# ปัจจัยคัดสรรที่มีความสัมพันธ์กับความสุขสบายของผู้ป่วยโรคมะเร็งระยะลุกลาม
# Selected Factors Related to Comfort of Advanced Cancer Patients

นิพนธ์ต้นฉบับ

Original Article


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## บทคัดย่อ


**วัตถุประสงค์:** เพื่อศึกษาระดับความสุขสบายและความสัมพันธ์กับตัวแปรคัดสรรในผู้ป่วยมะเร็งระยะลุกลาม **วิธีการศึกษา:** การวิจัยนี้มีตัวอย่าง คือ ผู้ป่วยที่ถูกวินิจฉัยว่าเป็นโรคมะเร็งระยะลุกลาม หรือมะเร็งระยะที่ 3 หรือ 4 ที่ได้เข้ารับการดูแลรักษาแบบผู้ป่วยใน ณ หอผู้ป่วยสามัญหญิง และหอผู้ป่วยสามัญชาย โรงพยาบาลมะเร็งชลบุรี สุ่มตัวอย่างโดยการสุ่มอย่างง่ายจำนวน 84 ราย รวบรวมข้อมูลด้วย แบบบันทึกข้อมูลส่วนบุคคล แบบประเมินความสุขสบายของผู้ป่วย ความผาสุกทางจิตวิญญาณ การสนับสนุนทางสังคม และอาการซึมเศร้า วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติสัมประสิทธิ์สหสัมพันธ์เพียร์สันหรือค่าความสัมพันธ์สเปียแมนตามความเหมาะสม **ผลการศึกษา:** กลุ่มตัวอย่างมีความสุขสบายระดับมาก (M = 225.25, SD = 26.25) โดยความปวดและภาวะซึมเศร้าสัมพันธ์ทางลบกับความสุขสบายอย่างมีนัยสำคัญทางสถิติ ($r_s$ = -0.230, *P*-value < 0.05 และ r = -0.543, *P*-value < 0.01, ตามลำดับ) แต่ความผาสุกทางจิตวิญญาณและการสนับสนุนทางสังคมสัมพันธ์ทางบวกกับความสุขสบายอย่างมีนัยสำคัญทางสถิติ (r = 0.566, *P*-value < 0.01 และ r = 0.544, *P*-value < 0.01, ตามลำดับ) **สรุป:** ผู้ป่วยมะเร็งระยะลุกลามมีความสุขสบายระดับมาก และสัมพันธ์กับความปวด, ภาวะซึมเศร้า, ความผาสุกทางจิตวิญญาณ, และการสนับสนุนทางสังคม จึงควรส่งเสริมการสนับสนุนทางสังคมและความผาสุกทางจิตวิญญาณร่วมกับการจัดการความปวดและภาวะซึมเศร้า



**คำสำคัญ :** ความสุขสบาย; ผู้ป่วยโรคมะเร็งระยะลุกลาม; ปัจจัยคัดสรร


## Abstract


**Objective:** To determine level of comfort and related factors in advanced cancer patients. **Method:** A sample of 84 patients diagnosed with advanced cancer or 3rd or 4th stage cancer was selected by simple random sampling. The patients were admitted to two ordinary cancer units of Chonburi Cancer Hospital. Data were collected by personal data record and five questionnaires as follows; Hospice Comfort Questionnaire (Patient), the Spiritual Well-Being Scale, the Social Support Questionnaire, Pain Numeric Ratting Scale, and Hospital Depression Scale. Data were analyzed by descriptive statistics and Pearson's correlation coefficient or Spearman's rank correlation, as appropriate. **Results:** The sample had high comfort (M = 225.25, SD = 26.25). Pain and depression were significantly, negatively correlated with comfort ($r_s$ = -0.230, *P*-value < 0.05 and r = -0.543, *P*-value < 0.01, respectively). Conversely, spiritual well-being, and social support were significantly, positively correlated with comfort (r = 0.566, *P*-value < 0.01 and r = 0.544, *P*-value < 0.01, respectively). **Conclusion:** Advanced cancer patients had high level of comfort. Their comfort was correlated with pain, depression, spiritual well-being, and social support. Nursing care should promote social support and spiritual well-being and alleviate pain and depression.



**Keywords:** comfort; advanced cancer patient; selected factors

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## Introduction

Cancer has been one of the most burdensome public health problems with a continuous increase in number worldwide. The advanced cancer where metastasis to organs poses an incurable stage.[1] Based on the data of the International Agency for Research on Cancer of the World Health Organization (IARC), there were approximately 18.1 million new cases of cancer in the year 2018 and it was estimated 29.5 millions in 2040, which is the next 22 years.[2] In Thailand, there has also been an increase in new cases of cancer. For example, the Cancer Registry Unit of the National Cancer Institute of Thailand revealed that there were was 112,392 new cancer cases in 2013 and the number of news cases increased to 126,555 cases in 2015.[3] These Thailand national data were consistent with the regional ones of the Information Technology and Academic Supporting Division, Chonburi Cancer Hospital. In this hospital, a total of 2,457 new cancer cases were registered for care at the hospital in 2017, and increased to 2,834 in 2018, i.e. a 15.3% increase. The majority of these new cases were with advanced cancer of stage 3 (46.2%) and stage 4 (53.0%).[4] with clear and severe signs and symptoms of cancer. A study showed that the first five most experienced symptoms among 83 advanced cancer patients included insomnia (M = 1.48, SD = 1.18), followed by pain (M = 1.43, SD = 1.34), weight loss (M = 1.19, SD = 1.17),

xerostomia or dry mouth (M = 1.14, SD = 1.03) and fatigue or paralyzing (M = 1.13 SD = 1.10)[5].

Severe signs and symptoms experienced by advanced cancer patients are considered stressful health care situations based on Kolcaba.[6] These stressful situations could lead to discomforts and hence arise the comfort needs, either in physical, psycho-spiritual, socio-cultural, or environmental contexts. A qualitative study by Dong[7] and colleagues about beliefs and attitudes of advanced cancer patients experiencing simultaneous signs and symptoms revealed that pain, nausea/vomiting, and fatigue were symptoms they were unable to control. This loss of control allows for severe exacerbation especially limited body mobility and loss of organ functions. These physical sufferings and limitations cause anxiety and uncertainty which could further lead to isolation or withdrawal from others, and ultimately fear of death. All of these symptoms are referred to as discomforts either physical, psychological, or social ones. Patients with discomforts need comfort care or comfort nursing intervention to achieve outcomes of perceived enhanced comfort.[6]

Comfort among advanced cancer patients is the strength experience that emerges under three need contexts namely symptom alleviation, happiness, and absence of problems or sufferings. Comfort depends on factors or forces that could affect health status both obstructing and facilitating forces. Based on our literature review, some other factors including pain, depression, spiritual well-being, and social support, could be either obstructing or facilitating force for comfort.

Pain in advanced cancer patients is an undesirable detrimental experience caused by the metastasis. The pain could originated by the larger tumor that could press and destroy nerves and tissues of the metastasized organs and adjacent organs. The pain could also be from cancer treatment such as pain caused by chemotherapy and radiotherapy.[8] Among advanced cancer patients especially terminally ill ones, most of them suffered from pain (80.6%) where moderate pain was found in 43.1% and severe pain in 18.1%.[9] Despite a high prevalence of moderate to severe pain in these advanced cancer patients, pain management for them has been suboptimal. The problematic pain management for advanced cancer patients could be due to improper analgesics dosage regimen, poor timing and associated adverse events.[10]

Pain could affect the daily living of advanced cancer patients. A qualitative study by Erol and co-workers[11] elaborated such negative impacts. In 16 patients with advanced cancer, perceived pain hindered their capacity in performing daily activities because of tiredness, lack of energy, and fatigue. Since they could not perform daily household chores, they depended on others to do so. They also had less rest and sleep. Since they were unable to socially interact with others, psychological defects occurred including social isolation, aggressiveness, and ultimately depression. Pain is therefore the major factor in various aspects of discomfort and the perception of decreased comfort.

Depression is the feeling sad or sorrow, gloomy, bored, enjoying thing less, despaired, hopeless, pessimistic, guilt, self-blamed, worthless, and less interested in daily living. Depression is associated with advanced cancer in various aspects.[12] The diagnosis of cancer itself could change and affect the patient life, and lead to social isolation. The cancer could also inhibit further income and deplete financial resource of the patient and their family. Limited options of cancer treatment and uncontrollable symptoms also further cause more stress. Finally, chemotherapy could cause nervous system damage.[12] These negative impacts of cancer were found in 47.5% of hospitalized cancer patients[13] which could negative mental changes, poor feeling, and depression. A qualitative study of Zhang and colleagues in 74 cancer patients showed that cancer patients with depression were easily irritated, crying, and socially isolated.[14] Depression is a suffering of emotions and affects which could also result in discomfort or less perceived comfort.

Spiritual well-being is the individual perception on meaning, goals, and values of life accompanied with religion belief as an entity to hold on to. These elements could bring the individual life satisfaction and ability to face obstacles. Diagnosis of advanced cancer brings the patient undesirable spiritual suffering. Most importantly, life-threatening nature of the disease makes the patient to perceive that the death is coming, thus their goal in life changes, especially spiritual aspect of life.[15] The patient needs spiritual support by means of the need of acceptance and respect in values of their lives until the death.[16] Paloutzian and Eillison stated that religious belief and faith, the related religious practice, and having religion to hold on to could help the individual adjust themselves to confront problems and accept unforeseeable circumstances.[17] In a study by Pukahuta and Phutthikhamin where therapeutic praying helped 10 patients with breast

cancer patients to feel relaxed, calm, happy, and clear-headed.[8] Spiritual well-being is one the crucial components to help advanced cancer patients achieve comfort.

Social support is an individual's perception on help they receive from their close acquaintance either emotional, information, financial, commodities, or self-evaluation support. Once the patients are hospitalized for their advanced cancer treatment, they are socially isolated and have less income from work absence or disrupted hiring. As a result, they need understanding, affection, and warmth from family members and friends. They also need information about the illness and treatment from healthcare providers.[19] If the patient receive social interaction, encouraging words, concerns, and sympathy, they could feel safe, calm, concentrated, and relaxed both physically and mentally. These could ease the stress and therefore reduce physical suffering. A study of Wathanathum and colleagues also showed that comfort was associated with social support in 100 older adults with cancer receiving chemotherapy.[20]

Previous studies have showed comfort as a crucial component of well-being in cancer patients. Various factors including pain, depression, spiritual well-being, and social support could also affect comfort level of cancer patients. However, such understanding on comfort and the factors in advanced cancer patients has not been specifically known. This present study aimed to understand comfort level specifically in advanced cancer patients. Specifically, this present study aimed to 1) determine comfort level in advanced cancer patients, and 2) examine the relationships between comfort and selected factors including pain, depression, spiritual well-being, and social support.

The proposed study concept was based on the Kolcaba's concept of comfort.[6] In advanced cancer patients, pain and depression were obstructing forces in achieving comfort; while spiritual well-being and social support were the facilitating ones. Therefore, we hypothesized that pain and depression were negatively associated with comfort; while spiritual well-being and social support were positively related.

The findings from the study could be beneficial for the advanced cancer patients. The understanding on comfort and its influencing factors could be useful for health care providers in promoting comfort in these patients in the long run.

# Methods

In this correlational research, study population was cancer patients with advanced stage diagnosis or with stages 3 or 4 based on histopathology examination on the biopsy. They were inpatients (or hospitalized) in the male and female general medicine wards of Chonburi Cancer Hospital. Study sample was those with the following characteristics. They were 20 years old or older and had no pathological complications from cancer that needed special care such as difficulty breathing, reduced consciousness, etc. They had to have consciousness and ability to communicate in Thai language.

Sample size was estimated by G*Power program. Based on a confidence level of 95% (or $\alpha$ = 0.05) and a power of test of 0.80, a medium effect size of 0.30[21], a sample size of 84 patients was required. The medium effect size of 0.30 was generally used in nursing research.[22] The participants were selected via simple random sampling method based on the odd and even number of their hospital numbers.

**Research instruments**

The self-administered questionnaire consisted of six sections as follows. The **first section** collected the participant's demographic information including gender, age, marital status, religion, education level, occupation, family income, health insurance payment scheme, caregivers, and family size. This section also collected history of illness including diagnosis, duration since cancer diagnosis, diagnosis based on cancer site, number of treatments received, and duration since the latest hospitalization to the present, reason for hospitalization, history of cancer treatment, other co-morbidities, and medications other than those for cancer treatment.

In the **second section**, the questionnaire asked about **pain** using the Pain Numeric Rating Scale of Hawker and co-workers.[23] This scale has a single question asking participants to rate their pain and associated suffering with a 10-point scale with four levels of pain ranging from no pain (0 points), mild pain (1 – 3 points), moderate pain (4 – 6 points), extreme pain (7 – 10 points). Alghadir and colleagues tested the scale for construct validity by comparing with Visual Analog Scale, Numeric Rating Scale and Verbal Rating.[24] The convergent validity was high correlations (r = 0.941, 0.878 and r = 0.925, respectively). In our present study, Numeric Rating Scale was

tested for reliability in 30 patients comparable to the study participants and a high test-retest reliability coefficient of 0.99 was found.

The **third section** evaluated **depression** using the Hospital Anxiety and Depression Scale Thai version (Thai HADS). HADS was originally developed by Zigmond and Snaith.[25] With a total of 12 items, only 7 items of HADS evaluating depression were used in this present study. Response is a rating scale of 0 – 3 points with a possible total score of 0 – 21 points. Three levels of depression were low, moderate, and high (0 - 7, 8 – 10 and 11 - 21 points, respectively). Nilchaikovit and colleagues translated HADS by back translation and tested in 60 cancer patients at Ramathibodi Hospital.[26] The Thai version HADS had a 85.71% sensitivity and 91.3% specificity. We used this version of Nilchaikovit and colleagues and the test with 30 patients comparable to the study participants resulted in an acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.80.

The **fourth section** evaluated **spiritual well-being** using the scale originally developed by Paloutzian and Eilison.[17] The scale contains 20 questions with response of a 6-point Likert-type rating scale ranging from 1-strongly disagree to 2-moderately disagree, 3-disagree, 4-agree, 5-moderately agree, and strongly agree. With possible total scores of 20 – 120 points, two levels of spiritual well-being were high (60 points or higher) and low (less than 60 points). The scale was translated into Thai and modified by Noipiang[27] and later revised by Tantitrakul to be more applicable to vulnerable patients such as last stage cancer patients.[28] The modified scale of Tantitrakul was examined for content validity by five experts and resulted in an acceptable content validity with a content validity index (CVI) of 0.80.[28] In this present study, the modified scale of Tantitrakul was used and internal consistency reliability was high with a Cronbach's alpha coefficient of 0.93 when tested in 30 patients comparable with the study participants.

The **fifth section** contained **social support** questions based on House's concept.[29] The scale had 15 questions with a 4-point Likert-type response ranging from 1-not at all true, to 2-slightly true, 3-mostly true, and 4-absolutely true. With possible total scores of 15 – 60 points, three levels of social support were low, moderate, and high (15 – 30, 31 – 45 and 46 – 60 points, respectively). Our present study used the version of Pomklang[30] which was modified from the version of Ratananont[31] to be more applicable to patients surviving breast cancer after completing the treatment. The modified version of Pomklang was examined by five experts and found to have acceptable content validity with a CVI of 0.86. In our present study, internal consistency reliability was high with a Cronbach's alpha coefficient when tested in 30 patients comparable with the study participants.

The **sixth section** evaluated **comfort** using the Hospice Comfort Questionnaire-Patient (HCQ-Patient) developed by Novak et al.[32] as guided by the comfort concept of Kolcaba.[6] HCQ has 49 items with response of 6-point Likert-type scale ranging from 1-strongly disagree, to 2-highly disagree, 3-slightly disagree, 4-slightly agree, 5-highly agree, and 6-strongly agree. With possible total scores or 49 – 294 points, comfort could be graded into three levels, specifically, low, medium, and high levels comfort (49 – 130, 131 – 212 and 213 – 294 points, respectively). Novak et al. revealed that HCQ-Patient had a concurrent validity as indicated by correlation coefficients of 0.45 with Visual Analog Scales (VASs) and 0.48 with Total Comfort Lines (TC).[32] Tanatwanit back translated HCQ-Patient into Thai and tested with 20 metastatic cancer. The Thai version had an acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.89.[33] In our present study, HCQ-Patient Thai version of Tanatwanit was tested in 30 patients comparable to the participants and a high internal consistency reliability was found with a Cronbach's alpha coefficient of 0.94.

**Data collection procedure**

The researchers contacted the head nurses of the male and female general medicine wards of Chonburi Cancer Hospital to obtain the patient's hospital numbers for sample selection with simple random sampling as described previously. Once permission to meet the prospective participants was granted, the researcher approached the participants and explained the objectives and steps of the study. Once the informed consent form was signed, the participant completed the self-administered questionnaire. It took about 35 – 45 minutes to complete the questionnaire. Since 18 participants had eye sight problems, the researcher read the questions for them with no additional explanations or advice. The researcher inspected the filled questionnaire for completion.

**Human subject right protection**

This study was approved by the Ethic Committee of the Faculty of Nursing, Burapha University (approval number: 01-08-2561; approval date: December 7, 2018) and the Ethic Committee of Chonburi Cancer Hospital (approval number: 7/2019; approval date: January 25, 2019). Code for each participant instead of their hospital number was used. Data were recorded into computer database and secured with only the researcher being able to access the database. The study results were presented as group, not individual participants. All data will be destroyed at one year after research report was completed.

**Data analysis**

Descriptive statistics were used to analyze demographic and clinical status characteristics including frequency with percentage and mean with standard deviation. To examine the association between comfort and each of the factors (i.e., pain, depression, spiritual well-being, and social support) using Pearson's product moment correlation (r) or Spearman's rank correlation coefficient ($r_s$), as appropriate. It was found that pain score did not meet the assumptions for Pearson's product moment correlation (i.e., lack of homoscedasticity and lack of linearity), therefore the association between comfort and pain was tested using Spearman's rank correlation coefficient. Statistical significance for all tests was set at a type I error of 5% (*P*-value < 0.05). All statistical analyses were conducted using SPSS for Windows version 26.

## Results

Among 84 participants, men and women were in equal proportion (50.0%) (Table 1). The majority was in their 45 – 65 years of age (71.4%) with an average age of 54.11 years (*SD* = 10.17). The majority was married (56.0%), were Buddhist (98.8%), had some form of education (97.6%), and had occupation (56.0%) with monthly family income of 10,001 - 20,000 Baht (38.0%). The majority had the universal coverage scheme for their healthcare insurance payment, had family members as their caregiver while ill (100.0%), and had nuclear family (60.7%) (Table 1).

**Table 1** Demographic characteristics of the participants (N = 84).

| Characteristics | N | % |
|---|---|---|
| **Gender** | | |
| Male | 42 | 50.0 |
| Female | 42 | 50.0 |
| **Age** (years) (*M* = 54.11, *SD* = 10.17) | | |
| 20 – 44 (young adulthood) | 14 | 16.7 |
| 45 – 65 (middle adulthood) | 60 | 71.4 |
| > 65 (late adulthood) | 10 | 11.9 |
| **Marital status** | | |
| Married | 47 | 56.0 |
| Single | 10 | 11.9 |
| Divorced | 10 | 11.9 |
| Separated | 9 | 10.7 |
| Widowed | 8 | 9.5 |
| **Religion** | | |
| Buddhism | 83 | 98.8 |
| Islam | 1 | 1.2 |
| **Education level** | | |
| No formal education | 2 | 2.4 |
| Yes | 82 | 97.6 |
| Primary school | 54 | 64.3 |
| High school | 18 | 21.4 |
| Vocational school | 4 | 4.8 |
| Associate degree | 1 | 1.2 |
| Bachelor's degree | 4 | 4.8 |
| Master degree | 1 | 1.2 |
| **Occupation** | | |
| No | 37 | 44.0 |
| Yes | 47 | 56.0 |
| Labor | 27 | 32.1 |
| Farmer | 9 | 10.7 |
| Small business | 7 | 8.3 |
| Government/government enterprise | 3 | 3.6 |
| Others | 2 | 2.4 |
| **Monthly family income** (Baht) | | |
| No income | 3 | 3.6 |
| Yes | 81 | 96.4 |
| < 5,000 | 10 | 11.9 |
| 5,000 - 10,000 | 15 | 17.9 |
| 10,001 - 20,000 | 32 | 38.1 |
| 20,001 - 30,000 | 11 | 13.1 |
| 30,001 - 40,000 | 3 | 3.6 |
| > 40,000 | 10 | 11.9 |
| **Healthcare insurance payment scheme** | | |
| Universal coverage scheme | 57 | 67.9 |
| Social security scheme | 24 | 28.6 |
| Civil servant medical benefit scheme | 3 | 3.6 |
| **Caregivers when ill** | | |
| Family members | 84 | 100.0 |
| **Family size** | | |
| Nuclear family | 51 | 60.7 |
| Extended family | 33 | 39.3 |

The majority of the participants was hospitalized for the first for treatment of advanced cancer (39.3%), diagnosed with head and neck cancer (20.2%), diagnosed with primary region (48.9%), diagnosed with stage 3 cancer (48.9%), with a duration of 2 – 6 month since diagnosis till the present (39.3%), and presently hospitalized to receive chemotherapy (58.3%) (Table 2).

**Table 2** Clinical characteristics of the participants (N = 84).

| Characteristics | N | % |
|---|---|---|
| **Number of hospitalization** | | |
| First | 33 | 39.3 |
| Second | 10 | 11.9 |
| Third | 10 | 11.9 |
| Fourth | 5 | 6.0 |
| Fifth | 3 | 3.6 |
| Sixth | 6 | 7.1 |
| Seventh or more | 17 | 20.2 |
| **Diagnosis** | | |
| Head and neck cancer | 17 | 20.3 |
| Intestine and anus cancer | 16 | 19.0 |
| Lung cancer | 13 | 15.5 |
| Breast cancer | 12 | 14.3 |
| Cervical cancer | 7 | 8.3 |
| Esophagus cancer | 7 | 8.3 |
| Uterus cancer | 3 | 3.6 |
| Prostate cancer | 2 | 2.4 |
| Other cancers (1 for each participant) | 7 | 8.3 |
| **Site of tumor** | | |
| Primary region | 41 | 48.9 |
| Secondary region | 34 | 40.5 |
| Recurrent region | 9 | 10.6 |
| **Stage of cancer** | | |
| 3rd stage | 48 | 57.1 |
| 4th stage | 36 | 42.9 |
| **Duration since diagnosis till the present (month)** | | |
| < 2 | 10 | 11.9 |
| 2 - 6 | 33 | 39.3 |
| 7 - 12 | 14 | 16.7 |
| 13 - 24 | 8 | 9.5 |
| ≥ 25 | 19 | 22.6 |
| Reason for present hospitalization | | |
| Chemotherapy | 49 | 58.3 |
| Radiotherapy | 14 | 16.7 |
| Chemotherapy and radiotherapy | 15 | 17.9 |
| Palliative care | 6 | 7.1 |
| **Treatment history** | | |
| None | 30 | 35.7 |
| Yes | 54 | 64.3 |
| Operation with chemotherapy and radiotherapy | 19 | 22.6 |
| Operation | 15 | 17.9 |
| Chemotherapy and radiotherapy | 13 | 15.5 |
| Operation and chemotherapy | 5 | 5.9 |
| Operation and radiotherapy | 2 | 2.4 |
| **Co-morbidities** | | |
| None | 45 | 53.6 |
| Yes (more than 1 illness with a participant) | 39 | 46.4 |
| Hypertension | 23 | 27.4 |
| Hyperlipidemia | 16 | 19.0 |
| Diabetes | 10 | 11.9 |
| **Other medications** (more than 1 drug for a participant) | | |
| Analgesics (morphine) | 21 | 25.0 |
| Antihypertensive drugs | 20 | 23.8 |
| Lipid lowering agents | 11 | 13.1 |
| Antidiabetic drugs | 8 | 9.5 |
| Hypnotic drugs | 4 | 4.8 |

It was found that positive factors were at high level including spiritual well-being (104.23 ± 13.0 out of 120 points), social support (47.57 ± 7.73 out of 60 points) and comfort (225.25 ± 26.25 out of 294 points (Table 3). On the other hand, pain (2.83 ± 2.81 out of 10 points) was at mild level, and depression (5.19 ± 3.56 out of 21 points) at a low level.

Comfort was significantly, positively correlated with positive factors including spiritual well-being (r = 0.566, *P*-value < 0.01) and social support (r = 0.544, *P*-value < 0.01) (table 4). On the other hand, Comfort was significantly, negatively correlated with negative factors including pain ($r_s$ = -0.230, *P*-value < 0.05) and depression support (r = -0.543, *P*-value < 0.01).

**Table 3** Level of study factors (N = 84).

| Factors | Possible total score (points) | Mean (points) | SD | Level |
|---|---|---|---|---|
| Pain | 10 | 2.83 | 2.81 | Mild |
| Depression | 21 | 5.19 | 3.56 | Low |
| Spiritual well-being | 120 | 104.23 | 13.00 | High |
| Social support | 60 | 47.57 | 7.73 | High |
| Comfort | 294 | 225.25 | 26.25 | High |

**Table 4** Correlation between comfort and each of the studyu factors (N = 84).

| Factors | Correlation (*r*)* | *P*-value |
|---|---|---|
| Pain | -0.230# | < 0.05 |
| Depression | -0.543 | < 0.01 |
| Spiritual well-being | 0.566 | < 0.01 |
| Social support | 0.544 | < 0.01 |

* Pearson's product moment correlation coefficient (r) .

# Spearman's Rank Correlation Coefficient ($r_s$) .

## Discussions and Conclusion

In this study in advanced cancer patients, we found that comfort was at a high level (225.25 ± 26.25 out of 294 points) in spite of the fact that most of the participants had stage 3 or 4 cancer which the patients faced various severe symptoms. It has been known that as high as 35 – 55% of these paients faced severe pain.[34] In a study, immediate or sudden pain called breakthrough pain has been found in as high as 79% of these patients.[35] Even though breakthrough pain has been known to cause immense suffering and discomfort to this group of patients, our study found only low level of pain in these advanced cancer patients (2.83 ± 2.81 out of 10 points). This could be attributable to the majority of participants's first hospitalization (39.3%) thus less severe complications from cancer and treatment were found. In addition, about 25% received opioid derivative analgesics such as morphine sulphate syrup (MSS), morphine sulphate tablet (MST) and Kapanol® which were classified as strong opioid analgesics by the World Health Organization classified.[36] Hence, our participants could have had a low level of pain.

These participants had a low level of depression (5.19 ± 3.56 out of 21 points). Their depression could be less than expected since these participants had a low level of pain and 56.0% of them could work. As high as 96.4% of them had the monthly income of 10,001 – 20,000 Baht and the majority of

them did not have to pay since they were under the universal coverage which required only 30 Baht co-payment.[37] Since these advanced cancer patients could take care of themselves by taking responsibility in self-care, taking care of their illness, and being able to maintain their daily activities, they could feel confident, satisfied, and not depressed. A study of Goudarzian and co-workers revealed that among 380 hospitalized cancer patients their capacity to take care of themselves physically, mentally, and spiritually was negatively correlated with depression but with a low level ($r$ = -0.134, $P$-value < 0.05).[38] Therefore, participants in our study were also experienced low level of depression and discomfort.

Participants in our study had a high level of spiritual well-being (104.23 ± 13.0 out of 120 points) and a high level of social support (47.57 ± 7.73 out of 60 points). The participants received comfort facilitating factors from helps and support from family members, friends, and healthcare providers. They also had entities to hold on to psychologically and spiritually, especially religion. Holding? on to religion teaching and practice could bring people happiness and spiritual well-being.[17] This could be possible since 99.8% of the participants in our study was Buddhist. Their belief and faith in Buddhism could have helped them achieve calmness and spiritual well-being as they performed the good deed based on reciprocity belief of karma. Thus spiritual well-being could promote comfort among advanced cancer patients in our study.

Social support could be facilitating factor for spiritual well-being. As we interviewed the participants, most of them were calm, somewhat cheerful and certainly in good spirit. They were with their family members for their follow-up visit. They reported that when hospitalized they were taken care of by their family members such as spouse, offsprings, and siblings as their caregivers. These caregivers helped them on daiy activities and encouraged them to fight the illness. This demonstrated the help, understanding, and encouragement from their family which could bring them warmth and security. In addition, they also received information from healthcare providers to help them better understand the situation they were facing which could help them feel secured and encouraged. This was consistent with the qualitative study of Silva and colleagues where they found that among 190 cancer patients, 97.4% of them were satisfied with care provide by nursing team.[39] In short, since the participants received social support regarding mental support, information, financial support and self-evaluation, their overall social support found in our study was at a high level.

In conclusion, pain and depression could bring discomfort physically, psychologically, and spiritually. With a low level of pain and depression, these advanced cancer patients could experience more comfort. Spiritual well-being and social support were considered facilitating forces for psychological, spiritual, and social comfort in advanced cancer patients. The more facilitation the patients received, the more comfort the patients experienced.

Pain was found to negatively correlate with comfort in these advanced cancer patients ($r_s$ = -0.230, $P$-value < 0.05). Based on the concept of comfort, pain associated with cancer illness could cause physical stress which could further cause discomfort. In our study, discomfort could be pain and depression. Pain in advanced cancer is caused in part by the metastasis of the tumor to other organs and put a pressure and/or damage the tissue or the nervous system and the metastasized and adjacent organs. Cancer cells also secrete tumor necrosis factor alpha substances which could stimulate the pain pathway. In addition, most participants received chemotherapy which could cause pain and other symptoms including peripheral neuropathy from vinca alkaloid cytotoxic drugs.[8] As a result, the patients faced periodical and continuous pain which is a physical discomfort. The more pain the patients had, the less comfort they perceived. Pain was thus positively correlated with discomfort or negatively correlated with comfort as seen also in a previous study of Kim and Kwon where pain was significantly negatively correlated with comfort in 98 cancer patients (r = -0.54, $P$-value < 0.01).[40]

Depression was also considered a psychological discomfort. Our study found that depression was significantly, negatively correlated with comfort in advanced cancer patients (r = -0.543, $P$-value < 0.01). This could be due to the fact that in advanced cancer, uncontrolled physical distress and complications from tretament coud lead to depression. Our finding was consistent with the study of Fitzgerald and co-workers where depression was found positively correlated with physical distress especially distress from pain (r = 0.32, $P$-value < 0.01).[41] Depresson could also be originated from a reduced self-worth as a result of a decrease in perceived self-efficacy. In our study, the participants were still able to self-care which would help maintain a low level of depression and a high level of comfort. This finding was consistent with the

study of Kim and Kwon which found that psychological well-being was positively correlated with comfort in 98 cancer patients (r = 0.581, *P*-value < 0.01).[40]

Spiritual well-being was positively correlated with comfort in advanced cancer patients (r = 0.566, *P*-value < 0.01). Advanced cancer could bring the worst spiritual suffering to the patient such as desperation, fear, and uncertainty on the future. They perceived that death was coming and that their goals and values in life were changed.[15] With this realization on the critical condition, encouraging the patients to hold on to their goal in life could bring the patient the spiritual well-being or psychological well-being. Various ways to achive such well-being were religious faith and practice.[17] The study of Pukahuta and Phutthikhamin found that therapeutic praying could result in relaxation, calmness, happiness, clear mind, and alertness in 10 breast cancer patients receiving chemotherapy.[18] This could be attributable to the fact that while praying, endorphine was released and the euphoric feeling could be perceived throughout the body. Spiritual well-being was this associated with comfort in advanced cancer patients.

Finally, social support was positively correlated with comfort (r = 0.544, *P*-value < 0.01). The concept of social support of Kolcaba proposed that healthy interpersonal relationship especially with family members could bring them comfort.[6] In our study, the participant received adequate helps from their family members and healthcare providers. These included encouragement, affection, and care from home health care, help from family members, and convenient medical care from medical team. Dietrich and Abbott stated that encouragement, interaction, and supporting and encouraging words are needed to show the understanding toward the patient's suffering and to let the patient know such care. All together these could make the patient feel safe, calm, concentrated, focused, and relaxed physically and psychologically[42], which is a kind of ease. A study of Wathanathum and colleagues also reported that social support was positively correlated with comfort in 100 cancer patients receiving chemotherapy (*r* = 0.337, *P*–value < 0.01).[20]

Based on our findings, to improve comfort among advanced cancer patients, nurses should seek for effective interventions to manage pain either with or without medications, including massage, music therapy, and breating exercise. To alleviate depression, art group therapy and counseling could be an effective candidate intervention. Social support should be promoted by encouraging family members or close individuals take part in the care of the patient. In addition, religious faith and practice should also be encouraged by offering appropriate space while hospitalized. In terms of nursing education, concept of comfort shoul be incorporated both in didactic and practicum parts of the curricum both for all levels of nursing education and for other healthcare providers. To achieve an effective care, policy makers should support and manage all resources to develop nursing care to improve the well-being of advanced cancer patients.

Our study had certain limitations. There are several treatment modalities for advanced cancers such as chemotherapy, radiotherapy, chemotherapy with radiotherapy, and palliative care. Aggresiveness of the treatment could be different, hence the different impact on comfort. Effects of different treatments on comfort thus should be further studied. We studied only on hospitalized patients. It has been known that the environment is related to comfort. Results of our study could thus be limited and more studies in the patient's household should be conducted and the results should be compared the ones in hospitalized patients.

In addition, since low pain level found in our participants, more studies exploring the effects of pain medications and other pain management which could alleviate their pain should be conducted.

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