RESEARCH ARTICLE

Effects of Doctor-patient Communication on Quality of Life among Breast Cancer Patients in Southern China

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Abstract

  Objective: This study aimed to determine effects of doctor-patient communication on the quality of life among breast cancer survivors in 16 communities in southern China. **Methods:** Multistage random sampling was to use to recruit 260 females from the Guangzhou Cancer Registry Database who were diagnosed with breast cancer. A questionnaire provided data on the doctor-patient communication (including the doctor's attitude, the patient's participation with the medical decision and information about the disease) and QOL (quality of life), as measured using FACT-B. Univariate analysis, non-conditional logistic regression was used to evaluate the associations between the doctor-patient communication and QOL. **Results:** Females who received good attitudes from doctors demonstrated higher FACT-B (OR=4.65, 95% CI: 1.68-12.86), social well-being (OR=5.88, 95% CI: 2.16-16.05), emotional well-being (OR=4.77, 95% CI: 1.92-11.88), and functional well-being ((OR=5.26, 95% CI: 1.90-14.52) compared to the females who encountered worse attitudes from their doctor, adjusting for age, education, marriage, employment, family income, years since diagnosis, TNM stage, radiation therapy, chemotherapy and side effects, particularly when the TNM stage was 0-II and the patients exhibited no side effects. Regardless of the length of time after diagnosis, doctors' good attitudes resulted in higher QOL scores. **Conclusions:** This study demonstrated that the doctor-patient communication has a significant association with the QOL of breast cancer survivors, mainly dependent on the doctors' attitude. Effective intervention is required to develop optimal doctor-patient communication.

  Keywords: Doctor-patient communication - FACT-B - breast cancer - quality of life - community

Introduction

  Breast cancer is now the most common malignancy among females in both developed and developing regions , with an estimated 1.38 million new cancer cases diagnosed in 2008 (23% of all cancers) worldwide (IARC, 2008). In addition, the incidence rate of breast cancer has continuously increased in developed and developing countries (Izquierdo et al., 2006; Yang et al., 2012; Leclere et al., 2013). However, with the development of screening programs and diagnostic measures, the survival rate is at least 85% or greater within 5 years, and 61% of the females survive at least 15 years (Colina Ruizdelgado et al., 2012; Frazzetto et al., 2012). The number of breast cancer survivors has been rapidly growing. Previous studies have found that the quality of life (QOL) of breast cancer patients is lower than non-patient samples (Avis et al., 2005). The main reasons include concerns about body image and sexuality, psychological stress, anxiety, fear of recurrence, sleep dysfunction, fear of loss of fertility, pain, fatigue, and impaired physical functioning (Al-Naggar et al., 2011; Park et al., 2011). Many factors may also

be associated with the health-related QOL (HRQOL) of breast cancer patients. Previous studies have indicated that young age, low stage cancer, high education, longer years after diagnosis, higher family monthly income and lack of radiotherapy were significantly associated with better quality of life (QOL) in breast cancer patients (Al-Naggar, et al., 2011; Shen et al., 2012; Bezerra et al., 2013)

  In China, the crude incidence of breast cancer was $42.55/10^5$ among females in 2009 from 72 registries, and the age-standardized rates was $28.99/10^5$ according to the age structures of the world population, particularly in urban areas, where these values were $51.91/10^5$ and $34.25/10^5$, respectively. Breast cancer ranks first overall of all cancers (18.8% of all cancers) among females (He et al., 2012). There are an estimated 280 thousand women who are diagnosed annually. With a growing rate of survival, improvement of the QOL of breast cancer patients has been a very important problem. Previous studies have focused on the demographic characteristics and clinical factors. However, few studies have focused on the effect of the doctor-patient communication on the quality of life among breast cancer cases in China.

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Nowadays, the doctor-patient relationship is an outstanding topic in China. The reason of tense relationship is complex including the contradiction of hospital public welfare and market survival way that the patients are easy to get harm but difficult to guarantee their rights. It is undeniable that the doctor-patient relationship is central to the practice of medicine and is essential for the delivery of high-quality health in the diagnosis and treatment of diseases (Mahmud, 2009). Effective communication between patients and doctors had always been hallmark of a mutually beneficial doctor-patient relationship, contributing to improved clinical outcomes. A study from Japan suggested the influence of patient-doctor communication on the patients' reassurance and ability to cope with adverse effects (Oshima et al., 2011). Patients were satisfied with their physical treatment, but their need for emotional support and attention has not yet been addressed. Furthermore, the participants were recruited from hospitals in previous studies, where there may be a selective bias. Thus, in this study, we aimed to assess the effects of the doctor-patient communication and the medical model on the quality of life among breast cancer patients from 16 communities in Guangzhou and to provide insight towards the design in physician training according to these results. We performed a cross-sectional study in the community, and used the Functional Assessment of Cancer Therapy-Breast (FACT-B) questionnaire to investigate the QOL of breast cancer patients.

Materials and Methods

Participants and procedures
Guangzhou is the largest metropolis in southern China with a latitude of 23°7'N, with a population of 7.98 million people. The incidence of breast cancer was 28.6/10[5] according to the age-standard 2000 Chinese population in 2007-2009 (Zhou et al., 2013). In Guangzhou, there is a policy that requires every household patient who has been diagnosed for cancer to be registered since 1998, and follow-ups to be performed by community physicians since 2010. In this study, 260 female subjects were recruited by stratified random cluster sampling from the Guangzhou Cancer Registry Database. All subjects were diagnosed with breast cancer as assessed using histological examination and surgical treatment and demonstrated successful follow-ups, with no evidence of systemic metastasis, psychosis, dementia, or suicidal behavior. A total of 245 patients agreed to participate and complete all of the surveys (94.2%) in this study.

Face-to-face interviews were performed by trained community physicians to collect information on demographic characteristics, doctor-patient communication variables and quality of life.

Written informed consent to participate in this study was obtained from all participants. In addition, the individuals in this manuscript provided their written informed consent to publish their case details. The ethics committee of the Guangzhou Center of Disease Control and Prevention approved this study proposal.

Health-related quality of life (HRQOL)
The Functional Assessment of Cancer Therapy-Breast (FACT-B) questionnaire was used to assess the quality of life among breast cancer patients. The FACT-B is a 36-item self-report questionnaire designed to measure the multidimensional quality of life in patients with breast

Table 1. Demographic, Clinical and Doctor-Patient Relationship Characteristics in Breast Cancer Females in Guangzhou

Variable	The number of breast cancer patients (n=253)	%	Variable	The number of breast cancer patients (n=253)	%
All	245	100			
Demographic characteristics			TNM stage		
Age			0-I	77	31.4
≤50	77	31.4	II	123	50.2
>50	168	68.6	III/IV	45	18.4
Education (years)			Radiation therapy		
≤9	121	49.4	No	62	25.3
>9	124	50.6	Yes	183	74.7
Marriage			Chemotherapy		
single	7	2.9	No	181	73.9
in marriage/ cohabitation	213	86.9	Yes	64	26.1
separated/divorced	6	2.4	Side effects		
widowed	19	7.8	Yes	201	82
Employment			No	44	18
unemployment except retirement	67	27.3	Doctor-patient relationship		
in job	38	15.5	the Doctor's attitude		
retirement	140	57.1	very good or good	160	65.3
Family income (RMB per year)			generally or bad	85	34.4
<6000	178	72.7	Information consent		
≥6000	67	27.3	all or mostly is known	154	62.9
Clinic characteristics			a few or nothing is known	91	37.1
Diagnosis time (years)			Patient's participation in medical-decision		
<1	144	58.8	participation all or mostly	118	48.2
≥1	101	41.2	decision all by the physician	127	51.8

Table 2. Comparing the QOL with Different Doctor-Patients Communication Variables of Breast Cancer Patients (mean ± std)

variable	PWB	SWB	EWB	FWB	BCS	TOTAL
All	20.0±5.4	18.9±5.3	13.1±2.0	15.0±6.3	23.2±5.1	90.3±18.2
the doctors' attitude						
very good or good	20.4±5.6	19.6±5.0	13.5±1.9	16.0±6.2	23.5±5.3	93.0±18.2
generally or bad	18.4±4.4	15.5±5.1	11.7±2.0	10.7±4.6	22.0±4.1	78.5±12.8
F-value	4.8	24.3	31.3	28.7	3	25.7
P-value	0.029	<0.001	<0.001	<0.001	0.087	<0.001
information consent						
all or mostly is known	20.4±5.7	19.4±5.5	13.4±1.9	16.1±6.3	23.7±5.2	93.0±18.7
a few or nothing is known	19.1±4.5	17.6±4.5	12.4±2.1	12.2±5.3	21.8±4.7	83.0±14.7
F-value	2.8	6	12.1	20.6	7.1	15.5
P-value	0.095	0.015	0.001	<0.001	0.008	<0.001
Patient's participation in medical-decision						
participation all or mostly	20.2±5.4	19.1±5.1	12.9±2.2	14.7±5.6	23.1±4.8	90.0±17.2
participation partly or nothing	19.9±5.5	18.7±5.5	13.4±1.8	15.3±6.8	23.3±5.4	90.6±19.1
F-value	0.1	0.4	3.8	0.4	0.2	0.1
P-value	0.74	0.515	0.052	0.506	0.703	0.792

cancer, including the FACT-General (FACT-G) (including physical well-being (PWB), social/family well-being (SWB), emotional well-being (EWB) and functional well-being (FWB)), as well as the breast cancer subscale (BCS) (Brady et al., 1997; Wan et al., 2002). A total FACT-B score was calculated by the sum of the subscales. The questionnaire was used to ask respondents to rate how accurate each statement was for the last 7 days. The response scales ranged from 0 (not at all) to 4 (very much). The Cronbach's alpha coefficient in this study was 0.93 for the total FACT-B, 0.85 for PWB, 0.82 for SWB, 0.86 for EWB, 0.88 for FWB, and 0.64 for BCS.

Doctor-patient communication

The effectiveness of doctor-patient communication had been assessed by three questions. 1) Doctors' attitude: "What do you think of the doctors' attitude?" The four answers were "very good", "good", "generally" and "bad". 2) Information consent: "Do you understand your disease?" The four answers were "know all", "know mostly", "know a few" and "know nothing". 3) Medical-decision making: " Were you involved in making treatment-related decisions?" The four answers were "participation all", "participation mostly", "participation partly" and "participation nothing".

Statistical analyses

The means and SDs of the subscales were evaluated for descriptive data. The proportion was evaluated for categorical data. One-way ANOVA was used for univariate analysis. Non-conditional logistic regression was also performed to estimate the odds ratios (ORs) and 95% confidence intervals (CIs) of the doctor-patients communication for high HRQOL while controlling for other confounding factors. We selected the median scores of the QOL measurement values as cutting points. The inclusion of variables in the model was determined according to both statistical and biological considerations. Data analyses were performed using the SPSS version 16.0 software (SPSS Inc, Chicago, USA). A two-sided *P*-value < 0.05 was determined as statistically significant.
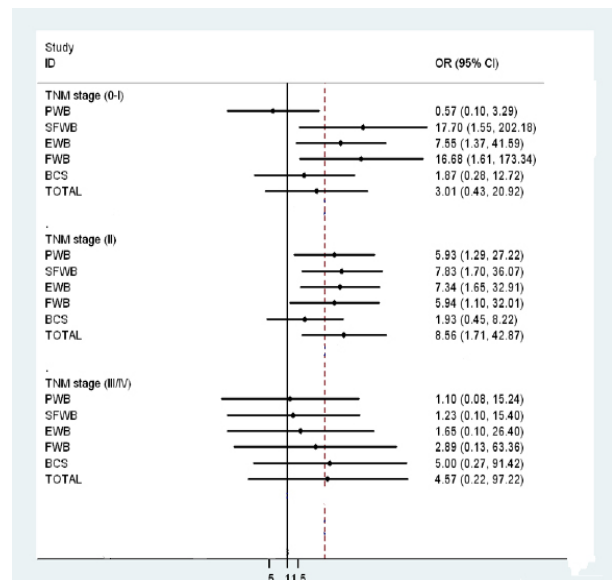

Figure 1 OR and 95% CI of High QOL Scores with Doctor Paying More Attention among Breast Cancer Patients According to TNM Stage

Results

Characteristics of the 245 participants were presented in Table 1. The mean age of patients was 57.2 ± 11.7. Approximately 74.7% and 26.1% of the patients underwent radiation therapy and chemotherapy, respectively. In addition, 65.3% of the patients thought that the doctors' attitude was very good or good, while 62.9% and 48.2% of the patients had a good information consent about the disease and participated all or mostly in the medical-decisions , respectively.

The mean score of Total QOL is 90.3±18.2 among breast cancer survivors. We found patients who thought that the doctors' attitude was very good or good had higher scores in terms of PWB, SWB, EWB and FWB and the Total QOL compared to those who thought that the doctors' attitude was general or bad (Table 2). Similarly, patients who had a good information consent about the

Table 3. Odds Ratios (OR) and 95% Confidence Intervals (CI) of High QOL Scores with Different Doctor-Patients Communications Among Breast Cancer Patients

| variable	PWB	SWB	EWB	FWB	BCS	TOTAL
the doctors' attitude						
verygood or good	2.17(0.86-5.47)	5.88(2.16-16.05)	4.77(1.92-11.88)	5.26(1.90-14.52)	1.98(0.79-5.00)	4.65(1.68-12.86)
generally or bad	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)
P-value	0.102	0.001	0.001	0.001	0.147	0.003
information consent						
all or mostly is known	1.04(0.47-2.26)	1.92(0.87-4.23)	1.32(0.60-2.90)	1.92(0.88-4.21)	1.72(0.78-3.83)	2.36(1.04-5.33)
a few or nothing is known	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)
P-value	0.932	0.107	0.486	0.102	0.182	0.039
Patient's participation in medical-decision						
participation all or mostly	1.57(0.80-3.09)	2.17(1.08-4.33)	1.08(0.54-2.15)	0.92(0.48-1.78)	1.14(0.58-2.24)	1.61(0.82-3.16)
participation partly or nothing	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)	1.00(Ref)
P-value	0.19	0.029	0.827	0.814	0.697	0.168
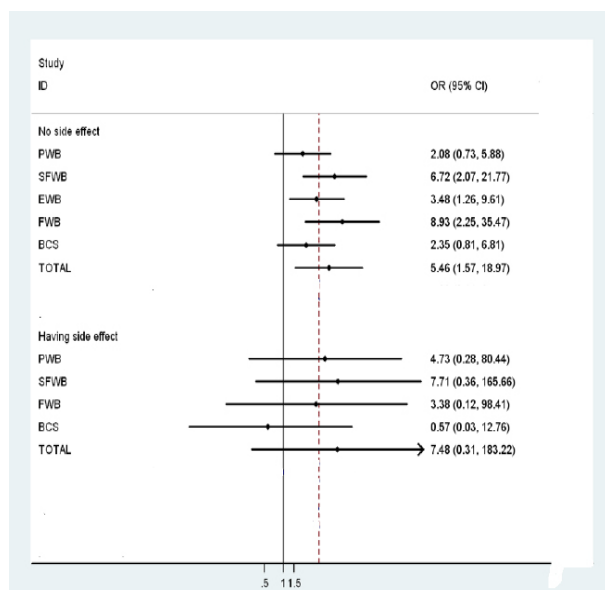
Figure 2. OR and 95% CI of High QOL Scores with Doctor Paying More Attention among Breast Cancer Patients According to Side Effect
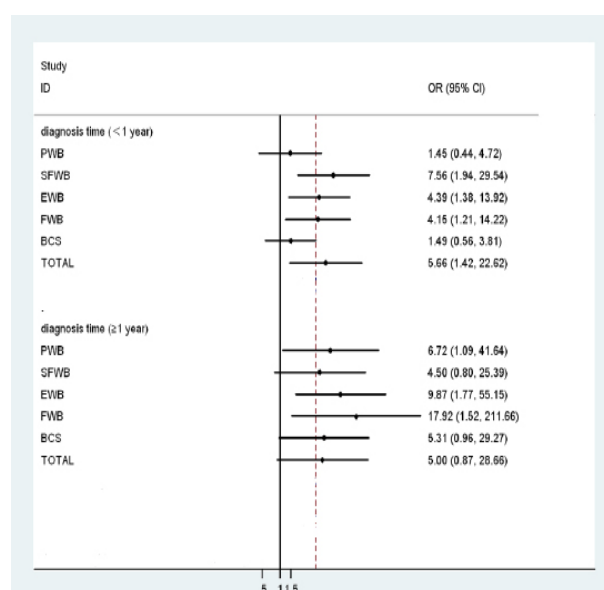

Figure 3. OR and 95% CI of High QOL Scores with Doctor Paying More Attention among breast cancer patients according to Diagnosis Time

disease demonstrated higher scores in terms of SWB, EWB, FWB, BCS and Total QOL. However, there were no significant differences between the patients' participation in all and most of the medical decision-making by the physician.

Using non-conditional logistic regression analysis, we found that patients who thought that the doctors' attitude was very good or good were more likely to have higher scores of SWB, EWB, FWB and TQOL, after controlling for age, education, marriage, employment, family income, the time since diagnosis, TNM stage, radiation therapy, chemotherapy and side effects, with ORs (95% CIs) of 5.88 (2.16-16.05), 4.77 (1.92-11.88), 5.26 (1.90-14.52) and 4.65 (1.68-12.86), respectively. Patients who were well informed of the disease had higher scores of Total QOL with OR of 2.36 (95% CI: 1.04-5.33) (Table 3).

As shown in Figure 1-2, patients who thought that the doctors' attitude was very good or good exhibited higher social/family well-being (SWB), emotional well-being (EWB) and functional well-being (FWB) scores when the TNM stage was 0-II and the patients had no side effects. However, there were no significantly associated between the breast cancer subscale (BCS) scores and the doctors'

attitude. The doctors' attitude did not affect the Quality of life when the TNM stage was III or above and there were side effects experienced by the patients. Thus, Figure 3 represents that higher scores of emotional well-being (EWB) and functional well-being (FWB) were obtained with good attitude from the doctors despite the length of the diagnosis time.

Discussion

Three purposes of the doctor-patient communication have been outlined: creating a good interpersonal relation, exchanging information and making treatment-related decisions. (Bredart et al., 2005). This study examined the effect of the three aspects on quality of life among breast cancer patients in southern Chinese populations. Our results suggested that females who thought the doctors' attitude very good or good demonstrated better quality of life in terms of the assessment tool of the FACT-B subscale (including physical well-being, social/family well-being, emotional well-being and functional well-being), particularly when the TNM stage was 0-II and when the patients had no side effects.

Effectd of Doctor-patient Communication on Quality of Life among Breast Cancer Patients in Southern China

The doctors' attitude is vital to the doctor-patient communication. Poorer attitude leads to ineffective communication which inhibits information processing (Turan et al., 2002). J.Kerr et al found that quality of life variables (functioning, symptom, body image, lifestyle and other worries) scores were significantly worse when communication was insufficient among breast cancer patients and their medical staff, which remained significantly different up to 4 years after diagnosis (Kerr et al., 2003). The desire for psychological support and quality of life exhibited the strongest correlation, particularly for "psychological well-being" (Kleeberg et al., 2005). Moreover, the doctor-patient relationship was indirectly correlated with emotional well-being(Lim et al., 2009). Self-efficacy in patient-physician communication was directly associated with Health-related Quality of life in Chinese-Americans (Lim et al., 2013). For cultural health beliefs, breast cancer patients were more likely to believe their physician regarding their health. Thus, the doctors' attitudes directly influence the treatment effect, including the patients' quality of life. In addition, doctors who communicate nicely and sufficiently with the patients enabled her to feel that she was not alone and that she was not a machine, but rather a human being with emotions, in which she needs to be paid attention.

In this study, the side effects included nausea and vomit, pain, sadness, anxiety, fear, depression, and sleep disorders, among others. However, only when the patients had no side effects, was there a significant effect on the quality of life on the doctor's attitude. The quality of life was significantly and inversely related to scores of fatigue, nausea and vomiting, pain and insomnia (Jaiyesimi et al., 2007). Similarly, the difference was significant at the low-level clinical stage. Previous studies found that lower stages of cancer could affect the QOL of breast cancer patients (Moro-Valdezate et al., 2012; Shen et al., 2012). Thus, the side effect and TNM stage were confounding factors between the doctors' attitude and the QOL of breast cancer.

Patients with higher scores of quality of life, such as SWB, FWB, EWB, BCS and Total when they were aware of their disease situations in univariate analysis, and a higher score in Total score in multivariate analysis. Similar studies found that patients rated their level of information at baseline as of high experienced higher quality of life after three and six months(Vogel et al., 2009). Some information can help patients gain a sense of control while some other information can cause patients to worry more. Each patient has their special needs. Doctors must recognize their need to be trained in assessing patients' evolving information needs as well as in responding to more assertive patients who need to receive information about the stage of disease, treatment options, side-effects of treatment, recovery during diagnosis, treatment and post-treatment (Rutten et al., 2005).

We demonstrated that the patients' role in the decision-making process had no significant effect on the QOL. Previous studies demonstrated distinct ideas. Andersen et al found that involvement in decision-making about surgery was not a statistically significant contributor to the quality of life of the survivor, but decision-making about

the use of testing for recurrent diseases was a significant predictor (Andersen et al., 1999). The level of participation itself (passive, collaborative, active) had no effect on the quality of life (Vogel et al., 2009). However, several studies found opposite conclusions. Schleife et al found that the degree of shared decision-making contributed only marginally to quality of life (Schleife et al., 2012). Similarly, Deadmana et al found that breast cancer patients who were involved with decision regarding the type of operation to be performed exhibited a higher degree of satisfaction compared to patients who were not involved with this decision (Deadmana et al., 2001). Thus, further studies which have more participants should been needed.

Overall, the quality of life of breast cancer patients was affected by the doctor-patient communication, particularly by the doctor's attitude, which had an association with a higher score in the QOL by the FACT-B subscale assessment. The good communication could improve the satisfaction of patients which was strongly associated with good quality of life among cancer patients undergoing palliative care (Sharifa Ezat et al., 2014). Thus, the doctor should communicate with his patient on three planes (communication, emotional, cultural and intellectual plane) to provide the maximum satisfaction to his patient (Mahmud, 2009), thus improving upon the quality of life among breast cancer survivors. More communication skills were needed to manage conflict and to attain consensus among the patients, which were essential to improve the HRQOL for breast cancer survivors in the future. Especially when patients were discharged, communication mustn't be terminated. Health care providers must pay more attention to information provision through various approaches.

The doctor-patient communication is a complex question that involves many aspects. It is related to different medicinal models of Biomedical Dualism to Holism to Consumerism (Li et al., 2002). This study examined three aspects; thus, further studies are required to analysis additional communication variables. In addition, more subjects should be recruited in the research to satisfy the need of different levels. Furthermore, future studies will focus on interventions which should enhance the effectiveness of doctor-patient communication in order to improve the QOL of breast cancer survivors.

Acknowledgements

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