Doctor–patient relationship mediates the effects of shared decision making on health-related quality of life among women living with breast cancer

Nuworza Kugbey¹,², Kwaku Oppong Asante¹,³ and Anna Meyer-Weitz¹

Abstract
Decreased quality of life is a major challenge among women living with breast cancer due to treatment effects and other psychosocial comorbidities. However, shared decision making and doctor–patient relationship have been linked to improved quality of life, but the mechanism linking shared decision making and quality of life is poorly understood. This study therefore examined both the direct and indirect influences of shared decision making on quality of life through doctor–patient relationship among 205 women living with breast cancer in Ghana with a mean age of 52.49 years. Using a cross-sectional design, participants were administered questionnaires which measured quality of life, doctor–patient relationship, and shared decision making. Results showed that shared decision making had significant indirect influence on overall quality of life via doctor–patient relationships ($b=4.69$, 95% confidence interval = [0.006, 9.555]). Shared decision making had a significant effect on doctor–patient relationships ($b=7.63$, $t=6.76$, $p<.001$) but no significant direct effect on quality of life ($b=2.72$, $t=0.510$, $p=.61$). Findings suggest that shared decision making results in improved doctor–patient relationships which probably lead to better quality of life among women living with breast cancer. These findings underscore the need for increased patient involvement in medical decisions to improve interpersonal relationships and consequently quality of life.

Keywords
Breast cancer, doctor–patient relationship, Ghana, quality of life, shared decision making

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Quality of life has become an important outcome measure of persons living with chronic illness including breast cancer (Paraskevi, 2012; Perry, Kowalski, & Chang, 2007). Due to increased survival chances of women diagnosed with breast cancer, efforts are made by clinicians and researchers to identify ways to enhance the health and well-being of these women. Quality of life refers to individuals’ appraisal of their lives in relation to goals, expectations, standards, and concerns and this appraisal is influenced by the individuals’ physical health, psychological state, level of independence, social relationships, and their environment (World Health Organization [WHO], 1998). Quality of life domains such as physical, social/family, emotional, and functioning well-being are essential in evaluating the effectiveness of the healthcare treatment.

Several factors have been found to have significant effects on the quality of life of women living with breast cancer. For instance, socio-demographic factors such as age (Brunault et al., 2016; Howard-Anderson, Ganz, Bower, & Stanton, 2012), duration of illness, level of education, type of treatment, body mass index, stage of cancer, and other comorbidities (Farin & Nagl, 2013; Klein et al., 2016) are found to be associated with quality of life among breast cancer patients. Mental health problems such as depression and anxiety (Colby & Shifren, 2013; Reyes-Gibby, Anderson, Morrow, Shete, & Hassan, 2012) influence the overall quality of life and the various domains of quality of life. On the other hand, factors such as social support (Kroenke et al., 2013; Leung, Pachana, & McLaughlin, 2014), patients’ involvement in decision making (Vogel, Leonhart, & Helmes, 2009), and doctor–patient relationship and communication (Maly, Liu, Liang, & Ganz, 2015; Street, Makoul, Arora, & Epstein, 2009; Trudel, Leduc, & Dumont, 2014) are found to improve quality of life among women living with breast cancer.

Doctor–patient relationship and quality of life

One of the important contextual factors that influence the health outcomes of persons living with chronic illnesses like breast cancer is doctor–patient relationship (Farin & Nagl, 2013). The quality of doctor–patient relationship has been viewed as an underlying principle in patient-centred care as most decisions regarding accurate diagnosis, effective treatment, and health outcomes are inextricably dependent on quality of this doctor–patient relationship (Kaba & Sooriakumaran, 2007; Zhou et al., 2014). This makes the doctor–patient relationship an important variable especially in the oncology practice as it involves a complex process of decision making with regard to treatment options and other critical health decisions (Kerr, Engel, Schlesinger-Raab, Sauer, & Hölzel, 2003; Vogel et al., 2009).

Studies have shown that good doctor–patient relationships are associated with improved quality of life among breast cancer patients (Farin & Meder, 2010; Zhang, Nilsson, & Prigerson, 2012). A key component of the doctor–patient relationship is effective communication, as several studies have found it to be significantly associated with positive health outcomes among cancer patients (Maly et al., 2015; Street et al., 2009; Trudel et al., 2014). However, the mechanisms linking effective doctor–patient communication to positive health outcomes are poorly understood (Street et al., 2009). Increased access to care, greater patient knowledge and shared understanding, higher quality medical decisions, enhanced therapeutic alliances, increased social support, patient agency and empowerment, and better management of emotions are suggested as key mechanisms linking doctor–patient communication to positive health outcomes (Street et al., 2009). These findings highlight the importance of doctor–patient relationship in influencing the health outcomes of breast cancer patients.

Shared decision making and quality of life

Closely related to the doctor–patient relationship is the concept of shared decision making which has been advocated as critical in the care and treatment of persons living with chronic illnesses
For instance, in the study by Vogel et al. (2009), the influence of physician–patient communication and shared decision making on patients’ depression and quality of life were investigated and it was found that high level of information and active participation in decision making were associated with lower levels of depression and improved health-related quality of life. Evidence also exists for the positive impact of shared decision making on health outcomes in the long term (Davies, Kinman, Thomas, & Bailey, 2008; Griggs et al., 2007).

However, some systematic reviews did not find any strong evidence of shared decision making influencing clinical outcomes (Arora, 2003; Joosten et al., 2008). It was reported that some patients do not want to assume responsibility for their treatment decisions which impact their extent of involvement in shared decision making (Arora, 2003; Deadman, Leinster, Owens, Dewey, & Slade, 2001). The lack of consistency in the findings suggests that there is a need for further research to examine the influence of shared decision making and doctor–patient relationship on the health outcomes of breast cancer patients. It is evident from the studies reviewed that little attention is paid to the mechanism linking shared decision making to health outcomes especially quality of life among breast cancer patients.

In addition, the majority of the studies were conducted in western countries with relatively different orientations to healthcare and patterns of doctor–patient relations, for example, power–distance/orientations (Hofstede, 2001, 2011) than that of the African context. It is believed that power differentials have significant influence on doctor–patient communication and the expectations that patients may have from their healthcare providers (Charles, Gafni, Whelan, & O’Brien, 2006; Nápoles-Springer, Santoyo, Houston, Pérez-Stable, & Stewart, 2005). That is, patients from cultures with low power distance are more likely to be actively involved in their medical decisions, whereas patients from cultures with high power distances accept authoritative recommendations from their healthcare providers without questioning (Gao, Burke, Somkin, & Pasick, 2009; Hofstede, 2011). In Hofstede’s insight on country comparisons in cultural dimensions, Ghana had a score of 80% on power distance which suggests that people accept a hierarchical order in which everybody has a place and which needs no further justification. Thus, there is a need for a study in the Ghanaian context to examine how doctor–patient relationships and shared decision making influence the quality of life among breast cancer patients with consideration of the impact of culture on doctor–patient interactions and patients’ involvement in medical decision making. Therefore, this study seeks to examine (1) the direct influence of shared decision making and doctor–patient relationship on the overall quality of life and its various domains, and (2) the indirect influence of shared decision making on the overall quality of life, as well as the various domains of quality of life through doctor–patient relationship.

**Method**

This study employed a cross-sectional survey design. This design was chosen as it allowed for selecting a relatively large number of people within a short period. The variables under study tapped into the perceptions of the patients and thus the survey design was seen as the most appropriate.

**Participants**

A total of 205 women diagnosed and receiving treatment for breast cancer at an outpatient department of a Tertiary Hospital in Accra, Ghana, were conveniently sampled for this study. Participants in the study were mostly middle aged with a mean age of 52.49 years (SD=11.14 years). It was
noted that the majority of the participants were married (67.8%), had some form of formal education (89.3%), and 89.7% reported being Christians. Most of the participants were employed (61.2%) and had received two or combinations of the available treatments (64.1%), that is, surgery, chemotherapy, and radiotherapy.

**Instruments**

The variables in the study were measured with standardized questionnaires and some developed items to capture key study interests. The details of the measures used are presented below.

**Functional Assessment of Cancer Therapy-Breast Cancer.** Functional Assessment of Cancer Therapy-Breast Cancer (FACT-B; Brady et al., 1997) was used to measure quality of life. This scale consists of 37 items with 27 measuring quality of life from four domains (emotional well-being – 6 items, social/family well-being – 7 items, physical well-being – 7 items, and functional well-being – 7 items) and 10 items measuring other breast cancer-related concerns. A 5-point Likert-type response format was used with responses ranging from 0 = *not at all* to 4 = *very much*. The scale has reliability value of .90 (Brady et al., 1997). Some studies conducted in South Africa have found the scale to have sound psychometric properties with reliability of the domain-specific values ranging between .65 and .82 (Mullin et al., 2000). In this study, the internal consistency values of the scale were .83, .76, .82, .91, and .65 for physical, social/family, emotional, functional, and additional concerns, respectively.

**Doctor–Patient Relationship Questionnaire.** The Doctor–Patient Relationship Questionnaire (Van der Feltz-Cornelis, Van Oppen, Van Marwijk, De Beurs, & Van Dyck, 2004) was used to measure the depth of doctor–patient relationship: this is a nine-item scale developed to measure the depth of physician–patient relationship. It is a brief measure of the therapeutic aspects of the patient–doctor relationship in the primary care setting (Van der Feltz-Cornelis et al., 2004). A 5-point Likert-type response format was used as follows: 1 = *not at all appropriate*, 2 = *somewhat appropriate*, 3 = *appropriate*, 4 = *mostly appropriate*, and 5 = *totally appropriate*. A total score was computed with higher scores reflecting good relationship and vice versa. The scale has an internal consistency value of .94 (Van der Feltz-Cornelis et al., 2004). In this study, the scale has an internal consistency value of .96.

**Shared decision making.** A single item was developed to measure patients’ involvement in decision making regarding their treatment. This item reads, ‘Do you feel that you have been involved by your doctors/nurses in your treatment decision making?’ A 2-point response format (1 = *yes* and 0 = *no*) was used and the analysis used the categorical variables as such.

**Procedure**

The outpatient department of the nuclear medicine and the radiotherapy unit of a referral and teaching hospital in Ghana were the main data collection point. In collaboration with the healthcare workers at the centre, the aims and objectives of the study were explained to the prospective participants individually, the confidentiality of their responses and anonymity of data to be collected were assured. The participants were made aware that their participation in the study was voluntary and that they have the right to withdraw from the study at any point of the study without any consequences. Those who voluntarily agreed to participate in the study were made to sign the consent form that we provided. The questionnaires were all interviewer-administered and each
administration took about 30 min. The data collection was carried out between March and August, 2017. The completed questionnaires were screened, coded, and analysed.

**Ethical considerations**

This study obtained ethical clearance from both the Humanities and Social Sciences Ethical Committee of the University of KwaZulu-Natal, South Africa (HSS/1428/016D), and Institutional Review Board of the Teaching Hospital in Ghana (KBTH-IRB/00035/2016). Ethical issues such as anonymity, confidentiality, voluntary participation, and the right to withdraw were strictly adhered to in the entire data collection process.

**Data analysis**

Frequencies, means, and reliability analysis were conducted on the study variables as preliminary analysis. Bivariate correlation analyses were used to determine the relationship among the study variables and also to assess significant socio-demographic variables in relation to the measure for control in the final analysis. Path analysis was conducted to examine the direct influence of shared decision making and doctor–patient relationship on the overall quality of life, as well as its various domains, and the indirect influence of shared decision making on the overall quality of life, as well as the various domains through doctor–patient relationship using the PROCESS Macro (Hayes, 2017). A nonparametric bootstrapping method of 10,000 samples with 95% confidence interval (CI) was used. An indirect effect was considered to be significant if the CI did not include zero.

**Results**

**Bivariate relationships among the variables in the study**

Results from Table 1 showed that level of education ($r = .31, p < .01$), duration of illness ($r = .19, p < .01$), and current treatment ($r = .33, p < 01$) were significantly correlated with overall quality of life. As can be seen in Table 1, all the participants’ demographic variables in exception of age were significantly associated with the various dimensions of quality of life. Doctor–patient relationship was significantly and positively correlated with overall quality of life ($r = .29, p < .01$) and all the dimensions of quality of life, physical well-being ($r = .16, p < .01$), social/family well-being ($r = .17, p < .01$), emotional well-being ($r = .31, p < .01$), functional well-being ($r = .21, p < .01$), and breast cancer additional concerns ($r = .29, p < .01$). Shared decision making was significantly and positively correlated with the overall quality of life ($r = .24, p < .01$) and four dimensions of quality of life, that is, physical well-being ($r = .12, p < .05$), emotional well-being ($r = .24, p < .01$), functional well-being ($r = .22, p < .01$), and breast cancer additional concerns ($r = .20, p < .01$). Shared decision making was correlated with an improved doctor–patient relationship ($r = .51, p < .01$).

**Mediation effect of doctor–patient relationship on the effect of shared decision making in quality of life**

The entire model explained 23.66% of the variance in overall quality of life ($F(5,195)=12.088, p < .001$). After controlling for education, duration, and treatment, shared decision making was noted to have a significant indirect effect on overall quality of life through doctor–patient relationship. As can be seen from Table 2, shared decision making had a significant positive effect on
doctor–patient relationship among the patients \((b=7.633, t=6.762, p < .001)\) and a higher level of doctor–patient relationship was associated with increased overall quality of life among the patients \((b=0.614, t=2.021, p < .05)\). A bias-corrected bootstrap CI for the indirect effect \((b=4.688)\) based on 10,000 bootstrap samples was entirely above zero \([0.006, 9.555]\). However, there was no evidence of a direct effect of shared decision making on overall quality of life among the patients \((b=2.720, t=0.510, p = .611)\).

Since there was a statistically significant indirect effect of shared decision making on overall quality of life among the patients, the indirect effects of shared decision making on the various dimensions of quality of life were also tested. As can be seen in Figure 1, shared decision making had a significant indirect effect on emotional well-being through the doctor–patient relationship \((b=1.198)\) and the 10,000 biased-bootstrap CI was entirely above zero \([0.185, 2.315]\). However, there was no evidence of a direct effect of shared decision making on emotional well-being among the patients (Figure 1). Shared decision making had a significant indirect effect on the breast cancer

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**DPR:** doctor–patient relationship; **SDM:** shared decision making; **PWB:** physical well-being; **SFWB:** social/family well-being; **EWB:** emotional well-being; **FWB:** functional well-being; **BCAC:** breast cancer additional concerns; **QOL-total:** overall quality of life.

*Significant as the confidence interval did not include zero.
additional concerns dimension, through the doctor–patient relationship ($b = 1.456$) and the 10,000 biased-bootstrap CI was entirely above zero [0.151, 2.808]. However, there was no evidence of a direct effect of shared decision making on the breast cancer additional concerns dimension among the patients (Figure 1). Details of the direct and indirect effects of shared decision making on the various dimensions of quality of life through doctor–patient relationship are depicted in Figure 1.

**Discussion**

Quality of life among women living with breast cancer has attracted research interest with evidence suggesting that the women experience decreased quality of life due to the challenges associated with the illness. However, some factors have also been identified to have led to improved quality of life among breast cancer patients. This study examined whether shared decision making and doctor–patient relationship have any significant influence on quality of life among women living with breast cancer in Ghana. The study also examined whether the effect of shared decision making on quality of life among the women is mediated by doctor–patient relationship. Findings showed that shared decision making and doctor–patient relationships have positive impacts on the quality of life among women living with breast cancer.

**Shared decision making and quality of life**

The findings of the study showed that shared decision making was associated with higher overall quality of life and all the dimensions of quality of life, except social/family well-being. These findings suggest that women living with breast cancer who reported being involved in their treatment decision making were more likely to report an improved quality of life. The findings are consistent with previous studies which showed that shared decision making has significant positive impacts on the health outcomes of women living with breast cancer (Davies et al., 2008; Griggs et al., 2007; Vogel et al., 2009). This significant relationship between shared decision making and quality of life suggests that involvement of patients in the breast cancer decision making process may empower
the women to take charge of their lives, clear doubts, and uncertainties that surround breast cancer. This may lessen their fears and negative emotional reactions to the illness as some evidence suggests that patients’ involvement in decision making results in decreased depression and anxiety levels as well as greater satisfaction with healthcare (Swanson, Bastani, Rubenstein, Meredith, & Ford, 2007; Vogel et al., 2009).

**Doctor–patient relationship and quality of life**

Doctor–patient relationship was found to be significantly correlated with overall quality of life such that a better relationship was associated in improved overall quality of life and all the dimensions of quality of life. This result is consistent with previous literature which established the positive impact of doctor–patient relationship on several health outcomes including quality of life (Farin & Meder, 2010; Zhang et al., 2012). This result was confirmed with the path analysis which showed that doctor–patient relationship significantly influence overall quality of life as well as emotional well-being and breast cancer concerns. An interesting finding is that doctor–patient relationship was only significant in predicting the emotional aspects of quality of life among women living with breast cancer after controlling for demographic characteristics. This finding suggests that the interaction with the physicians and nurses could help the patients in dealing with their negative emotions as copious evidence have suggested that breast cancer diagnosis is associated with negative emotional experiences such as sadness, shock, and anxiety (Bonsu, Aziato, & Clegg-Lamptey, 2014).

**Doctor–patient relationship as a mediator between shared decision making and quality of life**

The mediation analysis showed that shared decision making was significantly and positively associated with better doctor–patient relationships. That is, participants who reported to have been involved in the treatment decisions by their doctors/nurses reported better relationships with their doctors/nurses. This is consistent with other previous findings (Hamann, Leucht, & Kissling, 2003; Vogel et al., 2009). The doctor–patient relationship was found to fully mediate the link between shared decision making and overall quality of life among women living with breast cancer. That is, women with breast cancer who reported being involved by doctors/nurses in their treatment decision making experience good relationships with their doctors which result in improved overall quality of life. No evidence was found for the direct effect of shared decision making on overall quality of life when doctor–patient relationship was controlled for, and this suggests that improved doctor–patient relationship may explain the influence of shared decision making on quality of life. Similarly, shared decision making had indirect effects on only the emotional well-being and breast cancer additional concerns domain of quality of life through doctor–patient relationship which suggests that the impact of shared decision making is most probably important in emotional concerns among women living with breast cancer (Gattellari, Butow, & Tattersall, 2001).

These findings are in line with previous systematic reviews which found weak direct association between shared decision making and health outcomes (Arora, 2003; Joosten et al., 2008). Therefore, this study provides some evidence for the lack of a significant association between shared decision making and health outcomes possibly due to its influence on other variables which lead to improved health outcomes in the long term. The extant literature on shared decision making and quality of life did not provide any information on the possible mediators of this link. It is possible that in our African context, the involvement of patients in decision making may foster better
quality interpersonal relationships with health workers despite the commonly accepted high power differentials between patients and their healthcare providers. As such, this study provides the basis for further research to augment the health communication and patient education literature in Africa.

There are some limitations in this study that need to be considered in the interpretation of the results. First, causality cannot be assumed with regard to the significant effects found among the study variables. Second, shared decision making was measured with a single item and conceptualized to mean ‘patients’ perceived involvement by doctors/nurses in their treatment decision’. This single-item measure may not capture all the various facets of the concept of shared decision making, thus limiting the interpretation of the results. However, as the literature suggests that the use of single items to measure constructs is permitted provided they capture that essence of the variable of interest (Bergkvist & Rossiter, 2007).

Despite these shortfalls, this study is the first to have examined both the direct and indirect influences of shared decision making on quality of life through the doctor–patient relationship among women living with breast cancer in Ghana. Studies conducted across the different phases of illness are recommended to provide a more holistic overview of the influence of shared decision making and quality of doctor–patient relationships on patients’ health outcomes.

**Clinical implications**

The findings from this study that shared decision making results in better quality of life especially the emotional dimensions suggest that there is a need for a shift in perspective and orientation with regard to how physicians deal with their patients. That is, there is a need for greater involvement of patients in the decision-making process and that they are given adequate information to make informed decisions in collaboration with their healthcare providers and thus be more empowered in the management of their illness. This would reduce the patriarchal nature of healthcare delivery which characterizes the African context and especially the Ghanaian healthcare delivery system (Haskins, Phakathi, Grant, & Horwood, 2014). This implies that shared decision making is the very foundation of patient-centred care. The study also emphasizes the importance of the doctor–patient relationship in the health outcomes of women living with breast cancer in Ghana as this therapeutic relationship may serve to protect patients against negative emotional experiences and thus ultimately their health. Evidence suggests that accurate diagnosis, effective treatment, and health outcomes are inextricably dependent on the quality of the doctor–patient relationship (Kaba & Sooriakumaran, 2007; Zhou et al., 2014). Thus, doctors’ communication, attitudes, and interactions with their patients should be guided by mutual respect and good clinical practices. In addition, the findings suggest that research on shared decision making would immensely benefit from studying other possible mechanisms that link shared decision making to health outcomes such as quality of life. For instance, studies should examine whether shared decision making influence the coping strategies that are employed by patients in dealing with their illness. It is also important that studies be conducted among physicians to explore their views and attitudes towards shared decision making.

**Conclusion**

In conclusion, this study found shared decision making and doctor–patient relationship to be significant protective factors of overall quality of life and domain-specific quality of life among women living with breast cancer. This study contributes to the health literature with regard to the need to involve patients in their treatment decision process to lessen their emotional burdens and uncertainties associated with diagnosis of breast cancer. The findings will serve to generate more
interest in this area of patients’ involvement and its impact on the health outcomes such as mental and social health issues.

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