

# Formação de competências na cessação do tabagismo para estudantes da pós-graduação de enfermagem comunitária em Macau

A competency-based training in smoking cessation for post-graduate diploma students in community nursing in Macao

Formación en competencias para cese del tabaquismo para estudiantes diploma-postgrado en enfermería comunitaria en Macao

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## Resumo

Contexto: O abandono do hábito de fumar é a principal preocupação do governo da Região Administrativa Especial de Macau. Os Enfermeiros de Prática Avançada (EPAs)/enfermeiros desempenham um papel importante na divulgação de intervenção e aconselhamento sobre o abandono do hábito de fumar. No entanto, os EPAs não estão preparados para tal e, atualmente, não existem currículos suficientes relacionados com este tema em Macau. Objetivos: Avaliar o efeito de um *workshop* de dois dias sobre cessação do tabagismo para EPAs relativamente a competência, conhecimento e confiança exigidas no abandono do hábito de fumar. Método: Projeto pré-teste e pós-teste, com questionários para determinar o aumento da competência observado nos alunos de pós-graduação de Enfermagem Comunitária (N = 18), como resultado do *workshop* sobre cessação do tabagismo. Resultado: Os participantes revelaram que a formação teve um impacto significativo na melhoria das suas competências específicas na área da cessação tabágica; que o *workshop* foi claramente apreciado, útil e valorizado; e que os seus conhecimentos, confiança, vontade de intervir, avaliar, planear e aconselhar os clientes aumentaram. Conclusão: Os resultados deste estudo apoiam formação baseada em competências no abandono do hábito de fumar para os EPAs / enfermeiros. O estudo indica que as estratégias de intervenção de curta duração para a formação, como um *workshop* sobre o abandono do hábito de fumar, podem ter um impacto positivo na melhoria de competências dos EPA para trabalhar sobre cessação do tabagismo.

**Palavras-chave:** enfermeiros de prática avançada; abandono do hábito de fumar; educação baseada em competências.

## Abstract

Context: Smoking cessation is a prime concern for the Macao Special Administrative Region government; Advanced Practice Nurses (APNs)/Nurses play an important role in disseminating smoking cessation intervention and counseling. However, the APNs are not prepared in smoking cessation and currently there are insufficient related curricula for APNs in Macao. Objectives: This study evaluates the effect of a Two-day Workshop on Smoking Cessation for APNs on the competencies, knowledge and confidence required for smoking cessation. Methods: A pre-test and post-test design, using questionnaires to determine the perceived increased competency of the Post-graduated diploma in Specialty Nursing Program (PgDSNP) students (Community Health Nursing) (N=18) as a result of the smoking cessation workshop. Results: Participants reported that the training had a significant impact on improving their specific competencies in the area of smoking cessation, that the workshop was clearly liked, valued and helpful, and that their knowledge, confidence, willingness to intervene, assess, plan and counsel clients had increased. Conclusions: Results of this study support competency based training in smoking cessation for APNs/nurses, and indicate that short intervention strategies for training, such as a Smoking Cessation Workshop, can have a positive impact on improving APN competencies for working on smoking cessation.

**Keywords:** advanced practice nursing; smoking cessation; competency-based education.

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## Resumen

Contexto: El Cese del tabaquismo es una de las principales preocupaciones del Gobierno de la Región Administrativa Especial de Macao. Los Enfermeros de Práctica Avanzada (EPAs) /enfermeros juegan un papel importante en la difusión de intervención y el asesoramiento para dejar de fumar. Sin embargo, los EPAs no están preparados en el cese del tabaquismo y, actualmente, no son suficientes los programas de estudio relacionados con este tema en Macao. Objetivos: Evaluar el efecto de un taller de dos días sobre el cese del tabaquismo para EPAs en competencias, conocimiento y confianza necesarias dejar de fumar. Método: Diseño pre-test y post-test, con cuestionarios para determinar el aumento de la competencia percibida de los estudiantes postgrado en enfermería comunitaria (N = 18), como resultado del taller. Resultados: Los participantes informaron que la capacitación tuvo un impacto significativo en la mejora de sus competencias específicas, en el ámbito del cese del tabaquismo, que el taller fue claramente apreciado, valorado y útil; y que su conocimiento, confianza, voluntad de intervenir, evaluar, planificar y aconsejar clientes habían aumentado. Conclusión: Los resultados de este estudio apoyan la formación basada en la competencia en el cese del tabaquismo para EPAs / enfermeros. Por otra parte, el estudio indica que breves estrategias de intervención para formación, como un taller en el cese del tabaquismo, pueden tener un impacto positivo en la mejora de las competencias de los EPAs para trabajar en el cese del tabaquismo.

**Palabras clave:** enfermería de práctica avanzada; cese del tabaquismo; educación basada en competencias.

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## Introduction

Tobacco use is the leading cause of preventable death and diseases, causing untold human suffering globally and contributing to escalating health care costs. The World Health Organization Report (2008), reporting on the Global Tobacco Epidemic, noted that tobacco use is a risk factor for six of the eight leading causes of death in the world (p. 8), and these causes are similar to the situation in Macao.

The *Macao Yearbook of Statistics 2010* reported that the three main health problems in Macao were: neoplasm, diseases of circulatory system and diseases of respiratory system (Macao, Special Administrative Region. Serviços de Saúde do Governo de Região Administrativa de Macau (2011); Macao government's Statistics and Census Service (Macao Special Administrative Region. Direcção dos Serviços de Estatística e Censos (2011). A school-based survey of students in primary six and form 1-3, conducted in 2005 by Chan & U (2005) and the results indicated that the smoking prevalence among students aged 13-15 was 33.8% for boys and 28.3% for girls, i.e. young adolescents are engaging in health risk behaviors.

Smoking cessation is a prime concern for the Macao Special Administrative Region (SAR) government and it has indicated that improvement to health service provision is high on its agenda, focusing on primary health care services as a priority (Macao, SAR. Gabinete de Comunicação Social, 2011).

In Macao, Smoking Cessation Counseling Clinics were established in one Community Health Center in 2006 to provide pharmacotherapy and related counseling for clients who wanted to quit smoking, and it has subsequently expanded to all six Community Health Centers and one health station in the primary health care system, providing health education and promoting smoking cessation to the public. Macao's laws related to the 'Regime of prevention and limitation of Tobacco' (Law n° 21/96/M and Law n° 10/97/M) are designed to protect citizens and visitors from exposure to second-hand smoke, and the 'Regime of Tobacco Prevention and Control' (Law n° 5/2011/M) was launched on 1 January 2012, whereby smoking is prohibited in most public places. To respond to this policy, the training in smoking cessation for health care professionals is essential for promoting tobacco control (Muramoto & Lando, 2009).

As the largest group of health care professionals (17 million worldwide), nurses can have an enormous impact on this leading cause of preventable death (Sarna & Bialous, 2010). Increasing evidence indicates that cessation interventions by nurses are effective (Rice & Stead, 2008). In Macao, nurses are also the largest group of health professionals, as indicated in Macao's Statistics Bulletin 2010; the total number of doctors and nurses in Macao's Health Bureau was 1247 (402 doctors and 845 nurses). In 2010 the staffing of the primary health system included 166 nurses and 117 doctors (98 doctors, 6 traditional Chinese medicine doctors, and 13 dentists) (Macao Special Administrative Region. Serviços de Saúde do Governo de Região Administrativa de Macau, 2011). APNs training for Community Health Nursing in Macao started from 1990, and until 2013, have totally trained 51 APNs. However, core competencies in smoking cessation were not included in the curriculum. Training to prepare some doctors and nurses in smoking cessation are mainly held in Hong Kong.

## Literature Review

Advanced practice nursing is defined by Hamric as meeting three primary criteria: Graduate education, Certification and Practice focused on patient/community and seven core competencies: Central Competency: (i) direct clinical practice and Core Competencies: (ii) expert coaching and guidance of patients, families, and other care providers; (iii) consultation; (iv) research; (v) clinical, professional, and systems leadership; (vi) collaboration; (vii) ethical decision making, one of them central to the others (Hamric *et al.*; 2009).

Advanced Practice Nurses (APNs)/nurses are frontline health professionals, playing a major role in health education and promotion; the inclusion of tobacco control in professional curricula is necessary to increase the number of nurses prepared to deliver effective smoking cessation interventions (Sheffer, Barone & Anders, 2011; Chan *et al.*, 2007). The Macao Health Bureau is considering including the core competency in smoking cessation in its APN training, though, at the time of writing, there were limited relevant local curricula for smoking cessation for APNs in Macao.

It has been suggested that a short workshop on smoking cessation can make a significant impact on participants in improving their specific competencies in the area of smoking (Chan *et al.*, 2007; Heath *et al.*, 2007), and demonstrated increases in tobacco-related knowledge and attitudes (Sheffer, Barone & Anders 2011); even though such interventions (e.g. a two-day workshop) may not be enough to address the issue fully (Chan *et al.*, 2007; Heath *et al.*, 2007).

Smoking cessation intervention with counseling and pharmacotherapy (such as nicotine replacement therapy [NRT]) have been shown to be effective in increasing cessation rates (Chan *et al.*, 2007; Lancaster & Stead, 2005; Silagy *et al.*, 2004), the Centre for Addiction and Mental Health (CAMH) & Training Enhancement in Applied Cessation Counseling and Health (TEACH) (2012) suggested the Essential Skills and Strategies should included competencies associated with 5A's of smoking cessation counseling ('Ask, Advise, Assess, Assist, Arrange') and 5R's of motivation ('Relevance, Risks, Rewards, Roadblocks, Repetition'); behavioural, psychological and pharmacological interventions for people with tobacco dependence; motivational strategies with clients who are ambivalent about quitting smoking, and access resources for intervening with special populations.

Although nurses are the key participants in smoking cessation interventions, CHAN *et al.* (2007) identified factors as barriers to smoking-cessations interventions by nurses which include: (1) unmotivated patients; (2) heavy workload; (3) lack of time; (4) lack of resources, e.g. staffing; (5) lack of knowledge in smoking cessation and skills in communication and counseling (CHAN *et al.*, 2007). To respond to the community needs and the Government's concern, it is important not only for this topic to be researched but also for interventions to be planned to address smoking cessation through competency-based nursing practice and training.

The aim of the present study was to evaluate the effect of a two-day workshop on smoking cessation for Advance Practice Nurses on the competencies, knowledge and confidence required for smoking cessation. Furthermore, the study investigates the extent to which APNs/nurses can develop their roles and functions through education and training in order to improve the quality of community health in Macao, with specific reference to smoking cessation.

## Methods

A pre-test and post-test design was used to determine the self-reported competency of the participants in smoking cessation through the workshop. The questionnaires were given to all the participants (N=18) at the beginning and at the end of the workshop. A two-day Workshop entitled smoking cessation intervention & counseling was held in January, 2011. The program was developed by the principal researcher and incorporated several sources of efficacy information to improve the nurses' competencies, knowledge and skills in smoking cessation. An expert professor from Hong Kong, experienced in smoking cessation counseling, led the workshop. Participants learned how to assess the smoking status of the smoker, plan and deliver nursing interventions (pharmacological and behavioral) and to promote smoking cessation and relapse prevention. The content included: (1) health consequences of active and passive smoking; (2) nicotine dependence and addition therapy; (3) overview of evidence-based smoking cessation intervention; (4) assessing smoking status and the smoker's different stages of readiness to quit; (5) different tobacco dependency treatment approaches and models; (6) principles of helping people and key features of tobacco control counseling: motivational skills for quitting smoking, and the 5 "A"s and 5 "R"s; (7) motivational interviewing and case studies; (8) smoking cessation for special populations; and (9) treatment plan and practices. At the end of the workshop, participants were expected to plan and implement smoking cessation interventions for clients in their day-to-day work.

## Participants

The participants were the Post-graduate Diploma in Specialty Nursing Program (PgDSNP) students (Community Health Nursing) who had completed the theoretical elements of APN training and who were commencing the practicum phase. They completed the pretest and post-test survey (N=18); most participants were female (94.4%), married (94.4%), middle-aged (36-45 years) (83.3%), and all had studied in Macao. The majority (77.7%) had 11 or more years of nursing experience; all held a Bachelor's degree in

nursing, and the majorities were working in primary health care (72.2%, with 55.6% in Health Centers, 11.1% in the Transfusion Centre and 5.6% in the Tuberculosis Prevention and Control Centre). Nine (50.0%) were at Grade 1 and nine were at Grade 2.

## Instruments

The survey questionnaires were developed by the research team and were used to collect data on specific competencies in relation to smoking cessation before and after the workshop. These were used to assess the perceived increased competency of the participants as a result of the smoking cessation workshop for advance practice nurses on the competencies, knowledge and confidence required for smoking cessation. The questionnaire was in three main sections:

Questions based on demographic and professional characteristics: sex, age, educational and professional background and specialism, training in smoking cessation.

Questions based on the competencies set out by Sparacino, 2009 (in Hamric *et al.*, 2009: *Seven Core Competencies of APN*) concerning APNs competencies focusing specifically on smoking cessation, it consisted of 18 items using 5-point Likert scales for self-reporting. The questions addressed seven dimensions of core competencies: (1) direct clinical practice; (2) expert coaching and advice; (3) consultation; (4) research skills; (5) clinical and professional leadership; (6) collaboration; and, (7) ethical decision making

Questions to collect data on the participants' evaluation of the two-day workshop on smoking cessation before and after the workshop, including: 9 items on a 6-point Likert scale and 5 items to evaluate the knowledge and attitude of the participants to smoking cessation.

## Ethical considerations

Informed consent was gained from all participants, and they were informed in advance and on the days in question, that they had the right not to take part and/or to withdraw if they wished. Before the research could commence, permission to conduct the research was obtained from researcher's own institution.

## Data analysis

The Statistical Package for the Social Science (SPSS) was used for data processing. Descriptive statistical analysis was used to present demographic data. The Wilcoxon test for related samples for ordinal, nonparametric data was used to compute each of the 18 items, to investigate whether there were any changes between the pre-test and post-test; and was statistically significant ( $p < .05$ ). To examine the size of the difference between the results of the pre-test and the post-test, effect size was calculated. Effect size was used to indicate the relative magnitude of the differences between the two sets of scores' using partial *eta* squared (0.1-0.3=modest effect; 0.3-0.5=moderate effect; and  $>0.5$ =strong effect). Effect size was used to complement statistical significance testing, as significance testing is prone to variance according to sample size (Kline, 2004).

## Results

The APN competencies focusing specifically on smoking cessation

Table 1 summarizes the responses concerning the APNs competencies which focused specifically on smoking cessation. The upper row of each item indicates the numbers voting for that category on the pre-test and the lower row of each item indicates the number voting for that category on the post-test. The data indicate which items the respondents felt were 'not applicable' (6 items) or which they did not have any knowledge of the topic (the category 'none/unaware': 17 items) in the pretest survey; no incidence was recorded on these items in the post-test survey, being replaced by 'awareness', 'knowledgeable' and 'proficient'. At the pre-test level, many participants indicated that they were unaware of many of the 18 items, however, during the post-test questionnaire, none of the items was rated as 'unaware'. There was a marked increase in self-reported 'knowledge' and 'proficiency' between the pre-test and post-test, particularly in items 1-9 and 14-19 in 'knowledgeable' and all 18 items in 'proficiency'. For all 18 items, the differences between the self-reported situation at the beginning and end of the workshop were statistically significant (using the Wilcoxon test;  $p < .05$ ). In other words, a short intervention was reported by the

participants to help their competencies in: clinical practice; expert coaching and advice; consultation; research; clinical and professional leadership; collaboration; and ethical decision making.

When the Wilcoxon test for related samples was computed for each of the 18 items, Table 2 (right

column) indicates that, for every item, a statistically significant difference was found ( $p < .05$ ) between the pre-test and the post-test scores, i.e. the participants reported that they had made statistically significant improvements in smoking competencies by being on the course.

TABLE 1 – the APNs competencies focused specifically to smoking cessation

		Not at all applicable	None/unaware	Awareness	Knowledgeable	Proficient	Z	Asymp. Sig. (2-tailed)
<b>I. DIRECT CLINICAL PRACTICE</b>								
1. Acts as expertise in advanced assessment, implementing nursing care, and evaluating outcomes of Smoking cessation	Pre-test	1(6%)	2(11%)	8(44%)	5(28%)	2(11%)	-3.066 <sup>a</sup>	.002
	Post-test			4(22%)	8(45%)	6(33%)		
2. Uses of a holistic perspectives, a deep understanding of each person as a complex and unique person	Pre-test		2(11%)	10(56%)	4(22%)	2(11%)	-2.546 <sup>a</sup>	.011
	Post-test			3(17%)	12(66%)	3(17%)		
3. Formation of therapeutic relationship with clients	Pre-test		2(11%)	7(39%)	5(28%)	4(22%)	-2.285 <sup>a</sup>	.022
	Post-test			1(6%)	10(55%)	7(39%)		
4. Uses of expert clinical thinking and skillful performance	Pre-test	2(11%)	4(22%)	5(28%)	5(28%)	2(11%)	-2.555 <sup>a</sup>	.011
	Post-test			4(22%)	10(56%)	4(22%)		
5. Uses of reflective practice	Pre-test		3(17%)	6(33%)	5(28%)	4(22%)	-2.725 <sup>a</sup>	.006
	Post-test				12(67%)	6(33%)		
6. Reliance on research evidence to practice	Pre-test		1(6%)	9(50%)	7(39%)	1(6%)	-1.807 <sup>a</sup>	.071
	Post-test			6(33%)	9(50%)	3(17%)		
7. Uses of diverse health and illness management approaches	Pre-test	1(6%)	1(6%)	9(50%)	6(33%)	1(6%)	-3.354 <sup>a</sup>	.001
	Post-test			2(11%)	9(50%)	7(39%)		
<b>II. EXPERT COACHING AND ADVICE</b>								
8. Encompasses modeling clinical expertise while helping nurses integrate new evidence into practice.	Pre-test	1(6%)	2(11%)	10(56%)	3(17%)	2(11%)	-2.913 <sup>a</sup>	.004
	Post-test			4(22%)	10(56%)	4(22%)		
9. Provides education or teaching skills to clients and family	Pre-test	1(6%)	3(17%)	5(28%)	6(33%)	3(17%)	-3.165 <sup>a</sup>	.002
	Post-test				9(50%)	9(50%)		
10. Adopts a person-centered position	Pre-test		1(6%)	5(28%)	7(39%)	5(17%)	-2.739 <sup>a</sup>	.006
	Post-test				7(39%)	11(61%)		
11. Uses active listening skill and expert communication skill	Pre-test		1(6%)	6(33%)	8(44%)	3(17%)	-3.286 <sup>a</sup>	.001
	Post-test			5(28%)	13(72%)			
12. Demonstrates empathy with clients and family	Pre-test		1(6%)	4(22%)	8(44%)	5(28%)	-2.588 <sup>a</sup>	.010
	Post-test				7(39%)	11(61%)		
13. Uses motivational interviewing skill	Pre-test	1(6%)	1(6%)	6(33%)	7(39%)	3(17%)	-3.082 <sup>a</sup>	.002
	Post-test			1(6%)	6(33%)	11(61%)		
<b>III. CONSULTATION</b>								
14. Involves reviewing alternative approaches and implementing planned change	Pre-test		6(33%)	6(33%)	5(28%)	1(6%)	-3.275 <sup>a</sup>	.001
	Post-test			3(17%)	10(56%)	5(28%)		
<b>IV. RESEARCH SKILLS</b>								
15. Involves interpreting and using research, evaluating practice, and collaborating in research	Pre-test		5(28%)	6(33%)	6(33%)	1(6%)	-2.332 <sup>a</sup>	.020
	Post-test			4(22%)	8(44%)	6(33%)		
<b>V. CLINICAL AND PROFESSIONAL LEADERSHIP</b>								
16. Involves responsibility for innovation and change in the patient care system	Pre-test		6(33%)	7(39%)	3(17%)	2(11%)	-2.992 <sup>a</sup>	.003
	Post-test			4(22%)	10(56%)	4(22%)		
<b>VI. COLLABORATION</b>								
17. Focuses on multidisciplinary team building	Pre-test			9(50%)	7(39%)	2(11%)	-2.153 <sup>a</sup>	.031
	Post-test			3(17%)	8(44%)	7(39%)		
<b>VII. ETHICAL DECISION MAKING</b>								
18. Involves influence in negotiating moral dilemmas, allocating resources, directing patient care and access to care	Pre-test	1(6%)	4(22%)	6(33%)	5(28%)	2(11%)	-2.839 <sup>a</sup>	.005
	Post-test			4(22%)	10(56%)	4(22%)		

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Table 2 reports the effect size (E.S.) of the difference between the results of the pre-test and the post-test (using partial *eta* squared), indicating where these were particularly strong and moderately strong. The data clearly suggest that the course had a significant impact on the participants in improving their specific competencies in the area of smoking cessation. The effect sizes were particularly strong for several items: (9) Provides education or teaching skills to clients and family: E.S.=.519; (15) Involves interpreting and using research, evaluating practice, and collaborating in research: E.S.=.494; (8) Encompasses modeling clinical expertise while helping nurses integrate new

evidence into practice: E.S.=.488; (1) Acts as expertise in advanced assessment, implementing nursing care, and evaluating outcomes: E.S.=.468; and (7) Uses of diverse health and illness management approaches: E.S.=.445. The effect sizes were moderately strong for several items: (12); Demonstrates empathy with clients and family: E.S.=.328, (10) Adopts a person-centered position: E.S.=.319 and (18) Involves influence in negotiating moral dilemmas, allocating resources, directing patient care and access to care: E.S.=.308. The weakest effect was for item (3): Formation of therapeutic relationship with clients: E.S.=.020.

TABLE 2 – Effect sizes between the pre-test and the post-test

Item	Partial eta squared (using corrected model statistic)
<b>I. DIRECT CLINICAL PRACTICE</b>	
1. Acts as expertise in advanced assessment, implementing nursing care, and evaluating outcomes	.468 **
2. Uses of a holistic perspectives, a deep understanding of each person as a complex and unique person	.100
3. Formation of therapeutic relationship with clients	.020
4. Uses of expert clinical thinking and skillful performance	.181
5. Uses of reflective practice	.242
6. Reliance on research evidence to practice	.111
7. Uses of diverse health and illness management approaches	.445 **
<b>II. EXPERT COACHING AND ADVICE</b>	
8. Encompasses modeling clinical expertise while helping nurses integrate new evidence into practice.	.488 **
9. Provides education or teaching skills to clients and family	.519 **
10. Adopts a person-centered position	.319 *
11. Uses active listening skill and expert communication skill	.215
12. Demonstrates empathy with clients and family	.328 *
13. Uses motivational interviewing skill	.217
<b>III. CONSULTATION</b>	
14. Involves reviewing alternative approaches and implementing planned change	.224
<b>IV. RESEARCH SKILLS</b>	
15. Involves interpreting and using research, evaluating practice, and collaborating in research	.494 **
<b>V. CLINICAL AND PROFESSIONAL LEADERSHIP</b>	
16. Involves responsibility for innovation and change in the patient care system	.110
<b>VI. COLLABORATION</b>	
17. Focuses on multidisciplinary team building	.220
<b>VII. ETHICAL DECISION MAKING</b>	
18. Involves influence in negotiating moral dilemmas, allocating resources, directing patient care and access to care	.308 *

\* Moderate effect sizes \*\* Strong effect sizes

The nurses were also asked to rate their knowledge of the importance of smoking cessation, their abilities and competencies to work in smoking cessation, their plans for handling smoking cessation, and their confidence in handling smoking cessation (Tables 3 and 4). To find out if there were any statistically

significant changes in the nurses' views before and after the workshop, the Wilcoxon test of difference between related samples was conducted; the statistical significance levels are reported in the right hand column of each table.

### Knowledge of importance and planning for smoking cessation

In all cases, there was a statistically significant difference between the participants' scores before and after the workshop (Table 3), indeed for four out of the six items the level of significance was very high, indicating a large change. The items included: (2) I know how to assess the smoker's different stages of readiness to quit, (3) I know how to assess the smoker's nicotine dependence level, (4) I know how to help the smokers choosing Nicotine replacement,

and (5) I could provide appropriate tobacco control counseling to help smokers quit smoking. Before the workshop the scores varied between participants, some reporting the disagreement scale category for items, whilst some reported agreement; but after the workshop, all the scores indicated agreement; in addition, most of these were in the highest or second highest categories of agreement. This indicates that the participants' knowledge of smoking cessation and their plan for action for smoking cessation had increased significantly since the workshop.

TABLE 3 – Knowledge of, and planning for smoking cessation

	Totally not agree	Mostly not agree	Not agree	Agree	Mostly agree	Totally agree	Sig. (2-tailed)
<b>1. I am clear about the importance of helping people quit smoking</b>							
Before workshop	1 (5.6%)			4 (22.2%)	3 (16.7%)	10 (55.6%)	.204
After workshop				1 (5.6%)	3 (20.0%)	11 (73.3%)	
<b>2. I know how to assess the smoker's different stages of readiness to quit</b>							
Before workshop	1 (5.6%)	1 (5.6%)	10 (55.6%)	5 (27.8%)	1 (5.6%)		.001
After workshop				2 (13.3%)	11 (73.3%)	2 (13.3%)	
<b>3. I know how to assess the smoker's Nicotine dependence level</b>							
Before workshop	5 (27.8%)	8 (44.8%)	4 (22.2%)	1 (5.6%)		5 (27.8%)	.001
After workshop				9 (45%)	6 (40%)		
<b>4. I know how to help the smokers choosing Nicotine replacement</b>							
Before workshop	2 (11.1%)	3 (16.7%)	9 (50%)	4 (22.2%)			.000
After workshop				4 (26.5%)	6 (40.0%)	5 (33.3%)	
<b>5. I could provide appropriate tobacco control counseling to help smokers quit smoking</b>							
Before workshop	1 (5.6%)	1 (5.6%)	10 (55.6%)	4 (22.2%)	2 (11.1%)		.002
After workshop				7 (46.7%)	7 (46.7%)	1 (6.7%)	
<b>6. I plan to do something in the coming week for helping the smokers quit smoking</b>							
Before workshop	3 (17.6%)	5 (29.4%)	7 (38.9%)	2 (11.1%)		3 (17.6%)	.026
After workshop	1 (6.7%)		11 (73.3%)	2 (13.3%)	1 (6.7%)	1 (6.7%)	

\* $p < .05$

### Confidence in handling smoking cessation

There was a statistically significant difference between the nurses' voting before and after the workshop in all cases (Table 4), and the significance level was very high, indicating a large change. Before the workshop the voting was spread out to include the categories

of low confidence, but after the workshop the votes had moved significantly toward the categories of 'confidence' and 'high confidence'. Nurses reported that their confidence in handling smoking cessation had increased significantly by the end of the workshop.

TABLE 4 – Confidence in handling smoking cessation

	Totally not confident	Mostly not confident	Not confident	Confident	Mostly confident	Totally confident	Sig. (2-tailed)
<b>1. I am confident that I could give appropriate help to the quit-smokers</b>							
Before workshop		5 (27.8%)	6 (33.3%)	6 (33.3%)	1 (5.6%)		.001
After workshop				8 (53.3%)	7 (46.7%)		
<b>2. I will try to give appropriate help to the quit-smokers</b>							
Before workshop		2 (11.1%)	2 (11.1%)	1 (6.1%)	2 (11.1%)	1 (5.6%)	.002

After workshop			2 (13.3%)	9 (60.0%)	4 (26.7%)	
<b>3. I have a detailed plan to help the quit-smokers</b>						
Before workshop	3 (16.7%)	3 (16.7%)	8 (44.4%)	4 (22.2%)		.001
After workshop			2 (13.3%)	10 (66.7%)	3 (20.0%)	

\*p < .05

### Results for evaluation of the workshop

Table 5 presents the results of the evaluation of the workshop. It indicates clearly that the nurses liked the workshop, fifteen (83.3 %) giving it the highest score ('totally like'), and thirteen (72.2%) nurses finding the workshop very helpful. The most popular part of the workshop was that which covered 'methods of motivational skills for quitting smoking',

followed closely by 'the basic principles and practice of the 5 'A's and the 5 'R's'. When asked which parts of the workshop they disliked, there were no scores apart from one: in the category of 'none', i.e. they liked all the parts of the workshop. The nurses further reported that they found the 'methods of motivational skills for quitting smoking' and 'the basic principles and practice of the 5 'A's and the 5 'R's' most helpful.

TABLE 5 – Results for evaluation of the workshop

Questions and results	Frequency	Percent
<b>1. Do you like this Workshop?</b>		
<i>Totally do not like</i>	1	5.6
<i>Mostly do not like</i>	0	0.0
<i>Do not like</i>	0	0.0
<i>Like</i>	1	5.6
<i>Mostly like</i>	1	5.6
<i>Totally like</i>	15	83.3
<b>2. Do you think this Workshop helpful?</b>		
<i>Totally not helpful</i>	1	5.6
<i>Mostly not helpful</i>	0	0.0
<i>Do not helpful</i>	0	0.0
<i>Helpful</i>	1	5.6
<i>Mostly helpful</i>	3	16.7
<i>Totally helpful</i>	13	72.2
<b>3. Which part of the Workshop did you like most?</b>		
<i>Harm of active and passive smoking</i>	3	15.0
<i>Advantages and method for quitting smoking</i>	3	15.0
<i>The basic principles and practice of the 5 'As' and 5 'Rs'</i>	9	45.0
<i>The principles of motivational skills for quitting smoking</i>	3	15.0
<i>The methods of motivational skills for quitting smoking</i>	11	55.0
<i>The planning and practice for helping to quit smoking</i>	3	15.0
<i>The planning of smoking cessation for different groups of populations</i>	3	15.0
<i>None</i>	3	15.0
<b>4. In general, which part of the Workshop is most helpful for helping smokers to quit smoking?</b>		
<i>Harm of active and passive smoking</i>	6	30.0
<i>Advantages and method for quitting smoking</i>	6	30.0
<i>The basic principles and practice of the 5 'As' and 5 'Rs'</i>	12	60.0
<i>The principles of motivational skills for quitting smoking</i>	6	30.0
<i>The methods of motivational skills for quitting smoking</i>	12	60.0
<i>The planning and practice for helping to quit smoking</i>	7	35.0
<i>The planning of smoking cessation for different groups of populations</i>	6	30.0
<i>None</i>	2	10.0

## Discussion

### Training Outcomes

The results of this study suggest that the brief smoking cessation workshop was perceived to be effective in increasing knowledge, understanding in smoking cessation. Nurses' became more aware of the skills required in smoking cessation counseling. This was evidenced by the overall increased numbers on the post-test scoring in the higher categories of 'awareness' 'knowledgeable' and 'proficient'. The self reported resulted the improvement in competence in participating nurses.

The findings are in accordance with other research which indicates that a short workshop on smoking cessation can make a significant impact on participants in improving their specific competencies in the area of smoking cessation (Sheffer, Barone & Anders, 2011; Chan *et al.*, 2007; Heath *et al.*, 2007). In present study, the participants indicated that the two-day workshop was not enough to address the issue fully (Chan *et al.*, 2007; Heath *et al.*, 2007), though the theory is clear, they had yet had a chance to put the theory to practice.

All the PgDSNP students who attended the two-day workshop indicated that the most important parts of the workshop on smoking cessation were that they: (a) could gain new knowledge and skills about smoking cessation; and (b) learned how to apply their learning to their daily practice. The data suggest that a short course, a brief intervention, brings considerable, noticeable improvements to such specific competencies.

Whilst it is perhaps unrealistic to expect a brief workshop to result in marked improvement to participants' general/overall development of competencies, it is however effective in developing awareness, and strengthen skills.

As a result of the workshop the nurses:  
became clearer about the importance of helping people quit smoking;  
became aware of how to assess the smoker's different stages of readiness to quit;  
understood how to assess the smoker's nicotine dependence level;  
learned how to help the smokers choosing nicotine replacement;  
learned how to provide appropriate tobacco control counseling to help smokers quit smoking;

planned to do something in the coming week for helping the smokers to quit smoking;  
increased their self-confidence so that they could confidently give appropriate help to those smokers seeking to quit;  
indicated that they would try to give appropriate help to those smokers who were seeking to quit; and  
were more ready to prepare a detailed plan to help the smokers to quit.

The results indicate that the workshop was helpful; in addition, participants highly valued and enjoyed the workshop. It was further reported that the workshop increased their knowledge, confidence, assessment and planning skills, as well as their abilities in counseling.

### Limitations

The post-test was conducted immediately after the short course had finished. Whether the long-term effects of the course on the development and practice of specific and general competencies in participants can be sustained would require another post-test after a longer period of time. Further, the sample size was small, and so it may be safer to suggest that the statistics indicate rather than prove unequivocally. Thirdly, the data here are self-reported, and external checks (e.g. observational studies) might be necessary to ensure that the self-reporting is accurate and reliable. Finally, given the small, non-random sample, it was considered unwise to calculate whether differences in the characteristics of the sample exerted any influence on the results.

### Recommendations

A more widespread and larger research study could be conducted to test the efficacy of the intervention in terms of the effects of the workshop on the services provided to the clients. A follow-up research study for the PgDSNP students is also important to identify the perception of their knowledge, confidence, willingness to try, assessment, planning and counseling abilities in the long term.

## Conclusion

The findings of this study suggest important implications for nurses, educators, nurse managers and policy makers. All the nurses receive training

in smoking cessation to enhance their knowledge, skills and confidence. These are extremely important to meet the health policy according to the community health needs in Macao. Although the workshop was only very brief, it found self-reported improvement, and further reflected the importance of brief interventions for training. All the participants considered core competencies to be important for nurses; the most popular part of the workshop was that which covered 'methods of motivational skills for quitting smoking' and 'the basic principles and practice of the 5 'A's and the 5 'R's' mentioned earlier. Results of this study provide a foundation for further research and a competency-based curriculum in smoking cessation for APNs/ nurses training. As nursing is a profession marked by continuous improvement and quality assurance, education and training are important ways to develop the roles and functions of APNs in the community to promote the health and wellness of the population.

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