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Research Article

Protective Factors of Demoralization among Cancer Patients in Taiwan: An Age-matched and Gender-matched Study

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SUMMARY

Purpose: This study aimed to explore the protective factors of demoralization in cancer patients via investigation of cancer patients' demographic and disease characteristics.
Methods: This was a cross-sectional descriptive study. We used a structured questionnaire, which contained items on demographic and disease characteristics, as well as the Demoralization Scale Mandarin Version (DS-MV), with a cutoff of 30 or more indicating high demoralization. Data were analyzed with age-matched and gender-matched conditional logistic regression analysis. For the study, 428 questionnaires were delivered and 411 were recovered. After being age-matched and gender-matched, 182 participants of high demoralization (DS-MV > 30) and low demoralization (DS-MV ≤ 30) were obtained respectively, for a total of 364 participants.
Results: Cancer patients' demoralization was significantly related to family support ($p = .019$), education ($p = .049$), and monthly income ($p = .001$). Family support [odds ratio = 0.38; $p = .028$; 95% confidence interval (0.16, 0.91)] and monthly income [odds ratio = 0.49; $p = .009$; 95% confidence interval (0.29, 0.84)] were protective factors of demoralization in cancer patients.
Conclusion: Early and appropriate demoralization assessment of cancer patients' demographic and disease characteristics is very important in clinical settings. Healthcare providers might regularly monitor demoralization in cancer patients, and develop related nursing care guidelines or treatment for demoralization in cancer patients. The study results can be a reference for healthcare providers who work with cancer patients.
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Introduction

Demoralization has arisen in the last decade as a new diagnosis of concern [1]. It refers to a sense of dysphoria involving feelings of disempowerment and futility [2,3]. Consequently, individuals with severe cases of demoralization could lead to suicidal ideation [4,5]. It has most often been reported among seriously ill patients, cancer patients, and hospice patients [1,3].

Demoralization has been an issue of concern among scholars since around 1967, when it was first defined. Since then, the phenomenon has had numerous epithets, including "social breakdown syndrome" [6], "giving-up–given-up complex" [7], impotence, isolation, and despair [8]. In 1981, demoralization was first used in a clinical setting by the American psychiatrists Roberts and Vernon [9]. They found that many patients with affective disorders or schizophrenia in the community suffered from feelings of demoralization. However, it was not until 2001 when an Australian scholar proposed the concept of "demoralization syndrome" [10] that it became diagnosable according to formalized criteria [2]. Until 2011, demoralization had widely been used to describe a nonspecific state of suffering related to feelings of impotence in facing certain pressures, or a subjective feeling of incompetence [11]. In 2004, Kissane et al developed the Demoralization Scale (DS) in order to quantify feelings of demoralization [12]. The DS has since been used in research on what factors are related to demoralization [13,14]. Although most research on demoralization has examined patients with serious illness [15], demoralization has

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been examined in other fields as well. For instance, some previous studies examined demoralization among refugee and migrant populations [16,17]. In recent years, the focus has shifted to cancer patients [18,19]. Based on the above literature, we would like to know how demoralization influences cancer patients in Taiwan and then make the study results available to other countries with similar situations. Even though there was a study on demoralization of cancer outpatients in Taiwan in 2012 [20], the factors which influence the demoralization of cancer inpatients are still vague. There is a need to conduct more studies to validate the theory and evidence of the related study.

Accordingly, we proposed the conceptual framework for the study (Figure 1). We assumed that the demographic and disease characteristics served as protective factors of cancer patients to reduce the level of demoralization. Regarding the demographic characteristics, cancer patients who had higher levels of family support, education, monthly income, and lived with family members had lower levels of demoralization. Regarding the disease characteristics, cancer patients who had earlier stages of tumor, initial diagnosis, and had undergone surgery had lower levels of demoralization.

Method

Study design and participants

This study was a cross-sectional descriptive study using data from adult cancer patients who were hospitalized at a medical center in Southern Taiwan. Inclusion criteria were being (a) above 20 years of age, (b) able to speak Chinese or Taiwanese, and (c) able to express their own opinions or fill in the questionnaire. Exclusion criteria were (a) being unconscious, and (b) being diagnosed with an organic brain disorder by a physician. Data were collected from July to December 2014.

The results of a power analysis based on logistic regression found that 356 participants were needed to meet the statistical criteria to achieve power of 80% using a two-sided test, and a significance level of 5% for a medium effect size [21]. To account for a 20.0% maximum dropout rate, we needed to enrol 428 participants. In the study, 428 questionnaires were delivered and 411 were recovered, with a response rate of 96.0%. After being age-matched and gender-matched, 182 participants of high demoralization and low demoralization respectively were included for statistical analysis, for a total of 364 participants.

Measurements

A letter of permission to use the Demoralization Scale Mandarin Version (DS-MV) was obtained from the original author. The study used a structured questionnaire for data collection. One research assistant, a registered nurse with 3 years of experience as head nurse of a psychiatric unit, was recruited. The research assistant checked for newly hospitalized cancer patients in the hospital information system daily, screened patients for inclusion criteria and exclusion criteria, and then matched and contacted them to confirm that they were aware of their diagnosis. Then, the research assistant explained the research purpose and procedure to all recruited participants. The questionnaire was only administered after the participants had given their written informed consent, while participant autonomy was respected during questionnaire completion. Furthermore, participants were informed that they could stop filling in the questionnaire at any point. The research assistant accompanied participants and answered their questions during the whole procedure. If participants were found to have an affective disorder, appropriate support was given and their primary physician was notified for assistance. For participants who were unable to complete the questionnaire by themselves, the research assistant read the items and answer options to help them select answers. It took about 15 minutes to complete each questionnaire.

The questionnaire of demographic and disease characteristics included items on demographic (gender, age, marital status, children, education, monthly income, and living status) and disease

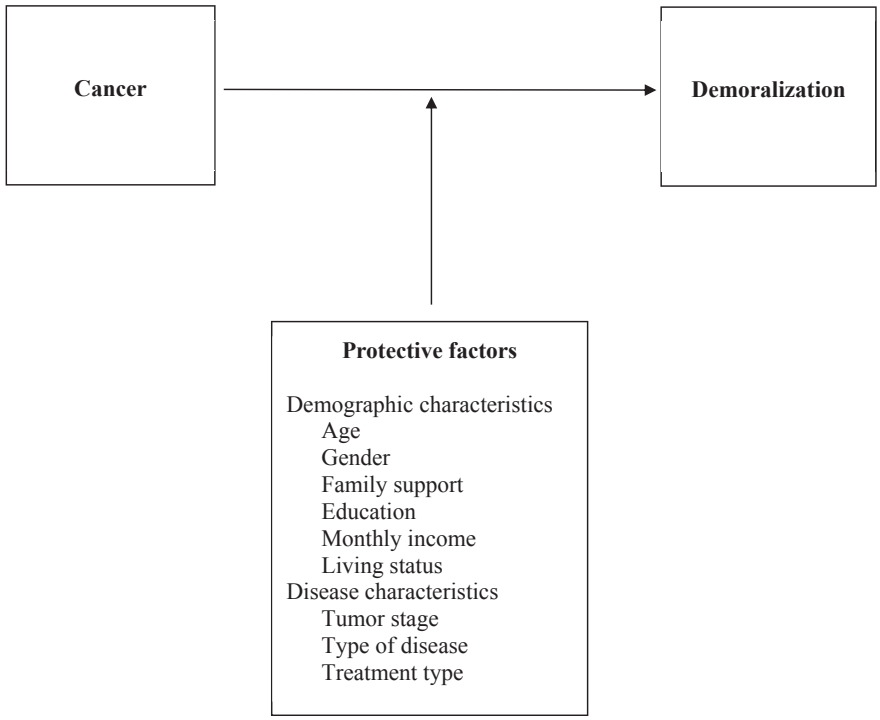

Figure 1. Conceptual framework of this study.

characteristics (tumor stage, type of disease, and treatment type). The DS-MV was a translation of the DS, which was originally developed in English [12]. The Cronbach α of the total scale was .94. The DS included five dimensions: loss of meaning of purpose, dysphoria, disheartenment, helplessness, and sense of failure. The Cronbach α coefficients of each dimension were .87, .85, .89, .84, and .71 respectively [12].

The DS-MV had a total of 24 items in 5 subscales: loss of meaning, dysphoria, disheartenment, helplessness, and sense of failure. Each item is measured on a 5-point scale, with 0 = *strongly disagree*, 1 = *disagree*, 2 = *uncertain*, 3 = *agree*, and 4 = *strongly agree*. The DS-MV used the same total scores ranging from 0 to 96 with a cutoff score higher than 30 as the original version for high demoralization [12,22]. The Cronbach α of the total scale of the DS-MV was .92, while that of the 5 subscales of loss of meaning, dysphoria, disheartenment, helplessness and sense of failure were .84, .69, .88, .72, and .63 respectively [22].

Ethical considerations

The study protocol received approval from the institutional review board of the Chi Mei Medical Center in Southern Taiwan (Approval no. 10307-009).

Data analysis

The study used age-matching and gender-matching for data analysis, because the two variables are usually strong confounders with well-known effects from descriptive epidemiology, with participants grouped according to the cutoff score of the DS-MV; those with DS-MV total scores of ≤ 30 were considered the low demoralization group, while those with DS-MV total scores of > 30 were considered the high demoralization group.

Age 65 was the cutoff point of this study, and participants were divided into three groups according to age: < 50 years, 50 to 64 years, and ≥ 65 years. The cancer patient's spouse often played a key personal role in the support system and acted as a protective buffer during the disease process [23,24]. This has been somewhat supported in a previous study, wherein the presence or absence of a spouse was a predictive factor for recurrence and survival among cancer patients [25]. The study assumed that cancer patients who had a spouse had a protective factor that reduced demoralization. Therefore, based on the above literature and cultural considerations, family support was divided into three groups: family support level 1 (no spouse or child, no caregiver), level 2 (had a spouse but no child or had a child but no spouse, had only one caregiver), and level 3 (had both spouse and

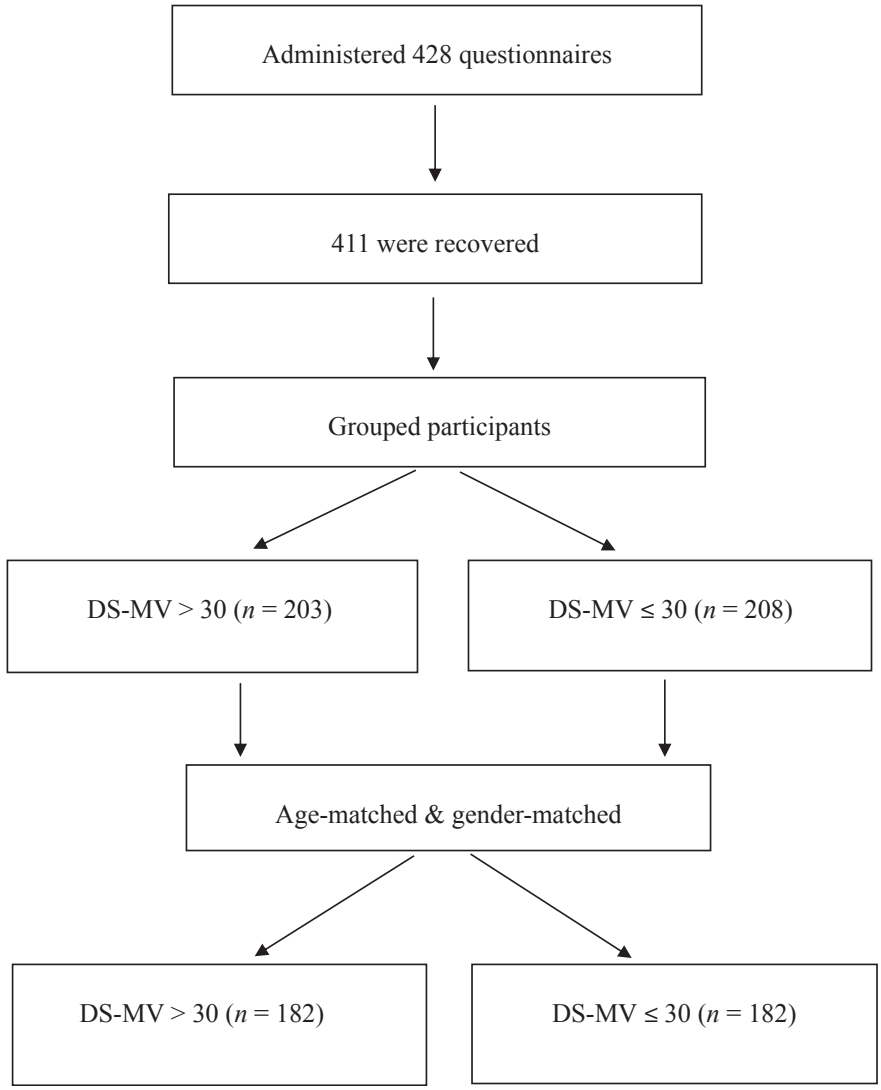

Figure 2. The process of data management and analysis. *Note.* DS-MV = Demoralization Scale Mandarin Version.

child, had two or more caregivers). Education was divided into "above college" and "below college". Given that the average initial wage of graduate students in Taiwan was around 22,000 new Taiwan dollars (NTD), the study grouped participants by monthly income of above NTD 22,000 and below NTD 22,000. Finally, living status was divided into living with family (i.e., with a spouse or child) and living alone.

For every patient who had the DS-MV score under 30, the age-matched and gender-matched patient who had the DS-MV score higher than 30 was then selected as a paired study participant (Figure 2). The chi-square was used to compare the differences between low and high demoralization groups of cancer patients in demographics (such as age, gender, family support, education, monthly income, living status) and disease characteristics (such as tumor stage, type of diseases, and treatment types). As the age-matched and gender-matched pair was used in this study, the association between family support and DS-MV was estimated using a conditional logistic regression model for examining the difference of family support levels. The odds ratios (ORs) with 95% confidence intervals (CIs) were calculated after adjustments for the above variables were made. Significance level was set at $p < .05$. SAS for Windows (version 9.4; SAS Institute, Cary, NC, USA) was used for statistical analyses.

Results

Participants characteristics

In the current study, 428 questionnaires were delivered and 411 were recovered, with a response rate of 96.0%. Two hundred and eight participants (50.6%) had a DS-MV total score of ≤ 30, while 203 participants had a DS-MV of > 30 (49.4%). After being age-matched and gender-matched, 182 participants of DS-MV ≤ 30 (low demoralization group) and DS-MV > 30 (high demoralization group) were obtained respectively, for a total of 364 participants. In terms of the age and gender distribution in both groups: for 76 participants aged < 50 years (20.9%), 190 participants aged between 50 years and 64 years (52.2%), and 98 participants aged ≥ 65 years (26.9%); 192 of the participants were male (52.8%) and 172 were female (47.2%). According to Pearson's chi-square test, the age-matched and gender-matched scores of both groups did not reach significance ($p > .999$).

The distributions of the different demographic characteristics in both groups were as follows: in terms of family support, most participants were in level 3 (DS-MV $\leq$ 30: 81.9%; DS-MV > 30: 69.2%), while in terms of education, most participants were in the below college group (DS-MV $\leq$ 30: 82.4%; DS-MV > 30: 89.6%). In terms of monthly income and living status, most participants were below NTD 22, 000 (DS-MV $\leq$ 30: 65.9%; DS-MV > 30: 80.8%) and lived with family (DS-MV $\leq$ 30: 92.9%; DS-MV > 30: 90.7%). The demographic and disease characteristics of the participants are presented in Tables 1 and 2.

Significant difference in demographic and disease characteristics

As for the results of the chi-square test, this study presented statistical significance in family support level ($p = .019$), education ($p = .049$) and monthly income ($p = .001$) between both demoralization groups. In terms of the disease characteristics, this study presented no statistically significant differences in tumor stage ($p = .864$), type of disease ($p = .272$), or treatment ($p = .464$) between both demoralization groups (Tables 1 and 2).

Table 1 *Difference in Demographics Between Low and High Demoralization Groups (N = 364).*

Variables[a]	Low demoralization group ($n = 182$)	High demoralization group ($n = 182$)	χ^2	p[b]
	n (%)			
Age (yr)			<0.01	> .999
< 50	38 (20.9)	38 (20.9)		
50–64	95 (52.2)	95 (52.2)		
≥ 65	49 (26.9)	49 (26.9)		
Gender			<0.01	> .999
Male	96 (52.8)	96 (52.8)		
Female	86 (47.2)	86 (47.2)		
Family support[c]			7.89	.019
Level 1	13 (7.2)	23 (12.7)		
Level 2	20 (10.9)	33 (18.1)		
Level 3	149 (81.9)	126 (69.2)		
Education			3.85	.049
≥college	32 (17.6)	19 (10.4)		
<college	150 (82.4)	163 (89.6)		
Monthly income (NTD)			10.25	.001
≥22,000	62 (34.1)	35 (19.2)		
<22,000	120 (65.9)	147 (80.8)		
Living status			0.58	.445
Live with family[d]	169 (92.9)	165 (90.7)		
Alone	13 (7.1)	17 (9.3)		

Note. DS-MV = Demoralization Scale Mandarin Version; NTD = New Taiwan dollar.
[a] Low (DS-MV ≤ 30) and high demoralization (DS-MV > 30) groups, respectively.
[b] *p* values are for Pearson's chi-square test.
[c] Family support level 1 refers to having no spouse or child, no caregiver; family support level 2 refers to having a spouse but no child, or a child but no spouse, having only one caregiver; family support level 3 refers to having both a spouse and child, having two or more caregivers.
[d] Live with family refers to living with spouse or child.

Table 2 *Differences in Disease Characteristics Between Low and High Demoralization Groups (N = 364).*

Variables[a]	Low demoralization group ($n = 182$)	High demoralization group ($n = 182$)	χ2	*p*
	n (%)			
Tumor stage			0.29	.864
0, I, II	67 (36.8)	72 (39.6)		
III	63 (34.6)	60 (32.9)		
IV	52 (28.6)	50 (27.5)		
Type of disease			1.21	.272
Initial diagnosis	49 (26.9)	40 (22.0)		
Recurrence	133 (73.1)	142 (78.0)		
Treatment type			1.48	.476
Surgery	68 (37.4)	59 (32.4)		
Chemotherapy	105 (57.6)	110 (60.4)		
Others	9 (5.0)	13 (7.2)		

Note. DS-MV = Demoralization Scale Mandarin Version.
[a] Low (DS-MV ≤ 30) and high demoralization (DS-MV > 30) groups, respectively.

Protective factors

According to the conditional logistic regression analysis, cancer patients' high demoralization was significantly related to family support and monthly income. Family support level 3 had 38.0% more of the protective factors than did family support level 1 in high demoralization [OR = 0.38; $p = .028$; 95% CI (0.16, 0.91)]. In family support level 2, there was 81.0% more of the protective factors than in family support level 1 in high demoralization [OR = 0.81; $p = .665$; 95% CI (0.31, 2.13)], although there was no statistical significance. Nevertheless, family support level 2 could still be used as a reference for healthcare providers.

In this study, participants had 49.0% more of the protective factors in monthly income above NTD 22,000 than in monthly income below NTD 22,000 in high demoralization [OR = 0.49; $p = .009$; 95% CI (0.29, 0.84)]. Living status had no apparent

Table 3 *Results of Conditional Logistic Regression Analysis of High Demoralization Group.*

Variables	Crude OR (95% CI)	*p*	Adjusted OR (95% CI)	*p*
Family support				
Level 1	1.00 (reference)		1.00 (reference)	
Level 2	0.83 (0.32, 2.12)	.692	0.81 (0.31, 2.13)	.665
Level 3	0.41 (0.19, 0.91)	.028	0.38 (0.16, 0.91)	.028
Education				
<college	1.00 (reference)		1.00 (reference)	
≥college	0.51 (0.27, 0.97)	.041	0.65 (0.33, 1.31)	.229
Monthly income (NTD)				
<22,000	1.00 (reference)		1.00 (reference)	
≥22,000	0.44 (0.27, 0.72)	.001	0.49 (0.29, 0.84)	.009
Living status				
Alone	1.00 (reference)		1.00 (reference)	
Live with family	0.75 (0.35, 1.59)	.448	1.38 (0.59, 3.23)	.455
Tumor stage				
0, I, II	1.00 (reference)		1.00 (reference)	
III	0.88 (0.54, 1.44)	.619	0.78 (0.46, 1.33)	.366
IV	0.89 (0.53, 1.49)	.661	0.69 (0.37, 1.26)	.225
Type of disease				
Initial diagnosis	1.00 (reference)		1.00 (reference)	
Recurrence	1.31 (0.81, 2.12)	.272	1.21 (0.68, 2.14)	.517
Treatment type				
Surgery	1.00 (reference)		1.00 (reference)	
Chemotherapy	1.68 (0.67, 4.23)	.273	1.90 (0.69, 5.22)	.215
Others	1.21 (0.78, 1.88)	.398	1.27 (0.75, 2.15)	.364

Note. CI = confidence interval; NTD = New Taiwan dollar; OR = odds ratio.

influence on the odds in high demoralization; the same was true of tumor stage, type of disease, and treatment type (Table 3).

The study further used conditional logistic regression to analyze family support and monthly income as to how these interacted to influence high demoralization. The current study found that participants with a monthly income of above NTD 22,000 and with family support level 3 had 38.0% more of the protective factors than did family support level 1 in high demoralization [OR = 0.38; p = .028; 95% CI (0.16, 0.91)]. In contrast, among those with a monthly income below NTD 22,000, although family support level 3 had 64.0% more of the protective factors than did family support level 1 in high demoralization, it was not significant [OR = 0.64; p = .391; 95% CI (0.23,1.78)] (Table 4).

Discussion

Previous studies conducted in Australia, the United States, Taiwan, Germany, Spain, and Portugal showed that age, single status, unemployment, partnership [1,20,26], gender, physical problems, social support, dignity [27,28], education, anxiety and depression [18,19,29] had significant correlations with demoralization in cancer patients. Our findings were partially consistent with the above-mentioned studies in that family support, monthly income, and education were significant factors of demoralization in cancer patients. Our findings were also similar to the above-mentioned studies in that the disease characteristics did not significantly correlate with demoralization in cancer patients. The results indicated that demoralization exists across numerous cultures, including both Oriental and Occidental. Healthcare providers might regularly monitor demoralization among patients upon their initial diagnosis, as this would help in understanding how demoralization scores change throughout the disease process. Moreover, in our study, high demoralization in cancer patients was 49.4%, which was similar to the study conducted in Taiwan (42%) [4], but higher than the study in Germany (24.0%–29.0%) [27,29]. It implies that the perception of demoralization might have cultural differences and these should be considered.

Table 4 *Conditional Logistic Regression Analysis between Family Support and Monthly Income of High Demoralization Group.*

Family support	Monthly income (NTD)			
	<22,000	*p*	≥22,000	*p*
	Adjusted OR (95% CI)		Adjusted OR (95% CI)	
Level 1	1.00 (reference)		1.00 (reference)	
Level 2	1.15 (0.35, 3.74)	.814	0.81 (0.31, 2.13)	.665
Level 3	0.64 (0.23, 1.78)	.391	0.38 (0.16, 0.91)	.028

Note. NTD = New Taiwan dollar.

Regarding the age-matched and gender-matched conditional logistic regression analysis, the current study identified family support and monthly income as protective factors against high demoralization. Although this study cannot directly compare results regarding family support with those of previous studies that used a structured questionnaire, given the differences in grouping methods. Nevertheless, the study results appear to contrast with those of previous studies, which typically found no significant correlation between marital status and cancer patients' high demoralization [4,20,27,29]. There have been studies that looked at the relation of supportive systems with demoralization, wherein the quality of significant relationship, family cohesiveness and family expressiveness presented was significantly correlated with cancer patients' demoralization [13,26]. Despite the difference in study variables and instruments, the current study results appeared to generally accord with those of these previous studies, which suggested that there was a correlation between certain family factors and cancer patients' demoralization.

In terms of monthly income, although the study had no relevant studies from Western populations for comparison, both the findings of this study and those of a Taiwanese study from 2012 indicated significant correlations between cancer patients' monthly income and demoralization [20]. In this stratified analysis, we would like to know the association between family support level and demoralization among the effect of monthly income. We found stronger (level 3) and general family support (level 2) presented the protective effect of the risk of low demoralization among patients with higher monthly income (above NTD 22,000) compared with lower family support (level 1), although only the stronger family support was statistically significant. For patients with lower monthly income (below NTD 22,000), family support did not show a statistically significant effect for either the stronger group or general group, but we found stronger family support presented a protective effect compared with lower family support. Thus, stronger family support had an important effect for either higher or lower monthly income, but the effect did not show any significance for patients with lower income. The possible reason might be that some patients with lower income felt worry about diseases and future life without enough income, so stronger family support was a protective factor of low demoralization but not a significant one. This situation echoes the Taiwanese proverb: “Even a clever housewife cannot cook without rice.” In other words, although all citizens of Taiwan are supported by the National Health Insurance System (which requires an individual to only pay for 10% of their hospitalization fee), they must still contend with the other expenses of daily life. In short, sufficient family income may be essential for preventing cancer patients from becoming demoralized.

In summary, the study found that family support and monthly income were protective factors of high demoralization in cancer patients. Although the study results would help healthcare providers understand how demoralization scores change throughout the cancer patient's demographic and disease characteristics, further directions for future research should be considered. For example, although the study identified the protective factors of demoralization in cancer patient, some other issues need to be

addressed, possibly through qualitative research, such as the subjective feelings of cancer patients towards demoralization, the course of demoralization, the context that triggers demoralization, and the daily lives of demoralization. Through such research, a deeper meaning of the life experiences of demoralization in cancer patient could be identified. This would help healthcare providers in understanding the uniqueness of cancer patients' experiences as well as their perceptions and necessities. In this way, the study on knowledge of demoralization and related nursing care guidelines or treatment could be developed.

Limitation

A few limitations can be identified in the current study. The DS-MV questionnaire contains five subscales: loss of meaning of purpose, dysphoria, disheartenment, helplessness, and sense of failure. Regarding the Cronbach α of the five subscales, dysphoria (.69) and sense of failure (.63) were lower than .70. Even though the literature notes that Cronbach α of each subscale reaching .50 or more as acceptable [30], in practice, these two subscales should be used cautiously and be further tested.

The study cannot make any predictions regarding the effects of the level of intimacy in the family relationships or the number of children on demoralization, as they were beyond the scope of this study. Moreover, family demographics might differ between different cities and towns, which means that the results may also differ across Taiwan. Thus, these factors would be further discussed in future studies.

Conclusion

The current study found that family support and monthly income were protective factors of demoralization in cancer patients. The results provided implications for clinical settings that early and appropriate assessment of cancer patients' demographic and disease characteristics are important for demoralization. Healthcare providers would be able to identify the risks of demoralization and take prompt action for those who have no spouses or children or who have low income to reduce their risks of demoralization. Additionally, healthcare providers should pay more attention to disadvantaged cancer patients, and not only regularly monitor demoralization, but also provide social resources to such patients proactively. We recommend medical institutions and governmental authorities make efforts to improve support systems, for example, by providing regular visits by social workers or volunteers, increasing social welfare resources, or reducing medical costs to those cancer patients who have lower family support or monthly income.

Conflict of interest

The authors declared no conflict of interest.

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