# ปัจจัยทำนายคุณภาพชีวิตของผู้ป่วยโรคมะเร็งที่ได้รับการดูแลแบบประคับประคอง
# Predicting Factors of Quality of Life among Cancer Patients Receiving Palliative Care

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## บทคัดย่อ

**วัตถุประสงค์:** เพื่อศึกษาคุณภาพชีวิตของผู้ป่วยโรคมะเร็งที่ได้รับการดูแลแบบประคับประคอง และการทำนายคุณภาพชีวิตโดยความหวัง ความรู้สึกมีคุณค่าในตนเอง และความทุกข์ทรมานจากอาการต่อคุณภาพชีวิต **วิธีการศึกษา:** การวิจัยทดสอบความสัมพันธ์เชิงทำนาย เลือกตัวอย่างโดยการสุ่มแบบเป็นระบบต่อผู้ที่รับบริการ ณ โรงพยาบาลมะเร็งแห่งหนึ่งจำนวน 119 คน ใช้แบบสอบถามประเมินคุณภาพชีวิต ความหวัง ความรู้สึกมีคุณค่าในตนเอง และความทุกข์ทรมานจากอาการ วิเคราะห์ความสัมพันธ์โดยใช้ประสิทธิ์สหสัมพันธ์แบบเพียร์สัน และการวิเคราะห์การถดถอยเชิงพหุคูณ **ผลการศึกษา:** คุณภาพชีวิตโดยรวมอยู่ในระดับปานกลาง (mean = 66.4, SD= 15.1) ตัวแปรความหวัง ความรู้สึกมีคุณค่าในตนเอง และความทุกข์ทรมานจากอาการร่วมกันทำนายคุณภาพชีวิตได้ร้อยละ 68.5 ($R^2$= 0.685) อย่างมีนัยสำคัญทางสถิติ (P-value <0.001) **สรุป:** สามารถปรับปรุงคุณภาพชีวิตของผู้ป่วยโรคมะเร็งที่ได้รับการดูแลแบบประคับประคองโดยสร้างโปรแกรมหรือกิจกรรมที่มีผลต่อความหวัง ความรู้สึกมีคุณค่าในตนเองและความทุกข์ทรมานจากอาการ

**คำสำคัญ:** คุณภาพชีวิต, ผู้ป่วยโรคมะเร็ง, การดูแลแบบประคับประคอง

## Abstract

**Objective:** To determine quality of life among cancer patients receiving palliative care and examine association between quality of life with predictive factors including hope, self-esteem and symptom distress. **Methods:** In this predictive correlational study, 119 cancer patients receiving palliative care at a cancer hospital were selected by systematic sampling. Functional Assessment of Cancer Therapy General-FACT-G, Herth Hope Index, Rosenberg Self-Esteem Scale and Symptom Distress Scale were used to collect data. Associations were tested using Pearson's product-moment correlation coefficient and multiple regression analysis. **Results:** Quality of life was at a moderate level (mean = 66.4, SD= 15.1). Hope, self-esteem and symptom distress significantly predicted 68.5% of variance of quality of life ($R^2$ = 0.685, P-value < 0.001). **Conclusion:** Quality of life of cancer patients receiving palliative care could be enhanced through improving hope, self-esteem, and symptom distress by means of activities or program.

**Keywords:** quality of life, cancer patients, palliative care

# Introduction

Cancer is a life-threatening disease that is the leading cause of death across the world. In Thailand, cancer is also the number one cause of death. In 2018, there were 120.3 deaths per 100,000 population.[1] In addition, new cancer cases have also been found. More than half of new cancer cases (56.67%) have metastatic cancer[2], which cannot be cured. Patients, therefore, suffer from more severe disease pathology and side effects from treatment, which can cause more than one symptom of discomfort. Also, some symptoms may not be controlled, or they may be unstable. These sufferings affect patients and cause physical, psychological, social and spiritual distress. In terms of the physical effects, the common symptoms found among patients are pain, fatigue, loss of appetite, insomnia and weight loss.[3] For the psychological effects, most patients have a high level of psychological distress, caused by anxiety, fear, sadness and depression along with physical illnesses.[4] As a result, patients' activities are reduced. They are unable to pursue their careers and have to depend on others, which may lead to social and economic problems.[5] These may affect patients' mind, leading to sufferings, depression, unhappiness and loss of self-esteem.[6] Moreover, their spiritual well-being is affected, causing patients to feel hopeless and lack psychological dependence and meaning in life. These sufferings and their effects result in a decrease in the quality of life of patients for the rest of their lives.[7] A study by Nayak et al found that patients with terminal cancer had low quality of life.[8] Therefore, cancer patients at this stage will receive palliative care[9], which is the care to help promote the quality of life of patients by protecting and comprehensively alleviating the pain and suffering caused by physical, psychosocial and spiritual illnesses.[10]

Quality of life is the individuals' perception of their own lives. For cancer patients, quality of life is the patients' perception based on their assessment and satisfaction with the current ability of the body function, compared with what they perceive to be possible.[11] Quality of life comprises 4 aspects namely physical well-being, social and family well-being, emotional well-being and functional well-being. If patients assess their ability and find that it is in accordace with what they perceive to be possible, or according to their own expectations, they will feel satisfied and happy with their own lives, resulting in a good quality of life.[7] In addition, quality of life is an outcome that indicates the well-being of patients.[12] It is also an important goal in caring for cancer patients receiving palliative care.[8] Therefore, nurses should promote the quality of life among cancer patients receiving palliative care.

According to literature, various factors related to the quality of life of cancer patients have continuously been studied both in Thailand and abroad. For the study in cancer patients receiving palliative care, including patients with advanced and terminal cancers with similar disease progression in Thailand, it was found that only some factors related to quality of life were studied. Mostly, personal and physical factors in the care of cancer patients receiving palliative care were studied. For caring of cancer patients receiving palliative care, in addition to physical care, there are also other aspects of care, namely mental, social and spiritual care which will comprehensively enhance the quality of life of patients.[6] Therefore, other factors should be studied further. The researcher, therefore, reviewed more research and found that hope, symptom distress[13] and self-esteem[14] are the factors related to the quality of life among cancer patients. However, these factors have not been studied in cancer patients receiving palliative care.

A study by Seemarak et al which investigated the quality of life of colorectal cancer patients receiving chemotherapy found that hope was positively correlated with quality of life at a high level (r = 0.60, P-value < 0.001), and symptom distress was negatively correlated with quality of life at a high level (r = -0.77, P-value < 0.001).[13] In addition, a study of the predicting factors of quality of life in colorectal cancer adult patients with colostomy of Chutikamo et al revealed that self-esteem was the factor that predicted quality of life of cancer patients the most (β = 0.466, P-value < 0.001), and was able to explain varance of quality of life by 73.70% (R² = 0.73).[14] Hope, symptom distress and self-esteem were found to be highly associated with quality of life in certain cancer patients. They thus were expected to predict quality of life among cancer patients receiving palliative care and subject to investigation in this present study.

The patients' quality of life is an important aspect that nurses should pay attention to. This is because nurses take care of patients closely to promote a better quality of life for cancer patients receiving palliative care.[15] The purposes of this study were to explore quality of life among cancer patients receiving palliative care and investigate the ability to predict quality of life of selected factors namely, hope, self-esteem and symptom distress. The study results could be useful for nurses in applying these factors to improve patient care which could promote physical, psychosocial and spiritual aspects of quality of life of cancer patients receiving palliative care.

It was hypothesized that hope and self-esteem were positively correlated with, and symptom distress was negatively correlated with quality of life among cancer patients receiving palliative care. Hope, self-esteem, and symptom distress were able to predict the patient's quality of life.

## Methods

In this predictive correlational research, the study population included patients diagnosed with cancer receiving palliative care. The study sample was those in the study population who met the inclusion criteria. To be eligible, they had to be admitted to medical wards or the surgical intensive care unit at Chonburi Cancer Hospital during the study conduct, i.e., September 1, 2021 to April 30, 2022. They had to be 18 years old or older, have a good level of consciousness, be able to speak and communicate in Thai, have PPS-Adult Suandok level at 40 - 60%, and be willing to participate in the research. Participants were selected using systematic random sampling method on the list of cancer patients receiving palliative care who were admitted to the wards.

The sample size was determined by power analysis using the software program G-Power version 3.1. The medium effect size of 0.15 was set. With a type I error of 5% (P-value < 0.05) and a power of 95%, and three independent variables to test, a sample size of 119 participants was required.[16]

### Research instruments

A patient performance screening tool and questionnaire of study factors were used in this study. The Palliative

Performance Scale for Adult Suandok (PPS-Adult Suandok) was used to evaluate the performance of the participant. PPS-Adult Suandok was translated into Thai by Chewaskulyong et al.[17] It consists of 5 main topics specifically ambulation, activity and extent of disease, self-care, intake and conscious level. Stages of performance of the participants were categorized as stable, serious, and end-of-life (70 - 100%, 40 - 60%, and 0 – 30%, respectively). In this study, patients with the PPS level of 40 - 60% with a good conscious level were selected.

A self-administered questionnaire was used to collect data of the participants. The first part collected demographic and clinical characteristics including gender, age, marital status, education, religion, occupation, monthly income, income adequacy, insurance payment scheme, caregivers, cancer diagnosis, stage of cancer and current treatment.

The second part of the questionnaire was the Functional Assessment of Cancer Therapy General (FACT-G) version 4 to assess quality of life.[18] FACT-G was translated into Thai by Ratanatharathorn et al.[19] It is divided into 4 domains, namely 1) physical well-being (7 items), 2) social and family well-being (7 items), 3) emotional well-being (6 items), and 4) functional well-being (7 items). It consists of a total of 27 questions with 15 and 12 positively and negatively worded items, respectively. Response is a 5-point Likert-type scale ranging from 0-not at all, to 1-a little bit, to 2-somewhat, 3-quite a bit, and 4-very much for the positively worded items. For the negatively worded items, scores are reversed prior to summing. With the total of 27 items, the possible total score was 0 – 108 points where higher scores indicate a high level of quality of life. Levels of overall quality of life were categorized low, moderate and high (0 – 36, 37 – 72, and 73 – 108 points, respectively).[20] Levels of physical well-being, social and family well-being and functional well-being could also categorized as low, moderate and high (0 – 9.33, 9.34 – 18.66, and 18.67 – 28.00 points, respectively); while emotional well-being as low, moderate, and high (0 – 8, 9 – 16, and 17 – 24 points, respectively).

The third part was Herth Hope Index [HHI] [21] to measure hope. HHI was translated into Thai by Wattanabenjasopa.[22] HHI consists of 3 domains, namely 1) temporary and future internal feelings, 2) positive readiness and expectancy and 3) interconnectedness. There are 12 items with 10 and 2 positively and negatively worded items, respectively. Response isa 4-point Likert-type rating scale ranging from 1-strongly disagree, to – 2-disagree, 3-agree, and 4-strongly agree. Scores of negatively worded items were revered before summing. With the total of 12 items, the possible total scores were 12 – 48 points where higher scores indicate a higher level of hope. Levels of hope were categorized as low, moderate, and high (12 – 23, 24 – 35, and 36 - 48 points, respectively).

The fourth part was Rosenberg Self-Esteem Scale to measure self-esteem.[23] It was translated into Thai by Srimorakot.[24] It consists of 10 questions about attitudes and feelings towards the self (5 items of positively and negatively items equally). Response is a 4-point Likert-type rating scale ranging 1-strongly disagree, to 2-disagree, 3-agree, and 4-strongly agree. Scores of negatively worded items were reversed before summing. With the total 10 items, the possible total scores were 10 – 40 points, where higher scores indicate a higher level of self-esteem. Levels of self-esteem were categorized as low, moderate, and high (10 – 20, 21 – 30, and 31 -40 points, respectively).

Th fifth part was Symptom Distress Scale[25] to assess distress. It was translated into Thai by Kasemkitwattana.[26] It contains questions of 10 symptoms including nausea, emotional states, loss of appetite, insomnia, pain, physical activity, fatigue, bowel, concentration and changes of appearance. Response was a 5-point numerical rating scale where 1 means not suffering and 5 means suffering the most. With the possible total score of 10 – 50 points, where higher scores indicate higher distress, levels of distress were categorized as low, moderate, and high (10 – 23, 24- 37, and 38 – 50 points, respectively).

For **quality assurance**, 30 individuals with characteristics comparable to the participants were tested for internal consistent reliability. The FACT-G, HHI, Rosenberg Self-Esteem Scale and Symptom Distress Scale had high internal consistency reliability with Cronbach's alpha coefficients of 0.83, 0.81, 0.80 and 0.83, respectively.

### Protection of the participant rights

This research was approved by the Ethics Committee for Human Study, Burapha University (approval number: HS022/2564) and the Academic and Human Research Committee, Chonburi Cancer Hospital (approval number: 011/2564). Before data collection, written informed consent was obtained. The voluntary nature of the study was ensured. Prospective participants were given 24 hours before consenting. Withdrawal from the study at any time was

allowed with no consequences from their healthcare providers. Data were secured and presented as a summary not individual participant's data.

### Data collection procedure

Data collection was carried out on an individual basis. There were 2 research assistants who were registered nurses providing palliative care in the hospital where the data were collected and certified with Good Clinical Practice (GCP). The researcher assistants were trained by the researcher. The questionnaire was completed by the participant which took about 30 – 45 minutes. Since the study was conducted during Covid-19 pandemic, social distancing with proper devices was strictly followed. Research assistants read the questions and wrote answers for the participants.

### Data analysis

Descriptive statistics including frequency with percentage and mean with standard deviation (SD) were used to summarize demographic and clinical characteristics of the participants and study factors' scores and levels. Bivariate relationships between score of quality of life and score of each study factor were analyzed using Pearson product-moment correlation coefficient. The association between quality of life score and hope, self-esteem and symptom distress was tested using multiple linear regression analysis. All statistical assumptions before the analysis were met. Statistical significance was set a type I error of 5% or P-value < 0.05. All statistical analyses were performed using software program SPSS version 20.0.

## Results

Of the 119 participants, there were more women (60.5%) than men (Table 1). Most participants were in their 40 – 59 years of age (46.2%) (mean age = $57.8 \pm 12.5$ years old). About two-thirds were married (67.2%), followed by widowed/divorced/separated (22.7%). Almost all of them were Buddhist (99.2%). Almost two-thirds finished primary school (63.0%) and were working (64.7%). The majority had a monthly income of less than 15,000 Baht (70%). About two-thirds reported adequate income (66.4%). More than 60% were with the universal coverage payment scheme. More than 80% had caregivers, specifically spouse (42%), followed by offspring (39.5%) (Table 1).

In terms of illness and treatment, most of the samples were diagnosed with gastrointestinal cancer, followed by head and neck cancer, breast cancer, lung cancer and reproductive cancer, respectively. In addition, 59.7% were diagnosed with Stage 4 cancer. Most of the current treatments received were chemotherapy (58.0%) (Table 1).

**Table 1** Demographic and clinical characteristics (N = 119).

| Characteristics | N | % |
|---|---|---|
| Gender | | |
| Male | 47 | 39.5 |
| Female | 72 | 60.5 |
| Age (years) (Mean= 57.8, S.D.=12.1, Max= 87, Min= 25) | | |
| 18 - 39 | 10 | 8.4 |
| 40 - 59 | 55 | 46.2 |
| 60 and over | 54 | 45.4 |
| Marital status | | |
| Married | 80 | 67.2 |
| Single | 12 | 10.1 |
| Widowed/divorced/separated | 27 | 22.7 |
| Religion | | |
| Buddhism | 118 | 99.2 |
| Christianity | 1 | .8 |
| Education | | |
| No formal education | 3 | 2.5 |
| Primary school | 75 | 63.0 |
| Secondary school | 21 | 17.6 |
| Associate degree | 7 | 5.9 |
| Bachelor's degree | 11 | 9.2 |
| Higher than bachelor's degree | 2 | 1.7 |
| Occupation | | |
| Not working | 42 | 35.3 |
| Working | 77 | 64.7 |
| Labor | 37 | 31.1 |
| Farmer | 14 | 11.8 |
| Small business | 16 | 13.4 |
| Government officer/state enterprise employee | 4 | 3.3 |
| Others | 6 | 5.0 |
| Monthly income (Baht) (mean = 11,715.13 ± 17470.8, Max = 150,000, Min = 600) | | |
| < 15,000 | 85 | 71.4 |
| 15,000 - 30,000 | 24 | 20.2 |
| > 30,000 | 10 | 8.4 |
| Income adequacy | | |
| Adequate | 79 | 66.4 |
| Inadequate | 40 | 33.6 |
| Insurance payment scheme | | |
| Universal coverage scheme | 82 | 68.9 |
| Social security scheme | 23 | 19.3 |
| Private insurance | 1 | .8 |
| Civil servant medical benefit scheme | 13 | 10.9 |
| Caregivers | | |
| Not having caregivers | 12 | 10.1 |
| Having caregiver | 107 | 89.9 |
| Spouse | 50 | 42.0 |
| Father/mother | 4 | 3.4 |
| Siblings | 9 | 7.6 |
| Offspring | 47 | 39.5 |
| Friends | 1 | .8 |
| Cancer diagnosis | | |
| Lung cancer | 15 | 12.6 |
| Breast cancer | 25 | 21.0 |
| Gastrointestinal cancer | 37 | 31.1 |
| Head and neck cancer | 28 | 23.5 |
| Reproductive cancer | 13 | 10.9 |
| Others | 1 | .8 |
| Stage of cancer | | |
| Stage 3 | 48 | 40.3 |
| Stage 4 | 71 | 59.7 |
| Current treatment | | |
| Chemotherapy | 69 | 58.0 |
| Radiation therapy | 29 | 24.4 |
| Radiation therapy and chemotherapy | 16 | 13.4 |
| Others | 5 | 4.2 |

The overall quality of life was 66.4 ± 15.1 out of 108 points by average which was at a moderate level. Physical well-being gained the highest mean score of 17.9 ± 5.4 points, followed by social and family well-being and emotional well-being (mean = 17.7 ± 4.4 and 16.7 ± 4.5 points, respectively). Scores on hope and self-esteem were at a high level (mean = 37.7 ± 4.5 and 31.2 ± 4.6 points, respectively). Symptom distress was low (mean = 22.7 ± 7.6 points) (Table 2).

**Table 2** Scores and levels of study factors (N = 119).

| Study factors | Possible range | Actual range | Mean | SD | Level |
|---|---|---|---|---|---|
| **Quality of life** | 0 - 108 | 29 - 101 | 66.4 | 15.1 | Moderate |
| Physical well-being | 0 - 28 | 5 - 28 | 17.9 | 5.4 | Moderate |
| Social and family well-being | 0 - 28 | 7 - 28 | 17.7 | 4.4 | Moderate |
| Emotional well-being | 0 - 24 | 5 - 23 | 16.7 | 4.5 | Moderate |
| Functional well-being | 0 - 28 | 2 - 28 | 13.9 | 5.4 | Moderate |
| **Hope** | 12 - 48 | 26 - 48 | 37.7 | 4.5 | High |
| **Self-esteem** | 10 - 40 | 18 - 40 | 31.2 | 4.6 | High |
| **Symptom distress** | 10 - 50 | 10 - 40 | 22.7 | 7.6 | Low |

The results showed that hope (r = 0.68, P-value < 0.01) and self-esteem (r = 0.66, P-value < 0.01) were significantly and positively correlated with quality of life at a moderate level. Symptom distress was significantly, negatively associated with quality of life at a moderate level (r = -0.63, P-value < 0.01) (Table 3).

**Table 3** Pearson's product moment correlation coefficient between study factors (N = 119).

| Factors | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Hope | 1 | | | |
| 2. Self-esteem | 0.56* | 1 | | |
| 3. Symptom distress | -0.43* | -0.35* | 1 | |
| 4. Quality of life | 0.68* | 0.66* | -0.63* | 1 |

* P-value < 0.05.

All three predictive factors together significantly associated with quality of life with 68.5% of quality of life variance explained (adj. $R^2$ = 0.685, P-value < 0.001). Factor with the most influence was symptom distress (β = -0.37, P-value < 0.001), followed by hope (β = 0.34, P-value < 0.001) and self-esteem (β = 0.33, P-value < 0.001) (Table 4).

**Table 4** Associations between quality of life score with scores of predictive factors (N = 119).*

| Predictive factors | b | SE | β | t | P-value |
|---|---|---|---|---|---|
| Hope | 1.09 | .21 | .34 | 5.043 | < 0.001 |
| Self-esteem | 1.06 | .20 | .33 | 5.122 | < 0.001 |
| Symptom distress | -.73 | .11 | -.37 | -6.443 | < 0.001 |

Constant = 10.83, R = 0.828, $R^2$ = 0.685, adj. $R^2$ = 0.677, $F_{3,115}$ = 83.53, P-value < 0.001

* Multiple linear regression analysis.

## Discussions and Conclusion

The results of this research revealed that quality of life among cancer patients receiving palliative care was at a moderate level (mean 66.4 ± 15.1 points). Quality of life is the patients' satisfaction with the body function during their current illnesses.[7] Most participants were in adulthood and elderhood with the average age of 57.8 years, which is the age when the body begins to deteriorate. People at this age have been through many life experiences. Therefore, they have stability of mind and can adapt to the illnesses that they are facing.[21] As a result, they can accept their illnesses, resulting in satisfaction in life. However, the family also plays an important role in promoting and supporting patients to cope with and face their illnesses and problems.[27,28] Most participants in this study had their family members as caregivers. Good relationships encouraged the patients to feel valued.[28] In addition, most participants had enough income to cover their expenses. Income is another important factor that helps meet basic needs and facilitate medical treatment.[29] Thus, it helps reduce the patients' anxiety about being dependent on others.

When considering the quality of life in each aspect, it was found that participants' physical well-being, social and family well-being, emotional well-being and functional well-being were at a moderate level. This is consistent with a study by Puengsook et al which investigated the quality of life among cancer patients with palliative care at the end of life and found that cancer patients receiving palliative care had a moderate level of overall and individual quality of life.[30] A study by Trakoolngamden and Wongteerasup, exploring the quality of life among patients with terminal cancer and found that the patients' overall quality of life was at a moderate level.[31] But when considering each aspect, the physical well-being and the emotional well-being of the patients with terminal cancer were at a low level. This may be because the participants were with stage 3 and stage 4 cancers, which are terminal or metastatic cancers that cannot be cured.

The participants received palliative care from hospital personnel that helped alleviate their symptom distress. Palliative care did not only meet the needs of the body, but also the patients' mental, social, emotional and spiritual needs which can support the patients to have a good quality of life.[10,32] The participants' symptom distress was at a low level

(mean = 22.7 ± 7.6 points), so their physical well-being and emotional well-being were increased. With no or less symptoms that caused distress, the patients were able to perform self-care activities.[11,33] As a result, their functional well-being was increased, leading to the satisfaction and well-being in life and an increase in quality of life.[11]

It was found that hope, self-esteem and symptom distress were able to jointly predict the quality of life among cancer patients receiving palliative care by 68.5% ($R^2$ = 0.685) with statistical significance (P-value < 0.001). Symptom distress can predict quality of life among cancer patients receiving palliative care the most ($\beta$ = -0.37, P-value < 0.001), followed by hope ($\beta$ = 0.34, P-value < 0.001) and self-esteem ($\beta$ = 0.33, P-value < 0.001). In other words, if cancer patients receiving palliative care had less symptom distress and more in hope and self-esteem, they would have better quality of life.

The results showed that symptom distress was significantly, negatively associated with quality of life at a moderate level ($\beta$ = -0.37, P-value < 0.001). The finding is consistent with a study of Seemarak et al which found that symptom distress was negatively correlated with quality of life at a high level (r = -0.77, P-value < 0.001).[13] A study of Trakoolngamden and Wongteerasup also found that symptom severity experiences had a high negative correlation with the quality of life among patients with terminal cancer (r = -0.53, P-value < 0.01).[31] Symptoms distress affects the patients' functional well-being because their functional ability is reduced.[11] Patients, therefore, have to depend on others. Changes in roles and responsibilities lead to the feelings of depression, unhappiness and loss of self-esteem[6], affecting the patients' emotional well-being.[34] Physical pain combined with psychological distress, such as anxiety and depression, is the factor that causes a high level of psychological distress among patients with terminal cancer. Physical and mental sufferings and effects lead to the reduction of the patients' quality of life for the rest of their life.[9] In this present study, the patients' symptom distress was at a low level (mean = 22.7 ± 7.6). Therefore, they may feel comfortable and able to perform activities on their own, resulting in physical well-being, causing them to have an increase in quality of life.

Hope was significantly, positively associated with the quality of life among cancer patients receiving palliative care at a moderate level with statistical significance (r = 0.68, P-value < 0.001). It also jointly predicted the quality of life ($\beta$ = 0.34, P-value < 0.001). This is consistent with a study by Seemarak et al which found that hope had a significant positive correlation with quality of life at a high level (r = 0.60, P-value < 0.001).[13] In addition, among Chinese bladder cancer patients, it was found that hope was positively correlated with quality of life (r = 0.489, P-value < 0.01) and predicted quality of life by 30.3% ($R^2$ = 0.303, P-value < 0.01).[35] This may be because the patients were in stage 3 and 4 of cancer with the PPS scores in the range of 40 – 60 points. Although the disease symptoms increased and the ability to perform activities decreased, the patients could still do some activities and help themselves, resulting in decreased dependence on others.

In this study, symptom distress of most participants was at a low level (mean = 22.7 ± 7.6). This indicates that the participants could control the symptoms that cause distress, resulting in the hope that treatment will improve their symptoms in the future which further encourage them face their illness. A low level of symptom distress results in and increased hope level in patients with terminal cancer.[36] It was also found that the participants' hope was at a high level (mean = 37.7 ± 4.5) and most participants had caregivers who were family members, so they received care and encouragement from the family.[28] It was found that the participants' social and family well-being was at a moderate level (mean = 17.7 ± 4.4). This would allow them to have self-esteem and want to live on and have hope to face the existing illness.[36] In addition, when the participants have more hope, they can overcome bad situations and face current problems and change a new perspective on what is possible in life and find new solutions to solve problems. They can face problems and enhance their well-being for the rest of their life.[37] As a result, quality of life is improved.

The study also found that self-esteem was significantly, positively associated with quality of life at a moderate level and could predict quality of life ($\beta$ = 0.33, P-value < 0.001). This is consistent with a study in colorectal cancer adult patients with colostomy which found that self-esteem was positively, correlated with quality of life at a high level and was able to predict quality of life by 73.70%.[14] It is also consistent with a study on quality of life among cancer patients in Singapore showing that self-esteem was positively correlated with quality of life in terms of spiritual well-being (r = 0.39, P-value < 0.01) and could jointly predict quality of life by 26% ($\beta$ = 0.48, P-value < 0.01).[34] In this study, the participants rated their self-esteem at a high level (mean = 31.2 ± 4.6).

This may be because every participant adhered to religion. Practicing Buddhist activities and good deeds is a mental anchor that helps the mind of the terminally ill patients to be happy, peaceful and comfortable, resulting in enhancing their spiritual well-being.[38-40] Consequently, patients understand the nature of life and their current illnesses. They let go and are satisfied with life and have mental well-being, resulting in an improved quality of life.[40] In addition, most participants had caregivers who were family members. Being cared for by family members and receiving encouragement while sick and a good family relationship allow patients with terminal cancer not to feel alone or discouraged. They are encouraged to fight the illness and face problems[28,35] They are also encouraged to have positive attitudes and feel good about themselves. They also accept themselves and their value in a positive way, leading to an improved self-esteem.[23] The high self-esteem of patients with terminal cancer is a feeling that arises in the mind which makes them happy and enhances the feelings of satisfaction with their own life. As a result, quality of life among cancer patients receiving palliative care is increased.[14] However, based on the results of this study, although the participants had a high level of self-esteem and hope and a low level of symptom distress, they were only positively correlated with quality of life at a moderate level. This may be because the participants' stage 3 and 4 cancer cannot be cured. Treatment is only for symptom relief. The participants' PPS scores were in the range of 40 - 60 points, during which the disease symptoms increased and the ability to perform activities was reduced. Most participants' living activities were done in bed. These affected their physical well-being and functional well-being. Therefore, it may affect the satisfaction of their current life. As a result, the participants' quality of life was at a moderate level.

This study has certain limitations. The study participants consisted of people who were diagnosed with cancer and experiencing palliative care, which could limit their ability to read and comprehend the research questionnaire. Consequently, research assistants were required to read and evaluate the questionnaire on behalf of the sample group, thereby introducing the potential for misunderstandings and inaccuracies in their responses. To mitigate data variability, the researchers instructed the research assistants to read the questions slowly and clearly, refraining from exerting dominant guidance in the participants' answers. It is crucial to note that the review responses were based on the participant's

decision-making. Before completing the questionnaire, participants were asked to check the accuracy of their answers to ensure their validity.

Our findings and conduct could suggest practical points. Nurses could develop a care program or model that promotes quality of life of cancer patients receiving palliative care by enhancing its predicting factors, i.e., hope and self-esteem, and reducing symptom distress. Such intervention could also be taught in nursing school. For future research, the intervention program to improve quality of life of cancer patients receiving palliative care could be tested in quasi-experimental study or randomized controlled trial. Another dimension of quality of life, i.e., spiritual dimension should be explored.

In conclusion, results of this study indicated that quality of life among cancer patients receiving palliative care was at a moderate level. Hope and self-esteem were positively associated with quality of life at a moderate level; while symptom distress was negatively associated with quality of life at a moderate level. Hope, self-esteem and symptom distress significantly predicted quality of life by 68.5% ($R^2 = 0.685$), P-value < 0.001.

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