Developing a Self-evaluation Scale for Roles of a Public Health Nurse as a Clinical Instructor in Japanese Context

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Abstract

Aim: It is important for public health nurses (PHNs) to evaluate their roles as a clinical educator. This study aimed to develop a scale that would self-evaluate the roles of a public health nurse as a clinical instructor in a population-based practicum. Validity and reliability of this scale were also assessed.

Methods: Based on findings obtained from surveys of nursing students, interviews with clinical instructors, and a literature review, a 51-item draft scale was created. Anonymous self-administered questionnaires originally in Japanese were mailed to PHNs (n=1,467) experienced as a clinical instructor working in 281 local health agencies across Japan.

Results: A total of 760 valid surveys (51.8% of the original) were analyzed. Exploratory factor analysis identified six factors among 34 items: sharing professional values, beliefs, and skills with students; organizing students' clinical experience; promoting students' confidence and motivation for learning; creating a learning environment for students; good relationships with students; and role preparation for clinical teaching. The scale had a Cronbach's coefficient alpha of .96, and was significantly correlated both public health nurse competencies and professional identity.

Conclusions: This scale confirmed its usefulness in Japanese clinical education. It should also improve the clinical learning environment for students.

Key Words

Public health nurse, Clinical instructor, Nursing education, Role, Self-evaluation scale

INTRODUCTION

In Japan, public health nursing (PHN) education has recently become a more extensive training process in higher education. In the past, PHN education typically required a one-year diploma course, which was chosen only by individuals who wanted to be public health nurses (PHNs). However, there has been a rapid increase in the number of nursing universities that include nursing courses and PHN courses together as part of the nursing curriculum. Those students, upon graduation, are eligible to take the National Nursing Licensure Examination and/or the National Public Health Nursing Licensure Examination. The number of undergraduate students receiving PHN education has increased about 30 fold in 20 years.[1] Currently, about 90% of newly licensed PHNs are university graduates.[1] However, this increase has led to a shortage of public health clinical sites and PHNs capable of providing clinical teaching in population-based practice. This has limited students' clinical public health experience [2, 3], which has resulted in diminished competence among newly graduate PHNs, and also forced experienced PHNs to take on burden of commitment to clinical education. Therefore, new approaches to clinical PHN education should be explored.

Both experiential learning and situated learning within a clinical setting are central to nursing education.[4] The clinical education provides real-life experience and opportunities to transfer theoretical knowledge to practical situations.[5] This transfer is essential for nursing students to gain clinical competency as a professional nurse. Clinical teaching is a critical component of clinical nursing education around the world. Over the several

decades, the nursing program has shifted from traditional faculty-supervised clinical programs to preceptorship programs, in which experienced nurses teach, instruct, supervise and serve as a role model for a set period of time.[6] In many countries, preceptorship programs are prevalent in undergraduate nursing education as an alternative clinical teaching method.[7,8]

In the United States, generally, clinical instructors (CIs) are faculty members.[9] On the other hand, in Japan, staff nurses who teach a small group of students in clinical practicum are commonly known as a CI.[10] Nursing faculty members usually supervise students with CIs on site visits, and are responsible for coordination of entire courses, students' assignments and problems happened during the practicum. The term "preceptorship" is implemented to provide one-to-one relationships between staff nurses and novice nurses at workplace in Japan. Although there are several names for nursing educators such as CI, preceptor, mentor and practice teacher [11], here we use the term "clinical instructor" in this study for experienced staff nurses who are in charge of teaching and on-site supervision of nursing students in clinical settings. Both CIs and preceptors in clinical education seem to play similar roles; instead of faculties staff nurses teach nursing students in clinical sites. The requirements for CIs as outlined by the Regulation of Nursing Institution in Japan include being well experienced and knowledgeable. In addition, CIs should complete the preparation course necessary for becoming a CI. However, despite these criteria, selection of CIs is usually at healthcare agencies' discretion.

Both CIs and preceptors make a profound impact on students' clinical experience and learning outcomes [8, 12-14], and self-efficacy.[15] However, they have been facing an increased workload caused by staff shortages [16, 17], or more complex demands from current health practices, which makes them frustrated and overwhelmed.[18] They also have difficulties in improving their teaching skills and growing their self-confidence as a nursing educator.[19, 20] The lack of self-confidence is described to influence poor student performance.[21] Moreover, in Japan, since most undergraduate nursing students want to become nurses instead of PHNs, those less-motivated students make PHNs who take on CI role feel stressed [22], which makes the role more complicated. Zahner [23] suggested that the effectiveness of clinical nursing education depends in part on the adequacy of an instructor's preparation for the role. A CIs' efficacy as a role model also depends on their preparation.[16, 24-26] However, only about 30% of CIs of PHNs in Japan have completed a preparation program consisting of half-day or full-day sessions.[27] Given a lack of instructor training, it is important to provide CIs with more support to prepare for their important role and maintain the quality of clinical teaching.

Recent studies have highlighted the roles of nursing educators including CIs and preceptors such as effective and ineffective clinical teaching performance and characteristics. Ferial [28] identified behaviors of clinical educators which could positively affect students' learning such as creating a relaxing atmosphere, being available when needed, and tolerance of student mistakes. Clinical teaching skills required in clinical nursing education have also been identified.[5] Furthermore, effective clinical educator characteristics were described: being knowledgeable, enthusiastic and responsive to students' needs, and having a positive attitude.[29] Conversely, poor communication, poor teaching skills, lack of caring, and being a poor role model have been reported as negative characteristics of clinical educators.[12] However, most studies assessing CIs or preceptors have been conducted in hospital settings rather than public health or other community health settings. There are several studies on PHN education focusing on CIs' self-efficacy [18, 30], the effectiveness of a preceptored model of clinical education [13, 21], and the use of role preparation and support programs.[22, 30] In Japanese studies on CIs, the involvement of CIs can be reflected in nursing students' interests in public/community health activities and their achievement of clinical learning goals.[31, 32] However, only a few studies have explored the roles of CIs in this Japanese context and there is not even a standard role for this.

In order to improve clinical teaching, it is important for CIs to understand their roles, which could decrease their psychological burden and stress. Zimmermen and Westfall [33] also cite the importance of evaluating clinical teaching for purposes of teachers' improvement and accountability. Some instruments for evaluating clinical teaching behaviors [14, 33-36] and self-efficacy in clinical teaching [37, 38] are available. However, these instruments were developed for general use and are not specific to PHN education. Additionally, these were created for students or nursing faculty. Therefore, a new scale to assess the roles of CIs in public health settings might be significant to improve their performance. Moreover, with this scale related factors can be identified so that they could provide suggestions for a development of effective and supportive training programs for CIs.

The purpose of this study was to develop a new scale to evaluate roles of a PHN as a CI and to confirm

validity and reliability of this scale.

The study defines the term "role" as the CI's basic attitudes and behaviors that influence nursing students' motivation to learn, and the outcomes of that learning, throughout the clinical practicum.

METHODS

Preliminary surveys and preparation of the item pool

An anonymous self-administered questionnaire survey was conducted on 179 undergraduate senior nursing students from two nursing universities in Japan. Students had completed a three-week population-based practicum worth three credits. The data were collected during December 2009 and February 2010. The students were asked to answer open-ended questions about the behavior and attitudes of their CIs, which the students recognized as having improved their learning motivation and achievement during the clinical practicum. They were asked to provide up to five answers. Their responses were analyzed using a content analysis approach to identify major themes. The results indicated four main themes, including "*Having a collaborative and respectful attitude,*" "*Facilitating and supporting students' learning,*" "*Developing students' learning environment,*" and "*Being a good professional role model.*"[39]

To collect opinions on the roles of CIs, semi-structured interviews were conducted with 3 PHNs who had completed the 7-day preparation course for CIs offered by the Japanese Ministry of Health, Labor, and Welfare. They were asked about behaviors and attitudes that CIs adopted to fulfill their roles. Examples of topic areas were what they value most about the roles, the most effective instruction they experienced, difficulties of the roles, their ideas and creation. With their permission, the interviews were recorded, and the contents were transcribed. The data were qualitatively analyzed to determine patterns and themes. As a result, in addition to the four constructs identified from students' perceptions of effective CIs' attitudes and behaviors, "*Aiming for better clinical teaching,*" emerged from the data.

A literature review was conducted during the preparation of the item pool. Relevant national and international studies were identified through CINAHL, PubMed and ICHUSHI Web run by Japan Medical Abstracts Society. The search keywords were *clinical instructor*, *preceptor, clinical teaching, role* and *nursing student*. On the basis of the survey/interview data and the literature reviewed, 60 items were selected for a draft scale. In order to examine content validity, the following steps were completed. We reviewed and revised the items repeatedly during the process. Additionally, the 60 items were evaluated by five senior faculty members in charge of clinical PHN education in nursing universities and three expert PHNs with five or more years of experience as a CI. The experts were asked to identify items that were important, unclear, or missing. On the basis of their feedback, 9 items were deleted, and the draft scale was revised for clarity. Ultimately, the preliminary Self-Evaluation Scale for Roles of a Public Health Nurse as a Clinical Instructor (SSRPC) originally in Japanese included 51 items. Furthermore, to examine face validity, the scale was piloted with a group of qualifying PHNs with experience as a CI (n=12). These PHNs had completed a preparation program for their role as an instructor; ambiguous questions were rephrased based on their feedback. Initial results showed a response bias when a 4-point Likert-scale was used; therefore, in order to improve discriminability of the scale, a 5-point Likert-scale was adopted. Items were phased in the following way: "Circle the number that best describes your attitude or behavior as a CI?" Answers were rated on a scale from 1 (poorly) to 5 (very well). Higher scores indicated higher role performance.

Main survey

Survey Sample

The sample for this survey comprised PHNs who worked in local health departments, such as public health centers in Japan, and who had work experience as a CI in population-based practice.

Data collection procedure

In total, 509 local health departments were selected from 41 out of a possible 47 prefectural governments and 18 of 19 government-designated cities across Japan except for the Tohoku region due to Tohoku Region Pacific

Coast Earthquake. In advance, we sent letters to those in charge of the clinical practicum at each department in order to explain the purpose of the study, also identify their participation and possible number of the respondents.

Of the 509 facilities, 357 facilities replied (response rate 70.1%) and 281 of them gave their consent to participate in this study. The main reason why the rest 76 facilities did not consent was that they currently do not accept nursing students. Thus, we sent 281 facilities 1467 anonymous self-administered questionnaires in total. Individuals who had consented to the study directly returned the completed questionnaires to the researchers in a self-addressed stamped envelope. The questionnaires were distributed and collected between July 2011 and September 2011. A total of 811 individuals returned the questionnaires (55.3%), 760 of them (51.8%) provided valid responses (completed all items of the draft scale).

Questionnaire

The survey included the preliminary SSRPC and characteristic information of the subjects such as gender, age, years of experience as a PHN and a CI, educational background, current position, and attendance to preparation programs for CIs. Since there was no available instrument validated for measuring roles of PHNs as a CI, we used following two scales to assess criterion-related validity. The Professional Competencies of PHNs, developed by Saeki, Izumi, Uza & Murashima [40], was used to examine concurrent validity. The criteria of this instrument included professional knowledge, skills, attitudes, and behavior required for professional competencies in public health nursing. The instrument was selected mainly because "staff education," which requires teaching skills, was one of the criteria. Although previous studies have shown that nursing experience has an influence on performance of CIs, the Professional Competencies of PHNs was found to be strongly associated with years of experience as a PHN.[40] The instrument is a self-reported questionnaire and assesses the competency in two areas: "interpersonal health support" (8 items) and "community health support and administration" (12 items). Each item was measured on a 4-point Likert-type scale, ranging from 1 (poor) to 4 (good). Its reliability has been verified ($\alpha = .96$ for the full scale).

The Professional Identity Scale for Public Health Nurses (PISP), developed by Negishi, Asahara, and Yanai [41], was also used to examine concurrent validity. The PISP comprises 5 factors and 37 items evaluated by using a 5-point Likert-type scale, ranging from1 (not true) to 5 (true). The value of Cronbach's coefficient alpha for the total scale was .96. A higher score indicates stronger professional identity as a PHN. Recent research suggests a strong correlation between nurses' professional identity and CIs' teaching efficacy.[42]

Data analysis

Selection of scale items

For each item in the preliminary SSRPC, the percentage of responses, item means, and standard deviations were calculated; ceiling/floor effects were also determined. Correlations among the items were confirmed, and an item-total correlation analysis (I-T correlation) and a Good-Poor analysis (G-P analysis) were conducted as an item analysis.

Validity and Reliability

In order to explore the underlying factor structure of the preliminary SSRPC, an exploratory factor analysis was conducted, and component concepts were named on the basis of the extracted factors. Cronbach's coefficient alpha was used to examine internal-consistency reliability for the total scale and each subscale. To assess criterion-related validity, the correlation coefficients with the Professional Competencies of PHNs and PISP were calculated. Furthermore, a comparison of the scores on the SSRPC and instructor experience, such as years of experience as a PHN, total years of experience as a CI, and experience in having CI training program, was performed using independent sample *t*-tests or one-way ANOVA. For the statistical analysis, we used SPSS for Windows 19.0 Japanese version.

Ethical considerations

Ethical approval for this study was obtained from the Ethics Committees of Kobe University, Graduate School of Health Sciences. Written explanations regarding ethical considerations were provided upon request to the

facilities and individual participants. The purpose and methodology of the study, the protection of personal information, and issues of voluntary cooperation and confidentiality were listed in these explanations. No information was included in the questionnaires that could be used to identify individuals, and consent was implied when anonymous questionnaires were returned.

RESULTS

Respondents' characteristics

Table 1 shows the characteristics of the respondents (n=760). The majority of respondents were female (99.5%) and the mean age was 44.7 years. Over half of the respondents had more than 21 years of experience as a PHN (57.2%), were holding administrative positions (58.7%) and technical school graduates (59.5%). The average number of years of experience as a CI was 11.7 years. Approximately one-third (36.8%) had previously taken a preparation program for CIs.

Table1. Demographic characteristics of respondents n=760

Demographic characteristic		n	%
Sex	Female	756	99.5
Age	Mean (SD)	44.7 (9.39)	
	≤ 29	73	9.6
	30-39	123	16.2
	40-49	278	36.6
	50-59	277	36.4
	≥ 60	9	1.2
Years experienced as a PHN	Mean (SD)	21.2 (9.71)	
	≤ 5	74	9.7
	6-10	69	9.1
	11-15	67	8.8
	16-20	115	15.1
	21-25	146	19.2
	26-30	154	20.3
	≥ 31	135	17.8
Current position	Staff	309	40.7
	Supervisor	446	58.7
Educational background	Technical school	452	59.5
	Junior college	113	14.9
	University	174	22.9
	Graduate school	19	2.5
Total years of experience as a CI	Mean (SD)	11.7 (8.92)	
	≤ 5	269	36.2
	6-10	158	21.2
	11-15	80	10.8
	16-20	119	16.0
	21-25	61	8.2
	26-30	46	6.2
	≥ 31	11	1.5
Participation in a preparation program for CIs	Yes	280	36.8

Note. Data are the number and %, or the mean value ± standard deviation.
Missing values were excluded.
PHN, Public Health Nurse. CI, Clinical Instructor. SD, standard deviation.

Selection of scale items and factor analysis

The mean of each item in the draft scale ranged from 2.73 to 3.93, and no ceiling or floor effects were found with any of the items. In addition, the I-T correlation coefficient of each item ranged from .56 to .74. For the G-P analysis, the high-scoring group (n=192) and low-scoring group (n=193) on the full scale of items were extracted and examined using a *t*-test. The results indicated that, for all items, scores were significantly higher in the high-scoring group ($p < .01$). In addition, correlations among the items were confirmed, and the items with a correlation coefficient of .70 or higher were assessed. As a result, 4 items considered to be redundant were excluded.

An exploratory factor analysis using Maximum likelihood method was performed using 47 items. Kaiser's criterion (an eigenvalue of 1 or greater), the scree test, and conceptual interpretability were used to determine the minimum number of independent factors using a promax rotated solution. As a result of the initial factor analysis, we determined that six-factor model was the most interpretable (the cumulative variance explained by the factors before rotation was 57.3%).

Following the traditional criterion of .40 as loadings, we determined whether the items should be retained for interpretation or not.[43] Items with low factor loadings (i.e., <.40) within the same factor, and items with factor loadings >.40 in multiple factors were therefore excluded. The procedures for confirming changes in the factor structure resulting from the exclusion of items were repeated. Ultimately, 13 items were dropped from the scale, and 34 items were retained. The outcomes of the final analysis are presented in Table 2.

As shown in the pattern matrix, the first factor was characterized by 8 items which describes enhancing students' understanding of PHN roles and expertise, and was named *"Sharing professional values, beliefs and skills with students."* The second factor was defined by 6 items describing provision of learning opportunities and support for learning tasks, and was named *"Organizing students' clinical experiences."* The third factor was defined by 6 items relating to an attitude that respects students as learners and promotes their self-confidence, so this factor was named *"Promoting students' confidence and motivation for learning."* The fourth factor was defined 6 items relating to cooperation in the workplace and collaboration with faculties and was named *"Creating a learning environment for students."* The fifth factor was defined by 4 items. As these items described communication and building relationships with students, this factor was named *"Good relationships with students."* Finally, the sixth factor was defined by 4 items relating to teaching preparation and was named *"Role preparation for clinical teaching."*

Reliability and validity

The internal consistency for each factor was examined using Cronbach's coefficients alpha. The computed values of Cronbach's coefficients alpha for the overall and six subscales were .96, .89, .88, .87, .87, .87, and .82, respectively. Generally, a scale with a computed alpha greater than .70 is considered to have an acceptable level of internal consistency. Therefore, all values in this scale had good levels of internal consistency (see Table 2).

The result of concurrent validity is summarized in Table 3. All the correlations between the SSRPC and the relevant scales were statistically significant ($ps < .001$). The total scores on the SSRPC and the Professional Competencies of PHNs had a slightly high correlation ($r = .36$). The total scores on the SSRPC and the PISP revealed a moderately correlation ($r = .45$). In the subscales of the SSRPC, Factor 1 and Factor 6 scores showed moderately correlations with the Professional Competencies of PHNs and the PISP (.41- .49), while the others had slightly lower or slightly high correlations (.20- .33) .

Table 2 Factor Loadings for Exploratory Factor Analysis with Promax Rotation of the SSRPC

n=760

Items	Factors						Communality
Question no.	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	
Factor 1: Sharing professional values, beliefs and skills with students (α= .89)							
41. Demonstrating the role of PHNs in population-based practice	**.863**	-.144	-.107	.032	-.064	.123	.613
32. Providing students the concept of PHNs' activities	**.857**	.044	.015	-.113	-.049	.017	.650
33. Presenting clinical situations and cases that could enhance students' understanding of PHNs' activities	**.843**	-.037	-.036	-.023	-.006	.001	.611
40. Conveying both attractive and difficult aspects of PHN	**.752**	-.115	-.050	.045	.033	-.002	.497
34. Giving helpful and constructive advice	**.683**	.089	.137	-.023	-.075	-.025	.579
38. Being positive as a professional role model	**.453**	.170	-.107	.061	.103	.128	.508
36. Providing students verbal or written feedback	**.439**	.150	.020	.214	.029	-.144	.418
31. Facilitating students' reflection through the practice	**.433**	.182	.052	.046	.098	-.012	.482
Factor 2: Organizing students' clinical experiences (α= .88)							
25. Setting learning opportunities that meet students' needs	.010	**.912**	.009	.091	-.016	-.288	.681
27. Assisting students to carry out their learning activities as planned	.039	**.805**	.109	-.077	-.029	-.047	.645
22. Facilitating students' involvement in community-based activities	-.090	**.799**	-.088	.033	-.018	.029	.536
24. Assisting students in plan setting depending on their personal goals	-.065	**.681**	-.078	-.076	.088	.255	.605
21. Creating learning opportunities to match the outcomes of the clinical practicum	-.030	**.531**	-.027	.018	-.022	.323	.542
28. Helping students to recognize their learning needs	.104	**.414**	.224	-.008	-.089	.227	.584
Factor 3: Promoting students' confidence and motivation for learning (α= .87)							
11. Supporting students' ideas	-.013	-.072	**.912**	-.013	.015	-.016	.733
12. Respecting students' autonomy	-.174	.062	**.821**	.060	-.118	.084	.579
13. Trying to tell students their effort and good performance	-.014	.023	**.715**	.015	.071	-.012	.592
8. Listening to students with interest	.051	-.068	**.706**	.018	.080	.020	.607
6. Treating students without biases	.090	-.008	**.438**	.011	.129	.004	.363
10. Trying a caring approach	.123	.054	**.424**	-.028	.132	.075	.468
Factor 4: Creating a learning environment for students (α= .87)							
45. Sharing students' information with the staff members and chief PHNs	.015	-.005	.073	**.816**	-.119	-.006	.646
44. Asking for necessary support or collaboration from the staff members or chief PHNs	.058	-.109	.182	**.771**	-.084	-.113	.575
47. Communicating well with faculty members	-.143	.066	-.138	**.729**	.088	.132	.540
48. Recognizing institutional objectives of the practicum	.022	-.035	-.101	**.589**	-.018	.331	.539
49. Acting as a liaison among staff, community, and students	.024	.199	-.022	**.560**	.131	-.044	.583
46. Creating a relaxing atmosphere	.095	.066	.104	**.422**	.113	.011	.485
Factor 5: Good relationship with students (α= .87)							
3. Having active communication with students	-.090	-.007	-.042	-.040	**.996**	.024	.820
2. Being there whenever students need help	-.041	.110	.026	-.082	**.741**	.016	.576
1. Valuing the time with students	.036	-.121	.116	.001	**.700**	.043	.594
4. Trying to create a friendly and approachable atmosphere	.107	-.031	.048	.138	**.644**	-.103	.571
Factor 6: Role preparation for clinical teaching (α= .82)							
18. Establishing teaching goals	-.012	.024	.119	.038	-.056	**.717**	.616
19. Deriving benefits from teaching	.147	-.065	-.069	-.002	.096	**.705**	.631
16. Having a teaching philosophy of your own	.273	-.013	.153	-.103	.087	**.446**	.584
20. Understanding students' educatinal background	.072	.032	.094	.168	-.050	**.425**	.419
Variance explained	11.162	9.612	10.185	9.498	9.147	9.292	

Inter-factor correlations		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Factor1	1.000	.594	.688	.640	.647	.680
	Factor2	-	1.000	.598	.660	.521	.623
	Factor3	-	-	1.000	.603	.643	.574
	Factor4	-	-	-	1.000	.540	.545
	Factor5	-	-	-	-	1.000	.623
	Factor6	-	-	-	-	-	1.000

Note. Abbreviation: SSRPC, Self-Evaluation Scale for Roles of a PHN as a Clinical Instructor.

Factor loadings ＞ .40 are in boldface. The Cronbach's coefficient alpha for the total score was .96.

Table 3 Mean factor scores and Concurrent validity of the SSRPC

n=760

Factor	Mean	SD	Score Range		Professional Competencies of PHNs (n=752)†	PISP (n=751)†
			Raw	Reported		
Total scale	115.0	20.0	34 — 170	59 — 166	.36***	.45***
Factor 1	27.6	5.4	8 — 40	9 — 40	.42***	.49***
Factor 2	19.1	4.5	6 — 30	6 — 30	.24***	.30***
Factor 3	22.2	3.7	6 — 30	12 — 30	.20***	.33***
Factor 4	20.5	4.3	6 — 30	8 — 30	.24***	.31***
Factor 5	13.3	3.1	4 — 20	4 — 20	.24***	.30***
Factor 6	12.3	3.3	4 — 20	4 — 20	.41***	.46***

Note. SSRPC, Self-Evaluation Scale for Roles of a PHN as a Clinical Instructor. PISP, Professional Identity Scale for Public Health Nurses. SD, standard deviation.

† Values are Pearson's correlation coefficients.

*** $p < .001$, two-tailed.

Table 4 compares the differences on the SSRPC among the relevant factors. Respondents with higher SSRPC scores tended to have more years of experience as a PHN and a CI, and experienced a preparation program for CIs. In particular, a comparison of those with experience in attending preparation programs and those without such experience revealed that the former had significantly higher mean scores on the SSRPC and on all the subscales ($ps < .01$).

Table 4. Mean Scores on the SSRPC for Different Demographic Subgroups

	n	Total score		Factor 1		Factor 2		Factor 3		Factor 4		Factor 5		Factor 6	
		M (SD)	p	M (SD)	p	M (SD)	p	M (SD)	p	M (SD)	p	M (SD)	p	M (SD)	p
Experience as a PHN†															
≤ 10 years	143	111.3 (18.8)	.005**	26.7 (4.9)	.037*	18.6 (4.5)	.214	22.1 (3.8)	.028*	20.2 (4.4)	.772	12.6 (3.1)	.003**	11.2 (3.0)	.000***
11-20 years	182	113.2 (19.6)		27.3 (5.3)		19.0 (4.4)		21.7 (3.6)		20.4 (4.3)		13.1 (3.0)		11.8 (3.2)	
21-30 years	300	115.9 (20.2)		27.8 (5.5)		19.2 (4.6)		22.3 (3.7)		20.5 (4.2)		13.5 (3.2)		12.7 (3.3)	
≥ 31 years	135	119.1 (20.3)		28.4 (5.6)		19.7 (4.5)		22.9 (3.6)		20.7 (4.5)		13.9 (3.0)		13.5 (3.0)	
Experience as a CI‡															
Less than 10 years	359	113.2 (19.4)	.013*	26.8 (5.5)	.000***	18.9 (4.4)	.204	22.1 (3.7)	.233	20.5 (4.2)	.768	13.1 (3.0)	.043*	11.8 (3.2)	.000***
10 or more years	385	116.8 (20.5)		28.3 (5.2)		19.3 (4.6)		22.4 (3.7)		20.4 (4.4)		13.5 (3.2)		12.8 (3.2)	
Participation in a preparation program for CIs‡															
Yes	280	120.1 (19.7)	.000***	28.9 (5.2)	.000***	20.0 (4.3)	.000***	22.8 (3.7)	.001**	21.3 (4.0)	.000***	13.8 (3.2)	.000***	13.3 (3.3)	.000***
No	480	112.0 (19.5)		26.8 (5.3)		18.6 (4.5)		21.9 (3.7)		20.0 (4.4)		13.0 (3.0)		11.8 (3.1)	

Note. SSRPC, Self-Evaluation Scale for Roles of a PHN as a Clinical Instructor. PHN, Public Health Nurse. CI, Clinical Instructor.
Data are mean values (M) ± standard deviations (SD).
† One Way ANOVA, ‡ *t*-test.
* $p < .05$. ** $p < .01$. *** $p < .001$.

DISCUSSION

Characteristics of the subjects

The average age and years of experience as a PHN of the respondents in the current study were 44.7 and 21.2 years, respectively. These numbers are higher than those of subjects in another national survey conducted on PHNs.[44] However, that same survey reported that PHNs involved in clinical teaching within past year were older and had longer experience as a PHN than those who did not; the largest proportion was a group who were in their late 50s (61.6%) and had 25–29 years of experience as a PHN (62.1%). These findings suggest that PHNs who are proficient, and should be in expert level of nursing, primarily fulfill the role of CIs in population-based practices. When selecting CIs, many local governments might give priority to years of PHN experience.

Reliability and validity of the scale

The purpose of this study was to develop a new scale for the self-evaluation of attitudes and behaviors of PHNs as a CI. We also sought to confirm the reliability and validity of this scale. The internal consistency of the scale was examined using Cronbach's coefficient alpha, and the scale demonstrated good internal consistency for the total scale (.96) and all the subscales (.82 to .89). Regarding criterion-related validity, both the correlation coefficients were significantly positive: between the SSRPC and the Professional Competencies of PHNs, also the SSRPC and the PISP.

As a result of the exploratory factor analysis, six factors and 34 items were extracted for the final survey. Although five constructs were identified through preliminary surveys, our final version of the SSRPC composed of six factors. We determined that one of the initial five constructs might consist of two independent factors: Factor 3, *"Promoting students' confidence and motivation for learning"* and Factor 5, *"Good relationships with students,"* corresponded to *"Having a collaborative and respectful attitude."* The other factors, and initially established constructs, corresponded with each other. Thus, we determined that Factor 1, "*Sharing professional values, beliefs and skills with students*," corresponded to "*Being a good professional role model*." Factor 2, "*Organizing students' clinical experiences*," corresponded to "*Facilitating and supporting students' learning."* Factor 4, "*Creating a learning environment for students,*" corresponded to "*Contributing to the development of students' learning environment*." Factor 6, "*Role preparation for clinical teaching*," corresponded to "*Aiming for better clinical teaching*." Overall, an adequate interpretation of the exploratory factor analysis was possible.

The SSRPC subscales represent the roles expected for PHNs as a CI. Factor 1, "*Sharing professional values, beliefs and skills with students*," was related to teaching PHNs' roles and expertise. Factor 1, having included items that reflect PHNs' competence, values and their passion for nurturing a new generation of PHNs, moderately correlated both the Professional Competencies of PHNs and the PISP scales. Rauen [34] suggested that clinical educators should first be an effective nurse in order to qualify as a CI. Thus, to be an effective CI requires a high level of professional competence and identity.

Roles of Factors 2, 3, 4, and 5 have been often reported in other studies focusing on practice in non-public health settings. Presumably, these roles were commonly required for CIs in all areas of clinical settings. Factor 4, "*Creating a learning environment for students*," helps us recognize the importance of a positive learning environment for students. The learning environment might support students' learning and self-esteem development.[12, 24, 45] It is rather important for students to have learning environments where they feel welcomed and can gain guidance from helpful staff nurses in clinical placement.[4, 24] Creating an environment that helps students feel relaxed is also necessary, as students usually experience some form of stress and anxiety during their practicum.[5, 46] Furthermore, the partnership between CIs and faculty members is essential for effective clinical education.[12] This implies that educational institutions should take initiatives toward building a good relationship with CIs.

Factor 5, "*Good relationship with students*," referred to building a relationship between CIs and students. A good student-instructor relationship is extremely important for the effectiveness of clinical nursing education.[5] Licqurish and Seibold [12] also reported that interactions between instructors and students make an impact on students' learning. Thus, good interpersonal skills for CIs are considered important for fostering a supportive and helpful environment and for setting a standard as a positive professional role model. Conversely, unhelpful instructors displaying negative behaviors might be very detrimental to students.[47] Gaberson & Oermann [5] suggest that the personal attributes of CIs also influence teaching effectiveness.

Factor 6, "*Role preparation for clinical teaching*," involved the CIs' preparedness. Previous studies suggest that the quality of clinical education depends on the adequacy of an instructor's preparation for their role.[22, 30] This concept seems to include their motivation and enthusiasm for the role, which is often listed among the qualifications required of CIs and preceptors. It is noteworthy that Factor 6 also moderately correlated with the Professional Competencies of PHNs and the PISP scales. Thus, CI preparation may lead to successful professional development as a PHN.

Construct validity was also established through examination of the mean scale scores across characteristic subgroups. As a whole, the longer PHN and CI experience the respondents have, the higher SSRPC scores they have. In the previous studies, years of nursing experience have been associated with the approach and

self-efficacy of CIs and preceptors.[12, 42, 48] Thus, the study also indicated that the professional experience was an important component to fulfill their roles. However, Factor 2 and Factor 4 were not significantly associated with both years of experience as a PHN and a CI, which might suggest that these roles required less professional skill rather basic skill which is essential for clinical instruction. Additionally, it seems apparent that participation in preparation programs leads to improve CIs' performance. This is congruent with findings that CI/preceptor's educational training is associated with improving self-efficacy, educational approach, and increasing knowledge of their roles.[23, 30, 42, 48] Together, these results highlight the importance of educational intervention in the roles as a CI.

Future practical use of the scale and its limitations

This scale can be useful for CIs as a way to clarify individual learning goals through self-assessing their own performance. This might contribute to improving the clinical environment for nursing students. The study also suggests the importance of support for CIs to assure effective clinical teaching. Thus, the scale can also be used to develop preparation programs for CIs in order to meet their learning needs. Furthermore, public health agencies can use this scale for selecting and supporting CIs to adapt the roles.

However, several weaknesses of this scale should be noted. One limitation is that assessment of criterion-related validity was not sufficient because an appropriate instrument was not recognized. Moreover, our study represents the roles of CIs in undergraduate education. As the result of major legal changes, some universities have plans to setup a PHN course in graduate schools. Thus, the roles of CIs for graduate students should be considered. Additionally, the scale was developed based on ideas from nursing students, CIs, and nursing faculties involved in clinical PHN education. However, as the roles are assessed based on self-evaluation, the possibility of self-report biases cannot be fully avoided. Furthermore, we shortened the scale for practical use, which might limit the comprehensive assessment of the instructor roles. Further research is required to explore the associated factors with the roles of CIs and to identify the relationship between these roles and students' learning outcomes.

CONCLUSIONS

We developed the SSRPC to self-evaluate the roles of a PHN as a CI in Japanese clinical nursing education and piloted it in this study. The scale that both the validity and reliability were verified should help PHNs understand the roles of CIs and perform more effectively. This scale could improve not only the clinical learning environment but also motivate students' learning for successful practice.

ACKNOWLEDGMENTS

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