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Adrian A. Kaptein PhD^a, Kazue Yamaoka PhD^b, Lucia Snoei MA^a, Willem A. van der Kloot PhD^c, Kenichi Inoue MD, PhD^d, T. Tabei MD, PhD^d, Judith R. Kroep MD, PhD^e, Ely Krol-Warmerdam RN^e, Gemma Ranke RN^e, Corrie Meirink RN^f, Aukje Does RN^f & Hans Nortier MD, PhD^e

^a Medical Psychology, Leiden University Medical Centre, Leiden, The Netherlands

^b Graduate School of Public Health, Teikyo University, Tokyo, Japan

^c Institute of Psychology, Leiden University, The Netherlands

^d Breast Oncology, Saitama Cancer Centre, Saitama, Japan

^e Department of Clinical Oncology, Leiden University Medical Centre, The Netherlands

^f Department of Surgery, Diaconessenhuis Leiden, The Netherlands

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Illness Perceptions and Quality of Life in Japanese and Dutch Women with Breast Cancer

ADRIAN A. KAPTEIN, PhD

Medical Psychology, Leiden University Medical Centre, Leiden, The Netherlands

KAZUE YAMAOKA, PhD

Graduate School of Public Health, Teikyo University, Tokyo, Japan

LUCIA SNOEI, MA

Medical Psychology, Leiden University Medical Centre, Leiden, The Netherlands

WILLEM A. VAN DER KLOOT, PhD

Institute of Psychology, Leiden University, The Netherlands

KENICHI INOUE, MD, PhD and T. TABELI, MD, PhD

Breast Oncology, Saitama Cancer Centre, Saitama, Japan

JUDITH R. KROEP, MD, PhD, ELLY KROL-WARMERDAM, RN,
and GEMMA RANKE, RN

Department of Clinical Oncology, Leiden University Medical Centre, The Netherlands

CORRIE MEIRINK, RN and AUKJE DOES, RN

Department of Surgery, Diaconessenhuis Leiden, The Netherlands

HANS NORTIER, MD, PhD

Department of Clinical Oncology, Leiden University Medical Centre, The Netherlands

Knowledge on cross-cultural quality of life (QOL) and illness perceptions may help women with breast cancer cope more effectively. The self regulation model (SRM) guided the current exploratory longitudinal pilot-study. Central to SRM is the perception of health threats and their effects on QOL. Illness perceptions and QOL were

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Address correspondence to Adrian A. Kaptein, PhD, Medical Psychology, Leiden University Medical Centre, PO Box 9600 - J9, 2300 RC Leiden, The Netherlands. E-mail: a.a.kaptein@lumc.nl

assessed in 22 Dutch and 21 Japanese patients with breast cancer who filled out questionnaires before, 1 week, and 8 weeks after the first chemotherapy course. The questionnaires assessed QOL and illness perceptions. Patients' scores were compared with groups of patients with other chronic somatic illnesses (asthma, diabetes). Patients in both samples reported major impact of chemotherapy on global health status, physical functioning, role functioning, emotional functioning, constipation and diarrhea. Differences between Japanese and Dutch patients were limited to social functioning and financial problems. Japanese patients expressed stronger concerns about their illness than Dutch patients. Results of the Japanese and Dutch patients with breast cancer differed from data in patients with asthma on consequences, timeline, concern and emotional response. Results of Japanese patients differed from patients with type 2 diabetes on timeline and concern, whereas Dutch patients differed on timeline and consequences. Japanese and Dutch breast cancer patients have—overall—similar illness perceptions and QOL responses and are aware of the typical characteristics of their disease. The results support the feasibility of cross-cultural psychosocial research in oncology and offer implications for clinical interventions which impact on self-efficacy to empower patients with breast cancer.

KEYWORDS *breast cancer, cross cultural oncology research, illness perceptions, quality of life, self regulation model*

INTRODUCTION

Patient-reported outcome assessment is the topic of many articles in this *Journal* (e.g., Fischer et al., 2012), illustrating the importance of such outcomes for research and clinical care objectives. Quality of life (QOL) is one aspect of patient-reported outcome (Bottomley, & Therasse, 2002; Bottomley et al., 2005), and an astonishing number of publications on this concept have been published about patients with breast cancer. A PubMed search on *breast cancer AND quality of life* (July 24, 2012) produced 6,341 hits.

Recently, a theoretical model was developed that conceptualizes determinants of QOL. This so-called self-regulation model outlines how patients (or healthy persons, for that matter) respond to symptoms, illness, and treatments and adjust to those responses via coping to maintain equilibrium and QOL (Cameron & Leventhal, 2003). In the model, patients are seen as lay epidemiologists, who try to make sense of what is happening to them and their bodies. Regardless of cultural background, human beings appear to organize their sense-making of symptoms, illness, and treatments

for those illnesses around a number of shared major themes (Kleinman, Eisenberg, & Good, 1978). These themes are identity (the label and symptoms), consequences, timeline, personal control, treatment control, concern, coherence, and emotional response. Illness perceptions are assessed with open interviews, standardized questionnaires with adequate psychometric characteristics, or drawings (Broadbent, Ellis, Gamble, & Petrie, 2006; Kaptein & Broadbent, 2008; Moss-Morris et al., 2002).

Research on illness perceptions in patients with breast cancer illustrates the clinical and scientific value of self-regulation model, as can be seen in Table 1 in which a substantial number of empirical studies available on this topic is summarized (Anagnostopoulos et al., 2012; Anagnostopoulos & Spanea, 2005; Beadle et al., 2004; Duric et al., 2007; Frith & Harcourt, 2007; Hunter, Grunfeld, & Ramirez, 2003; Kucukkaya, 2010; Kwate, Thompson, Valdimarsdottir, & Bovjberg, 2005; Lavery, & Clarke, 1996; McCorry et al., in press; Millar, Purushotham, McLatchie, George, & Murray, 2005; Mulders, Vingerhoets, & Breed, 2008; Rozema, Völlink, & Lechner, 2009; Silva, Moreira, & Canavaro, 2012; Thuné-Boyle, Myers, & Newman, 2006). The results of the studies show how various dimensions of illness perceptions are associated with different aspects of (medical or behavioral) outcome.

Cultural characteristics also determine how persons perceive health and illness. Dein (2004) demonstrated that culture is of great relevance in the different ways patients make sense of cancer, its causes, its treatment, and course. Dein used the concept of “explanatory models,” as introduced by Kleinman et al. (1978), to describe how people in different cultures respond to cancer and its treatment. Dein concluded that “explanatory models and perceptions of cancer . . . determine the emotional response to cancer, participation in screening, use and compliance with treatment, and the relationship between health professionals and patients” (p. 123). In earlier studies we found that Japanese and Dutch patients with various types of cancer (breast, colon, lung, prostate) responded in a quite similar way to a fairly large set of QOL questionnaires; differences were found mainly on the social dimensions of QOL (Kaptein et al., 2011; Kleijn et al., 2006).

The aims of this article are to examine illness perceptions and QOL in Japanese and Dutch women with breast cancer, and to explore the potential differences between these groups of patients. Secondly, we investigated whether QOL and illness perceptions changed during chemotherapy. Knowledge on these issues may be instrumental in designing, applying, and examining the effects of more precise behavioral and supportive interventions in these patient groups.

Patients and Method

This prospective pilot study was performed in 21 Japanese and 22 Dutch patients with breast cancer. The pilot study tested the feasibility of a

TABLE 1 Summary of 12 Studies on Illness Perceptions in Patients with Breast Cancer

First Author, Year, Country	Number of Patients, Clinical Characteristics	Assessment of Illness Perceptions	Results	Comments
Anagnostopoulos 2012 Greece	408 healthy women	Illness Perception Questionnaire—Revised Health beliefs	In women not participating in mammography, more negative illness perceptions	Addressing illness perceptions will increase mammography uptake
Anagnostopoulos 2005 Greece	102 women with breast cancer; 147 women free from breast cancer	IPQ (modified)	Women without breast cancer viewed breast cancer as caused by the environment and less by chance, compared with women with breast cancer	Layperson's perceptions of cancer are negatively affected by the social construction of breast cancer in the media and lay literature. This has implications for screening behavior in women, health education, and portrayal of breast cancer in the media.
Beadle 2004 Australia	61 women	Index of belief in curability	Stronger beliefs in curability were associated with use of alternative treatments, and with lack of recollection of doctor's information on curability	Treatment and illness beliefs are conceptualized as predictors of quality of life in this study.

Duric 2007 Australia	83 women	IPQ-R	Patients' preferences for adjuvant chemotherapy were determined by IPQ-R dimensions 'identity' and 'consequences', in addition to sociodemographic and clinical factors	"Women's preferences regarding chemotherapy were primarily influenced by their unique personal circumstances and attitudes" (p. 50), not by anxiety or optimism.
Frith 2007 UK	19 women	Photographs of patients' experiences with chemotherapy	Patients' initiated photographing of their chemotherapy treatment allowed them to construct restitution narratives	Changes to appearance resulting from chemotherapy are captured by photographs better than by questionnaires
Hunter 2003 UK	546 women	IPQ Attitudes toward help seeking Subjective norm Perceived behavioral control Intention	Symptom perception and health beliefs are predictors of intentions to seek help for potential symptoms of breast cancer	Cognitive representations of breast cancer (identity, consequences) determine in part intention to seek help

(Continued on next page)

TABLE 1 Summary of 12 Studies on Illness Perceptions in Patients with Breast Cancer (*Continued*)

First Author, Year, Country	Number of Patients, Clinical Characteristics	Assessment of Illness Perceptions	Results	Comments
Kucukkaya 2010 Turkey	84 women	Open-ended questionnaire eliciting patient narratives	Positive life changes were reported by 50% of the patients; self-perception; empowerment; greater appreciation of life; changes in interpersonal relations	Health care providers can help patients to adapt and cope better with the illness by encouraging patients to incorporate positive life changes into their adjustment to the illness
Kwate 2005 USA	197 women	Attributions about breast cancer (IPQ items)	African American women attributed breast cancer to "blow to the breast," "environmental poisons," "own behaviour," and "inheritance" significantly more often than White American women	Illness perceptions have a strong cultural background
Lavery 1996 Australia	244 women	Causal attribution questionnaire	Controllability of attribution determined the extent to which the women exhibited information-seeking behavior	Becoming actively involved in recovery process is optimal strategy in recovering

McCorry 2012 Ireland	72 women with breast cancer	IPQ-R	Illness perceptions remained stable over 6 month follow-up	Future research should focus on effects of changing illness perceptions
Millar 2005 UK	371 women, having surgery for primary breast cancer	IPQ General Health Questionnaire (GHQ) Mental Adjustment to Cancer (MAC) Eysenck Personality Questionnaire (EPQ)	Identity (IPQ), Timeline (IPQ) predicted psychological morbidity one year after surgery	Psychosocial care should focus on illness perceptions
Mulders 2008 NL	80 breast cancer survivors, 41 oncology nurses, 49 MDs	Questionnaire listing concerns of patients	Patient perceptions differed markedly from perceptions of nurses and doctors	Optimal care must take needs and worries of patients into account
Rozema 2009 NL	119 women	IPQ-R UCL (coping)	Illness perceptions explain functional status	Medical care should include assessing illness perceptions
Silva 2012 Portugal	78 women with breast cancer	Brief Illness Perception Questionnaire (B-IPQ)	Illness perceptions associated with post-traumatic growth	Post-traumatic growth is buffering stress
Thuné-Boyle 2006 UK	22 women receiving chemotherapy	IPQ HAD Symptom checklist	Identity correlated with anxiety	Patient education should focus on illness perceptions

UCL = Utrecht Coping List, SF-36 = Short Form 36, HAD = Hospital Anxiety and Depression.

cross-cultural study, its design, measurements, and data analyses. Patients were recruited from the outpatient departments of Clinical Oncology from the Leiden University Medical Center (LUMC), Leiden, the Netherlands, and the Saitama Breast Cancer Center, Saitama, Japan, respectively. They were consecutive patients being treated with chemotherapy, radiotherapy, and/or surgery. The patients filled out a questionnaire booklet before their first chemotherapy course, one week after their first chemotherapy course, and 8 weeks after the start of chemotherapy. This time schedule followed the planning of chemotherapy sessions. The booklet contained several questionnaires, among which the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30; Aaronson et al., 1993) and the Brief Illness Perception Questionnaire (B-IPQ; Broadbent, Petrie, Main, & Weinman, 2006). EORTC_QLQ_C30 and B-IPQ are instruments with extensive data on psychometric qualities. These questionnaires are considered state-of-the-art in the type of research reported here. In addition, several clinical data were collected (type of cancer; tumor, node, metastasis stage; Karnofsky index).

The EORTC QLQ-C30 is a QOL life questionnaire containing 30 questions that are summarized by means of one global health status score, five functional subscale scores, and nine symptom scales. The scores are expressed on scales that range from 0 to 100. For the general health and functional scales, higher scores indicate better general health and functioning. For the symptom scales, higher scores indicate more intense symptoms. The Japanese version of the EORTC QLQ-C30 was developed through rigid EORTC translation sequences and was validated (Kobayashi et al., 1998). The B-IPQ consists of eight questions that measure eight dimensions of illness perception (see Introduction) on a scale of 1 to 10. The Japanese version was adapted from Broadbent, Petrie, et al. (2006). B-IPQ scores were compared to studies in patients with other chronic somatic diseases (i.e., asthma, diabetes) (Broadbent, Petrie, et al., 2006).

Statistical analyses pertained to comparing the two samples within and between three assessment times. Student *t*-tests and ANOVAs were applied. Scoring and comparisons with other groups of patient with chronic somatic diseases were done according to the formal instructions of both questionnaires.

The research project was approved by the Medical Ethical Committee of the Leiden University Medical Centre, Leiden, The Netherlands, and by the Internal Review Board of the Saitama International Medical Centre, Hidaka City, Japan. The study protocol was used in both locations in identical fashion.

RESULTS

Respondents consisted of 21 Japanese patients between age 35 and 68 (mean age and *SD*: 49.9 ± 9.59 years) and 22 patients between age

TABLE 2 Summary of Clinical Data of Japanese and Dutch Patients

Variable	Categories	Japan (%)	Netherlands (%)
Type of cancer	Ductal carcinoma	20 (95.2)	20 (90.9)
	Lobular carcinoma	0	2 (9.1)
	Unknown	1 (4.8)	0
UICC stage of cancer	I	0	2 (9.1)
	IIA	4 (19.1)	9 (40.9)
	IIB	8 (38.1)	5 (22.7)
	IIIA	8 (38.1)	4 (18.2)
	IIIB	0	2 (9.1)
	Unknown	1 (4.8)	0
Karnofsky score	0–100	99.0 ± 3.15	89.0 ± 7.38
Breast surgery	Breast conserving	15 (71.4)	9 (40.9)
	Mastectomy	3 (14.3)	13 (59.1)
	No surgery	1 (4.8)	0
	Unknown	2 (9.5)	0
Lymph node surgery	Sentinel node procedure (SNP)	5 (23.8)	6 (27.3)
	Axillary dissection (AD)	2 (9.5)	9 (40.9)
	SNP followed by AD	11 (52.4)	7 (31.8)
	No surgery	1 (4.8)	0
	Unknown	1 (4.8)	0
Chemotherapy regimen ^a	Adrimyacin ^b	5 (23.8)	5 (22.7)
	Cyclophosphamide		
	Docetaxel ^c		
	Fluorouracil	8 ^d (38.1)	12 (54.6)
	Epiburicin		
	Cyclophosphamide		
	Adrimyacin ^b	7 (33.3)	0
Paclitaxel			
Other	1 (4.8)	5 (22.7)	
Radiotherapy dose	50 Gy	12	5 (22.7)
	50 Gy + 10 Gy boost	5 (23.8)	1 (4.6)
	50 Gy + 16 Gy boost	0	7 (31.8)
	No radiotherapy	2 (9.5)	9 (40.9)
	Unknown	2 (9.5)	0

Gy = gray; UICC = Union for International Cancer Control.

^awith Herceptin if Her-2 positive.

^bDoxorubicin.

^cPaclitaxel in one case.

^dpreceded by Paclitaxel.

35 and 63 in The Netherlands (mean age and *SD*: 46.8 ± 7.82 years). Table 2 summarizes several clinical data for each country: type of cancer, Union for International Cancer Control (UICC) stage of cancer, mean Karnofsky ratings by a physician on the first occasion, breast

surgery, lymph node surgery, chemotherapy regimen, and radiotherapy dose. Although the Dutch sample included more patients with a lower UICC stage, this difference is not statistically significant. The mean rating of Japanese patients on the Karnofsky index is significantly higher than the mean of the Dutch patients ($p < .0001$). There is a statistically significant difference ($p = .005$) with respect to breast surgery: breast conserving surgery (together with no surgery) occurs more often in Japan, whereas mastectomy prevails in The Netherlands. No significant differences were found with respect to lymph node surgery. There is a statistically significant difference between Japan and The Netherlands with respect to chemotherapy regimen ($p = .015$). However, this difference is only due to the fact that the combination of Adrimyacin and Paclitaxel is only used in Japan, and that more Dutch patients are submitted to other, unspecified regimens. There is a statistically significant relation ($p = .038$) between country and radiotherapy, in that fewer Dutch patients receive additional radiotherapy. It is to be noted that both samples do not consist of “the average” breast cancer patient. The patients in both samples are relatively young and have more severe tumors, more often with metastases in the lymph nodes. This can be explained by the fact that only patients with adjuvant chemotherapy were selected.

Table 3 lists the means and *SDs* of the Japanese and Dutch patients on the subscales of the EORTC QLQ-C30 on the three measurement occasions: at baseline, and 1 week, and 8 weeks after the first chemotherapy course. The same table also displays the means and *SDs* of patients with breast cancer in all stages as reported in the EORTC-QLQ-C30 manual (Aaronson et al., 1993). Table 3 shows that for most of the subscales the means of the Japanese and Dutch patients are relatively close to those of those patients.

Repeated measures ANOVAs using lower-bound sphericity estimates were run on the Country by Occasion data of the 15 EORTC scales. Significant differences between the Japanese and the Dutch patients were found on fatigue ($p = .017$), with a higher mean for the Dutch patients, and on diarrhea ($p = .009$) and financial difficulties ($p = .006$), the latter two with higher means for the Japanese patients.

Significant differences among the occasions (see Figures 1 through 3) were found on physical functioning ($p = .001$), role functioning, ($p = .001$), emotional functioning ($p = .008$), global health status ($p = .036$), fatigue ($p = .004$), nausea and vomiting ($p = .001$), dyspnea ($p = .003$), appetite loss ($p = .008$), constipation ($p = .006$), diarrhea ($p = .007$), and insomnia ($p = .035$), that is, all EORTC scales except cognitive functioning, social functioning, pain, and financial difficulties. For insomnia, the occasion effect is due to an interaction between country and occasion (see below and Figure 4).

With respect to global health status, fatigue, nausea and vomiting, appetite loss, diarrhea, and constipation, the average scores on the first occasion were significantly more favorable than the means on the following two occasions (p values between .0001–.017), whereas the means on the second and

TABLE 3 Means and SDs of Reference Standard, and Japanese and Dutch Patients on the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) Subscales, at Three Occasions

EORTC QLQ C30 Subscale	Reference Standard ^a	Japan (<i>n</i> = 22) Occasion			Netherlands (<i>n</i> = 24) Occasion		
		1	2	3	1	2	3
Global Health status ^b	61.8 (24.6)	64.7 (31.6)	58.7 (27.7)	53.6 (24.4)	71.6 (19.7)	60.3 (24.1)	60.6 (22.3)
Physical Functioning ^b	78.4 (21.3)	89.3 (14.9)	83.5 (13.9)	80.0 (17.9)	84.8 (16.7)	79.4 (21.2)	69.1 (23.4)
Role Functioning ^b	70.9 (29.9)	78.9 (30.9)	61.9 (31.7)	62.7 (31.1)	72.7 (27.0)	55.3 (36.1)	52.3 (31.0)
Emotional Functioning ^b	68.6 (23.8)	59.5 (25.0)	71.8 (20.7)	70.2 (19.6)	65.5 (17.1)	70.8 (21.0)	75.0 (16.5)
Cognitive Functioning ^b	81.5 (21.8)	79.4 (20.3)	81.0 (21.3)	76.2 (19.4)	86.4 (16.8)	74.2 (30.7)	78.0 (27.4)
Social Functioning ^b	77.0 (27.1)	65.9 (30.5)	70.6 (27.3)	69.8 (30.6)	80.3 (26.0)	65.9 (33.9)	68.2 (30.4)
Fatigue ^c	33.3 (26.2)	28.3 (24.8)	36.0 (21.3)	36.5 (24.4)	32.3 (18.8)	55.6 (30.3)	56.1 (24.8)
Nausea and vomiting ^c	7.7 (17.3)	4.2 (18.6)	19.0 (29.5)	11.1 (16.1)	5.3 (14.0)	26.9 (19.94)	22.7 (22.2)
Pain ^c	28.7 (28.7)	25.0 (24.5)	20.6 (22.9)	16.7 (25.8)	26.5 (24.5)	28.8 (33.4)	19.7 (28.5)
Dyspnoea ^c	18.1 (26.8)	8.3 (18.3)	15.0 (20.2)	17.5 (22.7)	10.6 (18.9)	12.1 (24.2)	30.3 (25.0)
Insomnia ^c	29.8 (31.6)	23.3 (30.8)	34.9 (28.8)	27.0 (25.0)	19.7 (26.5)	36.4 (38.4)	48.5 (30.4)
Appetite Loss ^c	18.5 (28.9)	16.7 (33.3)	36.5 (33.2)	31.7 (24.7)	10.6 (26.0)	33.3 (27.2)	37.9 (33.0)
Constipation ^c	17.4 (27.2)	25.0 (32.2)	41.3 (36.4)	44.4 (35.5)	9.1 (18.3)	34.9 (32.4)	33.3 (34.1)
Diarrhoea ^c	5.9 (15.4)	8.3 (14.8)	30.2 (33.2)	21.7 (19.6)	1.5 (7.1)	7.6 (17.6)	11.1 (21.9)
Financial Difficulties ^c	18.3 (27.8)	42.9 (35.2)	33.3 (31.6)	30.2 (33.2)	12.1 (30.7)	13.6 (26.5)	15.2 (22.4)

^aAaronson et al., 1993.^bHigher scores indicate better health and functioning.^cHigher scores denote more pain and symptoms.1 = at baseline; 2 = 1st week, 3 = 8th week.

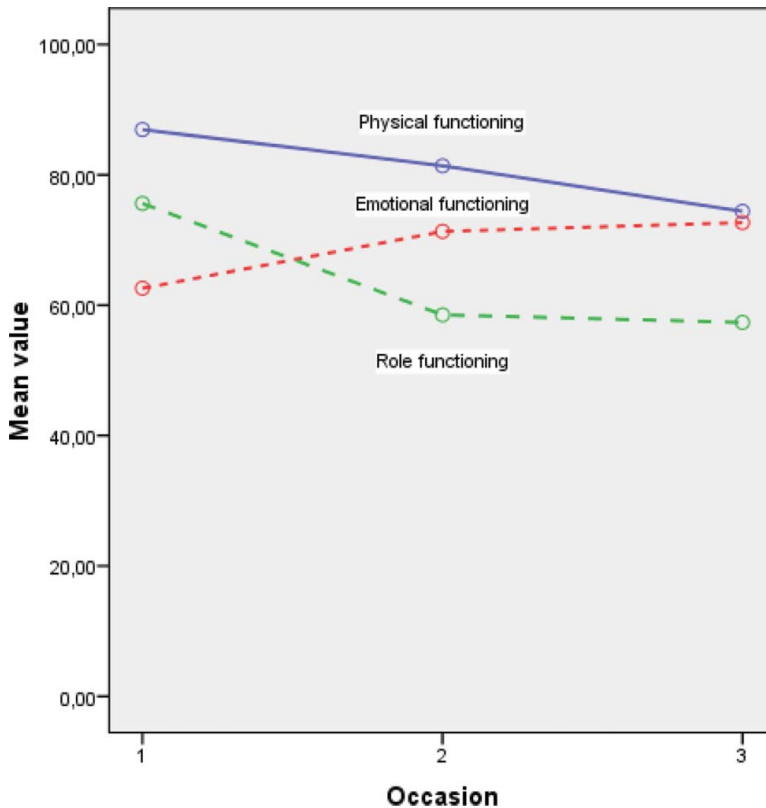


FIGURE 1 Mean values of physical functioning, emotional functioning, and role functioning for the Japanese and Dutch patients combined on three measurement occasions (1 = at baseline, 2 = after 1st week, 3 = at 8th week). *Note:* High values indicate better functioning. (Color figure available online).

third occasions were not significantly different. Physical functioning showed a general decrease over the occasions, as the first occasion mean was significantly higher than the means on the second and third occasions ($p = .015$ and $p < .0001$, respectively), and the second occasion mean was significantly higher than the mean on the third occasion ($p = .018$). The occasion effects of role functioning and dyspnea consisted of a significant differences (for the worse) between the third occasion means and the second means ($p < .005$), whereas the latter did not differ significantly from the first occasion means. Emotional function showed a different pattern, in that the mean on the first occasion was lower (less favorable) than on the later two occasions ($p = .019$ and $p = .003$, respectively), whereas Occasions 2 and 3 do not differ from each other.

A significant interaction between country and occasion was only found for insomnia ($p = .046$). This interaction (shown in Figure 4) is caused by the increase of the Dutch patients' mean on occasion 3 ($p < .001$), which breaks

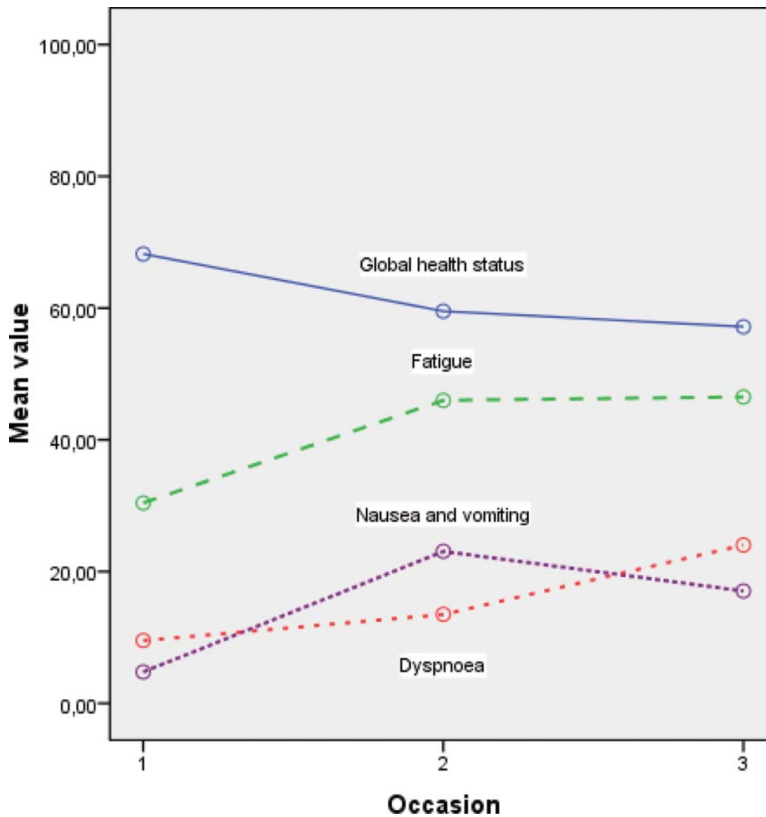


FIGURE 2 Mean values of global health status, fatigue, dyspnoea, and nausea and vomiting for the Japanese and Dutch patients combined on three measurement occasions (1 = at baseline, 2 = after 1st week, 3 = at 8th week). *Note:* High values for global health status indicate better quality of life; high scores for fatigue, dyspnoea, and nausea and vomiting indicate more intense symptoms (Color figure available online).

the parallel time pattern of the two groups, because the other measurements are not significantly different from each other.

Figure 5 depicts the means and *SDs* of the Japanese and the Dutch patients with breast cancer on the dimensions of the B-IPQ, together with the means and *SDs* of two other groups, patients with asthma and diabetes, respectively (Broadbent, Petrie, et al., 2006). Table 4 presents the numerical values on the questionnaire for both samples. For each dimension ANOVA was performed, with the difference between the Japanese and Dutch samples tested as an a priori contrast. If the overall ANOVA was significant ($p < .05$), post hoc Bonferroni comparisons with $\alpha = .05/4 = .0125$ were performed to test the differences between Japanese and Dutch patients with breast cancer on the one hand and patients with asthma and type 2 diabetes on the other hand, using reference data from the literature (Broadbent, Petrie, et al., 2006). Tests of the a priori contrasts showed that the only

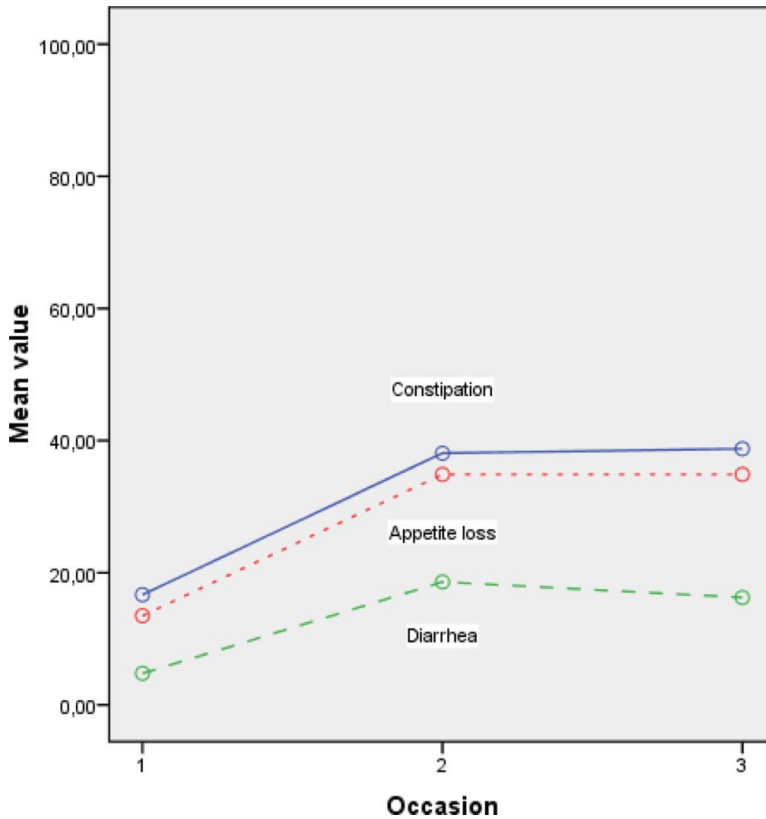


FIGURE 3 Mean values of constipation, appetite loss, and diarrhea for the Japanese and Dutch patients combined on three measurement occasions (1 = at baseline, 2 = after 1st week, 3 = at 8th week).

Note: High values indicate more intense symptoms (Color figure available online).

TABLE 4 Means \pm SDs on the Brief Illness Perception Questionnaire (B-IPQ) Dimensions of Japanese and Dutch Cancer Patients and Two Reference Groups of Asthma and Diabetes Patients

B-IPQdimension	Breast Cancer		Reference Groups	
	Japan <i>n</i> = 21	Netherlands <i>n</i> = 22	Asthma <i>n</i> = 309	Diabetes <i>n</i> = 119
Consequences*	6.10 ^{a,c} \pm 3.48	7.36 ^a \pm 1.87	3.5 ^b \pm 2.3	4.7 ^c \pm 2.9
Time line**	6.43 ^a \pm 2.42	5.45 ^a \pm 2.79	8.8 ^b \pm 2.2	9.2 ^b \pm 1.9
Personal control	5.24 \pm 2.21	4.90 \pm 2.95	6.7 \pm 2.4	6.7 \pm 2.3
Treatment control	7.52 \pm 2.02	8.32 \pm 1.89	7.9 \pm 2.0	8.0 \pm 2.3
Identity	3.24 \pm 2.41	4.27 \pm 2.57	4.50 \pm 2.30	4.6 \pm 2.8
Concern**	9.19 ^a \pm 1.75	6.50 ^b \pm 2.70	4.6 ^c \pm 2.8	7.0 ^b \pm 3.1
Coherence*	7.33 \pm 1.59	6.80 \pm 2.73	6.5 \pm 2.6	7.9 \pm 2.3
Emotional response*	6.00 ^a \pm 3.07	5.77 ^a \pm 2.98	3.3 ^b \pm 2.9	4.3 ^a \pm 3.3

Note: Pairs with different superscripts have significantly different means.

* Overall ANOVA $p < .05$, ** overall ANOVA $p < .01$.

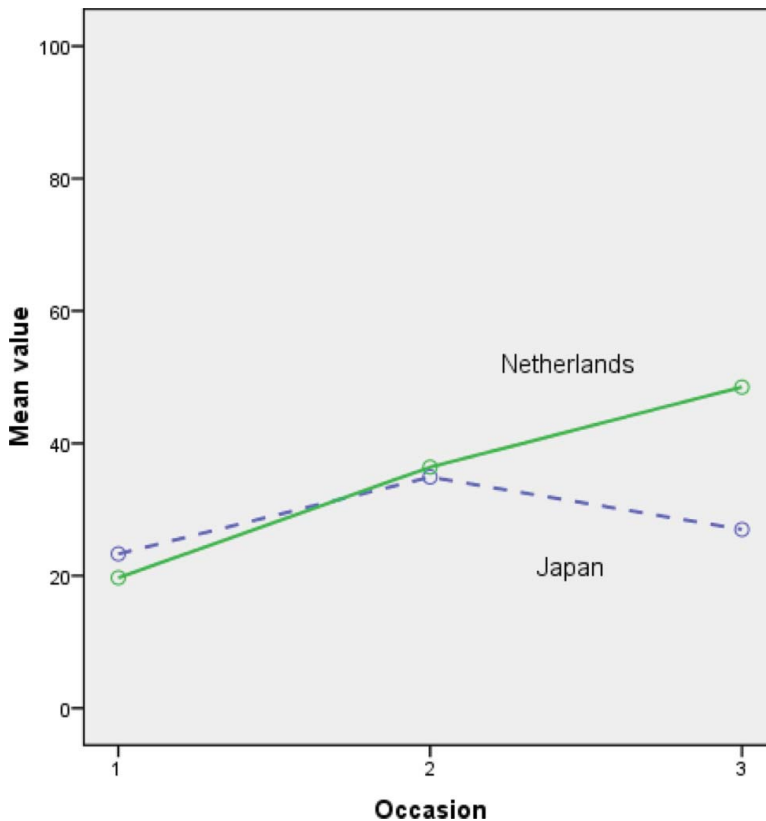


FIGURE 4 Interaction of country and occasions for insomnia.

Note: High scores indicate more intense symptoms (Color figure available online).

significant difference between the Japanese and the Dutch patients occurred on concern ($p < .002$), with a higher mean for the Japanese patients. Japanese and Dutch patients with breast cancer, alike, had significantly higher scores than patients with asthma on consequences, concern, and emotional response. Compared to patients with type 2 diabetes, the Japanese patients had significantly higher scores only on concern, whereas the Dutch had higher scores only on consequences. These results indicate that the patients with breast cancer are aware of the seriousness of their illness. The Japanese and the Dutch patients with breast cancer had significantly lower scores than the patients with asthma and diabetes on timeline. As patients with asthma and diabetes are undoubtedly aware of the chronic and incurable nature of their illness, this finding could indicate that patients with breast cancer have confidence in the curability of their disease. Such an interpretation, however, is not supported by the data on personal control and treatment control, on which dimensions no differences were found. Alternatively, the lower means on timeline of the patients with breast

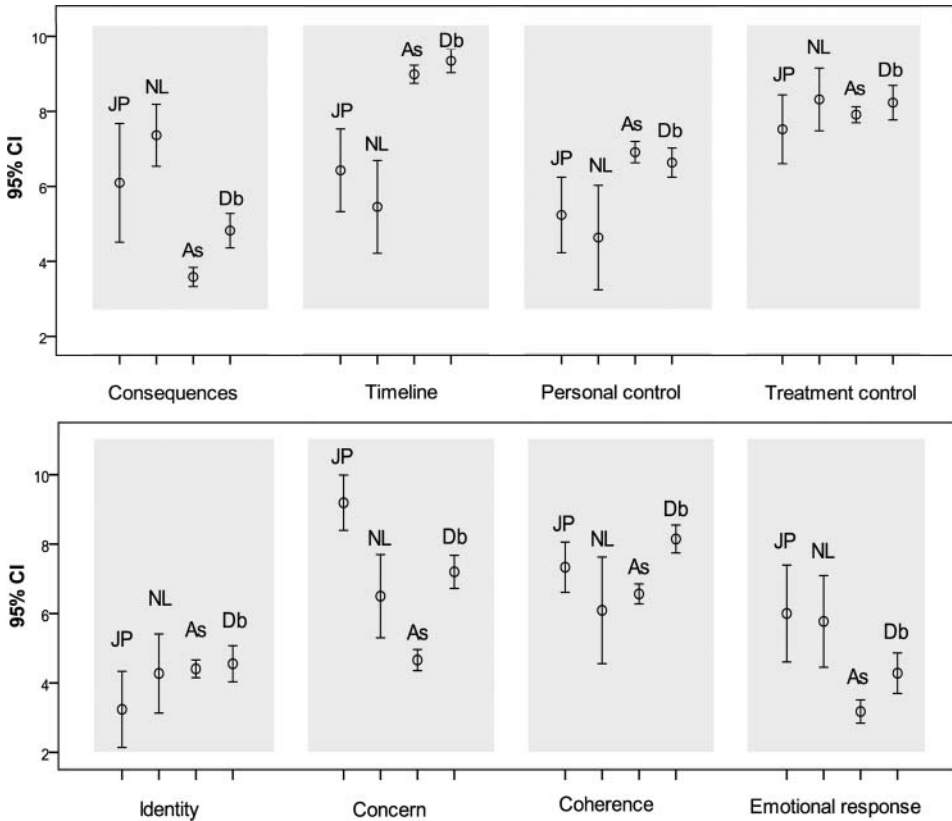


FIGURE 5 Means and 95% confidence intervals of the means of Japanese and Dutch breast cancer patients, asthma patients, and Type 2 diabetes patients on the eight dimensions of the Brief Illness Perception Questionnaire.

cancer could indicate that they regard their remaining life time as limited. The wording of the item tapping “timeline” may, however, be ambiguous, causing problems for patients and researchers in interpreting this score.

DISCUSSION

Responses of Japanese and Dutch patients with breast cancer on the EORTC QLQ-C30 and B-IPQ, assessing QOL and illness perceptions, before, 1 week after, and 8 weeks after their first chemotherapy course indicated substantial impact of medical management on QOL. In both samples, global health, physical functioning, role functioning, emotional functioning, fatigue, nausea, insomnia, appetite loss, diarrhea, and constipation were affected 1 week after the first chemotherapy course, and these effects persisted 8 weeks later. In the Japanese patients, Financial consequences also play an important role.

On the EORTC QLQ-C30 dimensions cognitive functioning, and the symptom pain, no major impact was reported by patients in both samples. Illness perceptions did not differ between the Japanese and Dutch patients, except for concern, with the Japanese patients reporting stronger concern about their illness.

Compared to reference data, our patients scored higher on consequences, concern and emotional response, and lower on identity and timeline, compared to patients with asthma and diabetes (Broadbent, Petrie, et al., 2006). This finding reflects the perceptions of breast cancer patients to conceptualize their (recently diagnosed) illness as very serious. Patients with asthma and diabetes appear to have incorporated the chronic, irreversible nature of their afflictions into their illness perceptions. The importance of comparing patients with breast cancer with other patient samples—without a cancer diagnosis—lies in the contribution such comparisons make to illuminating how different chronic somatic diseases affect patient illness perceptions. Compared to Australian patients with breast cancer whose primary medical treatment was radiotherapy, the patients in our sample who received chemotherapy scored higher on dyspnea and nausea (Lee et al., 2008). Compared to a group of Dutch patients with head and neck cancer, the patients with breast cancer reported a worse QOL on fatigue, nausea, constipation, and diarrhea (Scharloo et al., 2010). These comparisons contrast different cancer diagnoses and their impact on illness perceptions.

Although the Dutch and Japanese samples did not differ significantly with respect to UICC stage, the Karnofsky ratings by doctors of the Japanese patients on the first occasion were significantly different from the ratings of the Dutch patients. Possibly, this indicates cultural differences in how Japanese and Dutch physicians perceive functional status.

Our investigation had the character of a pilot study: we intended to examine the feasibility of a cross-cultural study in two samples of patients with breast cancer, using one set of questionnaires. In future research, larger samples will allow stronger conclusions about differences between and across samples (Gotay et al., 2004). As the B-IPQ is a quite recent measure, we are limited in finding reference samples with this questionnaire (Broadbent, Petrie, et al., 2006). A methodological issue in the B-IPQ pertains to the item that aims at assessing “timeline.” Patients with a potentially terminal illness are aware that their illness will be there for the rest of their lives, which would call for a high score on timeline.

CLINICAL PRACTICE IMPLICATIONS

Research on improving QOL in patients with cancer has developed greatly over the past decades as is illustrated in various reviews (Bottomley & Therasse, 2002; Bottomley et al., 2005; Cocks, King, Velikova, Fayers, Brown,

2008). Self-management training, including relaxation skills and coping skills training, empowers patients (Cameron, Booth, Schlatter, Ziginskas, & Harman, 2007). Social support from fellow patients, support groups, and education of the public at large about the consequences of breast cancer do help patients with breast cancer. Incorporating these interventions as routine in regular clinical care may be helpful in improving the QOL of patients. Empowering patients translates into illness perceptions that reflect a greater sense of control (self-efficacy), which has shown to affect favorably in other patient categories (Efficace, Innominato, & Bjarnason, 2006; Perwitasari et al., 2011). These interventions deserve further testing in patients with breast cancer (Cameron et al., 2007; Efficace et al., 2006; Fischer et al., 2012; Rozema et al., 2009).

REFERENCES

- Aaronson, N. K., Ahmedzai, S., Bergman, B., Bullinger, M., Cull, A., Duez, N. J., . . . Takeda, F. (1993). The EORTC QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology. *Journal of the National Cancer Institute*, *85*, 365–376.
- Anagnostopoulos, F., Dimitrakaki, C., Fitzsimmons, D., Potamianos, G., Niakas, D., & Tountas, Y. (2012). Health beliefs and illness perceptions as related to mammography uptake in randomly selected women in Greece. *Journal of Clinical Psychology in Medical Settings*, *19*, 147–164.
- Anagnostopoulos, F., & Spanea, E. (2005). Assessing illness representations of breast cancer: A comparison of patients with healthy and benign controls. *Journal of Psychosomatic Research*, *58*, 327–334.
- Beadle, G. F., Yates, P. M., Najman, J. M., Clavarino, A., Thomson, D., Williams, G., . . . Schlect, D. (2004). Illusions in advanced cancer: The effect of belief systems and attitudes on quality of life. *Psycho-Oncology*, *13*, 26–36.
- Bottomley, A., Flechtner, H., Efficace, F., Vanvoorden, V., Coens, C., Therasse, P., . . . Greimel, E. (2005). Health related quality of life outcomes in cancer clinical trials. *European Journal of Cancer*, *41*, 1697–1709.
- Bottomley, A., & Therasse, P. (2002). Quality of life in patients undergoing systemic therapy for advanced breast cancer. *Lancet Oncology*, *3*, 620–628.
- Broadbent, E., Ellis, C. J., Gamble, G., & Petrie, K. J. (2006). Changes in patient drawings of the heart identify slow recovery after myocardial infarction. *Psychosomatic Medicine*, *68*, 910–913.
- Broadbent, E., Petrie, K. J., Main, J., & Weinman, J. (2006). The Brief Illness Perception Questionnaire. *Journal of Psychosomatic Research*, *60*, 631–637.
- Cameron, L. D., Booth, R. J., Schlatter, M., Ziginskas, D., & Harman, J. E. (2007). Changes in emotion regulation and psychological adjustment following use of a group psychosocial support program for women recently diagnosed with breast cancer. *Psycho-Oncology*, *16*, 171–180.
- Cameron, L. D., & Leventhal, H. (Eds.). (2003). *The self-regulation of health and illness behaviour*. London, UK: Routledge.

- Cocks, K., King, M. T., Velikova, G., Fayers, P. M., & Brown, J. M. (2008). Quality, interpretation and presentation of European Organization for Research and Treatment of Cancer quality of life questionnaire core 30 data in randomized controlled trials. *European Journal of Cancer*, *44*, 1793–1798.
- Dein, S. (2004). Explanatory models of and attitudes towards cancer in different cultures. *Lancet Oncology*, *5*, 119–124.
- Duric, V. M., Butow, P. N., Sharpe, L., Boyle, F., Beith, J., Wilcken, N. R. C., ... Stockler, M. (2007). Psychosocial factors and patients' preferences for adjuvant chemotherapy in early breast cancer. *Psycho-Oncology*, *16*, 48–59.
- Efficace, F., Innominato, P. F., & Bjarnason, G. (2006). Validation of patient's self-reported social functioning as an independent prognostic factor for survival in metastatic colorectal cancer patients: Results of an international study by the chronotherapy group of the European Organisation for Research and Treatment of Cancer. *Journal of Clinical Oncology*, *26*, 2020–2026.
- Fischer, M. J., Krol-Warmerdam, E., Ranke, G., Zegers, M. H. W., Aeiijelts Averink, R., Scholten, A. N., ... Nortier, J. W. R. (2012). Routine monitoring of quality of life for patients with breast cancer: An acceptability and field study. *Journal of Psychosocial Oncology*, *30*, 239–259.
- Frith, H., & Harcourt, D. (2007). Using photographs to capture women's experiences of chemotherapy: reflecting on the method. *Qualitative Health Research*, *17*, 1340–1350.
- Gotay, C. C., Shimizu, H., Muraoka, M., Ishihara, Y., Tsuboi, K., & Ogawa, H. (2004). Cancer-related attitudes: A comparative study in Japan and the US. *Psycho-Oncology*, *13*, 665–672.
- Hunter, M. S., Grunfeld, E. A., & Ramirez, A. J. (2003). Help-seeking intentions for breast-cancer symptoms: A comparison of the self-regulation model and the theory of planned behaviour. *British Journal of Health Psychology*, *8*, 319–333.
- Kaptein, A. A., & Broadbent, E. (2008). Illness cognition assessment. In S. Ayers, A. Baum, C. McManus, S. Newman, K. Wallston, J. Weinman, ... R. West (Eds.), *Cambridge handbook of psychology, health and medicine* (2nd ed., pp. 268–273). Cambridge, UK: Cambridge University Press.
- Kaptein, A. A., Yamaoka, K., Snoei, L., Kobayashi, K., Uchida, Y., van der Kloot, W. A., ... Rabe, K. F. (2011). Illness perceptions and quality of life in Japanese and Dutch patients with non-small-cell lung cancer. *Lung Cancer*, *72*, 384–390.
- Kleijn, W. Chr., Ogoshi, K., Yamaoka, K., Shigehisa, T., Takeda, Y., Creutzberg, C. L., ... Kaptein, A. A. (2006). Conceptual equivalence and health-related quality of life: An exploratory study in Japanese and Dutch cancer patients. *Quality of Life Research*, *15*, 1091–1101.
- Kleinman, A., Eisenberg, L., & Good, B. (1978). Culture, illness, and care. *Annals of Internal Medicine*, *88*, 251–258.
- Kobayashi, K., Takeda, F., Teramukai, S., Gotoh, I., Sakai, H., Yoneda, S., ... Yoshida, K. (1998). A cross-validation of the European Organization for Research and Treatment of Cancer QLQ-C30 (EORTC QLQ-C30) for Japanese with lung cancer. *European Journal of Cancer*, *34*, 810–815.
- Kucukkaya, P. G. (2010). An exploratory study of positive life changes in Turkish women diagnosed with breast cancer. *European Journal of Oncology Nursing*, *14*, 166–173.

- Kwate, N. O. A., Thompson, H. S., Valdimarsdottir, H. B., & Bovbjerg, D. H. (2005). Etiological attributions for breast cancer among healthy African American and European American women. *Psycho-Oncology, 14*, 421–425.
- Lavery, J. F., & Clarke, V. A. (1996). Causal attribution, coping strategies, and adjustment to breast cancer. *Cancer Nursing, 19*, 20–28.
- Lee, T. S., Kilbreath, S. L., Refshauge, K. M., Pendlebury, S. C., Beith, J. M., & Lee, M. J. (2008). Quality of life of women treated with radiotherapy for breast cancer. *Supportive Care in Cancer, 16*, 399–405.
- McCorry, N. K., Dempster, M., Quinn, J., Hogg, J., Newell, J., Moore, M., . . . Kirk, S. J. (in press). Illness perception clusters at diagnosis predict psychological distress among women with breast cancer at 6 months post diagnosis. *Psychooncology*.
- Millar, K., Purushotham, A. D., McLatchie, E., George, W. D., & Murray, G. D. (2005). A 1-year prospective study of individual variation in distress, and illness perceptions, after treatment for breast cancer. *Journal of Psychosomatic Research, 58*, 335–342.
- Moss-Morris, R., Weinman, J., Petrie, K. J., Horne, R., Cameron, L. D., & Buick, D. (2002). The Revised Illness Perception Questionnaire (IPQ-R). *Psychology and Health, 17*, 1–16.
- Mulders, M., Vingerhoets, A., & Breed, W. (2008). The impact of cancer and chemotherapy: Perceptual similarities and differences between cancer patients, nurses and physicians. *European Journal of Oncology Nursing, 12*, 97–102.
- Perwitasari, D. A., Athobari, J., Dwiprahasto, I., Hakimi, M., Gelderblom, H., Putter, H., . . . Kaptein, A. A. (2011). Translation and validation of EORTC QLQ-C30 into Indonesian version for cancer patients in Indonesia. *Japanese Journal of Clinical Oncology, 41*, 519–529.
- Rozema, H., Völlink, T., & Lechner, L. (2009). The role of illness representations in coping and health of patients treated for breast cancer. *Psycho-Oncology, 18*, 849–857.
- Scharloo, M., Baatenburg de Jong, R. J., Langeveld, T. P. M., van Velzen-Verkaik, E., Doorn-op den Akker, M. M., & Kaptein, A. A. (2010). Illness cognitions in head and neck squamous cell carcinoma: Predicting quality of life outcome. *Supportive Care in Cancer, 18*, 1137–1145.
- Silva, S. M., Moreira, H. C., & Canavarro, M. C. (2012). Examining the links between perceived impact of breast cancer and psychosocial adjustment: the buffering role of posttraumatic growth. *Psycho-Oncology, 21*, 409–418.
- Thuné-Boyle, I. C. V., Myers, L. B., & Newman, S. P. (2006). The role of illness beliefs, treatment beliefs, and perceived severity of symptoms in explaining distress in cancer patients during chemotherapy treatment. *Behavioral Medicine, 32*, 19–29.