

Knowledge of and attitudes toward complementary and alternative therapies: a national multicentre study of oncology professionals in Norway

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Abstract

This study reports on oncology professionals' knowledge and attitude toward complementary and alternative medicines (CAM), classified according to their primary application as complementary or alternative methods. In June 2002, we conducted a national, multicentre survey of 828 Norwegian oncologists, nurses, clerks and therapeutic radiographers. A response rate of 61% was achieved. Only a few physicians (4%) described their reactions to alternative medicine as positive compared with nurses (33%), therapeutic radiographers (32%) and clerks (55%) ($P < 0.0001$). Females showed a more positive view than males (33% versus 14%, $P < 0.0001$). More participants expressed a positive attitude to complementary versus alternative medicines. Most respondents regarded healing by hand or prayer, homeopathy, and Iscador (mistletoe) as alternative therapies. In contrast, most respondents classified acupuncture, meditation, reflexology, music/art-therapy, aromatherapy and massage as complementary therapies. This survey demonstrates major differences, by gender as well as oncology health profession in views about and the classification of various CAM methods

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1. Introduction

Surveys of complementary and alternative therapy use among cancer patients conducted in Scandinavia and internationally during the last 5–10 years report a prevalence ranging from less than 10% to over 50% [1–3]. Methodological problems hinder comparison of results across these studies, as they involve different instruments, patient samples, and definitions of complementary and alternative therapies. Thus, one reason for an apparent increase in the use of CAM may be a

broadening of the definition of CAM to include self-care techniques such as care of routine problems, efforts to maintain fitness, and ordinary lifestyle activities [4].

Definitions based on the promoted benefit or action of the particular method have been proposed [2,4]. 'Alternative therapies' may be defined as unproven treatments promoted to treat the disease itself, whereas 'complementary therapies' represent adjunctive therapies aimed at symptom management and enhancement of quality of life.

The Norwegian Ministry of Health and Social Affairs appointed a Committee in April 1997 to report on various aspects of alternative medicine (this term was used instead of CAM by the Ministry). The Alternative Medicine Committee delivered their report in December

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1998 [5]. One of their proposals was to repeal the 'Medical Quackery Act of 1936', the law regulating use of alternative medicine in serious disease, and to incorporate a new law covering use of alternative medicine in the new Health Personnel Act. The new law is now under discussion in the Norwegian parliament.

There is little research addressing health care workers' use of and attitudes toward CAM. A report in 2000 [6] describing the attitudes of oncologists towards unconventional cancer therapies identified only six original articles on the subject. Studies conducted in Europe suggest that few oncologists have sufficient knowledge about CAM [7]. A Norwegian study [8] of opinions and use of alternative medicine among different health workers (physicians, nurses and clerks) indicated that nurses held more positive attitudes than did the other two groups. That study was limited to six hospitals in the northern part of Norway, and personnel in general surgical and medical departments, using a questionnaire that did not distinguish between complementary and alternative therapies.

The term CAM includes a vast collection of unrelated modalities, from simple relaxation techniques to unproven, potentially harmful cancer treatments. It seems necessary, clinically and conceptually, to distinguish between these two categories, especially in situations where increasing numbers of hospitals incorporate 'departments of integrative medicine' for the benefit of their patients. At the Memorial Sloan-Kettering Cancer Center in New York city, such a department was introduced in 1999 [9].

Particularly because the Norwegian government has proposed a new law on the use of such therapies, it is

important to understand the knowledge and opinions of health care workers who are responsible for the treatment of cancer patients in Norway. Therefore, we undertook a national, multi-centre comparative study of physicians, nurses, therapeutic radiographers and clerks responsible for the care of cancer patients. Here, we report data from a survey of oncology caregivers to determine their knowledge and attitudes toward various CAM therapies. We focused on differences by the respondent's gender, age and occupation.

2. Patients and methods

An anonymous questionnaire-based study was performed in June 2002. The questionnaire was designed by a consensus of experts. Items included were determined by a review of the literature regarding cancer patients' and healthcare professionals' use of CAM. A pilot study involved nurses, clerks and physicians at the University Hospital of Tromsø and scientists at the Institute of Community Medicine at the University of Tromsø. Based on this feedback, the questionnaire was revised and readied for distribution.

The questionnaire was designed to differentiate between complementary and alternative medicine. Thus, definitions were introduced to the participants at the beginning of the questionnaire. 'Complementary' therapies were defined as unconventional approaches aimed at managing symptoms and improving quality of life. 'Alternative' therapies were defined as unproved unconventional therapies aimed at treating the cancer itself. Participants were asked whether they were famil-

Table 1
Attitudes toward alternative therapies

| Variables (<i>n</i>) | Univariate | | | <i>P</i> value | Multivariate ^a Positive to complementary medicine | |
|------------------------|--------------|-------------|--------------|-------------------|---|---------------------------|
| | Positive (%) | Neutral (%) | Negative (%) | | Odds ratio | (95% confidence interval) |
| Gender | | | | | | |
| Female (382) | 33 | 22 | 45 | <i>P</i> < 0.0001 | 1.6 | 0.7–3.3 |
| Male (102) | 14 | 18 | 68 | | 1.0 | Reference |
| Age (years) | | | | | | |
| < 35 (182) | 36 | 23 | 44 | <i>P</i> = 0.140 | 1.0 | Reference |
| 35–49 (218) | 25 | 20 | 55 | | 0.6 | (0.4–1.0) |
| ≥ 50 (84) | 29 | 21 | 50 | | 0.8 | (0.4–1.5) |
| Religion | | | | | | |
| Christian (315) | 33 | 23 | 45 | <i>P</i> = 0.003 | 1.0 | Reference |
| Other (143) | 22 | 16 | 62 | | 1.4 | (0.8–2.2) |
| Profession | | | | | | |
| Physicians (100) | 4 | 15 | 81 | <i>P</i> < 0.0001 | 1.0 | Reference |
| Nurses (237) | 33 | 22 | 45 | | 8.8 | (3.0–26.4) |
| Clerks (47) | 55 | 23 | 22 | | 20.8 | (6.1–70.6) |
| Radiotherapists (100) | 32 | 23 | 45 | | 10.0 | (3.3–30.7) |

^a All variables were mutually adjusted for each other.

iar with each therapy, and to classify it as primarily complementary, alternative or conventional. They were also asked to describe their attitude toward the main categories of unconventional treatments as defined. A copy of the questions addressed in this paper is contained in the [Appendix](#).

Oncologists, nurses, therapeutic radiographers and clerks working in all five regional oncology centres in Norway were asked to participate in the study. A reminder letter was sent to all potential participants 2 weeks later. An individual at each centre was responsible for assuring that invited participants received the questionnaire and that staff knew about the study in advance. Four questions assessed demographic data including gender, professional status, religion and age category (<35 years, 35–49 years and ≥ 50 years).

2.1. Statistics

All statistical analyses were conducted using the computer program SAS [10]. Associations between categorical variables were assessed in the ‘*proc freq*’ procedure. Multivariate analyses were done by logistic regression after dichotomising the answer categories, as described by Breslow and Day in Ref. [11]. In the questionnaire, two items assessing general attitudes to alternative and complementary therapy were presented to the participants. Each question had five response categories ranging from positive (very and slightly positive to alternative/complementary therapy) to negative (neutral, slightly negative and very negative to alternative/complementary therapy). Only four participants expressed no specific response. These participants are

added to the group of negative participants in [Tables 1 and 2](#). Regression analyses were conducted for 458 participants for whom a complete data-set on the co-variables (gender, age-group, profession and religion) were available. The study was authorised by the Regional Board of Ethics.

3. Results

3.1. The study population

Questionnaires were distributed to 828 healthcare workers. 509 (61%) responses were received. The following response rates were attained: 108/156 oncologists (69%); 242/414 nurses (58%); 103/164 therapeutic radiographers (63%) and 49/94 clerks (52%). In seven cases, the occupation was not given. Most nurses (94%), clerks (98%) and therapeutic radiographers (73%) were female; oncologists showed a more even distribution with 40% being female. Physicians and clerks were older, including a higher percentage of participants above the age of 50 years. Female physicians were younger than their male colleagues. Only 5% of female oncologists were over the age of 50 years, compared with 37% of males. 69% percent were Christian; the remainder were humanists (17%), atheists (7%) or did not specify (7%).

3.2. Attitudes to alternative therapy

Females showed a more positive view towards ‘alternative’ medicine than males (33% versus 14%,

Table 2
Attitudes to the use of complementary medicine

| Variables (<i>n</i>) | Univariate | | | <i>P</i> value | Multivariate ^a Positive to complementary medicine | |
|------------------------|--------------|-------------|--------------|----------------|---|---------------------------|
| | Positive (%) | Neutral (%) | Negative (%) | | Odds ratio | (95% confidence interval) |
| Gender | | | | | | |
| Female (383) | 79 | 14 | 7 | $P < 0.0001$ | 1.8 | (1.0–3.2) |
| Male (102) | 53 | 35 | 10 | | 1.0 | Reference |
| Age (years) | | | | | | |
| < 35 (182) | 76 | 19 | 5 | $P = 0.160$ | 1.0 | Reference |
| 35–49 (218) | 76 | 16 | 8 | | 1.0 | (0.6–1.6) |
| ≥ 50 (85) | 64 | 25 | 11 | | 0.8 | (0.4–1.5) |
| Religion | | | | | | |
| Christian (316) | 76 | 17 | 7 | $P = 0.259$ | 1.0 | Reference |
| Other (143) | 69 | 23 | 8 | | 1.1 | (0.7–1.8) |
| Profession | | | | | | |
| Physicians (101) | 49 | 38 | 13 | $P < 0.0001$ | 1.0 | Reference |
| Nurses (237) | 87 | 10 | 3 | | 4.5 | (2.4–8.4) |
| Clerks (48) | 62 | 25 | 13 | | 1.2 | (0.5–2.7) |
| Radiotherapists (99) | 74 | 17 | 9 | | 2.1 | (1.1–4.0) |

^a All variables were mutually adjusted for each other.

$P < 0.0001$), and a similar observation was made for Christians compared with others (33% versus 22%, $P = 0.003$). There were no significant differences according to the age group. Few physicians had a positive view of alternative therapies (4%). By contrast, approximately one-third of nurses, 32% of therapeutic radiographers and 55% of clerks reported more positive views ($P < 0.0001$) (Table 1). Table 1 also shows in a multivariate analysis the association between the opinions on alternative medicine and demographic variables. Only the profession remained significant. Physicians had a much less positive attitude than nurses ($P = 0.002$), clerks ($P < 0.0001$) and therapeutic radiographers ($P < 0.0001$).

3.3. Attitudes to complementary therapy

Views of complementary therapies showed a somewhat different pattern (Table 2). In general, more participants, including physicians, expressed positive attitudes, with few describing themselves as negative.

Again, females were more positive than males (79% versus 53%, $P < 0.0001$). As for alternative medicine, physicians were less positive than nurses, clerks and therapeutic radiographers (49% versus 87%, 62 and 74%, $P < 0.0001$). However, more physicians had a positive attitude and fewer were negative to complementary treatments (13%) than to alternative treatments (81%). In multivariate analyses, both gender and profession were significantly associated with the attitude to complementary medicine, $P = 0.05$ and $P = 0.0001$, respectively (Table 2).

3.4. Attitudes to alternative and complementary therapies among physicians

To investigate further the findings that physicians were more negative toward CAM, we performed a subgroup analysis. Very few physicians were positive to alternative treatments, and even though there was a trend towards females being less negative, no significant differences could be found with regard to gender, age or religion. By contrast, female oncologists expressed a more positive attitude to complementary therapies than their male counterparts (66% versus 38%, $P = 0.007$). Age and religion did not influence this finding. The difference in attitude to complementary therapy between the sexes was confirmed by a multivariate analysis (Odds ratio (OR) 3.8, 95% CI (Confidence Interval) 1.5–9.5, $P = 0.005$).

3.5. Classification of the various therapies

More than half of respondents regarded healing by hand, healing by prayer, homeopathy and injection with Iscador (mistletoe) as 'alternative' treatments as defined

in the questionnaire (Table 3), while more than half classified acupuncture, meditation, zone therapy, music/art-therapy, aromatherapy, massage, and therapeutic touch as complementary treatments. Nurses and physicians differed on this issue. Most (81%) physicians regarded homeopathy as 'alternative', while nearly half (47%) of nurses saw homeopathy as a 'complementary' method ($P < 0.0001$). Acupuncture was classified as complementary among most respondents in both groups (physicians 87%, nurses 73%). Reflexology was seen as an alternative therapy by 47% of the physicians compared with 22% of the nurses ($P < 0.0001$). Methods known by very few participants were Ayurveda, applied kinesiology and visualisation. In general, less than 12% of the health workers who knew the listed treatments were not able to classify them, based on the definitions given in the questionnaire.

4. Discussion

This survey shows major differences according to gender, age group, religion, and health professions regarding the views and understanding of complementary and alternative therapies. Because survey questionnaires were distributed to all five major centres treating cancer patients in Norway, the results are likely to be representative. The total response rate of only 61% may be the consequence of several factors. Many hospital employees work shifts or part-time, making it difficult to distribute forms to everyone. The questionnaire was time-consuming and that may have deterred some potential respondents.

Norway is a small country of approximately 4.5 million people. The 108 medical oncologists responding to the survey represent more than 50% of all such specialists in the entire country.

Two reports on related issues concerning Finnish and Danish nurses were published with partly contradictory results. The Danish study showed that nurses considered use of alternative medicine as the patient's individual choice, which should be supported by health care workers [12]. The Finnish study reported primarily negative attitudes among nurses [13]. In the few studies addressing attitudes of oncology physicians towards complementary and alternative therapies, responses have ranged from mild support to serious opposition [6,7,14]. Studies conducted in Europe suggest that many medical oncologists do not have enough information about such methods [7]. As far as we know, our study is the first national comparative effort to address these questions among different oncology health professions.

We found that females generally expressed more positive attitudes toward both alternative and complementary medicine than males. This is consistent with Norwegian studies indicating that women are the more

Table 3

The methods classified in accordance with their main use; methods seen as alternative by the respondents are ranged first in the table

| Method/therapy | % Alternative | % Complementary medicine | % Conventional | % Unable to classify | % Not known therapy |
|---------------------|---------------|--------------------------|----------------|----------------------|---------------------|
| Healing by hand | 64 | 19 | 0 | 12 | 5 |
| Cure by prayer | 58 | 24 | 1 | 11 | 6 |
| Homeopathy | 54 | 38 | 2 | 4 | 2 |
| Iscador (Mistletoe) | 52 | 20 | 3 | 10 | 15 |
| Nitter ^a | 44 | 29 | 1 | 6 | 20 |
| High-dose vitamin | 42 | 30 | 3 | 11 | 14 |
| Herbal, biological | 37 | 37 | 1 | 9 | 16 |
| Diet therapy | 31 | 48 | 2 | 9 | 10 |
| Zone therapy | 29 | 61 | 1 | 5 | 4 |
| Meditation | 24 | 65 | 1 | 7 | 3 |
| Acupuncture | 21 | 74 | 3 | 2 | 1 |
| Applied kinesiology | 20 | 21 | 1 | 9 | 49 |
| Aromatherapy | 18 | 72 | 1 | 5 | 4 |
| Music/art therapy | 17 | 75 | 1 | 5 | 2 |
| Therapeutic touch | 17 | 62 | 2 | 7 | 12 |
| Visualisation | 14 | 42 | 1 | 11 | 32 |
| Ayurveda | 12 | 6 | 0 | 9 | 73 |
| Massage | 11 | 81 | 4 | 5 | 0 |

^a Nitter therapy consists of vitamin B12, gammaglobulins, tranexamic acid, multivitamins and nutritional supplements.

frequent users of such therapies for non-cancerous diseases [15]. Previous reports have also shown more frequent use of homeopathy and acupuncture in the treatment of diseases other than cancer among Norwegian females compared with male physicians [16,17]. Nurses, clerks and therapeutic radiographers in our study had a more positive view of both alternative and complementary medicines than physicians.

Methods classified as complementary (versus alternative) in this study are in accordance with therapies offered by the Integrative Medicine Service at the Memorial Sloan-Kettering Cancer Center in New York city [9], where reflexology (foot massage) and other forms of massage therapies, music therapy, meditation and other relaxation therapies, and acupuncture are provided and believed supported by reasonably good documentation.

The finding that oncology physicians expressed a more negative attitude compared with other oncology health workers towards alternative medicines, but less so towards complementary medicines is important.

It is also important to note that female physicians are generally more positive to complementary therapies, but not to alternative treatments. In Norway, the number of female physicians is rapidly increasing. We can therefore anticipate a more positive and open attitude to complementary therapies, than we have today. At present, most physicians seem to favour the 'wait and see' position. They believe that the rules for medical conduct, and scientifically proven therapies, must also be the golden standard within alternative treatments aimed to treat the cancer itself. However, by defining com-

plementary medicine as methods aimed to enhance quality of life, we were able to find that oncologists have a more positive attitude to these therapies. Thus, it might be feasible in the future to achieve more understanding and co-operation between oncologists and practitioners of complementary medicine. This is also in concordance with public opinion in these matters.

We believe it is imperative that scientific research methods be applied to complementary medicine as to mainstream cancer care, requiring of both areas careful study, exact knowledge and validated investigation. Supportive complementary therapies are vital components of cancer treatment; they deserve no less.

The trend in Europe and the United States (US) to establish programmes of integrative medicine has also been seen in many major cancer institutions in Scandinavia. It is important that physicians in Norway take the time and effort to learn more about the value of complementary therapies. Only then can we advise our patients accordingly and only then can we properly work on behalf of our patients toward health care policies that enable them to receive beneficial complementary therapies as part of supportive care in oncology.

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Appendix

Some definitions**Conventional therapy:**

Mainstream oncology treatment (given in hospital)

Alternative therapy:Unproven treatments (promoted for use instead of conventional therapy).
Claimed to treat the cancer itself.**Complementary therapy:**Therapies used for symptom management and to enhance quality of life.
Not meant to treat the cancer.Please classify these therapies according to what you think is their **main classification**:*(please circle only one number for each therapy)*

| | Therapy | Alternative | Complementary | Conventional | Don't know | I do not know this therapy |
|-----|---------------------------|-------------|---------------|--------------|------------|----------------------------|
| 1) | Acupuncture | 1 | 2 | 3 | 4 | 5 |
| 2) | Homeopathy | 1 | 2 | 3 | 4 | 5 |
| 3) | Healing by healers | 1 | 2 | 3 | 4 | 5 |
| 4) | Prayer for healing | 1 | 2 | 3 | 4 | 5 |
| 5) | Meditation | 1 | 2 | 3 | 4 | 5 |
| 6) | Music /Art therapy | 1 | 2 | 3 | 4 | 5 |
| 7) | Zone therapy | 1 | 2 | 3 | 4 | 5 |
| 8) | Nitter-kur or equivalent | 1 | 2 | 3 | 4 | 5 |
| 9) | Diet therapy | 1 | 2 | 3 | 4 | 5 |
| 10) | Herbal, botanical therapy | 1 | 2 | 3 | 4 | 5 |
| 11) | High dose vitamin therapy | 1 | 2 | 3 | 4 | 5 |
| 12) | Iscador (Mistletoe) | 1 | 2 | 3 | 4 | 5 |
| 13) | Ayurveda | 1 | 2 | 3 | 4 | 5 |
| 14) | Aromatherapy | 1 | 2 | 3 | 4 | 5 |
| 15) | Applied kinesiology | 1 | 2 | 3 | 4 | 5 |
| 16) | Visualisation | 1 | 2 | 3 | 4 | 5 |
| 17) | Massage | 1 | 2 | 3 | 4 | 5 |
| 18) | Therapeutic touch | 1 | 2 | 3 | 4 | 5 |

19) How would you describe your own view on **alternative** therapies generally?*(circle only one number)*

| | | | | | |
|--------------------|------------------------|--------------|------------------------|--------------------|-----------------|
| Very positive 1 | Slightly positive 2 | Neutral 3 | Slightly negative 4 | Very negative 5 | Don't know 6 |
|--------------------|------------------------|--------------|------------------------|--------------------|-----------------|

20) How would you describe your own view on **complementary** therapies generally?*(circle only one number)*

| | | | | | |
|--------------------|------------------------|--------------|------------------------|--------------------|-----------------|
| Very positive 1 | Slightly positive 2 | Neutral 3 | Slightly negative 4 | Very negative 5 | Don't know 6 |
|--------------------|------------------------|--------------|------------------------|--------------------|-----------------|

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