

Original Article

Nurses' Willingness and the Predictors of Willingness to Provide Palliative Care in Rural Communities of Taiwan

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Abstract

The aims of this study are to identify the willingness of district nurses to provide palliative care in the rural communities in Taiwan and determine the predictors of this willingness. A questionnaire was sent to all 1,121 community nurses of the 174 government health stations assigned to all the rural areas of Taiwan. The overall response rate was 86.4%, with 940 valid questionnaires retrieved. The majority of respondents (93.0%) expressed a willingness to provide palliative care if they encountered a terminal cancer patient. However, they would limit their services to consultation and referral (91.6% and 87.3%), and were less likely to provide home visiting (51.0%) or bereavement support of family (38.4%). With regard to knowledge, the accurate answers to the philosophy/principles and clinical practice of palliative care were 88.5% and 43%, respectively. The results of stepwise logistic regression analysis showed that "palliative care knowledge," "the belief in external control by authority," and "the belief in external control by chance" were the most significant variables related to the willingness of district nurses to provide palliative care (OR = 12.83, 95% CI = 2.46–66.76, $P < 0.01$; OR = 2.11, 95% CI = 1.32–3.35, $P < 0.01$; OR = 0.54, 95% CI = 0.31–0.95, $P < 0.05$, respectively). However, regarding the content of services, the willingness to provide home visiting was affected positively by the level of information resources, subjective norms, and the belief in external control by authority. This willingness was negatively affected by age of the patient. These data suggest that effective training courses focused on practical knowledge of palliative care for these district nurses, the incorporation of the palliative care into nursing education, and active health policy administration are critical for the community palliative care movement in Taiwan. J Pain Symptom Manage 2003;26:760–768. © 2003 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

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Key Words*Palliative care, community, knowledge, belief, willingness***Introduction**

One of the important goals in life for the Taiwanese is the pursuit of a good death. This is believed possible only at home. Although Chiu's community study^{1,2} showed that only 44.6% of Taiwanese subjects would choose the home as the preferred place for terminal care, nearly 60% (59.4%) of respondents who originally chose the hospital would change their mind and choose the home as the preferred place for terminal care if home palliative care was available. In that study, 80% of respondents in Taiwan and 58.9% in Japan hoped to die at home.¹ Another study showed that of 329 terminal cancer patients in a palliative care unit, 43.1% preferred to die in the hospital and 56.9% would rather die at home.³ Of those who would have preferred to die at home, 59.1% eventually died in the hospital and 40.9% died at home. Many of those who died at home were actually kept alive just long enough to transfer from hospital to home, and then died soon afterwards.² The majority (80%) of primary caregivers of these terminal cancer patients expressed the need for palliative care and the patients were highly satisfied with the home care provided by the health professionals.³ The above findings correspond with the results of previous studies conducted in other countries.⁴⁻⁷ Similar to these studies, the need to strengthen the competence of palliative care (in particular, terminal care) in Taiwan's communities was evident in the local studies.

Beginning in 1983, the Department of Health (DOH) in Taiwan began to enhance the medical facilities of government health stations in rural areas for providing better medical care. Although the DOH in Taiwan has plans to extend home care to rural communities, home health care is presently only available in some large cities, especially for terminal cancer patients.^{8,9} To promote the competency of community palliative care, a sound strategy is to build a system of home palliative care in rural areas through the professionals in established government health stations—in particular, the district nurses. To assess the feasibility of this

strategy, we chose to examine the willingness of district nurses to provide palliative care in their communities and the factors that may influence this willingness.

Our study had the following aims: 1) to identify the willingness of district nurses to provide palliative care in their communities when they encounter a terminal cancer patient, and 2) to determine the predictors of this willingness to provide palliative care. With our findings, we can design effective interventions for the district nurses to promote community palliative care.

Methods*Subjects*

This study is a cross-sectional survey using the cluster sampling method, and was conducted in the period 1999 to 2000. A well-structured questionnaire was mailed to 1,121 district nurses at the 174 government health stations that cover all the rural communities in Taiwan. Two months later, non-respondents were contacted again and the questionnaire survey was resent. Altogether, 968 respondents (86.4%) from 162 (93.1%) government health stations returned the questionnaires. Deducting incomplete questionnaires, 940 valid questionnaires were retrieved.

Measurements

A structured self-reported questionnaire consisting of six parts was administered to all the subjects. The six parts of the questionnaire included questions on demographic characteristics, the health locus of control, knowledge in palliative care, beliefs on palliative care, subjective norms, and the willingness to provide palliative care. The entire six-part questionnaire was tested for content validity by a panel comprising two physicians, two nurses, one psychologist, and one social worker, all of whom were experienced in the care of the terminally ill. Each item in the questionnaire was appraised from "very inappropriate and not relevant (1)" to "very appropriate and relevant (5)." A

“content validity index (CVI)” was used to determine the validity of the structured questionnaire. This CVI score was computed by summing the percentage of agreement of all items that were given a rating of 4 or 5 by the experts and had a standard deviation of less than 1.0. The questionnaire yielded a CVI of 0.965—computed by summing 0.258 from the “4” ratings and 0.707 from the “5” ratings on all items. In addition, 35 district nurses filled out the questionnaire to confirm the questionnaire’s face validity and ease of administration.

Demographic characteristics assessed by the questionnaire included age, education, religious beliefs, information on palliative care, and experience in providing palliative care. The other five parts assessed the following areas:

Health Locus of Control. The Multi-dimensional Health Locus of Control scale (MHLC), originally designed by Wallston and Devellis in 1978, has been used in Taiwan in the past.¹⁰⁻¹² It is an 18-item measure that uses Likert scales, from “strongly disagree (1)” to “strongly agree (6).” Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin (KMO) test were used to determine whether the study data on health locus of control were suitable for exploratory factor analysis. The value of the BT for the data was 12964.38, significant values were 0.00, and KMO values were 0.79. Therefore, the scale was indeed suitable for exploratory factor analysis. The draft items were analyzed using principal component factor analysis followed by orthogonal varimax rotation. The number of principal components to be extracted was determined by examining the eigen values (>1) and Cattell’s Scree test. Meanwhile, the cut point of factor loading was set at 0.4. Items with low factor loading (<0.4) were deleted from each subscale. Finally, no item was deleted and the sub-domains were similar to the original structure. Thus, the health locus of control scale was reconstructed and named Internal, Powerful Others, and Chance Health Locus of Control (IHLC, PHLC, and CHLC) factors. The internal consistency was demonstrated with Cronbach’s alpha coefficient ranging from 0.61 to 0.78 in the subscales of this measure.

Knowledge in Palliative Care. This measure evaluated the philosophy and principles of hospice and palliative care (14 items), and practical

knowledge about palliative care (14 items) such as the management of symptoms and the psychological and spiritual care to be given to individuals and their families. The 28-item measure was designed with careful scrutiny of the literature in this area. The main reference was the PCQN originally developed by Ross et al.^{12,13} All items were also grounded on the basis of real life experiences of the investigators involved in palliative care. The scoring system of this scale used “true (1)” and “false/unknown (0).” A Kuder-Richardson formula 20 (KR-20) was used to assess internal consistency of this knowledge measure and showed a coefficient of 0.76.

Beliefs About Palliative Care. Designed with careful scrutiny of the literature, this part included the perception of the threats, benefits, and barriers in providing palliative care.^{14,15} The measure is a 26-item set using 5-point Likert scales—from “strongly disagree (1)” to “strongly agree (5).” Bartlett’s test of sphericity and KMO test were used to determine whether beliefs data were suitable for exploratory factor analysis. In this measure, the value of the BT was 3317.69, significant value was 0.00, and the KMO value was 0.91. Therefore, the measure was indeed suitable for exploratory factor analysis. Exploratory factor analysis was performed as it was for the MHLC. Finally, the beliefs measure was constructed using the threats, benefits, and barriers perceived from the district nurses in taking care of terminal cancer patients, after deleting two items. Internal consistency is demonstrated with the Cronbach’s alpha coefficient range of 0.70 to 0.92 in the subscales of beliefs.

Subjective Norms. This part was composed of both “perceived beliefs of significant others’ opinions” and “the motivation to comply with significant others’ opinions” to provide palliative care. The measure has 12 items, including the influences by spouses, sons, or daughters. Items are scored on 5-point Likert scales from “strongly unaffected (1)” to “strongly affected (5).”¹⁶⁻¹⁸

Willingness. This identified the district nurses’ consent to provide palliative care services in the community if they encounter a terminal cancer patient. The content of palliative care

services included providing consultation, referring patients to palliative care units, home visiting, phone visiting, and bereavement care of family.

Statistical Analysis

All data was analyzed using SPSS 10.0 statistical software. A frequency distribution was used to describe the demographic data and the distribution of each variable. Mean values and standard deviations were used to analyze the degree of each variable in the health locus of control, knowledge in palliative care, beliefs about palliative care, and subjective norm measures. A stepwise logistic regression analysis was carried out to determine the relative values of the variables related to willingness. *P*-value less than 0.05 was considered significant. Calibration of the models was assessed using the Hosmer and Lemeshow Goodness-of-fit test. It evaluated the degree of correspondence between the probabilities of willingness and the actual willingness.

Results

Demographic Characteristics

The total number of respondents was 940 (Table 1). These were mainly 30–49 years old (82.3%), with a mean age of 38.1 years (*SD* = 7.3 years). The formal education of the majority of the respondents was junior college (95.9%) and about 80% practiced at least some religion. Nearly 60% (59.5%) did not have any experience in caring for terminal patients and fewer than 6% had ever referred terminal cancer patients to palliative care. Although more than 80% (85.5%) had received information about palliative care, fewer than 5% could express clear understanding towards this palliative care information. Their main sources of information concerning palliative care were newspapers/magazines (34.5%), periodicals/books (32.2%), or the mass media (26.5%). The source of knowledge coming from formal education was lower (12.3%).

Variables Related to the Willingness to Provide Palliative Care

Table 2 shows that possible factors related to one's willingness includes the health locus of control, palliative care knowledge, beliefs about

palliative care, and prevailing subjective norms. The mean scores of the three subscales of Health Locus of Control (CHLC, IHLC, and PHLC) were 2.6, 4.4, and 3.6, respectively. These indicate that the respondents of the study were inclined to believe in the Internal Health Locus of Control (IHLC).

The mean score of beliefs toward palliative care was 3.7 (*SD* = 0.38, range 1–5). The three sub-concepts of beliefs were including: the perception of “threats” caused by the worsening disease process of terminal cancer patients, “benefits,” and “barriers” in providing palliative care. Their mean scores were 2.8, 4.2, and 3.8, respectively. These indicate positive beliefs towards providing palliative care. The higher score items in perceiving the threat about providing palliative care are: “afraid of

Table 1
Demographic Characteristics of the District Nurses
(*n* = 940)

Variable	<i>n</i>	(%)
Age (average = 38.11 years old; <i>S.D.</i> = 7.27)		
20–29	116	(12.3)
30–39	408	(43.4)
40–49	366	(38.9)
≥50	50	(5.3)
Education		
Junior college	901	(95.9)
University or above	39	(4.1)
Religious beliefs		
None	187	(19.9)
Yes	713	(80.1)
Experience in caring for terminal cancer patients		
None	559	(59.5)
Yes	381	(40.5)
Experience in palliative care referral		
None	886	(94.3)
Yes	54	(5.7)
Information on palliative care		
None	136	(14.5)
Yes	804	(85.5)
Understanding the information about palliative care		
Very clearly	32	(3.4)
A little	578	(61.5)
Hearing about but do not understand	327	(34.8)
Never hearing about	3	(0.3)
Sources of information (multiple choices)		
Newspapers/magazines	324	(34.5)
Periodicals or books	303	(32.2)
Mass media	249	(26.5)
In-service education	184	(19.6)
Related seminars	180	(19.1)
Medical staff	181	(19.3)
Formal education	116	(12.3)
Bulletins in hospital	103	(11.0)
Palliative training programs	92	(9.8)
Others	22	(2.3)

Table 2
Variables Related to the Willingness of District Nurses to Provide Palliative Care ($n = 940$)

Variables	Mean (\pm SD)	Range
Health locus of control		
Factor I: chance external	2.59 (0.63)	1-6
Factor II: internal	4.36 (0.73)	1-6
Factor III: powerful others	3.63 (0.80)	1-6
Beliefs: perception of taking care of terminal patients	3.68 (0.38)	
Factor I: perception of threats	2.78 (0.59)	1-5
Factor II: perception of benefits	4.20 (0.50)	1-5
Factor III: perception of barriers	3.82 (0.73)	1-5
Subjective norms for the provision of palliative care	2.90 (0.47)	1-5
Knowledge of palliative care	20.24 (3.70)	1-28
Philosophy/principles	12.09 (2.10)	1-14
Clinical management	7.84 (2.17)	1-14

caring for the terminal patient" (2.7), "will influence daily work and schedule" (2.7) and "terminal patient is incurable and hopeless" (2.5). The higher score items in perceiving the barriers toward providing palliative care include: "palliative care means abandonment of the patient" (2.7), "shorten patient's life and letting die" (2.6) and "make patient feel hopeless and without future" (2.60). However, the higher score items in perceiving the benefits about providing palliative care include: "promote life quality and patients' dignity" (4.4), "dying peaceful and having a good death" (4.4), "better death preparation for terminal patient and families" (4.3) and "able to give emotional support" (4.3).

Subjective norms for providing palliative care came from the influences of the district nurses' significant others. The spouse was the most often cited significant other (51.9%). But only 60% of respondents thought that their own significant others knew of information regarding palliative care. In addition, 70% of the district nurses were "uncertain" whether or not their significant others would agree with their providing palliative care. However, the total mean of subjective norms was 2.9 (range 1-5), which shows that the district nurses were not remarkably influenced by subjective norms.

With regard to palliative care knowledge, the mean percentage of accurate responses was 73.3% (SD = 13%). The accurate answers to the philosophy/principles and clinical management of palliative care were 88.5% and 43.0%, respectively. There were 8 items, the accuracy

of which was less than 60%, including management of pain and dyspnea (4 items), psychological support (3 items), and communicational skills (1 item).

The Willingness to Provide Palliative Care and Important Predicting Variables

Over 90% of the district nurses expressed a willingness to provide palliative care in the community if they encountered a terminal cancer patient (Table 3). The majority is willing to provide information about palliative care resources (91.5%), refer terminal cancer patients to a palliative care unit (87.2%), and conduct a phone visit (61.9%). However, the willingness to conduct home visiting and to provide bereavement care were less (51.0% and 38.4%, respectively).

The results of the stepwise logistic regression analysis in Table 4 reveal that, when other variables remain unchanged, the higher the score for "having knowledge in palliative care" or "beliefs in PHLC," the higher the probability of willingness to provide palliative care (OR = 12.8, 95% CI = 2.5-66.8, $P < 0.01$; OR = 2.1, 95% CI = 1.3-3.4, $P < 0.01$). However, the higher the score for "beliefs in CHLC," the lower the probability of willingness to provide palliative care (OR = 0.54, 95% CI = 0.3-0.95, $P < 0.05$). Among these three significant predictors, palliative care knowledge was the most powerful predictor with an odds ratio of 12.8. For the fitness of the model, the P -value of the Hosmer and Lemeshow Goodness-of-fit test is 0.8021.

Further analyzing the sub-models for significant predicting variables in providing the detail contents of palliative care by the stepwise logistic regression analysis, we found these results can be best summarized thus: The more palliative knowledge and the greater the perception of benefits in providing palliative care, the

Table 3
Willingness of District Nurses to Provide Palliative Care ($n = 927$)

Willingness to Provide Palliative Care	n (%)
No	65 (7.0)
Yes	862 (93.0)
Provide consultation	788 (91.5)
Refer to palliative care unit	751 (87.2)
Provide home visiting	439 (51.0)
Provide phone visits	533 (61.9)
Provide bereavement care of family	331 (38.4)

Table 4
The Significant Predicting Variables for Providing Palliative Care

Predicting Variables	Willingness/No Willingness				P value
	β	S.E.	OR	95% CI of OR	
Palliative Care Knowledge	2.55	0.84	12.83	(2.46~66.76)	0.0024
Powerful Others Health Locus of Control	0.74	0.24	2.11	(1.32~3.35)	0.0017
Chance Health Locus of Control	-0.62	0.28	0.54	(0.31~0.95)	0.0315
Hosmer and Lemeshow Goodness-of-Fit Test				P value = 0.8021	

β = Normalized beta coefficient; SE = Standard Error; OR = Odds Ratio; CI = Confidence Interval.

stronger the willingness to provide consultation, referral to palliative care, and phone visits. The stronger the subjective norms, inclination to PHLC and the younger the age, the stronger the willingness to provide home visiting (Table 5).

Discussion

The high response rate in the study may be attributed to the use of a personally signed

cover letter. Such a letter clearly indicates the purposes of study, and invites the correspondent (usually the nursing chief of the health station) to assist in collecting questionnaires. Furthermore, it highlights the importance of providing palliative (and, in particular, terminal) care in the correspondent's community. The study focused on the rural areas, which usually give the impression of being more supportive and a greater possibility for providing a nice home environment for terminal care,

Table 5
The Submodels for Significant Predicting Variables in Providing Palliative Care

Predicting Variables	Willingness/No Willingness				P value
	β	S.E.	OR	95% CI of OR	
1. Provide consultation					
Palliative care knowledge	2.65	1.05	14.17	(1.82~110.49)	0.0114
Belief (perception of benefits)	0.61	0.25	1.84	(1.13~3.01)	0.0147
Subjective norm	0.29	0.15	1.34	(1.00~1.79)	0.0504
2. Refer to palliative care unit					
Palliative care knowledge	2.34	0.90	10.35	(1.79~60.01)	0.0091
Belief (perception of benefits)	0.60	0.22	1.83	(1.19~2.83)	0.0063
Powerful Others Health Locus of Control	0.40	0.16	1.49	(1.08~2.06)	0.0146
Chance Health Locus of Control	-0.51	0.21	0.60	(0.40~0.90)	0.0138
3. Providing home visits					
Subjective norm	0.24	0.09	1.28	(1.08~1.51)	0.0044
Powerful Others Health Locus of Control	0.17	0.08	1.18	(1.00~1.39)	0.0497
Level of information resources	0.15	0.05	1.16	(1.05~1.28)	0.0031
Age					
20~29					
30~39	-1.46	0.40	0.23	(0.11~0.51)	0.0003
40~49	-1.12	0.33	0.33	(0.17~0.62)	0.0007
50 and above	-1.26	0.35	0.29	(0.14~0.57)	0.0004
4. Providing phone visits					
Palliative care knowledge	2.40	0.88	11.02	(1.97~61.52)	0.0062
Belief (perception of benefits)	0.52	0.20	1.68	(1.13~2.48)	0.0097
Powerful Others Health Locus of Control	0.37	0.12	1.44	(1.14~1.83)	0.0027
Subjective norm	0.28	0.10	1.32	(1.10~1.60)	0.0036
Age					
20~29					
30~39	-1.94	0.67	0.14	(0.04~0.53)	0.0035
40~49	-1.50	0.62	0.22	(0.07~0.75)	0.0151
50 and above	-1.68	0.62	0.19	(0.06~0.62)	0.0060
Belief (perception of barriers)	-0.34	0.14	0.71	(0.53~0.94)	0.0166
5. Provide bereavement care					
Palliative care knowledge	1.73	0.83	5.65	(1.11~28.65)	0.0367
Powerful Others Health Locus of Control	0.27	0.11	1.31	(1.05~1.64)	0.0182
Subjective norm	0.18	0.09	1.20	(1.02~1.42)	0.0316

β = Normalized beta coefficient; SE = Standard Error; OR = Odds Ratio; CI = Confidence Interval.

despite the possible absence of medical facilities. The national generalizability of the study is clear since our sample includes all district nurses of all rural communities, covering more than 80% of the Taiwan's geographic area.

Community nurses are the key professional most in touch with patients' and their families health needs in the community. The responsibilities of community nurses can be recognized in providing practical nursing care for patients in their own homes, giving emotional advice, and liaising with specialist colleagues. Therefore, community nurses have the potential to play an important role in the care for the dying in their communities, which is the main reason our study is investigating their willingness. Meanwhile, interest is increasing in other countries in the provision of community palliative care for the terminally ill. Most countries in the Asia-Pacific region, such as Japan, Thailand, and Mainland China, have developed an organized community health care system where the community nurses are accountable for the health of people in a designated geographical district.

District nurses in government health stations in Taiwan are primarily trained in providing public health medicine, disease prevention, and health promotion. Their focus is the care of vulnerable people, such as the elderly, expectant mothers, and children. Rarely do they provide care for terminally ill patients. Thus, they have less opportunity to gain experience in providing palliative care, and risk losing both experience and confidence if they focus on it. This vicious cycle exists in community care. Many district nurses (59.5%) expressed that they had never encountered the care problems of terminal cancer patients in their work experiences. Although over 90% of the district nurses in this study were willing to provide palliative care when they had to, they would find this difficult in rural communities because it is beyond their expertise. We can recognize this from the basic data of district nurses: insufficient palliative care knowledge—especially in clinical practice in managing common problems of terminal cancer patients such as pain, dyspnea, and anorexia—and feelings of threat from the worsening conditions of terminal patients. These two factors might affect their willingness to directly take care of terminal cancer patients and

limit their services only in providing consultation (91.5%) and making a referrals (87.2%), but not provide home visiting (51.0%) or bereavement support of family (38.4%).

In the study, knowledge of palliative care and the Health Locus of Control were found to be major predicting or explained variables for the willingness of district nurses to provide palliative care services. Among these variables, palliative care knowledge was the most powerful predictor, with an odds ratio of 12.8. Further analysis of the content of services, palliative care knowledge and beliefs (perception of benefits) were very important in predicting the variables of willingness for providing services like consultations, referrals to palliative care, phone visits, and bereavement care of family. By elevating the level of palliative care knowledge and helping the district nurses perceive the benefits in providing palliative care can we improve their willingness to provide consultation, referral of palliative care, phone visit and bereavement care of family.

With regards to home visiting, previous studies reported many terminal patients feel they are not visited frequently enough. They rate the quality of home palliative care in terms of home visiting patterns. Nevertheless, the number of home visits, especially for the dying, continues to fall.^{19–21} In our study, we found that the stronger the subjective norms, the Powerful Others Health Locus of Control, and the younger the age of the terminal patient, then the stronger the willingness to provide home visiting. However, the majority of respondents in our study were older than 30 years old, and inclined to Internal Health Locus of Control, and were unaffected by subjective norms and the lack of clinical palliative care knowledge. It seems reasonable to suppose that district nurses' willingness of providing home palliative care actively is a weakness in Taiwan.

From an educational point of view, we also found that if the respondents have more resources for palliative care knowledge, they are more willing to provide community palliative care, in particular "home visiting." Therefore, good teaching materials on the practice of palliative care and palliative care courses for in-service education might be helpful in promoting community palliative care in Taiwan. Otherwise, age is an important predictor for home visits, so incorporating palliative care into

undergraduate courses for younger students is also important.

To provide more productive palliative care to the community, developing a better health care system in the community is fundamental. In Taiwan, besides well organized government health stations, training programs in family and community medicine have been advocated for 20 years and are now available to most community physicians, district nurses, and other health professionals. On this basis, constructing a primary care team comprised of primary care physicians, nurses, and other health professionals, and improving their team dynamics for coordinating community resources and providing palliative care will be a strong first step. Providing services such as "consultations, referral and phone visits" would be practical in the initial stage. Otherwise, a referral system and communication network should be established among government health stations, palliative care units and home care teams. Enhancing discharge planning for terminal cancer in-patients is also important.

Some variances were not included in the empirical tests in our study, such as the referral system, health care manpower, health insurance, and social welfare system. These could be influential. This is a limitation of our study.

About 32,000 people died of cancer in Taiwan in 2001, compared with 24,000 in 1994.²² Over the last decade, the hospice and palliative care services have expanded in Taiwan, and in 2002, there were 20 inpatient services and 43 domiciliary palliative care programs. However, almost all of these services are limited in the urban area. To promote the competence of community palliative care will be important further work. The study conclusively suggests that making efforts in three areas is key for the community palliative care movement in Taiwan: 1) effective education on practical knowledge of palliative care for district nurses, 2) incorporating palliative care into medical and nursing education, and 3) active health policy administration.

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