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Associations between pain control self-efficacy, self-efficacy for communicating with physicians, and subsequent pain severity among cancer patients

Anthony Jerant [a,*], Peter Franks [a], Richard L. Kravitz [b]

[a] Department of Family and Community Medicine, University of California, Davis, Sacramento, USA
[b] Department of Internal Medicine, University of California, Davis, Sacramento, USA

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ABSTRACT

Objective: Coaching patients to be more active in health encounters may improve communication with physicians but does not necessarily improve health outcomes. We explored this discrepancy by examining relationships between self-efficacy for communicating with physicians and pain control self-efficacy and subsequent pain severity among cancer patients participating in a coaching trial.
Methods: We analyzed data from 244 English-speaking adults with various cancer types reporting significant pain, recruited from 49 oncology physicians' offices. Mixed model linear regression examined relationships between post-intervention communication self-efficacy and pain control self-efficacy and subsequent pain severity over 12 weeks.
Results: Post-intervention pain control self-efficacy (but not communication self-efficacy) was significantly related to subsequent pain severity: a one standard deviation increase was associated with a 0.19 point decrease (95% confidence interval = −0.33, −0.04; $p = 0.01$) in pain severity over time, approximately 25% of the effect size of the influence of post-intervention pain on subsequent pain.
Conclusion: Among cancer patients enrolled in a coaching trial, post-intervention pain control self-efficacy, but not communication self-efficacy, was significantly related to subsequent pain severity.
Practice implications: Identifying behavioral mediators of cancer pain severity may lead to coaching interventions that are more effective in improving cancer pain control.
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1. Introduction

Patient coaching interventions, which encourage patients to become more active participants during encounters with health care providers, have become popular over the past 30 years, following the publication of three seminal papers describing randomized controlled trials (RCTs) conducted in the early 1980s by Greenfield et al. [1–3]. These papers reported that coaching led not only to short term improvements in patient communication with physicians, but also to significant improvements in health status and selected physiologic measures of chronic illness control (blood pressure and blood glucose) [1–3]. However, these encouraging findings have proven difficult to replicate. A number of RCTs of similar interventions performed subsequently demonstrated such coaching may foster better patient communication with physicians, but does not lead to improved health outcomes [4–7].

Possible explanations for these subsequent findings have been proposed, including concerns about outcome measure selection and questions regarding intervention design and content [4–7]. However, these explanations are challenged by the consistency of findings among studies conducted by various groups in different countries. One way of further examining this issue is to explore the effects of activation interventions – largely approached heretofore as "black boxes" – on putative patient mediators of health behaviors and outcomes [8].

Patient *self-efficacy*, or confidence in one's ability to carry out the tasks or steps required to reach a goal, is a promising potential behavioral mediator of coaching effects [9]. One of the tacit assumptions of coaching interventions is that they bolster patient self-efficacy for communicating with health care providers (*communication self-efficacy*), leading to more favorable (active) communication behaviors and, in turn, contributing to better health outcomes. Yet the few studies reporting significant associations between self-efficacy for communicating with health care providers and health outcomes have been cross-sectional [10–14], precluding causal inferences. Only two randomized controlled trials of patient communication coaching interventions examined effects on communication self-efficacy. One found significant effects (but, again, no impact on health outcomes) [15]. The second

* Corresponding author at: Department of Family and Community Medicine, University of California, Davis, School of Medicine, 4860 Y Street, Suite 2300, Sacramento, CA 95817, USA. Tel.: +1 916 734 7081; fax: +1 916 734 5641.
E-mail address: afjerant@ucdavis.edu (A. Jerant).

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study found no significant effects on communication self-efficacy, but methodological limitations temper the findings [7].

Consideration of the rationale for patient activation and self-efficacy theory may provide some insights into the disappointing results of coaching studies. The goal of *activating* patients via coaching is to encourage greater patient involvement in their own care, including more active participation both in patient–provider encounters and in ongoing self-care [16]. By contrast, social cognitive theory posits that self-efficacy is *task specific* [9]. Thus, following a coaching intervention, a patient with poorly controlled cancer pain and low communication self-efficacy may be confident they can talk with their doctor about cancer pain concerns. However, the patient may still have low confidence for pursuing pain self-care behaviors, such as taking daily narcotic medications, adhering to a bowel regimen, or participating in physical therapy (i.e. low self-efficacy for pain control), with consequent poor pain control. There is little empiric evidence linking communication self-efficacy with health outcomes. There is abundant evidence, however, that self-efficacy for accomplishing specific health or self-care behaviors (*health self-efficacy*) mediates health behaviors and outcomes across a spectrum of outcomes, independently of patient communication [17–26]. Yet prior coaching studies have not examined intervention effects on health self-efficacy.

To address these issues, we analyzed data from a randomized controlled trial of a patient coaching intervention, designed to enhance patient communication with cancer physicians and, in turn, help them cope with and manage cancer-related pain [27]. In the RCT, the intervention was associated with more active pain-related communication by patients [28], a significant increase in communication self-efficacy, no increase in pain control self-efficacy, modest short-term improvement in pain-related functional impairment, and no decrease in subsequent pain severity (unpublished data). In the current study, secondary observational analyses examined the relationships between post-intervention communication self-efficacy and pain control self-efficacy and subsequent pain severity over time. Specifically, using a mixed model linear regression approach, adjusting for nesting of visits within patients, we explored how immediate post-intervention communication and pain control self-efficacy were related to pain severity over 12 weeks' follow-up. Based on prior research, as summarized previously, we hypothesized that pain control self-efficacy, but not communication self-efficacy, would be related to subsequent pain severity.

2. Methods

Study activities were conducted from November 2006 through December 2008. Ethics approval for the study was granted by Institutional Review Boards affiliated with the three participating institutions. The trial was registered at ClinicalTrials.gov (identifier NCT00283166).

The parent RCT compared tailored education and coaching to enhanced usual care. An enhanced usual care control was employed instead of usual care to estimate the effects of activation-coaching over and above non-specific attention. While a summary of methodological issues relevant to the current observational analysis follows, full details of the trial methods have been published elsewhere [27].

2.1. Patient recruitment and enrollment

Oncology physicians ($N = 49$) were recruited from three health systems in the greater Sacramento, California area. Potentially eligible patients were identified from each practice using computer generated lists and were sent a study invitation letter along with a postage-paid opt-out postcard. Patients not returning the postcard after three weeks were contacted by phone, screened for eligibility, and invited to participate. Initial patient eligibility criteria were: age 18–80 years; intact cognition; able to speak English; having one of the eight cancer types (lung, breast, prostate, head and neck, esophageal, colorectal, bladder, and various gynecologic), and reporting a score of ≥ 4 (on a scale of 0–10) for "worst pain during the past 2 weeks" or pain during the same period that interfered at least moderately with functioning. Patient exclusion criteria included: major surgery scheduled within six weeks, enrollment in hospice, being followed by a pain management service (beyond a single consultation), or inability to receive and/or complete mailed enrollment materials.

Patients meeting eligibility criteria and lacking exclusion criteria were enrolled and randomly assigned to tailored education and coaching or enhanced usual care. Enrolled patients were promised a $40 check after completing the index study visit, and second $40 check following completion of three scheduled follow-up data collection phone calls.

2.2. Study visit procedures

Patients were asked to arrive 1 h prior to their scheduled oncology appointment. Upon arrival, they were greeted by a trained health educator, who brought them to a quiet space, obtained written informed consent, and provided a pre-intervention questionnaire. The health educator then administered the patient's randomly assigned intervention. The tailored education and coaching intervention and enhanced usual care (control) intervention have been described in detail elsewhere [27]. Following the intervention, patients completed a post-intervention, pre-visit questionnaire, attended their physician visit, and finally completed a post-visit questionnaire. Patient follow-up assessments (surveys administered via telephone contact) were made at 2 weeks, 6 weeks, and 12 weeks.

2.3. Measures

Demographic characteristics (age, race/ethnicity, sex, and education) were assessed using administrative records, the screening interview, and the enrollment interview (baseline). Cancer diagnosis and cancer stage were obtained via chart review using a standardized abstraction form. Mean inter-rater agreement (kappas) for abstraction of clinical data was 0.94 (range: 0.84, 1.0). The remaining measures were administered via questionnaire immediately post-intervention in oncology physicians' offices and at 2-week, 6-week, and 12-week follow-up phone calls. Pain severity was coded as the mean of *average* and *worst reported* pain over the prior 2 weeks, both assessed with 0–10 analog scales, with 0 representing no pain and 10 representing the worst pain imaginable. Cronbach's alphas for the two pain severity items were 0.87 and 0.89 respectively at post-intervention and 2 weeks.

Post-intervention pain control self-efficacy was assessed in the parent RCT using three items drawn from the self-efficacy for pain management subscale of the Chronic Pain Self-Efficacy scale [29]. In all study analyses, the mean of responses to two of these items ("How certain are you that you can decrease your pain quite a bit?" and "How certain are you that you can make a small-to-moderate reduction in your pain?") was employed. The third item ("How certain are you that you can keep your pain from interfering with your sleep?") was not employed since its inclusion lowered the overall scale reliability, assessed using Cronbach's alpha. Items employed a five point Likert response scale, from 1 = not at all certain to 5 = extremely certain; Cronbach's alpha in this sample was 0.85. Post intervention self-efficacy for communicating about pain was assessed using the mean of responses to the five-item Perceived Efficacy in Patient–Physician Interactions (PEPPI) scale

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