

Does anyone read the classic studies they cite?

Reflections on claims that psychotherapy promotes the survival of cancer patients

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Do authors read and think critically about the studies they cite in their papers? To what extent do most readers even know how to evaluate for themselves the claims investigators make for the efficacy of their interventions? What social forces protect claims from contradictory evidence?

We were left pondering these questions after completing a review of studies cited as evidence that psychotherapy promotes the survival of cancer patients (Coyne, Stefanek, & Palmer, 2007). Given the attention that has been given to claims that therapy does extend life, we were surprised by the consistently negative evidence. We discovered that no trial had found that psychotherapy improved the median survival time of women with metastatic breast cancer. Moreover, no trial in which survival was pre-specified as the primary outcome had demonstrated a survival effect for patients with any type of cancer, when psychotherapy was not confounded with improved medical surveillance or treatment.

We were even more surprised at the degree to which the “classic” trial (Spiegel, Bloom, Kraemer, & Gottheil, 1989) cited as evidence that psychotherapy promotes survival did not stand up to scrutiny. The authors of this study had not originally hypothesized that psychotherapy would extend life, and they did not find a difference in median survival time between women receiving a year or more psychotherapy and those assigned to a control group. They did report a mean difference, which was consistently emphasized in the subsequent literature. But means are not a good summary statistic for cancer survival data because they are unduly influenced by the outliers – either a few patients who outlive the population as a whole or a few who die earlier than expected. Outliers are fairly common. Yet, examination of the Spiegel et al. survival curves reveals something striking and exceedingly odd. We encourage readers to examine the accompanying figure from the original study to see if they can spot this anomaly (Figure 1).



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As Bernard Fox (1998) pointed out, the survival curves for the intervention and control groups in the Spiegel trial were virtually identical until 20 months after randomization, which was approximately two years after diagnosis. But, by four years and one day after randomization, none of the women in the control group was alive. Fox estimated that in a population of matched women, 32% should still have been alive between 5 – 10 years after diagnosis. Indeed, survival in the intervention group for this study closely resembles survival in control groups in subsequent studies (e.g., Kissane et al., 2007; Coyne et al., 2007 provide a full review). What is most striking about the “classic” study is not that the intervention group did so well, but that the control group did so poorly relative to the population from which they had come. As Bernie Fox also

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pointed out, to claim that results of a clinical trial demonstrate intervention has an effect depends on the assumption that patients receiving the intervention would have had the same outcomes as those in the control group, had they not received the intervention. That is clearly not tenable in the case of the Spiegel study, and so it is understandable that Spiegel et al.'s claims have not been borne out in subsequent work (Coyne et al., 2007).

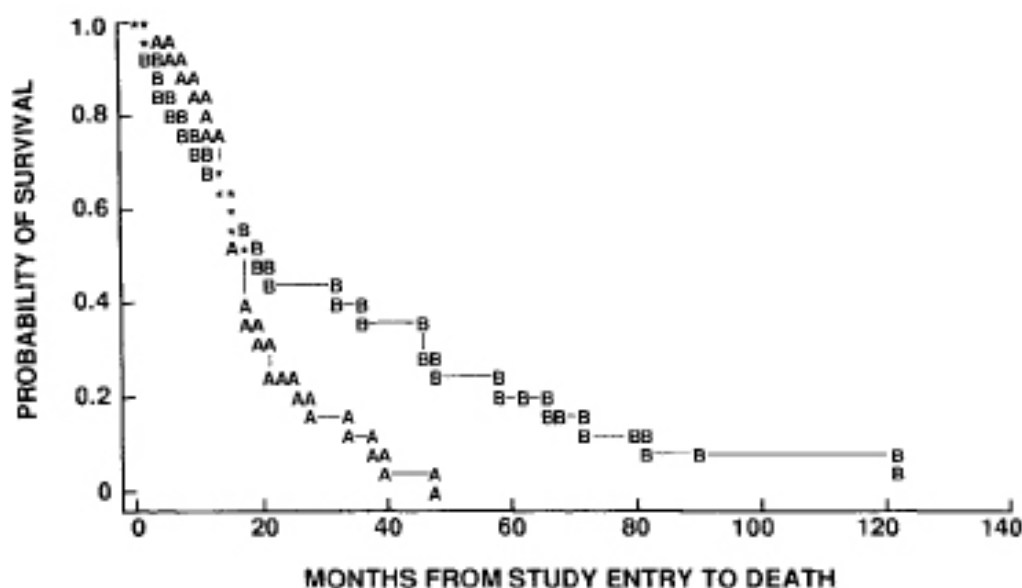
When we last checked, the Spiegel study had been cited nearly 1000 times, with almost all commentaries apparently failing to examine critically what was presented in the original paper. We were left thinking about the forces that might keep it so, and here are some of our hypotheses:

1. Primary sources, even classics, often go unread.

A number of classic studies have been misrepresented in secondary sources, and the misrepresentations have come to become the dominant portrayal of the classic study. This has recently been documented for the mythical "Hawthorne effect" (Kompier, 2006).

2. Critical appraisal skills and the ability to apply basic standards for interpreting clinical trials are in short supply in psychology.

We reviewed the clinical trials published in 1992 and 2002 in what is widely considered the top psychology journal for such studies, *Journal of Consulting and Clinical Psychology* (Cook, et al., in press). The



Kaplan-Meier survival plot.

A = control (n = 36), B = treatment (n = 50), and * = overlapping control and treatment probabilities of survival. Some points represent more than 1 case.

Figure 1 From Spiegel et al (1989). Reproduced with permission of the journal.

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quality of reporting of trials in this esteemed journal was consistently poor, and slanted in the direction of finding support for the efficacy of interventions. While there was some improvement over the decade, most serious deficiencies persisted in the later studies. Arguably, if such deficiencies can survive a peer review that most submitted manuscripts fail, reviewers are lacking in critical appraisal skills or at least are not applying them.

Steps, such as requiring the use of Consolidated Standards for the Reporting of Clinical Trials (CONSORT), have been put in place in psychological and behavioral medicine journals as an attempt to aid reviewers and readers. Importantly, however, these measures do not require quality in trial design or interpretation, and focus on the reporting, not the conduct of clinical trials. They can certainly assist the reader in making an informed decision about the quality of evidence, but, as with all tools, they are only as useful as the craftsman who wields them. Moreover, it is unclear that journals which require submission of a CONSORT checklist have set standards for what constitutes an acceptable level of adherence or that they routinely pass these checklists on to their reviewers.

Careless authors citing classic papers and ill prepared reviewers and readers however, are not the only reasons that inflated claims persist in the literature. Reflecting on the gap with what has been believed about the ability of psychotherapy to prolong life and the evidence we reviewed for our article, we came up with some additional reasons.

3. Findings that are in sync with cultural beliefs and values can take on a life of their own, and dethroning these findings does not make one popular.

In the case of the claims made by Spiegel and his colleagues, as well as later commentators, the idea that patients should view their illness as a personal responsibility to be overcome through the hard work of psychotherapy appealed to strongly held values, particularly in North American culture. Of course, the study *ought* to have shown that patients can extend their lives. Didn't we know that already, even if there had not yet been a study? Skeptics risk being seen as rejecting what we already know and as undermining the coping efforts of patients.

4. Numerous groups had a vested interest in the results of studies being seen as having positive outcomes.

We often think of "conflict of interest" as more a circumscribed issue than it most likely is in practice. Beliefs are shaped by needs as much as evidence. As Lesperance and Frasura-Smith (1999) pointed out "Prevention of mortality has always been one of the most important factors in determining the allocation of funding for research and clinical activities." Findings that psychotherapy prolongs the lives of cancer patients is extremely useful, even vital for advancing the claims of diverse groups, ranging from researchers seeking funding for psychoneuroimmunology studies to promoters of the virtues of mind control and positive thinking, most recently seen in the huge popularity of Rhonda Byrne's 2006 book, *The Secret*. Those who see a benefit for the credibility of their own claims are going to have a stake in promoting and protecting the claim that psychotherapy promotes survival.

5. A persistent champion can play a key role in promoting the value of an intervention in the face of contrary evidence.

Spiegel and his colleagues repeated claims that the original study had shown that psychotherapy prolongs life over two dozen times in journal articles, as well as in numerous presentations to lay and professional audiences, and even on national television. As was discovered by Bernard Fox and others, critics were excoriated (cf. Goodwin et al., 1999). Moreover, one might have assumed that a consistent pattern of failed attempted replications would have caused a reevaluation of the original study. However, champions of the original study countered these new results by reinterpreting other studies as positive and of equivalent value (Spiegel & Giese-Davis, 2003), despite these studies not being designed to test whether psychotherapy improved survival and also having confounded psychosocial intervention with improved medical care (Coyne et al., 2007). There was a distinct bracket creep in what was considered relevant evidence, allowing portrayal of the overall subsequent literature as being mixed, rather than more uniformly negative.

So, our review found no basis for claiming that psychotherapy extends the lives of cancer patients.

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But the claim has persisted. What larger lessons are to be learned? First, we need to read original sources. We encourage prospective authors to read carefully the studies they cite, even when there is near unanimity in secondary sources about the nature of findings being reported. Second, we encourage scholars to acquire and apply the critical skills needed to appraise the claims they find in published articles. These skills are sorely needed, and critical application of them can be an important contribution to the literature. But yes, if you take on the task of challenging entrenched, but erroneous, claims you must be prepared to take some heat.

References

- Byrne, R. (2006). *The Secret*. Atria Books: New York.
- Cook, J.M., Palmer, S.C., Hoffman, K., & Coyne, J.C. (in press). Reporting of randomized clinical trials in Journal of Consulting and Clinical Psychology 1992 and 2002: Before CONSORT and beyond. *The Scientific Review of Mental Health Practice*.
- Coyne, J.C., Stefanek, M., & Palmer, S.C. (2007). Psychotherapy and survival in cancer: the conflict between hope and evidence. *Psychological Bulletin*, 133, 367-394.
- Fox, B.H. (1998). A hypothesis about Spiegel et al.'s 1989 paper on psychosocial intervention and breast cancer survival. *Psycho-Oncology*, 7, 361-370.
- Goodwin, P. J., Pritchard, K. I., & Spiegel, D. (1999). The Fox guarding the clinical trial: internal vs. external validity in randomized studies. *Psycho-Oncology*, 8, 275.
- Kissane, D.W., Grabsch, B., Clarke, D.M., Smith, G.C., Love, A.W., Bloch, S., Snyder, R.D., & Li, Y. (2007). Supportive-expressive group therapy for women with metastatic breast cancer: survival and psychosocial outcome from a randomized controlled trial. *Psycho-Oncology*, 16, 277-286.
- Kompier, M.A.J. (2006). The "Hawthorne effect" is a myth, but what keeps the story going? *Scandinavian Journal of Work Environment & Health*, 32, 402-412.
- Lesperance, F. & Frasare-Smith, N. (1999). The seduction of death. *Psychosomatic Medicine*, 61, 18-20.
- Spiegel, D., Bloom, J.R., Kraemer, H.C., & Gottheil, E. (1989). Effect of psychosocial treatment on survival of patients with metastatic breast-cancer. *Lancet*, 2, 888-891.
- Spiegel, D. & Giese-Davis, J. (2003). Depression and cancer: Mechanisms and disease progression. *Biological Psychiatry*, 54, 269-282.

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