

Holistic Outcome Measurement for Terminally III

Cancer Patients in Medical Centers in Taiwan

Ke-Ping Yang · Teresa J. C. Yin* · Li-Chuan Lee**

Nanly Hsu*** · Jui-Mei Huang****

ABSTRACT: The purpose of this cross-sectional study was to examine holistic patient outcomes for terminally ill cancer patients, as well as to examine whether different care patterns affect patient outcomes differently. Holistic patient outcomes were measured by the patients' quality of life, satisfaction with care, and cost of care. A purposive sampling of 224 subjects including 123 patients and 101 nurses was drawn from four medical centers in Taiwan. Among these settings, various care patterns were adopted and categorized into 4 groups: hospice inpatients, hospice team consultation, home hospice care services, and a conventional acute care group. Results showed that hospice inpatients had a higher quality of life, a higher level of satisfaction with the care and a lower average inpatient cost, whereas conventional care tended to have the highest length of hospital stay. Home hospice care patients had better psychological well-being than those with other care patterns. In addition, nurses' work satisfaction with the inpatients care unit tended to be significantly higher than with the other groups. The study findings not only provide an instrument for evaluating the quality of care, but also contribute to identifying patterns of care that will influence the dying process, which can only be beneficial for patients. Given the wide variety of healthcare services available now, understanding and selecting the most effective care patterns to enhance patient out-comes is of utmost importance in Taiwan.

Key words: holistic patient outcomes, care patterns, terminally ill cancer patients.

Introduction

Rapidly changing economic conditions and the implementation of National Health Insurance (NHI) in Taiwan have dramatically altered the healthcare environment. The future of healthcare professionals will be decided by the outcomes of the implementation of National Health Insurance patient care, which is the result of cost and quality of care (Yang & Yin, 1999). Outcomes are the result of care, or measurable changes in the health status or behavior of clients (Harris, 1991). Measurement of the outcomes of care is a component of both care evaluation and care planning. Patient outcome-focused quality evaluation is thus a crucial approach to ensuring quality of care. There are numerous studies on outcome-focused quality evaluation or

measurement (Nissen et al., 2000; Yang, Simms, & Yin, 1999, August 3). Few attempts, however, have been made to carry out systematic evaluations of the overall effects of terminal patient care.

As in most developed countries, cancer is one of the main causes of death in Taiwan. The mortality rate for incurable cancer is around 50, and the quality of life of these patients will eventually diminish (Smeenk et al., 1998). Quality of life is an underlying goal of quality of care for patients and their families while maximizing comfort and maintaining dignity in the terminal phase (Ferrell, 1998). Quality of life is also the holistic outcome of concern, and includes physical, psychological, social, financial, legal, and spiritual aspects (McMillan & Mahon, 1994). Recently, the value of quality of life for patients has been increasingly recognized among health care professionals (Mast, 1995). Yang (1999) further noted that quality of life outcome measurements might be more appropriate for cancer patients at the end of life.

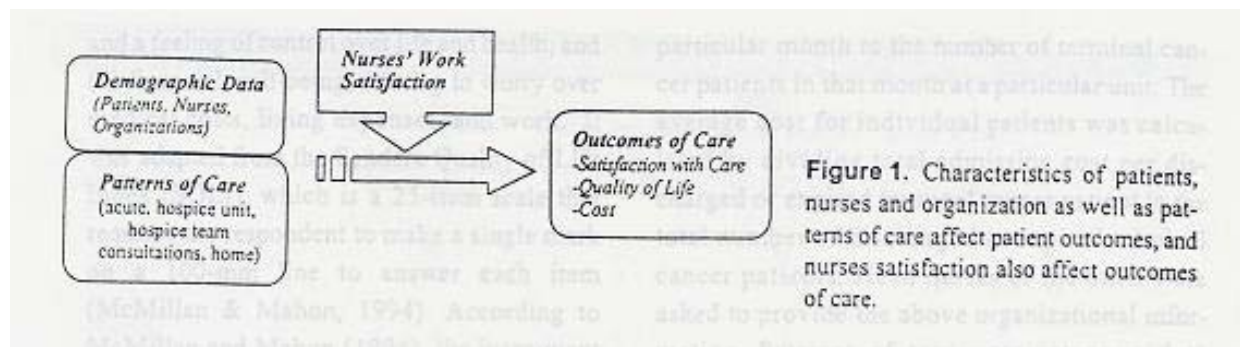
Despite this, most cancer patients in their terminal stage are still receiving highly technical, depersonalized conventional care in acute care settings in Taiwan. Among them, patterns of care vary; some of them are inspired by the philosophy of hospice and some are not. However, many studies have found that people in the last phase of life often need a very different care pattern than what is currently available in the acute care system (Dawson, 1991; Henley, Curzio, & Hunt, 1997; Hinton, 1979; Law, 1997; Parkes, 1985; Seale, 1991). Hospice-inspired care encompasses a wide variety of services, provided by various professionals and volunteers in multiple settings with different care patterns, such as home hospice care, inpatient hospice care and hospice team consultations (Andershed & Temestedt, 1997; O'Henley, Curzio, & Hunt, 1997). Many investigators in the past decade have compared patterns of care for terminal cancer patients on outcome variables such as emotional well-being (Parkes & Parkes, 1984), family morbidity (Cameron & Parkes, 1983), activities of daily living (Kane, Bernstein, Wales, Leibowitz, & Kaplan, 1982), pain and symptoms (Parkes, 1979), quality of life (Greer et al., 1986), satisfaction with care (Dawson, 1991), and number of inpatient days and cost effectiveness (Amado, Cronk, & Milio, 1979).

Although outcomes are key to understanding the effectiveness of patient care (Sousa, 1999), the effectiveness of these patterns of care nonetheless has been largely overlooked in the empirical evaluation of these populations in Taiwan. Since hospice-inspired care is in its infancy in Taiwan's health care system, the study thus attempts to examine the effectiveness of current care patterns for terminally ill cancer patients in medical centers in Taiwan, and the factors influencing such effectiveness. Specifically, the study examined (1) holistic patient outcomes for terminally ill cancer patients as measured by satisfaction with care, quality of life and cost of care; (2) the effects of characteristics of patients, nurses, and organization on patient outcomes; (3) the effects of care patterns on nurses' work satisfaction and patient outcomes; and

(4) the effect of nurses' work satisfaction on patient outcomes.

Conceptual Framework

The main research question was: What is the impact of different hospice care patterns on outcomes of care for terminal patients, as opposed to those of conventional care? It was hypothesized that characteristics of patients, nurses and organization as well as patterns of care affect holistic patient outcomes, and nurses' work satisfaction all have some impact on this (Figure 1).



Method

Design and Sampling

A cross-sectional study design was used to perform this study. A purposive sampling of 224 subjects including 123 patients and 101 nurses was drawn from five medical centers located in the areas of north, central, and south Taiwan. Among these settings, two provide both inpatient hospice care and home hospice care services, and one provides both home hospice care and an inpatient hospice team consultation (symptom control), one provides home hospice care, and one has no hospice program except acute care. Patient subjects were receiving hospice inpatient care ($n = 26, 21.1\%$), hospice team consultations ($n = 36, 29.2\%$), home hospice care ($n = 23, 18.6\%$) and conventional acute care ($n = 38, 30.9\%$). Nurses were all primary nurses who were taking care of these patients through hospice inpatient care ($n = 25, 24.8\%$), hospice team consultations ($n = 35, 34.6\%$), hospice home care ($n = 12, 11.9\%$) and acute care ($n = 29, 28.7\%$). To be included, patients had to be over the age of 18, conscious, had to have a diagnosis of cancer and a prognosis of less than six months life left (a requirement for admission to hospice care). In addition, patients and their primary nurses had to be able to respond, as well as consent, to participation in this study.

Instruments and Scaling Procedures

Three major instruments used to collect data for the study were (1) Patients' Quality of Life;

(2) Satisfaction with Care; and (3) Nurses' Work Satisfaction. Since the above three measures are primarily qualitative and subjective in nature, procedures of scaling require judgments of intensity or strength of perception. These were all measured by magnitude estimation. This procedure avoids the use of preset rating dimensions (Wills & Moore, 1994). It was produced through items ranging from 0 to 100.

In addition, instructions were given which emphasize that the subjects' responses should be proportional to the intensity of experienced subjective states. For the purposes of the precise representation of the study data, two indices, ICC (Intraclass Correlation Coefficient) and Cronbach's α , were used to test the reliability of the instrument. These reliability indices estimate the internal consistency or homogeneity of a measure composed of several items or samples (Knapp, 1999). A jury of six panel experts examined the instruments to assure their content and face validity. The three structured questionnaires were described as follows:

1. Quality of Life was a 29-item rating scale including (1) physical well-being, which focuses on strength, working, appetite, eating, sleeping and sexual activity; (2) physical symptoms, including pain, nausea, vomiting, alopecia and fatigue; (3) psychological well-being; including recreation, life satisfaction, feeling useful, support of family, friends, and health care workers, and a feeling of control over life and health; and (4) financial well-being, relating to worry over medical costs, living expenses, and work. It was adapted from the Sendera Quality of Life Index (SQLI), which is a 25-item scale that requires the respondent to make a single mark on a 100-mm line to answer each item (McMillan & Mahon, 1994). According to McMillan and Mahon (1994), the instrument was not specifically designed for hospice patients, yet it appears to assess the factors that would be at issue for dying patients who met the criteria for the study sampling. The instrument used for this study was translated and back translated to examine its validity. Reliability of the instrument was 0.823 for Cronbach's α , and 0.758 for ICC value (95%CI = 0.688 - 0.818).

2. Patient Satisfaction with Care was measured by a single item to capture patients' psychometric satisfaction. Reliability of this scale was 0.7614 for Cronbach's α , and 0.389 for ICC value (95%CI=0.3014-0.4853).

3. Nurses' Work Satisfaction was a 20-item scale measuring work-related variables. It was adapted from Yang's (1991) study, which includes autonomy, communication with physicians, co-workers, direct superiors and other professionals, feedback from patients and families, work content, workload, pay and fringe benefits, scheduling, the amenities of the care setting, advancement opportunities, professional growth opportunities and overall satisfaction with their current work of caring for cancer patients. Reliability for the Nurses' Work Satisfaction Scale was 0.937 for Cronbach's α and 0.427 for ICC value (95%CI=0.357-0.508).

In addition, Nursing Unit Characteristics include practice patterns, staff mix, number of beds, occupancy rate and the average length of stay, as well as average cost per inpatient.

Aver-age length of stay was calculated by dividing the sum of each patient's length of inpatient days in a particular month to the number of terminal cancer patients in that month at a particular unit. The average cost for individual patients was calculated by dividing total admission cost per discharged or expired terminal cancer patient to the total number of discharged or expired terminal cancer patients. Head nurses of the units were asked to provide the above organizational information. Patterns of care were categorized as acute inpatient (conventional) care, in-patient hospice care, hospice team consultations, and home-based hospice care.

Data for the study were analyzed by descriptive and inferential statistics such as one-way ANOVA and chi-squares. Since p values depend on sample size, identical mean scores could yield higher significant levels in a smaller sample (Dawson, 1991). In this study, a small sample of each group (patient groups ranged from 26 to 38, and 12-35 for nurse groups) must be considered to set significant level at an alpha of 0.1 (90% of confidence interval).

Result

The eligible subjects consisted of 123 terminally ill cancer patients from 5 Taiwanese medical centers and 101 primary nurses who cared for these patients. Results are presented in the following order: (A) demographic data, which include the characteristics of patients, nurses and settings by care patterns individually; (B) holistic patient out-comes including the relationships between (1) care patterns and holistic patients outcomes, (2) care patterns and nurses' work satisfaction, and (3) nurses' work satisfaction and holistic patient outcomes.

Demographic Data

I. Characteristics of Patient Subjects by Care Patterns

Ages of the 123 patient subjects ranged from 47 to 68. The mean age was 65.12 {SD = 2.63} for the hospice inpatient group, 58.09 (SD = 2.85) for the home hospice care group, 55.64 (SD = 2.75) for the hospice team consultation group, and 49.97 (SD = 2.89) for the acute care group. Subjects were typically male (n = 81, 66%), married {n = 89, 72.4%}, had elementary (n = 41, 33.3%) or high school (n = 30, 24.4%) educational level, were Buddhist {n = 59, 48%}, lived with their family (n=113, 92%), and currently had no job (n = 73, 59%). Their primary caregivers were typically their spouses (n = 50, 41%) with a mean age of 47.47 (SD = 13.06), ranging from 17 to 83 years old, and their primary financial resource was themselves (n = 40, 33%) (Table 1).

Table 1. Demographic Characteristics of Patient Subjects by Care Patterns

Variable	<i>M(SD)</i>				Total	<i>p</i> value ^a
	Hospice Inpatient (<i>n</i> =26)	Team Consultation (<i>n</i> =36)	Home Hospice (<i>n</i> =23)	Acute Care (<i>n</i> =38)		
Age (<i>M</i> ± <i>SD</i>)	65.12 ± 2.63	55.64 ± 2.75	58.09 ± 2.85	49.97 ± 2.89		.003 ^{b**}
Sex						.080 ^{b*}
Male	16	29	16	20	81	
Female	10	7	7	18	42	
Education						.007 ^{b**}
Illiterate	4	5	4	1	14	
Elementary	9	12	9	11	41	
Middle	1	4	5	1	11	
High	6	9	2	13	30	
College	4	1	2	12	19	
University	2	4	1	0	7	
Postgraduate	0	1	0	0	1	
Religion						.304 ^b
None	2	5	2	9	18	
Buddhist	15	16	10	18	59	
Protestant	3	2	3	6	14	
Catholic	1	0	0	1	2	
Taoist	2	6	4	2	14	
Folk beliefs	3	7	3	1	14	
Consistent Dao	0	0	1	1	2	
Marital Status						.000 ^{b**}
Single	0	4	2	10	16	
Married	17	29	17	26	89	
Divorced	3	3	0	1	7	
Widow/Widowed	6	0	4	1	11	
Working Status						.134 ^b
Unemployed	12	17	15	29	73	
Employed	9	10	4	5	28	
Retired	5	9	4	4	22	
Living With						.126 ^b
Alone	0	2	0	5	7	
Family	25	32	23	33	113	
Institution	1	2	0	0	3	
Primary Care Giver						.000 ^{b**}
None	0	0	0	5	5	
Spouse	12	23	8	7	50	
Parents	1	3	0	9	13	
Children	8	4	8	9	29	
Brother	0	0	1	0	1	
Sister	1	1	0	0	2	
Relatives	0	0	0	1	1	
Friends	0	0	1	4	5	
Attendant	4	5	5	3	17	
Age of Care Giver (<i>M</i> ± <i>SD</i>)	50.04 ± 3.25	48.69 ± 2.43	44.86 ± 2.42	45.74 ± 1.73		.380 ^a
Financial Source						.102 ^b
Self	11	10	9	10	40	
Spouse	2	3	4	7	16	
Parents	1	4	0	7	12	
Children	7	5	7	9	28	
Relatives	0	1	0	0	1	
Others	5	13	3	5	26	

Note. ^a: tested by one-way ANOVA; ^b: tested by chi-square. * *p* < .1; ** *p* < .05.

There was a significant difference ($p < 0.05$) in age, education, marital status, and primary care-givers among the four groups. The hospice inpatients group were older ($M = 65.12$) than the other groups, patients in the general care were the youngest group ($M = 49.97$).

Table 2 shows that the majority of the patients had coverage from the National Health

Insurance Program(n = 105, 86%), had idiopathic cancer (n = 91, 74%), and were physically independent under assistance(n = 44, 36). Only 26 (21) patients were fully dependant. About one third of them knew the current status of their illness (n =80, 65%), yet there were patients who were still not sure (n = 30,24%) or didn't know about their terminally ill condition at all (n = 9, 7.3%). There was a significant difference in patient awareness of their illness among the four groups at $P < .1$ level. None of the hospice inpatient group did not know the progress of their illness, whereas the other three groups did have small numbers of patients who did not know their current condition.

Variables	Hospice Inpatient (n=26)	Team Consultation (n=36)	Home Hospice (n=23)	Acute Care (n=38)	Total	p value ^a
Clear About Own Illness						
No	0 (0.00%)	1 (2.78%)	3 (13.64%)	5 (13.16%)	9	.087 ^{b*}
Yes	18 (78.26%)	23 (63.89%)	12 (54.55%)	27 (71.05%)	80	
Not sure	5 (21.74%)	12 (33.33%)	7 (31.81%)	6 (15.79%)	30	
Total	23	36	22	38	119	
Insurance						
National health I.	22 (88%)	33 (91.67%)	21 (91.30%)	29 (76.32%)		.228
Labor insurance	6 (24%)	8 (22.22%)	6 (26.09%)	8 (21.05%)		.973
Official business	0 (0%)	1 (2.78%)	0 (0.00%)	3 (7.89%)		.166
Life insurance	6 (24%)	12 (33.33%)	7 (30.43%)	9 (23.68%)		.771
Attached cancer I.	3 (12%)	6 (16.67%)	4 (17.39%)	6 (15.79%)		.950
Farmers' insurance	3 (12%)	3 (8.33%)	3 (13.04%)	1 (2.63%)		.372
Total	25	36	23	38		
Experienced Treatment						
None	4 (15.38%)	2 (5.71%)	4 (17.39%)	0 (0.00%)		
Surgery	10 (38.46%)	16 (45.71%)	12 (52.17%)	32 (84.21%)		
Radio-therapy	9 (34.62%)	10 (28.57%)	20 (86.96%)	30 (78.95%)		
Chemo-therapy	11 (42.31%)	20 (57.14%)	8 (34.78%)	35 (92.10%)		
Total	26	35	23	38		
Nature of Cancer						
Idiopathic	20 (86.96%)	27 (79.41%)	20 (86.96%)	24 (64.86%)	91	.864
Secondary	3 (13.04%)	7 (20.59%)	3 (13.04%)	13 (35.14%)	26	
Total	23	34	23	37	117	
Physical Function						
Independent	2 (7.69%)	2 (5.71%)	0 (0.00%)	13 (34.21%)	17	.774
Independent with Assistance	12 (46.15%)	11 (31.43%)	7 (30.43%)	14 (36.84%)	44	
Entire assistance	9 (34.62%)	10 (28.57%)	7 (30.43%)	9 (23.68%)	35	
Fully dependent	3 (11.54%)	12 (34.29%)	9 (39.13%)	2 (5.26%)	26	
Total	26	35	23	38	122	

Note. ^a: tested by one-way ANOVA; ^b: tested by chi-square. * $p < .1$

II. Demographic Characteristics of Nurse Subjects

Nurses were predominantly female with a mean age of 28.02 (SD = 5.88), ranging from 21 to 50 years. The average length of nursing experience was 71.04 months (SD = 6.19), and their experience with oncology or hospice care was 23.41 months (SD = 2.70). The majority of them were unmarried ($n = 77$, 76.2%), RN ($n = 79$, 80.6%), with college education ($n = 74$, 73.3%).

Nurses' age, nursing experience, and the average number of patients cared for per shift were significantly different among the 4 groups of care. The oldest age group was the hospice inpatients ($M = 31.56$), team care ($M = 28.34$), home care ($M = 28.08$), and general care patients ($M = 24.55$) in that order. The length of nursing experience for the 4 groups was: hospice ($M = 102.20$), home care ($M = 88.58$), team care ($M = 69.58$), acute inpatients ($M = 38.55$) in order. Nurses who were working in the hospice unit cared for the least number of inpatients on average ($M = 5.69$) per shift; the highest number of inpatients cared for per shift was in the acute general care unit ($M = 10.12$) (Table 3).

Table 3: Demographic Characteristics of Nurse Subjects by Care Patterns

Variables	Hospice Inpatient (n=25)	Team Consultation (n=35)	Home Hospice (n=12)	Acute Care (n=29)	Total	p value ^a
Age	31.56 ± 6.31	28.34 ± 4.86	28.08 ± 7.23	24.55 ± 4.05	74	.000 ^{a**}
Months of Nursing Experience	102.20 ± 13.59	69.58 ± 8.96	88.58 ± 23.33	38.55 ± 7.48	25	.001 ^{a**}
Oncology/Hospice Nursing experience (months)	29.04 ± 4.37	14.31 ± 4.50	28.79 ± 8.37	27.31 ± 5.36	101	.103 ^a
Average Number of Patients Cared for Daily	5.69 ± 0.42	9.39 ± 0.44	7.43 ± 0.99	10.12 ± 0.31	101	.000 ^{a**}
Educational Level						.648 ^b
College	18 (72.00%)	23 (65.71%)	10 (83.33%)	23 (79.31%)	74	
University	7 (28.00%)	11 (31.43%)	2 (16.67%)	5 (17.24%)	25	
Postgraduate	0 (0.00%)	1 (2.86%)	0 (0.00%)	1 (3.45%)	2	
Total	25	35	12	29	101	
Marital Status						.552 ^b
Unmarried	16 (64.00%)	28 (80.00%)	9 (75.00%)	24 (82.76%)	77	
Married	8 (32.00%)	7 (20.00%)	3 (25.00%)	5 (17.24%)	23	
Divorced	1 (4.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1	
Total	25	35	12	29	101	
Licensure						.688 ^b
RN	21 (84.00%)	26 (74.29%)	8 (88.89%)	24 (82.76%)	79	
Nurse	4 (16.00%)	9 (25.71%)	1 (11.11%)	5 (17.24%)	19	
Total	25	35	9	29	98	
Position						.099 ^b
Clinical nurse	23 (92.00%)	30 (85.71%)	8 (66.67%)	25 (86.21%)	86	
Team leader	1 (4.00%)	0 (0.00%)	2 (11.11%)	3 (10.34%)	6	
Associate head nurse	0 (0.00%)	4 (11.43%)	1 (8.33%)	1 (3.45%)	6	
Head nurse	1 (4.00%)	1 (2.86%)	1 (8.33%)	0 (0.00%)	3	
Total	25	35	12	29	101	

Note. ^a: tested by one-way ANOVA; ^b: tested by chi-square. * $p < .1$; ** $p < .05$.

Table 4: Demographic Characteristics of the Study Settings by Care Patterns

Variables	Hospice Inpatient (n=2)	Team Consultation (n=1)	Home Hospice (n=3)	Acute Care (n=1)	p value
No. of physicians	2	5	11	6	.122
No. of nurses	12	14	20	22	.071 [*]
No. of social workers	1	1	3	0	.013 ^{**}
No. of patients (day shift)	5	8	9	9	.001 ^{**}
No. of patients (evening shift)	8	13	14	14	.536
No. of patients (night shift)	12	17	15	20	.326
No. of beds	15.00	38.33	69.00	54.75	.001 ^{**}
Average occupancy	93.05%	94.66%	97.1%	92.67%	.780
Mean cost per month (NTS)	12300.00	53275.87	70149.00	23250.00	.381
Mean LOS (day)	14	10	9	16	.755

Note. Tested by one-way ANOVA. * $p < .1$; ** $p < .05$.

III. Characteristics of the Study Settings

The study settings included five medical centers distributed in the north, center and south of Taiwan. There were significant differences in the number of nurses, social workers, patients, and beds of the units between the 4 groups of care (Table 4). Acute care units had the highest

number of nurses (n = 22 per unit), 20 for the home care unit, 14 for the team care unit, and 12 for the hospice unit.

The average length of stay was 16 days for acute care units, 14 days for the hospice inpatients, 10 days for team care, and 9 for home care patients in the last month. The average cost for all study patients was NTS39,743.7 {SD = 2,666.33}, ranging from 12,300 to 70,149 (Table 4). Among variables related to nurses' demographic characteristics, only marital status correlated with financial well-being. Number of patients cared for per shift correlated with the patients' physical symptoms (Table 5).

Table 5. Correlations Between Nurses' Demographic Data and Aspects of Quality of Life

Variables	r^2 (p)			
	Physical Well-being	Psychological Well-being	Financial Well-being	Physical Symptoms
Age	.139 (.183)	.122 (.230)	.074 (.468)	.167 (.098)*
Education	.033 (.752)	-.053 (.600)	.112 (.274)	-.026 (.795)
Marital status	-.097 (.357)	-.114 (.262)	-.211 (.038)**	-.006 (.953)
Licensure	.021 (.846)	.040 (.696)	.054 (.605)	-.123 (.234)
Position	.148 (.158)	.023 (.824)	.075 (.466)	-.065 (.525)
Number of patients cared for daily	-.067 (.528)	-.125 (.226)	-.125 (.231)	-.195 (.057)*
Total nurses' work satisfaction score	-.010 (.924)	-.094 (.362)	.004 (.967)	.026 (.801)

* $p < .1$; ** $p < .05$.

Table 6. Comparison of Outcome Variables and Patient-Related Factors by Care Pattern

Outcome variables	Mean (SD)				p Value
	Hospice Inpatient (n=26)	Team Consultation (n=36)	Home Hospice (n=23)	Acute Care (n=38)	
Physical well-being	259.16 ± 23.00	239.41 ± 24.25	185.00 ± 23.80	252.50 ± 19.50	.158
Physical symptoms	459.72 ± 29.54	398.49 ± 21.67	390.87 ± 29.12	394.61 ± 26.09	.271
Psychological well-being	833.72 ± 36.41	851.51 ± 28.73	859.13 ± 28.66	796.71 ± 30.97	.467
Financial well-being	177.81 ± 14.90	154.24 ± 15.01	149.52 ± 19.29	141.05 ± 11.39	.344
Total score of quality of life	1792.71 ± 63.74	1726.00 ± 69.84	1664.05 ± 69.79	1661.72 ± 68.55	.537
Satisfaction with care	89.50 ± 2.78	83.67 ± 3.22	82.14 ± 4.60	77.55 ± 4.60	.057*
Cost (NTS)	12300	53275.87	70149	23250	.381

Note. Tested by one-way ANOVA. $p < .1$.

Table 7. Correlations Between Patients' Demographic Data and Aspects of Quality of Life

Variables	r^2 (p)			
	Physical Well-being	Psychological Well-being	Financial Well-being	Physical Symptoms
Age	-.098 (.300)	.045 (.625)	.168 (.067)*	.058 (.530)
Education	.298 (.001)**	.127 (.164)	.017 (.858)	.056 (.540)
Marital status	-.055 (.559)	-.036 (.696)	-.055 (.553)	-.027 (.765)
Working conditions	.208 (.026)**	.097 (.289)	-.014 (.883)	.136 (.136)
Age of caregiver	-.043 (.660)	-.122 (.196)	.260 (.006)**	.125 (.189)
Satisfaction with care	.192 (.044)**	.701 (.000)**	.368 (.000)**	.711 (.000)**

* $p < .1$; ** $p < .05$.

Holistic Patient Outcomes

I. Care Patterns and Holistic Patient Outcomes

The one-way ANOVA statistical technique was used to test the different care patterns for

holistic patient outcomes as measured by quality of life, satisfaction with care and cost.

Table 6 shows that patients who received hospice care had greater physical and financial well-being, and fewer physical symptoms than those receiving conventional care. However, patients who received home hospice care had the highest psychological well-being among the four care patterns. When examined further, the data show that the hospice inpatients group and traditional care group differed significantly in patients' satisfaction with care ($p = .001$). Hospice inpatients had a much higher satisfaction score ($M = 89.50$) than those who were cared for by conventional acute care ($M = 77.55$). There was also a significant difference ($p = .041$) between the hospice inpatients group and the hospice home care group for physical well-being. Hospice inpatients had a higher physical well-being score ($M = 259.16$) than those who were cared for by home hospice care ($M = 185$). The hospice inpatients group also had the lowest cost when compared to other groups, although no statistical differences were found.

In addition, Pearson's correlation was used to examine each aspect of quality of life and patient variables related to demographic characteristics as well as satisfaction with care (Table 7). The results show that there were significant differences between all aspects of quality of life and satisfaction with care, as well as between physical well-being and education ($r^2 = .298$, $p = .001$), working conditions ($r^2 = .208$, $p = .026$), and between financial well-being and age of the primary caregiver ($r^2 = .260$, $p = .006$).

II. Care Patterns and Nurses' Work Satisfaction

The four groups of care pattern differed significantly in both nurses' general work satisfaction and oncology/hospice care satisfaction (Table 8). Hospice inpatient units had the highest score for nurse satisfaction, whereas team care had the lowest satisfaction for nurses. Of items relating to nurses' work satisfaction, work environment, amenities of work setting, pay, fringe benefits, vacation and scheduling systems were found to be statistically significant among the 4 different care patterns (Table 9).

Variables	Mean (SD)				p Value
	Hospice Inpatient (n=26)	Team Consultation (n=36)	Home Hospice (n=23)	Acute Care (n=38)	
Overall work satisfaction	1548.25 ± 32.5	1478.11 ± 28.94	1415.58 ± 6.54	1430.79 ± 33.26	.026*
Satisfaction with hospice/ oncology patients' care	81.56 ± 1.97	71.17 ± 2.24	72.50 ± 4.24	75.48 ± 1.96	.011*

*p < .05.

Variables	Mean (SD)				p Value
	Hospice Inpatient (n=25)	Team Consultation (n=35)	Home Hospice (n=12)	Acute Care (n=29)	
Work amenities	88.20 ± 1.41	78.34 ± 1.88	75.83 ± 4.03	71.31 ± 2.63	.000**
Work atmosphere	88.52 ± 1.91	82.77 ± 1.86	82.92 ± 1.99	80.10 ± 2.37	.044**
Pay	86.60 ± 1.82	83.29 ± 1.80	67.92 ± 4.41	66.90 ± 2.89	.000**
Fringe benefits	83.84 ± 1.93	81.51 ± 1.98	67.92 ± 4.24	66.21 ± 2.16	.000**
Vacation system	85.32 ± 2.04	79.86 ± 2.19	65.42 ± 4.67	71.55 ± 2.08	.000**
Scheduling system	88.12 ± 1.71	77.43 ± 2.44	69.58 ± 5.17	76.86 ± 2.31	.000**
Oncology/hospice work	81.56 ± 1.97	71.17 ± 2.24	72.50 ± 4.24	75.48 ± 1.96	.011**

Note. Analyzed by one-way ANOVA. ** p < .05.

III. Nurses' Satisfaction and Holistic Patient Outcomes

Pearson's correlation coefficient showed that there was no significant correlation between nurses' work satisfaction and patients' quality of life ($r^2 = .049$, $p = .653$), whereas it correlated significantly with patients' satisfaction with care ($r^2 = .194$, $p = .055$)(Table 10).

Variables	r^2 (p)	
	Total Satisfaction of Nurses	
Physical well-being	-.010 (.801)	
Physical symptoms	.026 (.801)	
Psychological well-being	.094 (.362)	
Financial well-being	.004 (.967)	
Total score for quality of life	.049 (.653)	
Satisfaction with care	.194 (.055)*	

*p < .1.

Discussion

As an examination of holistic outcomes for cancer patients in their terminal stage with different care patterns, the design of this study is limited since there was no random allocation to each group of care patterns. The hospice inpatients group tended to be older, more religious, and widowed, and their primary caregivers were also older. All these things might have influenced the outcome measures. However, random allocation is difficult to achieve in health care research for practical and ethical reasons (Seale, 1991). As the present study focused on terminally ill cancer patients, ethical and clinical considerations made compromise inevitable,

and are a limitation of this study.

The lack of significant differences was a function of the small sample size (Dawson, 1991). Therefore, despite the fact that no significant differences were predicted among 4 groups of care patterns, some were revealed. The study results suggest that patients with hospice services, whether inpatients, home or team consultation reported greater scores on quality of life than those with conventional care. The same is true of satisfaction with care, which is consistent with the findings of Kane, Bernstein, Wales, Leibowitz, & Kaplan's (1982), and Dawson (1991).

Previous research suggests that both quality of life and satisfaction are a subjectively experienced phenomenon (Yang & Yin, 1999; Yang, Simms, & Ym, 1999), and correlated with each other if expressed by patients themselves. The present study found that the hospice inpatients group and the acute care group differed significantly in both patients' quality of life and satisfaction with care. The two patients' subjective psychometric phenomena of quality of life and satisfaction were correlated in this study.

Moreover, the hospice inpatients group had less physical symptoms and greater financial and physical well-being, whereas the home hospice care group had better psychological well-being. That the home care group was more satisfied with nurses and had fewer unmet needs than the group cared or in hospitals may be due to the amenities of the home environment and the supportive atmosphere, as well as lot of reassurance provided by their visiting nurses. Hospice home care nurses were less involved in practical aspects of care and more in providing advice and support. Similar to Scale's (1991) study, the present study reveals _ beyond question that the process of hospice care, in both inpatient hospice and home care settings, was rather different from acute care and that hospice care was, in many respects, seen as valuable.

Kane et al. (1982) confirmed that hospice care was no more or less expensive than acute care patterns. The domiciliary advisory services at St. Christopher's Hospice however, found that the reduced length of inpatient care, which resulted from the provision of this service, led to a reduction in costs per patient (Parkes, 1979). Results from the current study show that acute care had the highest average length of stay, whereas the hospice inpatient care tended to be the least expensive group. However, home care was the most costly group in this study, which ran contrary to Amado, Cronk, and Mileo (1979)'s finding that both inpatient and extended home care services were cost effective. This may be due to the study failing to measure the phase of illness separately, as well as different modes of operation in other countries. In addition, the subjects of the study were drawn from medical centers, referrals of patients are all made by hospital discharge planners, and home care services are also hospital-based agencies, which may cost more, but these agencies provide a shorter length of stay while they were in these hospitals.

Conclusion

Dying is a complex process, which makes the measurement of holistic outcomes for dying patients even more complex and difficult. A robust method thus is crucial to examine patient outcomes. For the majority of patients, quality of life declines rapidly near the end of life (McMillan & Mahon, 1994). The researchers conceptualized holistic patient outcomes to be measured by quality of life, patient satisfaction with care, one item from the quality of care measure, as well as the cost of care. The researchers' philosophical stance may be important since different perspectives will high-light or obscure aspects, when working through issues of design, method, sampling, and analysis (O'Henley, Curzio, & Hunt, 1997).

Despite some of the frailties in the research techniques used, the study is consistent with the information provided by previous research regarding care for terminally ill patients. Some general conclusions can be drawn:

1. Quality of life, satisfaction with care, and the cost of care, in hospice inpatient, home hospice, or team care in medical center-based settings in Taiwan, are different from conventional acute care.
2. Hospice inpatient care patients had higher quality of life and satisfaction with care, and lower average inpatient cost, whereas those in conventional care tended to have the highest length of hospital stay.
3. The hospice inpatient group also had greater physical well-being than the home hospice care group.
4. The home hospice care patients had better psychological well-being than those with other care patterns.
5. Patients' satisfaction with care correlates significantly with all aspects of quality of life as measured by physical well-being, physical symptoms, psychological well-being, and financial well-being.
6. Nurses' work satisfaction in the inpatient care unit tended to be significantly higher than the other groups.
7. Nurses' work satisfaction correlated to patient satisfaction, but no correlation between patients' quality of life and nurses' work satisfaction was found.

Terminal care, and emphasizing hospice objectives, can be fused into the existing health care system for optimal effect. Similar to Amado, Cronk, and Mileo's point (1979), the study suggests that the combination of home hospice care and inpatient services into a system of care that shares a common objective would best serve dying patients. The components of this health care system must provide equal access and insure a healthy balance of reimbursement and resources to allow . patients a choice of care. Choice is the hallmark of the hospice concept of care of the dying (Amado, Cronk, & Mileo, 1979).

Given the wide variety of services now available, understanding and selecting the most effective care pattern is urgent in Taiwan. Based on the findings, the study not only provides an instrument for evaluating the quality of care, but also contributes to identifying patterns of care that will influence the dying process, which can only be beneficial to the patients. Information from the study further goes to health care organizations for policy making which benefit patient outcomes in acute care settings in Taiwan. Research on evaluating hospice care interventions and the care forms which work best in a particular set of circumstances are highly recommended for future studies.

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台灣地區醫學中心癌末病患整體性結果評量

楊克平 尹祚芋* 李麗傳** 徐南麗*** 黃瑞美****

摘要：本橫斷式研究之目的在評量台灣地區醫學中心之癌末病患結果，並測試不同照護型態是否對病患結果有不同的影響。整體性病患結果以病患之生活品質、對照護之滿意度及費用等變項評量之。本研究採立意取樣，針對4所醫學中心，共計224位研究對象參與，含123位癌末病患及101位護理人員。各醫學中心之照護型態可分類為四組：安寧病房、安寧小組會診、安寧居家及傳統式一般照護等。研究結果顯示安寧病房住院患者之生活品質、滿意度均高於傳統式一般照護，其平均住院日及費用亦均低於傳統照護。然而居家安寧照護組卻有最好的心裡層面生活品質。此外，安寧病房護理人員之工作滿意度亦最高。本研究非但提供臨終患者照護品質之評價工具，尚對各種照護型態在病患結果上之影響提供實證性資料，以確保病患死亡過程中之最佳利益。以目前我國健康照護多樣化之服務模式而言，瞭解並選擇最有效的照護型態實有燃眉之急。

關鍵詞：整體性病患結果、照護型態、癌末病患。

台中榮民總醫院護理督導長暨中山醫學院醫學研究所副教授 台北榮民總醫院護理部主任曹陽明醫學院副教授* 國防醫學院護理學系副教授兼系主任暨護研所所長* 台北榮民總醫院護理部副主任暨國防醫學院教授** 高雄榮民總醫院護理部副主任****
受文日期:90年2月20日 修改日期:90年3月15日 接受刊載:90年3月21日通訊
作者地址:尹祚芋 112台北市北投區石牌路二段201號