PSYCHO-ONCOLOGY
Psycho-Oncology **14**: 376–385 (2005)
DOI: 10.1002/pon.854

RELATIONSHIPS AMONG PERCEIVED DIAGNOSTIC DISCLOSURE, HEALTH LOCUS OF CONTROL, AND LEVELS OF HOPE IN TAIWANESE CANCER PATIENTS

CHIA-CHIN LIN[a,*] and HSIU-FEN TSAY[b]
[a] *Graduate Institute of Nursing, Tipei Medical University, Taipei, Taiwan*
[b] *Instructor, Hsin-Sheng Senior Nursing Vocational High School, Taoyuan, Taiwan*

SUMMARY

Objectives. To explore relationships among perceived diagnostic disclosure, health locus of control, and levels of hope in Taiwanese cancer patients.

Research Design. A cross-sectional, descriptive correlational design was used in this study. One hundred and twenty-four ($N = 124$) patients were recruited. The Background Information Form, the Multidimensional Health Locus of Control (MHLC) Scales, the Herth Hope Index (HHI), and patients' medical records were used. Data were analyzed using descriptive statistics, *t*-test, ANOVA, Chi-square, Pearson's correlation, and multiple regression.

Results. The major findings of this study are as follows: (1) overall, cancer patients had medium levels of hope; (2) patients who were aware of their own diagnosis reported significantly higher levels of hope than those who were not informed of their own diagnosis; (3) patients who were aware of their diagnosis tended to have higher levels of the internal locus of control than those who were not informed; (4) the internal health locus of control was significantly positively related to levels of hope; (5) the chance health locus of control was significantly negatively related to levels of hope.

Conclusions. The results of this study provide important implications for Taiwanese clinicians concerning the practice of diagnostic disclosure of cancer to patients. Copyright © 2004 John Wiley & Sons, Ltd.

INTRODUCTION

A patient given a diagnosis of cancer may likely experience some degree of emotional distress. Evidence from research studies shows that although the truth hurts, deceit may well hurt more (Fallowfield *et al*., 2002). However, Taiwanese families, much as do Chinese in Hong Kong (Tse *et al*., 2003) and Chinese in mainland China (Pang, 1999; Li and Chou, 1997), who feel they best understand the patient's personality, may want to withhold information on a cancer diagnosis from the patient to protect them from receiving potentially hurtful or sad news. Clinicians in Taiwan, wanting to honor the wishes of the family, often face the ethical dilemma of whether or not to inform patients of a diagnosis (Chen *et al*., 1996; Lu, 1996). However, some patients have expressed regret that illness-related information had been withheld from them, preventing them from taking timely action to prepare for death and organize their affairs (Chen *et al*., 1996). The dilemma for the oncologist essentially becomes one of whether a patient's health locus of control or autonomy should take precedence over a family's attitudes about informing that patient of a diagnosis of cancer and whether the level of hope will change as a patient copes with a cancer diagnosis. The purpose of this study was to explore relationships among diagnostic disclosure, health locus of control, and levels of hope in Taiwanese cancer patients. The results of this study may provide guidelines for cancer diagnosis disclosure practices for Taiwanese clinicians and families.

---

*Correspondence to: Graduate Institute of Nursing, Taipei Medical University, 250 Wu-Hsing Street, Taipei 110, Taiwan. E-mail: clin@tmu.edu.tw

Received 6 February 2003
Accepted 16 July 2004

The question of whether or not to disclose a cancer diagnosis has been an issue of concern for clinicians and families for a long time. In the early 1960s, a landmark paper by Oken (1961) showed that 90% of surgeons in the US would not routinely discuss a diagnosis of cancer with their patients. In the 1970s, however, there was a great change in clinical attitudes, with 94–97% of American physicians saying that they would tell their patients of a cancer diagnosis (Mitchell and Glicksman, 1977; Novack *et al.*, 1979). Mitchell's study (1998) conducted in the late 1990s found that the Western medical community was increasingly emphasizing full truthful disclosure of cancer diagnoses or prognoses and respect for autonomy. However, surveys in Europe and the US show that many ethnic groups (among them, Native Americans, Korean, Chinese, Mexican, and African) cancer patients and physicians consider complete and accurate disclosure of cancer to be undesirable (Mitchell, 1998). Concealment of a prognosis may make patients feel uncertain, anxious, stressful, and abandoned and cause physicians to feel estranged (Annas, 1994). Moreover, most adult patients and children in Western countries expect full disclosure of cancer (Brewin, 1991; Mitchell, 1998).

The cultures in Asian countries are generally considered to be family-centered (Blackhall *et al.*, 1995). Many Chinese families object to informing the patient of a cancer diagnosis or prognosis, and some experts recommend that the wishes of the family be respected (Chan *et al.*, 1998). It is very common for physicians in mainland China to inform the family members instead of the patient (Pang, 1999). In addition, it has been reported that Chinese internists were more likely to follow the family's preferences rather than the patient's preferences (Feldman *et al.*, 1999). In Hong Kong, Fielding *et al.* (1994) reported that 68% of cancer patients may be informed; however, the diagnostic disclosure was often incomplete and the prognostic disclosure was only 38%. Moreover, Chinese patients are more likely to be informed about a cancer diagnosis in a sudden approach (Fielding *et al.*, 1998).

In Japan, Kakai (2002) concluded that the Japanese prefer the use of a direct communication style, involving disclosure of the true diagnosis of their own cancer. When cancer is a family member's illness, however, many Japanese perceive that the use of an indirect communication style, involving no disclosure or ambiguous disclosure to the patient, is more ethical than direct communication of the diagnosis. It appears that the Japanese use this double standard when making judgments about the morality of disclosing a cancer diagnosis to patients. Hosaka *et al.* (1999) reported that some physicians in Japan believed that full disclosure may affect the outcome of treatment, create stress and psychiatric problems, or lead to suicide. Although the trend towards full disclosure is increasing in Japan, approximately 70% of current cancer patients are still not fully informed of their condition. Hosaka *et al.* (1999) further found that concealing the true diagnosis was not related to the presence of psychiatric disorders in Japanese cancer patients. It appears that whether or not to disclose a cancer diagnosis continues to be an issue of concern for clinicians and families in Asian countries.

The second variable of interest in this study is the health locus of control, which concerns an individual's perceived degree of control over his or her own health. The health locus of control explains some of the variability in health-seeking behaviors or attitudes (Burger, 1993). Rotter (1966) stated a theory of internal–external locus of control, postulating that learning reinforces and causes individuals to generalize their expectations for internal versus external control. Individuals with an internal locus of control believe that reinforcements are determined by their own behaviors, as opposed to those with an external locus of control who are more likely to believe that reinforcements are determined by other outside factors, such as chance, fortune, destiny, powerful others, and other unpredictable areas of their life (Lefcourt, 1976). Levenson (1973) theorized a multidimensional locus of control, dividing external control into two dimensions, chance and powerful others.

Based on Levenson's theory (1973), Wallston *et al.* (1978) developed the Multidimensional Health Locus of Control (MHLC) Scales (Forms A and B), which include the following subscales: (1) Internal Health Locus of Control (IHLC), which measures the degree to which individuals believe that their health is determined by their own actions; (2) Powerful Others Health Locus of Control (PHLC), which measures the degree to which individuals believe that their health is determined by powerful others; and (3) Chance Health Locus of Control (CHLC), which measures the degree to which individuals believe that their health is determined by chance or by a higher spiritual power. The three dimensions of the health locus of control are independent of each other, and individuals may be influenced by more than one dimension at the same time. De Valck and Vinck's work (1996) found that lung cancer patients report a more internally oriented health locus of control, while healthy persons report a more externally oriented locus of control.

The third variable of interest in this study is hope. Hope is a multidimensional phenomenon (Buehler, 1975; Herth, 1990; Rustoen, 1995). Using a grounded theory methodology, Hinds (1984) proposed the definitions of hope as forced efforts, personal possibilities, expectations of a better tomorrow, and anticipation of a personal future. Owen (1989) considered hope to be stimulative energy and an inner preparedness to attain a goal. A survey was conducted on 131 patients, including 32 males and 99 females, with recently diagnosed cancer (91% within 0–8 months). Using the Nowotny Hope Scale (NHS), the survey showed that 87% of patients felt hopeful (NHS scores of 95–116) or moderately hopeful (NHS scores of 73–94) (Rustoen and Wiklund, 2000). Nowotny (1989) stated that if cancer patients had a higher level of hope, they could better adapt to living with cancer and could improve their quality of life.

There have been no studies which discussed the relationships among diagnostic disclosure, the health locus of control, and levels of hope in Taiwanese cancer patients. Therefore, the purposes of this study were: (a) to present the current status of perceived diagnostic disclosure in cancer patients; (b) to explore characteristics of the health locus of control; (c) to explore levels of hope; and (d) to explore the relationships among perceived diagnostic disclosure, health locus of control, and levels of hope in Taiwanese cancer patients.

METHODS

Participants and settings

A cross-sectional and descriptive correlational design was used in this study. Participants were recruited using a convenience sampling from inpatient and outpatient units of four different teaching hospitals in the Taipei area of northern Taiwan. Eligibility criteria for inclusion were patients diagnosed with cancer, over 18 years old, and able to communicate in Mandarin or Taiwanese. The final sample consisted of 124 patients with a 95.4% response rate.

Instruments

A four-part survey was used to collect the data. The structured questionnaires included (a) a background information form, (b) the Multidimensional Health Locus of Control (MHLC) Scales, (c) the Herth Hope Index (HHI), (d) and a patient's medical records.

Demographic questionnaire

The Demographic Questionnaire is divided into two sections. Data obtained in section one include gender, age, marital status, living situation, education, employment status, religious affiliation, and religious participation. Section two includes different sites of cancer and time since diagnostic disclosure.

Multidimensional Health Locus of Control (MHLC) Scales

The MHLC scales (Form B), developed by Wallston *et al.* (1978), were used to measure characteristics of individuals' multidimensional health locus of control, including the internal, powerful others, and chance subscales. The MHLC scales (Form B) is an 18-item scale using a six-point Likert-type format; the total score ranges from 18 to 108. Each score is directly related to the item of a characteristic. Cronbach's alpha was 0.69 to 0.72 (Wallston *et al.*, 1978). The reliability and validity of the MHLC were supported in a Chinese hemodialysis sample (Pang *et al.*, 2001). The MHLC was translated into Chinese using a translation and back-translation approach. In the current study, Cronbach's alpha was 0.91 for the internal subscale, 0.78 for the powerful others subscale, and 0.87 for the chance subscale. Content validity was established by a panel of experts.

Herth Hope Index (HHI)

The HHI (Herth, 1992) was used to measure individuals' perceived hope. The HHI is a 12-item scale, adapted from a version of the Herth Hope Scale (HHS), and uses a four-point Likert-type format with the categories of strongly disagree, disagree, agree, and strongly agree. HHI responses are summed (range, 12–48), and the total score is directly related to the level of hope measured. Cronbach's alpha was 0.97, and the test–retest reliability was 0.91 over a 2-week period in a sample of 172 ill adults (Herth, 1992). Criterion-related validity was established by correlating the HHI with the HHS ($r = 0.92$), the Existential Well Being Scale ($r = 0.84$), and the Nowotny Hope Scale ($r = 0.81$). Construct validity was supported through factor analysis of three factors: (a) temporality and future; (b) positive readiness and expectancy; and (c) interconnectedness. These three factors accounted for 41% of the total variance in the measure (Herth, 1992). The HHI was translated into Chinese using a translation and back-translation approach. The reliability and validity of the HHI were supported in a Chinese cancer sample (Hsu *et al.*, 2003). In this study, the internal consistency reliability was 0.86.

Patients' medical records

Perceived diagnostic disclosure was based on the patient's own perception of his or her cancer. Patients' medical records were compared with Section 2 of the demographics questionnaire which was filled in by the patient. If a patient wrote 'cancer' or 'malignant tumor', the same as the diagnosis, it meant that the diagnosis had been disclosed to that patient. On the contrary, if a patient wrote 'benign tumor' or some other diagnosis, it meant that the cancer diagnosis had been withheld or the patient was in denial.

Procedures

After ethical approval was obtained from each hospital, eligible subjects were recruited for this study. Potential participants were told the aims of the study, and written consent was obtained from those who were willing to participate. Patients were asked to complete the demographics questionnaire, the MHLC scales, and the HHI without assistance. If the patient was unable to complete the questionnaire unassisted, the research assistant read questionnaire items to the patient and then recorded the patient's answers on the questionnaire. Information regarding the patient's diagnosis was obtained from patient charts.

Statistical analysis

Descriptive statistics were used to describe the background information, status of perceived diagnostic disclosure, characteristics of the health locus of control, and levels of hope. Pearson's correlation, *t*-test, chi-square, ANOVA, and multiple regression were used to determine the relationships among those variables.

RESULTS

Demographic characteristics

Of the 124 patients who participated in the study, their ages ranged from 24 to 89 years, with a mean (S.D.) of 57.50 (13.10) years. A summary of their demographics is given in Table 1, and the distribution of cancer sites is reported in Table 2.

Perceived diagnostic disclosure in cancer patients

Of these cancer patients, 79.0% knew their diagnosis, but 21.0% did not. Time since perceived diagnostic disclosure was as follows: 0–3 months (52.00%), 3.1–6 months (28.60%), 6.1–12 months (13.30%), and 12.1 months or longer (6.10%).

In order to explore the relationships between age and years of education in the two groups of cancer patients, i.e., those with and those without disclosure, *t*-tests were computed. The mean (S.D.) age, at 66.27 (12.53) years, of patients who had not been told their diagnosis was significantly higher than the mean (S.D.) age, at 55.17 (12.32) years, of patients who had been told ($t = 4.07$, $p < 0.001$). The mean (S.D.) years of education, at 11.71 (4.98) years, for patients who had been told their diagnosis was significantly higher than the mean (S.D.) years of education, at 8.15 (6.96) years, for patients who had not been told ($t = -2.45$, $p < 0.05$). The other demographic variables had no significant correlation with perceived diagnostic disclosure.

Perceived health locus of control

The mean (S.D.) scores on the HLC in this study were 28.71 (5.17) on the powerful others subscale, 26.15 (7.97) on the internal subscale, and 20.01

Table 1. Demographic characteristics of cancer patients ($N = 124$)

	n	%	Mean (S.D.)
Gender			
Male	59	47.6	
Female	65	52.4	
Marital status			
Married	96	77.4	
Single	4	3.2	
Divorced	3	2.4	
Widowed	21	16.9	
Living status			
Cohabiting	121	97.6	
Living alone	3	2.4	
Educational level (years)			10.97 (5.61)
Illiterate (0)	21	16.9	
Elementary school (6)	34	27.4	
Junior high school (9)	24	19.4	
Senior high school (12)	26	21.0	
Technical school (14)	10	8.1	
University (16)	7	5.6	
Over graduate school (>18)	2	1.6	
Employment status			
Employed	31	25.0	
Unemployed	34	27.4	
Retired	28	22.6	
Housekeeper	31	25.0	
Religious affiliation			
Buddhism/Taoism	101	81.5	
Christianity/Catholicism	13	10.5	
None	10	8.1	
Religious participation ($n = 114$)			
Never	18	15.8	
Sometimes	74	64.9	
Often	22	19.3	

Table 2. Diagnosis characteristics of cancer patients ($N = 124$)

	n	%
Recruitment sites		
OPD	81	65.3
Units	43	34.7
Cancer sites		
Colon	29	23.4
Breast	28	22.6
Stomach	14	11.3
Lung	12	9.7
Liver	8	6.5
Nasopharynx	6	4.8
Lymph system	5	4.0
Mouth	3	2.4
Cervix	2	1.6
AML	2	1.6
Prostate	2	1.6
Bile tract	2	1.6
Larynx	2	1.6
Others	9	7.3
Current treatment		
Surgery	2	1.6
Chemotherapy (CT)	70	56.5
Radiotherapy (RT)	34	27.4
CT and RT	11	8.9
None	7	5.6

(8.77) on the chance subscale, meaning that a greater number of participants in this study had a powerful others health locus of control.

The internal health locus of control was only significantly influenced by the employment status variable ($F = 3.23$, $p < 0.05$). The internal health locus of control score was 29.42 (6.77) for employed, 25.91 (7.76) for unemployed, 23.18 (8.87) for retired, and 25.84 (7.62) for housekeepers. In addition, employed patients had significantly higher scores than did unemployed patients by Scheffe's *post hoc* comparison. The powerful others health locus of control was only significantly influenced by the religious participation variable ($F = 4.15$, $p < 0.05$). The powerful others health locus of control score was 18 (30.22) on never, 74 (27.55) on sometimes, and 22 (30.64) on often participating in religious activities. Patients' age had a significant negative correlation with the internal health locus of control ($r = -0.29$, $p < 0.01$), and had a significant positive correlation with the chance health locus of control ($r = 0.21$, $p < 0.05$). Years of education had a significant positive correlation with the internal health locus of control ($r = 0.35$, $p < 0.01$), and had a significant negative correlation with the chance health locus of control ($r = -0.27$, $p < 0.05$). When using a multivariate model, none of the demographic variables was a significant predictor for either internal health locus control, chance health locus of control, or powerful others health locus of control.

Perceived hope

The mean (S.D.) of hope in cancer patients on a scale of 12–48 was 35.56 (7.74), meaning that most of the cancer patients were found to be hopeful to moderately hopeful. Outpatients had a higher significant level of hope score (mean, 37.11; S.D., 6.12) than did inpatients (mean, 32.63; S.D., 9.52)

($t = 2.8$, $p < 0.01$). Levels of hope were significantly influenced by employment status ($F = 5.64$, $p < 0.001$). The hope score was 40.13 (4.94) for employed, 34.85 (7.53) for unemployed, 33.96 (8.76) for retired, and 33.19 (7.70) for housekeepers. The Scheffe method also found that employed patients had significantly higher scores of hope than did unemployed ones (Table 3). Patients' years of education had a significant positive correlation with hope ($r = 0.21$, $p < 0.01$). When using a multivariate model, none of the demographic variables was a significant predictor for levels of hope.

Relationships among perceived diagnostic disclosure, health locus of control, and levels of hope

After controlling for the effect of in/out-patient status, employment status, locus of control, age, and education, cancer patients who had been told their diagnosis had significantly higher levels of hope (mean, 36.91; S.D., 7.29) than did others (mean, 30.46; S.D., 7.37) ($t = -4.00$, $p < 0.001$). Levels of hope had a significant positive correlation with the internal health locus of control ($r = 0.40$, $p < 0.01$), and had a significant negative correlation with the chance health locus of control ($r = -0.40$, $p < 0.01$). Cancer patients whose diagnoses had been disclosed reported significantly higher levels of internal health locus of control than did patients whose diagnoses had been withheld; the respective mean (S.D.) scores were 27.04 (7.68) and 22.81 (8.30) ($t = -2.46$, $p < 0.05$). The powerful others health locus of control and chance health locus of control did not appear to differ between patients who had and those who had not been informed of their diagnoses (Table 4).

DISCUSSION

In the current study, 79% of cancer patients were aware of their diagnoses. This percentage is the same as that found in Lin's study (1999) of Taiwanese cancer patients. Tang's study (2001), also conducted in a cancer center in Taiwan,

Table 3. Relationships of levels of hope to demographic characteristics ($N = 124$)

	Mean	S.D.	F	p	Scheffe's comparison
Employment status			5.64	0.001*	
Employed	40.13	4.94			Employed > unemployed
Unemployed	34.85	7.53			Employed > retired
Retired	33.96	8.76			Employed > housekeeper
Housekeeper	33.19	7.70			
Marital status			1.01	0.39	
Married	36.08	7.65			
Single	31.25	15.24			
Divorced	37.33	5.69			
Widowed	33.71	6.55			
Religious affiliation			1.32	0.27	
Buddhism/Taoism	35.99	7.30			
Christianity/catholicism	35.00	10.10			
None	31.90	8.49			
Religious participation ($n = 114$)			0.79	0.46	
Never	33.89	9.18			
Sometimes	36.41	7.35			
Often	35.73	7.23			
Time since diagnostic disclosure			0.31	0.87	
0–3 months ($n =$)	37.15	8.25			
3.1–6 months ($n =$)	36.64	6.17			
6.1–12 months ($n =$)	35.00	7.38			
12.1–24 months ($n =$)	34.50	4.95			
24.1–36 months ($n =$)	38.50	8.58			

*$p < 0.001$.

Table 4. Relationships of perceived diagnostic disclosure to health locus of control, hope, and demographic data ($N = 124$)

Variable	Disclosure ($n = 98$)		Non disclosure ($n = 26$)		t	p
	Mean	S.D.	Mean	S.D.		
Hope	36.91	7.37	30.46	7.29	−4.00	0.000*
Health locus of control						
Internal	27.04	7.68	22.81	8.30	−2.46	0.015*
Powerful others	28.79	5.00	28.42	5.87	−0.32	0.75
Chance	19.27	8.59	22.81	9.04	1.85	0.07
Demographic data						
Age	55.17	12.52	66.27	12.53	4.07	0.000*
Years of education	11.71	4.98	8.15	6.96	−2.45	0.02*

*$p < 0.05$.

revealed that most (93.7%) cancer patients knew their own diagnoses. The differences in study results of disclosure could have been due to differences in characteristics and cultures of recruitment hospitals. Some hospitals determine whether or not to disclose the truth to patients about a diagnosis of cancer based on the patients' condition, communication abilities, needs, willingness to know, and families' wishes. In other hospitals, it is determined only by the physician in charge. In addition, 93% of the 102 Taiwanese cancer patients in Chen's study (1989) and 88% of 50 newly diagnosed Taiwanese cancer patients in Lee *et al.*'s study (1997) wanted as much information as possible, such as diagnoses, treatment options, and prognoses. The situation in Taiwan is similar to the one in Hong Kong. In Hong Kong, Fielding *et al.* (1995) reported a diagnostic disclosure rate of 68% among cancer patients. However, in a population study in Hong Kong (Fielding and Hung, 1996), 95% of persons wanted information even if the news was bad. Furthermore, Bruera *et al.* (2000) showed that palliative specialists would like to be told the truth about their own terminal illness were they in such a position, yet when it comes to their own patients, far fewer think the truth is desirable. Therefore, it appears that physicians' decisions can easily run counter to patients wishes.

In the current study, the diagnoses of patients who were more aged and less educated were less likely to have been disclosed. This result is consistent with the finding reported by Kirwan *et al.* (2003). In that study by Kirwan *et al.* (2003), there was a reduction in the number of diagnostic words recorded in patients over 65 years and by type of surgeon in the hospital records reviewed. In conclusion, despite the percentage differences represented in the above studies, all show that, at a minimum, 10% of Taiwanese patients are not receiving their own cancer diagnosis nor complete illness-related information.

Participants in this study had the highest scores on the powerful others health locus of control (mean, 28.71; S.D., 5.17), followed by the internal health locus of control (mean, 26.15; S.D., 7.97). This finding is consistent with the result of Dickson *et al.*'s study (1985) that surveyed cancer patients under chemotherapy. Cancer patients need support and encouragement from their family and clinicians during extensive treatments such as chemotherapy or radiotherapy. Patients with high scores on the powerful others health locus of control indicated that they felt that if they believed in their physicians and followed their physicians' commands, their cancer could be brought under control.

The mean (S.D.) of hope in our participants was 35.56 (7.74) on the HHI scale. This result is similar to that of Herth's studies (Herth, 1990, 1992, 1993, 2000). Levels of hope for outpatients were significant higher than those for inpatients. This finding is consistent with the result of Huang *et al.*'s study (2002), but differs from the result of Herth's study (1989) in which levels of hope did not significantly differ between outpatients and inpatients, but both groups scored significantly higher than those patients receiving hospice home care. One of the reasons could be that inpatients and outpatients have a stronger support system from associates and clinicians in hospitals than do home care patients. Another reason could be that symptoms in outpatients are more minor compared to those in inpatients. This could explain why outpatients reported higher levels of hope than did inpatients in this study.

The internal health locus of control was significantly positively related to levels of hope in this study. However, the chance health locus of control was significantly negatively related to levels of hope. It could be that cancer patients with high scores on the internal health locus of control take responsibility for their own health, and so they adapt to their plight with a positive, active, and optimistic attitude. Individuals with high scores on the internal locus of control also have been shown in other studies to have higher cohesion and better relationships within their families compared to those with an external locus, and they embraced the encouragement and comfort of their families (Jensen *et al*., 1990). Accordingly, cancer patients with an internal health locus of control might have higher levels of hope. In contrast, patients with a chance orientation towards the health locus of control had lower levels of hope. Several studies revealed that patients with high scores on the internal health locus of control have active coping strategies, while patients with high scores on the chance health locus of control have passive coping strategies (Marks *et al*., 1986; Turner and Clancy, 1986; Brown and Nicassio, 1987; Crisson and Keefe, 1988). In other words, patients who assume a more-active role also may be more hopeful than patients who are less active or passive.

In this study, those 98 patients who were informed of their cancer diagnoses had significantly higher levels of hope than did those whose diagnoses were withheld. Rustoen and Wiklund (2000) investigated 131 patients with recently diagnosed cancer and also found that most of the patients (87%) were hopeful (NHS scores of 95–116) or moderately hopeful (NHS scores of 73–94). This means that cancer patients informed of their diagnosis still have high levels of hope. Lichter (1987) considered that if a patient receives incomplete illness-related information, that patient cannot realize the reasons for treatment and will not know how to make decisions. Thus, patients can make appropriate decisions about medical treatment only after the appropriate information has been disclosed to them. Lin (1999) also mentioned that disclosure of a cancer diagnosis can help a patient decide appropriate symptom management, can affect the patient's quality of life, and can reduce anxiety and stress, thus reducing levels of pain. Those advocating disclosure emphasize the need to respect patient autonomy, and they also believe that a lack of information may possibly increase patients' uncertainty, anxiety, stress, and feelings of abondonment and cause physicians to feel estranged (Annas, 1994).

Patients who are informed of their diagnoses tend to have higher levels of the internal health locus of control than those who are not informed. Whether or not there is diagnostic disclosure makes no significant difference on the powerful others or chance health locus of control. Kuypers (1972) stated that people who have an internal locus of control tend to have more-effective coping strategies and adjustment to living with distress and change. Wallston *et al*. (1976) also discovered that inpatients with tuberculosis who had an internal locus of control were more understanding of their own conditions and sought health-related information from clinicians; also fewer expressed dissatisfaction. Wallston further mentioned that these patients will seek information about a particular health-threatening condition, consider preventive health care, and value their own health. Watson *et al*. (1990) found that cancer patients held comparatively controlled internal beliefs over the course of their illness. Therefore, patients with high scores on the internal locus of control were more likely to actively participate in their own health care and seek information; as a result, they may be more likely to be informed about their diagnoses.

In this current study, 21% of patients did not demonstrate an awareness of having their diagnosis. These patients were more likely to be older and less likely to have an internal locus control, and had significantly lower levels of hope that those who knew their diagnosis. These findings support Fallowfield *et al*.'s (2002) notion that also suggests that withholding information is not the best policy. These findings also support the recommendation by Tse *et al*. (2003) that for Chinese patients, truth telling should depend on what the patient wants to know and is prepared to know, and not on what the family wants to disclose. In conclusion, clinicians need to choose the best way to disclose a diagnosis and enhance patients' levels of hope. At the same time, clinicians need to help patients reduce negative emotions, make appropriate adjustments, and effectively cope with the impacts of cancer. To meet cancer patients' needs concerning health-related information, healthcare providers need to understand patients' health loci of control and general ideas of hope, so that they can provide appropriate interventions.

Several limitations of this study should be addressed in future research. In the current study, perceived diagnostic disclosure was based on the patient's own perception of cancer. However, patient recall may be misleading. The lack of awareness of a diagnosis in patients could have been due to the physician withholding the diagnosis, the patient being in denial, or the patient not understanding the diagnosis. A different approach for assessment of the cancer diagnostic disclosure needs to be developed in further research. Data on disease stage and physical state were not collected in this current study. These two variables may have influenced the outcome and interpretation of the dependant variables of interest. Age and education were both related to perceived diagnostic disclosure and the internal health locus of control. Because of the late introduction of compulsory education in Taiwan, it is common for older people to have low educational levels. Therefore, the results should be interpreted with caution. Furthermore, this study sample did not discuss all the details about diagnostic disclosure that influence levels of hope, including contents of the disclosure, satisfaction with the information, understanding of the information, and levels of the desire to know. These variables should be explored in future research. Researchers have reported that in a Chinese community diagnostic disclosure is often incomplete and the prognostic disclosure rate is much lower than the diagnostic disclosure (Fielding *et al*., 1995). Last, disease status, cancer symptoms, mood status, uncertainty, and support systems are also worth investigating in future studies.

REFERENCES

Annas GJ. 1994. Informed consent, cancer, and truth in prognosis. *N Engl J Med* **330**: 223–225.

Blackhall LJ, Murphy ST, Frank G, Michel V, Azen S. 1995. Ethnicity and attitudes toward patient autonomy. *J Am Med Assoc* **274**: 820–825.

Brewin TB. 1991. Three ways of giving bad news. *Lancet* **337**: 1207–1209.

Brown GK, Nicassio PM. 1987. Development of a questionnaire for the assessment of active and passive coping strategies in chronic pain patients. *Pain* **31**: 53–64.

Bruera E, Neumann CM, Mazzocato C, Stiefel F, Sala R. 2000. Attitudes and beliefs of palliative care physicians regarding communication with terminally ill cancer patients. *Palliat Med* **14**: 287–298.

Buehler JA. 1975. What contributes to hope in the cancer patient? *Am J Nurs* **75**: 1353–1356.

Burger JM. 1993. *Personality*. Pacific Grove Press: City, CA.

Chan KS, Lam ZCL, Chun RPK, Dai DLK, Leung ACT. 1998. Chinese patients with terminal cancer. In *Oxford Textbook of Palliative Medicine* (2nd edn), Doyle D, Hanks G, MacDonald N (eds). Oxford: New York; 793–795.

Chen CW. 1989. Clinical care of incurable disease. In *New Edition of Psychological Medicine*, Chen CW (ed.). Yungta Press: Taipei, 408–420.

Chen MT, Chiang AP, Yu YC. 1996. Receiving illness-related information: A case study. *Formos J Med* **39**(3): 45–49.

Crisson JE, Keefe FJ. 1988. The relationship of locus of control to pain coping strategies and psychological distress in chronic pain patients. *Pain* **35**: 147–154.

DeValck C, Vinck J. 1996. Health locus of control and quality of life in lung cancer patients. *Patient Educ Couns* **28**: 179–186.

Dickson AC, Dodd MJ, Carrieri V, Levenson H. 1985. Comparison of a cancer—specific locus of control and the multidimensional health locus of control scales in chemotherapy patients. *Oncol Nurs Forum* **12**(3): 49–54.

Fallowfield LJ, Jenkins VA, Beveridge HA. 2002. Truth may hurt but deceit hurts more: Communication in palliative care. *Palliat Med* **16**: 297–303.

Feldman MD, Zhang J, Cummings SR. 1999. Chinese and U.S. internists adhere to different ethical standards. *J Gen Intern Med* **14**: 469–473.

Fielding R, Ko L, Wong L *et al*. 1994. Prevalence and determinants of diagnostic and prognostic disclosure by radiotherapists and surgeons to patients with terminal cancer in Hong Kong. *J Hong Kong Med Assoc* **46**: 220–230.

Fielding R, Ko L, Wong LSW. 1995. Inconsistencies between belief and practice: Assessment of Chinese cancer patients' knowledge of their disease. *J Cancer Care* **4**: 11–15.

Fielding R, Hung J. 1996. Preferences for information and involvement in decisions during cancer care among a Hong Kong Chinese population. *Psycho-Oncology* **5**: 321–329.

Fielding R, Wong L, Ko L. 1998. Strategies of information disclosure to Chinese cancer patients in an Asian community. *Psycho-Oncology* **7**: 240–251.

Herth K. 1989. The relationship between level of hope and level of coping response and other variables in patients with cancer. *Oncol Nurs Forum* **16**(1): 67–72.

Herth K. 1990. Fostering hope in terminally ill people. *J Adv Nurs* **15**: 1250–1259.

Herth K. 1992. Abbreviated instrument to measure hope: Development and psychometric evaluation. *J Adv Nurs* **17**: 1251–1259.

Herth K. 1993. Hope in the family caregiver of terminally ill people. *J Adv Nurs* **18**: 538–548.

Herth K. 2000. Enhancing hope in people with a first recurrence of cancer. *J Adv Nurs* **32**: 1431–1441.

Hinds PS. 1984. Inducing a definition of 'hope' through the use of grounded theory methodology. *J Adv Nurs* **9**: 357–362.

Hosaka T, Awazu H, Fukunishi I, Okuyama T, Wogan J. 1999. Disclosure of true diagnosis in Japanese cancer patients. *Genel Hosp Psychiat* **21**: 209–213.

Hsu TH, Lu MS, Tsou TS, Lin CC. 2003. The relationship of pain, uncertainty, and hope in Taiwanese lung cancer patients. *J Pain Sympt Mgmt* **26**(3): 835–842.

Huang HP, Lin CC, Tsai JC . 2002. Correlation between levels of hope and disease status in cancer patients. *New Taipei J Nurs* **4**(2): 39–48.

Jensen L, Olsen J, Hughes C. 1990. Association of country, sex, social class, and life cycle to locus of control in Western European countries. *Psychol Rep* **67**: 199–205.

Kakai H. 2002. A double standard in bioethical reasoning for disclosure of advanced cancer diagnoses in Japan. *Health Commun* **14**: 361–376.

Kirwan JM, Tincello DG, Lavender T, Kingston RE. 2003. How doctors record breaking bad news in ovarian cancer. *Br J Cancer* **88**: 839–842.

Kuypers JA. 1972. Internal-external locus of control, ego functioning, and personality characteristics in old age. *Gerontologist* **12**: 168–173.

Lee S, Wang SL, Lieu MN *et al*. 1997. Effects of a nursing model of hospice care on improving grief response of cancer patients in a general hospital. *J Nurs Res* **5**: 6–17.

Lefcourt HM. 1976. *Locus of Control: Current Trends in Theory and Research*. Lawrence Erlbaum Press: Hillsdale, NJ.

Levenson H. 1973. Multidimensional locus of control in psychiatric patients. *J Consult Clin Psychol* **41**: 397–404.

Li S, Chou JL. 1997. Communication with cancer patient in China. *Ann NY Acad Sci* **809**: 243–248.

Lichter I. 1987. *Continuing Communication. Communication in Cancer Care*. Churchill Livingstone Press: New York.

Lin CC. 1999. Disclosure of the cancer diagnosis as it relates to the quality of pain management among patients with cancer pain in Taiwan. *J Pain Sympt Mgmt* **18**: 331–337.

Lu MS. 1996. *Nursing Ethics*. Fayfar Press: Taipei.

Marks G, Richardson JL, Graham JW, Levine A. 1986. Role of health locus of control beliefs and expectations of treatment efficacy in adjustment to cancer. *J Pers Soc Psychol* **51**(2): 443–450.

Mitchell GW, Glicksman AS. 1977. Cancer patients: Knowledge and attitudes. *Cancer* **40**: 61–66.

Mitchell JL. 1998. Cross-cultural issues in the disclosure of cancer. *Cancer Pract* **6**: 153–160.

Novack DH, Plumer R, Smith RL, Ochitill H, Morrow GR, Bennett JM. 1979. Changes in physicians' attitudes toward telling the cancer patient. *J Am Med Assoc* **241**(9): 897–900.

Nowotny ML. 1989. Assessment of hope in patients with cancer: Development of an instrument. *Oncol Nurs Forum* **16**(1): 57–61.

Oken D. 1961. What to tell cancer patients: A study of medical attitudes. *J Am Med Assoc* **175**: 1120–1128.

Owen DC. 1989. Nurses' perspectives on the meaning of hope in patients with cancer: A qualitative study. *Oncol Nurs Forum* **16**: 75–79.

Pang SMC. 1999. Protective truthfulness: The Chinese way of safeguarding patients in informed treatment decision. *J Med Ethics* **25**: 247–253.

Pang SK, Ip WY, Chang AM. 2001. Psychosocial correlates of fluid compliance among haemodialysis patients. *J Adv Nurs* **35**: 691–698.

Rotter JB. 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychol Monogr* **80**: 1–28.

Rustoen T. 1995. Hope and quality of life, two central issues for cancer patients: A theoretical analysis. *Cancer Nurs* **18**: 355–361.

Rustoen T, Wiklund L. 2000. Hope in newly diagnosed patients with cancer. *Cancer Nurs* **23**: 214–219.

Tang HC. 2001. An exploration of diagnostic disclosure for cancer patients in Taiwan. *Der Tao Cancer Care* **16**: 41–45.

Tse CY, Chong A, Fok SY. 2003. Breaking bad news: A Chinese perspective. *Palliat Med* **17**: 339–343.

Turner JA, Clancy S. 1986. Strategies for coping with chronic low back pain: Relationship to pain and disability. *Pain* **24**: 355–364.

Wallston KA, Maides S, Wallston BS. 1976. Health-related information seeking as a function of health-related locus of control and health value. *J Res Perspect* **10**: 215–222.

Wallston KA, Wallston BS, DeVellis R. 1978. Development of the multidimensional Health Locus of Control (MHLC) Scales. *Health Educ Monogr* **6**: 160–170.

Watson M, Pruyn J, Greer S, van den Borne B. 1990. Locus of control and adjustment to cancer. *Psychol Rep* **66**(1): 39–48.