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ORIGINAL ARTICLE

Competency model for public health nurses working on tobacco control in local governments in Japan: A qualitative study

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Abstract

Aim: In Japan, public health nurses play a major role in tobacco control at the local government level. However, the competencies required are not clear. This study aimed to identify competencies of public health nurses working on local tobacco control in Japan.

Methods: Twelve expert public health nurses from nine local governments in Japan participated in semi-structured interviews using the Behavioral Event Interview. Data analysis used the Iceberg Model and qualitative descriptive methods.

Results: The competencies of the public health nurses were driven by three "motives": strong motivation to pioneer and change tobacco control; unwavering determination to remove barriers to tobacco control; and strong drive to achieve tobacco control. Public health nurses also showed three "attitudes": a partnership-oriented stance to delivering tobacco control; enthusiasm for evidence-based goals; and commitment to developing expertise and roles. These underpinned eight "skills": advocating to raise awareness of the need for tobacco control; positioning tobacco control as a policy issue based on regional and social situations; creating an organizational system for tobacco control; pioneering opportunities for intervention and delivering effective and locally appropriate activities; evaluating and improving the quality of tobacco control measures; developing and establishing community-based measures for tobacco-free communities; expanding activities by strategically collaborating with stakeholders; and coordinating and negotiating to avoid conflicts.

Conclusions: Public health nurses who promote tobacco control share characteristics, despite barriers such as resistance inside and outside the organization. In the future, these could be used as indicators of the competency of public health nurses working on local tobacco control.

KEYWORDS
competency, health promotion, local government, public health nurses, qualitative research, tobacco

1 | INTRODUCTION

The negative health effects of tobacco are very clear (Ministry of Health, Labour and Welfare, 2016; U.S. Department of Health and Human Services, 2006). In Japan, annual excess mortality is 128,900 from smoking (Ikeda et al., 2012) and 15,000 from passive smoking (Ministry of Health, Labour and Welfare, 2016). A comprehensive and effective tobacco

control strategy covers monitoring, protecting, offering, warning, enforcing, and raising taxes on tobacco use (MPOWER), based on the WHO global convention, "Framework Convention on Tobacco Control" (World Health Organization, 2003, 2008). However, Japan is behind on tobacco control compared with other countries and the smoking rate remains high (World Health Organization, 2017). New issues have emerged with the rapid spread of heat-not-burn tobacco (Tabuchi et al., 2015). Strengthening tobacco control is therefore both urgent and necessary.

Japan has national-level legal regulations and policies on tobacco control and health, such as "Health Japan 21" (Ministry of Health, Labour and Welfare, 2012) and the Health Promotion Act. Prefectural and municipal governments put these national policies into action at the local level, and this is the focus of the present study. Approximately 80% of the professionals who play a central role in municipal measures for tobacco control are public health nurses (PHNs), with others including clerks, dieticians, and dental hygienists (Shinmura, Kayaba, Kunisawa, Wakabayashi, & Yanagawa, 2004). Tobacco control in local governments relies on health promotion strategies targeting both individuals and entire communities (World Health Organization, 1986). PHNs undertake a wide range of public health nursing activities in tobacco control, such as supporting individual smoking cessation as part of local government health projects, and implementing and evaluating measures in health promotion plans (Michibayashi & Sakurai, 2015). They are also expected to take the initiative in developing community-based approaches (Michibayashi, 2016). However, local tobacco control varies between regions (Michibayashi, Nakamura, Sakai, & Omote, 2016), and PHNs tend to be less proficient in providing smoking cessation support than in other health promotion work such as encouraging good dietary habits and exercise (Muramoto et al., 2015). There are few population-based approaches (Ministry of Health, Labour, and Welfare, 2012) to promoting community-based tobacco control, and these are regarded as a challenge in Japan and elsewhere (Dahi, 2018). Unlike the situation in other public health fields, barriers to tobacco control include conflicts of interest among stakeholders, interference from the tobacco industry, and misrepresentation of the harm caused by smoking and passive smoking (Satterlund, Cassady, Treiber, & Lemp, 2011a). PHNs are required to develop a comprehensive tobacco strategy to deliver planned outcomes consistent with the national health administration system and regional characteristics. This is clearly complex.

To strengthen the ability of PHNs to provide effective services, it is useful to focus not only on their knowledge and skills, but also on competencies, which are behavioral characteristics that lead to achievements and include motives, traits, and values (Okamoto et al., 2007). The core competencies of PHNs have been identified in Japan and elsewhere (Community Health Nurses Association of Canada, 2009; Okamoto et al., 2007; Quad Council of Public Health Nursing Organization, 2011; Saeki, Izumi, Uza, & Takasaki, 2003). However, different competencies are needed for different areas of work (Spencer & Spencer, 1993). In tobacco control, competencies have been described for individualized support for smoking cessation (Michie, Churchill, & West, 2011). However, competencies required for PHNs to promote comprehensive tobacco control at a community level have not been clarified, which may cause delays in establishing training and research to improve the skills of PHNs.

The Iceberg Model of Spencer and Spencer (1993) describes the theories of competency. Knowledge and skills are at the surface of the "iceberg", manifesting in behaviors that lead to achievements. Other factors, such as motives, traits, attitudes, values, and self-concept, lie deeper, explaining the connections between these factors (Spencer & Spencer, 1993). There are many barriers to tobacco control, unlike other areas of public health nursing. It may therefore be important to clarify competencies needed to promote tobacco control by considering deeper factors associated with behaviors, as well as surface knowledge and skills. Examining comprehensive tobacco control promotion policies by looking at the competencies required to deliver them may be useful to strengthen nationwide and regional tobacco control strategies. The details and structure of each may help to clarify the roles of PHNs, and provide useful insights for improving both public health nursing activities and education for PHNs. The objective of this study was therefore to identify the composition of competencies of PHNs working on tobacco control in local governments.

The study used a number of operational definitions. Community-level tobacco control meant that there were comprehensive measures for the entire community as a health promotion activity (Centers for Disease Control and Prevention, 2014; Douglas, Carter, Wilson, & Chan, 2015; World Health Organization, 1998). The promotion of tobacco control was defined as promotion based on a series of processes from designing a comprehensive effective tobacco control plan to implementing and evaluating, including both individual smoking cessation support and treatment, and also passive smoking, smoking prevention, the provision of information, education/awareness-raising, and a tobacco control promotion system. Competency was defined as "a fundamental behavioral trait of individuals needed for outstanding achievements in the occupation or situation, including: motive, trait, attitude, value, self-concept, knowledge, and skill" (Spencer & Spencer, 1993).

2 | METHODS

2.1 | Study design

We chose a qualitative descriptive approach (Holloway & Galvin, 2016; Sandelowski, 2000), because it is appropriate for the exploration and direct description of complex phenomena.

2.2 | Recruitment of the participants

The participants were all expert PHNs in charge of tobacco control in local governments with advanced tobacco control. PHNs meeting the selection criteria were recruited through recommendation by three researchers specialized in tobacco control and network sampling. Local governments with advanced tobacco control were defined as those taking action systematically and actively at a desirable level on "the tobacco control and countermeasures self-inspection form" (Suzuki, Nakamura, Masui, & Kinugasa, 2012). PHNs in charge of tobacco control were limited to those with at least 5 years' experience as a PHN with at least 1 year in the previous 10 years spent in charge of tobacco control. Twelve candidate local governments were considered, and cooperation for the study was requested after confirming that they met the selection criteria, and that there was a balance of local government types and locations. Finally, 12 PHNs from nine local governments agreed to participate in the study. Three local governments did not participate because of local reduction in measures and transfer of PHNs.

The characteristics of the participants are summarized in Table 1. All 12 participants were female with a mean experience of 22.7 years (7–37 years) as a PHN on average. They had a mean of 4.3 years (11 months–10 years) in charge of tobacco control. Two participants were from prefectural governments and the other 10 from municipal governments. The local governments were from six (75%) of the eight regional divisions of the Japanese islands. One participant was a manager, six were assistant managers, and five were considered staff. One participant had only 11 months of experience in tobacco control. She did not meet the selection criteria, but was included because we judged that she understood the work on tobacco control at the time of the survey.

2.3 | Interview procedure

The data collection period was November 2016 to March 2017. The multifaceted data collection approach drew mainly upon individual semi-structured interviews, which were supplemented by participant observation. The individual interviews used the Behavioral Event Interview (Spencer & Spencer, 1993), a data collection approach recommended for competency identification. This approach asks participants about their actions during important events at work, providing data about the competencies required to effectively perform professional duties (Spencer & Spencer, 1993). Each PHN was interviewed once following the interview guide, and the mean length of interview was 64.3 minutes (24–110 minutes). The interviews asked about the two to five most relevant episodes and important events related to the promotion of tobacco control in which the PHNs had been involved. The PHNs were asked to describe the episodes in detail as a complete story of successful and failed events. In total, 39 episodes were described by the participants, covering prevention of passive smoking, smoking cessation support, prevention of smoking, and promotion systems (Table 1). To give the PHNs time to recall suitable episodes, they were given the interview items in advance. We also observed the municipalities' tobacco control measures to understand more accurately the episodes (Holloway & Galvin, 2016). This provided detailed information about the sites of public health projects related to tobacco control, staff and activities involved, and the media used to raise awareness.

The interview guide was pre-tested with two people experienced in public health nursing who met the participant selection criteria. The contents of the interviews and participant observations were recorded with an IC recorder, and transcribed into notes after obtaining permission from the participants.

2.4 | Data analysis

A verbatim record was prepared from the recorded content and notes of the interview. Focusing on the promotion of tobacco control in local governments, the record was divided into analytical units, defined as meaningful sentences. Open coding was used to extract codes. The data were then organized into competencies requirements, and similarities and differences in the semantic content of the codes were used to generate concepts within subcategories. Common concepts were integrated into subcategories. The abstraction level was increased to form categories using the associations among subcategories. Associations between categories were investigated and structured to form a core category. No new category was formed when data analysis from 10 participants was completed. Finally, competency was divided into "motives", "attitudes", and "skills" for each ability requirement. The categories were structured using the Iceberg Model (Spencer & Spencer, 1993).

2.5 | Trustworthiness

Rigor was confirmed using the four evaluative criteria of trustworthiness (Lincoln & Guba, 1985). We used member

TABLE 1 Summary of participants' characteristics

Case no.	Sex	Years of experience as a public health nurse	Years of experience in tobacco control	Type of local government	Region	Position	Number of cases discussed in the interview	Case type[a]			
								Passive smoking prevention	Smoking cessation support	Prevention of smoking	Promotion system
A	F	19 years 7 months	4 years 8 months	Municipality	Hokkaido	Assistant manager	5 (3 successes, 2 failures)	○	○○	○	○
B	F	24 years	8 years	Prefecture	Kinki	Staff	3 (2 successes, 1 failure)	○○		○	
C	F	27 years	3 years 8 months	Municipality	Kyushu	Assistant manager	4 (3 successes, 1 failure)	○	○○		○
D	F	20 years 9 months	3 years 9 months	Municipality	Kinki	Assistant manager	2 (both successes)	○		○	
E	F	28 years 9 months	2 years	Municipality	Kinki	Assistant manager	3 (all successes)	○	○	○	
F	F	17 years 9 months	2 years 9 months	Municipality	Kinki	Assistant manager	2 (1 success, 1 failure)	○		○	
G	F	15 years 9 months	4 years 3 months	Municipality	Kinki	Staff	4 (2 successes, 2 failures)		○○○○		
H	F	37 years 6 months	10 years	Municipality	Chubu	Manager	2 (both successes)	○	○		
I	F	20 years 11 months	4 years 1 months	Municipality	Kanto	Staff	4 (all successes)		○○	○	○
J	F	7 years 11 months	11 months	Municipality	Kanto	Staff	2 (1 success, 1 failure)	○	○		
K	F	28 years 6 months	4 years	Prefecture	Shikoku	Assistant manager	3 (2 successes, 1 failure)	○○	○		
L	F	24 years 11 months	3 years	Municipality	Chubu	Staff	5 (all successes)	○	○○○	○	

[a]○ shows the tobacco control area for a particular case.

checking among six participants, and made partial corrections to the descriptions of categories based on the comments from the participants. In the series of the study processes, analysis was supervised by qualitative researchers specializing in public health nursing and tobacco control specialists, and consultations among the researchers were repeated several times to ensure neutrality and consistency. Applicability was ensured by detailed descriptions.

2.6 | Ethical considerations

This study was approved by the Kanazawa University Medical Ethics Committee (approval number: 719-1) and the Gifu University of Medical Science Research Ethics Committee (28-12). At the recruitment stage, we explained the objective of the study, content of the request, that they could choose not to participate, and there would be no disadvantages to withdrawing consent, that personal information would be protected and data managed appropriately, and arrangements for publication of the results. Similar explanations were given orally at the interview and written consent was obtained.

3 | RESULTS

3.1 | Competencies of PHNs working on tobacco control in local governments

Three domains of PHNs' competencies in promoting tobacco control were identified: “motives”, “attitudes”, and “skills”. There were three categories of “motives”: “strong motivation to pioneer and change tobacco control”, “unwavering determination to remove barriers to tobacco control”, and “strong drive to achieve tobacco control”. There were also three categories of “attitudes”: “a partnership-oriented stance to delivering tobacco control”, “enthusiasm for evidence-based goals”, and “commitment to developing expertise and roles”. These underpinned eight categories of “skills”: “advocating to raise awareness of the need for tobacco control”, “positioning tobacco control as a policy issue based on regional and social situations”, “creating an organizational system for tobacco control”, “pioneering opportunities for intervention and delivering effective and locally-appropriate activities”, “evaluating and improving the quality of tobacco control measures”, “developing and establishing community-based measures for tobacco-free communities”, “expanding activities by strategically collaborating with stakeholders”, and “coordinating and negotiating to avoid conflicts” (Tables 2–4). The categories are shown in parentheses (“ ”), raw data in italics, and square brackets indicate additions made by the researchers.

3.2 | “Motive”-related competencies

The three “motives” included several factors considered and desired by PHNs for the promotion of tobacco control. The PHNs had often not been aware of the significance of problems with tobacco use in the region until they took charge of tobacco control, and they had a strong motivation to change the regional norm of tolerance of smoking through preventive support. They talked about their strong will to achieve their goal, accomplishment of tobacco control, despite barriers inside and outside the organization. Participant K stated:

> *‘Having participated in a training seminar held by national government to learn about tobacco control, I realized we were really not doing enough in our community. We should do more on tobacco control……The rate of banning smoking within elementary/junior high school premises remains very low, showing that we need to take this issue more seriously.’*

Another participant (B) said:

> *‘To discuss smoking prevention [education] for children, we held a meeting, inviting members of municipal departments of education and teachers from various organizations. At the meeting, one of them stated that it is unnecessary to ban what is not banned by the government……I was shocked to hear such a horrible statement.’*

3.3 | “Attitude”-related competencies

The three “attitudes” represent the attitudes, beliefs, and values, or ways of looking and thinking through which PHNs externally expressed their will and emotions while promoting tobacco control. The PHNs expressed enthusiasm for partnering with local residents and other stakeholders, both inside and outside the organization, to counterbalance the forces of resistance to tobacco control, while understanding the importance of negotiating. They also wanted to protect children from harm from tobacco. The PHNs described the expertise needed to provide professional information on tobacco in an easy-to-understand way, recognize roles, and carry out duties. Participant L said:

> *‘We should clearly explain how harmful tobacco is, but we need to do this carefully, so we don't set smokers and stakeholders up as enemies……Strategies to lead people to take*

TABLE 2 Motives of public health nurses working on tobacco control in local governments

Categories	Subcategories	Concepts within subcategories
Strong motivation to pioneer and change tobacco control	Seeing tobacco control as preventive support	・Being aware of the health effects of smoking and passive smoking, and feeling impatient to do something to solve the problem
		・Strengthening awareness of tobacco control as preventive support provided by public health nurses
	Promoting tobacco control with local residents and stakeholders	・Feeling a sense of crisis about the reality of smoking and passive smoking in some areas
		・Feeling a sense of crisis about the lack of action in tobacco control by local governments
		・Promoting tobacco control while collaborating with public health nurses and local residents and stakeholders who are beyond the job category
	Changing the culture of tolerance toward tobacco use	・Being conscious of the strong regional culture that allows tobacco use
		・Recognizing the necessity of changing the incorrect assumption that tobacco is a "luxury good"
		・Recognizing that refraining from interacting with smokers or putting the interests of tobacco farmers ahead are the root of the problem
Unwavering determination to remove barriers to tobacco control	Leading the way without being hindered by confrontation	・Gaining motivation from strong resistance by external stakeholders
		・Not getting caught up in stakeholders' lack of understanding of anti-tobacco measures
		・Eliminating differences in public health nurses' perceptions about the importance of tobacco control
		・Eliminating opposition from local residents to strengthen passive smoking prevention measures (regulation)
	Promoting tobacco control despite lack of know-how	・Proceeding despite lacking useful information to help promote tobacco control
		・Encouraging behavioral change although smokers are nicotine-dependent
Strong drive to achieve tobacco control	Achieving tobacco control	・Reaching the goal of achieving tobacco control at any cost
		・Lowering the smoking rate within 5 to 10 years by establishing smoking prevention programs in schools
	Leading own and others' efforts to increase motivation	・Using response to initiatives as motivation for activities
		・Being motivated by the collaborative activities of other organizations and municipalities
		・Understanding the enthusiasm of external experts who support regional tobacco control

actions willingly, perhaps by drawing attention to children or infants, may work better than excessive approaches or loud protesting.'

3.4 | "Skill"-related competencies

The eight "skills" cover knowledge, techniques for carrying out tasks, and intentional behaviors of PHNs. Under "advocating to raise awareness of the need for tobacco control", PHNs explained the health impacts of tobacco and advocated the necessity of countermeasures to local residents and others to change stakeholders' awareness. They presented and referred to policies shared by smokers and non-smokers. Participant D stated:

'We wanted the three associations (Medical Association, Dental Association, and Pharmaceutical Association) to know that the city is placing importance [on preventing passive smoking] ……It is difficult to provide explanations as part of the municipal system, but I, as the person in charge, added descriptions [to the questionnaire] to explain these measures as part of [health promotion] plans, and asked them to cooperate.'

"Positioning tobacco control as a policy issue based on regional and social situations" and "creating an organizational system for tobacco control" were often carried out together. PHNs clarified the current status of tobacco control in the

TABLE 3 Attitudes of public health nurses working on tobacco control in local governments

Categories	Subcategories	Concepts within subcategories
A partnership-oriented stance to delivering tobacco control	Commitment to partnership with local residents and other stakeholders	・Believing in tobacco control based on collaboration with local residents and other stakeholders
		・Trusting local residents and other stakeholders collaborating on tobacco control
		・An attitude that does not create enemies, emphasizes relationships and focuses on communication
	Wanting to make progress while finding common ground with those resisting tobacco control	・Wanting to protect vulnerable people, such as children or pregnant women
		・Wanting to directly advance things
		・Desire to proceed rapidly, seeking understanding and cooperation as necessary
		・Wanting to advance proactively toward establishment of antismoking laws as a leader of passive smoking prevention
	Persistence in tobacco control	・Advocating repeatedly about the health effects of smoking and passive smoking, and the necessity of tobacco control
		・Being prepared to change views and not linger on mistakes
	Strong will and effort to deliver tobacco control	・Strong will to persevere with interventions
		・Working hard on individual problems
Enthusiasm for evidence-based goals	Belief in activities based on evidence	・Believing that tobacco control should be based on evidence
		・Wanting to protect future children from tobacco
	Confidence in the need for and achievement of tobacco control	・Conviction that the prevention of passive smoking is required by local residents
		・Confidence that results will be achieved if tobacco control advances
Commitment to developing expertise and roles	Firm belief that tobacco control relies on the expertise of public health nurses	・Mission as a public health nurse to protect the health of local residents and children
		・Believing that public health nurses have a role to provide technical information about tobacco use in simple terms
	Role recognition and responsibility as the person in charge of tobacco control	・Believing that those in charge of tobacco control should support and lead public health nurses
		・Accepting accountability as the person in charge of tobacco control

region and the vision of the local government, taking into account the opinions of both promoters and opponents, and positioned tobacco control as part of the overall health promotion plan. They tried to build a consensus with other PHNs, the wider health promotion system, and policy makers to increase support within the agency, and also created a system to promote tobacco control by the entire organization as a health project. Participant C stated:

> *'The person in charge changes, so we will need measures to address this. It is therefore important to establish tobacco control as a clear part of health promotion plans.'*

Regarding "pioneering opportunities for intervention and delivering effective and locally-appropriate activities", PHNs used all available opportunities to provide interventions in tobacco control and developed measures that were appropriate for the region. They talked about approaches such as reducing resistance by using messages from children, narrowing down the target, combining tobacco control measures with existing health projects and projects in other fields, and being realistic. For "evaluating and improving the quality of tobacco control measures", PHNs monitored, evaluated, and improved activities. They also standardized activities to assure quality. They used support by external experts in tobacco control and developed their own and internal and external stakeholders' skills. In "developing and establishing community-based measures for tobacco-free communities", they tried to spread and establish measures involving whole communities. They strengthened networks inside and outside the organization, empowering the community, by visualizing and publishing achievements. Participant C stated:

TABLE 4 Skills of public health nurses working on tobacco control in local governments

Categories	Subcategories	Concepts within subcategories
Advocating to raise awareness of the need for tobacco control ※ Advocating is defined here as a combination of activities designed to change organizations and society to solve health problems related to tobacco use	Explaining the health impacts of smoking and passive smoking, and advocating the need for tobacco control	・Providing straightforward and clear information on the health effects of smoking and passive smoking and smoking cessation treatment for local residents
		・Publishing survey results on smoking and passive smoking in particular areas
		・Appealing to local residents and others on anti-tobacco measures and the need for tobacco control using evidence
		・Representing the needs of local residents for tobacco control
	Indicating policies that smokers and non-smokers can agree	・Explaining policies on tobacco control to local residents and stakeholders
		・Explaining ideas that smokers and non-smokers can agree
	Changing stakeholders' views to drive action	・Identifying and encouraging key people who influence organizations
		・Urging stakeholders to understand the importance of tobacco control
Positioning tobacco control as a policy issue based on regional and social situations	Assessing the current condition of tobacco control	・Understanding the situation on smoking and passive smoking in particular areas
		・Understanding and comparing ambition to efforts made in regional tobacco control
	Assessing social situations, changes, and new information on tobacco control	・Understanding the direction of tobacco control measures, social situations and changes at national and prefectural level
		・Determining and updating evidence on an ongoing basis
	Clarifying the local government vision based on both opposition to and approval for tobacco control	・Considering practical tobacco control policies in local situations, considering public nature, effectiveness, and feasibility
		・Considering the municipality's policy on passive smoking prevention
		・Considering the opinions of tobacco control promoters and opponents neutrally and fairly
	Narrowing down priority measures and positioning tobacco control in the plan	・Identifying priorities like smoking prevention education, smoking by pregnant women and smoking relapse prevention
		・Positioning tobacco control as health promotion plan using plan reviews and system revision as an opportunity
		・Setting clear but feasible goals for reducing smoking and increasing passive smoking prevention
Creating an organizational system for tobacco control	Receiving policy makers' approval and creating mechanisms to promote tobacco control as a health business	・Obtaining consensus among other public health nurses and the entire section
		・Positioning tobacco control as a health business and creating a mechanism for it
		・Seeking policy makers' approval to systematize tobacco control
	Positioning tobacco control in higher-level plans and collaborative research, and supporting it across whole organizations	・Positioning tobacco control in the local government's comprehensive plan from the viewpoint of healthcare professionals
		・Advancing tobacco control as a part of collaborative research
	Increasing understanding within the agency and aiming for consensus with policy makers	・Involving bosses, colleagues, and stakeholders from other departments to increase understanding of tobacco control
		・Obtaining agreement of policy makers by devising to advance tobacco control

(Continues)

TABLE 4 (Continued)

Categories	Subcategories	Concepts within subcategories
Pioneering opportunities for intervention and delivering effective and locally-appropriate activities	Preparing the basis of tobacco control and creating opportunities for intervention	・Creating easy-to-understand policy materials and obtaining funding for tobacco control
		・Securing resources to promote tobacco control
		・Determining timing for tobacco control interventions
	Devising effective interventions with little resistance	・Incorporating the viewpoint that "smoking cessation support for those who want to quit" and "preventing unwanted passive smoking" are beneficial
		・Using non-smoking materials and educational posters incorporating messages from children
		・Approaching local residents about chronic obstructive pulmonary disease, and the workplace about health management
		・Explaining that passive smoking is exposure to other people's tobacco smoke (with a PM of 2.5)
	Focusing on targets, creating opportunities, and selecting methods to maximize effects	・Targeting pregnant women, children, and young people
		・Expanding smoking cessation support from individuals to their family members
		・Supporting and promoting short-term smoking cessation through maternal and child health projects which involves all target
		・Supporting smoking cessation while considering individuals in line with guidance
		・Choosing methods that make local residents and stakeholders more self-aware
	Thinking about cost-effectiveness and using existing health services where possible	・Incorporating smoking cessation support and information into existing maternal and child, and adult healthcare projects
		・Using existing fliers and teaching materials effectively
		・Collaborating with those working in other fields such as dental health and nutrition
		・Advancing from easy goals to more difficult ones by lowering hurdles instead of making new laws
	Disseminating information widely combining multiple approaches	・Communicating with large numbers of local residents and stakeholders
		・Using a combination of approaches
		・Going beyond smoking cessation to create smoke-free environments through regulations and site smoking bans
	Developing locally appropriate activities based on good practice	・Referencing successful experiences and good practice as a model
		・Developing new media and programs for regional smoking cessation work
		・Expanding programs after trial or pilot implementation
Evaluating and improving the quality of tobacco control measures	Monitoring and evaluating the tobacco control situation	・Monitoring the implementation of tobacco control measures
		・Evaluating tobacco control efforts at individual, group, and community levels
	Improving initiatives based on evaluation results	・Detecting reactions and changes by local residents and stakeholders about tobacco control
		・Improving initiatives using evaluation results
	Leveling support technologies and ensuring consistent quality	・Preparing manuals and media to share information and expand use of tobacco control supporting technology

(Continues)

TABLE 4 (Continued)

Categories	Subcategories	Concepts within subcategories
	Developing and improving tobacco control skills throughout the organization	・Participating in workshops on tobacco control to increase knowledge of the latest information, and trends in national tobacco policy
		・Developing learning opportunities and information exchange sites to improve skills of stakeholders
		・Using e-learning, which has no restrictions on time and place
	Using assistance from external tobacco control experts	・Establishing a network with external tobacco control experts and asking for advice
		・Inviting external tobacco control experts to talk to local residents and stakeholders
		・Developing collaboration agreements with universities and research institutions
Developing and establishing community-based measures for tobacco-free communities	Creating and developing tobacco-free areas in communities	・Creating tobacco-free areas by working with local residents
		・Using local social resources that are enthusiastic about tobacco control
		・Understanding and disseminating good practice in school smoking prevention education and corporate tobacco control
		・Collaborating with district public health nurses and ensuring activities fit with local situations
		・Developing tobacco control in anticipation of the ripple effect
	Disseminating and establishing tobacco control throughout the community	・Expanding tobacco control throughout the entire area
		・Ongoing work on tobacco control that does not end with a single event
		・Investing enough time on mid- and long-term prospects to establish work on tobacco control
		・Selecting staff with a passion for tobacco control to provide a well-functioning workplace
	Publishing the results of work to strengthen and empower networks	・Visualizing the process and outcomes of tobacco control efforts
		・Sharing accomplishments with local residents and stakeholders to raise motivation
		・Making activities difficult to interrupt by publishing results through newspapers and academic societies
Expanding activities by strategically collaborating with stakeholders	Collaborating with other public health nurses and others in the organization on teams	・Collaborating with other occupational groups on teams, such as other public health nurses, clerical workers, and dieticians
		・Deepening cooperative relationships with related divisions of other departments
	Collaborating widely with other relevant organizations and local residents	・Supporting smoking cessation through collaboration with medical institutions and midwives
		・Providing smoking prevention education for children in collaboration with schools
		・Promoting smoking cessation and passive smoking prevention measures for workers by collaborating with employers
		・Providing educational activities working with local volunteers and related organizations
		・Involving municipalities and cooperating with prefectures and public health centers

(Continues)

TABLE 4 (Continued)

Categories	Subcategories	Concepts within subcategories
	Establishing and operating sites for examination of tobacco control	・Establishing and managing a specialist committee for tobacco control
		・Selecting members for working groups and continuing to operate the committee
	Coordinating and clarifying the roles of the administration and related organizations	・Recognizing roles of the administration and sharing them with related organizations
		・Having a preliminary meeting with stakeholders
	Promoting common ground with stakeholders and encouraging collaboration	・Having shared awareness among stakeholders of the purpose of tobacco control
		・Creating an environment that enables everyone to work together and consult stakeholders
Coordinating and negotiating to avoid conflicts	Making adjustments to maintain dialogue and good relationships and avoid conflict	・Adjusting the plans with stakeholders after discussion
		・Understanding stakeholder intentions and approaching them appropriately
		・Having a good relationship supporting face-to-face communication and cooperation with stakeholders
	Moving forward while negotiating with resistant forces	・Analyzing crises calmly, such as conflicts of opinions, and adjusting relationships where necessary
		・Conveying clearly the intent and policies of local government behind tobacco control and negotiating a win-win relationship
		・Advancing passive smoking prevention measures required by national and prefectural governments
	Working indirectly with social and environmental approaches	・Using declaration on healthy cities to promote activities
		・Asking for policy advice from external tobacco control experts as academic specialists
		・Providing opportunities to learn about tobacco use without resistance by working indirectly
		・Using health promoters to encourage passive smoking prevention activities locally

'For residents of a city that has long addressed air pollution, a single PowerPoint slide showing that tobacco is as harmful as PM2.5 [fine particulate air pollutants, 2.5 microns] provides a clear-cut explanation.'

PHNs collaborated extensively with local residents and interested parties inside and outside the organization, organized a specialized expert panel on tobacco and its control, and fostered a culture of togetherness, all as part of "expanding activities by strategically collaborating with stakeholders". In "coordinating and negotiating to avoid conflicts", PHNs developed conversations and relationships to avoid conflicts with those resisting tobacco control. They used negotiations to develop countermeasures. They also devised indirect actions using social environmental forces such as declarations on healthy cities and asking external experts to propose policies. Participant F stated:

'We can only put this measure forward through collaboration with other institutions, for example, by negotiating or discussing with them..... It is difficult, but necessary to enhance our awareness together, although they may underestimate the measure.'

3.5 | Competency structure of PHNs working on tobacco control in local governments

The competencies extracted from the data from the interviews with the expert PHNs working in advanced local governments were classified into "motives", "attitudes", and "skills". The "motives" and "attitudes" corresponded to the deep layers of the Iceberg Model, and "skills" to the surface layer. These are shown in Figure 1 as a competency model for PHNs working on tobacco control in local governments. The PHNs' competencies in tobacco control were based on

three "motives", including "unwavering determination to remove barriers to tobacco control". These "motives" were connected to three "attitudes", including "a partnership-oriented stance to delivering tobacco control". The PHNs then used their eight "skills" in the process of promoting tobacco control. The relationships between competencies is shown by an arrow in Figure 1. "Advocating to raise awareness of the need for tobacco control" was the starting point. The PHNs used a cycle of planning, implementing, and evaluating, while "developing and establishing community-based measures for tobacco-free communities". "Expanding activities by strategically collaborating with stakeholders" and "coordinating and negotiating to avoid conflicts" were correlated with the whole process of promoting tobacco control.

Using this structure, a core category for the competencies of PHNs working on tobacco control in local governments was identified as "management ability to advocate a tobacco-free community based on strong motivation and attitudes required to pioneer and change tobacco control, and to develop effective partnership-based tobacco control through coordination and negotiation" (Figure 1).

4 | DISCUSSION

4.1 | Overview of PHNs' competencies to promote tobacco control in local governments

This study is the first of which we are aware to identify competencies required by PHNs in local governments in Japan to promote tobacco control. The aim is to help promote effective community-based approaches to tobacco control. Based on the framework of the Iceberg Model (Spencer & Spencer, 1993), we showed the competencies identified as a model, classifying those related to "motives" and "attitudes" as the deeper layers and "skills" as the surface layer of the model. This enabled us to explain the structure of competencies related to tobacco control, and visualize each layer in detail, together with its relationship with other layers. We did not separately identify traits, values, and self-concepts in the deep layer, or knowledge in the surface layer. Traits were included in "motives", values and self-concept in "attitudes", and knowledge in "skills", but further investigation is necessary into these ability requirements. Despite this limitation, we believe that the overall picture of the competencies described in the study probably represents the characteristics of the process of implementing tobacco control measures. The model should therefore reflect the current situation for Japanese PHNs, who need to perform their activities in the face of difficulties generated by insufficient national-level regulations and poor social awareness of tobacco control.

4.2 | Characteristics of the "motive" and "attitude"-related competencies of PHNs

The concepts within the subcategories underpinning "strong motivation to pioneer and change tobacco control" and "unwavering determination to remove barriers to tobacco control" in "motives" and "a partnership-oriented stance to delivering tobacco control" in "attitudes" showed that PHNs working in tobacco control face a number of barriers. These differ from those in other fields, and include a regional culture of tolerance of smoking and strong resistance inside and outside the organization. These findings were consistent with the results of a descriptive study on barriers to tobacco control (Satterlund et al., 2011a). As in Sugita's (2011) community support system, internal "motives" and 'attitudes' in the deep layer were the basis of "skills" in the surface layer. The barriers are high because the promotion of tobacco control is a high-level task in which the culture of tolerance in the community can only be changed by collaboration with local residents and other stakeholders inside and outside the organization. Overcoming barriers and elevating individual motivation, and the ability to promote excellent practice are important (Gray, 2009). Strong motives and attitudes, which are the internal foundation of individual skills, may therefore be essential to overcome the barriers to tobacco control and promote countermeasures. These countermeasures require a deepening mutual relationship with local residents and stakeholders, and working with others to promote community-rooted tobacco control (Negishi, Asahara, & Yanai, 2010), so they need experience and practice.

4.3 | Characteristics of the "skill"-related competencies of PHNs

The starting point of the skill-related competencies was "advocating to raise awareness of the need for tobacco control" and this may have been very specific to Japan, where countermeasures have not sufficiently progressed. Advocating is defined here as a combination of activities designed to change organizations and society to solve health problems related to tobacco use (Nakamura, 2017; World Health Organization, 1995). The World Health Organization (1986) has described advocacy as an important health promotion strategy. To change community norms and attach value to being a tobacco-free community, it is essential to shape public opinion and educate communities (David et al., 2013; Satterlund et al., 2011a). It is also important to practice advocacy to keep local residents and stakeholders on their side. The concept of advocacy is not sufficiently developed in the area of public health nursing in Japan, but in other countries, it is a core competency of PHNs (Community Health Nurses Association of Canada, 2009; Quad Council of Public Health Nursing Organization, 2011) and a central

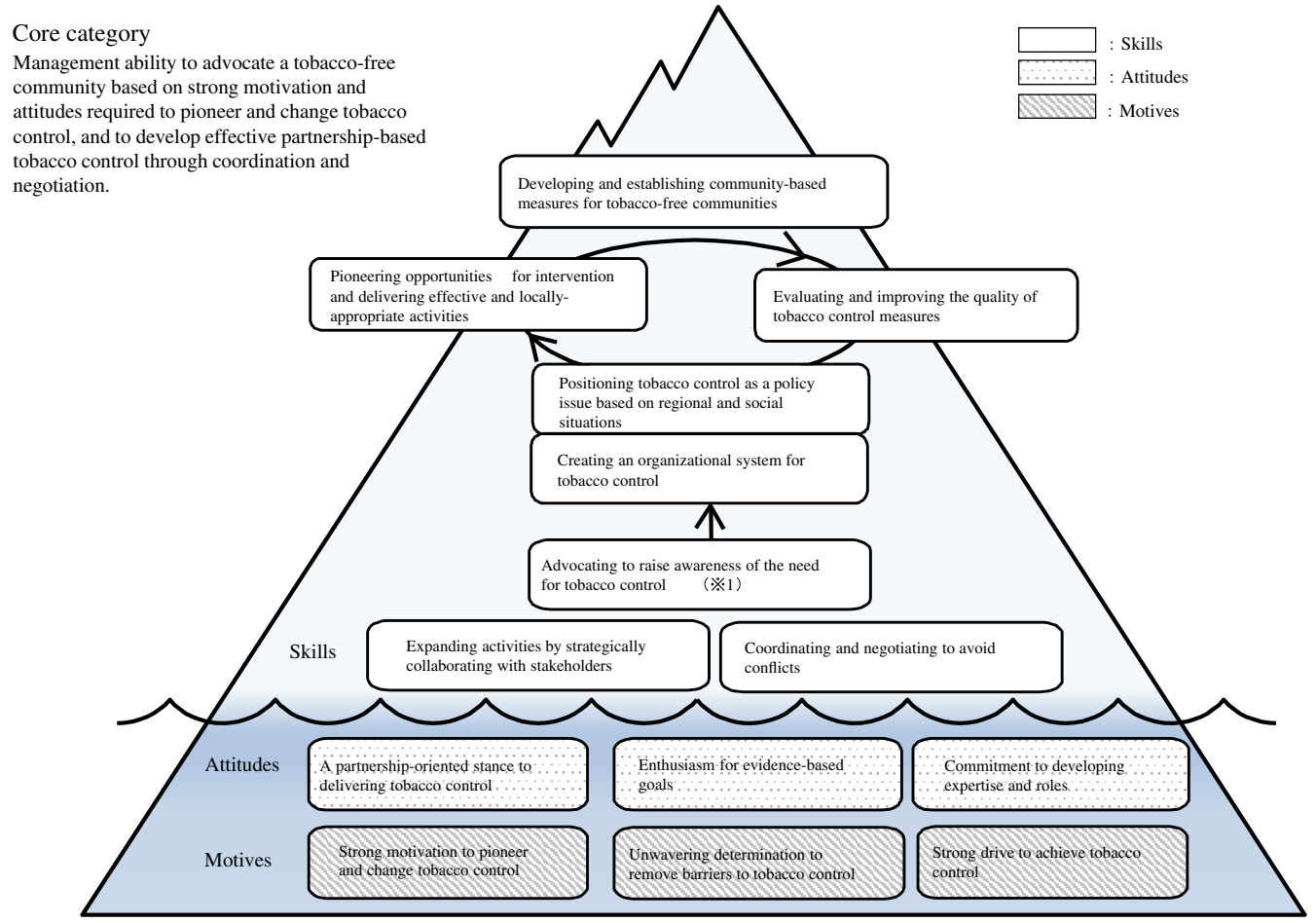

FIGURE 1 Competency model for public health nurses working on tobacco control in local governments, based on the Iceberg Model. This shows the structure of public health nursing competencies for promoting tobacco control in local governments. The deeper layers of the Iceberg Model contain motives and attitudes, in this case, three of each. The surface layer contains eight skills. The arrows (→) between the skill categories show the direction of relationships between competencies. Notes. 1. Advocating (marked ※ 1 in Figure 1) is defined here as a combination of activities designed to change organizations and society to solve health problems related to tobacco use. 2. The Iceberg Model is based on Spencer and Spencer (1993)

element of health promotion activities (Barry, Battel-Kirk, & Dempsey, 2012). A framework for advocacy strategy development (Shilton, 2016) and advocacy strategy specific to tobacco control (American Public Health Association, 2005; Public Health Advocacy Institute of Western Australia, 2013) have also been described. Future researchers may need to study advocacy strategies for community-level tobacco control that fit local conditions and the national health administration system in Japan.

Skills for "positioning tobacco control as a policy issue based on regional and social situations", and "creating an organizational system for tobacco control" use the position of PHNs within the administration. To deliver evidence-based healthcare, it may be necessary to reform the organizational system for decision-making to support evidence-based healthcare policies and ensuring that they are delivered (Gray, 2009). PHNs need to be able to exploit leadership among policy makers and create an organizational system using scientific data based on community diagnosis to deliver community-based tobacco control. To overcome the barriers to tobacco control, strategic activities are important at the regional level, including political action (Satterlund, Cassady, Treiber, & Lemp, 2011b). Establishing local government-driven laws preventing passive smoking requires the involvement of PHNs in organizational decision-making.

Community-level comprehensive tobacco control is a population-based approach in which health problems are solved by involving the entire community through the health promotion plan (Ministry of Health, Labour and Welfare, 2012). The skills competencies clarify that the change toward a tobacco-free community needs to follow the plan–do–check–act cycle, from positioning it as a policy issue to the delivery of effective countermeasures, their evaluation,

and ongoing improvement. This is consistent with the creation of projects and measures or a system of PHNs (Shiomi, Okamoto, & Iwamoto, 2009; Suzuki & Tadaka, 2014) and with community empowerment (Nakayama, 2007; Nakayama, Okamoto, & Shiomi, 2006). This confirms that the specific task, tobacco control, draws on the more general skills and abilities of PHNs. In other countries, the timing of intervention and effective messages appealing to emotion, such as child protection (American Cancer Society & International Union Against Cancer, 2005), collection and use of local data as a persuasive tool (Satterlund et al., 2011a), and capacity building in the region (David et al., 2013; Hennessey Lavery et al., 2005; Tong & Lew, 2013), are the key elements of an effective tobacco control strategy. Several skills covered by the study concepts within subcategories, including "pioneering opportunities for intervention and delivering effective and locally appropriate activities", "evaluating and improving the quality of tobacco control measures", and "developing and establishing community-based measures for tobacco-free communities", were also consistent with previous reports from other countries (American Cancer Society & International Union Against Cancer, 2005; David et al., 2013; Hennessey Lavery et al., 2005; Satterlund et al., 2011a; Tong & Lew, 2013). PHNs, through their nursing activities, are considered to mobilize the community while having a medium- to long-term viewpoint. They also use strategic measures to maximum effect.

Collaborative partnership with stakeholders in the community positively affects the whole community (Douglas, Carter et al., 2015). In comprehensive tobacco control as a health promotion strategy, this may correspond to the skill of "expanding activities by strategically collaborating with stakeholders". Forming face-to-face relationships is important for this skill (Douglas, Manion et al., 2015). However, in tobacco control, confrontational structures of "smokers vs. non-smokers" and "promoters vs. opponents" are likely to be formed. The skill of "coordinating and negotiating to avoid conflicts" may be essential to form collaborative partnerships in this complex situation. Concrete skills of coordination and negotiation based on conversations and relationships, and indirect actions using social environmental approaches may be effective ways to overcome the barriers to tobacco control. We found that competencies to strategically collaborate, coordinate, and negotiate were needed throughout the process of promoting tobacco control as a population-based approach, from planning to implementation, evaluation, and establishment of related approaches. Strategic collaboration also corresponds to "enabling" as one of the major health promotion strategies described by the World Health Organization (1986). Coordinating and negotiating are consistent with "mediation". These competences may therefore provide a technical basis for PHNs to promote tobacco control.

4.4 | Strengths and limitations of the study

This study is the first of which we are aware to systematically describe the whole structure of practical competencies required to promote tobacco control in local governments, drawing on detailed interviews with PHNs and using the Iceberg Model for analysis. The competences may be used as guidelines to help PHNs to reflect on their own practice. This competency model could serve as a guide for effective practice, especially for local governments new to tobacco control, and less experienced PHNs or those in their first managerial position. It may also be useful in developing health promotion strategies in other areas that affect the entire community, such as managing lifestyle-related diseases.

We did not extract competencies by comparison between high- and average-performance PHNs (Spencer & Spencer, 1993), which is a limitation. The required competencies may also change with national tobacco policies and social situations. Future researchers may wish to carry out a survey of PHNs under different conditions, and investigate differences among the competency levels and different areas of tobacco control. They may also compare occupations other than PHNs and clarify the characteristics of competencies required for PHNs. A self-evaluation scale and learning support system could also be developed drawing on this study.

5 | CONCLUSION

Semi-structured interviews were conducted to clarify competencies required by PHNs promoting tobacco control at the local government level. The competencies were classified and organized into three "motives" including "unwavering determination to remove barriers to tobacco control", three "attitudes" including "a partnership-oriented stance to delivering tobacco control", and eight "skills", including "advocating to raise awareness of the need for tobacco control". The study has provided a structure for the competencies, and a core competency of management ability to advocate a tobacco-free community based on strong motivation and attitudes required to pioneer and change tobacco control, and to develop effective partnership-based tobacco control through coordination and negotiation. These provide a framework for practical competencies, the characteristics of PHNs working on tobacco control in local governments. This may be used as the theoretical basis to develop indices of competencies required for PHNs who promote tobacco control in local governments.

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DISCLOSURE STATEMENT

There are no conflicts of interest to disclose.

AUTHOR CONTRIBUTIONS

C.M. prepared the concept and design, collected data, performed the analysis and interpretation, prepared the manuscript, and supervised the entire process of the study. S.O. and R.O. contributed to the concept, design, data analysis, and interpretation. A.N. contributed to data analysis and interpretation. M.N. gave technical advice as a tobacco control expert. S.O., M.N., R.O., and A.N. critically reviewed the manuscript, and all authors read and approved the final manuscript.

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