



<b>Title</b>	<b>The impact of cancer on children's physical, emotional, and psychosocial well-being</b>
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Title: The Impact of Cancer on Children's Physical, Emotional and Psychosocial Well-being

Childhood cancer is the second major cause of death among children above the age of one in Hong Kong, after accidents and poisoning.<sup>1</sup> Approximately 150 new cases of cancer occur in children each year, the most common types being leukaemia, germ-cell and gonadal neoplasms, brain tumor, lymphoma and soft tissue sarcomas. The incidences and types of childhood cancer in Hong Kong are similar to those in western countries.<sup>2,3</sup>

The diagnosis and treatment of cancer is a stressful and threatening experience, in particularly for children.<sup>4,5</sup> Although survival rates are higher than ever as a result of new technology and breakthroughs in cancer treatment, the course of treatment for cancer continues to be a very stressful experience in the life of a child.<sup>6</sup> Treatment of cancer incorporates chemotherapy, surgery, radiotherapy and bone marrow transplantation, alone or in combination, all of which may severely affect children's physical and psychological well-being.<sup>7,8</sup> Previous studies conducted in Western countries reported that children with cancer are at high risk of depression.<sup>9, 10</sup>

As increasing numbers of children are being cured of the physiological aspects of cancer, there is a growing awareness of the importance of their emotional and psychosocial well-being. Taking care of children with cancer therefore presents a major challenge to nurses. In fact, helping children ease the psychological burden of cancer treatment is recognized as one of the most vital responsibilities of a nurse.<sup>11</sup> It is imperative that nurses develop and

evaluate appropriate psychological nursing interventions that can minimize children's emotional distress and anxiety during the course of treatment in hospital. Before this can be achieved, the impact of cancer on children's physical, emotional and psychosocial well-being must be fully understood. Nevertheless, there are gaps in the existing literature. Indeed most research in childhood cancer has traditionally concentrated on medical issues, and has disregarded the importance of the emotional and psychosocial well-being of children with cancer.<sup>4</sup> Besides, lack of child-sensitive measurement tools hinders the assessment of children's emotional responses to medical treatment and hospitalization.<sup>12</sup> Furthermore, most local studies of childhood cancer have focused on examining the experience, psychological well-being and quality of life of family members or caregivers.<sup>3, 13, 14</sup> Some studies, conducted in Western countries, have attempted to investigate the experience of cancer from children's own perspectives.<sup>4, 15</sup> A review of the literature reveals that so far no study has examined the impact of cancer on children's physical, emotional and psychosocial well-being in the Hong Kong Chinese context. A comprehensive review of mental health of children revealed that there are some differences in the cognitive behavior of Hong Kong Chinese children when compared with the Western counterparts.<sup>16</sup> Hong Kong Chinese children generally lack creativity, and creative thinking when compared with Western children. This may have been influenced by Hong Kong's socio-cultural emphasis on obedience and social conformity, academic performance, inhibition of self-expression, and avoidance of being

deviant or making mistakes.<sup>17</sup> A recent longitudinal study to examine the relationships between perceived parental psychological control and psychological well-being in Hong Kong Chinese children revealed that parental psychological control may inhibit the development of positive mental health and affect emotional life in children.<sup>18</sup> Therefore, it is uncertain whether the impact of cancer on Chinese children is similar to that experienced by children in the West. The purpose of this study was to shed light on the impact of cancer on the physical, emotional, and psychosocial well-being of Hong Kong Chinese children, and to discuss how nurses can help ease the burden of cancer treatment for children.

## Methods

### Study Design and Sample

A cross-sectional study was employed. Hong Kong Chinese children admitted for treatment of cancer in two pediatric oncology units of two different regional acute public hospitals, meeting the inclusion criteria for the study, were invited to participate in the study. The inclusion criteria were: (i) all children should be aged 7 to 15 years; (ii) children should be able to speak Cantonese and read Chinese; and (iii) children should be diagnosed with cancer within the previous 6 months and undergoing active treatment. The two pediatric oncology wards were similar in nature and setting. A total of 98 children were recruited during a 10-month period in 2008. The response rate was 96%, with 4 sets of parents choosing not to participate and without providing any specific reasons.

## Measurements

The term anxiety is a general concept and has been frequently used in Chinese culture to describe emotions reported by children, such as feelings of worry, upset, and nervousness, during hospitalization or when confronted with medical procedures.<sup>19</sup> As anxiety is an emotional reaction characterized by subjective feelings, it can be best measured by self-report measurements.<sup>20</sup> Among all self-report measurements, the State-Trait Anxiety Inventory for Children is the most popular psychological measure of anxiety in children and has been translated into a number of languages, including Chinese.<sup>21</sup> On the other hand, there is evidence from Western literature that children with cancer are at high risk of depression.<sup>9,10,22</sup> The Center for Epidemiologic Studies Depression Scale has been widely used as a self-report measure of depressive symptoms in different cultures and translated into a number of languages, including Chinese.<sup>23</sup> The depressive symptoms measured by this scale include feelings of helplessness and loneliness, loss of appetite, and sleep disturbance, which are common emotions reported by children during hospitalization.<sup>24</sup> Therefore, the state anxiety scale and the Center for Epidemiologic Studies Depression Scale were used to measure emotional well-being of children with cancer in this study, whilst semi-structured interview was conducted to children to examine the impact of cancer on children's physical and psychosocial well-being.

THE SHORT-FORM OF THE CHINESE VERSION OF THE STATE ANXIETY SCALE

#### FOR CHILDREN (CSAS-C)

The state anxiety level of children will be measured by using the CSAS-C. The short-form of the CSAS-C consists of 10 items, which are scored from 1 to 3, with total possible scores ranging from 10 to 30. Higher scores indicate greater anxiety. The psychometric properties of the short-form of the CSAS-C have been empirically tested.<sup>25</sup> The results showed that the short-form of the CSAS-C was highly correlated with scores obtained from the full form ( $r = 0.92$ ), had acceptable internal consistency ( $r = 0.83$ ), and good convergent validity in differentiating state anxiety of children under stressful and relaxed situations. The results of confirmatory factor analysis further confirmed the construct validity of the short form of the CSAS-C.<sup>19</sup>

#### A SHORT VERSION OF THE CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE (CESD-8)

The CES-D was originally a 20-item questionnaire. In its later development, other shortened versions, such as 8-item version have been modified and used.<sup>26</sup> Results indicated that the 8-item short form of the CES-D was found to correlate 0.93 with the full CES-D. The construct validity of a Chinese-language version of the CES-D was tested, showing excellent construct.<sup>27</sup>

Subjects in this study were asked to rate the frequency of each symptom during the past week on a 4-point Likert, which were scored from 0 to 3, with total possible scores ranging

from 0 to 24. Higher scores indicate a greater risk of depression. Using the conversion formulae, the cut-point of 16 on the 20-item CES-D would be equivalent to a score of 7 on the 8-item version.<sup>26</sup> An equivalent or higher score than 7 may indicate an individual presence of some depressive symptoms.

#### SEMI-STRUCTURED INTERVIEW

A one-to-one short interview was conducted with participants with the aims of examining the impact of cancer on the children's physical and psychosocial well-being. The interviews were semi-structured and audio-taped. An interview guide was used and questions asked were: Can you tell me your experience or feeling when you were diagnosed with cancer? How has the cancer, in particular during the course of treatment, affected your physical and psychosocial well-being? As children at 7 years old might have limited verbal and cognitive capacities to express themselves and would be perplexed by the open-ended questions, only children aged 8 to 15 years were invited for the semi-structured interview.

#### Data Collection Methods

Approval for the study was obtained from the hospital ethics committees. Written consent was obtained from the parents after they were told the purpose of the study.

On the day of admission to the oncology wards, research nurses collected demographic data of participants. Participants were then asked to respond to the Chinese version of the State Anxiety Scale. At a week after admission or upon discharge, participants were asked to

respond to the short version of the Center for Epidemiologic Studies Depression Scale.

Shortly after, a brief semi-structured interview was conducted with each participant. Each interview lasted approximately 5-10 minutes. To ensure the reliability and validity of the data, some strategies were used in this study. First, to ensure the consistency in the conduct of interviews, one research nurse conducted all the interviews. **The research nurse held the bachelor degree in nursing and had experience in working with pediatric patients. Before commencing the interview, the research nurse received some training in communication skills with children by the researchers. She was asked to consider pace and intonation, simplicity, clarity and brevity, timing and relevance when choosing words to communicate with children.**

Second, to ensure the accurate of the data by avoiding selective filtering of data through the researcher's recall and bias, all interviews were taped-recorded. Moreover, to facilitate accurate interpretation of the data, field notes were recorded during and after interviews.

Validity of the data was enhanced by providing privacy during each interview, and by the process of prolonged engagement with the child, **especially for the younger children**. Because the validity of data may be affected by children's eagerness to please their parents; causing them to respond to the way they think their parents want them to respond, parents were encouraged not to stay with their child during the interview.

#### Data Analysis

The Statistical Package for Social Sciences (SPSS) software, version 16.0 for Windows was



used to analyze quantitative data. The internal consistencies of various instruments used in the study, including the CSAS-C and CESD-8 were determined by calculating their Cronbach's alphas. Descriptive statistics were used to calculate the mean, standard deviation, and range of the scores of the CSAS-C and CESD-8. The relationships among the variables of the CSAS-C, CESD-8, and the participants' demographic data were investigated using the Pearson product-moment correlation coefficient.

Content analysis was used to analyze the interview data. Content analysis is an objective and systematic procedure used to draw conclusions by creating categories of data from verbatim or unstructured data.<sup>28</sup> After the interviews, the recording tape was immediately transcribed in Chinese and then translated into English by the researcher. To enhance the validity of the data analysis, two bilingual experienced nurses with Master degree working in pediatric oncology unit were invited to work independently to identify the major categories of the transcripts. They were asked to identify significant statements, phrases, sentences, and commonalities among the data in the transcripts after examining the transcripts line by line carefully and repeatedly. The equivalence with the categories developed by the two nurses was then assessed by the researcher. There were no major discrepancies in the major categories identified by the two nurses. Only minor differences in relating to the choice of words were found. The differences were discussed among the two nurses and researcher and agreement was made eventually. **To further enhance the validity and quality in qualitative**

inquiry, in particular for children aged 8 to 12, the technique of member checking (a method of validating the qualitative data through debriefings with informants) was used in this study.

Five informants aged 8 to 12 were randomly selected and contacted again to read the descriptions. All of them agreed that the analyses were correctly represented their personal feelings.

## Results

The demographic data of the participants are shown in Table 1. The results indicate that there were similar numbers of boys and girls. Internal consistencies of the CSAS-C and CESD-8 were found to have an alpha coefficient of 0.87 and 0.83, respectively in this study. This result indicated a reliability of 0.80 or higher is acceptable for the instrument to be used in research.<sup>29</sup>

The mean, standard deviation, and range of the scores of the CSAS-C and CESD-8 are shown in Table 2. As for the CESD-8 scores, approximately 63% of the participants scored above an arbitrary cut-off score of 7, indicating that they presented at least some depressive symptoms. The interrelationships among variables of CSAS-C, CESD-8 and demographic variables are shown in Table 3. With reference to Cohen,<sup>30</sup> correlation coefficients of 0.10 to 0.29, 0.30 to 0.49, and 0.50 to 1.0 are typically interpreted as small, medium and large coefficients, respectively. The results show a high positive correlation between CSAS-C and CESD-8. A significant small positive correlation was also found

between the age of children and CSAS-C scores. There was no statistically significant correlation between other demographic data and all outcome variables.

A short interview was conducted to children aged 8 to 15 years. Three children of aged 8 found difficulty in understanding the questions and were excluded from the semi-structure interview. Therefore, 89 interviews were performed eventually. The categories that emerged from the content analysis were grouped into emotional, physical and psychosocial dimensions. Categories and quotations representing the central content of each category are presented in Table 4. The most emotional distress for child cancer patients involved loss of self-control, uncertainty about their prognosis and academic performance. For physical well-being, children most often viewed pain resulting from diagnostic procedures and treatments as one of the worst aspects of their cancers. Besides lack of appetite, nausea and fatigue after chemotherapy were the most common physical concerns reported by child cancer patients. For the impact of cancer on children's psychosocial well-being, the issues most frequently talked about by children in the interviews were confinement and feelings of estrangement. In addition, a change in appearance, in particular hair loss, was for older children a major concern that affected their psychosocial well-being.

## Discussion

The diagnosis and treatment of childhood cancer have been described as extremely stressful and threatening experiences in the life of a child. The aim of this study was to examine the

impact of cancer on physical, emotional and psychosocial well-being of Hong Kong Chinese children, an area of research which has been under-represented in the literature.

Findings from this study indicate that Hong Kong Chinese children reported considerably high state anxiety scores on admission for treatment of cancer. In comparison with previous studies using the same scale to measure the state anxiety score of a similar age group of Hong Kong Chinese children at pre-academic examination time and immediately before undergoing surgery, the results revealed that the state anxiety score for children with cancer on admission for cancer treatment was similar to the state anxiety score of children undergoing surgery as measured at the time immediately before operation,<sup>25</sup> but was found to be relatively higher than school children in the pre-academic examination period.<sup>21</sup> Besides, the results show a high positive correlation between CSAS-C and CESD-8, indicating that high state anxiety in children with cancer was associated with more self-reported depressive symptoms. As excessive anxiety would hinder children's abilities to cope with the disease and treatment, nurses have to acknowledge children's stress and appropriately intervene to minimize their anxiety.

Results of this study revealed that more than half of the participants are potentially at risk for depression, or at least present some depressive symptoms as measured by the CESD-8. Although it can not assume that there is a high risk of depression for children with cancer from this cross-sectional study, many previous studies conducted in Western countries

revealed that children with cancer are at high risk of depression.<sup>9,10,22</sup> On the other hand, there is some evidence that depressive symptoms predict suicidal tendencies.<sup>31,32</sup> In a study to examine the prevalence of suicidal ideation in survivors of childhood cancer, Previous research has shown that survivors of childhood cancer are at an elevated risk for suicidal tendencies, even many years after treatment.<sup>33</sup> The finding of this study is alarming and warrants special attention for health care professionals. For children with cancer, feeling depressed may affect their quality of life and compliance with treatment, cause them to give up hope, and may even be detrimental to their physical and psychological health.<sup>4,22</sup> For these reasons, the presentation of depressive symptoms in children with cancer cannot be overlooked or underestimated. Nurses working in pediatric oncology units have a responsibility to recognize signs and symptoms of depression in children with cancer, and enhance their positive adaptation to treatment and hospitalization.

There was a statistically significant positive correlation between children's age and state anxiety scores. That is, older children experienced higher levels of anxiety than younger children in coping with cancer. However, despite reaching a statistically significant level, only a weak correlation was found between these two variables.

The impact of cancer on children's physical, emotional and psychosocial well-being was further explored using qualitative interviews. **It is important to note that most participants in this study were able to provide fully responses to the short semi-structured interview except**

three participants of aged of 8 found difficulty in understanding the questions and were excluded from the interview. Participants were first asked about their experiences or feelings when diagnosed with cancer. Nearly all children expressed different degrees of sadness, unhappiness and worry. As the diagnosis was often so unexpected, some children reported that they were feeling “shock” and were depressed when they were told of the diagnosis. This qualitative information was congruent with the quantitative measures of children’s anxiety levels and presentation of depressive symptoms, showing that children with cancer experienced considerable emotional distress in coping with cancer.

The results of this study show that quite a few of children with cancer, in particular the older children, were anxious about their academic performance as a result of suspension from school, which was seldom reported in Western literature. This also explains why older children experienced higher levels of anxiety than younger children in this study. Unlike US or some Western countries, Hong Kong does not have law to support the educational opportunity for the hospitalized children. Besides, the cultural context in Hong Kong is one where Chinese parents place a considerable emphasis on academic performance and they regard academic achievements as the top priority in child care. Given this cultural context, Hong Kong Chinese children are under tremendous pressure to excel in academic performance. Nevertheless, to help children regain academic progress during periods of hospitalization, some hospital teachers from Hong Kong Red Cross (voluntary organization)

provide bedside teaching to sick children. However, due to limited resources, hospital teachers could only provide bedside teaching to hospitalized children 2-3 times a week.

For the impact of cancer on children's physical well-being, most children reported that pain resulting from diagnostic procedures and treatment was their major concern. These findings are consistent with previous studies,<sup>15, 34</sup> showing that children with cancer suffered a great deal of pain during the course of treatment. Some children in this study reported that they had frequent blood taking, sometimes even twice a day. Some children required more than one type of invasive diagnostic procedure, such as bone marrow biopsy and lumbar puncture during their stay in hospital, which resulted in a great deal of anxiety and pain. Indeed, repeated painful diagnostic and medical procedures can be emotionally devastating for children. The results of this study reflect that the physical and psychological preparation for children with cancer undergoing diagnostic and treatment procedures are not adequate enough. Health care professionals should place more efforts in providing appropriate and effective pain management for children, not only to alleviate their pain but also to minimize their anxiety.

For the psychosocial dimension, similar to a previous study conducted in Sweden,<sup>15</sup> the major concern raised by children with cancer in this study was confinement and feelings of estrangement. Owing to low body resistance and proneness to infection as a result of the cancer treatment, most children with cancer require complete isolation during the course of

treatment. Most children in this study complained that they could not go to school; they could not see their friends or their siblings. Lengthy separation of children from their friends or loved ones is one of the major causes of depression,<sup>22</sup> a situation that can impede even their normal development.<sup>5</sup>

#### Implications for Nursing Practice and Future Research

Providing information for parents or caregivers of children with cancer on physiological care in cancer treatment is the most common nursing practice in pediatric oncology wards in Hong Kong. Yet, the overall results of this study suggest that there is room for improvement in existing nursing intervention regarding preparing children for hospitalization and treatment of cancer. Indeed, insufficient attention is paid to the emotional and psychosocial needs of children with cancer. There is an imperative need for nurses to assess the physical, emotional and psychosocial needs of children with cancer, and to evaluate appropriate nursing interventions that can minimize children's physical discomfort, emotional distress and anxiety during hospitalization. Specifically, it is crucial for nurses to find ways to help children resume normal development and make their cancer journey less difficult by developing recreational and psychosocial interventions.

During the past decade, there has been an increase in the use of therapeutic play intervention to help children cope with the stress of hospitalization. Numerous studies have described the benefits of therapeutic play in helping children cope with the stress caused by



illness and hospitalization.<sup>24, 35</sup> Implementing therapeutic play for children with cancer during their hospitalization has particular advantages since serious illness and its accompanying stress and physical restriction interrupt natural play and socialization, which is essential for children's normal growth and development. Moreover, owing to low body resistance and susceptibility to infection, most children have relatively few opportunities to engage in leisure activities. The lack of opportunity to play often leads to the development of dependent behavioral patterns, learned helplessness, and depression.<sup>36</sup> Therefore, implementing therapeutic play for children with cancer during their hospitalization can provide more opportunity for children to engage in leisure activities. Greater involvement in leisure activities can improve children's coping skills, decrease their stress, and eventually link to better psychosocial adjustment to their illness and hospitalization. Nevertheless, there is a lack of empirical evidence to determine accurately the clinical effectiveness of therapeutic play, in particular using it to ease the physical and psychological burden of children with cancer. More rigorous empirical scrutiny is needed to determine the effectiveness of therapeutic play intervention before it can be used to help children with cancer cope with their illness and hospitalization. On the other hand, play has traditionally been viewed as less important for hospitalized children by most Chinese parents and some healthcare staff when compared with physiological care or medical treatment in Hong Kong.<sup>37</sup> Therefore, it is crucial to examine whether therapeutic play can be appropriately and feasibly implemented in

the Hong Kong Chinese context.

### Limitation of the Study

The use of convenience sampling limits the ability of this study to generalize the results.

Besides, this study was limited by only children with cancer aged 7 to 15 years were included

in the sample. Indeed, younger children may be more vulnerable to the stress of cancer

treatment and hospitalization. However younger children have limited verbal and cognitive

capacities to respond to the questionnaires and interviews. Moreover, to have a thorough

understanding of how children respond to stressful treatment and diagnostic procedures, it

might be best to document their emotional response at the time they experience the most

distress. However, using self-reporting instruments or interviews to document children's

emotions at that crucial moment may not be feasible or appropriate as it would disrupt the

procedure and cause interference to the child and health care workers. **Additionally, although**

**some strategies were used to ensure validity and quality in qualitative inquiry, it is still hard**

**to know whether children were able to provide fully valid responses to the semi-structured**

**interview, in particular for those aged 8 to 12. Therefore, future study may also invite parents**

**to report their child's experience and behavior responses to cancer. Besides, future study may**

**consider using alternative assessment technique, such as behavioral observation to document**

**children's emotional responses to medical treatment and hospitalization. The advantage of**

**using behavioral observation is that it is not affected by the limited verbal and cognitive**

capacities of children.

## Conclusions

Despite possible limitations, this study has addressed a gap in the literature by examining the impact of cancer on the physical, emotional and psychosocial well-being of Hong Kong Chinese children. This study has found some commonalities of experience in children with cancer in both the Western and Hong Kong Chinese context. Regardless of sex, age or type of cancer, this study reveals that cancer has tremendous impact on children's physical, emotional and psychosocial well-being. Nurses must carefully assess the physical, emotional and psychosocial needs of children with cancer in order to develop and evaluate suitable intervention to help children endure life-threatening disease.

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Table 1

Demographic Characteristics of the ( $N = 98$ )

	Frequency	%
Age (Yrs)		
7	6	6.1 %
8	11	11.2 %
9	8	8.2 %
10	15	15.3 %
11	14	14.3 %
12	9	9.2%
13	10	10.2%
14	13	13.3%
15	12	12.2 %
Sex		
Male	51	52.0 %
Female	47	48.0 %
Diagnosis		
Leukaemia	36	36.7 %
Lymphoma	23	23.5 %
Brain tumour	15	15.3 %
Germ-cell tumour	13	13.3 %
Osteoarcomas	11	11.2%

Table 2.

The mean, standard deviation and range of the scores of the CSAS-C and CESD-8 ( $N= 98$ )

	Mean (SD)	Frequency (%)	Cumulative Percent
CSAS-C	21.55 (3.03)		
Score: 10-15		3 (3.1)	3.1
16- 20		31 (31.6)	34.7
21 -25		56 (57.1)	91.8
26- 30		8 (8.2)	100
CESD-8	9.84 (4.98)		
Score: 0 - 3		10 (10.2)	10.2
4 - 7		26 (26.4)	36.7
8 - 11		27 (27.5)	64.3
12 - 15		19 (19.4)	83.7
16 - 19		13 (13.4)	96.9
20 - 24		3 (3.1)	100

Note: CSAS-C = The Chinese version of the State Anxiety Scale for Children (short form)

CESD-8 = Center for Epidemiologic Studies Depression Scale (8-item)

Table 3

The intercorrelation coefficients among the CSAS-C scores, CESD-8 scores, age, sex, and diagnosis ( $N = 98$ ).

	CSAS-C Scores	CESD-8 Scores	Age	Sex	Diagnosis.
CSAS-C Scores	1.00	0.535*	0.13*	0.08	0.12
CESD-8 Scores	0.535*	1.00	0.07	0.07	0.09
Age	0.13*	0.07	1.00	0.10	0.09
Sex	0.08	0.07	0.10	1.00	0.03
Diagnosis	0.12	0.09	0.09	0.03	1.00

\* Correlations significant at the 0.01 level (2-tailed)

CSAS-C, The Chinese version of the State Anxiety Scale for Children (short form)

CESD-8 Scale, the Center for Epidemiologic Studies Depression Scale

Table 4  
A presentation of category and statements included in each category

Category	Sub-category	Examples of Statements
Emotional	Sadness	“When I was told I had cancer, the whole world turned upside down. The news was so sudden and unexpected.”
	Anxiety	“I felt very scared when nurses told me that I needed another bone marrow biopsy. It was really a threatening and distressing experience.”
	Worry about death	“When I first knew I got cancer, I thought death was certain.”
	Anxious about academic performance	“I feel very sad when I realized that I couldn’t go to school for a period of time. I was anxious most about my academic performance as I may not be able to catch up with school”
	Loss of self-control	“Indeed I don’t know what will be happened to me tomorrow, perhaps blood taking, lumbar puncture, bone marrow biopsy... I can’t say NO though I hate these investigations.”
	Uncertainty	“I felt stress and uncertain by the expressionless faces of the doctors in the ward because I would never know whether the news they brought to me was good or bad.”
Physical	Pain resulting from diagnostic procedures and treatments	“They often asked me not to move, not to cry,...I wondered whether they knew how painful it is, the needle is so big!”
	Lack of appetite	“I don’t know why all the food seem tasteless. I even didn’t want to take my most favorite food that my parents brought to me.”
	Nausea	“I often had a strange and discomfort sensation in my stomach. It’s just like that there is a need to vomit. I hate this feeling.”
	Fatigue	“I felt powerlessness after chemotherapy. I even found difficulty in getting out of my bed.”
	Fever	“I don’t know why I often had fever. It lasted long every time.”
Psychosocial	Sore throat	“I can only take juice, milk and water. I can no longer tolerate solid food. My throat seems to be burning.”
	Confinement	“I don’t have a holiday any more. I have to stay in bed all day long. I really want to go home and see my friends.”
	Feelings of estrangement	“I haven’t seen my little brother nearly a week. When I heard his voice over the phone, I can’t stop crying.”
	Changed in appearance	“I love my long hair. It is painful and unbelievable to know that all my hair will lose after chemotherapy. I will not see my friends until my hair comes out.”