ปัจจัยทำนายความต้องการการดูแลของผู้ป่วยมะเร็งในเขตภาคตะวันออก
Factors Predicting Care Needs of Cancer Patients in Eastern Thailand

นิพนธ์ต้นฉบับ

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Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาความต้องการของผู้ป่วยมะเร็งในเขตภาคตะวันออก และศึกษาปัจจัยที่ร่วมทำนายความต้องการของผู้ป่วยประกอบด้วยลักษณะทางประชากรศาสตร์ ลักษณะทางคลินิก ความกังวล และความซึมเศร้า **วิธีการศึกษา:** การวิจัยทดสอบความสัมพันธ์เชิงทำนายมีกลุ่มตัวอย่าง คือ ผู้ป่วยมะเร็งอายุ 20 ปีขึ้นไปที่รับบริการในโรงพยาบาลมะเร็งชลบุรี 160 คน เลือกด้วยการสุ่มอย่างง่าย เก็บข้อมูลโดยใช้แบบสอบถามข้อมูลส่วนบุคคลและข้อมูลทางคลินิก แบบประเมินความต้องการของผู้ป่วยมะเร็ง (SCNS-SF34 Thai version) แบบสอบถามความวิตกกังวลและอาการซึมเศร้า (Thai HADS) และแบบวัดคุณภาพชีวิตขององค์การอนามัยโลกฉบับย่อ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและการวิเคราะห์ความถดถอยเชิงพหุคูณแบบขั้นตอน **ผลการศึกษา:** ตัวอย่างส่วนใหญ่เป็นเพศหญิง มีอายุเฉลี่ย 48.07 ปี ได้รับการวินิจฉัยเป็นโรคมะเร็งเต้านมมากที่สุด เป็นผู้ป่วยมะเร็งระยะที่ 3 และอยู่ระหว่างติดตามการรักษาเป็นส่วนใหญ่ พบว่าผู้ป่วยมะเร็งมีความวิตกกังวลและอาการซึมเศร้าสูงจนถึงมีความผิดปกติทางจิตเวชร้อยละ 30.00 และ 20.62 ตามลำดับ ผู้ป่วยมีความต้องการการดูแลด้านร่างกายและชีวิตประจำวันและด้านเพศสัมพันธ์ค่อนไปทางน้อย (ค่าเฉลี่ย = 37.88 และ 24.95 คะแนน ตามลำดับ จาก 100 คะแนนเต็ม) ในขณะที่ความต้องการการดูแลด้านจิตใจ ด้านการดูแลและการสนับสนุน และด้านระบบสุขภาพและข้อมูลมีคะแนนเฉลี่ยที่กึ่งหนึ่ง (ค่าเฉลี่ย = 45.39, 51.5 และ 49.99 คะแนน ตามลำดับ) ซึ่งแสดงว่ามีความต้องการการดูแลปานกลาง พบว่าคุณภาพชีวิตโดยรวม ($\beta = -0.28$) และโรคมะเร็งทางนรีเวช ($\beta = 0.21$) ร่วมกันทำนายความต้องการของผู้ป่วยได้ร้อยละ 11.5 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 **สรุป:** ผู้ป่วยมะเร็งในภาคตะวันออกมีความต้องการการดูแลด้านต่าง ๆ ในระดับปานกลาง และทำนายได้โดยคุณภาพชีวิตโดยรวมและการมีโรคมะเร็งทางนรีเวช

คำสำคัญ: มะเร็ง, ความต้องการการดูแล, คุณภาพชีวิต

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Abstract

Objective: To determine the needs for care of cancer patients in eastern Thailand and its predicting factors including demographic and clinical characteristics, anxiety and depression. **Methods:** In his predictive correlational study, participants were 160 cancer patients aged 20 years old or older receiving service at Chonburi Cancer Hospital selected by simple random sampling. Questionnaire was used to collect demographic and clinical characteristics. Other tools included the Supportive Care Needs Survey Short Form 34 Thai version, Thai Hospital Anxiety and Depression scale, and WHO quality of Life brief–Thai. Data were analyzed using descriptive statistics and stepwise multiple regression analysis. **Results:** Majority of the participants were women. Their mean age was 48.07 years old. Most of them were diagnosed with breast cancer, had stage 3 cancer, and currently received regular follow-up. Clinical anxiety and clinical depression were found in 30.00% and 20.62% of them, respectively. For needs for care, participants need less on the physical and daily living care and sexuality care (mean = 37.88 and 24.95 out of 100 points). The needs for psychological care, healthcare service and information care, and patient care and support were at a moderate level (mean = 45.39, 49.99, and 51.5 points, respectively). This indicated a moderate need for care. Overall quality of live ($\beta = -0.28$) and having gynecological cancer ($\beta = 0.21$) were significant predictors of the need for care, together explaining 11.5% of the variance of the need (P-value < 0.05). **Conclusion:** Caner patients in the eastern region of Thailand had a moderate level of needs for care which could be predicted by quality of life and having gynecological cancer.

Keywords: cancer, care needs, quality of life

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Introduction

Cancer is the major health problem in Thailand and worldwide. The World Health Organization (WHO) reported that cancer has been the second cause of morbidity and mortality worldwide.[1] In 2040, 28.4 million incident cases of cancer worldwide are expected.[1] In Thailand, cancer had been the number one cause of death both in men and women from 2016 to 2020, with annual increasing trends.[2] Metastasized organs result in various suffering symptoms. In addition to the disease itself, treatments of cancer could also bring sufferings physically, psychologically and emotionally, and ultimately reduce the patient's quality of life.[3] Cancer patients hence need psychosocial support and care from caregivers and healthcare providers to help them manage and adapt to changes in their daily lives more efficiently.[4]

The need for care among cancer patients could be defined as their perception on what should or need to be done to solve

their health problems.[5] This could be the need to enable them to treat their illness, to rehabilitate their health or to improve their quality of life. In addition, the WHO defined the care for care among cancer patients as not merely physical need, but also psychological, social, spiritual and environmental ones combined.[6] Zhu and colleagues revealed that the care that cancer patients need information the most was information for self-care and health promotion.[7] For patients with head and neck cancer, healthcare service was perceived as inadequately provided; hence, more service was needed.[8] Ramezanzade and colleagues reported that cancer patients needed financial and job-related help the most and psychological help the least.[9] In contrast, the work of Neumann and co-workers revealed that cancer patients needed psychological care the most.[10] In a study in Asia Pacific countries, most cancer patients needed the help to overcome cancer relapse the most.[11] However, patients with cancers of the prostate gland, the breast, the intestine, the lung, the female reproductive system, and the urinary tract needed the care on health the most.[11]

In Thailand, studies on the needs of cancer patients focused on psychological or spiritual care for the patients[12] and the needs of the caregivers.[13] Some studies focused on specific needs of patients with certain cancers such as the needs for tongue care in patients with cancer of tongue and floor of the mouth[14], supportive care needs for sexuality of women with breast cancer[15], and specific care needs for patients with cancers of the liver and bile duct.[16] A study on general needs of cancer patients in the central Thailand showed that the patients needed the help to manage their fear of cancer relapse from healthcare providers the most, followed by healthcare services and medical attention when needed.[17] In addition, patients with the most needs were those with cancers of the gynecological system, the breast, the lung and the intestine, respectively.[17]

Based on evidence mentioned above, cancer patients in different countries or even in different parts of Thailand have different needs. Differences regarding regions could have been in part by socioeconomic status. In the eastern part of Thailand, especially in the Eastern Economic Corridor which covers three provinces of Chachoengsao, Chonburi and Rayong, industrial estates could have led to a higher cancer risk. In addition, the industrial work environment demands a rush lifestyle which could also add more stress, physically and mentally to patients with cancer. With the change in healthcare service system, the need for care of cancer patients could differ from the past. Understanding various aspects of the need for care of cancer patients could help develop cares especially nursing care suitable for the ever-changing social dynamics of cancer patients in the eastern region of Thailand.

There has always been a need to understand specific needs for care of cancer patients. A study in Thailand revealed that the care the cancer patients received did not mee their needs particularly in healthcare service especially the response and communication about the available service and the management of fear of relapse.[18] The work of Morrison and colleagues showed that non-hospitalized cancer patients were provided the least care from healthcare providers in lifestyle modification appropriate for the illness, management of anxiety for the relapse or metastasis, and a lack of parking lot close to the healthcare facility.[19] In addition, the unmet needs also included the provision of genetic related information of the cancer, and the information regarding symptoms and indicators of relapse.[19] The needs for care among cancer patients are therefore crucial for developing nursing care to have the needs better met, and to improve efficiency of overall patient care and the patient's quality of life. Helping cancer patients meet their needs could also enable them to face the challenges, and alleviate the consequences of physical illnesses both from the disease and its treatment. To successfully help cancer patients meet their needs for care, certain factors affecting the need play the crucial role. Various factors influencing the needs for care of cancer patients physically, psychologically, and socially were studied. It has been known that women[19,24], younger age[20-23], low income[21-23], high education level[21], low education level[23], having no caregivers[24], type of cancers[11,17,19,22], stages of cancer[21,23], cancer treatment given[22-23], anxiety[20,24,26], depression[20,25,26], and quality of life[11,20,21,24,27] were associated with more needs for care of cancer patients.

Despite studies mentioned above, studies on the needs for care of cancer patients in Thailand have been lacking, including the one specific to patients in the eastern region of Thailand. Thus, there has been a need to determine the level of needs for care of cancer patients in the eastern part of Thailand, and factors potentially associated with the need. In this study, a conceptual framework was developed based on empirical evidence of various factors potentially influencing the needs for care among cancer patients including demographic characteristics, clinical characteristics, anxiety, depression,

and quality of life. The framework also included the supportive care needs framework of Fitch[28] which reflects the needs physically, psychologically, emotionally, socially, and spiritually at each stage of life, i.e., survival stage, end-stage, and near-death stage, as well as the phases of treatment and follow-up. This present study aimed to determine the level of needs for care of cancer patients in the eastern part of Thailand, and to examine the predictability on the needs for care by various selected factors including demographic characteristics (i.e., gender, age, education level, and having caregivers), clinical characteristics (i.e., type of cancer, stage of the cancer, and the present treatment given), anxiety, depression, and quality of life.

Methods

In this predictive correlational study, the sample was cancer patients aged 20 years or older receiving care at Chonburi Cancer Hospital either in out-patient or in-patient departments. They had to have good consciousness, have no history of psychiatric or neurological illnesses, and be able to communicate in Thai language. Participants were recruited by simple random sampling on the list of patients in the out-patient and in-patient department one week before data collection which was done weekly from August 2019 to February 2020. Those who participated the study at the out-patient department were not recruited again if they later were admitted to the in-patient department. The sample size was estimated using G-Power version 3.1.[29] With a power of test of 0.8, a type I error of 5%, and an effect size of 0.15, a sample size of 160 participants was needed. To compensate for a 20% rate of incomplete questionnaires, 192 participants were expected.[30]

Research instruments

The questionnaire consisted of 3 sections. The first section asked about demographic and clinical characteristics of the participant. For demographic characteristics, the questionnaire collected age, gender, marital status, education level, religion, monthly income, residential province, and relationship with caregivers. For clinical characteristics, the questionnaire asked for the information of type of cancer, stage of cancer, other illnesses, and present treatments given.

In the second section, the needs for care of Thai cancer patients were asked. The questionnaire was originally developed by Boyes and colleagues[31] and translated to Thai language and called the Supportive Care Needs Survey-Short Form 34 or SCNS-SF34 Thai version by Unjai and Somjaivong.[32] SCNS-SF34 Thai version is a 5-point Likert-type scale ranging from 1-irrelevant or not related to having cancer requiring no or the least care, to 5-highly relevant to having cancer requiring the most care. The SCNS-SF34 Thai version has 5 domains, namely psychological need (10 items), need for healthcare service and information (11 items), need for patient care and support (5 items), need for physical and daily living assistance (5 items), and sexuality need (3 items). All statements are in positive connotations. The total score is the sum of all items and presented as percentage where higher percentages indicating higher needs for care. The questionnaire has a high internal consistency reliability with a Cronbach's alpha coefficients of 0.95 for the whole set, and 0.52 to 0.93 for 5 individual domains.

In the third section, the Thai Hospital Anxiety and Depression Scale (Thai HADS) was used to ask about anxiety and depression. HADS was originally developed by Zigmond and Snaith[33] and translated to Thai language by Nilchaikovit and colleagues.[34] This 14-item questionnaire, with 7 odd-numbered anxiety and 7 even-numbered depression questions, has a Likert-type rating scale ranging from 0 to 3. Scores of anxiety and depression were summed up separately. With a total score of 21 points, three categories (i.e., no obvious symptoms, high level of symptoms, and clinical psychiatric problems) were classified with the total score of 0 – 7, 8 – 10 and 11 – 21 points, respectively. The tool is high quality with a 100.0% sensitivity and a 86.0% specificity for anxiety and a 85.7% sensitivity and a 91.3% specificity for depression. The scale has an acceptable internal consistency reliability with Cronbach's alpha coefficients of 0.86 and 0.83 for anxiety and depression, respectively.

In the fourth section, quality of life was measured using the Thai version of the WHO quality of life questionnaire (WHOQOL-BREF-THAI) which was translated to Thai language by Mahatnirunkul and colleagues.[35] The scale measures 4 aspects of quality of life including physical health, mental health, social relationship, and environmental. Interaction. With the total of 26 questions of 23 positive and 3 negative statements, the response is a 5-point rating scale ranging from 1 to 5. With reverse scores for negative statements, the total score was 26 - 130 points. Three levels

of quality of life are categorized, specifically poor, fair, and good (26 – 60, 61 – 95, and 96 – 130, respectively). The scale was found to have an acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.84 and a fair content validity with a coefficient of 0.65.[35]

Internal consistency reliability was examined on 30 individuals comparable to study participants. Questions on the needs for care, anxiety, depression and quality of life were found to have acceptable to high reliability with Cronbach's alpha coefficients of 0.94, 0.85, 0.72 and 0.89, respectively. Data from the actual participants revealed that the four sets of questions had acceptable reliability with Cronbach's alpha coefficients of 0.95, 0.79, 0.68 and 0.88, respectively.

Participant protection and data collection procedure

The study was approved by the Ethics Committee on Human Study of Burapha University (approval number: Sci 132/2561) and Chonburi Cancer Hospital (approval number: 9/ 2 5 62). After approval, the researcher approached the director of Chonburi Cancer Hospital for data collection. Prospective participants were informed about objectives, process and voluntary nature of the study. They could withdraw from the study at any time with no impact on the care they received. Data collection was performed after the written informed consent was obtained. After a portion of participants was recruited, covid-19 pandemic started. To continue the data collection during the pandemic, the protocol for covid-19 infection prevention was strictly followed. Data were kept in a secure place and results were presented as a summary not individual's information.

Statistical data analysis

Descriptive statistics including mean with standard deviation (S.D.) and frequency with percentage were used to present demographic and clinical characteristics and all study psychosocial variables. Associations between the needs for care and all selected variables using stepwise multiple regression analysis, specifically demographic characteristics (i.e., age, gender, marital status, education level, religion, monthly income, residential province, and relationship with caregivers), clinical characteristics (i.e., type of cancer, stage of cancer, other illnesses, and present treatments given), anxiety, depression, and quality of life. All variables met the basic assumptions for linear regression analysis. Statistical significance was set at a type I error of 5%. All statistical analyses were conducted using SPSS program version 27.

Results

Of the 160 participants, there were more women (73.8%) than men (Table 1). They had an average age of 48.07 ± 11.67 years, with the largest proportion in their 41 - 50 years (33.1%). The majority were married (75.0%), had elementary school education (41.2%), had no occupation (19.4%), and had spouse as caregivers (45.0%). For clinical status, most of them had breast cancer (38.1%), were in stage 3 of cancer (33.1%), and received a regular follow-up with no treatment (36.3%). For anxiety, most of them had no anxiety (70.0%); while 10.0% had clinical anxiety. For depression, as high as 79.4% had no depression while only 3.1% had clinical depression (Table 1).

In terms of quality of life, the participants had a moderate quality of life (mean = 89.19 ± 11.3 points) with the highest mean score in the environmental aspect of quality of life (mean 27.48), followed by physical, mental, and social relation aspects (mean = 23.21, 21.88, and 10.05 points, respectively). All individual domains of quality of life were at moderate level (Table 2).

For the needs for care, overall mean score was 44.86 ± 18.60 points which was slightly lower than half of the total possible score (Table 2). This indicates a moderate need for care. For individual aspects of the needs, the highest score was found in care and support need domain (mean = 51.50 points), followed by healthcare service and information need (49.99 points) and psychological need (45.39 points) which indicates a moderate need. Lower need was found in physical and daily living need (mean = 37.88 points) and sexuality need (24.95 points) (Table 2).

For individual items of needs for care, the majority of participants had a moderate level of physical and daily living needs (*n* = 49 of 160 participants or 30.63%). For psychological needs domain, in general the majority had the needs at a moderate level for all individual items, specifically the fear of cancer metastasis (33.75%), worry about treatment outcomes that were beyond their own control (29.38%), the uncertainty about the future (30.00%), and concerns about the worries of those close to the patient (27.50%). It was worth noting that the item of learning to feel in control of the patient's

Table 1 Demographic and clinical characteristics of participants (N = 160).

Characteristics	N	%
Gender		
Men	42	26.3
Women	118	73.8
Age (years) (*Min* = 23 , *Max* = 77, *Mean* = 48.07, *SD* = 11.67)		
21 – 30	11	6.9
31 – 40	29	18.1
41 - 50	53	33.1
51 – 60	40	25
61 - 70	22	13.8
71 - 80	5	3.1
Marital status		
Single	24	15.0
Married	120	75.0
Widowed/divorced/separated	16	10.0
Education level		
No formal education	7	4.4
Elementary school	66	41.2
High school	49	30.6
Associate degree or higher	38	23.8
Religion		
Buddhism	157	98.1
Christian	1	0.6
Islam	2	1.3
Occupation		
No occupation	31	19.4
Private company employee	30	18.8
General labor	26	16.3
Farmer	20	12.5
Small business owner	18	11.3
Civil servant/government enterprise employee	8	5
Others	27	16.9
Caregivers		
Spouse	72	45.0
Offspring	40	25.0
Relative	24	15.0
No caregivers	23	14.4
Type of cancer		
Breast cancer	61	38.1
Thyroid cancer	31	19.4
Head and neck cancer	20	12.5
Gynecologic cancer	15	9.4
Colorectal cancer	13	8.1
Lung cancer	7	4.4
Prostate cancer	5	3.1
Esophageal cancer	3	1.9
Others	5	3.1
Cancer stage		
Stage 1	22	13.8
Stage 2	39	24.4
Stage 3	53	33.1
Stage 4	42	26.3
Unspecified	4	2.5
Treatment given at present		
Regular follow-up with no treatment	58	36.3
Chemotherapy	53	33.1
Radiation	31	19.4
Chemoradiotherapy	12	7.5
Hormone therapy	4	2.5
Targeted therapy	2	1.3
Anxiety		
No anxiety	112	70.0
High anxiety	32	20.0
Clinical anxiety	16	10.0
Depression		
No depression	127	79.4
High depression	28	17.5
Clinical depression	5	3.1

Table 2 Quality of life and needs for care of participants (N = 160).

Variables	Possible range	Actual range	Mean	SD	Level
Quality of life					
Overall	26 – 130	63 – 119	89.19	11.3	Moderate
By domains					
Physical	7 – 35	12 – 35	23.21	3.82	Moderate
Mental	6 – 30	13 – 30	21.88	3.31	Moderate
Social relation	3 – 15	6 – 15	10.05	1.83	Moderate
Environmental	8 – 40	18 – 40	27.48	4.15	Moderate
Needs for care					
Overall	0 – 100	2.9 – 80.90	44.86	18.6	
By domains					
Physical and daily living	0 – 100	0 – 100	37.88	22.62	
Psychological	0 – 100	0 – 85	45.39	22.23	
Care and support	0 – 100	0 – 100	51.5	26.75	
Healthcare service and information	0 – 100	0 – 100	49.99	24.16	
Sexuality	0 – 100	0 – 83.33	24.95	23.18	

situation, which was also expressed at a moderate level with majority of the participants (30.63%), was also reported to be satisfied by 30.63% of the participants.

For all individual need items in patient care and support needs domain, health system and information needs domain, and sexuality needs domain, there was 35% of participants with moderate-to-high level of needs. For individual items of domains of patient care and support needs, health system and information needs, and sexuality needs, negligible proportions of participants expressed their needs at moderate and high levels combined (i.e., less than 35%). In other words, their needs of these domains were sufficiently met.

Stepwise multiple linear regression revealed two factors to be significant predictors of the needs for care (*P*-value < 0.001) (Table 4). Specifically, overall quality of life was significantly, negatively correlated with the needs for care (β = -0.28, *P*-value < 0.001) and having cancer of gynecological system was significantly, positively correlated with the needs of care cancer (β = 0.21, *P*-value = 0.01). These two factors could predict only 11.5% of variance of the needs for care (*adjusted* R^2 = 0.115) with the equation of the needs for care = 149.98 – 0.64 (overall quality of life) + 17.89 (having cancer of gynecological system).

Discussions and Conclusion

The needs for care of cancer patients in the eastern region of Thailand was at a middle level. More needs were significantly found among those with less quality of life and those with cancer of gynecological system. Our findings are consistent with a study in cancer patients in the Asia Pacific

Table 3 Proportions of participants with different levels of needs for individual domains and items* (N = 160).

Care needs	N (%)				
	No need		Some need		
	Not applicable	Satisfied	Low need	Moderate need	High need
Physical and daily living needs domain					
Lack of energy/tiredness	29 (18.12)	43 (26.88)	29 (18.12)	49 (30.63)	10 (6.25)
Psychological needs domain					
Fear of cancer metastasis	15 (9.37)	22 (13.75)	31 (19.38)	54 (33.75)	38 (23.75)
Worry that the results of treatment are beyond your control	20 (12.50)	32 (20.00)	40 (25.00)	47 (29.38)	21 (13.12)
Uncertainty about the future	35 (21.88)	30 (18.75)	29 (18.12)	48 (30.00)	18 (11.25)
Learning to feel in control of your situation	22 (13.75)	49 (30.63)	32 (20.00)	49 (30.63)	8 (5.00)
Concerns about the worries of those close to you	22 (13.75)	35 (21.87)	26 (16.25)	44 (27.50)	33 (20.63)

* For each of all individual need items in patient care and support needs domain, health system and information needs domain, and sexuality needs domain, there was 35% of participants with moderate-to-high level of needs.

Table 4 Predictive value of study factors on the needs of care* (N = 160).

Predictive factor	B	SE_b	β	*t*	*P*-value
Overall quality of life	-0.64	0.17	-0.28	-3.79	< 0.001
Gynecologic cancer	17.89	6.49	0.21	2.76	0.01

* Stepwise multiple linear regression analysis: Constant = 149.98, R = 0.356, R^2 = 0.127, *adj.* R^2 = 0.115, $F_{2,157}$ = 11.38, *P*-value < 0.001.

region regardless of income.[11] Systematic reviews also revealed that cancer patients with low overall quality of life expressed significantly more needs for care in cancer patients in Australia[20], lung cancer patients[36], and cancer patients in China.[7,37] In the study of Molassiotis and colleagues, cancer patients low-to-middle income countries had a low quality of life from defective healthcare system unable to offer cancer care to meet their basic needs.[11] The study of So and co-workers also showed that inadequate healthcare service could lead to more needs of care of cancer patients.[8] To reduce the needs of care, healthcare providers should help cancer patients improve their quality of life, especially in countries with low-to-medium income including Thailand, a middle-income country.

The relationship between the needs for care and quality of life could be reciprocal in nature. In this region with industrial estate aggregates, the potential to improve infrastructures, basic facilities, and healthcare related facilities should be more readily available than other areas. It is reasonable to believe that the co-operation between local administration offices, i.e., offices in each province, and healthcare providers could be more feasible than other regions. Improved basic facilities could in part improve patients' quality of life and further reduce the needs for care. On the other hand, improved healthcare services for cancer patients to mee the needs of the patients could automatically reduce the needs for care. Regular evaluation of the patients' quality of life should be done to be able to identify more patients with the need for care more efficiently.

It is astounding to find that patients with cancers of gynecological system expressed a higher level of needs for care. This finding is consistent with certain studies of which Thai patients with cervical cancer had a higher need for emotional and relationship cares[18], and 83% of Australian patients with gynecological cancer had at least one aspect of needs for care at moderate-to-high level.[3] In our study, since most participants were in their early- or mid-adult age, their cancers of gynecological system could immensely affect their reproductive hormone system. Such abnormalities of their menstrual system could lead to a pre-mature post-menopausal stage as manifested by hot-flush, mood swing, and insomnia. In addition, vaginal lubrication could be reduced and vaginal stenosis could be more prevalent, which further reduce their sexual libido.[38] All of these symptoms could further lessen their quality of life. The study of Afiyanti and colleagues revealed that reduced quality of life among patients with gynecological cancers prompted more needs for care.[21] Most patients with gynecological cancers receive radiotherapy which could lead to more needs for care.[3] Adverse effects of cancer treatments usually cause discomfort and reduce the ability to perform daily activities of living. Most patients had difficulty standing up due to various symptoms such as inflamed skin of the genital area, dysuria, hematuria, infections of the reproductive system, diarrhea, and rectal bleeding. Our finding, however, is different from the work of Pongthavornkamol and colleaguees.[17] They found that patients with head and neck cancers had the highest needs for care than other cancer patients. However, the patients in their study were in their late-adult to elderly age which were in their post-menopausal stage.[17] They were affected less by

the cancer treatments, hence they expressed less need for care than our participants.

All other selected study factors were not correlated with the needs for care. These factors included gender, age, education level, having caregivers, cancer stage, and treatments given at present. Our finding is in contrast to other studies where these factors were associated with the needs for care of cancer patients.[19-24] This could be because healthcare providers of patients in our study could have provided care that met the patient's needs regardless of gender, age, education level, or having caregivers. In addition, cancer stage and treatments given at present were not associated with the needs for care. This could be because based on various payment schemes in Thailand, treatments for all types of cancer are paid for. In most countries, cancer patients are under certain insurance schemes to cover expenditures on cancer treatments. The expenditures differ for various types of cancer. More expenditures were associated with more needs for care of cancer patients.[9,21]

Our study did not find anxiety and depression to be significant predictors of the needs for care. This is different from previous studies where anxiety[11,24] and depression[25] were predictors of or associated with the needs for care of cancer patients.[20,26] This could be because cancer patients in the eastern region of Thailand might had been well taken care of by healthcare providers in handling anxiety and depression. It was found that most participants with anxiety or depression had a low level of needs for care (data not shown). Some of them had the needs but were satisfied with the care provided at the time. In addition, a very small proportion of participants in our study, i.e., 20 – 30%, had clinical anxiety or clinical depression. On the other hand, as high as 50% of patients with clinical anxiety or clinical depression were found in previous studies. This could be the reason why anxiety or depression was not associated with the needs for care in our study.

In terms of the needs for care of cancer patients, this study was based on the supportive care needs framework of Fitch[28] which reflects the needs of physical, psychological, emotional, and social care. We found that the participants needed physical care for their tiredness which is the main physical problem of all cancer patients. This finding is consistent with previous studies revealing that cancer patients faced tiredness.[11,17,20,24] This finding of tiredness in cancer patients should be consistent since tiredness is a common symptom in all kinds of cancer.[39,40] and affect the performance of activities of daily living and quality of life. Our study suggests that management of tiredness was not adequate for cancer patients in the eastern region of Thailand. Care management to help alleviate tiredness should be further improved for more efficiency. For pain, it was not needed for more care probably because it had been managed adequately. Healthcare providers might have provided pain management efficiently either at the healthcare setting or at home, or both. Healthcare providers might have been good at their pain management service for cancer patients. Our finding on pain control is different from the study in the central region of Thailand where cancer patients needed a high level of care for pain control. This could be because participants in our study also had the need for pain control but the need was met at the time of data collection. It was found that participants who expressed the moderate level of need for pain control were those completing the questionnaire after the start of the covid-19 outbreak, while those with the need but their need was met completed the questionnaire before the outbreak. This could be that covid-19 pandemic put more tension and stress on cancer patients in the eastern region of Thailand. As a matter of fact, the infection rate of covid-19 in the eastern region has been higher than other parts of Thailand. [41] Cancer patients are more vulnerable to infections, and have a higher risk of death after the infection.[42] Such vulnerability would have encouraged the patients to control situations more efficiently. This is consistent with the study of Lou and colleagues which found that covid-19 pandemic affected the living of cancer patients than non-cancer patients.[43] Cancer patients were also worried more about themselves and their close individuals, and had inadequate understanding about the pandemic.[43]

For psychological care, the participants expressed the highest level of need, especially on the metastasis of cancer when compared with other aspects of the need. They also expressed the anxiety on uncontrollable treatment outcomes and uncertainty on their future and the need for caregiver as their second and their most needs. Our findings are in accordance with cancer patients worldwide where these three aspects of psychological need were found the most.[11,21,22,27] A study of Lim and Humphris showed that age of cancer patients was negatively associated with the fear of metastasis.[44] The older the age, the less the fear. Based on psychological need, most participants (80%) in our study were in their adult age not the elderly age. There were still in their

working age to building their family and their future wealth and security. The illness of cancer affected their physical, mental and social health, and threatened the certainty in their life which promoted them to need more psychological care and help.

Our study had certain limitations. Since we recruited only cancer patients in the eastern region of Thailand with a unique industrial estate environment, generalization of the findings to cancer patients in other regions of Thailand could be somewhat limited. Lifestyle and environment of our participants could have been different from those in other parts of Thailand. Since we studied in a relatively small number of patients with all kinds of cancers, certain types of cancers had a relatively small number of patients for representation. With different kins of treatment for different types of cancer, impact of the treatments and related needs for care could be different. Therefore, generalization of our findings to a diverse groups of cancer patient could be somewhat limited. However, our findings suggest existing need for care that should prompt concerns among healthcare providers especially nurses. Certain aspects of care could have been better. Cancer patient care should be improved to meet the patient needs. More studies on the needs of cancer patient should be conducted especially during unique situations like covid-19 pandemic which the patient's needs for care increased. Lastly, with only two factors that were significantly, slightly related to the needs for care among cancer patients in the eastern region of Thailand, more studies with a larger sample size and more in-depth consideration on the design should be conducted.

In conclusion, cancer patients in the eastern region of Thailand had a moderate need for care, and only quality of life and having cancer of gynecological system were significantly related with the needs. More improvement on general quality of life and healthcare service should be invested with the co-operation between local administrative offices and healthcare settings. Nurses could help the patients meet such needs by regular evaluation of quality of life and the needs for care. Nursing care campaigns or programs to help cancer patients better manage their physical tiredness and fear of metastasis.

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