

Accountability and Empathy Effects on Medical Students' Clinical Judgments in a Disability Determination Context for Low Back Pain

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Abstract: Accountability has been shown to affect clinical judgments among health care providers in several ways. It may increase a provider's motivation for accuracy, leading to more deliberative judgments, or it may enhance biases that evaluators consistently demonstrate with patients with chronic pain. In this study, medical students read a vignette about a hypothetical patient referred for evaluation of severe low back pain by the Office of Vocational Rehabilitation. Accountability to the patient was either weak (consultative 1-time evaluation) or strong (ongoing primary care provision); societal accountability was either weak (evaluation information as secondary source for disability determination) or strong (evaluation information primary to disability determination). Participants then made judgments regarding validity of the patient's presentation, influence of psychosocial factors on the presentation, and patient's level of pain, distress, and disability, and completed an empathy measure. Results showed that empathy had strong associations with symptom validity and severity judgments. With empathy as a covariate, 3 crossover interactions emerged. Judgments of symptom validity were lower when the 2 forms of accountability were inconsistent (ie, one weak and the other strong) than when they were consistent (ie, both weak or both strong). Likewise, judgments of psychosocial factors and pain/distress/disability were higher under consistent accountability conditions than when accountability conditions were inconsistent. This pattern may imply conflict avoidance or self-protection as a motivation for judgments under inconsistent accountability. This study demonstrated that role demands can affect symptom judgments in complex ways, and that empathy may play both direct and moderating roles. Because physicians are the primary gatekeepers regarding disability determination in both consultative and treating roles, accountability may have significant mediating effects on such determinations.

Perspective: This study demonstrated that medical student judgments of pain-related symptoms were strongly associated with their levels of empathic concern. Student judgments of symptom validity and psychosocial influences on patient adjustment were differentially affected by their level of accountability to the patient and society in a disability determination process.

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Key words: Chronic low back pain, disability, accountability, empathy, clinical judgments.

In a recent review article, Tait and colleagues²⁹ presented a 5-factor model of potential influences on health care provider clinical judgments of patients with chronic pain. The 5 factors represented patient pain presentation (eg, chronicity, severity), patient social presentation (eg, race, age, gender), patient psychological presentation

(eg, depression, somatization), observer/provider features (eg, empathy, experience), and situational features (eg, compensation/litigation involvement, availability of objective medical evidence). When such factors influence medical judgments, the resulting judgments may be considered biased, in that they reflect factors that may be extraneous to appropriate pain management. The literature clearly documents such biases in the evaluation of patients with chronic pain, typically reflected in observer discounting of patient reports of pain severity and/or the attribution of symptoms to psychological rather than medical factors.^{3,4,7,18,20,22,29-31}

One largely unexplored provider variable that was proposed in the latter model involved the anticipated contingencies associated with an encounter. Those

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contingencies are proposed to be a function of the entity to which the provider is most accountable and to which “decision-makers can expect to be called upon to justify their behavior” (p. 173).²⁶ Hadler and Ehrlich have discussed such issues in the context of primary care versus worker’s compensation systems: in the former, the provider is primarily accountable for the patient’s well-being; in the latter, the provider is primarily accountable to the employer for cost containment.¹³ Although patient recovery is a priority in each system, the differences in provider accountability can affect clinical judgments of patient symptom validity, psychosocial involvement, and levels of pain, distress, and disability. For example, physicians who provide ongoing clinical care to patients—and who therefore are obligated to the care of the patient over time—may interpret patient pain-related symptoms less skeptically than physicians who are accountable to employers and obligated to contain medical costs. Similarly, consultants who evaluate patients on a 1-time basis²⁷ and whose judgments may have significant medicolegal implications (making them accountable to a review board or a judicial system) may require more evidence supporting the validity of a reported symptom than physicians without such legal obligations and who, instead, are primarily accountable to the patient to make sound clinical judgments in the course of usual care.¹³

There is limited research on the effects of accountability on medical judgments. Research generally has indicated that higher levels of accountability for a given judgment may increase a judge’s motivation for accuracy, yielding a more deliberative approach that is less influenced by bias.^{2,17} Research regarding physician judgments, however, is more mixed: Increased accountability for clinical judgments has been shown to increase some forms of bias (eg, by promoting conflict avoidance in medication and referral decisions)²⁶ but not others (eg, anchoring effects in treatment decisions for pulmonary emboli).² Of course, accountability is not a unitary construct that varies only by level; it also can vary by type. For example, a provider with accountability to the public or the legal system may be motivated to provide accurate, dispassionate judgments or, alternatively, to minimize the levels of severity and disability associated with a symptom constellation. By contrast, a provider with accountability to a patient may be motivated to avoid interpersonal conflict (even at the expense of accuracy).

The effects of accountability on judgment biases relevant to chronic pain have not been systematically studied, despite the multiple forms of accountability that physicians who treat such patients may face. Frequently, the treatment of chronic pain conditions involves a long-term social contract with patients; the shared accountabilitys associated with the patient-provider relationship can be critical to treatment success.¹⁰ Indeed, with the advent of electronic medical records, the prospect of direct patient access to physician notes has been proposed (eg, the OpenNotes project^{8,33}), a prospect likely to enhance provider accountability to patients. In addition, physicians—both treating and consulting—often assume accountability as primary and secondary sources of

information for societal contracts with patients, such as those associated with disability determination. In light of the sheer volume of cases processed through the latter system—more than 680,000 applications and more than 228,000 claimants were reviewed in the first quarter of 2013 alone³²—the potential impact of variable accountability could be substantial.

Of course, a physician’s clinical judgments are a function of more than accountability; they also are a function of competence, compassion, and empathy. Empathy—generally defined as the capacity to vicariously experience the feelings or perspectives of others—has received considerable attention in pain medicine, both as a topic of research^{12,16} and as a critical attribute related to good clinical practice. Indeed, a survey of pain educators recently found that empathy was considered the single most integral feature in the practice of effective pain medicine.¹⁹ Further, there is accumulating evidence that empathy serves a mediating role in observer judgments of pain patients, making it an important construct to consider in conjunction with accountability.^{1,9,11,15,28,30}

The purpose of the present study was to investigate the effects of empathy and provider accountability, relative to both patient and legal/societal obligations, on the clinical judgments of medical students about to begin their final year of medical school. Medical students were chosen partly for convenience and partly because previous research has documented the effects of biases in attitudes and judgments regarding pain patients even at this level of clinical training.^{5,14,34} In this randomized experiment, 4 vignettes were constructed to represent a hypothetical disability determination process that presented weak versus strong levels of both patient and societal accountability, embedded within relevant patient information. After reading a vignette, medical students made clinical judgments about the validity of the patient’s symptoms, medical factors affecting symptom presentation, psychosocial factors affecting symptom presentation, and symptom severity. All vignettes described a high level of patient-reported pain intensity for 2 reasons: 1) face validity of the patient vignette required that the patient report pain at an intensity level that would warrant application for disability, and 2) previous research has consistently found that observer biases are augmented at higher levels (ie, >6 on a 0–10 numeric rating scale) of reported pain (see Tait et al²⁹ for a review). Participant empathy was also assessed, consistent with recent research on its role in pain judgments. Main effects for both patient and societal accountability were anticipated. Relative to a weak patient accountability condition, clinical judgments made under a strong patient accountability condition were expected to deemphasize psychosocial factors and accentuate medical factors, symptom validity, and severity. Judgments made under weak versus strong societal accountability conditions were expected to follow an opposite pattern. A specific hypothesis regarding the interaction of the 2 forms of accountability was not proposed. Empathy was expected to have a strong and significant association with judgments overall.

Methods

Participants

The study was approved by the Saint Louis University institutional review board, and all participants gave consent to participate. Medical students at Saint Louis University who had just successfully completed their third (clinical) year of medical school (N = 165) were asked to participate.

Study Design and Experimental Materials

The study was a randomized experiment with 2 independent variables, each with 2 levels (2 × 2 between-subjects design). The independent variables were manipulated via several sentences embedded within a 1.5-page written vignette that summarized information about a hypothetical patient with low back pain referred by the Office of Vocational Rehabilitation for a long-term disability determination evaluation. Appendix 1 displays the vignette information. Information that was held constant included the patient's presenting problem (this included a high level of usual pain intensity: 7 on a 0–10 scale where 0 = *no pain* and 10 = *worst pain imaginable*), past and present treatments, physical examination findings, diagnostic test results, and history and current functioning. Other information was varied to create the levels of the 2 independent variables. Patient Accountability was manipulated to be either weak or strong, such that the "examiner" (ie,

the medical student assuming the role of physician) was either seeing the patient once and only once for disability evaluation (Patient Accountability Weak) or had agreed to function as the patient's primary care physician into the future (Patient Accountability Strong). Each of the latter roles is consistent with current approaches to disability evaluations and has ecological validity—in the current disability determination system, evaluations are provided by independent medical examiners as well as patients' primary care providers. Societal Accountability was also manipulated to be either weak or strong, such that the examiner's evaluation was either a secondary source of information for the Office of Vocational Rehabilitation in its consideration of disability benefits for the patient (Societal Accountability Weak) or was the primary component in determining the patient's long-term disability benefits (Societal Accountability Strong). As with the patient accountability conditions, each of the latter functions also has ecological validity in current disability evaluation schemes.

Measures

After reading a vignette, participants made 21 clinical judgments regarding the patient. Table 1 displays the content for each judgment. The rating scale for clinical judgments was generally a 0–10 Likert-type scale, with midpoint of 5, where higher values indicated greater amounts of the variable being measured. Anchors for 0 included *not at all*, *no*, *none*, *very low*, and *definitely not*; anchors for 5 were always some variation on

Table 1. Descriptive Statistics and Factor Analysis of Dependent Variables

DEPENDENT VARIABLE	MEAN (SD)	FACTOR 1 SYMPTOM VALIDITY LOADINGS	FACTOR 2 PSYCHOSOCIAL FACTORS LOADINGS	FACTOR 3 PDD LOADINGS
Patient honesty in presentation	6.2 (1.6)	.79	—†	—
Patient accuracy in presentation	5.4 (1.7)	.76	—	—
Legitimacy of patient symptoms	6.2 (1.4)	.68	—	—
Sympathy for patient*	6.0 (1.6)	.67	—	—
Patient exaggeration in presentation	3.8 (1.9)	-.65	—	—
Patient lack of effort	4.1 (1.9)	-.58	—	—
Patient is/will be drug seeker*	5.1 (2.0)	-.45	—	—
Patient trying to gain advantage	4.6 (1.7)	-.42	—	—
Percent (0–100%) working capacity lost*	51.0 (22.2)	.34	—	—
Patient capable of full-time work*	3.7 (1.9)	-.34	—	—
Type of patient you want to treat*	3.7 (2.2)	.32	—	—
Patient pain is due to psychology	5.2 (1.9)	—	.84	—
Patient pain is due to financial situation	4.1 (2.1)	—	.74	—
Impact of psychosocial factors	6.1 (1.8)	—	.70	—
Patient pain due to physical injury*	5.8 (1.5)	—	-.30	—
Patient family/home disability	6.3 (1.2)	—	—	-.73
Patient social disability	5.8 (1.6)	—	—	-.72
Patient emotional distress	6.6 (1.2)	—	—	-.63
Patient occupational disability	7.1 (1.4)	—	—	-.52
Patient actual pain intensity	5.7 (1.2)	—	—	-.37
Likelihood of LBP recovery*	3.7 (1.8)	—	—	.32

Abbreviation: LBP, low back pain.

NOTE. Unless otherwise indicated, rating scale is 0–10, with midpoint of 5, where higher values indicate greater amounts of the variable being measured. Factor analysis extraction method was principal axis; rotation was oblique (direct oblimin).

*Variable was not included in subscale score.

†Loading is <|.25|.

moderate; and anchors for 10 included *very much*, *completely*, *very high*, *totally*, and *definitely*. The rating scale for usual pain level was 0 *no pain*, 5 *moderate pain*, and 10 *worst pain imaginable*. Work disability was measured as the percentage (0–100% in increments of 5%) of work capacity lost by the patient as a result of pain.

Empathy was then assessed using the 7 Empathic Concern items from the Interpersonal Reactivity Index (IRI).^{6,24,36} These items (eg, “When I see someone being taken advantage of, I feel kind of protective towards that person”) are rated on a 0 to 4 Likert-type scale regarding how well each statement describes the respondent (0 = *not well*; 4 = *very well*), yielding an empathy score for the present study with a range of 0 to 28, with higher scores indicating higher levels of empathy. The full IRI includes other subscales that were not used in the present study (Fantasy, Involvement, Personal Distress, and Perspective Taking), given the greater focus on the empathy construct that is prevalent in the pain literature.

Procedure

Data collection occurred after a mandatory informational meeting for medical students beginning the fourth (final) year of medical school. Students who agreed to participate in the current research completed the materials individually (but in a group setting) at the end of the informational meeting.

Statistical Analysis

The dependent variables were first reduced to a set of subscale scores, based on a principal axis factor analysis of the 21 clinical judgments, with oblique (direct oblique) rotation of factors. The decision regarding the number of factors to extract was based on the scree plot of eigenvalues, relative amounts of variance explained by factors extracted early versus late in the extraction process, and number and magnitude of item loadings across potential solutions. Pattern matrix factor loadings of $\geq .30$ were considered the minimum for interpretation. Items with loadings of $\geq .30$ on more than 1 factor were considered for exclusion. Inclusion of a variable in a factor was evaluated on theoretical as well as statistical grounds. The “fit” of a variable with the strongest-loading variables on a given factor was critically evaluated with respect to construct validity, and exclusion of questionable variables was validated by the effect of the exclusion on the internal consistency of the factor (ie, questionable items were retained if their inclusion increased internal consistency and were excluded if they did not). The resulting factors were used to create subscale scores by summing original items that loaded on a given factor (with reverse scoring of negatively loading items). The subscale scores were then standardized to T scores (mean = 50, standard deviation [SD] = 10) for consistency of comparison across factors. Alpha coefficients were calculated as an index of internal consistency reliability for the subscales and the IRI empathy scale. Group differences on the subscales were

evaluated with 2×2 analysis of covariance with empathy score as the covariate. The *P* value for statistical significance was set at .05 and effect size was calculated as partial eta-squared (η^2).

Results

Sample Description

Of the 165 students asked to participate, 132 agreed (80%). The sample included 82 men (62%) and 50 women (38%), proportions consistent with the gender ratio in the class as a whole (60/40). Mean age was 26.0 years (SD = 2.2). Data on race/ethnicity were not collected; however, representation at this school of medicine is approximately 60% White/non-Hispanic, 25% Asian, 4% African American, 2% White/Hispanic, and 3% mixed race (with the remainder unspecified). Participants described their “knowledge and/or experience regarding pain medicine (eg, pain management, musculoskeletal medicine, physical medicine and rehabilitation)” as moderate: mean = 4.4 (SD = 1.4) on a 0 to 10 scale where 0 was *very low* knowledge/experience, 5 was *moderate*, and 10 was *very high*. Across the 4 study conditions, there was no significant gender difference, $\chi^2(3) = 5.9$, *P* = .12, or age difference, *F*(3, 128) = .7, *P* = .53.

Descriptive Data and Factor Analysis

Table 1 displays descriptive data for the 21 dependent variables. For the principal axis factor analysis of these variables, the Kaiser-Meyer-Olin measure of sampling adequacy was .84 and Bartlett’s test of sphericity was significant (*P* < .001). Three factors (accounting for 30%, 12%, and 8% of the common variance) were extracted from the correlation matrix and rotated obliquely. Table 1 also displays the item loadings from the factor pattern matrix (regression coefficients). With respect to factor 1, the Sympathy variable was removed from further consideration on theoretical grounds and secondary to its significant correlation with the covariate Empathic Concern (*r* = .44, *P* < .001). Given that the strongest loading variables on factor 1 were judgments of the patient’s honesty, accuracy, and legitimacy, some of the remaining variables had questionable theoretical loadings with respect to the patient’s drug-seeking behavior, lost work capacity, capability for full-time work, and whether the patient was the type that the participant wanted to treat. The latter variables also had relatively low loadings. Removal of these variables improved the internal consistency of factor 1 and resulted in the 6-variable Symptom Validity subscale (alpha coefficient = .86) shown in Table 1. This subscale represented judgments of the veracity of the patient’s presentation and symptom reports. With respect to factor 2, exclusion of the lowest loading variable, pain due to physical injury, also improved internal consistency of the factor and resulted in the 3-variable Psychosocial Factors subscale (alpha coefficient = .79). This subscale represented judgments of the degree to which the patient’s presentation reflected the influence of psychological and social circumstances. For factor 3, exclusion

of the “likelihood of LBP [low back pain] recovery” variable improved internal consistency and resulted in the 5-variable Pain/Distress/Disability (PDD) subscale (alpha coefficient = .76). This subscale represented judgments of the severity of the patient’s pain, distress, and disability. After summing the variables retained for each factor, the sum scores were standardized to T scores (mean = 50, SD = 10).

Primary Analysis

The empathy score (alpha coefficient = .78) had a grand mean of 19.5 (SD = 5.1), indicating somewhat greater than moderate levels of self-reported empathy. In the 2×2 analyses of covariance, the main effect of the empathy covariate was significant for the Symptom Validity subscale, $F(1, 127) = 14.4, P < .001$, partial $\eta^2 = .10$; and the PDD subscale, $F(1, 127) = 8.1, P = .005$, partial $\eta^2 = .06$; but not for the Psychosocial Factors subscale, $F(1, 127) = .1, P = .77$. Thus, relative to less empathic participants, more empathic participants perceived the patient’s symptoms as more valid and severe/disabling, but no more or less associated with psychosocial contributors. Main effects of Patient Accountability were not significant for the Symptom Validity subscale, $F(1, 127) = .01, P = .92$; the Psychosocial Factors subscale, $F(1, 127) = .2, P = .69$; or the PDD subscale, $F(1, 127) = .2, P = .65$. Main effects of Societal Accountability were not significant for the Symptom Validity subscale, $F(1, 127) = .04, P = .85$; the Psychosocial Factors subscale, $F(1, 127) = .4, P = .53$; or the PDD subscale, $F(1, 127) = .4, P = .52$. As displayed in Table 2, the Patient Accountability \times Societal Accountability interaction effect was significant for each of the 3 subscales.

Figs 1 to 3 display the interaction effects. The crossover pattern was evident for each of the subscales (with the pattern reversed for Symptom Validity, relative to Psychosocial Factors and PDD). When the 2 forms of accountability were consistent (ie, both weak or both strong), judgments of symptom validity were lower relative to when the forms of accountability were inconsistent (ie, one weak and the other strong) (Fig 1). Likewise, under consistent accountability conditions, judgments of psychosocial factors and PDD were higher

than when conditions of accountability were inconsistent (Figs 2 and 3).

Post Hoc Analysis

In light of the possibility that the study conditions to which participants were assigned might have affected their self-perceived empathy, a 2×2 univariate analysis of variance was computed with empathy as the dependent variable. This yielded a significant main effect for Patient Accountability, $F(1, 128) = 6.2, P = .014$, partial $\eta^2 = .05$. Thus, medical students assigned to the strong Patient Accountability condition reported significantly higher levels of empathy ($M = 20.5, SD = 4.1$) than participants assigned to the weak Patient Accountability condition ($M = 18.7, SD = 4.0$), despite random assignment to those conditions. The main effect for Societal Accountability was not significant, $F(1, 128) = .01, P = .92$. The Patient Accountability \times Societal Accountability interaction effect was also not significant, $F(1, 128) = .36, P = .55$.

Discussion

Contrary to expectations, no main effects emerged for either form of accountability. Participants made no distinctions across the 3 subscales (Symptom Validity, Psychosocial Factors, and PDD) as a pure function of patient or societal accountability. Strong patient accountability (wherein the students anticipated responsibility for the patient’s ongoing medical care) was expected to occasion a pattern of clinical judgments that would be more acceptable/defensible to the patient (and therefore potentially conflict reducing for the provider)—a medical approach predicated on symptom validity with little psychosocial contribution. In contrast, strong societal accountability was expected to yield judgments that discounted the validity of the medical symptoms, instead emphasizing the contribution of the patient’s psychosocial overlay. The latter stance would reduce the financial costs to the disability system, a position more readily defensible to the disability determination system than a more medical emphasis likely to increase those costs. The lack of main effects is

Table 2. Patient Accountability \times Societal Accountability Interaction Effects for Subscales (Adjusted for Empathy)

SUBSCALE	PATIENT ACCOUNTABILITY	SOCIAL ACCOUNTABILITY		INTERACTION $F(1, 127)$, P VALUE, PARTIAL η^2
		WEAK	STRONG	
Symptom Validity, mean (SEM)	Weak	48.1 (1.7)	51.8 (1.6)	4.1, .045, .03
	Strong	51.3 (1.7)	48.3 (1.7)	
Psychosocial Factors, mean (SEM)	Weak	52.7 (1.8)	47.0 (1.6)	7.1, .008, .05
	Strong	48.9 (1.7)	52.3 (1.8)	
PDD, mean (SEM)	Weak	51.1 (1.8)	48.3 (1.6)	5.3, .023, .04
	Strong	48.0 (1.7)	53.0 (1.7)	

Abbreviation: SEM, standard error of the mean.

NOTE. Values are expressed as standardized T scores ($M = 50, SD = 10$). Sample sizes: Patient Accountability Weak/Societal Accountability Weak, $n = 30$; Patient Accountability Weak/Societal Accountability Strong, $n = 37$; Patient Accountability Strong/Societal Accountability Weak, $n = 33$; Patient Accountability Strong/Societal Accountability Strong, $n = 32$.

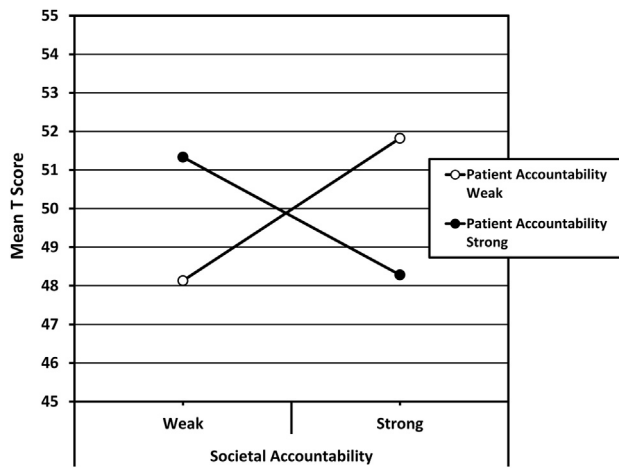


Figure 1. Patient Accountability × Societal Accountability interaction effect (adjusted for empathy) for Symptom Validity subscale ($P = .045$).

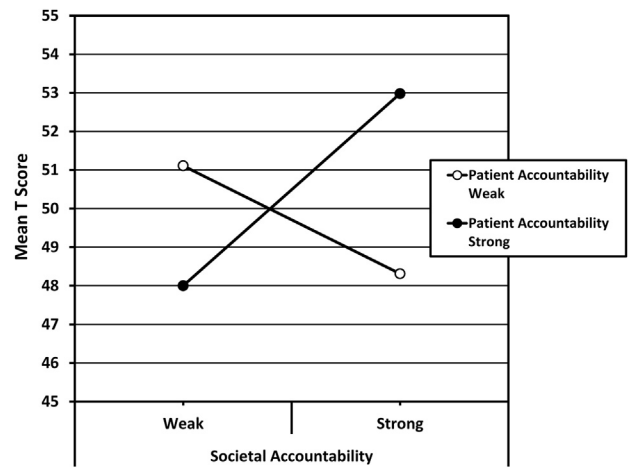


Figure 3. Patient Accountability × Societal Accountability interaction effect (adjusted for empathy) for Pain/Distress/Disability subscale ($P = .023$).

inconsistent with research in conflict avoidance that indicates that ease of defensibility is a primary factor governing judgment and decision-making tendencies²⁵ (an effect magnified by accountability²⁶), as well as literature regarding differences in judgments about chronic pain as a function of treating versus consulting status.^{13,27}

Instead of main effects, a consistent crossover interaction pattern emerged. When societal accountability was weak (ie, judgments would have little impact on the determination of the patient’s disability), judgments of symptom validity varied considerably between participants who were performing a 1-time evaluation (who questioned the veracity of the patient’s symptom presentation) relative to participants who were taking on the patient’s longer-term care (who gave relatively high validity ratings). Judgments of psychosocial involvement were also higher for participants providing only a consultation, relative to participants committed to ongoing care of the patient. On the other hand, the latter group also gave lower PDD ratings than the former group.

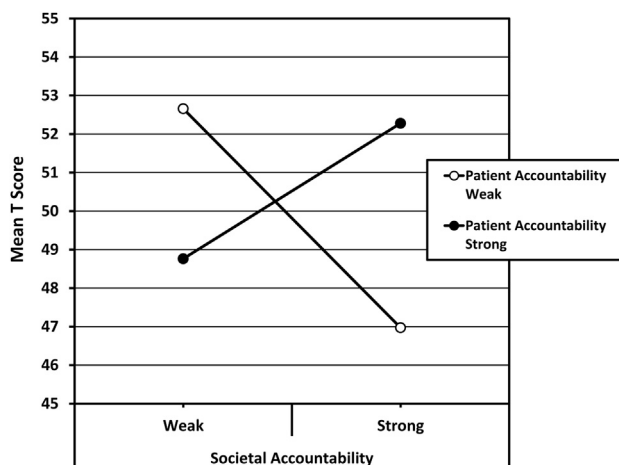


Figure 2. Patient Accountability × Societal Accountability interaction effect (adjusted for empathy) for Psychosocial Factors subscale ($P = .008$).

Thus, without strong societal accountability, participants with strong accountability to the patient judged his presentation to be more valid and less extreme than participants with less patient accountability, perhaps as a form of self-protection (ie, this is a straightforward patient with a manageable condition).

When societal accountability was high (ie, when judgments would be primary to disability determination), however, the opposite picture emerged: Participants who anticipated an ongoing role in patient care deemed symptom validity to be significantly lower—and psychosocial factors and PDD to be higher—than those assuming a consultative role. Thus, when participants knew that their judgments would be instrumental in the patient’s disability award, those with strong accountability to the patient judged his presentation to be less valid and more extreme than those with less patient accountability. Interpretation of this pattern is necessarily speculative. It appears that medical students made validity and psychosocial factors judgments that prioritized the demands of the disability determination system only when they had an ongoing responsibility to the patient. In describing the patient’s symptoms as evidencing questionable validity and a relatively high degree of psychosocial overlay, such judgments would perhaps minimize conflict with the disability determination system when expected involvement with the latter was strong, but not with the patient. This response pattern may, in part, reflect the inexperience of medical students with the disability determination system, relative to their greater familiarity with patient care. In fact, the pattern suggests that the medical students may not have taken the societal demands seriously if they were seeing the patient only on a single consultation. Hence, they may have taken the path of least resistance, essentially validating the patient’s symptoms. When they anticipated ongoing patient care, however, their ratings seemed to reflect greater attention to their societal obligations.

Of course, other interpretations could be made of the results in the high societal accountability condition. For

example, medical students who anticipated an ongoing care role may have viewed the psychosocial and pain dysfunction factors not as invalidating phenomena, but as potentially malleable elements of the pain syndrome. If so, then the attribution of greater weight to the psychosocial and dysfunction factors may reflect an expectation that, if adequately treated, the patient's adjustment might improve. Such expectations would be consistent with the higher levels of empathy that were described by medical students in ongoing care roles.

As predicted, and consistent with the literature,^{1,9,11,15,28,30} participant empathy had significant associations with judgments. Interestingly, symptom validity and severity (PDD) judgments were higher as a function of empathy, whereas judgments of psychosocial factors were unaffected. Thus, more empathic participants were more likely to take the patient at his word and to rate his symptoms as more severe than less empathic participants, all else being equal. Psychosocial judgments, however, did not follow this pattern, for reasons that are unclear. Intuitively, more empathic people would be expected to appreciate the psychological, social, and financial straits that can accompany a chronic pain condition, particularly one severe enough to be considered for a disability award. It may be that the measurement of empathy in the current study explains this phenomenon. Previous research has shown that different facets of empathy as measured by the IRI may be differentially associated with judgments of pain patients that refer to physical versus psychological contributors to pain presentation.³⁰

An unexpected but equally interesting finding regarding empathy was the post hoc analysis showing that self-reported empathy varied significantly as a function of the Patient Accountability condition. Despite random assignment to conditions, participants faced with high levels of accountability to the patient (ie, the prospect of providing ongoing medical care) perceived themselves as more empathic than participants who had no such accountability. This finding is consistent with the evidence that empathy is not only trait-like but also state-like and therefore modifiable in context (including empathy for pain).^{21,23,35} Here, the prospect of ongoing contact with this patient over time, particularly after contributing to the patient's disability determination process, appeared to enhance the students' self-perceived levels of empathy. Such "empathy enhancement" may be a consistency phenomenon, such that later self-assessment of empathy was influenced by earlier "behavior" (eg, "I agreed to see *this* patient in *this* context, so I must be empathic"). In support of this reasoning, it is notable that empathy did not vary as a function of the Societal Accountability condition. Alternatively, this apparent effect on empathy may have resulted from the randomization's failing to distribute subject variables adequately, especially given the relatively small number of subjects in each condition.

There are several implications of the present results for the pain judgment literature. First, the data suggest that different forms of accountability may

interact to influence clinical judgments of patients with pain. Here, a consulting versus a treating physician role differentially affected judgments of physical and psychosocial factors influencing adjustment, although the effects of those roles depended on the salience of the evaluator's contributions toward a disability award. This suggests that evaluators' judgments may be influenced by situational factors that occasion self-protection and/or conflict avoidance.²⁶ Future research would be enhanced by the inclusion of patient race in the study conditions. With respect to the consultative versus treating roles in chronic pain evaluation, the current findings are particularly intriguing regarding the potential for an assumed role to alter an evaluator's self-perception of his or her empathy.

There are several limitations of this work, one of which involves the study sample. Participants were medical students whose clinical experiences were essentially limited to 1 year of clinical clerkship rotations (internal medicine, pediatrics, psychiatry, neurology, obstetrics-gynecology, surgery, and family medicine) as part of their medical education. Medical students have little or no experience with disability determination and therefore lack knowledge of the process. Clearly, a replication of this study with practicing physicians familiar with patients with chronic pain and disability evaluation would be instructive. Another limitation is the analog vignette methodology, which lacks many factors that are salient in an actual patient encounter. The potential differences between actual behavior and hypothetical behavior clearly could be significant. The specificity of the vignette information also limits the conclusions: the vignettes described unique patient presentations that may not generalize to other scenarios. The simulated nature of the study, in combination with the clinical inexperience of the participants, may have contributed to the lack of main effects. Also notable is the restricted number of independent variables tested here. Two forms of accountability were manipulated; there are any number of additional factors that could interact with accountability and many different forms of accountability that could be represented. Hence, the current representations are but one of many possible variations that might be associated with effects on clinical judgments. Despite these limitations, however, it is notable that a relatively weak manipulation (only 2 sentences were varied in a 750-word vignette) of a role (using an analog methodology) was able to produce a consistent interaction pattern across the dependent variables.

To conclude, patient and societal accountability interacted to determine medical students' judgments of symptom validity and level of psychosocial involvement in the presentation of a patient with chronic pain seeking disability. Further, empathy emerged as powerful correlate of students' judgments of the validity of the patient's presentation and the severity of the patient's pain-related symptoms. Since physicians are currently considered the primary gatekeepers regarding disability determination in both consultative and

treating roles, accountability effects on disability-related judgments may influence those judgments in systematic ways that may run counter to accurate and meaningful

disability determination. Future research examining these factors in actual physicians, using a more ecologically valid methodology, is warranted.

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Appendix 1

Vignette Read by Participants Describing the Hypothetical Patient With Low Back Pain.

Information in **bold** was varied across the 4 vignettes of this 2 × 2 study design: Patient Accountability Weak/Societal Accountability Weak; Patient Accountability Weak/Societal Accountability Strong; Patient Accountability Strong/Societal Accountability Weak; Patient Accountability Strong/Societal Accountability Strong. Participants were randomly assigned to 1 of the 4 vignettes.

Referral Information

Mr. J is a 43-year-old white male who presents today with a primary complaint of low back pain (LBP) on referral from the Office of Vocational Rehabilitation (OVR).

The OVR has referred Mr. J to you because you have agreed to provide an independent evaluation of Mr. J's LBP. Once you have completed your evaluation, you will send a report to the OVR summarizing your impressions. **Your report may be used as a secondary source document in the OVR's consideration of Mr. J's long-term disability benefits.**{Societal Accountability Weak} **Your report will be the critical determinant of the long-term disability benefits that Mr. J may receive over the rest of his productive lifetime.**{Societal Accountability Strong}

You are seeing Mr. J today only; once your evaluation is completed, you will not see him again.{Patient Accountability Weak} **In addition, you have agreed to assume responsibility for Mr. J's ongoing primary medical care.**{Patient Accountability Strong}

Presenting Problem

Pain onset was approximately 12 months ago, following an incident at work where he slipped and fell. Since the time of pain onset, he describes severe, unremitting LBP that has had a negative impact on his functioning at home and at work. He says that his level of LBP fluctuates during the day between 5–9 on a 0–10 scale (where 0 = no pain and 10 = worst pain imaginable). He rates his usual pain level as a 7.

While pain primarily is in the lumbar region, he reports radicular pain along the posterolateral aspect of his left

lower extremity. Mr. J describes his LBP as "sharp" and "stabbing" and his radicular pain as "hot" and "throbbing." He reports that pain increases whenever he tries to be active. Pain is reduced somewhat with medication and with application of heat and rest.

Past and Present Treatment

Mr. J initially injured his back in another work-related incident approximately 5 years ago. He was diagnosed with a herniated disc at L4-L5, for which he underwent discectomy. His recovery was slow, but he was able to return to work after an extensive course of functional rehabilitation. He worked with only intermittent absences until his most recent injury, after which absences have been more frequent.

For the past 6 months, Mr. J has taken oxycodone (30 mg, BID) and ibuprofen (800 mg, TID) on a daily basis. He takes Vicodin (2 × 5 mg/500 mg) only for pain exacerbations. He reports that the medications help the LBP somewhat, but describes frequent work absences that he ascribes to severe pain.

Orthopedic evaluation has determined that he is currently not a good surgical candidate. He has undergone several courses of physical therapy, but reports no benefit from it. In fact, he notes that the exercise actually made his pain worse, so that he often did not do the recommended exercises. He also was unable to tolerate a functional rehabilitation program, secondary to pain.

Physical Examination

Mr. J is moderately overweight at 5'10" and 210 pounds (BMI = 29.3). Physical examination is remarkable for generalized tenderness and report of pain upon palpation at L4-L5-S1. Supine straight leg raise yielded increased LBP, with radiation into the left lower extremity, at 45°. Full range of motion of the lumbar spine was limited by pain. Mr. J was irritable and anxious during the physical examination. Posture was guarded and gait was antalgic on the left. Mr. J changed positions often when seated, claiming he "could not get comfortable."

Vital signs were within normal limits, except for his blood pressure, which was found to be mildly elevated. He was started on metoprolol 50 mg daily approximately 2 months ago. Review of systems (cardiovascular, respiratory, GI, genitourinary, and neurologic) was unremarkable.

Diagnostic Test Results

X-rays show grade III spondylolisthesis at L5-S1. Recent MRI of the lumbar spine showed degenerative changes and spurring at L4-L5, with some narrowing of the disc space. EMG findings were equivocal.

History and Current Functioning

Mr. J graduated from high school and has worked manual jobs since then. He has worked full-time for

9 years in a manufacturing plant as a "machine operator." Work demands include extended standing, some bending, and light lifting. He describes his job satisfaction as "fair." Mr. J reports numerous work absences related to LBP, estimating that he has missed at least one day of work each week for the past several months. Home activities are greatly diminished. He describes considerable sleep disruption, secondary to pain. He denies depression, but acknowledges frustration that his wife is not as supportive as he would like her to be.