English summary

Use of complementary and alternative medicine (CAM) is widespread among cancer patients with breast cancer patients being the most frequent users (1). It has been speculated that use of CAM may be linked with religious faith or spiritual needs (2). The role of faith in relation to CAM among cancer patients is currently debated in both the public and academic debate, but only limited data has been available in secular societies. Although it is commonly assumed that CAM may have beneficial influence on general well-being and quality of life of cancer patients, there is also only limited research available within this area (3). It was therefore the overall aim of this dissertation to obtain a better understanding of cancer patients' use of CAM, including the prevalence of overall and specific type of CAM utilization, and user characteristics (study 1), the relationship between CAM and faith as well as prevalence and characteristics of those having faith (study 2), and the relationship with depressive symptoms including changes in depression over time (study 3).

With the aim of providing novel data on breast cancer patients, three empirical studies were conducted using data from a prospective nationwide inception cohort of 4917 Danish women treated for primary breast cancer. The 3343 participating women had responded to questions regarding CAM 3-4 months after surgery and 15-16 months after surgery. Socio-demographic information was obtained via the Danish Civil Registration System, eligibility and comorbidity via the 24 largest surgical departments, and clinical variables via the Danish Breast Cancer Cooperative Group (DBCG).

Study 1 revealed that use of CAM was nearly twice as prevalent among Danish breast cancer patients compared to the general population, with 40.1% of the women having used CAM in the period between time of diagnosis and 12-16 weeks after surgery. The overall CAM user was characterized by being younger, having higher education, not suffering from comorbid diseases, being treated with chemotherapy, not smoking, and having normal BMI. Approximately one third of the breast cancer patients using CAM appeared certain or relatively certain that CAM would have a positive influence upon breast cancer itself. Thus, many users may turn to CAM for other needs than cure. An important finding was that different user patterns were found for specific CAM therapies. Collapsing many heterogeneous types of CAM into one single category may, therefore, mask differences between users of individual types of CAM. Furthermore, the anticipated effect of

CAM upon breast cancer varied according to the individual CAM therapy being used, with users of herbal medicine and dietary or exercise counselling anticipating the highest effect.

In study 2, faith in God or a higher spiritual power was found linked to overall and specific use of CAM independently of socio-demographics, pre-cancer health status, treatment and histopathology, physical function, BMI, and other health behaviors. Compared to non-believers, women having faith were characterized by having children, not having higher education, receiving pension or early retirement benefits, not living in capital, having good physical function, and attending church more often. The relationship between faith and CAM was dependent upon the degree of conviction, particularly unambiguous faith. The 47.3% women having unambiguous faith were distinct by being older, not smoking or drinking more than 3 alcohol units per day, and by using all types of CAM but acupuncture and reflexology. Women with unambiguous faith also believed to a much greater extent that faith and CAM have an effect on breast cancer itself and that faith influences QoL. Those 35.9% of women having ambiguous faith were characterized by not being unmarried single, or by being a basic level employee or in education. It is possible that CAM may be used a means of complying with beliefs that God or a higher spiritual power may at least to some degree intervene and influence breast cancer and general well-being. Overall faith was prevalent among Danish women with breast cancer with 83.2% reporting ambiguous or unambiguous faith in God or a higher spiritual power. A total of 64.6% of these women experienced at least some influence from their faith on their QoL, while 41.5% experienced at least some influence of their faith on breast cancer. Future studies may benefit from studying the implications of unambiguous faith for treatment adherence, physician-patient communication, and health behaviors such as CAM use.

Study 3 suggested that CAM may be used as a means of coping with depressive symptoms. Specifically, breast cancer patients using overall CAM or in particular dietary or vitamin supplements, massage, nutrition or exercise counselling, needle acupuncture, and relaxation, yoga or similar, experienced more depressive symptoms 3-4 months after surgery independently of age, socio-demographic, pre-cancer health status, treatment, histopathology, physical function, BMI, and health behaviour variables. The women using overall CAM and dietary or vitamin supplements were characterized by symptoms indicative of major depression. CAM users also exhibited more depressive symptoms 15-16 months after surgery compared to non-users. Additionally, the women using overall CAM or dietary or vitamin supplements were identified as a group at risk of

experiencing more depressive symptoms over time when compared to non-users. In contrast to common anticipation of beneficial influence on well-being, breast cancer patients using CAM or dietary or vitamin supplements between the time of diagnosis and 3-4 months after surgery, experienced a 10-13% higher level of depressive symptoms approximately one year later compared to non-users, independently of potential confounders such as age, socio-demographic, pre-cancer health status, psychiatric history, treatment, histopathology, physical function, BMI, and health behaviour variables such as smoking and alcohol consumption. No other CAM therapies showed any independent association with changes in depressive symptoms over time. It remains to be explored whether these findings may be explained by an increased vulnerability for depressive symptoms among women using dietary or vitamin supplements, by interaction effects with conventional treatment, or by more direct adverse biological effects of dietary or vitamin supplements.

It is concluded that use of CAM among Danish breast cancer patients is widespread, related to a generally healthy lifestyle, and it appears possible that CAM may be used as a means of complying with beliefs that God or a higher spiritual power may intervene and influence breast cancer and general well-being. To obtain better understanding of the motivational factors and needs associated with the use of CAM it seems important to distinguish between individual types of CAM, and to combine qualitative and quantitative approaches so that contextual and individual aspects may be taken into account. Factors potentially influencing the decision-making processes leading to CAM use, such as social support groups, the internet, and dialogue with physicians and nurses, may be a fruitful area for future research. Breast cancer patients using dietary or vitamin supplements appeared as a group at risk for experiencing more depressive symptoms over time than non-users. More knowledge is needed with respect to the individually experienced and observed harms or gains of CAM in relation to both cancer itself and QoL-related outcomes. When the CAM in question is highly individualized this may require the development of novel methods of study. Studying CAM via, for instance, integrative cancer care units may be one possible means of monitoring and evaluating the costs and potential harms or benefits of CAM for patients, to establish reasonable expectations about CAM through education of patients on available CAM evidence, and a way to be judicious in the coverage of CAM therapies offered to patients.