A Study of Community Healthcare Competency Among Public Health Nurses

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ABSTRACT: The purpose of this study was to explore community healthcare competency of public health nurses (PHNs) and related factors in Taiwan. A cross-sectional research design was adopted to collect data. A community healthcare competency scale for PHNs was developed by the researchers based on a review of the literature to measure PHN competency (self-assessed) and task frequency rates. The instrument earned a content validity index score of .90, Cronbach's α of .97, split-half reliability of .95, and test-retest reliability of .97. The questionnaire was sent to 369 head nurses, who distributed copies to PHNs. A total of 2,956 questionnaires were sent out, with a return rate of 67.03%. Results indicate that (1) the PHNs scored high in cooperation with community-based healthcare services, community resources integration, and operation of community group and low on the ability to apply biostatistics, community health promotion activities initiation, and application of epidemiology; (2) implemented task frequency, years of work as a PHN, job position, education level and health station location were all significantly related to respondent competency scores. Results suggest that further examination is needed in the areas of years of work and training courses for incoming personnel and that further investigation of on-the-job training given by various locations of health stations is necessary in order to devise a training model for PHNs.

Key Words: public health nurse, public health nursing, community health nursing, health stations, professional competency.

Introduction

Dramatic changes in prevalent illnesses, population age profile, numbers of immigrants and professional demands on nursing services have occurred in recent years. The tasks of public health nurses (PHNs) working for government-run health stations and health service centers are in the process of changing in order to reflect these changes. In addition, the PHNs are being asked to act as "gate-keepers" at the same time they are being asked to implement national public health policies, meet changing public demand and address the needs of growing nation-wide "Healthy City" and "Safe Community" movements. The shift in focus of PHNs faces healthcare competency at the community level with unprecedented challenges.
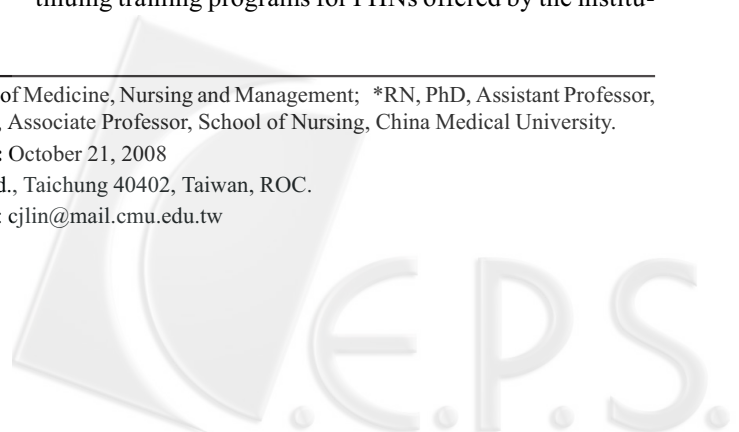
A nurse's professional competency is acquired through formative nursing education. There has been a paradigm shift in public health education from "Public Health Nursing (PHN)" a decade ago to "Community Health Nursing" in response to the need for more community-oriented care. Since then, course content has focused on community-related subjects such as long-term care, healthy community building, community assessment and health promotion. Nevertheless, practical training for healthcare education in the early days consisted mostly of elective courses, while some even did not include such practices. Healthcare education and practical training were found to be associated with PHNs' competency in community healthcare. Since the termination in 2001 of continuing training programs for PHNs offered by the institu-

tions such as the Research Institution for Public Health, Research Institution for Women and Children's Health and Family Planning Research Center, there has been no designated agency in charge of training new PHNs. This could be the cause of inconsistency in the quality of professional training for the PHNs (27th Community Health Nursing Committee, 2005; Lin, 2007).

A total of 369 health stations, including 12 "healthcare service centers" in Taipei, provide community healthcare services in Taiwan and offshore islands (Health Center of Bei To District, Taipei City, n.d; Lin, 2007). Since Taiwan's health stations and healthcare service centers are run by the government, changes are made on a regular basis in response to official policies changes and unexpected incidents that occur at the community level. The lead agency to oversee the PHNs tasks, depending on the scope of affecting the public health, may be the county, city or national government. PHN competency for coping with responsibilities handed to them still requires further examination. This is even more so as the role of PHNs shifts away from caring for individuals toward community healthcare and special-case healthcare management (27th Community Health Nursing Committee, 2005; Lin, 2007). Therefore, PHN competency for community healthcare is in need of further examination.

According to a declaration issued by American Association of Public Health Nurse in 1999, the core competency of PHNs embraces analysis/evaluation, policy development/planning, communication, cultural capacity, community practices, fundamental public healthcare service, budget planning and management and systemic reasoning capacity (Quad Council of Public Health Nursing Organization, 2004). Recently, the American Nurses Association (ANA) proposed standards of PHN practice, which includes competence of assessment, population diagnosis and priorities, outcomes identification, planning, implementation, and evaluation (ANA, 2007). A number of academic experts have also released reports addressing PHN professional competency. Nickel et al. (1995) developed evaluation benchmarks for 47 professional skills in accordance with PHN professional competency prescribed by US National Department of Health Services, and it has assigned 3 different levels of professional competency (individual, group, and community). The community level encompasses 17 categories, including group-focused care, interaction with others and community evaluation. Keller, Strohschein, Lia-Hoagberg, and

Schaffer (1998) also introduced a similar model, but selected individual/family, community and system as its main classification. While requirements were specified for each class in detail, they pointed out that many professional skills are used in more than more level. Witt and Almeida (2007) used the Delphi Technique to investigate competencies of nurses practicing primary healthcare in Brazil. Identified competencies were classified into the 10 domains of professional values, communication, teamwork, management, community-oriented, health promotion, problem solving, healthcare, and education and basic public health sciences. 27th Community Health Nursing Committee (2005) of the Taiwan Nurses Association developed an approach to assessing PHN professional competency by specifying 6 categories, including caring, management, instructional, coordination, individual, professional development and research capacity. In addition, each category encompasses aspects relevant to the three levels of individual, family and community.

Abrams (2004) also believed the PHN to be an extension of community health planning, and that a PHN is responsible to conduct research on epidemic diseases, field investigations and screening. Lu (1994) pointed out the objective of PHNs should be community health and public health improvement. Therefore, caring methods are totally different from those used for caring for individuals and include such tasks as community evaluation, community assessment and community development; tasks which are grounded in public healthcare theory. Chiou (1998) believed community healthcare service means the treatment of the community as a complete entity by incorporating the "caring process" into health service. As such, the evaluation, diagnosis, planning, execution and assessment of community health should all be part of a PHNs' professional role.

In the area of professional PHN competency, Nickel et al. (1995) indicated that professional competency at the community level is lower than that at individual, family and group levels. Liou (1998) focused his study on nurses in health clinics in northern Taiwan and, according to results, found no significant difference among PHN professional competency in individual/family care, community-focused care and professional development. The study did find PHN self-assessment capacity strongest in "community healthcare service" and "individual healthcare service". Following the model introduced by Keller et al. (1998) and used by Grumbach, Miller, Mertz, and

Finocchio (2004) to conduct PHNs self-assessment on competency, PHN competency was strongest at the individual/family level. Competency at the community level was between the individual/family level and system level, which was weakest. Preparedness of PHNs at the community and system levels is typically lower. Tung and Lee (2008) explored core competencies of community health nursing practice and found the top three ranking core competencies to be communication, legal, and individual/family care. The lowest ranking three included community care ability, administrative ability, and research ability. Based on the above results, it can be determined that PHN professional competencies are stronger in individual, family-based care while weaker in community management.

The "caring competency evaluation table" introduced by Yu and Ma (1993) was used to examine and compare caring competencies of graduates of different nursing programs. Results indicated that those with higher education levels, especially university degrees, had better caring competency. Grumbach et al. (2004) stated that PHNs with university or higher degree were more likely to work at the community and systematic levels. Overall, a higher level of education correlated with better comprehensive care competency. Also, years of PHN experience was found to affect the professional competency of nurses. It was shown in research conducted by Saeki, Kawaharada, Hayama, and Igarashi (1999) that research competency rises with number of years of experience. Liou (1998) also determined that higher working years correlated with stronger community-focused care competency. Other than education level and working years, research also found age, job position, marital status and number of children to have an influence on PHN professional competency. Nevertheless, previous nursing experience was not found to be a determinant of professional competency for PHNs (Liou, 1998). Saeki, Izumi, Uza, and Murashima (2007) investigated the professional competencies of PHNs employed by local government agencies in Japan. Their findings showed length of PHN experience, marital status, and participation in external training programs to be relevant factors. Based on the above studies, it can be said that many factors influence PHN professional competency.

Exstrom (2001) believed maintaining a nurse's professional competency at the individual level can be achieved through self-assessment to determine individual competency and learning needs. Robinson and Barberis-Ryan (1995) also pointed out that a competency test is able to ensure a reliable standard in nursing practices and a crucial assessment format in nursing education. Proper curriculum design can also assist nurses to attain a specific level of nursing skill. Therefore, the current study used PHNs' self-assessment in terms of professional competency to examine other factors related to this subject.

Methods

This study was part of the "Enhanced Caring Competency of PHN" project subsidized by the Executive Yuan (No. DOH94-NH-06). In addition to investigating PHN competency, this study studied the level of satisfaction and actual practices of participants. Participants were PHN working at health stations located across Taiwan and on offshore islands. PHN refers to registered nurses working at government-run health stations appointed by either the Department of Health or Center of Disease Control.

Instruments

A cross-sectional research design was adopted to collect data. The purpose of this research was to explore factors related to the professional competency of PHNs in Taiwan. The questionnaire was developed by the researchers based on their review of relevant literature, which included 27th Community Health Nursing Committee (2005), Keller et al. (1998), Liou (1998), Nickel et al. (1995) and the Quad Council of Public Health Nursing Organization (2004). The questionnaire used in this study encompassed three parts, covering, respectively questions on demographics, work-related task performance frequency, and competency in performing work-related tasks (self-reported). The portion pertaining to community-focused healthcare competency included the following ten items: community assessment, community health diagnosis, application of epidemiology, application of biostatistics, community resource integration, operation of community group, community health program planning, community health promotion activity initiation, leadership, and cooperation with community-based healthcare services. Each item was designed to measure implemented task frequency and self-assessed professional competency level. Task frequency was measured on a scale of 1 to 6, with numbers (smallest to largest) indicating "never perform", "perform annually", "perform every 6 months", "perform every quarter", "perform every month" and "perform every week". Professional competency was self-assessed using a 4-point scale, with numbers (smallest to

largest) indicating "need improvement", "fair", "good" and "very good".

Validity and Reliability

A total of 7 experts were invited to evaluate the initial instruments, including 2 researchers from the public health discipline, 2 public health nursing educators, 2 public health nursing practitioners, and 1 statistician. They helped evaluate the representativeness, appropriateness, and clarity of questionnaire items, requiring an overall score on the content validity index (CVI) of .90. Factor analysis was used to assess construct validity. The criterion for factor extraction was an eigenvalue greater than 1 and, for item selection, a factor loading greater than .40. Results indicated that only one factor had been extracted and the majority of items had factor loadings ranging between .73 and .90. The one selected domain accounted for 72.94% of the variance.

In terms of reliability, Cronbach's α was .97 and split-half reliability was .95 in pretest. Test-retest reliability was conducted twice 2 weeks after initial data collection, with a correlation coefficient of .97. The Cronbach's α coefficient and split-half reliability were .95 and .93, respectively.

Research Ethics

Institution Review Board (IRB) approval was sought prior to data collection. Participants in the study agreed to join on a purely voluntary basis and were asked to sign a consent form prior to acceptance. In order to maintain confidentiality, questions that would allow identification of individual participants were carefully avoided in the questionnaire. Completed questionnaires were returned in sealed envelopes.

Data Collection

Six health stations from northern, central and southern Taiwan were selected for the pretest. These included urban areas, rural townships and offshore islands. A total of 52 nurses took parts in the pretest, with a return rate of 100%. Pretest results were used to modify the questionnaire prior to actual data collection.

Mailed questionnaires were distributed through head nurses to the potential participants in all of the nation's 369 health stations. A total of 2,956 questionnaires were sent out and 1,990 copies returned (return rate: 67.32%). A total of 1,837 valid questionnaires were used in final data analysis after discarding 153 questionnaires due to respondent failure to answer any of the subscale questions.

Data Analysis

Statistical analysis procedures included (1) descriptive statistics (number of subjects, percentage, average value, mode, medium, minimum and maximum variance to describe the distribution of each data) and (2) analytical statistics (two-sample *t*-test, Pearson's product moment correlation, one-way ANOVA and stepwise multiple regression).

Results

1. Participant Demographics

Participants were mostly female of a mean age of 40.54 years. A significant majority was married (81.75%), held junior college degrees (83.37%), and held registered nurse licenses (72.12%). Nearly three quarters (71.85%) held a Licensed-Practical-Nurse level position despite a mean 16.62 years working as a nurse and 11.72 years working as a PHN. Apparently, most (89.21%) worked in a hospital before they becoming a PHN. About half (53.35%) of PHN participants earned between NT$40,001 and 50,000 monthly. Most health stations were located in populated areas (88.39%). Slightly more than one out of ten (11.61%) were defined as being in remote areas.

2. Frequency of Implemented Tasks

Among the 10 community healthcare task items (Table 1), "cooperation with community-based healthcare services" was mostly frequently performed (mean = 3.54), followed by "operation of community group" and "community resources integration". The least frequently performed task item was "application of biostatistics" (mean = 2.27), followed by "community health promotion activities initiation" and "community health programs planning". More than one-third of PHNs reported never having performed the following five tasks: "application of epidemiology", "application of biostatistics", "community health programs planning" and "community health promotion activities initiation". Almost two-fifths of the PHNs reported performing "cooperation with community-based healthcare services" on either a weekly or monthly basis.

3. Self-Evaluation on Professional Competency of PHNs

In terms of self-assessed professional competency level (Table 2), the highest score was awarded to "cooperation with community-based healthcare services" (*M* = 2.40). This indicated that the professional competency of PHNs in

Table 1.
PHN Self-Assessment for Frequency of Task Implementation by Item (N = 1,837)

Items	Never perform		Perform annually		Perform every 6 months		Perform every quarter		Perform every month		Perform every week	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Item 1	490	27.24	566	31.46	166	9.23	206	11.45	286	15.90	85	4.72
Item 2	508	28.21	550	30.54	176	9.77	209	11.60	280	15.55	78	4.33
Item 3	632	35.13	437	24.29	168	9.34	205	11.40	264	14.67	93	5.17
Item 4	738	40.86	530	29.35	135	7.48	158	8.75	206	11.41	39	2.16
Item 5	426	23.51	462	25.50	178	9.82	288	15.89	363	20.03	95	5.24
Item 6	436	24.09	421	23.26	150	8.29	319	17.62	399	22.04	85	4.70
Item 7	675	37.33	544	30.09	157	8.68	188	10.40	204	11.28	40	2.21
Item 8	779	43.06	335	18.52	146	8.07	246	13.60	253	13.99	50	2.76
Item 9	710	39.53	312	17.37	146	8.13	216	12.03	290	16.15	122	6.79
Item 10	319	17.62	313	17.29	159	8.78	300	16.57	536	29.61	183	10.11

Note. Item 1 = Community assessment; Item 2 = Community health diagnosis; Item 3 = Application of epidemiology; Item 4 = Application of biostatistics; Item 5 = Community resource integration; Item 6 = Operation of community group; Item 7 = Community health programs planning; Item 8 = Community health promotion activities initiation; Item 9 = Leadership; Item 10 = Cooperation with community-based healthcare services.

Table 2.
PHN Self-Assessment for Professional Competency (N = 1,837)

Items	Need improvement		Fair		Good		Very good	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Community assessment	321	18.19	931	52.75	466	26.40	47	2.66
Community health diagnosis	324	18.29	920	51.95	480	27.10	47	2.65
Application of epidemiology	435	24.80	887	50.57	393	22.41	39	2.22
Application of biostatistics	535	30.36	853	48.41	342	19.41	32	1.82
Community resource integration	300	16.74	905	50.50	523	29.19	64	3.57
Operation of community group	295	16.47	902	50.36	545	30.43	49	2.74
Community health programs planning	436	24.66	853	48.25	446	25.23	33	1.87
Community health promotion activities initiation	464	26.44	842	47.98	410	23.36	39	2.22
Leadership	383	21.79	868	49.37	463	26.34	44	2.50
Cooperation with community-based healthcare services	168	9.40	828	46.31	703	39.32	89	4.98

establishing communication with community medical institution was fair to good. The second and third highest scores were awarded to "community resources integration" and "operation of community group", respectively. The score for "application of biostatistics" received the lowest score ($M = 1.93$), followed by "community health programs planning" and "application of epidemiology". This showed that PHNs were aware of needed improvements. More than one-fifth of PHNs reported a desire to strengthen competencies in the areas of "application of epidemiology", "application of biostatistics", "community health programs planning" and "community health promotion activities initiation". How-

ever, only approximately 22% to 44% of PHNs felt competent in all tasks.

4. Relationship Between Demographics, Implemented Task Frequency and Self-Assessment Competency

In terms of the relationship between these three variables (see Table 3), results indicate that only three variables do not show significant differences. These include marital status, previous work experience and location of health stations. A positive relationship with self-assessment competency level was found in age, years in nursing, and

Table 3.
Relationship Between PHN Demographic & Self-Assessment Professional Competency

Item	*n*	*M*	*SD*	*t/F/r* value	*p*	*LSD*
Age	1818	40.54	8.54	$r = .16$***	.000	
Marital Status						
Single	333	2.04	0.63	$t = 1.84$	.067	
Married	1492	2.11	0.63			
Education Level						
①Vocational school	305	2.11	0.67	$F = 6.52$***	.000	④ > ①, ②, ③
②Junior college	930	2.07	0.63			
③University	566	2.13	0.61			
④Master	33	2.57	0.67			
License of Registered Nurse						
①No	498	2.16	0.67	$t = 2.09$*	.037	
②yes	1321	2.08	0.62			
Job Position						
①LPN	1289	2.06	0.64	$F = 20.31$***	.000	③ > ①, ②
②RN	245	2.04	0.59			
③HN	260	2.35	0.56			
Working Years	1786	16.62	8.47	$r = .13$***	.000	
Working Years in PHN	1793	11.72	9.19	$r = .14$***	.000	
Working Experience in Hospital-Based Nursing						
①No	196	2.11	0.69	$t = 0.00$	.995	
②Yes	1620	2.11	0.62			
Salary (NT$)						
① < 40,000	285	2.09	0.66	$F = 11.11$***	.000	③ > ②
②40,001–50,000	971	2.05	0.64			③ > ①
③ > 50,001	564	2.21	0.58			
Location of Health Stations						
Non-remote	1462	2.10	0.63	$t = -1.17$	.240	
Remote	192	2.15	0.63			
Implemented Task Frequency	1697	2.72	1.29	$r = .58$***	.000	

Note. 1. Job position: LPN = licensed practical nurse; RN = registered nurse; HN = head nurse; LSD = least significant difference.
2. A number of the valid questionnaires used in final analysis contained blank answers for some items.
$p < .05.$ **$p < .01.$ ***$p < .001.$

years as a PHN ($r = .13–.16$, $p = .000$). For education level, PHNs with a master's degree had higher scores for competency level ($F = 6.52$, $p = .000$). As with registered nurses, results indicated that those with a nursing license had higher self-assessment scores than those holding only a registered nursing license ($t = 2.09$, $p = .037$). Regarding job position, head nurses had higher self-assessment scores ($F = 20.31$, $p = .000$). With respect to implemented task frequency in community healthcare practices, a positive relationship was found to exist with professional competency ($r = .58$, $p < .001$). In other words, this was an indicator that higher frequency in implementing tasks may result in higher scores in terms of practice competency level.

5. Regression Analysis of Factors Related to Self-Assessment Professional Competency

Regression analysis pinpointed significant variables of demographics in community healthcare competency to

Table 4.
Stepwise Regression Analysis of Factors Related to Self-Assessment Professional Competency (N = 1,837)

Variables	*B*	β	*t* value	*p*	R^2	*F*
Constant	1.15		32.63***	.000	.40*	182.62***
Implemented task frequency	0.28	.59	28.11***	.000		
years as a PHN	0.01	.14	6.45***	.000		
Job Position (HN)	0.14	.08	3.76***	.000		
Education Level (Master's)	0.28	.06	2.93**	.003		
Location of Health stations (remote regions)	0.10	.05	2.45*	.014		

*$p < .05$. **$p < .01$. ***$p < .001$.

be further analyzed by multiple regression of which age, years in nursing, and years as a PHN were determined to be highly correlated to one another. Therefore, only "years as a PHN" was chosen for further multiple regressions, with years as a PHN, job position, education level, location of health stations and implemented task frequency selected as independent variables and community healthcare competency designated as a dependent variable. They were subjected to multiple regressions for further analysis.

Results are shown in Table 4. The five significant predicators of self-report professional competency include implemented task frequency, years as a PHN, job position, education level, and location of health stations ($R^2 = .40$, $p = .014$).

Discussion

Results of research shows that, in terms of PHN professional competency, "cooperation with community-based healthcare services" earned the highest score in community healthcare competency. This could be attributed to the need for PHNs to communicate with healthcare services on a variety of issues. For example, sometimes PHNs invite physicians for a speech or to provide vaccination services. Perhaps the frequent performance of such tasks helped establish higher self-assessment competency in this task. On the other hand, application of biostatistics earned the lowest score. A similar result was obtained by Nickel et al. (1995), Roques (1999), MacDonald and Schoenfeld (2003), indicating that PHNs should strengthen community-focused professional competencies such as application of epidemiology, participating in community development, community assessment even as far as social marketing, political activities, conflict resolution and persuasion skills.

According to findings in this study, relevant factors of PHNs' community healthcare competency included

three major factors: years as a PHN, education level, job position. Regarding to years as a PHN, it was an influential factor of competency. The more years as a PHN had, the higher the score they would attain in self-assessment of professional competency. There had been a number of studies showing similar results. For example, Liou (1998) also learned that significant variation existed between an individual nurse's years in nursing and clinical competency, with more working years equaling a higher average score in nursing competency. Hsu, Lin, Hsu, and Yang (2002) found out in their study that significant variation existed between years of work and nursing competency. Based on similar findings in both domestic and foreign studies, it may be said that greater work experience supports a higher self-assessment score for competency.

In terms of education, this research found a master's degree to be an influential factor in community healthcare competency, as results indicate that individuals with master's degree exhibit stronger community healthcare competency. Grumbach et al. (2004) indicated that PHNs holding a degree higher than a bachelor's were more capable to implement community-level and systematic measures. Hsu, Lee, Lee, Lai, and Peng (2003) showed that, as education level rises, competency in nursing rises as well. In fact, PHNs with master degrees have already received training on community health assessment and proposal writing, among other competencies. Therefore, PHNs with master degrees exhibit stronger community healthcare competency.

Job position was an influential factor of community healthcare competency, as individuals holding the title of head nurse scored higher in terms of competency than those who held other position titles. This could be attributed to the fact that most head nurses had extensive experiences as PHNs and that they frequently needed to communicate with important community figures. Therefore,

they exhibited stronger competency in community healthcare management. Building a healthy community was usually led by the head nurse and relevant training courses were mostly attended by head nurses (27th Community Health Nursing Committee, 2005). Thus, such might enable head nurses to have more confidence in a self-assessment of community healthcare competency.

With regard to task implementation frequency, results found that task implementation frequency for practical matters to be a significant predictor of professional competency. This study, as well as many other similar studies conducted overseas, demonstrated that, PHN professional competency was not as good on a group or community level. This could be attributed to the fact that higher implementation frequency, which means more accumulation of experience, would result in a higher score for professional competency.

Besides, in terms of health station location, study results also supported that nurses at health stations in remote regions exhibited stronger community healthcare competency. This was similar to results obtained from domestic studies (Cheng, Yu, Hsu, & Lin, 1996; Chiou, 2000; Hsu, Yu, & Cheng, 1997), as they all indicated difference in the locations of health stations influence professional competency. This study found that nurses at health stations in remote regions scored higher in their self-assessment of professional competency. This could be attributed to the fact that the lack of medical resources and personnel enabled nurses to exhibit stronger community healthcare competency.

As for nursing work experience, Liou (1998) pointed out in her research that clinical nursing experience for PHNs was not insufficient to prepare an individual for working at health stations. Accumulation of nursing experience might be able to strengthen clinical nursing competency, but not in PHNs because of a range of duties that covered everything from entry-level prevention to screening, long-term care, and case management. PHN services covered individuals all the way up to entire communities. Therefore, having work experience in hospital-based clinical nursing is insufficient to enhance community healthcare competency. That being said, for incoming PHNs, regardless of experience, each should receive advanced training in community-oriented courses so that will be prepared to execute actual PHN duties.

Conclusion

Results of this study indicate that PHN professional competency at community level is in need of improvement,

especially in the area of community health promotion, community health program planning, application of epidemiology and biostatistics. Implemented frequency of practices, years as a PHN, job position, education level and location of health stations were shown to be significant predictors of PHN competency in community-focused healthcare practice.

In light of the above, the authors propose the following:

1. Nursing education: At the intermediate level of community nursing education, more emphasis should be placed on community-level subjects such as community health promotion, drafting community health plans, applying epidemiology knowledge and applying biostatistics. As for practical training in community healthcare, such should evolve from family assessment to community assessment while more training is added to develop the community health program. Furthermore, more elective courses pertaining to community subjects might be added, for example, building a healthy community, public health policy, community health program. So students interested in becoming PHNs will be able to receive better training courses while in school. On the other hand, students who have graduated from vocational schools should be encouraged to promote their education level as part of an effort to enhance individual knowledge in order to prepare themselves for work as community-focused PHNs.

2. Nursing administration and practices: Zurmehly (2007) indicated that making the transition to community-based nursing includes conceptual as well as emotional adjustments. Study results indicate a need for additional supportive preparation strategies to be incorporated into nursing orientation and continuing education programs. Supervisors need to provide sociological as well as psychological support. Therefore, a series of educational courses should be prepared for new PHNs, plus community-oriented practical training courses should be included as well to strengthen their familiarity with the task of community healthcare, thus enhancing PHN competencies. Implemented task frequency influences professional competency. Therefore, PHN administrators should arrange appropriate training for nurses in their charge in order to improve care quality. In addition, PHNs should be encouraged to make efforts in personal development in order to be better prepared for

an ever-changing world. Holding regular on-the-job training especially at the community level is an even more imminent need.

3. Nursing research: future research might be targeted at each professional capacity for long-term follow up studies in order to better understand the growth in PHN professional competency. Experimental research design should be used to examine the effectiveness of community-oriented courses so that a more comprehensive training model can be devised for PHNs. Furthermore, years as a PHN and health station location both have various influence on individual PHNs' competency in community healthcare. Future research could be conducted to examine working years and training courses for incoming personnel, or to investigate on the job training required by various health station locations in order to devise a training model for PHNs.

Limitations of Study Findings

1. Questionnaires used in this study required participants to recall past experience to answer questions. Individual ability to recall answers accurately may influence results.
2. Demographic characteristics of PHNs who refused to participate were not collected. Therefore, it is impossible to eliminate possible selection bias by comparing the demographic characteristics of participants and non-participants.

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公共衛生護理人員社區健康照護能力之探討

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摘　要： 本研究目的係探討公共衛生護理人員之社區照護能力及其相關因素。採橫斷式調查性研究。研究工具為研究者參考文獻自擬之「公共衛生護理人員社區健康照護能力量表」，分別測量其實務執行頻率及自評專業能力。研究工具採專家效度，內容效度指數為 .90，信度 Cronbach's α 為 .97、折半信度為 .95、再測信度相關係數為 .97。問卷以郵寄方式寄給全台 369 個衛生所護理長，再由護理長轉交護理人員，共寄出 2,956 份問卷，回收率 67.03%。研究結果顯示，在自評能力方面，得分最高為社區醫療機構之聯繫，其次為社區資源整合、社區團體運作；得分最低為生物統計學知識之應用，其次為社區健康營造的輔導、流行病學知識之應用。廻歸分析顯示執行頻率、公衛年資、職稱（護理長）、教育程度（碩士以上）及衛生所型態（山地離島）為影響因素。因此，建議未來可探討適宜在職訓練年資及新進人員訓練課程，也可針對不同型態衛生所之護理人員的在職教育需求進行探討，進而規劃一套公衛護理人員訓練模式。

關鍵詞： 公共衛生護理人員、公共衛生護理、社區衛生護理、衛生所、專業能力。