Healthcare providers' level of involvement in provision of smoking cessation interventions in public health facilities in Kenya

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Abstract

Healthcare providers can play a major role in tobacco control by providing smoking cessation interventions to smoking patients. The objective of this study was to establish healthcare providers' practices regarding smoking cessation interventions in selected health facilities in Kiambu County, Kenya. This was a descriptive cross-sectional study carried out among healthcare providers working in public health facilities in Kiambu County, Kenya. Self-administered questionnaires were distributed to 400 healthcare providers selected using a two-stage stratified sampling technique. Only 35% of the healthcare providers surveyed reported that they always asked patients about their smoking status. Less than half (44%) reported that they always advised smoking patients to quit. Respondents who had received training on smoking cessation interventions were 3.7 times more likely to have higher practice scores than those without training (OR=3.66; 95%CI: 1.63-8.26; P=0.003). Majority of the healthcare providers do not routinely provide smoking cessation interventions to their patients. Measures are needed to increase health worker's involvement in provision of smoking cessation care in Kenya.

Introduction

Tobacco currently kills over 6 million people each year worldwide.[1] Approximately one in two of all long-term smokers worldwide are killed by their addiction and, the average smoker loses at least two decades of life expectancy compared to a non-smoker.[2]

According to the Global Adult Tobacco Survey released in 2014, the prevalence of tobacco use in Kenya is currently at 19.1 and 4.5% among adult males and females respectively.[3] Current trends also show a gradual rise in the number of adolescents using tobacco products in Kenya as revealed in the Kenya Global Youth Tobacco Survey done in 2007. The survey established that there was a 43% increase in overall tobacco use among adolescents when compared with a similar global youth tobacco survey in 2001.[4] It is therefore of immense importance that measures be put in place to prevent uptake of smoking as well as encourage smoking cessation in order to reduce smoking related morbidity and mortality in Kenya.

Smoking cessation is recognized as the best way of avoiding a substantial proportion of tobacco related disease and is associated with decreased risk of cancers, heart disease and respiratory disease among other conditions.[2-4] The World Health Organization Framework Convention on Tobacco Control (WHO FCTC), a multilateral treaty with more than 170 parties, provides a blueprint for countries to reduce both the supply of and the demand for tobacco.[5] One of the tobacco control measures identified as being effective in the WHO FCTC is the reduction of tobacco use through offering help to smokers to quit tobacco use. Article 14 of the WHO FCTC recognizes the need for parties to take effective measures to promote cessation of tobacco use and provide adequate treatment for tobacco dependence. It identifies healthcare systems as playing a central role in the promotion of tobacco cessation and provision of tobacco dependence treatment.[6] The Kenyan government having signed and ratified the WHO FCTC on 25 June 2004 is bound to its provisions.[4] Provision of smoking cessation services is recognized as a key intervention in the Kenya national tobacco control action plan, with delivery of brief advice by healthcare providers being identified as an effective intervention to motivate and support those attempting to quit.[4]

Many studies have proven the effectiveness of smoking cessation interventions provided by healthcare providers in increasing quit rates among smokers when compared with no intervention. In a meta-analysis on physician advice for smoking cessation, there was a significant increase in the rate of quitting in a review of 17 trials of brief advice *versus* no advice (or usual care) with patients being 1.66 times more times likely to quit with brief advice as compared with no advice.[7] A meta-analysis on nursing interventions for smoking cessation, found that advice and support from nursing staff increased patients' success in quitting smoking especially in a hospital setting, with the odds of a successful quit attempt for smokers increasing by 47% when compared with no advice.[8]

One model that has been advocated internationally for use by all healthcare providers in provision of smoking cessation interventions is a five-step strategy commonly known as the 5A's model.[9] The five major components of the 5A's model are to: ask about smoking; advise smokers to quit; assess smoker's willingness to quit; assist smokers in their attempt to quit and; arrange follow up of the patient.[9] Although Kenya has yet to adopt smoking cessation treatment guidelines for healthcare providers, all components of the 5A's model are recognized in the national tobacco control action plan that identifies the need to motivate and support those attempting to quit through behavioral and support services, pharmacotherapy, counseling and referral by health professionals.[4] The 5A's model has also been

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advocated for use in Africa in a draft guideline for smoking prevention and cessation in Africa and the Middle East.[10] The Tobacco Control Act, 2007 provides a legal framework for tobacco control in Kenya. It spells out the need to provide cessation services and recommends for creation of a tobacco control fund, which would among other interventions, be used to promote national cessation and rehabilitation programs.[11] It also identifies the role of healthcare providers in tobacco control education and information dissemination as well as the government's role in providing training for the healthcare providers to acquire skills for proper information dissemination and education on tobacco. However, a national capacity assessment on the implementation of effective tobacco control policies in Kenya by WHO noted that this fund was yet to be established.[12] The potential for primary health services to offer brief advice to smokers was also found to be notably underused in the assessment. Although some cessation services were offered by the national agency for the campaign against drug abuse and a few private hospitals, tobacco-dependence treatment at the service provision point in the public healthcare system was found to be grossly lacking, and where it existed, unsystematic and lacking in standardization. This is further highlighted by findings from the International Tobacco Control (ITC) project research that indicate that tobacco users in Kenya are not well connected to sources of cessation assistance.[13] Out of one fifth of tobacco users that reported that they had visited a doctor or other health provider in the last 6 months, only 35% were given advice to quit tobacco, a percentage that was noted to be the lowest among all the eleven low and middle income countries that were assessed. This demonstrates the urgent need for measures aimed at improving the involvement of healthcare providers in smoking cessation services.

Aim of study

The purpose of this study was to determine the smoking cessation practices of healthcare providers working in public health facilities in Kiambu County, with reference to the established 5A's model; smoking cessation training received and healthcare providers' perceived barriers to provision of smoking cessation interventions.

Significance for public health

Given the health consequences of smoking and the availability of various effective smoking cessation interventions, provision of smoking cessation services needs to be a priority for every healthcare provider.[9] Identifying smokers and providing smoking cessation advice and assistance increases a smoker's chances of successfully quitting smoking and has the potential to decrease the number of smokers. The global adult tobacco survey established that 77.4% of current smokers in Kenya planned to or were thinking about quitting.[3] Targeting such smokers during their hospital visits presents an ideal opportunity to support them to quit. The results provide information on the involvement of healthcare providers in provision of smoking cessation services. Additionally, the study identifies measures needed to increase the involvement of health workers in provision of smoking cessation care.

Materials and Methods

This was a cross-sectional survey of healthcare providers working in public health facilities in Kiambu County. This is one of the 47 counties in Kenya, is located in the central part of the Country. Central Kenya was identified as the region with the highest prevalence of smokers in Kenya in the 2008/2009 Kenya Demographic Health Survey.[14]

Study participants

The study included participants from five health professional groups namely: nurses, medical officers, dentists, clinical officers and community oral health officers. Healthcare providers within the five groups working within selected public health facilities in Kiambu were eligible for the study.

Sample size and sampling technique

Two-stage sampling procedure was used to select 400 study participants. In the first stage, 12 facilities out of 84 in Kiambu County were selected using a stratified sampling technique.

Table 1. Socio-demographic characteristics of respondents.

Socio-demographic characteristic	No. (%)
Age (years)	
21-30	133 (39.3)
31-40	113 (33.4)
41-50	67 (19.8)
51-60	25 (7.4)
Sex	
Female	279 (83)
Male	59 (17)
Smoking status	
Never	314 (93)
Former smoker	15 (4.4)
Current smoker	9 (2.7)
Job description	
Nurse	251 (74.3)
Medical officer/intern	17 (5.0)
Clinical officer/intern	61 (18.0)
Dentists	2 (0.6)
Community oral health officer/intern	7 (2.1)

Table 2. Healthcare providers practice of smoking cessation interventions.

Behavioral cessation intervention (n=338)	Frequency of performance		
	Never, No. (%)	Sometimes, No. (%)	Always, No. (%)
Ask			
Ask smoking status	12 (3.6)	208 (61.5)	118 (34.9)
Ask number of cigarettes smoked	59 (17.5)	181 (53.6)	98 (29.0)
Record smoking status	66 (19.5)	142 (42.0)	130 (38.5)
Advise			
Advise smoking patients to quit	10 (3.0)	181 (53.6)	147 (43.5)
Discuss smoking risks and cessation benefits	16 (4.7)	223 (66.0)	99 (29.3)
Assess			
Assess willingness to quit	105 (31.1)	178 (52.7)	55 (16.3)
Assist			
Discuss about previous quit attempts102 (30.2)	192 (56.8)	44 (13.0)	
Discuss use of NRT	218 (64.5)	98 (29.0)	22 (6.5)
Assist patients set up a quit date	181 (53.6)	122 (36.1)	35 (10.4)
Arrange follow up			
Set follow up appointment	194 (57.4)	103 (30.5)	41 (12.1)

The 84 public health facilities were first stratified by administrative level as district hospital (level 5), sub-district hospital (level 4), health center (level 3) or dispensary (level 2). Using proportion to size technique to determine the number of facilities to be sampled from each of the administrative levels, one district hospital, one sub-district hospital, four health centers and six dispensaries were selected using simple random sampling technique.

In the second stage, the number and list of potentially eligible study participants was obtained from each of the 12 selected health facilities. The total list of potentially eligible healthcare providers served as the sampling frame. Healthcare providers were then stratified by cadre as nurses, doctors, dentists, clinical officers and community oral health officers. Proportionate allocation based on number of healthcare providers in each cadre was used to determine the number of healthcare providers to be sampled from each cadre out of the sample size of 400. Healthcare providers from each stratum were then selected using simple random sampling technique.

Data collection

A structured, pretested self-administered questionnaire was used to collect data on healthcare providers': i) socio-demographic characteristics (age, sex, smoking status, years of practice, job cadre); ii) current smoking cessation practices based on the five *As* model (ask, advise, assess, assist, and arrange follow up); iii) training on smoking cessation interventions; iv) factors perceived as barriers to the provision of smoking cessation interventions to patients. To assess current smoking cessation practices, respondents were asked to state the frequency of performance of each component of the 5A's model in their daily interactions with patients using a 3-point scale (*never, sometimes,* and *always*). Two points were awarded for *always*, one point for *sometimes* and zero points for *never*. Practice scores were derived as the sum of the scores from the each of the 10 practice based questionnaire items. Possible scores ranged from 0 to 20. A dichotomous variable was predefined with scores of 10 and above interpreted as an indicator of above average practice of smoking cessation interventions while scores of 9 and below were interpreted as an indicator of below average practice of smoking cessation interventions.[15] Barriers to provision of cessation interventions were assessed through a checklist of potential barriers which participants rated using a 3-point scale (*not a barrier, somewhat a barrier, important barrier*).

Questionnaire items were drawn from validated instruments used in prior studies to assess the knowledge, attitudes, and practice patterns of healthcare providers in relation to smoking cessation and these were modified to suit this study.[16-18] Questionnaire items were also formulated with reference to: the clinical practice guidelines on treatment of tobacco use and dependence by the United States Department of Health and Human Services.[9] The standards for training in smoking cessation treatments by the United Kingdom national health services and health development Agency;[19] and the consensus draft guideline for smoking prevention and cessation in the Africa and Middle East Region.[10] Reference was also made to studies identified during literature review.[20-22]

Data analysis

Descriptive statistics were used to report frequency distribution of various study variables. Pearson's chi square tests were carried out to evaluate association between healthcare providers level of practice of smoking cessation interventions with their socio-demographic variables. Binary logistic regression analysis was utilized to identify socio-demographic predictors for better practice scores. Statistical significance was accepted at $P<0.05$.

Table 3. Healthcare providers' perceptions of potential barriers to provision of smoking cessation interventions.

Potential barrier	Healthcare providers who rated barrier as important, No.
Insufficient training	252 (74.6)
Lack of guidelines	242 (71.6)
Lack of referral cessation specialists	234 (69.2)
Insufficient knowledge	227 (67.2)
Lack of education materials	196 (58.0)
Patients don't comply	118 (35.0)
Other priority health issues	102 (30.2)
Lack of time	97 (28.6)
Patients not interested	91 (26.9)

Table 4. Binary logistic regression analysis of factors determining cessation practices.

Variable	Odds ratio	95%CI for odds ratio		P value
		Lower	Upper	
Gender				
Female*	1			
Male	2.63	1.27	5.47	0.009
Practice years				
0-10	0.21	0.02	2.13	0.187
11-20	0.16	0.02	1.42	0.100
21-30	0.20	0.03	1.44	0.111
31-40*	1			
Age				
21-30	1.27	0.25	6.49	0.773
31-40	1.49	0.33	6.66	0.603
41-50	1.81	0.54	6.04	0.332
51-60*	1			
Smoking				
Never	2.31	0.48	11.16	0.297
Past	1.51	0.23	10.04	0.670
Current*	1			
Training				
No*	1			
Yes	3.66	1.63	8.26	0.002
Profession				
Nurse*	1			
Doctor	1.36	0.42	4.35	0.607
Clinical officers	2.19	1.08	4.44	0.029
Dentists	0.0	0.0	0.0	0.999
Community oral health officers	0.80	0.16	4.07	0.789

CI, confidence interval; *Reference category.

Ethical considerations

Approval to carry out the study was obtained from the Kenyatta Hospital and University of Nairobi Ethics and Research Review Committee before commencement of the study. All information obtained from the study participants was treated with confidentiality and used only for the intended purpose. Data collection procedures ensured confidentiality by the use of self-administered, anonymous questionnaires. Informed written consent was obtained from the participants before completion of the questionnaires.

Results

Characteristics of study participants

In total, 400 questionnaires were distributed, of which 359 were returned, yielding a response rate of 90%. However, 21 questionnaires were grossly incomplete and were excluded from the analysis leaving 338 validly completed questionnaires. Of the respondents, 251 were nurses. Majority of the respondents were between 21 to 40 years of age. Of the respondents, the 93% (n=314) reported that they had never smoked, 4.4% (n=15) were former smokers while 2.7% (n=9) were current smokers. Table 1 summarizes the socio-demographic characteristics of the respondents.

Past training on smoking cessation interventions

Of respondents, 302 (89%) stated that they had not received any formal training on smoking cessation interventions; 96% of the respondents (n=324) were willing to receive training on smoking cessation interventions.

Healthcare providers practice of smoking cessation interventions

The practice scores ranged from 0 to 20 [mean=9.6; standard deviation (SD)±4.2; n=338]; 54% (n=183) of the respondents obtained below average practice scores (0 to 9) while, 45.9% (n=155) attained above average practice scores (10 to 20). Table 2 presents information on the smoking cessation practices of healthcare providers based on the 5A's model for provision of smoking cessation interventions.

Only one-third of the healthcare providers (35%) reported that they always inquired about the patients smoking status, while 43.5% stated that they always advised smoking patients to quit. The least performed activities under the 5A'model were the *assist* and *arrange follow up* components. More than half of the respondents stated that they never discussed the use of smoking cessation medications (65%), assisted patients set up a quit date (54%) or set up a follow up appointment to assess the patients' progress on quitting smoking (57%).

Relationship between practice and socio-demographic characteristics

Chi square analysis was carried out to determine the association between various socio-demographic characteristics and the respondents' level of practice of smoking cessation interventions. Statistically significant associations were identified between level of practice with sex (χ^2=11.79; P=0.001) and training status on smoking cessation (χ^2=13.782; P<0.001).

Healthcare providers perceptions of barriers to provision of smoking cessation interventions

Insufficient training was perceived by the highest proportion of respondents (75%) as an important barrier to provision of smoking cessation interventions as illustrated in Table 3. Other health system factors perceived as important barriers by more than half of the respondents included: lack of guidelines (72%), lack of smoking cessation specialists (69%) and insufficient knowledge (67%).

Among the patient related barriers, less than a third (27%) of the respondents perceived patients' lack of interest to be an important barrier while 35% perceived patients lack of compliance as an important barrier. Lack of time and other priority health issues were perceived by less than a third of the healthcare providers to be important barriers to the provision of smoking cessation care.

Socio-demographic predictors of above average practice scores

Table 4 shows results of the binary logistic regression analysis carried out to evaluate the associations between the healthcare providers level of practice of smoking cessation interventions with their socio-demographic variables. Statistically significant associations were identified between practice of smoking cessation interventions with the sex, training status of respondents and the healthcare provider's cadre. Respondents who stated that they had received training on smoking cessation interventions were 3.7 times more likely to have higher practice scores than those without training [odds ratio (OR)=3.66; 95% confidence interval (CI): 1.63-8.26; P=0.003]. Males were a 2.6 times more likely to have above average practice scores compared to females (OR=2.63; 95% CI: 1.27-5.47; P=0.009), while clinical officers were 2.2 times more likely to have above average practice scores as compared to nurses (OR=2.19 CI: 1.08-4.44; P=0.029).

Discussion

The first step in the provision of smoking cessation interventions is the identification and documentation of a patients smoking status.[10] Various smoking cessation guidelines recommend that healthcare providers establish and record the smoking status of every adult patient.[9] However, only a third of the respondents in this study stated that they always asked patients about their smoking status. A large number of smoking patients in public health facilities may therefore remain unidentified.[3] Furthermore, nearly two thirds of respondents in this study did not routinely document their patients smoking status. The findings are consistent with the global adult tobacco survey that established that only 3 out of 10 smokers who had visited a healthcare provider in the past 12 months were advised to quit smoking. Similar findings were found in a study among family physicians in Egypt.[23] The identification of a patient's smoking status is crucial as it determines whether smokers receive all the other smoking cessation interventions.[9]

Although there was sub-optimal self-reported practice of all of the smoking cessation interventions within the 5A's model, more healthcare providers performed the *ask* and *advise* components as compared to the *assist* and *arrange follow up* components. The least performed cessation intervention was discussing about the use of smoking cessation medications with patients. Similar findings were observed in a study among physicians in Nigeria in which only 2.8% of the respondents prescribed nicotine replacement therapy to their patients.[24] These findings show that apart from occasionally screening for smoking and offering advice to quit, most healthcare providers did not go further to assist patients quit smoking.

Insufficient training was perceived by the highest number of respondents as an important barrier to the provision of smoking cessation interventions. This view was supported by the high number of healthcare providers (89%) that reported that they had not received formal training on smoking cessation interventions and the statistically significant association between training status and practice levels. Training of healthcare providers on smoking cessation has been found to improve the level of knowledge, confidence and performance of smoking cessation interventions by healthcare providers.[25] This study findings re-emphasize the Government's role in fast tracking the capacity building process as rec-

ognized in the tobacco control action plan and the tobacco control act.[4, 11]

Lack of smoking cessation treatment guidelines was also perceived by majority of the healthcare providers as an important barrier to the provision of smoking cessation interventions. This was consistent with the national capacity assessment of tobacco control policies by WHO that established that smoking cessation services in Kenyan public health facilities were unsystematic and lacking in standardization.[12] The Ministry of health had set a target in the national tobacco control action plan for the provision of relevant guidelines and management protocols on smoking cessation to healthcare providers by the year 2011, however, the crucial guidelines are yet to be rolled out.[4] Although healthcare providers are key in increasing uptake of tobacco cessation services, their lack of capacity, treatment guidelines and knowledge on how to offer cessation services are critically huge barriers.

Majority of the healthcare providers did not perceive patient related factors such as patients' failure to comply with smoking cessation information as important barriers to provision of smoking cessation interventions. This is in contrast to findings from similar studies in other countries. In a study among doctors in Hong Kong, lack of patient compliance was rated as an important barrier by 83% of the doctors.[20] The findings point to patients willingness to receive smoking cessation interventions. This is consistent with findings from the ITC survey that found that among 35% of smokers that were given advice to quit by doctors, 82% reported that the advice made them think about quitting tobacco.[13] Ensuring that smoking cessation interventions are constantly offered to smoking patients would therefore greatly increase the number of smokers reached and who consequently consider quitting. Being male, having being trained and being a clinical officer was found to be associated with better smoking cessation practices. Similarly, in a study among Portuguese health professionals, odds of asking about smoking and recording the smoking status was significantly higher among male healthcare providers than females.[26] In contrast, in a study carried out to assess whether sex and smoking status mattered towards the smoking cessation practices of healthcare providers in China, females who were non-smokers were found to be more likely to provide smoking cessation interventions as compared to both smoking and non-smoking males.[27] The findings imply the need to institute measures to ensure consistent smoking cessation practices across the various healthcare professionals.

Study limitations

Limitations to this research should be considered in interpreting the findings. This study relied on self-reports of healthcare providers to assess smoking cessation practices. Some level of under/over reporting may therefore have affected the results of the study. The assurance of confidentiality may however have limited such bias. In addition, this study focused on healthcare providers working in public health facilities in Kiambu County and cannot be generalized to all healthcare providers in Kenya.

Conclusions

In conclusion, slightly more than half of the healthcare providers surveyed attained below average practice scores. There was sub-optimal performance of all the smoking cessation interventions under the 5A's model, however, more healthcare providers reported that they asked and advised patients to quit as compared to those that assessed willingness to quit, assisted patients to quit or arranged follow up.

The authors therefore recommend that smoking cessation treatment guidelines be developed and rolled out together with robust capacity building for the health providers. A country like Kenya that has had a Tobacco Control Act since 2007 is long overdue in offering comprehensive tobacco cessation services for the 2.5 million Kenyans who currently smoke. In addition, equipping health workers with tobacco control knowledge is a great opportunity to ensure they are involved in preventing initiation and reduction of second hand smoke among vulnerable populations such as children, pregnant women and the youth.

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