

## RESEARCH COMMUNICATION

# Informational Needs of Breast Cancer Patients on Chemotherapy: Differences between Patients' and Nurses' Perceptions

Chui Ping Lei<sup>1\*</sup>, Yip Cheng Har<sup>2</sup>, Khatijah Lim Abdullah<sup>1</sup>

### Abstract

**Background:** Cancer and chemotherapy are sources of anxiety and worry for cancer patients. Information provision is therefore very important to empower them to overcome and adjust to the stressful experience. Thus, nurses should be aware of the informational needs of the patients throughout the course of their care. **Purpose:** The purpose of the study was to identify the important information required by breast cancer patients during the first and fourth cycles of chemotherapy from both the patients' and nurses' perceptions. **Methodology:** This is a longitudinal study used a questionnaire adapted from the Toronto Informational Needs Questionnaires-Breast Cancer (TINQ-BC). Some modifications were made to meet the specific objectives of the study. The study was conducted in the Chemotherapy Day Care at the University of Malaya Medical Centre (UMMC), Malaysia. A total of 169 breast cancer patients who met the inclusion criteria, and 39 nurses who were involved in their care were recruited into the study. **Results:** The overall mean scores at first and fourth cycle of chemotherapy were 3.91 and 3.85 respectively: i.e., between 3 (or important) and 4 (or very important), which indicated a high level of informational needs. There was no significant difference in information needed by the breast cancer patients between the two cycles of chemotherapy ( $p=0.402$ ). The most important information was from the subscale of disease, followed closely by treatment, physical care, investigative tests and psychosocial needs. Nurses had different views on the important information needed by breast cancer patients at both time points ( $p = 0.023$ ). **Conclusions:** Breast cancer patients on chemotherapy have high levels of informational needs with no significant differences in information needed at first cycle as opposed to fourth cycle. There were differences between the perceptions of the breast cancer patients and the nurses on important information needed. A paradigm shift, with an emphasis on patients as the central focus, is needed to enhance the information giving sessions conducted by nurses based on the perceptions of the patients themselves.

**Keywords:** Breast cancer patients - informational needs - chemotherapy - patient perceptions - nurse perceptions

*Asian Pacific J Cancer Prev*, 12, 797-802

### Introduction

Breast cancer is the most common malignancy in women and is the leading cause of cancer deaths in Malaysia (Yip et al., 2006). The diagnosis of breast cancer and the subsequent chemotherapy may cause tremendous stress to patients. Zainal et al. (2007) reported that the prevalence of distress among cancer patients receiving chemotherapy at Clinical Oncology Unit, University Malaya Medical Centre (UMMC) in Malaysia was high. The high level of distress seen in these patients could lead to more disabling conditions such as depression and anxiety.

Communication is thus vital between breast cancer patients and nurses because appropriate and accurate information may assist the patients to understand the expected outcomes and to deal with the unfamiliar experience. Mordiffi et al. (2003) reported that patients are generally not given information based on their needs

but receive information perceived as very or extremely important by the nurses. Understanding the informational needs of breast cancer patients may enable nurses to help patients cope better with the treatment and side-effects of the treatment, thus lowering their anxiety and distress level (Lee et al., 2004; Meredith et al., 1996). Cox et al. (2006) and Fagerlin et al. (2006) further concluded that proper information is a necessary prerequisite to inform decision-making. Such information will empower the patients to take control of their healthcare and comply with the treatment. An understanding of the informational needs from the patients' perspective enable nurses to provide specific and practical information that the patients have identified as being important is a vital first step in meeting patients' needs.

Therefore the objective of the study is to identify the important information required by the breast cancer patients at the first cycle and fourth cycle of chemotherapy from both the patients' and nurses' perception.

<sup>1</sup>Nursing Science Department, Faculty of Medicine, University Malaya, <sup>2</sup>Department of Surgery, University Malaya of Medical Centre, Malaysia \*For correspondence: plchui@ummc.edu.my

## Materials and Methods

### Setting and Design

This is a descriptive longitudinal study using self-administered questionnaires to collect data from breast cancer patients undergoing chemotherapy at the first and fourth cycles of chemotherapy and nurses in UMMC from June 2005 to March 2006. UMMC is a teaching hospital with 878 beds. It serves the general public by providing primary, secondary and tertiary healthcare services. The study setting is the Chemotherapy Day Care Unit which has been providing day care chemotherapy services to cancer patients from various parts of the country since 1999.

### Instrumentation

The informational needs questionnaire used for the patients was adopted from the TINQ-BC which consists of 52 items from 5 subscales, i.e. disease, investigative tests, treatment, physical care and psychological needs (Galloway et al., 1997). A 5-point Likert scale was used to rate information needs from 1 which is not important (the lowest score) to 5 which is extremely important (the highest score). It had good internal consistency reliability with Cronbach's alphas of 0.94 for the total questionnaires and alphas ranging from 0.85 to 0.90 for the subscales (Galloway et al., 1997).

The patient informational needs questionnaire (patients' version) was prepared in 3 different languages: English, Bahasa Malaysia (Malay) and Mandarin to cater for the patients' needs in a Malaysian setting. Forward and backward translations of the questionnaires to Bahasa Malaysia and Mandarin version were conducted. Some modifications were made on the patient informational needs questionnaire (nurses' version) to meet the objectives of the study. Nurses only need to answer the questionnaire once to indicate their perception on information needed by the breast cancer patients at first and fourth cycle of chemotherapy. Pre-testing of the questionnaire was carried out to confirm that the method and instrument used were applicable and feasible. Reliability statistical tests for the 52 items were calculated. It had good internal consistency reliability with a Cronbach's alpha of 0.985 for the total questionnaire and alphas ranging from 0.868 to 0.965 for each subscales. The questionnaire was then finalized after being validated by the expert panel. Ethical approval was obtained from the Medical Ethics Committee, UMMC. All the participants were reassured of the confidentiality of the study and informed consent was obtained from both the patients and nurses.

### Population and Sampling

The population for this study comprises breast cancer patients and nurses. Sample size calculation for patients was based on confidence level cited at 95%, margin of error plus or minus 5%, with a population size of 300 (Raosoft Sample Size Calculator, n.d). Since the population size is not large, the problem of committing type II error is small. One hundred-sixty nine (169) newly diagnosed breast cancer patients, approximately 56% of the population, were selected using a non-probability,

convenient sampling technique. The selection of this sample was based on the following criteria: newly diagnosed and undergoing six cycles of a chemotherapy regimen regardless of whether it is adjuvant or neo-adjuvant chemotherapy; at the beginning of the first cycle of chemotherapy; mentally and physically competent and an average level of proficiency in English, Bahasa Malaysia (Malay) or Mandarin languages (Questionnaires was in English, Bahasa Malaysia and Mandarin). Conversely, all the 39 nurses working closely with the breast cancer patients were invited to participate in the study.

### Data Collection

Two different sets of questionnaires were distributed to the two groups of participants. Breast cancer patients undergoing a six-cycle chemotherapy regimen and at their first cycle of chemotherapy who agreed to participate in the study were given a copy of patient informational needs questionnaire (patients' version). They were given the same questionnaire at their fourth cycle of chemotherapy. All the nurses involved in caring for those patients were given patient informational needs questionnaire (nurses' version) so that the differences in perception between patients and nurses on the important information for breast cancer patients were identified.

### Data Analysis

Data were analysed using The Statistical Package for the Social Sciences (SPSS) Version 16.0. The mean scores and the standard deviations were used to rank and compare the key information at the first cycle and fourth cycle of a course of chemotherapy as perceived by the breast cancer patients and the nurses. Mean scores were also calculated to prioritise the five subscales: disease, treatment, investigative tests, physical care and psychosocial needs. A Paired-Samples T Test was used to compare significant differences between the patients' informational needs at first cycle and fourth cycle of a course of chemotherapy. An Independent-Samples T Test was performed to compare significant differences between the patients' and nurses' perception on the important information needed by the breast cancer patients on chemotherapy. The level of significance was set at  $p < 0.05$  to guard against making type 2 errors. All p-values reported were two-tailed.

## Results

### Important Information As Perceived By Patients

A total of 169 patients participated in the study with a 59 % response rate. This included 64 % Chinese, 29 % Malay, 6 % Indian and 1 % others. The mean age of the patients was 51 years old. The majority of patients were married (74 %) and had primary or secondary school education (64%).

The overall mean scores at first cycle (Time-1) and fourth cycle (Time-2), 3.91 and 3.85 respectively, indicate that breast cancer patients on chemotherapy have high levels of informational needs. The mean scores for the disease and treatment subscales were above 4.00, between the descriptor of 'very important' and 'extremely

important'. The closer the mean score is to 5.00, the more important the item is to the respondent. Information rated consistently as extremely important at Time-1 and Time-2 of a course of chemotherapy pertained to the spread of the cancer and the possibility of recurrence. This indicates that the patients need more information pertaining to the disease and treatment relative to information from the subscales of physical care, investigative tests and psychosocial needs.

The findings confirmed that breast cancer patients typically are very anxious about the disease itself and the success rate of the treatment in combating cancer: hence, their focus on treatment and disease. On the whole, the information from the psychosocial needs subscale: communication with the family or friends about the illness, what to do if feeling uncomfortable in social situations and where to seek help if having problems of feeling not as attractive as before, were ranked the lowest at both time points. Similarly, information from the physical care subscale, such as the topic of patients' physical care on bathing or showering, wearing a brassiere, carrying on the usual social activities, hobbies and sports are deemed less important.

Table 1 summarizes the ranking of the important items

**Table 1. Top 10 Most Important Information at Time-1 and Time-2 As Perceived By Patients**

No. Questions	Subscales	Time-1			Time-2			
		Rank	Mean	SD	Rank	Mean	SD	
12	If there is cancer anywhere else in my body.	Disease	1	4.68	0.665	1	4.72	0.604
42	How to tell if the cancer has come back.	Disease	2	4.60	0.636	3	4.58	0.699
2	If the breast cancer will come back.	Disease	3	4.57	0.856	2	4.70	0.577
7	How breast cancer acts in the body.	Disease	4	4.37	0.812	7	4.24	0.842
46	Why the doctor suggested this treatment plan.	Treatment	5	4.35	0.857	-	-	-
35	How the treatment works against the cancer.	Treatment	6	4.34	0.819	4	4.28	0.780
27	If have side effects, how to deal with them.	Treatment	7	4.33	0.865	-	-	-
9	Are there ways to prevent treatment side effects.	Treatment	7	4.33	0.842	6	4.26	0.895
28	The possible side effects of my treatment.	Treatment	9	4.27	0.827	7	4.24	0.911
13	Who I should call if I have questions later.	Treatment	10	4.28	0.726	-	-	-
3	How to prepare for my treatment.	Treatment	-	-	-	4	4.28	0.922
4	When to examine my breasts.	Physical	-	-	-	10	4.22	0.883
43	Which foods I can or cannot eat.	Physical	-	-	-	7	4.24	0.889

**Table 2. Top 10 Most Important Information for Patients at Time-1 and Time-2 As Perceived by Nurses**

No. Question	Subscales	Time-1			Time-2			
		Rank	Mean	SD	Rank	Mean	SD	
32	How long I will be receiving treatment.	Treatment	1	4.57	0.555	-	-	-
27	If have side-effects, how to deal with them.	Treatment	2	4.54	0.505	-	-	-
29	What side-effects I should report to the doctor/nurse.	Treatment	2	4.54	0.558	2	4.30	0.740
3	How to prepare for my treatment.	Treatment	4	4.51	0.607	-	-	-
28	The possible side-effects of my treatment.	Treatment	4	4.51	0.559	-	-	-
30	If I am prone to infection because of my treatment.	Treatment	4	4.51	0.651	4	4.22	0.886
9	If there are ways to prevent treatment side-effects.	Treatment	7	4.46	0.558	-	-	-
18	How the illness may affect my life in the future.	Disease	7	4.46	0.605	6	4.16	0.898
36	If there are special arm exercises to do.	Physical	7	4.46	0.558	9	4.11	0.699
10	How the illness may affect my life in the next months.	Disease	10	4.43	0.502	10	4.05	0.848
16	Why they need to test my blood.	Investigation test	10	4.43	0.689	-	-	-
41	If the treatment will alter the way that I look.	Treatment	10	4.43	0.603	-	-	-
12	If there is cancer anywhere else in my body.	Disease	-	-	-	1	4.38	0.594
22	What to do if I become concerned about dying.	Psychosocial	-	-	-	2	4.30	0.661
42	How to tell if the cancer has come back.	Disease	-	-	-	4	4.22	0.787
5	How I will feel after my treatment.	Treatment	-	-	-	7	4.14	0.855
13	Who I should call if I have questions later.	Treatment	-	-	-	7	4.14	0.787
25	Where I can get help to deal with my feelings.	Psychosocial	-	-	-	10	4.05	0.780

as rated by the patients at Time-1 and Time-2. Paired-Samples T Test to determine the significant difference in information needed by the breast cancer patients on chemotherapy at Time-1 vis-à-vis Time-2 showed no significant difference in the information needed by the breast cancer patients on chemotherapy at Time-1 as opposed to Time-2 (p= 0.402). Similarly, a One-Way ANOVA test was used to determine the significance of the relationship. All the p-values were greater than 0.05 showing no significant relationship in the priorities of information between the groups in term of age, ethnicity, educational levels and marital status.

*Important Information for Patient As Perceived By Nurses*

Thirty-nine nurses participated in the study with the response rate of 95%. The findings are summarized in Table 2. Information from the subscale of treatment was constantly graded as the most important information compared to information from the subscale of disease, physical care, investigative tests and psychosocial needs at both time points.

*Comparison of Patients' and Nurses' Perceptions*

A comparison of patients' and nurses' perceptions was

**Table 3. Comparison of Important Information between Patients and Nurses at Time-1**

Patients				Nurses			
R	Mean	No.	Question (subscale)	R	Mean	No.	Question(subscale)
1	4.68	12	If there is cancer anywhere else in my body (D)	1	4.57	32	How long I will be receiving treatment (T)
2	4.60	42	How to tell if the cancer has come back (D)	2	4.54	27	If have side effects, how to deal with (T)
3	4.57	2	If the breast cancer will come back	2	4.54	29	What side effects I should report (T)
4	4.37	7	How breast cancer acts in the body (D)	4	4.51	3	How to prepare for my treatment (T)
5	4.35	46	Why the doctor suggested this treatment plan (T)	4	4.51	28	The possible side effects of treatment (T)
6	4.34	35	How the treatment works (T)	4	4.51	30	If I am prone to infection because of T (T)
7	4.33	27	If have side effects, how to deal with them (T)	7	4.46	9	Wways to prevent treatment side effects T)
7	4.33	9	Ways to prevent treatment side effects (T)	7	4.46	18	How the illness may affect future life (D)
9	4.28	13	Who I should call if I have questions later (T)	7	4.46	36	If there are special arm exercises to do (P)
10	4.27	28	The possible side effects of my treatment (T)	10	4.43	10	How the illness may affect my life over the next few months (D)
				10	4.43	16	Why they need to test my blood (I)
				10	4.43	41	Will the treatment alter the way I look (T)

R, rank; D, disease; T, treatment; P, physical; I, investigation test

**Table 4. Comparison of Important Information between Patients and Nurses at Time-2**

Patients				Nurses			
R	Mean	No.	Question (subscale)	R	Mean	No.	Question(subscale)
1	4.72	12	If there is cancer anywhere else in my body (D)	1	4.38	12	If there is cancer anywhere else ( D)
2	4.70	2	If the breast cancer will come back (D)	2	4.30	29	What side effects I should report (T)
3	4.58	42	How to tell if the cancer has come back (D)	2	4.30	22	What to do if concerned about dying (Ps)
4	4.28	35	How the treatment works against the cancer (T)	4	4.22	30	If I am prone to infection because of T (T)
4	4.28	3	How to prepare for my treatment (T)	4	4.22	42	How to tell if the cancer has come back (D)
6	4.26	9	Ways to prevent treatment side effects (T)	6	4.16	18	How the illness may affect my future life (D)
7	4.24	7	How breast cancer acts in the body ( D)	7	4.14	5	How I will feel after my treatment (T)
7	4.24	28	The possible side effects of my treatment (T)	7	4.14	13	Who I should call if I have questions later (T)
7	4.24	43	Which foods I can or cannot eat (P)	9	4.11	36	If there are special arm exercises to do (P)
10	4.22	4	When to examine my breasts (P)	10	4.05	10	How the illness may affect my life over the next few months (D)
				10	4.05	25	Where I can get help to deal with my feelings about my illness (Ps)

R, rank; D, disease; T, treatment; P, physical; Ps, Psychosocial

carried out using Independent-Samples T Test. The overall value of significance (2-tailed) was 0.023 indicating a significant difference in the perception on important information for breast cancer between patients and nurses. At Time-1, 3 items pertaining to the side-effects of the treatment were rated similarly by both patients and nurses. Generally, items rated by the patients highlighted the uncertainty they faced and their doubts about recurrence, the treatment plan and the side-effects of treatment. However, important information as perceived by the nurses related to the duration and possible side-effects of the treatment, how the illness might affect the patients' life and preparation for treatment. There were thus differences between the perceptions of the breast cancer patients and the nurses at the beginning of chemotherapy (Table 3).

The gap between the perception of breast cancer patients and the nurses on the important informational needs was maintained at Time-2. Two (2) items from the subscale of disease were rated as important by both the patients and nurses (Table 4). It is worth noting here that the most important information item with a mean score of 4.72 pertaining to metastasis from the subscale of disease was also rated as the most important item by the nurses. Surprisingly, the item from the subscale of physical care relating to diet which was rated as important by the breast cancer patients and also commonly discussed between patients and nurses was not emphasized by the nurses.

Besides items from the subscales of disease, treatment and physical care, nurses also included two items on the issues of dying and feeling from the subscale of psychosocial needs. The item relating to dying was rated as the third most important item by the nurses, but was not considered important by the patients. Information regarding investigative tests was not perceived as important both by patients and nurses at this time point.

The important informational needs prioritized by the patients at Time-1 and Time-2 were critically assessed by comparing them against the perception of the nurses (Table 5). Items which disclosed the curiosity of breast cancer patients about whether cancer exists anywhere else in the body from the subscale of disease were ranked first by both patients and nurses at Time-2. However, there were marked differences in other areas.

## Discussion

The findings revealed that breast cancer patients on chemotherapy exhibit a strong need for information at the beginning and mid-course of chemotherapy with slight change over the two different time points. This may have been influenced by the short time that had passed since the diagnosis of cancer. Patients' informational needs were measured at the second month (Time-1) and fifth month (Time-2) after the diagnosis of breast

**Table 5. Top 5 Important Information Ranked by Patients and Nurses at Time-1 and Time-2**

No.	Question (subscale)	Respondent	Mean	Rank
<b>Time 1</b>				
12	If there is cancer anywhere else in my body (Disease)	Patients	4.68	1
		Nurses	4.30	21
42	How to tell if the cancer has come back (Disease)	Patients	4.60	2
		Nurses	4.27	24
2	If the breast cancer will come back (Disease)	Patients	4.57	3
		Nurses	4.16	32
7	How breast cancer acts in the body (Disease)	Patients	4.37	4
		Nurses	4.11	39
46	Why the doctor suggested this treatment plan for me (Treatment)	Patients	4.35	5
		Nurses	4.30	21
<b>Time-2</b>				
12	If there is cancer anywhere else in my body (Disease)	Patients	4.72	1
		Nurses	4.38	1
2	If the breast cancer will come back (Disease)	Patients	4.70	2
		Nurses	4.30	12
42	How to tell if the cancer has come back (Disease)	Patients	4.58	3
		Nurses	4.22	4
35	How the treatment works against the cancer (Treatment)	Patients	4.28	4
		Nurses	3.81	22
3	How to prepare for my treatment (Treatment)	Patients	4.28	4
		Nurses	3.59	44

cancer. Thus the patients can be considered as still being within the vulnerable period. This finding is congruent with other studies which assessed breast cancer patients' informational needs at different points in the treatment process (Graydon et al., 1997; Lee et al., 2004; Yi et al., 2007). A possible explanation is patients have poor recall of information, which is commonly exhibited by the breast cancer patients with high anxiety levels. Their emotional state after being told their diagnosis and the treatment plan may have impacted on their ability to retain and recall verbal information given to them (Wolf, 2004). Given this, information giving should not be limited to a single occasion but continued along the trajectory.

Breast cancer patients consistently grade information in the subscale of disease as the most important information. This finding is consistent with a study done by Lee et al. (2004) in Hong Kong and Yi et al. (2007) in Korea. Information relating to the spread of the cancer and the possibility of recurrence were the major worries. Uncertainty of the future tends to dominate the life of breast cancer patients on chemotherapy. This is particularly confirmed by the researcher's experience with the patients. Most breast cancer patients are worried about the spread and recurrence of the disease and they repeatedly pose questions related to these two aspects to different groups of health care workers. According to Yip et al., (2006), 70 % of breast cancer patients in the UMMC who presented with early stages of the disease (Stage 1 and 2) tend to be proactive and are concerned with survival issues. This is in line with Gopal, Beaver, Barnett and Ismail (2005)'s findings on patients with more advanced stage of disease and the lower mean age (45 years). It can be concluded that regardless of the stage of the disease and age of the patients, information related to cure is considered important to breast cancer patients. Information related to treatment has been identified as

important, and could be explained by the fact that patients going through a course of chemotherapy need information about their treatment. It can also be accounted for by the age and educational level of the respondents. Eighty-eight percent (88 %) of the respondents were below 60 years old, while 64 % of the respondents had primary or secondary school education with 31 % being professionals or graduates. Being literate, they have the ability to understand the nature of the various cancer treatments: for instance, how the treatment works, how the treatment is carried out, sensations that may be experienced during treatment and the possible side-effects of the treatment. Therefore, the depth of the contents of information giving sessions should be re-examined and should include the topics overlooked previously.

An interesting discovery is that information related to body image and sexual attractiveness is not the main concern of breast cancer patients in the UMMC. The low interest in sexual attractiveness is probably influenced by the short time that had elapsed since the diagnosis (Browall et al., 2004). This is incongruent with a study done by Gopal et al. (2005) that discovered information on sexual attractiveness was among the most important information from respondents comprising 50 % Malays, 30 % Chinese and 20 % Indians. According to them, this could be due to the fact that Malay women are fearful of being rejected by their partners and/ or losing their husbands to other women, as Muslims can legally have up to four wives. As a result, they view sexual attractiveness as far more important than the patients of other ethnic origins.

Dietary advice is seen as the highest informational need from the physical care subscale but it is only identified as important at the half-way point of chemotherapy by the patients. A possible explanation is that the patients receive comprehensive information related to diet from the dietician during their health education sessions before the start of the chemotherapy and are thus already well-informed. However, at the half-way point of a course of chemotherapy, they may have become more questioning, either from discussions with other cancer patients, representatives from health food companies promoting their products, or relatives and friends with different views on food requirements. Moreover, at this point of time, they are likely to experience problems, such as nausea and vomiting as a result of the side-effects of chemotherapy. The doctor may also postpone their subsequent cycle of chemotherapy based on their blood investigation results. If their blood count is below the baseline, patients may believe that this is related to their food intake. In the midst of their confusion, patients may begin to seek professional advice from healthcare workers. Lee et al. (2004) point out that reliance on dietary therapeutics is important in the Chinese culture and is traditionally identified as part of a complementary therapy when people are suffering from illness. This may explain why information on dietary advice is seen as important by the majority of the respondents in this study whereby, 64 % of the study respondents are Chinese. Breast cancer patients have unmet needs for dietary advice (Salminen et al., 2002). Therefore, nurses should understand the impact of cultural

influences when providing information related to diet.

Information related to their psychosocial needs is ranked the least important by breast cancer patients. A possible explanation for patients' not recognising psychosocial information as being of prime information could be patients' unwillingness to disclose their emotional problems and also the reluctance of the nurses and doctors to probe into psychological areas. This poses a major challenge for psychosocial oncology nursing.

Breast cancer patients and nurses have different points of view on important information from the same subscale. Information graded by breast cancer patients as being important was related to metastasis, recurrence, the treatment plan and the side-effects of treatment, whereas nurses perceived information concerning duration and possible side-effects of the treatment, how the illness may affect the patient's life and preparation for treatment as patients' main concerns. The conclusion is patients are generally not given information based on their needs but receive information perceived as important by the nurses (Mordiffi et al., 2003; Capirci et al., 2005). Therefore, nurses should not assume that their own informational priorities are similar as those of their patients. The different viewpoints could be due to the fact that nurses presume that giving information on metastasis, recurrence and the treatment plan is the responsibility of the attending doctor to inform the patient about such aspects. The results provide extremely valuable insights for doctors and nurses dealing with cancer patients. Nurses have to be aware that they have to upgrade their knowledge on diagnosis, prognosis and treatment in order to bridge the gap between patients' informational needs and their views.

Nurses also regard issues of dying as important. This indicates that nurses, unlike the patients, link cancer to dying. But in the middle of a course of chemotherapy, patients are looking forward to survival; so concerns about dying are premature. Nurses should appreciate this.

The study was confined to one chemotherapy day care and the sample was limited to urban literate women. Therefore, the findings are not truly representative of the general population. Moreover, the results obtained are limited by the close-ended nature of the questionnaire. Future studies should include open-ended questions or use the qualitative interview method to obtain information on what patients wish to receive. In addition, this research focused only on patients' information need and did not address the need of their family members. Such needs are even more important in a situation where patients are treated as day cases and where the family provides virtually all the support because family support usually has a positive effect on patients.

In conclusion, breast cancer patients on chemotherapy had high levels of informational needs with no significant differences between first and fourth cycles. There were differences with the perceptions of nurses on important information needed. An informational needs assessment should precede the information giving sessions. A paradigm shift, with an emphasis on patients as the central focus, is needed to enhance the information giving sessions based on the perception of the patients themselves.

## Acknowledgement

I would like to express my thanks to Ms. Susan Galloway and her research team for their permission to use TINQ-BC.

## References

- Browall M, Carlsson M, Horvath C (2004). Information needs of women with recently diagnosed ovarian cancer- a longitudinal study. *Eur J Oncol Nursing*, **8**, 200-7.
- Capirci C, Feldman-Stewart D, Mandoliti G, et al (2005). Information priorities of Italian early-stage prostate cancer patients and of their health-care professional. *Patient Educ Counsel*, **56**, 174-81.
- Cox A, Jenkins V, Catt S, Langridge C, Fallowfield L (2006). Information needs and experiences: An audit of UK cancer patients. *Eur J Oncol Nursing*, **10**, 263-72.
- Fagerlin, A., Lakhani, I., Lantz, P. M., Janz, N. K., Morrow, M., Schwartz, K. et al. (2006). An informed decision? Breast cancer patients and their knowledge about treatment. *Patient Educ Counsel*, **64**, 303-12.
- Galloways S, Graydon J, Harrison D, et al (1997). Information needs of women with a recent diagnosis of breast cancer: development and initial testing of a tool. *J Adv Nursing*, **25**, 1175-83.
- Gopal RLR, Beaver K, Barnett T, Ismail NSN (2005). A comparison of the information needs of women newly diagnosed with breast cancer in Malaysia and United Kingdom. *Cancer Nursing*, **28**, 132-40.
- Graydon J, Galloway S, Palmer-Wickham S, et al (1997). Information needs of women during early treatment for breast cancer. *J Adv Nursing*, **26**, 59-64.
- Lee YM, Francis K, Walker J, Lee SM (2004). What are the information needs of Chinese breast cancer patients receiving chemotherapy? *Eur J Oncol Nursing*, **8**, 224-33.
- Llewellyn CD, McGurk M, Weinman J (2006). How satisfied are head and neck cancer (HNN) patients with the information they receive pre-treatment? Results from the satisfaction with cancer information profile (SCIP). *Oral Oncol*, **42**, 726-34.
- Meredith C, Symonds P, Webster L, et al (1996). Information needs of cancer patient in west Scotland: cross sectional survey of patients' views. *BMJ*, **313**, 724-6.
- Mordiffi SZ, Tan P, Wong, M.K. (2003). Information provided to surgical patients versus information needed. *AORN J*, **77**, 546-62.
- Salminen E, Bishop, M, Poussa T, et al (2002). Breast cancer patients have unmet needs for dietary advice. *The Breast*, **11**, 515-21.
- Wolf L (2004). The information needs of women who have undergone breast reconstruction. Part I: decision-making and sources of information. *Eur J Oncol Nursing*, **8**, 211-223.
- Yi M, Cho J, Noh D-Y, et al, (2007). Informational needs of Korean women with breast cancer: Cross-cultural adaptation of the Toronto informational needs questionnaire of breast cancer. *Asian Nursing Research*, **1**, 176-186.
- Yip CH, Taib NAM, Mohamed I (2006). Epidemiology of breast cancer in Malaysia. *Asian Pac J Cancer Prev*, **7**, 369-74.
- Zainal N, Hui K, Hang T, Bustam A (2007). Prevalence of distress in cancer patients undergoing chemotherapy. *Asian Pac J Clin Oncol*, **3**, 219-223.