

Coping strategies used by children hospitalized with cancer: an exploratory study

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Abstract

Objectives: The treatment of cancer is a stressful and threatening experience, particularly for children. Knowing how children cope with cancer is a crucial step toward designing appropriate psychological interventions that help them ease the burden of cancer treatment. The purpose of this study was to examine the coping strategies used by Chinese children hospitalized with cancer, an area of research that is under-represented in the existing literature.

Methods: Hong Kong Chinese children (9–16-year olds) admitted for cancer treatment to the pediatric oncology units of two different regional acute public hospitals were invited to participate. A short one-to-one structured interview was conducted with each participant. Content analysis was conducted to analyze the interview data.

Results: A convenience sample of 88 children was recruited and participated in the interviews during an 8-month period. The coping strategies used by Chinese children hospitalized with cancer did not differ according to gender and diagnosis, but only according to age, with younger children using less problem-focused and more emotion-focused coping strategies than older children. The overall results indicated that 30% of these Chinese patients used problem-focused coping strategies, while 70% used emotion-focused coping.

Conclusions: Findings from this study indicated that children use different coping strategies at different developmental stages. The study also revealed that Chinese children used more emotion-focused than problem-focused coping strategies than their Western counterparts. The information derived from this study will help health-care professionals design and shape appropriate psychological interventions that can help reduce the burden of cancer treatment. Copyright © 2010 John Wiley & Sons, Ltd.

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Introduction

It has been well documented that the diagnosis and treatment of cancer constitute a stressful and threatening experience which can be emotionally devastating for children [1,2]. Although survival rates for childhood cancer are higher than ever before, a course of treatment for cancer, such as chemotherapy, surgery or radiotherapy, is still a very stressful experience in the life of a child [3–5].

In a recent study examining the impact of cancer on Hong Kong Chinese children's physical, emotional, and psycho-social well-being, the results indicated that children reported relatively high state anxiety scores on admission for cancer treatment and nearly all children hospitalized with cancer expressed different degrees of sadness and worry [6]. Additionally, findings from this study indicated that more than half of the participants were potentially

at risk of depression, or at least presented some depressive symptoms during their stay in hospital. It is crucial, therefore, that health-care professionals develop interventions that can help to ease the burden of cancer treatment on children during hospitalization. However, the ways which children use to cope with and respond to the diagnosis and treatment of cancer may differ. Lazarus and Folkman [7] postulate that differences in the ways that individuals cope are expected to affect each person's response to a psychological intervention. Indeed, careful assessment of the coping process of children, especially the ways they think they would cope, is a necessary step toward designing appropriate interventions to reduce their anxiety and bolster their ability to cope with hospitalization or forthcoming cancer treatment procedures.

A review of the literature reveals that many studies have been conducted in Western countries

to examine the experience and coping behavior of children with cancer [8–10]. Unfortunately, no such study has so far been conducted in the Hong Kong Chinese context despite the fact that an individual's choice of specific coping strategies is strongly influenced by cultural factors [11]. A comprehensive review of the mental health of children reveals that there are differences in the cognitive behavior of Hong Kong Chinese children when compared with their Western counterparts [12]. Hong Kong Chinese children are more submissive, and generally lack creativity and creative thinking when compared with Western children. This may be the result of Hong Kong's socio-cultural emphasis on obedience and social conformity, inhibition of self-expression, and avoidance of deviance or making mistakes [13]. On the other hand, it is well documented that Chinese culture is deeply influenced by the philosophical concepts of Confucianism [14], and that this philosophy is reflected in certain notions of fatalism among Chinese people with respect to healthcare. They tend to believe there is very little that can be done to change their fate, and therefore seem to think that life-threatening diseases such as cancer cannot be prevented [15]. Because the cultural context in which they live is drastically different from that of Western children, the way that Chinese children view the nature and meaning of their illness, as well as their responses to diagnosis and treatment, will also differ considerably from those of Western children. Given these issues, the present study aimed to examine the coping strategies used by Hong Kong Chinese children hospitalized with cancer, according to Lazarus and Folkman's theory of coping and the association of sex, stage of cognitive development, and diagnosis. The research questions of the study were the following:

1. What are the coping strategies of Hong Kong Chinese children hospitalized with cancer of different sex, age group, and diagnosis?
2. With reference to previous studies, are there any differences in ways of coping between Hong Kong Chinese children hospitalized with cancer and their Western counterparts?

Theoretical framework

This study was guided by Lazarus and Folkman [7] theory of cognitive appraisal, stress, and coping, which is one of the most commonly used theoretical perspectives used to examine how people cope with stress. This transactional model is also most frequently applied to research on children [16,17]. However, like most theories about coping, Lazarus and Folkman's theory of coping is derived from the adult perspective. It has been recognized, however, that the ways that children cope are highly

dependent on their psycho-social and cognitive development, and this is distinctly different from that of adults [18]. In order to have a more thorough understanding of how children cope with stressful events, Piaget [19] theory of cognitive development, a developmental perspective, is also integrated into the conceptual framework for this study to provide essential complementary information on how children at different development stages cope with a stressful situation.

According to Lazarus and Folkman [7], coping is a process involving cognitive and behavioral attempts to meet the demands of, and to control the emotions generated by, the situation. Lazarus and Folkman conceptualized coping as consisting of two categories: problem-focused and emotion-focused coping. Children may use either problem- or emotion-focused coping, or both, during the course of a stressful event. Lazarus and Folkman further categorized the emotion-focused and problem-focused coping into eight coping strategies. Problem-focused coping includes seeking social support, planful problem solving, and confronting. Emotion-focused coping includes positive reappraisal, self-control, escape-avoidance, accepting responsibility, and distancing.

Piaget's [19] theory provides a broad overview of cognitive development. According to Piaget, children are born with a few sensorimotor schemata (elements in the organism's cognitive structure), which provide the framework for their initial interactions with the environment. The mechanisms that enable children to adapt to new situations and to move from one stage to the next are assimilation and accommodation. Piaget believed that children are actively involved in the construction of knowledge, incorporating new information into already existing knowledge structures or schemata, through assimilation. When there is a new situation that is too different or too complex to be integrated into existing structures, the schemata are modified or expanded through the process of accommodation. Piaget also found that certain mental abilities tend to appear at certain stages of development. Piaget believed that cognitive development involves a series of four separate stages but in a fixed order: sensorimotor, preoperational, concrete operational, and formal operational. Each succeeding stage is defined by the appearance of a qualitatively different level of thinking, resulting in an increasingly sophisticated form of knowledge that provides greater intellectual balance for responding to the environment.

Methods

A cross-sectional study was employed. Hong Kong Chinese children admitted for cancer treatment to the pediatric oncology units of two different

regional acute public hospitals were invited to participate. The two pediatric oncology wards were similar in nature and setting.

Participants

Children with cancer, who met the inclusion criteria for the study, were invited to participate. The inclusion criteria were: (1) all children should be aged 9–16 years, (2) they should be able to speak Cantonese and read Chinese, (3) they should have been diagnosed with cancer for at least 2 months and be currently undergoing active treatment, and (4) they should be aware of their diseases (cancer). We excluded children with cognitive and learning problems identified from their medical records. A convenience sample of 88 children was recruited during an 8-month period from 2008 to 2009. The response rate was 98%, with only two sets of parents choosing not to participate (without giving specific reasons).

It is true that younger children may well be more vulnerable to the stress of cancer treatment and hospitalization, but those younger than 9 may have limited verbal and cognitive capacities in expressing themselves and be perplexed by open-ended questions. For this reason, only children aged 9–16 years were invited to participate in the study. The demographic data of the participants are shown in Table 1.

Interview procedure

The term ‘coping’ is a general concept and has been frequently used in Chinese culture to describe a process involving cognitive and behavioural

attempts to master, minimize, reduce, or tolerate a stressful situation [16,20].

A short one-to-one interview was conducted with each participant with the aim of examining how children coped with their illness and responded to the diagnosis and treatment of cancer. The interviews were structured and audio-taped. In Hong Kong Chinese context, it is the common practice for physicians to disclose the cancer diagnosis of the child to parents and facilitate information sharing among family members [21]. However, to ascertain that the child was aware they had cancer, the interview was started off by asking the child the reasons for the admission to hospital. An interview guide was used and the question asked was: ‘Could you tell me how you are coping with cancer?’ During the interview, more questions were asked to clarify whether it is emotional response or coping method. Probing technique was used to elicit more comprehensive information. Repetition of original question and non-directive supplementary questions, such as ‘how is that?’ or ‘why do you feel that way?’, were asked for encouraging the children to give more detailed explanation regarding to their expressions. If underpinning purpose of the expression is for confronting, the researchers would consider it as the way of coping. Other emotional expressions were excluded but appropriate psychological comfort was given to alleviate their negative emotions. An example of interview script is shown in Table 2 to illustrate the interaction between child and interviewer.

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 and the children were invited to put their names on a special children’s assent form. Each participant was invited for a short structured interview after demographic data was taken. Each interview lasted approximately 5–10 min. To ensure the reliability of the data, certain procedures were used in the study. First, a single research nurse, with a bachelor’s degree in nursing and experience in working with pediatric patients, conducted all the interviews and validated the accuracy of the

Table 1. Demographic characteristics of the participants (n = 88)

	Frequency	%
Age (yrs)		
9	13	14.8
10	14	15.9
11	11	12.5
12	11	12.5
13	13	14.8
14	12	13.6
15	8	9.1
16	6	6.8
Sex		
Male	47	53.4
Female	41	46.6
Diagnosis		
Leukemia	39	44.3
Lymphoma	26	29.5
Brain tumor	9	10.3
Germ-cell tumor	8	9.1
Osteosarcomas	6	6.8
	Mean	Standard deviation
Time since diagnosis (months)	5.83	2.60

Table 2. A structured interview script that illustrates the interaction between child and interviewer

Interviewer (I): Do you know what is the reason for you admission?
Respondent (R): Yes, cancer.
I: Could you tell me how you are coping (dealing) with cancer?
R: Try not to think about the situation
I: How can you do that?
R: Engage myself in some sort of activities
I: Could you give me an example?
R: Sleeping
I: Is there anything else?
R: Reading comics and watching TV
I: Do you think all these methods are useful?
R: Yes
I: Thank you

transcription before analysis. Before commencing the interview, she received some training in communication skills with children from 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 accuracy of the data by avoiding selective filtering of data through the research nurse's recall and bias, all interviews were tape-recorded. Additionally, to facilitate accurate interpretation of the data, field notes were recorded during and after the interviews. Validity of the data was enhanced by providing privacy during each interview, and by the process of prolonged engagement with the child before conducting the interview, especially in the case of younger children. Because the validity of data might be affected by the eagerness of children to please their parents; causing them to respond in the way they thought their parents would want, parents were encouraged not to stay with their child during the interview.

Data analysis

Content analysis is an objective and systematic procedure used to draw conclusions by creating categories of data from verbatim or unstructured data [22]. The study used content analysis and consensus coding in identification, categorization, and definition of reported coping mechanisms based on Lazarus and Folkman's theory of coping.

After the interviews, the tape was immediately transcribed in Chinese and then translated into English by the research nurse. Transcription is a process that converts oral conversation into written form with dependability and credibility. Categories can be identified by using data reduction approach. Two researchers carefully conceptualized the categories according to the similarities of the dialogues. Subsequently, all the transcribed interviews were sorted into different categories until each category was saturated. The concepts were then emerged by grouping similar categories together, and were named as codes.

After transcription coding, two researchers reviewed the codes. Intra-class correlation (ICC) was then carried out to evaluate the inter-rater reliability of the coding, which was 0.96 (ICC Coefficient). Differences in coding primarily arose from slight variations in the wording of statements. For further verification, peer debriefing was carried out. Peer debriefing involves sessions with peers to review different aspects of the inquiry. In this study, two other researchers working in university with experience in data analysis of structured interview were consulted to review the codes and examine meaning until consensus was reached.

The coping strategies used by children of different sexes, age groups, and diagnoses were assessed by chi-square test.

Results

The results indicate that there were equal numbers of boys and girls. Almost all participants had been diagnosed with cancer within the previous 12 months, with only three diagnosed more than a year before.

Based on content analysis and consensus coding in identification, categorization, and definition of reported coping mechanisms, eight coping strategies were identified, three of which were problem focused and five emotion focused. Categories and quotations representing the central content of each category are presented in Table 3. The overall results indicated that around 30% used problem-focused strategies, while 70% relied on emotion-focused coping. The coping strategies used by children of different sexes, age groups, and diagnoses are shown in Table 4. The results showed that coping strategies did not differ according to gender and diagnosis, but only to age, with younger children (aged 9–12) used less problem-focused and more emotion-focused coping strategies than older children (aged 13–16).

Discussion

Knowing how children cope with cancer is a crucial step toward designing appropriate psychological interventions to ease the burden of cancer treatment. The aim of this study was to examine the coping strategies used by Hong Kong children hospitalized with cancer, an area of research that is under-represented in the existing literature.

The findings of the present study (Table 4) indicate that the most commonly reported coping strategy used by Hong Kong Chinese children is self-control (emotion focused). In other words, many of them prefer to keep themselves calm and in control when faced with cancer. This finding is at odds with previous studies on Western children, where it was found that seeking social support (problem focused) was the most commonly reported coping strategy [8,23]. In fact, the overall results of the present study reveal that Hong Kong Chinese children use more emotion-focused than problem-focused strategies. One possible reason for these differences between Western and Hong Kong children is that the latter are influenced by the philosophy of Confucianism and the associated notion of fatalism, and that most of them might believe that there is nothing that can be done to change their present situation. Lazarus and Folkman [7] claimed that emotion-focused coping is the more common form used when nothing can be done to change the situation. This may explain why Hong Kong Chinese children use a more emotion-focused approach to cope with cancer.

Coping strategies used by children hospitalized with cancer

Table 3. A Presentation of categories and statements included in each category

Category	Subcategory	Description	Examples of coping strategies
Problem focused	Seeking social support	Making efforts to seek informational, tangible and emotional support from others	'Speak to someone (parents, friends, schoolmates, nurses) about my feeling and seek their support'
	Planful problem-solving	Using an analytic approach to alter the situation	'Think of some strategies to cope with it'
	Confronting	Making aggressive efforts to alter the situation or openly expressing emotions	'Find more information from books or internet' 'Expressing hostility' 'Expressing anger'
Emotion focused	Escape-avoidance	Using wishful thinking and behavioral efforts to escape or avoid the stressful situation	'Forget the whole thing as soon as possible and occupy myself in some sort of activity' 'Watching TV/videos, reading comics/books, listening to radio/music, playing electronic/computer games'
	Distancing	Creating a positive outlook by refusing to think too much or trying to forget about the stressful situation	'I try not to think too much about the situation' 'Playing outside' 'Sleeping'
	Self-control	Making efforts to regulate one's own feelings or emotions	'Keep myself calm' 'Keep in control'
	Positive reappraisal	Creating positive meaning by focusing on positive aspects of the stressful situation or personal growth	'Always think positive' 'Try to focus on some positive aspects'
	Accepting responsibility	Acknowledging one's own role in the problem and trying to put things right.	'No one can help except myself' 'I have to be responsible for my own health'

The results of this study showed that the coping strategies used by male and female children hospitalized with cancer were similar. The results of previous studies on gender differences with respect to the use of coping strategies were found to be inconsistent. A longitudinal study of gender differences in the stressors and coping strategies of healthy school-aged children revealed that more girls than boys made use of social support and emotional expression [24]. These results were similar to those of another study that examined the ways children coped with chronic illness, in which more girls than boys used emotional regulation and social support [25]. This study also found that more boys than girls used cognitive restructuring (positive reappraisal) in coping with their chronic illness. Nevertheless, in accord with the present study, other research on children with acute or chronic illness has reported no significant gender differences in the coping strategies used [26,27].

Lazarus and Folkman [7] categorized emotion-focused and problem-focused coping into eight strategies. However, from the transcripts of the structured interview data for children in the age group 9–12, only five coping strategies were identified, two of which were problem focused and three were emotion focused. These results reveal that children in this age group would not use confronting, positive reappraisal and accepting responsibility as strategies to cope with cancer. This is understandable as the thinking processes of children are different from those of adolescents or adults. Younger children have not yet achieved the cognitive maturity needed for a full understanding of the stressors encountered and for assimilating information, and they have little experience of illness. According to Piaget's [19] theory of

cognitive development, children in the 7–12 age group are all at the same developmental stage, that is, concrete operational. At this stage, children can develop logical reasoning about objects, events, and relationships, but their thinking remains limited to concrete objects and events. Younger children, such as the 9–12 age group of this study, may not therefore have the cognitive ability to confront, re-appraise, and accept responsibility when they encounter a stressful event.

Piaget [19] postulated that as children progress into the formal operational stage (12 years to adulthood), their thinking becomes logical and abstract and they can use a scientific approach to problem solving. Interestingly, the results of the present study reveal that only two children from the age group 13–16 used confronting as a strategy to cope with the treatment of cancer. One possible explanation is that Chinese children in Hong Kong are influenced by the local socio-cultural emphasis on obedience and avoidance of being deviant or making mistakes [13]. They may therefore have learned to be more submissive, and thus to inhibit the expression of emotions such as hostility and anger when faced with a stressful event.

Our results indicate that younger children (aged 9–12) make less use of problem-focused coping strategies and more of emotion-focused strategies than older children (aged 13–16). There is some evidence to suggest that as children become older their locus of control shifts from an external to an internal focus [28,29]. Lefcourt [30] believed that the increasing internality that evolves with age is probably due to the increased perception of control shaped by the individual's age or level of cognitive development. LaMontagne [28] examined the relationship between locus of control beliefs of children and their coping behavior. The results of

Table 4. Coping strategies used by children of different sexes, age groups, and diagnoses (*n* = 88)

Coping strategies used	Sex		χ^2	<i>p</i>	Age		χ^2	<i>p</i>	Diagnoses					χ^2	<i>p</i>
	Male Frequency (%)	Female Frequency (%)			9-12 Frequency (%)	13-16 Frequency (%)			Leukemia	Lymphoma	Brain tumor	Germ cell tumor	Osteosarcoma		
<i>Problem-focused coping</i>															
Seeking social support	7 (14.9)	10 (24.3)	2.7	0.91	11 (22.9)	6 (15.0)	20.35	0.005*	10 (25.6)	4 (15.4)	1 (11.1)	1 (12.5)	1 (1.67)	25.7	0.59
Painful problem solving	5 (10.7)	2 (4.9)			1 (2.1)	6 (15.0)			2 (5.1)	2 (7.7)	1 (11.1)	1 (12.5)	1 (16.7)		
Confronting	1 (2.1)	1 (2.4)			0 (0)	2 (5.0)			1 (2.6)	0 (0)	0 (0)	0 (0)	1 (16.7)		
<i>Emotion-focused coping</i>															
Escape avoidance	9 (19.2)	6 (14.7)			11 (22.9)	4 (10.0)			6 (15.4)	5 (19.2)	2 (22.2)	2 (25.0)	0 (0)		
Distancing	10 (21.2)	7 (17.1)			12 (25.0)	5 (12.5)			7 (17.9)	6 (23.1)	1 (11.1)	1 (12.5)	2 (33.3)		
Self-control	10 (21.2)	11 (26.8)			13 (27.1)	8 (20.0)			11 (28.2)	8 (30.8)	1 (11.1)	1 (12.5)	0 (0)		
Positive reappraisal	3 (6.4)	2 (4.9)			0 (0)	5 (12.5)			1 (2.6)	1 (3.8)	2 (22.2)	1 (12.5)	0 (0)		
Accepting responsibility	2 (4.3)	2 (4.9)			0 (0)	4 (10.0)			1 (2.6)	0 (0)	1 (11.1)	1 (12.5)	1 (16.7)		
Total	47 (100)	41 (100)			48 (100)	40 (100)			39 (100)	26 (100)	9 (100)	8 (100)	6 (100)		

*Significant at *p* < 0.05.

these studies may reflect that children with a more externally focused locus of control are more likely to adopt emotion-focused coping strategies, whereas children with a more internally focused locus of control are more likely to adopt problem-focused strategies. This can explain why children use different coping strategies at different developmental stages.

Implications for practice and research

The treatment of cancer has been described as extremely stressful and threatening experiences in the life of a child, and 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 health-care professionals. In fact, helping children ease the burden, in particular the psycho-social burden of cancer treatment is recognized as one of the most vital responsibilities of a health-care professional [31]. It is crucial for health-care professionals to develop and evaluate psychological interventions that can help ease the burden of cancer treatment and provide support for childhood cancer survivors to fight cancer and its subsequent adverse treatment effects at every step of their long and difficult journey. This study highlights the importance of a careful assessment of coping behavior of children, an essential prerequisite for the design of an effective and appropriate intervention to enhance the ability of children to reduce their emotional distress and bolster their coping mechanisms. For example, as problem-focused coping is an activity aimed at modifying and minimizing the impact of the problem encountered, it is crucial for health-care professionals to use interventions that include the provision of accurate information on details of sensory and procedural matters, allied to instructions which foster problem-solving activities. On the other hand, emotion-focused coping is based on the elimination of undesirable emotions that result from the stressful experience. It is therefore essential for health-care professionals to develop interventions that attempt to regulate emotional distress by relaxation, distraction, or denial to avoid any direct confrontation with the problem.

The results of the present study provide essential complementary information on how children at different developmental stages may use different coping strategies. This has important implications for practice, because individual differences in coping can be expected to affect a person's response to psychological intervention. It is vital for clinical health-care professionals to assess carefully the ways of coping of children according to their developmental stages on admission to hospital. Understanding the cognitive development and coping behavior of children in advance can

enhance the effectiveness of intervention strategies in reducing anticipatory anxiety and bolstering their coping mechanisms during hospitalization.

Most importantly, the results of the study increase knowledge and awareness of health-care professionals of the impact of socio-cultural factors on the coping of children. Indeed, there is an imperative need for health-care professionals to be sensitive and knowledgeable about the cultural background of children before deciding how to prepare them to cope with the psycho-social burden of cancer treatment. Clearly, health-care professionals will benefit when they are empowered with the knowledge and skills to make culturally appropriate clinical interventions.

Limitation of the study

The use of convenience sampling means that the extent to which the results of this study can be generalized is limited. Only the most common coping strategy used by each child is identified, although Lazarus and Folkman suggested that, in order to manage the stress of a specific situation effectively, a variety of coping strategies can be used by the person concerned, individually or in combination. Therefore, further studies are needed to explore whether children would use either problem- or emotion-focused coping, or both, during the course of a stressful event. Moreover, a future study should include more personal and situational factors in the data analysis so that a more thorough understanding of the ways of coping of children can be achieved. Another limitation is that this study did not include informants beyond just the respondent might limit conclusions. It is recommended that other informants, such as parents of children, should be included in future study. Additionally, with a sample of 88, the findings might not produce sufficient evidence to state that there is difference in the ways of coping between Hong Kong Chinese children and their counterparts. More studies, particularly with larger samples, may be necessary to provide more evidence on this issue.

Conclusion

Despite its possible limitations, this study has addressed a gap in the literature by examining how Hong Kong Chinese children coped with cancer. It has found that Hong Kong Chinese children and their Western counterparts adopt different strategies for coping with cancer, and has also revealed that children use different coping strategies at different developmental stages. It is hoped that the information derived from this study will help health-care professionals design and shape appropriate psychological interventions that can

help reduce the burden of cancer treatment and promote normal growth and development for children with cancer.

References

1. Penkman L, Scott-Lane L, Pelletier W. A psychosocial program for pediatric oncology patients: a pilot study of The Beaded Journey. *J Psychosoc Oncol* 2006;**24**: 103–115.
2. Hicks MD, Lavender R. Psychosocial practice trends in pediatric oncology. *J Pediatr Oncol Nurs* 2001;**18**: 143–153.
3. Stam H, Grootenhuis MA, Caron HN, Last BF. Quality of life and current coping in young adult survivors of childhood cancer: positive expectations about the further course of the disease were correlated with better quality of life. *Psycho-Oncology* 2006;**15**: 31–43.
4. Williams PD, Schmideskamp J, Ridder EL, Williams AR. Symptom monitoring and dependent care during cancer treatment in children. *Cancer Nurs* 2006;**29**:188–197.
5. Langeveld NE, Langeveld NE, Grootenhuis MA, Voute PA, Haan RJ, Bos CVD. Quality of life, self-esteem and worries in young adult survivors of childhood cancer. *Psycho-Oncology* 2004;**13**:867–881.
6. Li HCW, Chung OKJ, Chui SY. The impact of cancer on children's physical, emotional, and psychosocial well-being. *Cancer Nurs* 2010;**33**:47–54.
7. Lazarus RS, Folkman S. *Stress, Appraisal and Coping*. New York: Springer, 1984.
8. Aldridge AA, Roesch SC. Coping and adjustment in children with cancer: a meta-analytic study. *J Behav Med* 2007;**30**(2):115–129.
9. Dowling JS, Hockenberry M, Gregory RL. Sense of humor, childhood cancer stressors, and outcomes of psychosocial adjustment, immune function, and infection. *J Pediatr Oncol Nurs* 2003;**20**:271–292.
10. Whitsett SF, Gudmundsdottir M, Davies B, McCarthy P, Friedman D. Chemotherapy-related fatigue in childhood cancer: correlates, consequences, and coping strategies. *J Pediatr Oncol Nurs* 2008;**25**(2):86–96.
11. LaMontage LL, Johanson BD, Hepworth JT. Evolution of parental stress and coping processes: a framework for critical care practice. *J Pediatr Nurs* 1995;**10**(4):212–218.
12. Wong CK, Tsoi MM. Mental health of Hong Kong Children. In *Hong Kong's Children: Our Past, Their Future*, Pryde NA, Tsoi MM (eds). Centre of Asian Studies, the University of Hong Kong: Hong Kong, 1999;153–220.
13. Tsoi MM, Pryde NA. Hong Kong's children: overview and conclusion. In *Hong Kong's Children: Our Past, Their Future*, Pryde NA, Tsoi MM (eds). Centre of Asian Studies, the University of Hong Kong: Hong Kong, 1999;573–647.
14. Chan EA, Cheung K, Mok E, Cheung S, Tong E. A narrative inquiry into the Hong Kong Chinese adults' concepts of health through their cultural stories. *Intl J Nurs Stud* 2006;**43**(3):301–309.
15. Li WHC. The importance of incorporating cultural issues into nursing interventions for Chinese populations. In *Strategies in Evaluation of Complex Health Care Interventions for People with Physical or Mental Health Issues*, Chien WT (ed.). Nova Biomedical Book: New York, 2009.
16. Li HCW, Lopez V, Lee TLI. Effects of preoperative therapeutic play on outcomes of school-age children undergoing day surgery. *Res Nurs Health* 2007;**30**:320–332.

17. Su YH, Ryan-Wenger NA. Children's adjustment to parental cancer: a theoretical model development. *Cancer Nurs* 2007;**30**(5):362–381.
18. Li HCW, Lopez V. Effectiveness and appropriateness of therapeutic play intervention in preparing children for surgery: a randomized controlled trial study. *J Spec Pediatr Nurs* 2008;**13**(2):63–73.
19. Piaget J. *The Origins of Intelligence in Children*. Norton: New York, 1963.
20. Chen J, Yeh C, Kennedy C. Weight status, self-competence, and coping strategies in Chinese children. *J Pediatric Nurs* 2007;**22**:176–185.
21. Yin LK, Twinn S. The effect of childhood cancer on Hong Kong Chinese families at different stages of the disease. *Cancer Nurs* 2004;**27**(1):17–24.
22. Weber R. *Basic Content Analysis*. Sage Publications: London, 1990.
23. Cole PM, Bruschi CJ, Tamang BL. Cultural differences in children's emotional reactions to difficult situations. *Child Dev* 2002;**73**(3):983–996.
24. Sharrer V, Ryan-Wanger N. A longitudinal study of age and gender differences of stressors and coping strategies in school-aged children. *J Pediatr Health Care* 1994;**9**:123–130.
25. Spirito A, Stark L, Gril K, Tyc V. Coping with everyday and disease-related stressors by chronically ill children and adolescents. *J Am Acad Child Adolesc Psychiatr* 1995;**34**:283–290.
26. Bossert E. Factors influencing the coping of hospitalized school-age children. *J Pediatr Nurs* 1994;**9**:299–306.
27. Ryan-Wenger NM. Coping behavior in children: methods of measurement for research and clinical practice. *J Pediatr Nurs* 1994;**9**(3):183–195.
28. LaMontagne LL. Children's preoperative coping: replication and extension. *Nurs Res* 1987;**3**:163–167.
29. Li WHC, Chung OKJ. The relationship between children's locus of control and their anticipatory anxiety. *Public Health Nurs* 2009;**26**(2):153–160.
30. Lefcourt HM. *Locus of Control: Current Trends in Theory and Research* (2nd ed.). NJ: Erlbaum, Hillsdale, 1982.
31. Chien LY, Lo LH, Chen CJ, Chen YC, Chiang CC, Chao YMY. Quality of life among primary caregivers of Taiwanese children with brain tumor. *Cancer Nurs* 2003;**26**:305–311.