Linking physician burnout and patient outcomes: Exploring the dyadic relationship between physicians and patients

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Background: Although patient outcomes of hospital stays have been widely explored, particularly patient satisfaction, there is a dearth of research linking health care provider burnout and patient outcomes at a dyadic level. In this article, we develop and test a model to explain the relationship between dimensions of burnout and patient outcomes, including patient satisfaction and recovery time.
Purpose: The purpose of this article is to explore the relationship between physician burnout and patient satisfaction and the time required to regain normal functioning after hospital discharge.
Methods: This study was based upon a survey of 178 matched pairs of patients and physicians. The patients were people who had been hospitalized within the previous year.
Results: We found support for the notion that the depersonalization dimension of physician burnout was associated with patient outcomes of lower satisfaction and longer postdischarge recovery time (after controlling for severity of illness and other demographic factors).
Implications for Practice: The findings suggest that physician burnout has an impact on patient outcomes. Although this is a preliminary study, it suggests that organizations that take proactive steps to reduce burnout through systemwide intervention programs will see greater benefits in terms of patient satisfaction and recovery.

The Institute of Medicine (IOM, 2004) recently argued that the work environment and its effect on health care employees play a key role in patient outcomes. Despite a burgeoning literature on patient outcomes, there is still a need to more closely explore how characteristics of the health care workforce impact patient satisfaction with hospital care (IOM, 2004; Strasser, Aharony, & Greenberger, 1993; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). One aspect of the workforce that has not been adequately addressed involves the consequences of workforce burnout, particularly the implications of burnout for patients. Burnout is defined as a psychological response to work-related stress that consists of emotional exhaustion (a depletion of work-related emotional resources), depersonalization (pulling away from those associated with the job), and reduced perceptions of personal accomplishment (a belief that one is not as good at the job as he or she once was; Maslach, 1982). Burnout has been identified as a significant problem among physicians, with a number of surveys and reviews of the literature finding that physicians are highly susceptible to burnout (cf. Gunderson, 2001; Spickard, Gabbe, & Christensen, 2002).

Key words: burnout, patient–health care provider relationship, patient satisfaction, recovery time

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The purpose this article is to explore the relationship between physician burnout and patient satisfaction and the time required to regain normal functioning after hospital discharge. Over the past 20 years, workforce burnout has become an area of increasing concern for organizations because of its negative consequences in terms of workforce turnover, job satisfaction, performance, and health (see Halbesleben & Buckley, 2004, for a recent review and Melamed, Shirom, Toker, Berliner, & Shapira, 2006, for a review focused on links between burnout and health). Burnout could be particularly important for health care workers. However, although most of the literature has focused on what leads to burnout in health care workers, there is a distinct need for studies that examine consequences of burnout; in particular, there is a need to explore how burnout impacts people other than the employee, such as patients (Halbesleben & Buckley, 2004). Although the literature has suggested links between burnout and negative consequences for its victims, only a handful of studies have addressed the links between health care worker burnout and its effects on those people that these burned-out health care workers serve; these studies have not investigated the effect of burnout on the dyadic relationship between patients and physicians. Research that addresses dyadic links between health care provider burnout and patient outcomes is critical because it will help to sharply focus the need to address burnout in health care organizations (Maslach, 2001).

Burnout and Patient Outcomes

A number of previous studies have examined the links between burnout and patient outcomes, with the primary focus on patient satisfaction. For example, Leiter, Harvie, and Frizzell (1998) examined the relationship between unit-level nurse burnout and patient satisfaction. Across 16 hospital units, they found a significant relationship between emotional exhaustion, depersonalization, and patient satisfaction. In other words, when patients stayed in a unit where nurses, as a unit average, reported higher emotional exhaustion or depersonalization, the patients tended to be less satisfied with their stay. Vahey et al. (2004) echoed this finding, calling for changes in workforce factors such as staffing, administrative staffing, and relationship development between nurses and physicians that might help to reduce burnout and improve patient satisfaction (see also Garman, Corrigan, & Morris, 2002).

One study linked intensive care unit (ICU) nurse burnout with ICU performance, again aggregating burnout and performance to the care unit level (Schaufeli, Keijsers, & Reis Miranda, 1995). The study found significant relationships between burnout levels and the outcomes efficiency and perceived effectiveness. Interestingly, burnout was associated with *higher* efficiency (measured as a ratio of observed vs. predicted length of stay of patients), which was contrary to expectations. The study also found that burnout was associated with lower perceived effectiveness in the unit, as reported by the nurses in a survey, but was not significantly related to an objective effectiveness measure of standard mortality ratio.

Although these studies form the basis for this study, they are limited in their ability to explicitly link patient satisfaction with health care provider burnout. All four studies aggregated burnout at the unit level. Although the hospital unit may be an appealing level of analysis, particularly in terms of intervention development, such a strategy is limited in that unit-level aggregates may be influenced by outliers (e.g., one employee with high burnout may have an inordinate effect on the unit-level aggregate of burnout). In addition, patients may not deal with all employees of a given unit; therefore, linking their satisfaction with an entire group's burnout may not be the most appropriate level of comparison. The health care provider–patient interaction is a key job characteristic for employees and the foundation of health care delivery for patients and is thus an important unit of analysis. This study is unique in that it matches patients with health care providers at a dyadic level, allowing for a more direct test of impact of health care provider burnout on patient outcomes that can address gaps left by previous research.

Moreover, there has been little attempt to link burnout to patient outcomes other than satisfaction. Although health care organizations recognize the importance of patient satisfaction in our contemporary client-centered climate, they may also be interested in other patient outcomes. Although Schaufeli et al. (1995) explored ICU performance measures, their results were contradictory, with the only finding consistent with theory coming from nurses' perceptions of effectiveness. Of particular value are studies that link health care provider burnout to patient's outcomes from the patient's perspective. To that end, this study expands our understanding of the relationship between health care provider burnout and patient outcomes by also considering the relationship between burnout and patient's self-perceived recovery time.

Theoretical Model

A popular theory used to explain the process of burnout has been Hobfoll's (1988, 1989, 1998) conservation of resources (COR) model. The COR model is based on psychological processes associated with resources, defined as those psychological commodities that we value (e.g., meaningful employment, time with family, satisfaction with life and work, etc.). The model further

proposes that stress results from one of three processes: (1) loss of material or psychological resources, (2) a threat to those resources, and (3) inadequate return on investments made to maximize material or psychological resources (e.g., an employee who engages in extra training to increase the likelihood of a pay raise but does not receive the raise). Burnout is the result of repeated investment in work resources without adequate return on that investment (Hobfoll & Freedy, 1993).

The model further specifies the motivational processes that occur once an employee has become burned out. It suggests that once an employee has reached the point of burnout, he or she becomes more careful in how he or she invests future motivational resources in work (Hobfoll, 2001; Hobfoll & Shirom, 2000; Siegall & McDonald, 2004). This means, for example, that when an employee experiences the emotional exhaustion symptom of burnout, he or she may be more likely to pull away from those associated with the job, including patients (Leiter, 1993). Moreover, employees may demonstrate new resource investment strategies by directing their motivational resources in very specific aspects of the job (Baltes, 1997; Baltes & Baltes, 1990), for example, focusing only on the parts of the job that they like or believe they are good at and avoiding any changes to their work routine that would add demands. Researchers have demonstrated such an effect with regard to job performance, finding that employees who are experiencing symptoms of burnout tend to focus their motivation at work toward very specific aspects of the job (Halbesleben & Bowler, 2007; Wright & Cropanzano, 1998).

When we apply this model to the relationship between health care providers and patients, it suggests that when providers reach the point of burnout, they will become careful in the future investment of their resources. Given the negative reciprocity associated with the relationship with patients and resulting negative attitudes toward patients (Bakker, Schaufeli, Sixma, Bosveld, & van Direndonck, 2000), providers may be hesitant to continue to invest extra resources (beyond those required for basic care of patients) in patient relationships. For example, burned out physicians may be less likely to ask open-ended questions (to save time), a communication factor associated with higher patient satisfaction (Ishikawa, Takayama, Yamazaki, Seki, & Katsumata, 2002). This line of thinking suggests that burnout of health care providers may influence the satisfaction of patients with their care, as they will not receive any of the extra resources that might yield higher satisfaction.

Moreover, we expect that health care provider burnout will be associated with longer recovery times. Burned out employees may withhold extra advice and follow-up treatment that may not be part of the typical treatment but would accelerate recovery (Shanafelt, Bradley, Wipf, & Back, 2002). Along these lines, Vincent and Coulter (2002) suggested that poor communication between physicians and patients is associated with the creation of treatment plans that may not be appropriate for the individual patient. This suggests that victims of burnout may not fully explain treatment procedures or listen to patients regarding their preferences, thus creating a treatment plan that is ineffective (Shanafelt et al., 2002). In addition, the outward manifestation of burnout by physicians might lead patients to refrain from asking for clarification regarding treatment that might reduce recovery time (cf. Becker, Halbesleben, & O'Hair, 2005). Overall, this suggests that physician burnout may lead to lower involvement by patients in their care. Patient involvement has long been shown to improve patient care outcomes (Cahill, 1998; Greenfield, Kaplan, & Ware, 1985).

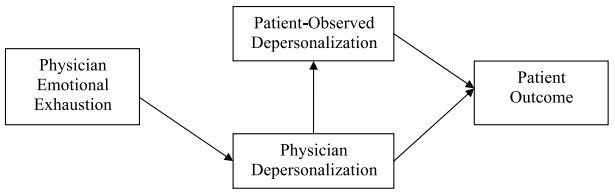
It is also possible that burnout results in threats to patient safety. Burnout has been shown to be negatively related to certain employee emotional states, particularly positive affect (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). That is, employees who are burned out are less likely to feel positive on the job. Positive affect has been empirically linked to enhanced decision making and problem solving (Fredrickson, 2001) as well as higher levels of patient-centeredness in health care providers (Isen, 2001). It is likely that burned out employees are less cognitively vigilant and less likely to put forth extra effort necessary for the highest quality care delivery. In fact, Shanafelt et al. (2002) reported that burned out internal medicine residents were more likely to self-report engaging suboptimal patient care procedures at least monthly. Thus, we propose that health care providers who are lower in burnout will be involved in fewer preventable adverse medical events, which will likely result in faster recovery times for patients.

We have summarized our predictions in the model presented in Figure 1.* The model suggests that when a health care provider experiences emotional exhaustion, he or she is more likely to experience depersonalization. Psychological depersonalization will be associated with patients' observations of depersonalization (e.g., while a physician may be psychologically pulling away from

**We note that despite its inclusion in Maslach's (1982) original conceptualization of burnout, many researchers have concluded that the personal accomplishment dimension of burnout is problematic, and tend to focus more on the emotional exhaustion and depersonalization dimensions of burnout (cf. Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Halbesleben & Buckley, 2004; Shirom, 2003). Given this trend, we did not include personal accomplishment in our model of the relationship between burnout and patient outcomes; however, we report statistical findings from the personal accomplishment scale to allow comparisons with other studies.*

Figure 1

Proposed model of the relationships between burnout dimensions and patient outcomes



patients, this may manifest by acting callously toward the patient). Both health care provider depersonalization and patients' observations of depersonalization should then be associated with patient outcomes, including lower satisfaction and longer recovery times. This model was tested by matching responses between patients and their physicians, allowing us to study the dyadic relationship to better understand associations between physician burnout and patient outcomes.

Methods

Participants and Procedure

The participants were 178 matched patient and physician dyads. Patients who had been hospitalized within the past year were matched with the physician who had provided their primary care during the hospitalization. The patients were students at a large southern university who were recruited to participate in the study in exchange for extra credit in an introductory management course; they had completed a larger survey concerning their perceptions of health care and were selected specifically because they had been hospitalized within the last year (from a larger sample of 532 students). The patient sample included 98 men and 80 women with a mean age of 23.18 years (SD = 5.13 years). The sample was largely White/Caucasian (n = 144, 81%) but included participants who were Black/African American (n = 12, 7%), Asian American/Pacific Islander (n = 10, 6%), Hispanic/Latino (n = 4, 2%), and Native American (n = 6, 3%). Eighty-seven percent of the participants had insurance coverage that covered at least 50% of the cost of the hospitalization. The patients had been hospitalized for a variety of conditions; a frequency table of the self-reported reasons for hospitalization is displayed in Table 1.

After completing the survey, the students asked the physician who had attended to them in the hospital to complete an online survey. They were asked to choose the physician who, in the their estimation, was responsible for their care while they were hospitalized. The physician sample included 84 men and 94 women with a mean age of 45.70 years (SD = 12.99 years). The sample was largely White/Caucasian (n = 156, 88%) but included participants who were Black/African American (n = 8, 4%), Asian American/Pacific Islander (n = 10, 6%), and Native American (n = 2, 1%). They worked an average of 43.29 hr/week (SD = 13.12 hr/week). The majority (84%) held a doctor of medicine degree, and the remaining physicians held a doctor of osteopathy degree. All physicians in the sample were independent; if more than one patient reported the same physician (and the physician completed the survey twice), only the first case was used (five surveys were dropped due to this procedure).

To ensure that the surveys were indeed completed by the appropriate health care provider, we randomly selected 50% of the surveys and directly contacted the health care provider to verify his or her participation. All of the participants who were contacted verified that they had completed the survey. This method of survey collection has been effectively used by field researchers in consumer behavior and customer service to match customer data with service provider data (Payne, Webber, Hall, & Knight, 2002).

Measures

Burnout. Burnout was assessed using the 22-item Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996); the items were slightly modified to apply to patients rather than general recipients of service. The

Table 1

Self-reported reasons for hospitalization

Reason for hospitalization	*n* (%)
Sports or recreational injury	31 (17.4)
Injuries as a result of a motor vehicle accident	28 (15.7)
Surgical procedure	23 (12.9)
Birth of child	21 (11.8)
Treatment of significant infection	18 (10.1)
Diabetic shock/other diabetes treatment	12 (6.7)
Burn	10 (5.6)
Cardiovascular disease/heart attack/heart failure	10 (5.6)
Other	25 (14.0)

Note. "Other" includes instances where a condition was offered for fewer than two participants. Because many participants were not specific regarding the nature of their surgical procedure, all surgeries were classified in one group. This group excludes Cesarean sections or other procedures that would have fallen under a more specific category (e.g., procedure as a result of motor vehicle accident trauma).

MBI measures burnout using three subscales: emotional exhaustion (nine items, e.g., "I feel emotionally drained from my work"), depersonalization (five items, e.g., "I feel I treat some patients as if they were impersonal objects"), and personal accomplishment (eight items, e.g., "I can easily understand how my patients feel about things"). The items were scored on a 7-point frequency scale from *never* (0) to *daily* (6).

Patient satisfaction. Patient satisfaction was assessed using SERVQUAL (Scardina, 1994), a 22-item measure designed to assess patient satisfaction with hospital services and care. A sample item is "This health care facility's staff gives prompt care to patients." The items were scored on a 7-point Likert-type scale from *strongly disagree* (1) to *strongly agree* (7).

Recovery time. Recovery time was assessed using a one-item measure completed by the patient. To assess recovery time, we asked, "In your estimation, how many days did it take you to recover fully (regain normal functioning) after your hospitalization?"

Control variables. Because of their potential relationships with burnout, patient satisfaction, and recovery time, we controlled for gender (both patient and health care provider), age (both patient and health care provider), race (both patient and health care provider), insurance coverage (patient), and hours worked per week (health care provider). In addition, we controlled for severity of illness, using length of hospitalization as a proxy for illness severity. To assess length of hospitalization, we asked the patient, "For how many days were you hospitalized?"

Results

The descriptive statistics, including means, standard deviations, reliability estimates (Cronbach's α), and correlations between the measures utilized in the study, are displayed in Table 2. A few findings are of note here. First, we found significant correlations between health care provider depersonalization and both recovery time ($r = .23$, $p < .05$) and patient satisfaction ($r = -.16$, $p < .05$). In addition, we found significant correlations between patients' perceptions of health care depersonalization and both recovery time ($r = .32$, $p < .01$) and patient satisfaction ($r = -.58$, $p < .01$). Although these findings are supportive of the hypotheses, they do not take into account the control variables or the other variables in the proposed model.

To test the relationships between burnout dimensions and patient outcomes as specified by our model, we utilized path analysis. Path analysis allowed us to test the complete model while accounting for the control variables and the other variables in the model at one time. The path analysis involved a two-step approach. First, we tested the fit of the model to the data to assess whether the model was a good representation of the data. Second, if the model provided good fit to the data, we examined the estimated path loading parameters that indicated the relationship between the variables in the model.

We began by testing the fit of the path models. Several goodness-of-fit indices were used to assess the overall fit of the proposed model: the comparative fit index (Bentler, 1990), the nonnormed fit index (Bentler & Bonett, 1980), Akaike's information criterion (Akaike, 1987), the Bayesian criterion, and the root mean squared error of approximation; these fit statistics are displayed in Figure 2. For the comparative fit index and nonnormed fit index, values of .95 or above indicate a model with acceptable fit (Bentler & Bonett, 1980; Hu & Bentler, 1999). For the root mean squared error of approximation, values of .05 or less indicate a well-fitting model (Hu & Bentler, 1999). The Akaike's information criterion and Bayesian criterion are used for model comparison purposes, where lower index scores indicate a better fitting model. As indicated in Figure 2, the proposed model fit the data with regard to patient satisfaction and recovery time well.

Given the good fit of the satisfaction and recovery time models, we further examined the estimated parameters indicating the relationship between the variables in the model (see Figure 2). We found the predicted positive association between physician emotional exhaustion and depersonalization (path coefficients of .57 and .59 for the satisfaction and recovery time models, respectively) and between physician depersonalization and patients' perceptions of physician depersonalization (path coefficients of .16 and .10 for the satisfaction and recovery time models, respectively). In addition, we found support for the notion that both physician depersonalization (path coefficients of −.18 and .41 for the satisfaction and recovery time models, respectively) and patients' perceptions of physician depersonalization (path coefficients of −.55 and .20 for the satisfaction and recovery time models, respectively) would be associated with patient outcomes. Overall, our findings provide strong support for our predicted model (and the conservation of resources theory more generally) when examining patient outcomes of satisfaction and recovery time.

Discussion

In this article, we sought to address two significant gaps in the literature. First, we sought to establish consequences of burnout that go beyond patient satisfaction. Although satisfaction is clearly an important outcome, researchers have yet to establish that health care provider burnout influences the clinical outcomes

Table 2

Means, standard deviations, Cronbach's α, and correlations among study measures

	Mean	*SD*	α	1	2	3	4	5
Patient measures								
1. Gender	0.45	0.50	n.a.	–	−.09	.07	−.11	−.10
2. Age	23.18	5.13	n.a.		–	−.08	−.12	−.12
3. Race	1.57	1.41	n.a.			–	−.07	.06
4. Insurance	0.87	0.34	n.a.				–	−.17*
5. Length of hospitalization	0.89	2.74	n.a.					–
6. Perceived DE	2.00	1.16	.91					
7. Satisfaction	6.02	0.73	.95					
8. Recovery time	9.26	24.74	n.a.					
Physician measures								
9. Gender	0.53	0.50	n.a.					
10. Age	45.70	12.99	n.a.					
11. Race	1.32	1.07	n.a.					
12. Hours worked	43.29	13.12	n.a.					
13. EX	3.04	1.13	.85					
14. DE	2.54	1.08	.74					
15. PA	5.67	0.72	.75					

Note. N = 178. Gender was coded 0 = male, 1 = female. Race was coded 0 = White/Caucasian, 1 = Black/African American, 2 = Asian-American/Pacific Islander, 3 = Hispanic/Latino, 4 = Native American, 5 = other. Recovery time and length of hospitalization are measured in days. Scores along the diagonal are internal reliability estimates (Cronbach's α). EX = emotional exhaustion; DE = depersonalization; PA = personal accomplishment.

*p < .05.

**p < .01.

of patients. This article takes another step toward establishing such a relationship. Second, this article sought to understand the dyadic relationship between patients and providers. Such studies are rare in the literature broadly and particularly in linking stress-related experiences of physicians to patient clinical outcomes.

The results indicated that, after accounting for a variety of other factors including length of hospitalization, physician burnout was associated with lower patient satisfaction and longer patient-reported recovery time. This study is important in that it not only echoes the past findings regarding the relationship between health care workforce burnout and patient satisfaction but also extends those findings to better understand other patient outcomes, including the link between burnout and recovery time.

The findings regarding the relationship between symptoms of burnout and patient satisfaction were similar to those of other studies in the health services literature. For example, Leiter et al. (1998) also found relationships between depersonalization and patient satisfaction. Vahey et al. (2004) did not find this relationship, however, which may have been due to the manner in which they examined burnout and satisfaction, that is, by creating discrete variables (and thus losing shared variability between the variables). Our findings echo some of the findings of Schaufeli et al. (1995) with regard to perceived effectiveness (e.g., lower satisfaction); however, they did not find a significant relationship between burnout and an objective outcome measure (standard mortality ratio), whereas we found significant relationships between burnout and patient outcome. As noted in the Introduction section, this study extends these findings by exploring (a) the relationship between *physician* burnout and patient outcomes and (b) that relationship at the dyadic level rather than the unit level.

Implications for Research

Importantly, the relationships found in this study were significant even when accounting for severity of illness (in terms of length of hospitalization). Controlling for this factor helps to rule out the possibility of a third-variable explanation, for example, that people with more severe illnesses have longer recovery times. As noted in the Introduction section, a variety of processes are hypothesized to explain the link between burnout and recovery time. Considering the role that resources play, as a health care provider's resources are diminished, he or

6	7	8	9	10	11	12	13	14	15
.03	−.18*	.29**	.22**	−.078	.12	−.10	.04	−.03	.23**
.08	−.03	.05	−.08	−.24**	−.03	.12	.17*	.14	−.01
−.30**	−.07	.16	.08	−.22**	.17*	.06	.11	.18*	−.17*
.04	.05	−.30**	−.04	.18*	−.22**	.11	−.19**	−.23**	.07
.03	−.10	.06	−.05	−.11	−.04	−.02	.35**	.12	−.06
–	−.58**	.32	.18*	−.15*	−.14	−.01	.06	.16*	−.19*
	–	−.07	−.15*	.29**	−.03	−.01	−.13	−.29**	.24
		–	−.09	.04	−.02	.16	−.01	.23*	.05
			–	−.29**	.08	−.19*	−.17*	−.29**	−.09
				–	−.17*	−.16*	−.13	−.20**	.25**
					–	−.04	.01	−.05	−.15*
						–	.08	.15	.04
							–	.58**	−.26**
								–	−.34**
									–

she may be less able to spend time with the patient to ensure understanding of treatment options that would facilitate recovery. This may reduce the ability of patients to fully follow regimens designed to assist in recovery, perhaps linking these variables to patient compliance. This is consistent with the literature on patient–provider relationships and patient compliance to treatment as well (e.g., Schneider, Kaplan, Greenfield, Li, & Wilson, 2004) suggesting that the extent to which health care provider burnout deteriorates the patient–provider relationship can have a negative impact on patient compliance to treatment, thus increasing recovery time.

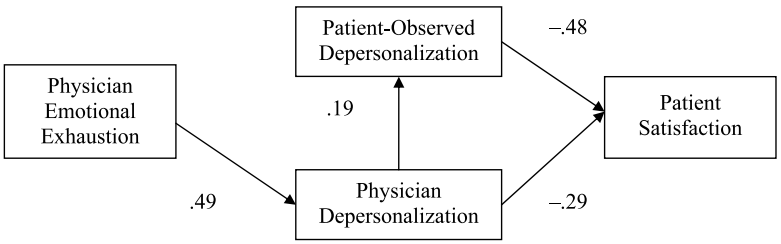
Reduced resources and time spent with patients could also lead to missed diagnosis of comorbid conditions, such as depression, that would increase more global recovery time. The literature consistently suggests that lack of time and a focus on a more "physical" condition lead to missed diagnosis of depression, which leads to longer time to regain normal functioning (cf. Goldman, Nielson, Champion, & the Council on Scientific Affairs, 1999).

As noted, this is an initial investigation of the links between health care provider burnout and patient outcomes. There is a great deal more to be investigated in this regard. For example, given the limited psychological resources remaining for victims of burnout, they may be more likely to make medical errors due to suboptimal care practices (Shanafelt et al., 2002), increasing the risk to the safety of patients. To the extent that reporting medical errors represents an additional demand, victims of burnout may be hesitant to report medical errors (cf. Halbesleben, Wakefield, Wakefield, & Cooper, in press; Wakefield et al., 1999). More research on the relationships between burnout and the reporting of medical errors is needed, particularly the manner in which aspects of the workforce environment (e.g., patient safety culture) might interact with burnout to explain error reporting (cf. IOM, 2004).

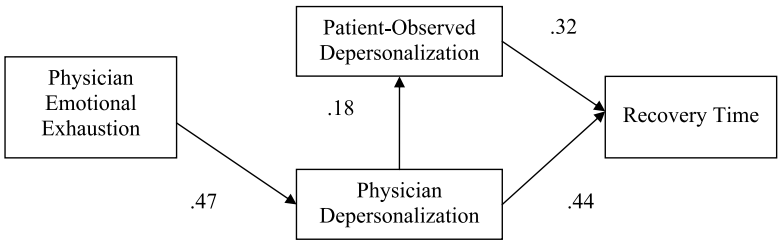
Moreover, more work on other variables that must be considered in the relationship between burnout and patient outcomes is needed. For example, the significant relationships found could be a function of physician pessimism, which has been noted to be closely related to burnout (Riolli & Savicki, 2003). In effect, negative affect and pessimism could explain both physician burnout and patient outcomes through a form of self-fulfilling prophecy (cf. Graz, Wietlisbach, Porchet, & Vader, 2005). More research is warranted to explore this possible effect to determine whether future research

Figure 2

Parameter estimates for patient outcomes models.
Note: **Parameter estimates are standardized. All shown estimates are significant at the .05 level or lower. GFI = goodness-of-fit index; CFI = comparative fit index; NNFI = nonnormed fit index; AIC = information criterion; BIC = Bayesian criterion; RMSEA = the root mean squared error of approximation.**



Model fit: χ^2 (df = 2) = 0.62, GFI = 0.99, CFI = 1.00, NNFI = 1.02, AIC = –2.98, BIC = –8.45, RMSEA = 0.00



Model fit: χ^2 (df = 2) = 1.18, GFI = 0.99, CFI = 1.00, NNFI = 1.03, AIC = –2.88, BIC = –9.24, RMSEA = 0.00

should control for pessimism when examining burnout and patient outcomes.

Implications for Practice

These findings reinforce calls in the health services literature to develop interventions to reduce health care provider burnout. This study, combined with the extant literature concerning burnout, suggests that burnout has meaningful links to patient outcomes; to improve patient outcomes, hospitals, physician group practices, HMOs, and other stakeholders in health care should take measures to reduce health care provider burnout. These organizations should consider screening physicians for burnout using validated tools such as the MBI (Maslach et al., 1996) or the Oldenburg Burnout Inventory (Demerouti, Bakker, Vardakou, & Kantas, 2002; Halbesleben & Demerouti, 2005). From there, a variety of options exist to reduce burnout in health care organizations. Programs that develop work-related social support systems may be effective (Halbesleben, 2006), particularly to the extent that managers and coworkers can provide each other with tangible support that is targeted at reducing stress.

In addition, health care administrators might consider programs based on system-based changes that reduce the likelihood of encountering stressors. Halbesleben, Osburn, and Mumford (2006) demonstrated how using action research approaches, whereby staff work together to develop solutions to specifically address stress and burnout in their organization, can be effective in reducing burnout (and other outcomes, including turnover). In an application of this approach among physicians, LeBlanc, Hox, Schaufeli, Taris, and Peeters (2007; see also LeBlanc & Schaufeli, in press) designed a team-based action research intervention for oncology providers, called Take Care!, that they found to be highly effective in reducing burnout over a 6-month period. Another similar approach may involve the utilization of Balint groups. Balint groups attempt to develop social support through an open forum where people can work through stressful events; such an approach has been found helpful in addressing burnout among health care professionals (Benson & Margraith, 2005; Rabinowitz, Kushnir, & Rebak, 1996).

Based on the COR model, programs that can increase resources or decrease demands on those resources seem to be the most advantageous in terms of lower burnout. Given the shortages in health care staff that have developed, increasing resources and reducing demands on physicians may represent a significant challenge to administrators. Moreover, health care administrators may be hesitant to invest in programs designed to reduce burnout, thinking instead that the demands of health care are so high as to make burnout an inevitable outcome. However, given the evidence that burnout-reduction programs can work if they seek to address systemic organizational problems (Maslach & Goldberg, 1998) and the links to patient outcomes found in this research, we strongly encourage health care administrators to consider working with employees to develop strategies to reduce burnout. It is important to recognize that burnout is not a welcome state for most employees; as such, they have a vested interest in reducing burnout not only for their own well being but also for the improvement of the care they provide to their patients. Involving staff in interventions and decision making has been shown to improve clinical outcomes with little cost in previous studies (e.g., Anderson & McDaniel, 1999); burnout provides another forum to extend that notion.

Limitations

Although this study does address gaps in the previous literature on burnout and patient outcomes, we recognize that there are limitations to the study as well. First, the study is based on self-report data for recovery; given the retrospective nature of the study, these may be biased and not consistent with what might have been available if we had access to clinical notes. Moreover, the retrospective nature of the measures may lead to changes in perceptions of burnout and satisfaction over time. Future research that can measure these variables as they occur and is not reliant on self-reports of recovery will be helpful in addressing these limitations. With that said, clinical measures of recovery time may be difficult to study, given the follow-up required to assess recovery time and the difficulty in operationalizing recovery time beyond the subjective assessment of the patient.

Second, we recognize that the use of student patients limits the possible patient base. This was done intentionally to increase the number and variability in health care providers (by using one hospital, we would be limited to the burnout of its staff alone); however, we recognize that including patients other than students would increase our ability to generalize the findings to other patients. That said, the goal of this study was more to test the relationships between the variables of burnout and patient outcomes; when the focus is on the initial testing of internal relationship between variables in a study, generalization to other samples is a secondary issue.

In conclusion, this study represents an initial investigation of the links between health care provider burnout and patient outcomes at a dyadic level. It extends the previous literature by utilizing a matched sample of patients and health care providers, finding that health care provider burnout is associated with patient outcomes such as satisfaction and recovery time. Whereas the previous literature has focused on the causes of burnout and the consequences for employees who experience burnout, this study is among the first to more directly link health care employee burnout with patient outcomes. Such research emphasizes the importance of burnout in light of negative consequences that reach beyond the employee. Given the relationships between burnout and negative outcomes for patients, it is our hope that health care organizations will carefully consider strategies for reducing burnout to improve patient outcomes.

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References

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*, 317–332.

Anderson, R. N., & McDaniel, R. R. Jr. (1999). RN participation in organizational decision making and improvements in residential outcomes. *Heath Care Management Review*, *24*, 7–16.

Bakker, A. B., Schaufeli, W. B., Sixma, H. J., Bosveld, W., & van Direndonck, D. (2000). Patient demands, lack of reciprocity, and burnout: A five-year longitudinal study among general practitioners. *Journal of Organizational Behavior*, *21*, 425–441.

Baltes, M. M., & Baltes, P. B. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B., Baltes, & M. M., Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York: Cambridge University Press.

Baltes, P. B. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of development theory. *American Psychologist*, *52*, 366–380.

Becker, J. A. H., Halbesleben, J. R. B., & O'Hair, H. D. (2005). Defensive communication and burnout in the workplace: The mediating role of leader–member exchange. *Communication Research Reports*, *22*, 143–150.

Benson, J., & Margraith, K. (2005). Compassion fatigue and burnout: The role of Balint groups. *Australian Family Physician*, *34*, 497–498.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606.

Cahill, J. (1998). Patient participation: A review of the literature. *Journal of Clinical Nursing*, *7*, 119–128.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology*, *86*, 499–512.

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2002). The convergent validity of two burnout instruments: A multitrait–multimethod analysis. *European Journal of Psychological Assessment*, *18*, 296–307.

Fredrickson, B. L. (2001). Positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218–226.

Garman, A. N., Corrigan, P. W., & Morris, S. (2002). Staff burnout and patient satisfaction: Evidence of relationships at the care unit level. *Journal of Occupational Health Psychology*, *7*, 235–241.

Goldman, L. S., Nielson, N. H., Champion, H. C. & the Council on Scientific Affairs of the American Medical Association. (1999). Awareness, diagnosis, and treatment of depression. *Journal of General Internal Medicine*, *14*, 569–580.

Graz, B., Wietlisbach, V., Porchet, F., & Vader, J. (2005). Prognosis or "curabo effect?": Physician prediction and patient outcome of surgery for low back pain and sciatica. *Spine*, *30*, 1448–1452.

Greenfield, S., Kaplan, S., & Ware, J. E. Jr. (1985). Expanding patient involvement in care: Effects on patient outcomes. *Annals of Internal Medicine*, *102*, 520–528.

Gunderson, L. (2001). Physician burnout. *Annals of Internal Medicine*, *135*, 145–148.

Halbesleben, J. R. B. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology*, *91*, 1134–1145.

Halbesleben, J. R. B., & Bowler, W. M. (2007). Emotional exhaustion and job performance: The mediating role of motivation. *Journal of Applied Psychology*, *92*, 93–106.

Halbesleben, J. R. B., & Buckley, M. R. (2004). Burnout in organizational life. *Journal of Management*, *30*, 859–879.

Halbesleben, J. R. B., & Demerouti, E. (2005). Assessing the construct validity of an alternative measure of burnout: Investigating the Oldenburg Burnout Inventory. *Work & Stress*, *19*, 208–220.

Halbesleben, J. R. B., Osburn, H. K., & Mumford, M. D. (2006). Reducing burnout in the federal fire service: An action research approach. *Journal of Applied Behavioral Science*, *42*, 244–266.

Halbesleben, J. R. B., Wakefield, B. J., Wakefield, D. S., & Cooper, L. (in press). Nurse burnout and patient safety outcomes: Nurse safety perception vs. reporting behavior. *Western Journal of Nursing Research*.

Hobfoll, S. E. (1988). *The ecology of stress*. New York: Hemisphere.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*, 513–524.

Hobfoll, S. E. (1998). *Stress, culture, and community*. New York: Plenum.

Hobfoll, S. E. (2001). The influence of culture, community, and the nested self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, *50*, 337–370.

Hobfoll, S. E., & Freedy, J. (1993). Conservation of resources: A general stress theory applied to burnout. In W. B., Schaufeli, C., Maslach, & T., Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 115–133). Washington, DC: Taylor & Francis.

Hobfoll, S. E., & Shirom, A. (2000). Conservation of resources: Applications to stress and management in the workplace. In R. T., Golembiewski (Ed.), *Handbook of organizational behavior* (2nd ed, pp. 57–81). New York: Dekker.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

Institute of Medicine (IOM). (2004). *Keeping patients safe: Transforming the work environment of nurses*. Washington, DC: National Academy Press.

Isen, A. M. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology*, *11*, 75–85.

Ishikawa, H., Takayama, T., Yamazaki, Y., Seki, Y., & Katsumata, N. (2002). Physician–patient communication and patient satisfaction in Japanese cancer consultations. *Social Science & Medicine*, *55*, 301–311.

LeBlanc, P. M., Hox, J. J., Schaufeli, W. B., Taris, T. W., & Peeters, M. C. W. (2007). Take care! The evaluation of a team-based burnout intervention program for oncology care providers. *Journal of Applied Psychology*, *92*, 213–227.

LeBlanc, P. M., & Schaufeli, W. B. (in press). Burnout interventions: An overview and illustration. In J. R. B. Halbesleben (Ed.). *Handbook of stress and burnout in health care*. Hauppauge, NY: Nova Science Publishers.

Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In W. B., Schaufeli, C., Maslach, & T., Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 237–250). Washington, DC: Taylor & Francis.

Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science & Medicine*, *47*, 1611–1617.

Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.

Maslach, C. (2001). What have we learned about burnout and health? *Psychology & Health*, *16*, 607–611.

Maslach, C., & Goldberg, J. (1998). Prevention of burnout: A new perspective. *Applied Preventative Psychology*, *52*, 397–422.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Melamed, S., Shirom, A., Toker, S., Berliner, S., & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths, and promising research directions. *Psychological Bulletin*, *132*, 327–353.

Payne, S. C., Webber, S. S., Hall, K. J., & Knight, L. N. (2002). Satisfaction and loyalty: Matching service provider and customer attitudes. Paper presented at the 62nd Annual Meeting of the Academy of Management, Denver, CO.

Rabinowitz, S., Kushnir, T., & Rebak, J. (1996). Preventing burnout: increasing professional self efficacy in primary care nurses in a Balint group. *AAOHN Journal*, *44*, 28–32.

Riolli, L., & Savicki, V. (2003). Optimism and coping as moderators of the relationship between chronic stress and burnout. *Psychological Reports*, *92*, 1215–1226.

Scardina, S. A. (1994). SERVQUAL: A tool for evaluating patient satisfaction with nursing care. *Journal of Nursing Care Quality*, *8*, 38–46.

Schaufeli, W. B., Keijsers, G. J., & Reis Miranda, D. (1995). Burnout, technology use, and ICU performance. In S. L., Sauter, & L. R., Murphy (Eds.), *Organizational risk factors for job stress*. (pp. 259–271). Washington, DC: American Psychological Association.

Schneider, J., Kaplan, S. H., Greenfield, S., Li, W., & Wilson, I. B. (2004). Better patient–physician relationships are associated with higher reported adherence to antiretroviral therapy in patients with HIV infection. *Journal of General Internal Medicine*, *19*, 1096–1107.

Shanafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002). Burnout and self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine*, *136*, 358–367.

Shirom, A. (2003). Job-related burnout: A review. In J. C., Quick, & L. E., Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245–264). Washington, DC: American Psychological Association.

Siegall, M., & McDonald, T. (2004). Person–organization congruence, burnout, and diversion of resources. *Personnel Review*, *33*, 291–301.

Spickard, A., Gabbe, S. G., & Christensen, J. F. (2002). Mid-career burnout in generalist and specialist physicians. *Journal of the American Medical Association*, *288*, 1447–1450.

Strasser, S., Aharony, L., & Greenberger, D. (1993). The patient satisfaction process: Moving toward a comprehensive model. *Medical Care Review*, *50*, 219–248.

Thoresen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, *129*, 914–945.

Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse burnout and patient satisfaction. *Medical Care*, *24*(2), 57–66.

Vincent, C., & Coulter, A. (2002). Patient safety: What about the patient? *Quality and Safety in Health Care*, *11*, 76–80.

Wakefield, D. S., Wakefield, B. J., Uden-Holden, T., Borders, T., Blegen, M., & Vaughn, T. (1999). Understanding why medication administration errors may not be reported. *American Journal of Medical Quality*, *14*, 81–88.

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology*, *83*, 486–493.