questionnaire was voluntary and not a requirement to attend the educational session. Participants were informed that the Directorate abided by Article 27 (a)(i) of the Public Health Act²¹, the Data Protection Act²², and the General Data Protection Regulation (EU) 2016/679²³ for the processing of personal data. Return of a completed questionnaire implied consent. All responses were kept confidential and later anonymised through the generation of a unique code identifier. No ethical issues were envisaged.

Statistical analysis

All analyses were done using IBM SPSS Statistics Version 26. Descriptive statistics (frequencies, percentages, means with standard deviations) were used to characterise the sample and study variables. As for previous studies^{18,20}, we defined consistency of performing tobacco cessation interventions by collapsing 'always/usually'. Similarly, agreement to positively worded opinions and attitudes about counselling patients was denoted as 'strongly agree/agree', while disagreement to negatively worded opinions and attitudes was defined as 'strongly disagree/disagree'. Univariate logistic regression was carried out to identify any significant associations in these revised, now binary variables by the independent variables, taking note of within group differences with their respective odds ratio (OR), 95% confidence intervals (CI) and p-values. On the other hand, given that some groups of participants were quite small, non-parametric tests were used to identify differences in the other non-binary dependent variables and for associations by years of experience. The Mann-Whitney U test was used to assess the relationship between years of experience and the binary variables. With regard to the estimated number of patients helped in the past week, Fisher's exact test was used;

whereas for years of experience the Kruskal Wallis test was used. The Kruskal Wallis test (and subsequently Dunn's pairwise tests with adjustment using the Bonferroni correction) and the Mann-Whitney U test were also utilised to identify associations for the two linear scale questions by the independent variables, except for years of experience, where the Pearson correlation coefficient was computed. Where significant differences were observed in more than one independent variable, a multivariate analysis was conducted to identify and rule out any confounder. A $p \leq 0.05$ was considered as the threshold required for all statistically significant associations.

RESULTS

Participants' characteristics

All (150) participants completed the questionnaire. After excluding those who did not provide direct patient care to adult patients, 133 healthcare professionals were found to be eligible and were included in data analysis. Participants' characteristics are displayed in Table 1. Most participants were female nurses, who never smoked, and who worked in hospital settings. Mean years of experience were 14.9 ± 12.7 . Only 11 participants had received training in smoking cessation within the past 24 months.

Delivery of tobacco cessation interventions to patients

As displayed in Table 2, whereas most participants consistently (always/usually) asked (76.3%; $n=100$), advised (83.5%; $n=111$), and assessed (70.5%; $n=93$) patients for tobacco cessation, fewer participants assisted (40.9%; $n=54$) and arranged follow-up (24.2%; $n=31$). Moreover, few participants routinely carried out the other listed tobacco cessation interventions, except for 'recommend to patients and family members the importance of creating a smoke-free home environment' (65.7%; $n=86$). Most participants (46.6%; $n=62$) had counselled 1-2 patients over the previous week.

Opinions about counselling patients to quit smoking and attitudes about healthcare professionals and smoking, and their role in tobacco control

Table 3 shows the responses to the 13 opinions about counselling patients to quit. Most respondents

Table 1. Gender, smoking status and professional characteristics

Variable	Response	Value	
		n	%
Gender	Female	87	65.4
	Male	46	34.6
Smoking status ^a	Never smoker	105	78.9
	Former smoker	15	11.3
	Current smoker	13	9.8
Profession	Nurse	64	48.1
	Doctor	40	30.1
	Allied health ^b	23	17.3
	Pharmacist	4	3.0
	Other ^c	2	1.5
Place of work	Hospital	62	46.6
	Primary healthcare	39	29.3
	Long-term care	32	24.1
Highest qualification	Master's or Doctorate	47	36.4
	Undergraduate degree	43	33.3
	Diploma	39	30.2
Training in smoking cessation within the past 24 months	No	118	91.5
	Yes	11	8.5
Training location	Mater Dei Hospital	65	48.9
	Primary Health Care Department	36	27.1
	Malta Union of Midwives and Nurses	25	18.8
	Gozo General Hospital	7	5.3
		<i>Mean</i>	<i>SD</i>
Participants per month		13.3	5.2
Years of experience		14.9	12.7

a Smoking status was defined as follows: former smoker – having ever smoked 100 or more cigarettes in life; never smoker – having never smoked; and current smoker – having ever smoked 100 or more cigarettes in life and currently smoking. b Allied healthcare professionals included professionals complementary to medicine, as listed under the Health Care Professions Act³⁷ and under the Allied Health Services Directorate³⁸ (i.e. nutritionists, occupational therapists, podiatrists, speech language pathologists and physiotherapists, psychologists/psychologist-assistants and social workers/assistants). c Healthcare providers who did not specify their profession.

agreed (strongly agree/agree) to the first eight positive opinions (ranked in a descending order of agreement), except for ‘asking patients about smoking increases the likelihood that they will quit’, where only 48 participants agreed (37%). Most disagreed (strongly disagree/disagree) to the other negatively

worded statements (ranked in a descending order of disagreement) with the exception of ‘it is difficult for me to get people to quit smoking’, and ‘I have insufficient time to counsel patients about quitting smoking’ (18.2%, n=24; and 39.3%, n=51; respectively). Almost all participants (93.1%; n=121) agreed that they need more training to help patients to quit smoking.

As evidenced in Table 4, the majority of the respondents agreed with the attitudes presented or rated them as important. Again, the need for additional training and skills in tobacco control was highlighted by almost all participants (94.8%; n=126).

Differences by gender, smoking status, and professional characteristics

Following the multivariate analyses, where confounders were identified, the variables that remained statistically significant by personal and professional characteristics (Supplementary file, Tables S1–S3), were further analysed for associations within the groups.

Gender

While females were less likely to routinely give advice, when compared to males (OR=0.07; 95% CI: 0.01–0.54; adjusted p=0.010), they were more likely to report having sufficient time to counsel patients (OR=4.11; 95% CI: 1.77–9.57; adjusted p=0.003).

Smoking status

Smokers were less likely to agree that ‘providing tobacco cessation counselling is important to our hospital/service, even if only a few patients quit’ (OR=0.12; 95% CI: 0.02–0.62; p=0.012) and ‘I have an obligation to advise patients on the health risk associated with tobacco use’ (OR=0.09; 95% CI: 0.02–0.51; p=0.006) when compared to never smokers. On the other hand, former smokers were more likely to disagree to ‘it is difficult for me to get people to quit smoking’ (OR=6.86; 95% CI: 2.17–21.71; p=0.001), when compared to those who never smoked.

Profession

Compared to doctors, both pharmacists (OR=0.27; 95% CI: 0.01–0.35; p=0.006) and nurses (OR=0.17; 95% CI: 0.05–0.62; p=0.007) were less likely to

Table 2. Delivery of tobacco cessation interventions to patients

Tobacco cessation interventions	Frequency of delivery (%)					n
	Always	Usually	Sometimes	Rarely	Never	
Ask about patient's smoking/tobacco use	36.6	39.7	16.0	3.8	3.8	131
Advise a patient to quit smoking	51.9	31.6	10.5	4.5	1.5	133
Assess if patients are interested in stopping smoking	39.4	31.1	20.5	6.8	2.3	132
Assist a patient with smoking cessation	19.7	21.2	30.3	20.5	8.3	132
Arrange smoking cessation follow-up	9.4	14.8	28.9	25.0	21.9	128
Recommend the use of a telephone quitline for smoking cessation	6.9	17.7	24.6	24.6	26.2	130
Refer a patient to tobacco cessation resources (clinics, counselling etc.) in the community	12.9	22.0	28.0	22.7	14.4	132
Provide recommendations for tobacco cessation medications	10.0	20.8	25.4	17.7	26.2	130
Review barriers to quitting with patients who are unwilling to make a quit attempt	9.2	28.2	33.6	18.3	10.7	131
Recommend to patients and family members the importance of creating a smoke-free home environment after leaving the hospital	31.3	34.3	18.3	7.6	8.4	131
	Number of patients counselled (%)					n
	0	1-2	3-5	>5		
Counsel patients for smoking cessation over the past week	27.5	47.3	16.8	8.4	131	

Table 3. Rating of opinions about counselling patients to quit smoking

Opinions about counselling patients to quit smoking	Rating (%)					n
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
I have an obligation to advise patients on the health risks associated with tobacco use	0	3.1	2.3	24.4	70.2	131
Providing tobacco cessation counselling is important to our hospital even if only a few patients quit	1.5	0	4.6	35.9	58.0	131
I need more training to help patients quit smoking	0	2.3	4.6	47.7	45.4	130
As a healthcare professional, I can play an important role in helping patients quit	0.8	3.9	5.4	38.8	51.2	129
I should take a more active role in helping patients to quit smoking	1.5	4.6	13.7	58.8	21.4	131
Patients appreciate it when I provide advice about quitting smoking	2.3	5.3	25.2	52.7	14.5	131
Discussing smoking cessation improves my relationship with patients	0.8	4.6	36.6	51.1	6.9	131
Asking patients about smoking increases the likelihood that they will quit	5.4	27.7	30.0	30.8	6.2	130
I feel uncomfortable asking patients whether they smoke	56.2	33.1	4.6	1.5	4.6	130
Counselling patient about quitting is not an efficient use of my time	28.2	49.6	11.5	8.4	2.3	131
Patients will be offended if I inquire about their smoking status	32.8	38.2	19.1	8.4	1.5	131
I have insufficient time to counsel patients about quitting smoking	13.1	26.2	26.2	26.2	8.5	130
It is difficult for me to get people to quit smoking	3.0	15.2	34.8	36.4	10.6	132

Table 4. Rating of attitudes about healthcare professionals and smoking and their role in tobacco control

Attitudes and beliefs about healthcare professionals and smoking and their role in tobacco control	Rating (%)					n	Mean	SD
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree			
Healthcare professionals need additional training/ skills in tobacco control	3.0	0.8	1.5	27.1	67.7	133		
Healthcare professionals should be involved in actively helping patients to stop smoking	2.3	0.8	3.0	33.8	60.2	133		
Healthcare professionals should set a good example by not smoking	2.3	3.8	9.8	24.8	59.4	133		
	Least important (1)	(2)	(3)	(4)	Most important (5)	n	Mean	SD
Compared to other disease prevention activities (e.g. nutrition, exercise etc.), how important is it for healthcare professionals to be involved in tobacco control activities?	0	0.8	10.6	26.5	62.1	132	4.5	0.72
How important is it for healthcare professionals to be involved in tobacco control activities?	0	1.5	9.1	30.3	59.1	132	4.47	0.73

consistently ask about tobacco use. Also, compared to doctors, pharmacists (OR=0.11; 95% CI: 0.01–1.02; p=0.052) and allied healthcare professionals (OR=0.21; 95% CI: 0.05–0.80; p=0.022) were less likely to provide advice. A Fisher’s exact test showed that out of the professionals who had counselled 3–5 patients or >5 patients over the previous week, the majority, 59.1% (13 out of 22) and 45.5% (5 out of 11) were doctors (adjusted p=0.007). Compared to doctors, nurses (OR=0.29; 95% CI: 0.12–0.66; p=0.004) and allied healthcare professionals (OR=0.27; 95% CI: 0.09–0.84; p=0.024) were less likely to agree that ‘asking patients about smoking increases the likelihood that they will quit’. On the other hand, allied healthcare professionals were more likely to report having sufficient time to counsel patients (OR=8.50; 95% CI: 2.63–27.50; p<0.001) compared to doctors.

Years of experience

Use of the Mann-Whitney U test showed that consistent delivery of tobacco cessation interventions was associated with higher mean years of experience. Participants who were more likely to ‘advise’ (U=738.0; mean years of experience 16.11 ± 13.13; adjusted p=0.020), ‘assess’ (U=812.50; 18.03 ± 12.94; p<0.001), ‘assist’ (U=1402.0; 18.79 ± 13.18; p=0.003), ‘arrange’ (U=827.50; 20.80 ± 12.63;

p=0.001), ‘recommend the use of a telephone quitline’ (U=868.0; 21.13 ± 12.80; adjusted p=0.009), ‘refer a patient to tobacco cessation resources’ (U=1224.0; 19.84 ± 12.56; adjusted p<0.001), and ‘recommend to patients and family members the importance of creating a smoke-free home environment after leaving the hospital’ (U=1317.50; 16.85 ± 12.97; p=0.008) had higher mean years of experience. Those who agreed that ‘healthcare professionals should set a good example by not smoking’ were more likely to have more years of experience (U=1450.0; 15.97 ± 12.98; p=0.009). Nonetheless, experienced professionals were more likely to find that counselling patients is not an efficient use of their time (U=1976.0; 20.93 ± 12.30; adjusted p=0.018).

Place of work

When comparing the consistent delivery of tobacco cessation interventions within different healthcare settings, it was noted that asking about tobacco use was less likely to be carried out by those working in residential care settings (OR=0.07; 95% CI: 0.02–0.20; p<0.001). Also, those working within primary healthcare settings (OR=0.28; 95% CI: 0.11–0.72; p=0.009) and residential care settings (OR=0.28; 95% CI: 0.10–0.79; p=0.015) were less likely to routinely provide recommendations for medications. Nonetheless, those working in primary

healthcare settings were more likely to refer patients to tobacco cessation resources within the community (OR=2.33; 95% CI: 1.02–5.33; $p=0.046$). Healthcare professionals working in residential care settings were less likely to agree that ‘as a healthcare professional I can play an important role in helping patients quit’ (OR=0.18; 95% CI: 0.05–0.63; $p=0.007$) and ‘I should take a more active role in helping patients to quit smoking’ (OR=0.31; 95% CI: 0.11–0.86; $p=0.024$) compared to those working in hospital settings. Moreover, those working in residential care settings were less likely to see counselling as an efficient use of their time (OR=0.14; 95% CI: 0.05–0.40; $p<0.001$) and less likely to think that patients would find it acceptable to be asked about their smoking status (OR=0.07; 95% CI: 0.02–0.20; $p<0.001$), when compared to those working in hospital settings. Use of the Kruskal Wallis test showed that the item ‘How important it is for healthcare professionals to be involved in tobacco control activities’ was significantly different by place of work [$H(2)=9.07$; adjusted $p<0.001$]. Subsequent Dunn’s pairwise tests, with adjustment using the Bonferroni correction, showed that those working in hospital (mean 4.58 ± 0.56 ; adjusted $p=0.032$) and primary healthcare settings (mean 4.67 ± 0.48 , adjusted $p=0.014$) rated this item as more important than those in residential settings (mean 4.00 ± 1.03).

Previous tobacco cessation training

Compared to professionals who had received training in smoking cessation within the past 24 months, those who had not, were less likely to review barriers to quitting amongst those who were unwilling to quit (OR=0.18; 95% CI: 0.05–0.73; $p=0.016$).

Non-significant differences

No significant differences were noted by month of training. Also, differences by participants’ highest qualification or location of training were no longer significant following multivariate analyses (Supplementary file, Tables S1–S3).

DISCUSSION

Reflection on main findings and highlights from the literature

The inconsistent delivery of all of the 5As was acknowledged in international literature^{24–28}. A similar

trend in the delivery of the 5As was reported in a study amongst hospital health workers in Catalonia, Spain²⁶. Where the acceptable performance of the 5As was defined as a mean value ≥ 5 , professionals reportedly asked (6.4 ± 3.1), advised (7.1 ± 2.7), and assessed (6.3 ± 2.8) patients for cessation, but few provided assistance (4.4 ± 2.9), and arranged follow-up (3.2 ± 3.3)²⁶. Most probably, healthcare professionals tend to ‘assist’ and ‘arrange follow-up’ only to those who are interested in quitting. Nevertheless, guidelines recommend the delivery of all the 5As, irrespective of whether smokers are motivated to quit or not⁶.

Unlike what was reported in some studies^{24,26–28}, doctors in our study did not outperform the other healthcare professionals in all the 5As. Nonetheless, doctors were more likely to have counselled an increased number of patients, than other professionals during the previous week. Doctors, being very much involved in the assessment and diagnosis of health interactions, may be more likely to tie in smoking cessation advice in their management.

Although females were more likely to report having sufficient time for counselling, they were less active in advice-giving. Similarly, in the Girvalaki et al.¹⁶ study, male general practitioners were significantly more likely to ‘advise’ patients (adjusted odds ratio, AOR=2.88; 95% CI: 1.06–7.86; $p<0.05$)¹⁶. In contrast, this difference was not observed in the Martinez et al.²⁶ study. Also, no significant differences in the delivery of brief interventions were noted by years of experience²⁶. However, one must note that unlike our study, almost all participants (80.8%) had previous tobacco cessation training²⁶. Training, which is known to have a positive impact on delivery of the 5As^{29–31}, could have impacted on the above-mentioned results, eliminating differences by gender and years of experience. Although in our study professionals with more years of experience were more likely to see smoking cessation counselling as an inefficient use of their time, it could be that they had other non-clinical roles such as in management.

Unlike in some international studies^{24–26}, delivery of the 5As was not found to be significant by smoking status (Supplementary file, Table S1), probably due to the small number of participating smokers. Nonetheless, as was found in the Yan et al.²⁵ study

(where mean attitudes were: never smokers 18.2 ± 1.8 versus ever smokers 16.1 ± 2.7 ; $p < 0.05$), never smokers were more likely to agree to positive statements towards counselling.

When compared to previous studies, where it was also agreed that smoking cessation is an important professional responsibility^{24,26}, and that healthcare professionals should be role models²⁵, and be involved in tobacco control activities²⁵, our study provided a wider understanding of the participants' opinions and attitudes towards tobacco cessation. Few healthcare professionals, nurses, and allied healthcare professionals in particular, agreed that 'asking' patients increases the likelihood that they will quit. This highlights the participants' lack of knowledge in this evidence-based practice¹³. Health providers working in residential care settings reported less frequent tobacco cessation interventions and fewer positive opinions and attitudes of such role. Probably they perceived little or no benefits for the elderly clients.

Although most participants tended to agree that they had insufficient time to counsel patients, allied healthcare professionals were less likely to. While this is encouraging, as it suggests that allied healthcare professionals might be in a better position to deliver smoking cessation interventions; lack of sufficient time deserves its due attention. Given the benefits of opportunistic brief smoking cessation advice, it is recommended that healthcare management addresses this perceived organisational barrier.

As was found in international literature^{26,32}, almost all participants expressed the need for training in smoking cessation. Training healthcare professionals in smoking cessation is more likely to result in positive changes in the delivery of the 5As, such as: asking patients to set a quit date ($p < 0.0001$); providing follow-up appointments ($p < 0.00001$); counselling smokers ($p < 0.00001$); providing self-help material ($p < 0.0001$); and prescribing a quit date ($p < 0.00001$)³¹. All health workers, including allied healthcare professionals, should be provided with training opportunities on tobacco cessation interventions. Given the limited time in carrying out cessation practices, training sessions can help equip professionals with the required skills to deliver interventions, which are brief yet effective. Such

initiatives can support professionals who feel that it is difficult for them to help smokers quit and provide skills for addressing barriers. Training should also provide an overview of local community services, especially for those professionals who may be less aware of available services. Moreover, in view of the highlighted benefits of opportunistic smoking cessation amongst older adults³³, training initiatives should be also provided to professionals working in residential care settings. In addition, given that former smokers were more confident in helping patients quit, engaging their experiences within any training activities would be an asset.

National clinical guidelines or protocols, which have been found to improve the provision of brief cessation interventions³⁴, can also guide professionals to fully engage in the 5As evidence-based framework. Given that smoking was found to be a risk factor for disease progression of coronavirus disease, COVID-19^{35,36}, 29.8% of smokers compared with 17.5% of non-smokers experienced disease progression (OR=1.91; 95% CI: 1.42–2.59; $p = 0.001$)³⁶, the rapid increase of which has made the WHO European Region the centre of this pandemic, promoting use of brief tobacco cessation interventions through training efforts and issuing of protocols/guidelines would be of further significance for the current times.

Strengths and limitations

This is the first time that the extensively used tool by Sarna and Bialous et al.¹⁸ has been used amongst a wide array of healthcare professionals, not only providing a detailed description of practices, opinions and attitudes, but also identifying differences by professional characteristics. There are some limitations. Our survey was completed by a small number of healthcare professionals, working in Malta, who attended a training session. These participants may have been more likely to engage in tobacco cessation interventions than those who did not participate, limiting the generalizability of the findings to the total healthcare population. A larger-scale study in another European country is thus recommended. Notwithstanding the small sample size, the training sessions were carried out in four different settings, using different recruitment strategies to encourage participation, and including a wide array

of participating healthcare professionals (except for pharmacists) to enable comparison between groups of professionals. No oral healthcare professionals participated in this study, however various other studies have included these professionals^{24,27,28}. As the data on the delivery of tobacco cessation interventions were self-reported, the results may not be an accurate assessment of the actual interventions. There might have been other factors, other than those studied that could have influenced the results presented. Nonetheless, multivariate analyses were conducted, ruling out identified confounders.

CONCLUSIONS

In line with international literature, the inconsistent delivery of all the 5As was also reported in our study. While the majority asked their patients about tobacco use, advised those who smoke to quit and assessed patients' interest in smoking cessation, few participants provided assistance and arranged follow-up appointments. Compared to other participants, doctors were more likely to have counselled patients over the previous week. Most professionals were favourably disposed towards counselling patients to quit, yet most claimed they had insufficient time to counsel patients. Also, while most participants found that it is difficult for them to get people to quit, healthcare professionals who were former smokers were more likely to disagree. Those working in residential care settings reported less frequent tobacco cessation interventions and had fewer positive opinions and attitudes of such a role. Nonetheless, almost all participants agreed that they needed more training to help patients to quit smoking.

Training initiatives on brief smoking cessation interventions should be held for all healthcare professionals, potentially featuring the advice usually provided by healthcare professionals who were former smokers. It is also recommended that management addresses the perceived time barrier, for increased delivery of brief tobacco cessation interventions.

REFERENCES

- World Health Organization. WHO Global Report on Trends in Prevalence of Tobacco Smoking 2000-2025. Geneva, Switzerland: World Health Organisation; 2018. <https://apps.who.int/iris/bitstream/handle/10665/272694/9789241514170-eng.pdf?ua=1>. Accessed June 30, 2020.
- European Union. Special Eurobarometer 429: Attitudes of Europeans towards Tobacco and Electronic Cigarettes. https://ec.europa.eu/comfrontoffice/publicopinion/archives/ebs/ebs_429_en.pdf. Published 2015. Accessed June 30, 2020.
- World Health Organization. WHO report on the global tobacco epidemic 2019: Offer help to quit tobacco use. https://www.who.int/tobacco/global_report/en/. Published July 26, 2019. Accessed June 30, 2020.
- Godtfredsen NS, Holst C, Prescott E, Vestbo J, Osler M. Smoking reduction, smoking cessation, and mortality: A 16-year follow-up of 19,732 men and women from the Copenhagen Centre for Prospective Population Studies. *Am J Epidemiol*. 2002;156(11):994-1001. doi:10.1093/aje/kwf150
- World Health Organization. WHO Framework Convention on Tobacco Control. Geneva, Switzerland: World Health Organization; 2003. https://www.who.int/tobacco/framework/WHO_FCTC_english.pdf?ua=1. Accessed June 30, 2020.
- European Network for Smoking and Tobacco Prevention. 2018 Guidelines for Treating Tobacco Dependence. http://elearning-ensp.eu/pluginfile.php/1052/mod_resource/content/2/guidelines_2018_english.pdf. Published 2018. Accessed June 30, 2020.
- Sartorius N, Haghiri H, Mokhber N, et al. The ICD-10 Classification of Mental and Behavioural Disorders. *IACAPAP E-textb child Adolesc Ment Heal*. 2013;55(1993):135-139. doi:10.4103/0019
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Washington, DC: American Psychiatric Association; 1980.
- Xiao D, Wang C. Tobacco dependence should be recognised as a lethal non-communicable disease. *BMJ*. 2019;365(May):10-12. doi:10.1136/bmj.l2204
- World Health Organization. Toolkit for Delivering the 5A's and 5R's Brief Tobacco Interventions in Primary Care. Geneva, Switzerland: World Health Organisation; 2014. https://www.who.int/tobacco/publications/smoking_cessation/9789241506953/en/. Accessed June 30, 2020.
- Kruger J, O'Halloran A, Rosenthal AC, Babb SD, Fiore MC. Receipt of evidence-based brief cessation interventions by health professionals and use of cessation assisted treatments among current adult cigarette-only smokers: National Adult Tobacco Survey, 2009-2010. *BMC Public Health*. 2016;16(1):1-10. doi:10.1186/s12889-016-2798-2
- Conroy MB, Majchrzak NE, Regan S, Silverman CB, Schneider LI, Rigotti NA. The association between patient-reported receipt of tobacco intervention at a primary care visit and smokers' satisfaction with their health care. *Nicotine Tob Res*. 2005;7(Suppl 1):29-34. doi:10.1080/14622200500078063
- Çakır B, Taş A, Şanver TM, Aslan D. Doctor's enquiry:

- An opportunity for promoting smoking cessation - Findings from Global Adult Tobacco Surveys in Europe. *Eur J Public Health*. 2017;27(5):921-925. doi:10.1093/eurpub/ckx094
14. Schauer GL, Wheaton AG, Malarcher AM, Croft JB. Health-care provider screening and advice for smoking cessation among smokers with and without COPD 2009-2010 national adult tobacco survey. *Chest*. 2016;149(3):676-684. doi:10.1378/chest.14-2965
 15. Kennedy RD, Behm I, Craig L, et al. Smoking cessation interventions from health care providers before and after the national smoke-free law in France. *Eur J Public Health*. 2012;22(Suppl 1):23-28. doi:10.1093/eurpub/ckr209
 16. Girvalaki C, Papadakis S, Vardavas C, et al. Smoking cessation delivery by general practitioners in Crete, Greece. *Eur J Public Health*. 2018;28(3):542-547. doi:10.1093/eurpub/ckx201
 17. World Health Organization. European Tobacco Use, Trends Report 2019. https://www.euro.who.int/__data/assets/pdf_file/0009/402777/Tobacco-Trends-Report-ENG-WEB.pdf. Published 2019. Accessed June 30, 2020.
 18. Bialous SA, Sarna L, Wells MJ, et al. Impact of Online Education on Nurses' Delivery of Smoking Cessation Interventions With Implications for Evidence-Based Practice. *Worldviews Evidence-Based Nurs*. 2017;14(5):367-376. doi:10.1111/wvn.12197
 19. Sarna LP, Brown JK, Lillington L, Rose M, Wewers ME, Brecht ML. Tobacco interventions by oncology nurses in clinical practice: Report from a national survey. *Cancer*. 2000;89(4):881-889. PMID:10951353.
 20. Sarna LP, Bialous SA, Králiková E, et al. Tobacco cessation practices and attitudes among nurses in the Czech Republic. *Cancer Nurs*. 2015;38(6):E22-E29. doi:10.1097/NCC.0000000000000222
 21. Ministry for Justice Culture and Local Government. Public Health Act: To promote and protect health. CAP. 465. <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8931>. Published November 21, 2003. Accessed June 30, 2020.
 22. Ministry for Justice Culture and Local Government. DATA PROTECTION ACT: AN ACT to repeal and to replace the Data Protection Act, Cap. 440. CAP. 586. <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12839&l=1>. Published May 28, 2018. Accessed June 30, 2020.
 23. European Union. Regulation (EU) 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). *Off J Eur Union*. 2016;59(L119):1-89. <http://data.europa.eu/eli/reg/2016/679/oj>. Accessed June 30, 2020.
 24. Tong EK, Strouse R, Hall J, Kovac M, Schroeder SA. National survey of U.S. health professionals' smoking prevalence, cessation practices, and beliefs. *Nicotine Tob Res*. 2010;12(7):724-733. doi:10.1093/ntr/ntq071
 25. Yan J, Xiao S, Ouyang D, Jiang D, He C, Yi S. Smoking behavior, knowledge, attitudes and practice among health care providers in Changsha city, China. *Nicotine Tob Res*. 2008;10(4):737-744. doi:10.1080/14622200801901930
 26. Martínez C, Castellano Y, Andrés A, et al. Factors associated with implementation of the 5A's smoking cessation model. *Tob Induc Dis*. 2017;15(1):1-12. doi:10.1186/s12971-017-0146-7
 27. Sheffer CE, Barone CP, Anders ME. Training health care providers in the treatment of tobacco use and dependence: Pre- and post-training results. *J Eval Clin Pract*. 2009;15(4):607-613. doi:10.1111/j.1365-2753.2008.01058.x
 28. Matouq A, Khader Y, Khader A, et al. Knowledge, attitudes, and behaviors of health professionals towards smoking cessation in primary healthcare settings. *Transl Behav Med*. 2018;8(6):938-943. doi:10.1093/tbm/ibx045
 29. Payne TJ, Gaughf NW, Sutton MJ, et al. The impact of brief tobacco treatment training on practice behaviours, self-efficacy and attitudes among healthcare providers. *Int J Clin Pract*. 2014;68(7):882-889. doi:10.1111/ijcp.12386
 30. Martínez C, Castellano Y, Company A, et al. Impact of an online training program in hospital workers' smoking cessation interventions in Bolivia, Guatemala and Paraguay. *Gac Sanit*. 2018;32(3):236-243. doi:10.1016/j.gaceta.2017.10.020
 31. Carson K, Verbiest M, Crone M, et al. Training health professionals in smoking cessation. *Cochrane Database Syst Rev*. 2012;(5):CD000214. doi:10.1002/14651858.cd000214
 32. Meijer E, van der Kleij R, Segaar D, Chavannes N. Determinants of providing smoking cessation care in five groups of healthcare professionals: A cross-sectional comparison. *Patient Educ Couns*. 2019;102(6):1140-1149. doi:10.1016/j.pec.2019.01.015
 33. Doolan DM, Froelicher ES. Smoking cessation interventions and older adults. *Prog Cardiovasc Nurs*. 2008;23(3):119-127. doi:10.1111/j.1751-7117.2008.00001.x
 34. Hilberink SR, Jacobs JE, de Vries H, Grol RPTM. Smoking cessation counselling in general practice for COPD smokers: determinants for general practitioner's compliance with a treatment protocol. *Int J Heal Promot Educ*. 2013;51(2):64-74. doi:10.1080/14635240.2012.750069
 35. European Network for Smoking and Tobacco Prevention. COVID-19 Pandemic and Smoking Behavior: An Elevated Risk and a Golden Opportunity for Quitting. <http://ensp.network/wp-content/uploads/2020/04/Factsheet-3.pdf>. Published April 16, 2020. Accessed June 30, 2020.
 36. Patanavanich R, Glantz SA. Smoking is Associated with COVID-19 Progression: A Meta-Analysis. *Nicotine Tob Res*. 2020:1-4. doi:10.1093/ntr/ntaa082
 37. Ministry for Justice Culture and Local Government. HEALTH CARE PROFESSIONS ACT: To regulate the practice of health care professions in Malta. CAP. 464. <http://justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8930&l=1>. Published November

- 21, 2003. Accessed June 30, 2020.
38. Ministry for Health. Allied Health Care Services - About Us. <https://deputyprimeminister.gov.mt/en/ahcs/Pages/Overview.aspx>. Updated 2020. Accessed December 30, 2019.

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