Using a mixed methods research design to investigate complementary alternative medicine (CAM) use among women with breast cancer in Ireland

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A B S T R A C T

Aim: To investigate complementary and alternative medicine (CAM) use among women with breast cancer in Ireland using a mixed methods modified sequential explanatory design.
Methods: Semi-structured interviews were conducted with oncology professionals ($n = 20$) and CAM practitioners ($n = 20$) and this was followed by a survey of 406 women with breast cancer using the 'Use of Complementary and Alternative Therapies Survey' questionnaire (UCATS) (Lengacher et al., 2003). Follow up interviews were subsequently undertaken with a subset of this survey sample ($n = 31$).
Results: Over half of those surveyed (55.7%, $n = 226$) used some form of CAM since diagnosis. The most frequently used therapies were massage, herbal supplements (including herbs with oestrogenic properties), antioxidants, relaxation, counselling, health supplements, reflexology, reiki and support groups. Dietary interventions were used primarily to reduce symptoms and/or side effects while reduction of psychological stress was the primary reason for use of stress-reducing therapies. Most respondents reported that the CAM therapies they had used were helpful. The qualitative data elaborated on and provided clarification of the survey results.
Conclusions: Similar to international studies, CAM is popular among women with breast cancer in Ireland. As such, the challenge for Irish oncology professionals is to identify low risk CAM therapies that are likely to benefit patients while educating patients and themselves on therapies which may be of concern. This study clearly illustrates the benefits of using a mixed methods approach to enhance our understanding of a complex clinical issue and thus we recommend that this method should be the method of choice when planning health services research.

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Introduction

Evidence from the literature (Chow et al., 2010; Molassiotis et al., 2005; Tarhan et al., 2009), anecdotal evidence, and personal experience all suggest considerable interest in, and use of complementary and alternative medicine (CAM) by patients with cancer. Patients with breast cancer have a greater tendency to utilize CAM than other cancer patients (Gage et al., 2009; Lafferty et al., 2008; Yates et al., 2005) or the general population (Kufel et al., 2004; VandeCreek et al., 1999) although considerable variability in the frequency of CAM use has also been noted in this cohort. This variability is most likely a reflection of varying definitions of CAM being used (Lengacher et al., 2002; Nagel et al., 2004), small sample sizes (Lengacher et al., 2002), and also use at different time-points whereby patients may be asked if they have used CAM ever in their lifetime, in the past year, or since diagnosis.

A number of authors (Buettner et al., 2006; Chen et al., 2008; Greenlee et al., 2009; Molassiotis et al., 2006; Pedersen et al., 2009) have highlighted the popularity of CAM ($\geq$40% uptake) among women with breast cancer in Europe, the US and Asia. Many studies have also identified the type of CAM used, the characteristics associated with CAM users and the reasons for use. Biologically based therapies (vitamins/minerals/health supplements, herbal medicines, special diets), prayer and/or spiritual therapies, relaxation/meditation (Greenlee et al., 2009; Hann et al., 2005; Henderson and

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Donatelle, 2004; Molassiotis et al., 2006), massage and homoeo-pathy (Boon et al., 2007; Molassiotis et al., 2006) are the most frequently used CAM therapies used by women with breast cancer.

CAM use among women with breast cancer is associated with younger/middle age, higher education (Greenlee et al., 2009; Molassiotis et al., 2006; Pedersen et al., 2009) and higher socio-economic status/higher income (Greenlee et al., 2009; Pedersen et al., 2009). Other factors associated with CAM use include the fear of recurrence/self-rated poorer prognosis (Rakovitch et al., 2005; Tautz et al., 2009), a higher internal locus of control (Henderson and Donatelle, 2003), and involvement in support groups (Helyer et al., 2006; Nagel et al., 2004).

Reasons for CAM use include symptom/side effect relief, strengthening the immune system/increasing the body's ability to fight the disease (Chen et al., 2008; Molassiotis et al., 2006), improving physical and/or emotional wellbeing/improving quality of life (Lengacher et al., 2006; Molassiotis et al., 2006) and a desire for greater control/participation (Cui et al., 2004; Lengacher et al., 2006).

Purpose of this study

It is clear from the literature that numerous studies of CAM use have been undertaken internationally and many of these are comprehensive, well-designed studies with robust sample sizes and acceptable response rates (Buettner et al., 2006; Chen et al., 2008; Greenlee et al., 2009; Molassiotis et al., 2006; Pedersen et al., 2009). However, most of these studies involve cross-sectional surveys of CAM use with little in-depth analysis of patients' perceptions of CAM use. This research study sought to address this gap in the literature by undertaking a mixed methods study employing a modified sequential explanatory design to investigate CAM use among women with breast cancer in Ireland. A sequential explanatory design involves the collection and analysis of quantitative data followed by the collection and analysis of qualitative data (Creswell and Plano Clark, 2007; Tashakkori and Teddlie, 1998). Interviews were first undertaken with oncology professionals and CAM practitioners (Phase 1). This was followed by a survey of women with breast cancer (Phase 2) and finally, interviews were undertaken with a subset of the survey sample.

Greene et al. (1989) advanced five different purposes for mixing research methods. These included (1) triangulation, (2) comple-mentarity, (3) development, (4) initiation, and (5) expansion. The desire for complementarity and expansion were the primary reasons for using mixed methods for this research study. It was anticipated that the use of the survey would facilitate a greater breadth of information regarding CAM use among women with breast cancer while the interviews would allow for greater depth in relation to the issue while also elaborating on and providing clari-fication of the survey findings (as suggested by Creswell et al., 2003). While there appears to be some difference of opinion in the litera-ture regarding the concept of triangulation and validity (Erzberger and Kelle, 2003; Hammersley, 2008) it also appeared reasonable to assume that stronger inferences were likely if there was consis-tency between the findings from both quantitative and qualitative findings. Development refers to using the results of one method to inform the development of another method where development is broadly understood to incorporate sampling, implementation and instrument construction (Greene, 2007). In this study, the interview findings with oncology professionals and CAM practitioners were used to help inform the modification of the survey questionnaire for the Irish setting while the survey findings were used to guide the development of the interview guide. More specifically, on noting that oncology health professionals identified certain therapies which were rarely if ever discussed by their patients, the ques-tionnaire was modified to focus on therapies more likely to be used

by Irish patients with cancer. Also, with respect to sampling, the survey facilitated the recruitment of participants for semi-structured interviews. The purpose of this paper is to discuss the qualitative and quantitative findings which are concerned with the rate and type of CAM used by women with breast cancer in Ireland, their reasons for CAM use and their perceptions of the utility of the CAM therapies used. For this reason, the findings presented are primarily those arising from the survey and patient interviews; the findings from the interviews with oncology professionals and CAM practitioners have been discussed elsewhere (Fox et al., 2012).

Methods

In Phase 1 of the study, semi-structured interviews were undertaken with oncology professionals and CAM practitioners to ascertain their views regarding the role of CAM in patients with cancer. All participants were required to have at least five years experience in caring for patients with cancer.

In Phase 2 of the study, 414 women with breast cancer (at any stage and of any age) were invited to join the study.[1] The partici-pants were surveyed using the interviewer administered "Use of Complementary and Alternative Therapies Survey" questionnaire (UCATS) (Lengacher et al., 2003).

This US-based instrument employs classifications of CAM iden-tified by the Office of Alternative Medicine (OAM) Advisory Panel (1994) and has established validity and reliability (Lengacher et al., 2003). UCATS was modified slightly for use in an Irish context and use of CAM therapies was only considered where participants confirmed that such use was as a result of their breast cancer diag-nosis. The purpose of the survey was to determine the rate and type of CAM used by women with breast cancer in Ireland, the reasons for use, and women's perceptions regarding the utility of CAM.

In addition, this survey endeavoured to identify the proportion of participants attending Cancer Support Centres (CSCs).

During the course of the survey, an invitation to participate in a follow-up interview was given to every third survey participant. The purpose of the interviews (Phase 3) was to elucidate in greater detail the reasons for CAM use and to seek more information with respect to patients' experience of CAM. Ethics approval was granted by all four acute hospitals involved in the research and all study participants provided informed consent.

Descriptive statistics were employed for analysis of the survey results. In addition, a series of chi-square tests were used to explore the relationships between demographic/treatment-related vari-ables and the uptake of CAM. The standard $p < .05$ level of statistical significance was used to identify significant relationships in the groups. Logistic regression (using the stepwise function (forward LR) of SPSS software, version 12) analysis was used to test the predictive ability of the significant variables identified.

Thematic analysis was used for the analysis of the qualitative interviews. The thematic analysis was supported by and presented as thematic networks "web-like illustrations that summarize the main themes constituting a piece of text" (Attride-Stirling, 2001, p. 36).

Results

A total of twenty oncology professionals (thirteen specialist nurses and seven oncologists) and twenty CAM practitioners (representing TCM (Traditional Chinese Medicine), homoeopathy, reflexology, massage therapy, counselling, nutritional therapy, and

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[1] With an expected frequency of 45% of CAM use in breast cancer (Molassiotis et al., 2006) and allowing for 95% confidence interval, the estimated sample size was 392 women with breast cancer (or 570 assuming 30% non-response rate).