

Review

Outlook and adaptation in advanced cancer: a systematic review

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Abstract

'Fighting spirit' in early-stage cancer comprises optimism about prognosis, a belief that the disease and/or its effects are controllable, and a determination to cope with the situation using various active coping methods. It is associated with better adjustment. In advanced cancer, the usefulness of this coping style is contentious. This systematic review identified eight studies that investigated these qualities in advanced cancer. They provided some evidence that positive attitude and self-efficacy may be associated with better emotional adjustment; active, problem-focused coping appears to be adaptive and avoidant coping maladaptive. However, major methodological flaws make any conclusions highly speculative. Further research in this area using larger samples and longitudinal design is required.

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Introduction

The belief that a positive attitude towards cancer can affect adjustment and prognosis is prevalent in Western culture, and is often encountered in media representations of the cancer patient's 'battle' against the disease. Greer [1] identified 'fighting spirit' as one of the common stances that people with cancer adopt. The person with a fighting spirit sees the illness as a challenge, has a positive attitude towards outcome, and engages in coping behaviours such as seeking appropriate information about the disease, and taking an active role in recovery while attempting to live as normal a life as possible. [2,3] This coping style has been consistently shown to correlate with lower levels of anxiety and depression [4], whereas cancer patients with adjustment styles such as helplessness–hopelessness or anxious preoccupation [5] are more likely to be depressed or anxious. The concept of fighting spirit as described by Greer has three main elements:

1. Optimism about the prognosis,
2. A belief that the disease and/or its effects are controllable and
3. A determination to cope with the situation using various active coping methods.

There is evidence supporting this configuration as a coherent adjustment style. For instance, [6] Link *et al.*, investigating a cross-sectional sample of

patients with recently diagnosed cancer, compared those who attempted to control the cancer (41%) with those who did not (25%). The patients who reported the use of coping strategies as attempts to control the disease had a greater fighting spirit, were more confident of being cured and used more active coping strategies.

In early-stage cancer an optimistic view of the future is associated with better quality of life (QOL) in people with [7–9] breast cancer, [10] head and neck cancer [11], and prostate cancer. [7,12] Patients who have a greater perception of control over cancer or its symptoms have better psychological adjustment. Finally, there is a consistent finding that [11,13] active, problem-focused modes of coping are associated with better adjustment, and use of avoidance with poorer adjustment.

Most of the research on these coping styles has been carried out using participants with early disease. [4] In advanced disease, fighting spirit is considered to be more adaptively expressed as a focus on the areas of life which the individual can still control: 'You can't control your death, but you can control your life'. Some studies have included patients with advanced cancer in their larger samples, and the same positive correlation between fighting spirit and psychological well-being has been found. However, the people with advanced cancer in these studies are usually physically reasonably well functioning. Although fighting spirit is associated with a greater sense of internal

control in early disease [14], this does not hold for advanced disease. Understandable concern has been expressed about the appropriateness of the construct of 'fighting spirit' in patients with a greater level of physical disability who are facing death in the near future. A positive attitude may not be adaptive in this population. It might be that acceptance and resignation are better strategies to bring peace of mind, [15] or perhaps even a balance between assertive and accepting modes. There is a fear that people who had a strong fighting spirit earlier in the course of their illness may find it *harder* to adjust to their impending death. Those who do not possess a positive attitude may feel guilty that they are not thinking positively, and may even believe that their disease has progressed because they have not been positive enough. Moorey and Greer [4] contend that adaptive fighting spirit in advanced disease involves flexibly accepting the likelihood of death, but maximising control and engagement with life until the end. Taylor and Amor [16] on the other hand argue that those individuals who have been optimistic about their illness do not collapse, but simply replace one set of 'positive illusions' with others in the advanced stages of disease, and that there is not a catastrophic break down of defences. There are many unanswered questions about what constitutes effective coping in advanced cancer, and in particular whether some of the strategies that are helpful in earlier disease are still a help in late disease.

The aim of this review is to evaluate systematically the research that has been done on the association between fighting spirit, or its components (optimism, perceived control and active coping), and adjustment in advanced and terminal cancer.

Method

Medline (1966–November 2007) and PsychINFO (1872–November 2007) were searched using the terms 'fighting spirit', 'positive attitude', 'sense of coherence', 'coping' and 'adjustment' each paired in turn with 'cancer', 'palliative care', 'terminal illness' and 'terminal cancer'. The article titles were then reviewed and those clearly unrelated were excluded.

The abstract or full article of the remaining papers was then examined. Those with a possible relationship between fighting spirit in its broadest sense and adjustment in advanced illness were included. All the papers included met the following criteria: they looked at patients with advanced or terminal illness, addressed the relationship between an independent variable relating to fighting spirit and a dependent variable of psychological adjustment and provided objective measures.

A hand search of the contents pages of relevant journals (*Journal of Psychosocial Oncology*, *Journal of Psychosomatic Research*, *Psychological Medicine*, *Psychosomatic Medicine*, *Psychosomatics*, *Psycho-Oncology*, *Palliative Medicine*, *Journal of Palliative Care* and *Cancer*) from April 1994 was conducted. Finally, experts in this field were contacted and asked if they were aware of any relevant unpublished data.

Each paper was then reviewed by both authors in turn using the following criteria:

1. Type of study
2. Stated aim
3. Number of participants
4. Response rate
5. Where and how were participants recruited?
6. How the data were collected?
7. Inclusion criteria
8. Exclusion criteria
9. Assessment tool for coping mechanisms (independent variable) and psychological adjustment (dependent variable)
10. Demographics
 - (i) Age
 - (ii) Sex
 - (iii) Marital status
 - (iv) Education
 - (v) Time since diagnosis
 - (vi) Location
11. How the data were analysed?
12. Whether raw data were provided
13. Conclusions

No ethical approval was sought as this is a review of existing literature.

Results

From 782 papers identified in the database searches, only three met the necessary criteria. Three more studies were identified from the hand search and two by experts. These eight studies formed the basis of the review. Three used fighting spirit as the independent variable [17–19]. The other studies investigated the aspects of the fighting spirit constructs: optimism [20,21] and active coping [13,22,23].

Summary of measures used in reviewed papers

Independent variable measures

Measure of fighting spirit

Mental Adjustment to Cancer Scale [2,24,25] measures patients' cognitive and behavioural responses to diagnosis and treatment of cancer.

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Factor analysis by Watson [2] produced five subscales: fighting spirit, anxious preoccupation, helpless/hopeless, fatalism and denial or avoidance, whereas Schwartz *et al.* [24] identified four subscales: hopelessness, vigilant participation, positive attitude and positive reappraisal.

Measures of optimism

Life Orientation Test [22,26] is a measure of dispositional optimism.

Treatment-specific Optimism Scale [20] measures positive outcome expectations, optimistic bias and confident emotions.

Measure of perceived control

Self-efficacy for Advanced Cancer [27] was designed to assess the effect of self-efficacy on the illness behaviour of advanced cancer patients.

Measures of coping

Bernese Coping Modes [13] is an observer rating scale using a semi-structured interview. It consists of 26 different coping modes, including support, denial, diverting, self-control and negative emotional.

Coping Orientations to Problems Experienced Scale [28] measures engagement coping strategies such as positive reframing, active coping, and avoidant coping strategies such as behavioural disengagement and denial.

Courtauld Emotional Control Scale [17,29] measures reported inhibition of expression of anger, anxiety and depression. Emotional expression was designated a potentially adaptive coping response in the trial where it was employed [17].

Impact of Events Scale [30] contains an avoidance subscale which looks at conscious attempts to avoid thoughts or reminders of particular stressors. [31] While this is normally used as a measure of traumatic symptomatology, in one of the studies reviewed the avoidance subscale was used as a measure of avoidance coping.

Ways of Coping Questionnaire-Revised Version [32] contains 66 items that assess cognitive and behavioural strategies used in stressful situations. Eight subscales measure escape-avoidance, confrontive coping, seeking social support, accepting responsibility, positive reappraisal, distancing, planful problem solving and self-control.

Dependent variable measures

Measures of psychological adjustment

Brief Symptom Inventory [33], Centre for Epidemiologic Studies—Depression (CES-D) [20,34], Emotional State Scale [35], *Hospital Anxiety and Depression Scale* [36,37], Mental Health Inventory

[21,38], Monash Interview for Liaison Psychiatry [39] and Profile of Mood States [40].

Measures of QOL

European Organization for Research and Treatment of Cancer [41,42], Functional Assessment of Cancer Therapy version 2 [43], Functional Living Index-Cancer [44] and Social Adaptation Scale [45–47].

Systematic review of papers

The papers are summarised in Table 1.

We will discuss first those papers using the MAC scale as the independent variable.

Coping styles associated with psychological adjustment to advanced breast cancer [17]

Classen *et al.* used a cross-sectional cohort design to determine whether adjustment to advanced breast cancer was positively associated with fighting spirit and negatively associated with denial and fatalism.

Participants were taking part in a trial of group psychotherapy and baseline data formed the basis for this study. Some were recruited through oncologists at two large medical centres and some self-referred. The 101 participants all had a [48] Karnofsky Performance Status (KPS) greater than 70%.

Fighting spirit and emotional expressiveness (measured by the Courtauld Emotional Control Scale) were associated with better adjustment, accounting to 17% for the variance. There was no association between mood disturbance and denial or fatalism.

The results of this study must be interpreted with caution: it was relatively small; the participants were all women with a high school diploma or above which may limit generalisability; no information regarding racial or cultural origins was given, though participants were required to have adequate English; no raw data were provided; and perhaps most significantly, the study was a convenience sample of people who were taking part in a psychotherapy study—this may have led to selection bias.

Psychiatric disorder in women with early-stage and advanced breast cancer: a comparative analysis [19]

Kissane *et al.* also utilised patients from a psychotherapy trial, employing a cross-sectional cohort design to assess psychological morbidity in women with breast cancer. He compared the baseline assessments of women with early-stage and advanced disease. Inclusion criteria for early

Table I. Summary of papers reviewed

Paper	Study Characteristics	Outcome measures	Results—participants	Results—effects	Number	Comments
Classen et al. (1996)	Population: metastatic or recurrent breast cancer Setting: not clear Type of study: cross-sectional, observational cohort study Comparison group: none	Independent variable(s): MAC Dependent variable(s): POMS	Age: 30–80 years, $M = 53$ years Sex: 100% female Marital status: 54.5% married Education: \geq high school diploma Disease free interval: 0–13.3 years ($M = 3.8$, $SD = 2.8$) Location: Stanford University Medical School, USA	Fighting spirit negatively related to mood disturbance ($t = -2.90$ ($p < 0.01$)). Emotional Control positively related to mood disturbance ($t = 3.48$ ($p < 0.001$))	$n = 101$	Selection bias introduced by using data from participants in a group psychotherapy study which included some self-referrals
Kissane et al. (2004)	Population: stage IV breast cancer Setting: oncology services in a general metropolitan hospital and from private practitioners Type of study: cross-sectional, observational cohort study Comparison group: recent diagnosis of stage II breast cancer or stage I breast cancer with poor prognosis	Independent variable(s): MAC Dependent variable(s): MILP, HADS, EORTC (QLQ-C30 & QLQ-BR23)	Age: $M = 46$ years (stages I and II), $M = 51$ years (stage IV) Sex: 100% female Marital status: 'most' married Education: 'most' \geq senior 2 ^o school Time since diagnosis: stages I and II $M = 102$ days ($SD = 56$); stage IV $M = 63$ months (44) months; metastatic at diagnosis $M = 10$ months ($SD = 12$) Location: Australia	Acceptance/resignation negatively association with depression in early disease Acceptance/resignation positively association with depression in advanced disease	$n = 503$ Early disease = 303 Advanced disease = 200	Selection bias due to non-random sampling and use of data from participants recruited for a group therapy intervention study. Response rate 46% for group with metastatic disease
Schnoll et al. (1998)	Population: stage II and stage IV breast cancer receiving oncologic care Setting: not clear Type of study: cross-sectional, observational cohort study Comparison group: stage II patients (see above)	Independent variable(s): MAC Dependent variable(s): BSI	Age: 31–67 years: $M = 44$ years Sex: 100% female Marital status: 66% married Education: 90% college education Location: USA	In stage IV patients with high fighting spirit (0.57) reported lower anxiety (-0.72) and depression (-0.98). Patients with high positive attitude (0.36) reported lower levels of distress (anxiety -0.72 , depression -0.99)	$n = 100$ Stage II = 52 Stage IV = 48	Selection bias introduced by using data from participants in a group therapy trial for whom the selection process was not clear
Cohen et al. (2001)	Population: metastatic renal cell carcinoma or metastatic melanoma enrolled in Phase I/b trial of non-toxic active specific immunotherapy Setting: out-patients Type of study: longitudinal observational cohort study Comparison group: none	Independent variable(s): Treatment-specific optimism scale Dependent variable(s): CES-D, POMS, BSI	Age: 36–76 years, $M = 55$ years Sex: 30% female, 70% male Marital status: 80% cohabiting Education: \geq 52% college education Time since diagnosis: 1–168 days ($M = 23.23$, $SD = 37.12$) Location: USA	Treatment-specific optimism negatively associated with baseline CES-D ($\beta = -0.42$; $R^2 = 0.17$ $p < 0.006$). Treatment-specific optimism negatively associated with POMS ($\beta = -0.25$; $R^2 = 0.05$; $p < 0.05$) and BSI depression ($\beta = -0.41$; $R^2 = 0.13$; $p < 0.003$) at end of treatment	$n = 46$ Metastatic renal cell carcinoma = 24 Metastatic melanoma = 22	Sampling bias introduced by using data from patients participating in a research trial. No information provided about recruitment strategy or any who declined to participate
Miller et al. (1996)	Population: patients with a diagnosis of cancer Setting: out-patients Type of study: longitudinal, observational cohort study Comparison group: none	Independent variable(s): LOT, WOC-R Dependent variable(s): MHI	Age: 35–75 years, $M = 55.4$ years, $SD = 11.5$ years Sex: 44% female, 56% male Education: 97% completed high school, 51% \geq completed college Ethnicity: 95% Caucasian	Optimism at outset and follow-up negatively correlated with distress (-0.53^* , -0.61^*) and positively correlated with well-being at follow-up (0.69^* , 0.73^*). Escape-avoidance correlated with psychological	$n = 159$	Part of a larger study on couples coping with cancer, results are therefore not generalizable to single people

			Time since diagnosis: $M = 10.2$ months, median = 3.8 months Primary site: GI 77%, breast 13%, unknown 4%, lung 3%, ovary 1% Location: New York	distress initially (0.43*) and at follow-up (0.61*). * $p < 0.005$		
Heim <i>et al.</i> (1997)	Population: breast cancer Setting: in-patients at outset, follow-up as out-patients Type of study: longitudinal, observational cohort study Comparison group: none	Independent variable(s): Becomo Dependent variable(s): SAS, Bf-S	Age: 35–88 years, $M = 61$ years, S.D. = 12.64 years Sex: 100% female Marital status: 'majority' married Location: Switzerland	No associations between coping strategies and distress/well-being at the metastatic stage	$n = 74$ Metastatic disease = 14	Small number of patients remaining in the study at the metastatic stage
Hirai <i>et al.</i> (2002)	Population: advanced metastatic cancer Setting: in-patients in a palliative care unit Type of study: cross-sectional observational cohort study Comparison group: none	Independent variable(s): SEAC scale Dependent variable(s): Japanese version of HADS	Age: 44–82 years, $M = 60.8$ Sex: 51% female, 49% male Primary site: lung 21.2%, stomach 12.9%, breast 12.9%, rectum 11.8%, oesophagus 7.1%, ovary 7.1%, other 27.1% Location: Japan	Latent variable of 'self-efficacy' found to account for 64.5% of the variance in latent variable of 'emotional distress' using structural equation analysis (Chi squared (4) = 3.87, $p = 0.43$; GFI = 0.98; CFI = 1.00; RMSEA = 0.00)	$n = 85$	No information provided about recruitment strategy or numbers and characteristics of non-responders
Costanzo <i>et al.</i> (2006)	Population: gynaecological carcinoma who had undergone at least one consecutive year of chemotherapy and were receiving chemotherapy Setting: in-patients and out-patients Type of study: cross-sectional observational cohort study Comparison group: patients diagnosed with localized primary gynaecological cancers who had undergone initial surgery approximately 1-year prior to the study	Independent variable(s): COPE scale, IES Dependent variable(s): POMS, FACT	Age: $M = 62.0$ years (both groups), SD = 12.7 and 12.5 years in limited (LTG) and extensively treated patients (ETG) Sex: 100% female Marital status: LTG 68.8% married or living with partner; ETG 65.6% married or living with partner; 21.9% of both groups widowed Education: LTG 12.5% < 12 years, 12.5% \geq college graduate; ETG 22.6% < 12 years, 32.3% \geq college graduate Time since diagnosis: LTG data from approx. 1-year post-diagnosis; ETG $M = 31.5$ months (calculated from data in paper) Primary site: LTG—endometrium 69%, cervix 28%, ovary 3%; ETG—ovary 72%, endometrium 14%, cervix 10%, fallopian tubes 3% Location: Iowa, IA, USA	Interaction between group and cognitive avoidance was significant in models predicting both physical and emotional well-being. Cognitive avoidance associated with poorer emotional and physical well-being in ETG but unrelated to emotional and physical well-being in the LTG Mental disengagement (-0.26 , $p < 0.05$) and cognitive avoidance (-0.33 , $p < 0.05$) associated with emotional well-being. Mental disengagement (0.28, $p < 0.05$), denial (0.27, $p < 0.05$) and cognitive avoidance (-0.30 , $p < 0.05$) associated with anxiety. Mental disengagement (0.28, $p < 0.05$) associated with depressed mood	$n = 64$; LTG = 28, ETG = 32	Not clear how participants were recruited, whether there were non-responders, and if so what their characteristics were. No data are reported for POMS outcomes

Becomo, Bernese Coping Modes; Bf-S, Emotional State Scale; BSI-GSI = Brief Symptoms Inventory-Global Severity Index; CES-D, Centre for Epidemiologic Studies—Depression; COPE, Coping Orientations to Problems Experienced Scale; EORTC, European Organization for Research and Treatment of Cancer (QLQ-C30 = quality of life questionnaire; QLQ-BR23 = breast cancer module); FACT, Functional Assessment of Cancer Therapy version 2; GSI, Global Severity Index; HADS, Hospital Anxiety and Depression Scale; IES, Impact of Events Scale; LOT, Life Orientation Test; MAC, Mental Adjustment to Cancer Scale; MHI, Mental Health Inventory; MILP, Monash Interview for Liaison Psychiatry; POMS, Profile of Mood States; SAS, Social Adaptation Scale; SEAC, Self-efficacy for Advanced Cancer; WOC-R, Ways of Coping questionnaire-Revised Version.

disease were a recent diagnosis of stage II breast cancer or stage I with poor prognostic factors and age <65. The criterion for advanced disease was stage IV breast cancer and age <70.

Those with early disease were receiving adjuvant chemotherapy. The response rate in this group was 62%, but only 42% in the advanced disease group: reasons for this were burden of treatment (18%) and transport difficulties (15%). As they had not given informed consent, it was not possible to obtain socio-demographic profiles for non-participants. In both early and metastatic cancer, helplessness/hopelessness was significantly associated with depression. Acceptance/resignation appeared to be negatively associated with depression in early breast cancer, but positively associated with depression in metastatic breast cancer. No comment was made as to whether fighting spirit was associated with good or poor psychological adjustment.

The authors state that eligibility criteria, recruitment rate and non-random sampling design were sources of bias. Other issues with this study were that: like the previous study it was cross-sectional and hence no inference can be made regarding direction of causality; the data were taken from an intervention study; the response rate was low; the study looked only at breast cancer patients and therefore may not be very generalisable; and that the demographics were lacking in detail.

Using two-factor structures of the Mental Adjustment to Cancer (MAC) Scale for assessing adaptation to breast cancer [18]

Like Kissane, Schnoll *et al.* compared patients with early (stage II) and late (stage IV) breast cancer. A cross-sectional cohort design was used to investigate the relationship between factor analytically derived subscales of the MAC. A factor analysis by Watson *et al.* produced five subscales: fighting spirit, anxious preoccupation, helpless/hopeless, fatalism, and denial or avoidance. Factor analysis by Schwartz [24] identified four subscales: hopelessness, vigilant participation, positive attitude and positive reappraisal.

Questionnaires from 100 patients about to begin a group therapy program were used for this study. Multivariate analysis of variance was performed to examine differences in coping, distress, and QOL across disease stages. Canonical correlation analyses of both MAC factor structures looked at the relationship between coping styles, distress and QOL for each disease-stage group separately. In addition, structural equation modelling assessed the relationship among coping styles, distress and QOL for all participants.

The study found no difference across stages in QOL or psychological distress but significant differences in coping styles across disease stages

using both Watson and Schwartz subscales of the MAC. Using the Watson subscales, stage II participants had higher levels of fighting spirit ($M = 3.23$) and lower levels of hopelessness/helplessness ($M = 1.47$), anxious preoccupation ($M = 2.53$) and fatalism ($M = 1.56$) when compared with stage IV participants. Using the Schwartz subscales, stage II participants had significantly lower levels of hopelessness ($M = 1.89$), and significantly greater levels of positive attitude ($M = 3.63$) and vigilant participation ($M = 3.30$) compared with stage IV participants. There was no significant difference between stage II and IV participants in levels of positive reappraisal.

Coping style was highly related to emotional distress and QOL. Strengths of correlations with individual coping styles varied across disease stages.

First canonical variates produced statistically significant correlations for both stages of disease with both subscales. Structured equation modelling indicated that coping style was significantly related to distress and QOL when stage of disease was not considered, and that coping style and indicators of distress and QOL were separate but highly correlated factors. The authors suggested that coping style may act as a mediator between disease stage and psychosocial outcome.

In the 'Discussion' section, the authors highlighted the following findings: fighting spirit (Watson MAC) was more highly related to lower levels of distress for stage II participants than stage IV; positive attitude (Schwartz MAC) was also more strongly related to lower distress and a higher QOL for stage II participants compared with stage IV participants; and fatalism was more highly related to greater levels of distress for stage IV participants.

One interesting point arising from the use of both subscales is the possibility of deconstructing the concept of fighting spirit into smaller components. The three Schwartz subscales positively related to greater QOL and psychological adjustment are positive attitude, positive reappraisal and vigilant participation. Both fighting spirit (from the Watson subscales) and positive attitude (Schwartz) are less highly correlated with greater QOL and psychosocial adjustment in stage IV disease compared with stage II. Since the concept of fighting spirit includes optimism about prognosis and a belief that disease and life are controllable, both of which are conceptually related to positive attitude, it may be that a determination to cope (the remaining aspect of the concept of fighting spirit) is more important in accounting for improved QOL and psychological adjustment in advanced disease.

In summary, this study suggested that fighting spirit and positive attitude were more likely to be

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related to lower psychological distress in stage II than in stage IV disease, whereas fatalism was more highly related to psychological distress in stage IV disease. However, the determination to cope element of positive attitude may nevertheless be an important factor in decreasing psychological distress when the concept of positive attitude is deconstructed.

The study's limitations were its cross-sectional nature, the use of data collected for an interventional study, the lack of information about numbers or characteristics of those who refused to take part, the small overall numbers ($n = 100$) and lack of power calculations to justify the study size.

Two studies used optimism as an independent variable.

The association between treatment-specific optimism and depressive symptomatology in patients enrolled in phase I cancer clinical trial [20]

In phase I clinical trials, [49–51] less than 5% of patients respond to treatment but [52] more than 30% believe it will cure them. Cohen *et al.* used data from a phase I clinical immunotherapy study to examine whether treatment-specific optimism was related to mood disturbance and distress.

Participants had either newly diagnosed stage IV renal cell carcinoma or stage II or IV melanoma. All had a life expectancy of more than 4 months.

A treatment-specific optimism measure developed for this study was used.

Patients received subcutaneous or intra-dermal injections once weekly for 4 weeks. The end-of-treatment assessment followed the final injection, and hence there was a 3-week gap between initial and final assessments. Patients did not receive any information regarding their response to treatment until 4 weeks after their final treatment so that follow-up measures would not have been contaminated by any knowledge of response.

The two diagnostic groups were analysed together as there were no differences in demographics, levels of treatment-specific optimism or psychosocial variables. There were no statistically significant demographic or medical differences between participants and non-participants.

Treatment-specific optimism was negatively associated with baseline CES-D scores ($\beta = -0.42$; R^2 [unique proportion of variance] = 0.17; $p < 0.006$), Profile of Mood States (POMS) score ($\beta = -0.48$; $R^2 = 0.22$; $p < 0.001$), and GSI score ($\beta = -0.54$; $R^2 = 0.28$; $p < 0.0001$), i.e. more optimism was associated with less depression and distress. Also, higher treatment-specific optimism at baseline was associated with lower depression scores at the end of treatment, even after controlling for levels of depression at baseline.

The authors concluded that high levels of treatment-specific optimism, even if unrealistic, may protect against depression. However, the time interval between initial and final assessment was short (3 weeks), and we do not know the longer term psychological trajectory of these patients.

There were a number of other issues which must be remembered in interpreting these findings: the numbers were small; the number of those declining to take part was not given; as in other studies under review selection bias may have been introduced by using data from those recruited to an interventional study, in this case a phase I clinical trial; and perhaps most significantly the patients' proximity to time of diagnosis, as this blurred the issue of what stage patients were at despite their advanced clinical conditions.

Psychological distress and well-being in advanced cancer: the effects of optimism and coping [21]

This study examined a more general trait of 'dispositional optimism' over a 4-month period in patients with various cancer types. Coping was assessed at entry into a study on couples coping with cancer [53] at the Memorial Sloane Kettering Cancer Center.

In this study 59% ($N = 44$) were stage IV, 17% ($n = 13$) stage III and 24% ($n = 18$) stage II.

Analyses of variance were used to examine change in distress and well-being over time, indicating a main effect of time. At the initial assessment, optimism correlated -0.53 with distress and 0.69 with well-being. Initial optimism was correlated -0.50 and 0.58 with distress and well-being, respectively, at follow-up. Optimism at follow-up correlated -0.61 and 0.73 with distress and well-being at follow-up. Escape-avoidance from the Ways of Coping Questionnaire (WOC-R) correlated 0.43 with psychological distress initially and then 0.61 at follow-up.

The authors concluded that dispositional optimism persisted in the face of a severe, life threatening stressor. Escape-avoidance was the only coping strategy associated with adjustment. Compared with other studies, the level of optimism in these patients was actually *higher* than in people without cancer.

Limitations of this study included: that the sample was selected for a treatment study, indeed the higher level of optimism may have reflected the fact that the patients were self-selected for a therapy trial and hence might have been hopeful about this; that the sample was restricted in range of socio-economic, racial and marital status; and that the high dropout over the course of the study which raised questions over the generalisability of the results.

Three studies used coping as an independent variable.

Coping and psychosocial adaptation: longitudinal effect over time and stages in breast cancer [13]

Heim *et al.* used a prospective longitudinal study design to investigate coping. Participants had undergone mastectomy at the Women's Centre of the University of Bern and were followed up for 5 years with interviews at 3–6 monthly intervals. None of the participants underwent psychosocial interventions during the study.

Coping modes were assessed across time and seven illness stages (including convalescent, metastatic and terminal stages). The majority of participants were lower middle-class Caucasian married women representative of women of this age group in Switzerland. Less than 5% refused to participate.

For the social adaptation scale, 38% of the variance was predicted by basic coping strategies. Compared with the poorly psychosocially adapted, those who had good adaptation were more likely to use support and/or, self-control and less likely to use negative-emotional coping and denial.

For the emotional state scale, only 20% of the variance was predicted by basic coping strategies, with negative-emotional and self-control both negatively related to better emotional state. In both convalescent and metastatic stages, no specific coping strategies were used. No association was identified between positive mental attitude and psychological distress during the metastatic stage of illness in this study. However, although this was a longitudinal study the analysis was cross-sectional and hence no inference can be drawn regarding direction of causality; it was a small study and only 14 of the 74 patients were assessed in the metastatic, recurrent or advanced stages of disease; no information regarding non-responders was provided and demographic information was limited.

A structural model of the relationships among self-efficacy, psychological adjustment and physical condition in Japanese advanced cancer patients [23]

The authors used a cross-sectional cohort design to look for relationships among physical condition, self-efficacy and psychological adjustment of patients with advanced cancer.

They recruited 85 participants from palliative care inpatients and outpatients with advanced metastatic cancer whose symptoms were well controlled.

The correlations among the three subscales of the Self-efficacy for Advanced Cancer (SEAC) were significant therefore a latent variable of 'self-efficacy' was assumed. Affect regulation loaded highest on the self-efficacy variable. There was also a high correlation between depression and anxiety

on the Hospital Anxiety and Depression Scale (HADS) and hence a latent variable of 'emotional distress' was assumed and taken as an indication of psychological adjustment. Self-efficacy accounted for 64.5% of the variance in emotional distress. The final best-fit model also included the latent variable 'physical condition'. The effects of this latent variable on emotional distress were mediated by self-efficacy.

In the 'Discussion' section, the authors acknowledged that the size and cross-sectional nature of the study were limitations. They also discussed the comparatively good control of symptoms and good psychological adjustment (on assessment with the HADS, 84.7% were not clinically anxious and 92.9% were not depressed). They suggested that this may have influenced the variance of the self-efficacy measures, especially the symptom-coping efficacy subscale. However, they also made the point that of all the self-efficacy subscales, symptom-coping efficacy made the smallest contribution to the latent self-efficacy factor.

In summary, the study found that self-efficacy, a composite of symptom-coping efficacy, activities of daily living efficacy and affect regulation efficacy, accounted for 64.5% of the variance in emotional distress.

However, the study was cross-sectional in design, numbers were small, the details of non-participants were not given, the recruitment process was not described and little demographic information was given to inform the level of generalisability.

Coping and QOL among women extensively treated for gynaecological cancer [22]

Costanzo *et al.* used a longitudinal study design to look at the use of engagement and avoidant coping strategies among advanced-stage patients. They hypothesised that these patients would use a greater variety of coping strategies with greater frequency; that engagement strategies would be associated with less distress and better QOL compared with avoidant strategies; and that these relationships would be strongest among advanced-stage patients undergoing extensive cancer treatment.

They recruited 64 patients: the limited treatment group had localised primary gynaecological cancers treated with initial surgery approximately 1 year prior to the study, these participants constituted the reference group; the extensively treated group had undergone at least one consecutive year of chemotherapy for gynaecological cancer and were receiving chemotherapy at the time of the trial. Chemotherapy patients were age matched with reference group patients to within 3 years.

The study group patients were recruited during chemotherapy at the University of Iowa Hospitals or related clinic visits. The reference group patients

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were recruited at their initial diagnostic clinic visits as part of a 3-year longitudinal study of QOL in gynaecological cancer patients and data from their 1-year follow-up assessments were used.

Looking at the total sample, use of engagement strategies was not associated with anxiety or depressed mood. However, high levels of avoidant strategies were associated with more distressed mood. The greater use of mental disengagement was associated with greater anxiety and depressed mood. When the two groups were compared, the interaction between group and cognitive avoidance was significant in models predicting emotional well-being. Cognitive avoidance was associated with poorer emotional and physical well-being in the extensively treated group ($p = 0.013$) but unrelated in the reference group. No analysis of associations between positive reframing or active coping and either psychological distress or emotional well-being was performed.

Although there was some evidence that avoidant-coping strategies were associated with more distressed mood and greater anxiety in the extensively treated patient group, any association between positive reframing and active coping with psychological distress was not examined in this group.

In addition, there were a number of issues with this study which need to be taken into account: numbers were small and no power calculation was carried out to justify the study size; although some data were taken from a longitudinal study, the analysis was in fact cross-sectional; the diagnoses in the reference group and extensively treated group were different (endometrial versus ovarian cancer); no information was given about either response rate or those individuals who may have declined to take part; and inclusion and exclusion criteria were not given. The choice of the Impact of Events Scale as a coping measure is unusual.

Discussion

There were significant methodological difficulties with all the studies examined. In addition to the issues specific to individual studies, which have already been addressed, there are a number of themes that apply across studies. The first is the issue of convenience sampling: five of the eight studies recruited participants from other studies and used the data to answer new questions. Quite apart from the usual difficulties of *post hoc* analysis, this introduces a source of sampling bias. Patients taking part in psychological therapy trials may not be representative of the population as a whole. Second, most of the studies were small in size and none provided the details of power calculations to establish numbers required to demonstrate statistically significant differences.

Third, the patient groups studied had a number of different diagnoses and came from a number of different geographical locations. Clearly, there is always a balance to be gained between over-inclusiveness which can muddy the waters and generalisability. Finally, only two studies were longitudinal and in one of these only a very small number had metastatic disease [13]. Heterogeneity, lack of common measures and different research designs make it inappropriate to carry out a meta-analysis.

So far, as these limited and heterogeneous studies allow us to draw any conclusions about outlook and adaptation, there seems to be some evidence that adaptive coping is not dramatically different in advanced cancer compared with early disease.

In the studies that used the Mental Adjustment to Cancer Scale, there was a positive correlation between fighting spirit and adjustment, though this is not as strong as in early disease [17–19]. Because of the complex nature of the fighting spirit construct it is not possible to unpack this finding. Are patients with advanced disease endorsing all the items less, or are they endorsing some but not others? It is possible that some aspects of fighting spirit remain adaptive, whereas others become less appropriate; for instance, positive reappraisal may retain its value while an overly optimistic attitude towards prognosis may be less adaptive. The findings that dispositional optimism and treatment-specific optimism both correlated with adjustment suggests that positive attitude still has some value in the later stages of disease, even if it is unrealistic [17,20].

MAC subscales of helplessness/hopelessness, anxious preoccupation and fatalism are associated with poor adjustment in advanced disease as in early disease. Although one might expect fatalism to be an adaptive response in more advanced disease, the two studies that explicitly compared early- and late-stage disease ([18] and [19]) found it to be *more* strongly correlated with depression in advanced cancer patients. Again, as in early disease, cognitive avoidance and escape-avoidance are associated with poorer adjustment in advanced disease.

Looking at the separate components of fighting spirit (positive attitude, perceived control and active coping) it seems that:

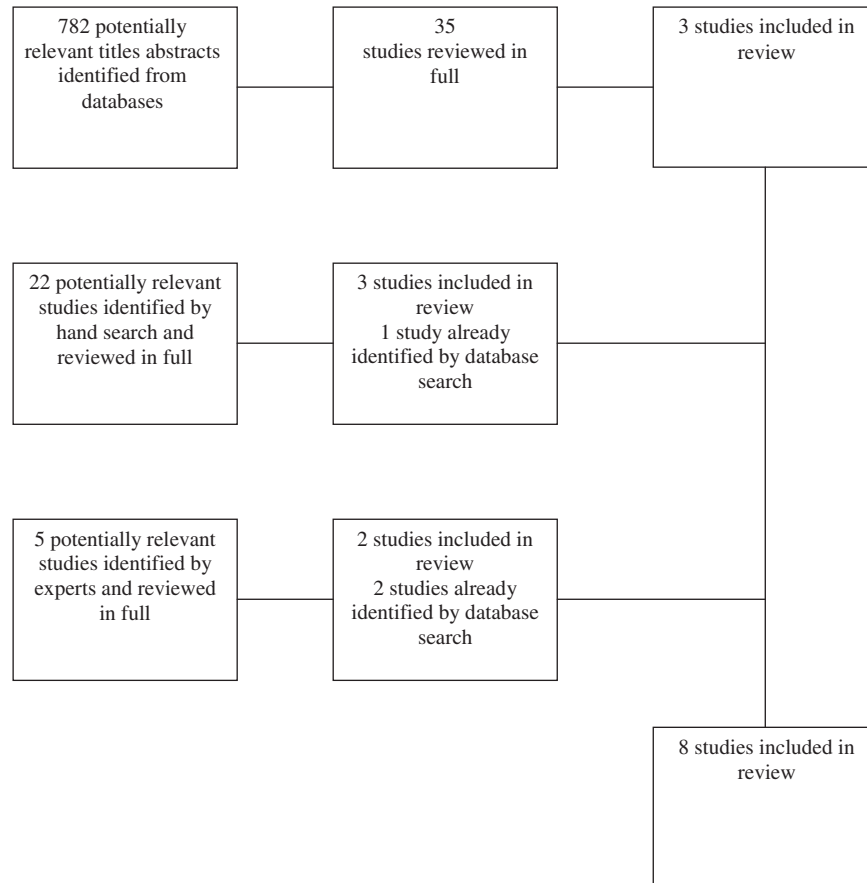
- 1 Positive attitude may still be associated with better emotional adjustment [17–21].
- 2 Self-efficacy may be associated with better emotional adjustment [23].
- 3 Active, problem-focused coping appears to be adaptive [17–19] and avoidant coping maladaptive [22].

However, the methodological difficulties make any conclusions we draw highly speculative. Future

work needs to be done in investigating what aspects of a positive outlook are adaptive in advanced cancer, developing and standardising measures of

coping and adjustment, and the field is still sorely in need of a well designed, sufficiently powered, longitudinal study.

Appendix: Search strategy



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