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Sexuality and quality of life of breast cancer patients post mastectomy

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A B S T R A C T

Aim: To evaluate the sexual functioning of breast cancer patients post mastectomy and its association with their quality of life, the personal characteristics of women and their partners, breast reconstruction, cancer staging and adjuvant therapies.
Methods: A cross-sectional study was carried out in a University hospital located in the SouthEast of Brazil. A total of 100 women were included in the study. The parameters evaluated were sexual functioning, which was assessed based on the Sexual Quotient – Female Version (SQ-F), quality of life (QoL), evaluated by the Medical Outcomes Study 36-item Short Form (SF-36), cancer staging, breast reconstruction, adjuvant therapies and the personal characteristics of patients (age, years of study and years of marriage) and their partners (age, years of study).
Results: The majority (40.48%) of women had an unfavorable to regular SQ-F score. A significant positive correlation ($p < 0.05$) was found between the SQ-F score and years of education ($p = 0.03$), and the following SF-36 domains: functional capacity ($p = 0.03$), vitality ($p = 0.06$), emotional limitations ($p = 0.00$) and mental health ($p = 0.03$). A significant negative correlation was found between SQ-F score and the age of the partners ($p = 0.03$). SQ-F mean value was significantly higher ($p = 0.04$) among women who underwent breast reconstruction.
Conclusions: Women with low educational level, who have older partners, and who did not have a breast reconstruction should receive special attention with respect to their sexuality, and the effects of mastectomy on the sexuality of patients should be assessed. Oncology nurses are best qualified to recognize issues related to sexuality and quality of life, and can offer specific and meaningful support for breast cancer patients.

Introduction

All women diagnosed with breast cancer, regardless of ethnicity, have concerns regarding sexuality and body image (Wilmoth and Sanders, 2001). Prior studies undertaken in diverse countries have concluded that women felt that their sexual functioning was affected post mastectomy (Avis et al., 2004; Duarte and Andrade, 2003; Ferreira and Mamede, 2003; Huber et al., 2006; Huguet et al., 2009a,b; Noyan et al., 2006; Rowland et al., 2000; Wilmoth et al., 2004).

Among North American women, the breast has greater significance than morely a body part. The feminine identity, womanhood, sexuality, attractiveness, nurturance, and motherhood are some issues directly related to the breasts (Pikler and Winterowd, 2003). As such, negative consequences to body image and self-concept can be provoked by the loss of breast (Frost et al., 2000; Mock, 1993).

The Latina early-stage breast cancer survivors, when compared to White and African American counterparts, have showed higher levels of emotional distress and social and sexual disruptions (Spencer et al., 1999).

Among Brazilian women, issues related to body image have a special connotation. Beauty, the body, and intelligence are the main preoccupations of middle-class women living in Rio de Janeiro, a city in the Southeast of Brazil (Goldenberg, 2005). Undergoing a mastectomy therefore provokes a significant degree of anxiety in Brazilian women. The main difficulties confronted by breast cancer patients post mastectomy were found to be related to exposing their body, the expression of sexuality and the feeling of impotence towards the new condition (Duarte and Andrade, 2003; Ferreira and Mamede, 2003).

Social prejudice is a strong embarrassment for the Brazilian women who undergo mastectomy. These women have expressed

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that the social stigma and its consequence on self-concept were one of the main problems confronted after the surgery. Moreover, they have created prejudices in relation to their own body image (Almeida et al., 2001). Consequently, difficulties were confronted within the sexuality scope, mainly the resumption of sexual activity (Fialho and Silva, 1993; Duarte and Andrade, 2003).

The sexuality represents one of main aspects of relationship between a women and her husband. It is also quite important for the QoL, that is affected by the mastectomy (Ganz et al., 2002; Kenny et al., 2000). Patient reports revealed that the positive QoL score was a result of family support and social relationships (Sales et al., 2001). Qol is a critical aspect related to breast cancer because of it has been becoming a chronic disease. The years of life have increased after treatments such as the mastectomy. This increase has produced permanent consequences in several areas of women`s life (Bech, 1995).

The decline in physical functioning at the end of the primary treatment for breast cancer was observed, in particular, in women treated by total mastectomy or chemotherapy (Ganz et al., 2004). Poor physical functioning was associated with symptoms like muscle stiffness, breast sensitivity, pain, tendency to take naps, and difficulty concentrating. Physical needs, including fatigue and pain (Badger et al., 2001; Longman et al., 1997; Ferrell et al., 1998; Rabin et al., 2007), and the request for support to avoid and overcome psychological needs (Rabin et al., 2007) were the main demands observed among these patients. Therefore QoL of cancer patients should be an issue of increasing concern among healthcare practitioners (Sammarco and Konecny, 2008).

Brazilian patient reports revealed that the positive QoL score was a result of good health conditions, religious beliefs, family support and social relationships, the valorization of life after overcoming breast cancer (Sales et al., 2001), or the multidisciplinary involvement in patient care (Huguet et al., 2009a). The lowest QoL scores were found among women who had problems with anxiety, were older, or were facing financial problems (Sales et al., 2001).

Studies focusing on the sexual functioning of the Latina population post mastectomy and on the association between adjuvant therapies, QoL and the characteristics of patients and their partners are rare in nursing and the allied health literature.

This study aimed to evaluate the sexual functioning of breast cancer patients post mastectomy and its association with their quality of life, the personal characteristics of women and their partners, breast reconstruction, cancer staging and adjuvant therapies.

Methods

Research design

This is a cross-sectional study.

Sample and setting

Breast cancer patients post mastectomy in the University of São Paulo Medical School Hospital, located in Southeastern Brazil, participated in the present study. Criteria for participating included conclusion of adjuvant therapies, being within the first or second year post mastectomy and being able to communicate. Women with metastatic cancer were excluded.

Instruments

A sociodemographic form, composed by questions related to personal characteristics of patients (age, years of study and years of marriage), cancer staging, breast reconstruction and adjuvant therapies (chemotherapy, radiation therapy and hormone therapy), and their partners characteristics (age and years of study), was utilized for data collection.

The "Medical Outcomes Study 36-item Short-Form Health Survey (SF-36), and the *"Sexual Quotient – Female version"* (SQ-F) were used instead of Breast Cancer – Specific Quality of Life Questionnaire (QLQ – BR23), elaborated by the European Organization of Research and Treatment of Cancer (EORTC), and the Functional Assessment of Cancer Therapy for Breast Cancer (FACT – B) (Kemmler et al., 1999). This choice was based on the lack of validation of these tests in Brazilian culture.

The SF-36 was validated for use in the Brazilian culture (Ciconelli, 2003). The test is composed of eleven questions, and it evaluates eight QoL domains: functional capacity, physical limitations, pain, health condition, vitality, social aspects, emotional limitations and mental health. Each domain corresponds to a value between zero and one hundred. The QoL was scored as good to excellent (82–100), regular to good (62–80), unfavorable to regular (42–60), bad to unfavorable (22–40) and null to bad (0–20). Internal consistency reliability in the present study was between 0.75 and 0.90.

The SQ-F, validated for the Brazilian culture by Abdo (2006), was used to verify the sexual satisfaction and functioning of the patients. It is composed of ten questions and each of them is scored on a scale from zero to five. The results of all questions were added up and the final result was multiplied by two, resulting in a score between zero and one hundred. The sexual functioning scores used were good to excellent (82–100), regular to good (62–80), unfavorable to regular (42–60), bad to unfavorable (22–40) and null to bad (0–20). Internal consistency reliability in the present study was 0.84.

The dependent variable was the SQ-F and the independent variables were the QoL domains according to the SF-36, sociodemographic characteristics of the patients (age, years of study and years of marriage), the sociodemographic characteristics of the partners (age and years of study), cancer staging, breast reconstruction and adjuvant therapies (chemotherapy, radiation therapy and hormone therapy).

Procedures

Women were identified at the hospital patient registration department. Data related to disease and treatment, as well as the address and phone number of each patient were obtained. An explanatory cover letter was sent to all women (142) who met the inclusion criteria of the study. The selected patients were asked to attend the hospital to collaborate with the research and were informed that the researchers were not affiliated with the hospital. Forty-eight women arrived spontaneously after the first request. Among the other 94 women or their family members contacted by phone, 25 were not found, 15 had passed away and two did not meet the requirements. Researchers went to the homes of the other 52 women to obtain data. None of the women refused to collaborate with the research. A total of 100 women (N) were included in this research sample. All research activities were done by the authors of this article.

Data analysis

The data was analyzed using SPSS® for Windows (version 16.0). Descriptive statistics were used to analyze demographic data, and Crombach's alpha coefficient was used to measure reliability. The correlations between the SQ-F and the independent variables were calculated using Spearman's Correlation Coefficient and a multiple regression model. The mean SQ-F scores and clinical variables were

compared using ANOVA (General Linear Model). The Multiple Linear Regression Analysis was done using the SQ-F score as the variable. The domains of SF-36, and sociodemographic variables were the predictor variables. The Stepwise Method with elimination criteria ($p \geq 0.10$) was used. $P < 0.05$ was considered statistically significant.

Findings

The sociodemographic characteristics of the participants and their partners are presented in Table 1 and the SQ-F of sexually active women is shown in Table 2.

A higher proportion of women scored unfavorable to regular in the SQ-F test (Table 2).

The higher mean SF-36 score was related to social aspects, followed by health conditions, mental health, functional capacity, and vitality. The mean quality of life score of women post mastectomy was unfavorable to regular. Among sexually active women, the mean sexual functioning score was unfavorable to regular. All SF-36 and SQ-F items showed high internal consistency (Table 3).

A statistically significant correlation ($p < 0.05$) between the SQ-F score and the following SF-36 domains was found: functional capacity, vitality, and emotional limitations (Table 4). Higher SQ-F scores were associated with higher SF-36 scores. A statistically significant ($p < 0.05$) correlation was found between the SQ-F score and the years of education of the patients and the age of the partner (Table 4). Higher education levels were associated with better SQ-F scores, and older partners were associated with women with lower SQ-F scores.

The SQ-F mean value was statistically better among women who had undergone breast reconstruction. No statistically significant correlation was found between the SQ-F score and cancer staging, chemotherapy, radiation therapy, and hormone therapy (Table 5).

Meaningful SQ-F predictors for the women included in the study are shown in Table 6. The Multiple Linear Regression Analysis resulted in two predictor variables with statistical significance, namely the emotional limitation domain of SF-36 and the women's years of education. Durbin–Watson Statistics less than 2.0 (DW = 1.86) indicated the inexistence of residual autocorrelation in the regression analysis. The Variance Inflation Factor (VIF) values were 1.00 for both predictors.

Table 1
Description of sample. ($N1 = 100$; $N2 = 68$).

Characteristics		Women		Partners	
		N	%	*N*	%
Age (years)	30–39	13	13.00	05	07.35
	40–60	69	69.00	40	58.82
	60 or more	18	18.00	23	33.83
Level of education (years)	1–4	36	36.00	30	44.12
	5–8	21	21.00	12	17.65
	9 or more	43	43.00	26	38.23
Religion	Catholic	65	65.00	44	64.71
	Evangelical Christian	28	28.00	13	19.12
	Others	7	7.00	11	16.17
Financial dependence	Own work	61	61.00	67	98.53
	Partner	39	39.00	1	1.47
Procedures/treatments	Breast reconstruction	25	25.00		
	Chemotherapy	85	85.00		
	Radiation therapy	68	68.00		
	Hormone therapy	66	66.00		
Marital status	With partner	68	68.00	68	100.0
	Without partner	32	32.00		
Relationship with partner (years)	<10	13	19.11		
	11 or more	55	80.89		
Marital status after mastectomy	Maintenance	62	91.18		
	No maintenance	6	8.82		
Sexual intercourse	Yes	42	61.77		
	No because mastectomy	6	8.82		
	No for other reasons[a]	20	29.41		

[a] Lack of libido, advanced age, women or partners' disease conditions.

Table 2
SQ-F scores of women having sexual intercourse. ($N = 42$).

Classification/score	*N*	%
Good to excellent (82–100 points)	06	14.29
Regular to good (62–80 points)	09	21.43
Unfavorable to regular (42–60 points)	17	40.48
Bad to unfavorable (22–40 points)	07	16.66
Null to bad (0–20 points)	03	07.14
Total	42	100.00

Discussion

Mastectomy is associated with serious problems in the sexual functioning of breast cancer patients. The main problems relating to sexuality confronted by breast cancer patients post mastectomy were the feeling of mutilation and prejudices related to self-image (Duarte and Andrade, 2003; Yeo et al., 2004), depression and the consequent decrease of sexual desire, feeling of sexual unattractiveness, dissatisfaction with sexual activity level, difficulties related to orgasm, fatigue and pain, changes in hormonal status, and difficulties derived from vaginal dryness (Holmberg et al., 2001; Meyerowitz et al., 1999).

These symptoms should be considered as a "symptom cluster" because they are mutually related and experienced concurrently. The prevention of altered sexuality, considered as a "synergistic symptom climax", requires early professional support. Specific management of each symptom is required (Wilmoth et al., 2004).

Problems related to body image and sexuality were identified in all women post mastectomy, regardless of ethnicity (Wilmoth and Sanders, 2001). Personal needs should be evaluated considering the ethnic and cultural context because the manifestations of sexual dysfunction differ among women (Kneece, 2003). Providing qualified oncology care to diverse populations requires additional effort through the incorporation of culturally specific support, which can be adjusted to the needs of each client (Andrews and Boyle, 2002; Leininger, 2003; Purnell, 2002). When health care is delivered to Latina breast cancer survivors, specific aspects should be considered including social support, empathy towards the feeling of uncertainty and its consequences in daily self-care practices.

Table 3
Mean, SD, range and Cronbach's α of SQ-F ($N = 42$) and SF-36 ($N = 100$).

Scores (0–100)	Mean	SD	Range	Cronbach's α
SQ-F	54.38	21.62	10–96	0.84
SF-36				
Functional capacity	62.80	27.20	0–100	0.89
Physical limitations	34.25	39.19	0–100	0.84
Pain	40.30	26.49	0–90	0.75
Health conditions	67.37	25.09	0–100	0.79
Vitality	51.90	18.56	0–90	0.84
Social aspects	73.25	34.13	0–100	0.90
Emotional limitations	49.00	43.54	0–100	0.84
Mental health	67.16	23.55	4–100	0.81

Table 4
Correlation coefficient between SQ-F score and SF-36 domains, and the characteristics of patients and their partners ($N = 42$).

SF-36/personal characteristics	r	p
Domains		
Functional capacity	0.34	0.03
Physical limitations	0.21	0.18
Pain	−0.22	0.17
Health conditions	0.22	0.17
Vitality	0.30	0.06
Social aspects	0.23	0.14
Emotional limitations	0.50	0.00
Mental health	0.34	0.03
Women		
Age	−0.29	0.06
Years of study	0.33	0.03
Years of marriage	−0.24	0.12
Partners		
Age	−0.35	0.03
Years of study	0.30	0.06

Measures aimed at promoting a better QoL should be adopted (Sammarco and Konecny, 2008).

A statistically significant relation was found between SQ-F scores and the number of years of education (Table 4). Similar findings have previously been reported by other researchers. A recent report found that among Brazilian breast cancer survivors, a high educational level was associated with better physical and emotional functions, as well as better sexual functioning in comparison to women with a lower educational level (Huguet et al., 2009a,b).

The association between educational level and its effects on QOL has been reported in studies from several countries (Cui et al., 2004; Guner et al., 2006). In addition, complaints regarding the provision of inconsistent and vague information by healthcare professionals were reported by women post mastectomy in a Brazilian healthcare service (Pacheco et al., 1996).

Patients with low levels of education require additional support to understand the disease and the effects of adjuvant therapies, as well as to adopt an adequate care practice (Huguet et al., 2009a; Hoga et al., 2008). Pikler and Winterowd (2003) have demonstrated that women more educated have presented higher body image perceptions. So, patients levels of education should be considered in the in the clinical setting. The provision of significant information contributes to dealing with the disease successfully and consequently leads to high mental health functioning. Furthermore, patients with good mental health are better equipped to understand and seek the information they need (Mallinger et al., 2005).

The SQ-F score was related not only to the educational level of women, but also to the age of the patient's partners. In the present study, an increased age of the partner was related to a low SQ-F score in the patients. Hoga et al. (2008) have described that the partners of Brazilian post mastectomy breast cancer patients who were over 60 years of age reported that this procedure did not affect intimate relations because their marriage no longer centered around their sex life. These findings to show the lack of correspondence between the women's sexual desires and their partners point of view about female sexuality, mainly focused on sexual intercourse. The men's comprehensive understanding about the impact of mastectomy on the woman sexuality should be promoted in the clinical setting. Discussions about this issue should be included in the patient's counseling.

Table 5
Comparison between SQ-F score and cancer staging, breast reconstruction and adjuvant therapies ($N = 42$).

Variables	Categories	N	Mean	SD	p
Cancer staging	0–II	27	55.19	21.56	0.66
	III–IV	15	52.93	22.41	
Breast reconstruction	Yes	13	64.15	19.96	0.04
	No	29	50.00	21.20	
Adjuvant therapies					
Chemotherapy	Yes	35	53.71	22.46	0.93
	No	07	57.71	17.90	
Radiation therapy	Yes	28	54.21	24.13	0.32
	No	14	54.71	16.26	
Hormone therapy	Yes	29	53.93	23.01	0.69
	No	13	55.38	18.98	

Table 6
Meaningful predictors of SQ-F ($N = 42$).

Variables	Estimated parameter	Standard error	p
Constant	27.60	7.40	0.00
Emotional limitations	0.23	0.06	0.00
Years of study	1.71	0.69	0.02

Multiple analysis adjusted R2 = 0.31; $p = 0.00$.

No statistically significant difference was found between the SQ-F score and adjuvant therapies. The women treated by breast reconstruction showed a statistically significant high SQ-F score ($p < 0.05$) (Table 5).

Chinese women who were treated by breast reconstruction showed a significant improvement in sexuality and self-image (Yeo et al., 2004). Other researchers demonstrated a decline in sexual function in women post mastectomy with immediate reconstruction when compared with those without reconstruction. The sensory alterations caused by the prosthesis, the absence of a nipple or the asymmetry between the normal and reconstructed breast contributed to the occurrence of this decline (Yurek et al., 2000).

Many researchers have demonstrated the strong impact of breast cancer and mastectomy on sexual function among young women (Ganz et al., 2004; Huguet et al., 2009a,b; Rowland et al., 2000). Young couples receiving care in a sexual rehabilitation setting were found to be more distressed, and this condition was attributed to high expectations related to physical beauty (Schover, 1994), less preparation to face the question and the abandonment or postponement of plans related to motherhood (Ganz et al., 2004; Huguet et al., 2009a). Older breast cancer patients showed a trend towards greater resilience and better acceptance of the disease and its treatment than young patients (Ganz et al., 2002).

Research studies also found that patients treated with adjuvant therapies showed a poor sexual function score when compared with women who were not treated. Chemotherapy and hormone therapy, which provoke vaginal atrophy and dryness, contribute to a decrease in sexual desire and affect sexual life (Cantinelli et al., 2006). Patients treated by adjuvant therapies need special care to overcome this situation.

In the present study sample, high scores on the SF-36 domains (functional capacity, vitality, mental health and emotional limitations) (Table 4) were directly associated with the best SQ-F score. This finding confirms that post mastectomy symptoms in cancer patients are mutually related and experienced concurrently (Wilmoth et al., 2004). Measures to promote a better QoL among breast cancer patients post mastectomy should be adopted because they can contribute to a better sexual life (Huguet et al., 2009a).

Our findings also showed that high QoL scores were related to social aspects and mental health and low scores were associated with pain and emotional/physical limitations (Table 3).

These findings to reinforce the conclusions identified by Ganz et al. (2004) who have demonstrated the decline in physical

functioning at the end of the primary treatment for breast cancer treated by total mastectomy or chemotherapy. After the mastectomy, the main physical limitations were the muscle stiffness, the pain, and the fatigue (Badger et al., 2001; Longman et al., 1997; Ferrell et al., 1998; Braden and Mishel, 1997; Rabin et al., 2007). Moreover the approach of physical needs, the professionals should to offer a psychological support for them (Rabin et al., 2007).

The improvement of the physical and emotional functioning of breast cancer patients requires clinical interventions addressing the common symptoms (Ganz et al., 2004). Physical exercise is recommended to manage body limitations (McNeely et al., 2006; Wilmoth et al., 2004). Regular physical exercise has been shown to improve cardiorespiratory fitness, physical functioning, symptoms of fatigue and quality of life in breast cancer patients. Researchers have recommended that women post mastectomy receive details related to type, frequency, intensity and the time when physical exercises are prescribed (McNeely et al., 2006).

Pain coping strategies include positive coping statements, diverting attention, praying and hoping, increasing activity levels, and the ability to control and decrease pain (Gaston-Johansson et al., 1999). Special attention should be given to cancer patients' complaints about pain because this symptom is often underdiagnosed and undertreated by healthcare professionals (Badger et al., 2001).

Health professionals should identify the problems related to sexuality and intimacy reported by women post mastectomy and offer specific support for the adoption of practical strategies to improve sexual function (Hordern and Street, 2007), because these aspects are strongly associated with QoL (Huguet et al., 2009b).

The published literature contains several reports showing that the demands of breast cancer patients post mastectomy and adjuvant therapies involve the physical, psychological, social and spiritual domains (Ferrell et al., 1998). The main care demands from the patients' perspective are: receiving support based on a reflexive analysis of the situation, focusing attention on their own needs, receiving care from the professionals they choose, having the option to negotiate the communication style with professionals (Hordern and Street, 2007), and the inclusion of partners in the care process (Hoga et al., 2008; Huber et al., 2006).

The lack of attention to the demands associated with sexuality has occurred because there are few opportunities to raise this subject with professionals (Lavin and Hyde, 2006). Healthcare providers rarely consider the sexual dimension in care systematization. Insufficient preparation of healthcare professionals was found to be the main cause of failure in this aspect of health care (Hautamaki et al., 2007; Lavin and Hyde, 2006). The incorporation of training in the skills necessary for effective communication about sexual concerns is considered essential. The inclusion of micro-teaching with video feedback in the education curricula of nurses was suggested as a possibility to improve the skills of healthcare providers (Waterhouse, 1996).

Improvements in the skills of individual practitioners alone do not result in significant and sustained change in the experiences of the patients. Multiple factors that operate at individual, organizational and societal levels should be modified to overcome the reluctance of nurses to discuss sexual issues with their patients. A deep and comprehensive understanding of the impact of organizational and management culture, the consideration of health and social care resources and environmental constraints are essential aspects contributing to the improvement of the quality of care for breast cancer patients (White, 2006).

The inclusion of the partners in the support processes was considered an essential aspect in the care of breast cancer patients because most of the strategies successful at overcoming sexual difficulties are based on the couple's relationship. In this regard, nursing intervention can take place most effectively. Sexuality should be seen as a domain of care that needs to be addressed with the individual woman and her partner, overcoming the idea of excluding the men (Hoga et al., 2008; White, 2006).

The use of QoL assessments was also recommended because of their potential utility in clinical practice, in which they showed several benefits, including the capacity to prioritize problems, of more effective communication with patients, the prevention of adverse effects, and the identification of patients' preferences (Sneeuw et al., 2002). Nurses, who are the primary health professionals that communicate with patients about their feelings related to the diagnosis and treatment of breast cancer, require specific training in communication skills, management of subjective symptoms and counseling in relation to QoL factors (Rabin et al., 2007).

Conclusions

In summary, the findings of this study showed that the SF-36 and SQ-F scores of a group of Brazilian cancer patients post mastectomy were unfavorable. The critical aspects involved in the unfavorable scores were the emotional and physical aspects and pain. In general, the women's sexuality post mastectomy was significantly more affected when they have lower educational level, older partners and haven't breast reconstruction.

Limitations and recommendation for further studies

The number of women included in this study was limited because larger numbers of women post mastectomy that met the inclusion criteria could not be identified. A multicentre study, which would allow the inclusion of more women with a wider range of personal characteristics and social and family backgrounds is essential for the understanding of the studied phenomenon.

Further studies are necessary to explore how the age of the partners affects their perception of their spouse's mastectomy, because of this finding was not identified or explored within the scientific literature.

The controversies identified among several research studies regarding the association between breast reconstruction and sexual function, indicate the need for further comprehensive studies that consider the different perspectives involved in this issue.

Clinical implications

Healthcare professionals should include an assessment of the effects of mastectomy on the sexuality of breast cancer survivors. Oncology nurses can recognize medical outcomes and sexual issues and they are best suited to offer specific and meaningful support that is adapted to the specific demands of the patients and that considers the specific characteristics of patients and their partners.

Conflict of interest statement

The authors declare that there is no conflict of interest.

Ethical considerations

Authorization from the Ethics Committee of Faculty of Medicine of University of São Paulo (Register number 208/2007) was obtained before data collection. All patients signed the Informed Consent Form. Permissions to use the SF-36 and SQ-F scales were also obtained from the respective authors.

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