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Influence of psychological coping on survival and recurrence in people with cancer: systematic review

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Abstract

Objective To summarise the evidence on the effect of psychological coping styles (including fighting spirit, helplessness/hopelessness, denial, and avoidance) on survival and recurrence in patients with cancer.

Design Systematic review of published and unpublished prospective observational studies.

Main outcome measures Survival from or recurrence of cancer.

Results 26 studies investigated the association between psychological coping styles and survival from cancer, and 11 studies investigated recurrence. Most of the studies that investigated fighting spirit (10 studies) or helplessness/hopelessness (12 studies) found no significant associations with survival or recurrence. The evidence that other coping styles play an important part was also weak. Positive findings tended to be confined to small or methodologically flawed studies; lack of adjustment for potential confounding variables was common. Positive conclusions seemed to be more commonly reported by smaller studies, indicating potential publication bias.

Conclusion There is little consistent evidence that psychological coping styles play an important part in survival from or recurrence of cancer. People with

cancer should not feel pressured into adopting particular coping styles to improve survival or reduce the risk of recurrence.

Introduction

It is a popular belief that psychological factors can influence survival from cancer, particularly breast cancer.¹ Such an association is biologically plausible, and several possible mechanisms have been proposed—for example, through immunological and neuroendocrine mechanisms.^{2,3} The evidence, however, is conflicting.

We carried out a comprehensive systematic review to assess the strength of the evidence for an association between psychological coping and cancer outcome.

Methods

Search strategy—We searched several databases for published and unpublished studies (in any language) on the association between progression of cancer, recurrence or survival, and psychological coping: Medline 1966-June 2002, PsycINFO 1887-June 2002, ASSIA 1987-June 2002, Embase 1980-June 2002, Cancerlit 1966-June 2002, Dissertation Abstracts 1975-June 2002, the NLM gateway (accessed 21 June 2002),

Details of studies of survival and recurrence

	Sample size	Coping style(s) (scale used*)	Site of cancer	Outcomes included in study, length of follow up (No of deaths)
Reynolds ¹	847	Expressing/suppressing emotions, wishful thinking, problem solving, positive reappraisal, avoidance, escapism, "coping repertoire"	Breast	Survival: up to 9 years (218 deaths)
Greer, ^{2,5} Pettingdale, ^{4,17}	69	Denial, fighting spirit, stoic acceptance, helplessness/hopelessness	Breast	Survival: 5, 10, and 15 years (34, 36, 47 deaths respectively); recurrence
Morris ⁶	168	Denial, fighting spirit, anxious preoccupation, stoic acceptance, helplessness/hopelessness	Breast, lymphoma	Survival: up to 5 years (20 deaths); recurrence
Watson ⁷	578	Fighting spirit, helplessness/hopelessness, anxious preoccupation, fatalism, avoidance, emotional suppression	Breast	Survival: 5 years (133 deaths); recurrence
Brown ⁸	426	Active, distractive, and avoidant coping; adjustment to cancer	Early stage melanoma	Survival: 2 years (60 deaths); recurrence
Andrykowski ⁸	42	Fighting spirit, hopelessness/helplessness, anxious preoccupation, fatalism, avoidance	Leukaemia	Survival: median=2.2 months (27 deaths)
Cody ⁹	209	Fighting spirit, helplessness, anxiety, fatalism, avoidance	Lung	Survival: 8 weeks (deaths not stated)
Dean ¹⁰	125	Stoic acceptance, fighting spirit, denial, hopelessness/helplessness, anxious/depressed	Breast	Survival: 6-8 years (22 deaths); recurrence
Giraldi ¹¹	95	Fighting spirit, hopelessness, anxious preoccupation, fatalism	Breast	Survival: 6 years (15 deaths)
Murphy ¹²	56	Fighting spirit, helplessness, anxiety, fatalism, avoidance	Leukaemia, lymphoma, aplastic anaemia	Survival: mean=82 months (18 deaths)
Nordin ^{13,14}	139	Fighting spirit, helplessness, anxious preoccupation, anxiety, fatalism, avoidance (MAC scale)	Colorectal, gastric, pancreatic, and biliary cancers	Survival: ≤12 months (56 deaths)
Tschuschke ¹⁵	52	Passive reception/resignation, distraction, cognitive structuring, social contact, compliance, fighting spirit	Leukaemia	Survival: mean survival time=2.6 years (21 deaths)
Cassileth ^{16,18}	204 +155	Hopelessness/helplessness, amount of adjustment required to cope with diagnosis	Pancreatic, gastric, lung, colorectal cancer, glioma, melanoma, or breast	Survival:1985—group I median survival 7 months; group II median 12 months to recurrence 1988—follow up at 3-8 years; recurrence
Molassiotis ¹⁹	31	Emotion focused coping, humour, withdrawal, acceptance, hopefulness	Haematological malignancies	Survival: 1-2 years (20 deaths)
Ringdal ^{20,21}	253	Hopelessness	Breast, gastrointestinal, prostate, lung; lymphoma	Survival: mean survival time=17 months
Jensen ²²	86	Defensiveness, helplessness/hopelessness, negative affect, chronic stress, and daydreaming	Breast	Recurrence: average follow up=624 days (11 deaths)
Butow ²³	125	Active, distractive, avoidant coping	Metastatic melanoma	Survival: 2 years (deaths not stated)
Butow ²⁴	99	Active, distractive and avoidant coping; adjustment to cancer (stigma/isolation, minimisation, anger)	Metastatic breast	Survival: 2 years (62 deaths)
Richardson ²⁵	139	Behavioural and cognitive coping, including avoidance, information seeking, problem solving, affective regulation	Haematological malignancies, rectal	Survival: ≤5 years (64 deaths)
Achté ²⁶	126	Denial, repression	Not stated	Survival: up to 3 years (35 deaths)
Silberfarb ²⁷	290	Denial of illness	Multiple myeloma	Survival: 2 years (deaths not stated)
Buddeberg ³⁰⁻³³	107	Depressive coping, distrust and pessimism, "regressive tendency," self encouragement, distraction, self revalorisation, control of feelings and withdrawal, problem solving)	Breast	Survival: 3 years; 5-6 years; 10 years
Derogatis ³⁴	35	Anxiety, depression, hostility, guilt, psychoticism, general psychological symptom severity index (defined by author as study of coping)	Breast	Survival: long term survivors (mean=23 months) v short term survivors (mean=9 months) (13 deaths)
Faller ^{35,36}	103	Depressive coping, active coping, hope	Lung	Survival: up to 7 years
Hislop ³⁷	133	Coping by change, by control, by stress	Breast	Survival: 4 years (26 deaths); recurrence
De Boer ⁴¹	133	Uncertainty regarding how to cope with illness, or emotions	Head, neck	Survival: 6 years (57deaths); recurrence
Schulz ⁴²	268	Pessimism, optimism	Breast, lung, head, neck, gynaecological, other	Survival: 8 months

*See the full version on bmj.com for details of scales.

and CINAHL 1982-June 2002. We searched bibliographies and reviews and contacted key individuals and authors for additional unpublished information when necessary.

Inclusion and exclusion criteria—We included prospective cohort studies that included mortality, survival, or recurrence as outcomes. We excluded studies of the association between coping and immune responses or other biochemical markers, and studies of personality types.

Data extraction and validity assessment—When necessary we contacted authors for unpublished data. Data were extracted by one reviewer and checked by a second. The studies were assessed independently by two reviewers against three methodological criteria: whether the sample represented an inception cohort, the degree of adjustment for potential confounders, and whether the assessment of coping was carried out early in the disease process. The results were summarised as narrative.

Results

We included 28 studies, 26 that investigated the association between psychological coping and survival and 11 studies that investigated recurrence. Some studies were reported in more than one paper—for example, results pertaining to different follow up periods. The most common diagnosis was breast cancer, though we also found studies that investigated leukaemia, melanoma, and lung and gastrointestinal cancers, with follow up periods ranging from several months to 15 years (table).

Assessment of validity

Thirteen studies met all three methodological criteria. The table shows methodological details of each study. About a third of all studies did not adjust for potential confounding variables. Most of the studies were small; the overall median sample size was 125, and only four studies recruited more than 200 patients. Where studies are referred to as “small” this is defined as “smaller than the median study size.”

Findings

Fighting spirit—Ten studies investigated the impact of “fighting spirit” on survival.^{2 4-15} Positive findings that linked use of this coping style to longer survival were confined to two small studies.^{2 4 5 15 17} Four small studies examined the association with recurrence of cancer. Three studies reported that fighting spirit was associated with a reduced risk.^{2 4 6 10 17} This finding was not confirmed by the fourth, larger study (n=578).⁷

Helplessness/hopelessness—Twelve studies examined hopelessness/helplessness as a predictor of reduced survival in cancer patients.^{2 4 6-14 16-21} Only two small studies reported that more frequent such feelings adversely affected survival.^{2 19} Five studies presented data on recurrence of cancer, but the findings were inconsistent.^{6 7 10 16 18 22} The studies that reported positive associations with recurrence were small or limited by methodological problems, or both. In particular, there was limited control of confounding.^{2 6 18} The recent large UK study (n=578), while of higher quality, reported mixed findings: helplessness/hopelessness predicted recurrence when those with high and low scores were compared but not when it was the predominant coping style.⁷

Denial or avoidance—Denial or avoidance were assessed in 15 studies of survival.^{1-4 6-10 12-14 17 23-27} These studies did not report any significant independent associations between the use of an avoidant style of coping and survival. There was also little evidence to suggest that denial was an important predictor of survival. Eight studies explored the effects of denial or avoidance on recurrence of cancer.^{2-4 6 7 10 15 17 28 29} Only one of these studies (a small study carried out in patients with breast cancer) reported that denial predicted recurrence.^{2 3 17}

Stoic acceptance and fatalism—Nine studies explored the impact of acceptance and fatalism,^{2 6-14} and none of the four higher quality studies found that they predicted survival.^{7 8 10 11} The evidence regarding recurrence of cancer was similarly weak.^{2 6 7 10}

Anxious coping/anxious preoccupation, depressive coping—Ten studies investigated the impact of an anxious or depressive coping style on survival.^{6 7 9-14 30-36} One small study reported that higher anxious preoccupation

scores predicted shorter survival,⁸ and a study of 103 patients found that the use of depressive coping predicted shorter survival.^{35 36} Three studies presented relative risks associated with anxious preoccupation, all of which were close to 1.0.^{7 8 13 14} None of these psychological factors were significantly associated with recurrence.

Active or problem focused coping—Eight studies explored the effects of active or problem focused coping on survival,^{1 3 23-25 30-33 35-37} one of which (n=103) reported that the use of active coping was a predictor of longer survival up to seven years.^{35 36} The largest study (n=847) found no association between this coping style and survival.¹ Active or problem focused coping was not associated with recurrence.

Emotional factors (including suppression of emotions and emotion focused coping)—We identified six studies on survival.^{1 7 19 25 26 30-33} One study (n=847) met the three quality criteria and reported a positive association between expressing emotions and longer survival (hazard ratio 0.6, 95% confidence interval 0.4 to 0.9).¹ Another large good quality study examined the impact of emotional suppression on outcome but found no significant associations with either overall or event-free survival.⁷

Publication bias

Studies that reported “positive” findings were smaller than those that reported non-significant findings (mean sample size 89 v 198, P=0.02, two tailed). This could indicate publication bias.

Discussion

It is commonly believed that a person’s mental attitude affects his or her chances of surviving cancer, and the psychological coping factors that are most well known in this respect are fighting spirit and helplessness/hopelessness.³⁸ We found little convincing evidence that either of these factors play a clinically important part in survival from or recurrence of cancer; the significant findings that do exist are confined to a few small studies. Good evidence is also lacking to support the view that “acceptance,” “fatalism,” or “denial” have an important influence on outcome.

Our review has several possible limitations. Firstly, the validity assessment focused on only three methodological criteria and other criteria are known to be important, such as the adequacy of baseline information.³⁹ The review may also be subject to publication bias because the studies reporting “positive” findings tended to be smaller. Among the studies we identified, relatively few had adequately adjusted for important predictors of disease-free and overall survival, such as age and histological grade,⁴⁰ and this is a possible explanation for some of the positive findings.

Conclusion

Good evidence in this subject is still scarce as there have been few large methodologically sound studies. Although the relation is biologically plausible, there is at present little scientific basis for the popular lay and clinical belief that psychological coping styles have an important influence on overall or event-free survival in patients with cancer.

We are grateful to those who supplied additional data, Herman Faller, Allan House, and Sue Lockwood who commented on

What is already known on this topic

Survival from cancer is commonly thought to be influenced by a person's psychological coping style

Some studies have shown that a coping style involving fighting spirit rather than helplessness/hopelessness is associated with survival and recurrence, though the evidence is inconsistent

What this study adds

This systematic review suggests that there is no consistent association between psychological coping and outcome of cancer

Publication bias and methodological flaws in some of the primary studies may explain some of the previous positive findings

There is no good evidence to support the development of psychological interventions to promote particular types of coping in an attempt to prolong survival

earlier versions of the paper, and Susan Kennedy for help with redrafting.

We carried out a supplementary search in June 2002 to update the review while it was undergoing peer review: Medline 117 additional hits; PsycLit 88 additional hits; Assia 23 additional hits; Embase 113 additional hits; Cancerlit 115 additional hits; Dissertation Abstracts 88 additional hits; Healthstar no longer existed but is now part of NLM gateway and this was searched instead, 220 additional hits from Oct 2001-June 2002; CINAHL 60 additional hits from Aug 2001 to June 2002. None of these abstracts was relevant to the review and none met the inclusion criteria.

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Endpiece

Only Ten Commandments

Say what you will about the Ten Commandments, you must always come back to the pleasant fact that there are only ten of them.

H L Mencken,
American editor, author, and critic, 1880-1951