

Does Blaming the Patient With Lung Cancer Affect the Helping Behavior of Primary Caregivers?

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This article has been chosen for a podcast conversation with Michelle M. Lobchuk, RN, PhD. Lobchuk shares her experiences with studying empathetic communication by primary caregivers. Her program of research focuses on developing a theory-based intervention to enhance primary caregivers' empathetic communication and understanding of the illness experience for patients with cancer.

Purpose/Objectives: To examine whether primary caregivers' helping behaviors are predicted by their illness attribution reactions as proposed in Weiner's model.

Design: Latent-variable structural equation modeling.

Setting: Five oncology outpatient settings in central Canada.

Sample: 100 dyads consisting of patients with lung cancer and their primary caregivers.

Methods: Self-report questionnaires, abstracted medical record data, confirmatory factor analysis, and structural equation modeling.

Main Research Variables: Smoking history, judgments of responsibility for controlling the disease, anger, pride, and helping behaviors.

Findings: An interrelation was seen between judgments of responsibility toward patients to control aspects of the disease, affective reactions of anger and pride, and helping behavior. Anger and pride had a stronger influence on helping behavior than smoking history did.

Conclusions: Judgments of responsibility for controlling lung cancer and anger toward patients put caregivers at risk for dysfunctional helping behavior, particularly if patients had a history of tobacco use.

Implications for Nursing: Primary caregivers' affective states directly affect their helping behavior toward patients with lung cancer. Clinicians should be aware that caregivers who perceive the patient to be largely responsible for managing the disease also may be angry toward that patient. Angry caregivers are at risk of providing suboptimal helping behavior.

Key Points . . .

- In light of extensive media coverage of the link between tobacco use and lung cancer, a lung cancer diagnosis has become a stigmatization primarily brought on by the patient's behavior.
- A number of qualitative studies have reported that patients with lung cancer are confronted with intensely negative reactions from acquaintances, friends, family, and doctors, and feel unjustly blamed for their illness.
- Best practice for patients with lung cancer and their primary caregivers can be enhanced by routine nursing assessments that identify caregivers harboring negative judgments toward their patients. Educational interventions may help change illness attributions associated with a lung cancer diagnosis.

their tobacco use. The literature indicates that blaming or being angry toward patients with lung cancer can alter helping behavior and usual lines of communication between primary caregivers and patients (Chapple, Ziebland, & McPherson, 2004; Cooper, 1984; Zhang & Siminoff, 2003a). Changes

Lung cancer is a devastating and stigmatizing disease that challenges interpersonal dynamics between the primary caregiver and the patient. The stigma associated with lung cancer is likely related to the fact that more than 90% of lung cancers in men and at least 70% in women are directly attributable to cigarette use (Gaudette, Altmayer, Wysocki, & Gao, 1998). Researchers also have found that cigarette smokers experience negative public sentiment (Kim & Shanahan, 2003), which can have a profound effect on the relationship between primary caregivers and patients.

How primary caregivers assist patients often is mediated by relationship characteristics between patients and caregivers (Aaronson, 1991; Phillips et al., 1995; Taylor, Ferrell, Grant, & Cheyney, 1993). Primary caregivers (i.e., spouses, family, friends, or informal or family caregivers) may blame the patient with lung cancer for having caused the disease through

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in the helping behavior and level of open communication between patients with lung cancer and primary caregivers are at least partially related to illness attributions held by the primary caregivers.

Little is known about how interpersonal factors, such as illness attributions held by primary caregivers, affect helping responses toward patients in the home setting. Although lung cancer is associated with the willful act of cigarette smoking, the associations among illness attributions held by primary caregivers, perceived patient control over the progression of the disease, primary caregiver feelings or evaluations toward a patient's efforts to manage the medical condition, and helping behaviors toward a patient by the caregiver have not been systematically studied. Understanding the relationship of these factors will be useful to healthcare providers who must identify patient/primary caregiver dyads at high risk for dysfunctional behavior. The purpose of this article is to share preliminary results on associations, in accordance with Weiner's (2006) attribution theory of social motivation among illness attributions, affective states, and helping behaviors by primary caregivers toward patients with lung cancer as they manage their medical condition.

Background

Judgments of Responsibility

How primary caregivers provide assistance and respond to patients diagnosed with lung cancer may be at least partially explained by how they ascribe responsibility for the "offset" of the disease (Brickman et al., 1982). When the caregiver judges that a patient has control over the disease progression and an ability to alter the disease course (e.g., by engaging in healthy behaviors such as smoking cessation), the patient is attributed offset responsibility. Offset responsibility is akin to perceived control, which was described as "the belief that one has, at one's disposal, a response that can influence the aversiveness," (Thompson, 1981, p. 89) intensity, duration, or outcomes of the threatening effect. Patients and caregivers may develop theories about the cause of the cancer and whether the patient can control its progression (Taylor, Lictman, & Wood, 1984). Related study findings suggest that the family environment can exert a great affect on the course of chronic illnesses such as schizophrenia, depression, and Alzheimer disease (Harrison, Dadds, & Smith, 1998; Hooley & Licht, 1997; Tarrier et al., 2002). In a review of 13 studies, Barrowclough and Hooley (2003) found that when family members perceived the cause of an illness to be controllable by the patient, they were more critical of the patient than family members who perceived the cause as being outside of the patient's control. The critical family members often had high levels of expressed emotion that were associated with poor outcomes, such as relapses in schizophrenia and other psychiatric and chronic medical conditions.

Emotions

Expressed emotion is defined as a measure of the extent to which a family member talks about the patient or the family member's emotional reactivity and overinvolvement with the patient. Expressed emotion is associated with anger, annoyance, and criticism that arise from attributions made about undesirable behavior (Barrowclough & Hooley, 2003; Harrison et al., 1998), such as continued cigarette use by patients with lung cancer. Hooley and Licht (1997) found that highly

critical spouses made more attributions and considered behaviors such as smoking or drinking to be more controllable by patients than spouses who were less critical. The expressed emotion of primary caregivers for patients with cancer has not been explored in relation to helping behavior but, rather, patient adjustment to the cancer diagnosis (Berckman & Austin, 1993; Lavery & Clarke, 1996; Taylor et al., 1984). Previous findings suggest that the perception of offset responsibility is functionally significant to the patient and primary caregiver for predictability and control in being able to modify the course of the disease (Taylor et al., 1984). Consistent with existing theory and research on the relationship between relatives' beliefs about illness behaviors and their expressed emotion responses, primary caregivers of patients with lung cancer may express criticism and annoyance at continued tobacco use. Cooper (1984) and Zhang and Siminoff (2003b) suggested that when family members disagree with how patients deal with their disease, a potential for anger and discord between the patient and family members arises. The patient's efforts to cope or deal with stress by smoking are not functionally effective in the caregiver's eyes, resulting in anger, blame, and frustration toward the patient. Therefore, it is important to explore caregiver perceptions of the responsibility of patients with lung cancer to control offset aspects of the disease that can, in turn, potentially affect their inclination to help.

Theoretical Framework

In the current study, Weiner's (2006) theory of social motivation, justice, and moral emotions guided a systematic analysis of the caregiver's helping response to the patient's achievement outcomes in being able to manage or maintain a responsible healthy lifestyle after a lung cancer diagnosis. According to this theory, when outcome events are negative, a causal search is started that results in ascriptions to explain events or, as in this study, patients' achievements in managing their lung cancer diagnoses. Whether or not the cause was controllable helps determine the perception of personal causality. Previous findings indicate that perceptions of controllability over patients' management of lung cancer can serve as major sources of dissension between patients and primary caregivers, particularly if patients continue to smoke (Zhang & Siminoff, 2003b). The primary caregiver may view ongoing tobacco use by the patient as an irresponsible, unhealthy action that contributes to a negative outcome of disease progression or suboptimal response to treatment.

In the current study, tobacco use by patients with lung cancer at the time of interview served as the eliciting event for the causal search by primary caregivers. In other words, depending on the patient's current history of tobacco use, caregivers may infer different levels of responsibility to the patient in relation to controlling the disease. Judgments of responsibility for the outcomes of disease management efforts by the patient can lead to different types and degrees of emotion in caregivers. Emotion-laden responses arising from evaluations by caregivers essentially serve as intervening variables between judgments of responsibility and helping behavior by caregivers. For example, a judgment of a low degree of blame, fault, or responsibility toward the patient with lung cancer by the primary caregiver (e.g., the patient is attempting to quit smoking despite stress levels that make it difficult to stop smoking) can lead, through maximal pride,

satisfaction, and hope in the patient's willpower, to empathetic helping behavior by the primary caregiver. On the other hand, an attribution of a highly controllable cause by the patient (e.g., the caregiver's belief that the patient does not make an effort to stop smoking) can lead to withdrawal or reduction of helping behavior toward the patient because of the caregiver's high degree of anger, aggravation, and annoyance toward the patient's continued tobacco use. This reduction in altruistic behavior by caregivers, as a result of attributions of responsibility followed by their anger, aggravation, or annoyance toward the patient, can affect levels of helping behaviors and pose a hazard in the caregiver's ability to understand and manage the patient's illness in the home setting.

No research has systematically examined relationships among tobacco use by patients and the primary caregivers' perceptions on illness attributions, affective states, and helping behaviors toward the patient with lung cancer. Gaps remain in relation to identifying factors that put primary caregivers at risk for dysfunctional helping behavior toward patients with lung cancer, as well as comprehending how to promote enhanced empathetic helping behavior by primary caregivers who harbor blame, anger, or dissatisfaction with patients' efforts so as to enhance their sensitive understanding and management of patients' illness experiences. Weiner's (1995, 2006) theory of social motivation guided the current study's first hypothesis: Less smoking cessation by the patient leads to greater judgments of responsibility, anger, and less helping behavior by the caregiver. The second hypothesis of the current study then examined whether more smoking cessation or abstinence by the patient leads to fewer judgments of responsibility, increased pride, and more helping behavior from the caregiver. The third hypothesis examined if the degree of smoking cessation by the patient has a direct positive influence on helping behaviors of primary caregivers toward patients.

Methods

Design

Latent-variable structural equation modeling was used to conduct a preliminary investigation on the simultaneous relationships among patient smoking behaviors, illness attribution reactions, and helping behaviors of caregivers.

Sample

Written approval was obtained from the University of Manitoba's Education/Nursing Ethics Board and respective healthcare agencies to recruit patients from five outpatient cancer clinics in Winnipeg, Canada, between September 2005 and March 2007. As part of a larger cross-sectional study, this preliminary sample of 100 dyads was comprised of adult patients who were diagnosed with lung cancer (any type and stage) and their primary caregivers. The primary caregiver was identified by the patient as an adult who was primarily involved in the patient's care in the home setting and was able to speak, read, and write English. In addition, patients and caregivers had to meet the criterion of greater than or equal to 24 out of 30 on the Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975).

Instruments

Sociodemographics, helping responses, and smoking history measures: Sociodemographic, illness, and treatment-

related variables; caregiver helping responses; and current tobacco use by patients were collected from patients' medical records and self-reports by patients and primary caregivers. Patients' self-reports on their current smoking history were captured in response to a question that read

Which of the following statements best describes your cigarette smoking?

- I smoke regularly now, which is about the same as before finding out I have cancer.
- I smoke regularly now, but I've cut down since I found out I have lung cancer.
- I smoke every once in a while.
- I have quit smoking since finding out I have lung cancer.
- I never smoked.

Three five-point questions were developed by the investigators and posed on the sociodemographic questionnaire asking primary caregivers about the helping role of their relationship with the patient.

Attribution reaction: Primary caregivers were asked nine questions by the nurse researcher designed as indicators of perceived offset responsibility, anger, and pride. Three separate indicators existed for each latent variable. The indicators for responsibility (i.e., blame, fault, or responsibility) were employed as separate measures to capture caregiver perception of patient culpability in managing his or her disease. Anger, annoyance, and aggravation were three indicator items that reflected negative emotions associated with the caregiver's perception of patient responsibility for managing the disease. Indicator item measures were not pilot tested but, instead, derived with minor alterations from related research involving similar indicators to measure judgments of responsibility, the subsequent emotions of anger and pride,

Table 1. Factor Loadings for Models 1 and 2

Latent Variables	Indicator Variables	Factor Loadings ^a	p
Model 1: Anger			
Responsibility	Blame	0.81	< 0.0001
	Fault	0.83	< 0.0001
	Responsibility	0.16	0.080
Anger	Anger	0.83	< 0.0001
	Annoyance	0.87	< 0.0001
	Aggravation	0.90	< 0.0001
Helping behaviors	Assistance	0.13	0.098
	Knowing	1.22	0.003
	Talk	0.47	0.007
Model 2: Pride			
Responsibility	Blame	0.74	< 0.0001
	Fault	0.91	< 0.0001
	Responsibility	0.13	0.119
Pride	Pride	0.66	< 0.0001
	Satisfaction	0.98	< 0.0001
	Hope	0.47	< 0.0001
Helping behaviors	Assistance	0.24	0.021
	Knowing	0.84	< 0.0001
	Talk	0.69	0.012

^a Data indicate the correspondence between the indicator (observed or directly measured) variables and their corresponding latent (unobserved or not directly measured) variables. Squaring the loading gives an r^2 measure of how much variability in the indicator variable was explained by the latent variable.

Table 2. Covariances for Models 1 and 2

Latent Variables	Path Estimate	Standard Error	t	p
Model 1: Anger path				
Smoking ^a and responsibility	-0.47	0.086	-5.45	< 0.0001
Responsibility and anger	0.69	0.071	9.78	< 0.0001
Anger and helping	-0.22	0.118	-1.83	0.0386
Smoking ^a and helping	0.14	0.096	1.46	0.0773
Model 2: Pride path				
Smoking ^a and responsibility	-0.45	0.086	-5.27	< 0.0001
Responsibility and pride	-0.53	0.091	-5.87	< 0.0001
Pride and helping	0.27	0.113	2.38	0.0119
Smoking ^a and helping	0.12	0.113	1.07	0.1466

^a Higher scores indicate greater cessation from tobacco usage by the patient. The path estimates are the standardized coefficients.

and helping behavior (Graham, Weiner, Guiliano, & Williams, 1993; Reisenzein, 1986). In addition, positive indicators (i.e., pride, satisfaction, or hope) could not arguably be considered emotions according to Weiner's (1995, 2006) theory. Instead, they reflect a positive emotion-laden state as a consequence of the primary caregiver's evaluation or expectation of favorable outcomes related to the patient's efforts. The current study deemed the positive indicators to be appropriate in this study's context of serious illness where caregivers often engage in an evaluation of the patient's achievement in being able to appro-

priately manage the patient's disease. All indicator questions were answered on five-point Likert-type response items, with lower ratings indicating less responsibility, fault, blame, anger, aggravation, annoyance, pride, satisfaction, and hope by the caregiver toward the patient. No known confirmatory factor analysis was identified in extant work to confirm whether responsibility, fault, and blame indicate the presence of responsibility; anger, aggravation, and annoyance indicate the presence of anger; pride, satisfaction, and hope indicate the presence of pride in the patient's efforts to control the disease; or assistance, knowing, and talking indicate the presence of helping behavior by caregivers.

Procedures

Research nurses obtained informed consent, demographic, disease- and treatment-related information, patient smoking history, caregiver attributional reactions, and helping responses from dyads in the home setting. The current study will report only on the primary caregiver attributions and helping responses. If the patient or primary caregiver's scores were lower than 24 out of 30 on the MMSE, the research nurse thanked the patient and caregiver for their time but did not enroll them in the study. If both scored 24 out of 30 or higher, the research nurse proceeded by answering any questions that the patient and caregiver had about the study. The participants then proceeded to separate interview rooms to read the questionnaire instructions. After participants verbalized an understanding of the procedure, they were instructed to complete the questionnaires. The research nurse was available to answer

Table 3. Indicator Item Responses by Caregivers on Illness Attributions and Helping Behaviors in Controlling Aspects of the Disease

Judgments	N	\bar{X}	SD	Range ^a
Responsibility^b				
Blame: How much do you blame the patient's efforts to control aspects of the disease?	100	0.63	1.16	0 (none) to 4 (entirely)
Fault: How much do you fault the patient's efforts to control aspects of the disease?	100	0.57	1.09	0 (none) to 4 (entirely)
Responsibility: How much do you hold the patient responsible for controlling aspects of the disease?	100	2.37	1.65	0 (none) to 4 (entirely)
Anger^b				
Anger: How much anger do you feel toward the patient's efforts to control aspects of the disease?	100	0.36	0.80	0 (none) to 3 (somewhat)
Annoyance: How much annoyance do you feel toward the patient's control of aspects of the disease?	100	0.64	1.09	0 (none) to 4 (a great deal)
Aggravation: How much aggravation do you feel toward the patient's control of aspects of the disease?	100	0.50	0.97	0 (none) to 4 (a great deal)
Pride^b				
Pride: How much pride do you feel in the patient's attempts to control aspects of the disease?	100	3.29	1.12	0 (none) to 4 (a great deal)
Satisfaction: How much satisfaction do you feel in the patient's attempts to control aspects of the disease?	100	3.24	1.12	0 (none) to 4 (a great deal)
Hope: How hopeful do you feel in the patient's attempts to control aspects of the disease?	100	3.15	1.17	0 (none) to 4 (a great deal)
Helping^c				
Assistance: What is the extent to which you assist the patient in coping with the medical condition and symptoms?	100	4.00	1.18	1 (never) to 5 (always)
Talk: Do you and the patient talk openly about what the patient's thoughts and feelings are in regard to the medical conditions and symptoms?	100	4.08	1.00	1 (never) to 5 (usually)
Knowing: How well do you think you know the patient's thoughts and feelings about the medical condition and symptoms?	99	4.23	0.97	2 (not very well) to 5 (very well)

^a No word descriptors were assigned to the midrange values.

^b Theoretical scores ranged from 0–4; higher scores indicate more agreement with the item.

^c Theoretical scores ranged from 1–5; higher scores indicate more agreement with the item.

participants' questions about the study and provide assistance in completing the questionnaires. The presence of the research nurse also was necessary to ensure that participants refrained from discussing their responses to survey items until after the questionnaires were returned to the research nurse.

Data Analysis

The current study evaluated Weiner's (1995, 2006) attributional judgments model with a latent-variable structural equation model (SEM) using SAS version 9.1 Proc Calis. The SEM modeling allowed the current study to simultaneously relate latent (construct) variables from multiple indicator variables. Table 1 shows the corresponding factor loadings of each set of indicator variables to the three latent variables in models 1 and 2. Cronbach alpha estimates for the latent variables were responsibility (0.587), anger (0.898), pride (0.732), and helping (0.581). The covariances among the latent variables allowed the current study to test the main hypotheses. Table 2 displays the path estimate, the standard error, the t value, and p value for models 1 and 2. The current study also assessed model fit by using the chi-square goodness of fit test (Bollen, 1989), the root mean square error of approximation (RMSEA) index (Steiger, 1990), and Bentler and Bonett's (1980) non-normed index. An χ^2 statistic that is not significant (i.e., $p > 0.05$) indicates a good fit because the model does not differ significantly from the data. An RMSEA of 0.05–0.08 indicates a good fit (Browne & Cudeck, 1993). Bentler and Bonett's non-normed index can range from 0 (a fit that is no better than the null model) to 1 (perfect fit). The significance level for all statistical tests was set at 0.05.

Results

Demographics

Of the 350 dyads in the convenience sample, 135 agreed to speak to the research nurse and 100 agreed to participate. Reasons for refusal were related to parking issues, timing of the study, that the study involved "too much reading," or that the patient was "too sick" to participate. The mean MMSE score for patients and primary caregivers was 29, indicating nearly perfect cognitive competence to reliably complete the survey. The typical patient was aged 64.17 (SD = 8.03) years, was married or cohabitating (72%), was female (62%), had a high school education or less (64%), was retired (67%), and had a reported annual family income less than or equal to \$50,000 (65%). Most patients had non-small cell lung cancer (76%) and were diagnosed in advanced disease stages (58%). Sixteen percent had an unknown disease stage. Fifty percent of the patients were receiving chemotherapy, radiotherapy (15%), or had recent surgery at the time of the interview (4%); received chemotherapy (38%) or radiotherapy (42%) alone; or received combination radiotherapy and chemotherapy (30%). Thirty-one percent of the patients reported that their religious affiliation was with the United Church. Twenty percent of the patients reported they were Canadian, and 19% said they were English in ethnic origin. The majority of patients (89%) were not receiving nursing care in their home at the time of interview. Twenty-five percent of the patients were still smoking at the time of interview, 66% had quit smoking at the time of or before having received the lung cancer diagnosis, and 9% reported they had never smoked.

The typical primary caregiver was aged 59.6 (SD = 12.85) years, female ($n = 59\%$), had a high school education or less (60%), and was retired (54%). Twenty percent of the caregivers reported they were Canadian, and 16% said they were English in ethnic origin. Caregivers reported that their religious affiliation was with the United Church (24%) or the Roman Catholic Church (20%). Most primary caregivers were married to the patient (68%), lived with the patient (76%), cared for the patient nine months or less (55%), frequently or always assisted the patient in coping with lung cancer and its symptoms (67%), frequently or usually talked to the patient about his or her symptoms (71%), and knew the patient's symptoms adequately or very well (78%).

Descriptive Statistics

Table 3 provides the respective mean scores for judgments of offset responsibility, anger and pride, and helping behaviors by primary caregivers. Of the illness attributions represented by blame, fault, and responsibility, caregivers' perceptions of patient responsibility for controlling the disease progression had the highest mean score, followed by blame and fault. Of the negative emotions represented by anger, annoyance, and aggravation, the highest mean score was for annoyance, followed by aggravation and anger, toward the patient regarding their ability to control the progression of the disease. In contrast, despite reporting low mean ratings for negative emotions, ranging from 0.36 (anger) to 0.64 (annoyance) in a theoretical range of 0–4 units, the mean scores for positive evaluations of the patient's efforts to control the disease progression ranged from 3.15 (hope) to 3.29 (pride). The three helping behaviors' mean scores showed little variation, which may indicate a limitation in the current study's choice of indicator variables for helping behavior.

Supplemental analysis included analysis of variance to test for differences in attributional reaction mean scores across three subgroups (patients who stated that they were either still smoking, quit smoking, or never smoked) (see Table 4). Several significant findings revealed that caregivers ascribed more fault, blame, anger, aggravation, and annoyance toward patients who were still smoking versus patients who never

Table 4. Analysis of Variance of Attributional and Helping Responses Across Smoking Groups

Response	Smoking (N = 25)	Quit (N = 66)	Never (N = 9)	F
Responsibility	2.20	2.56	1.33	2.50
Fault	1.36 ^a	0.35 ^b	0.00 ^{a, b}	11.14*
Blame	1.40 ^a	0.42 ^b	0.00 ^{a, b}	9.17*
Anger	0.88 ^{a, b}	0.18 ^b	0.22 ^a	8.10*
Aggravation	1.20 ^a	0.32 ^b	0.11 ^{a, b}	7.99*
Annoyance	1.16 ^a	0.50 ^b	0.22 ^{a, b}	4.35*
Pride	3.00	3.36	3.56	1.24
Satisfaction	2.60 ^a	3.41 ^b	3.78 ^{a, b}	6.52*
Hope	2.84	3.24	3.33	1.21
Assistance	4.00	4.00	4.00	0.00
Talk	4.28	3.97	4.33	1.19
Knowing	4.08	4.26	4.56	0.83

* $p < 0.05$ (Similar superscripts [a, b] indicate the significantly different means.)

Table 5. Input Correlation Matrix for Smoking, Responsibility, Anger, Pride, and Helping Responses

	Blame	Fault	Responsibility	Anger	Aggravation	Annoyance	Pride	Satisfaction	Hope	Assistance	Talk	Knowing
Variables	r p	r p	r p	r p	r p	r p	r p	r p	r p	r p	r p	r p
Smoking	–0.375	–0.403	0.026	–0.354	–0.375	–0.304	0.125	0.318	0.176	–0.038	–0.007	0.149
cessation	0.0001	< 0.0001	0.801	0.0003	0.0001	0.002	0.215	0.001	0.079	0.079	0.943	0.137
Blame		0.657	0.17	0.516	0.463	0.518	–0.204	–0.366	–0.168	0.044	0.061	–0.145
		< 0.0001	0.096	< 0.0001	< 0.0001	< 0.0001	0.041	0.0002	0.096	0.662	0.550	0.149
Fault			0.124	0.566	0.495	0.467	–0.278	–0.488	–0.268	0.016	0.004	–0.190
			0.220	< 0.0001	< 0.0001	< 0.0001	0.005	< 0.0001	0.007	0.876	0.968	0.058
Responsibility				0.120	0.098	0.058	–0.026	0.094	0.134	0.047	< 0.0001	0.128
				0.233	0.332	0.566	0.798	0.354	0.185	0.645	0.0998	0.206
Anger					0.744	0.698	–0.276	–0.493	–0.308	–0.075	–0.011	–0.218
					< 0.0001	< 0.0001	0.005	< 0.0001	0.002	0.458	0.913	0.029
Aggravation						0.796	–0.348	–0.381	–0.379	–0.088	–0.042	–0.184
						< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.383	0.681	0.068
Annoyance							–0.336	–0.434	–0.371	–0.087	–0.112	–0.283
							< 0.0001	< 0.0001	0.0001	0.392	0.266	0.004
Pride								0.643	0.329	0.214	0.294	0.234
								< 0.0001	0.0008	0.033	0.003	0.019
Satisfaction									0.459	0.137	0.163	0.217
									< 0.0001	0.173	0.106	0.030
Hope										0.103	–0.002	–0.005
										0.309	0.986	0.968
Assistance											0.188	0.186
											0.061	0.064
Talk												0.575
												< 0.001

smoked. Caregivers also expressed more anger toward patients who were still smoking versus those who had quit smoking at time of the interview. This group of caregivers also tended to express more fault, blame, aggravation, and annoyance toward patients who had smoked in the past versus patients who never smoked. Conversely, caregivers felt more satisfaction toward patients' efforts to control or manage their lung cancer when they had quit smoking versus those still smoking at the time of the interview. In addition, caregivers were more satisfied with the efforts of patients to manage their lung cancer, particularly when patients never smoked versus those still smoking at time of interview. Interestingly, no significant differences exist across the three indicators for helping behaviors when matched up with the three smoking conditions. However, a cursory analysis of the mean scores revealed that caregivers expressed the least hope and degree of knowing the patients' thoughts and feelings regarding symptom experiences when the patient was still smoking at time of interview. In addition, the mean degree of assistance and level of talking about the patient's illness was around four units, regardless of whether the patient was still smoking, had quit smoking, or had never smoked.

Significant correlations also were demonstrated among judgments of responsibility, negative and positive affective states of caregivers, and the level of help provided to the patient by the caregiver (see Table 5). The degree of assistance provided to patients to deal with their illness and symptoms was positively influenced by the degree of pride felt by caregivers toward patients' efforts to manage or control the disease. Knowing patients' thoughts and feelings about their condition and symptoms were negatively influenced

by caregivers' anger and annoyance. However, if caregivers felt pride and satisfaction in patients' efforts to manage their medical condition, caregivers reported greater levels of knowing patients' thoughts and feelings about their conditions and symptoms. Caregiver pride also was positively related to open communication with the patient about his or her symptoms or medical condition. Of note, the degree of smoking cessation reported by the patient was not directly associated with helping behaviors by caregivers. However, caregivers ascribed more blame, fault, anger, aggravation, and annoyance toward patients who were having trouble with smoking cessation or abstinence. On the other hand, caregivers felt more satisfied with patients' efforts to manage their medical conditions after they quit smoking.

Evaluating the Models

A test of model 1 (see Figure 1) resulted in an excellent fit to the data: $\chi^2 = 27.9692$, $df = 30$, $p = 0.5721$; RMSEA = 0.00; and Bentler and Bonett's (1980) non-normed index = 1.0088. However, a test of model 2 (see Figure 2) resulted in only a good fit to the data: $\chi^2 = 34.7941$, $df = 30$, $p = 0.2502$; RMSEA = 0.0402; and Bentler and Bonett's non-normed index = 0.9681.

Hypothesis 1: The findings suggested a strong negative influence of patient smoking on caregiver judgments of responsibility, meaning that a patient engaged in less smoking cessation is attributed more responsibility in managing the disease by the caregiver. In addition, a strong positive association between responsibility and anger indicated that the caregiver felt more anger toward the patient when the caregiver judged the patient to be more responsible in managing the disease. A

weak but negative association also was found that suggested the more the caregiver was angry toward the patient, the less the caregiver reported engaging in helping behavior. The findings lend support to the qualitative work conducted by Zhang and Siminoff (2003a, 2003b), where family members reported feelings of anger and blame when patients continued to smoke despite having a lung cancer diagnosis.

Hypothesis 2: A moderate negative influence exists from patient smoking to caregiver judgments of responsibility. In both models 1 and 2, this association suggests that the greater the patient's cessation or abstinence from smoking, the less attribution caregivers place on the patient in controlling or managing the disease. In addition, caregivers felt more pride toward the patient. A low but positive relationship was noted between pride and helping behavior in this model, indicating that, as the caregiver felt more pride in the patient's efforts to manage the disease, he or she was more likely to report more helping behavior toward the patient in his or her efforts to manage the disease.

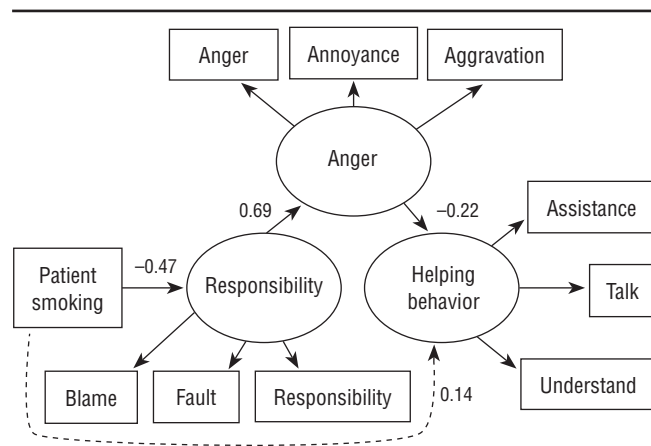
Hypothesis 3: In both models 1 and 2, nonsignificant associations occurred that did not support the hypothesis about a direct relationship between smoking cessation by patients and helping behavior by caregivers.

Discussion

Limitations

An analysis of patient characteristics suggests that this preliminary sample is representative of lung cancer diagnoses and age of patients diagnosed with lung cancer. However, it appears there was an over-representation of female patients and under-representation of patients diagnosed in advanced disease stage (Canadian Cancer Society and National Cancer Institute of Canada, 2007). Based on the return of signed invitations to speak to the research nurse, the participation rate appeared low (29%); however, this rate might have been underestimated because an unidentified portion of the written invitations were handed out by the unit clerk to patients who were ineligible to participate (e.g., they were not diagnosed with lung cancer). Therefore, it was difficult to provide an accurate participation rate of eligible dyads who agreed to enroll in the study.

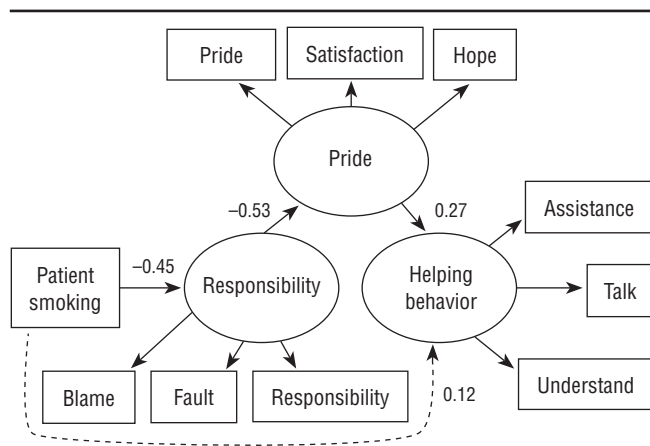
A recommended sample size to employ with SEM is 200 participants (MacCallum, 1986). Because the study is ongoing, the authors hope to recruit between 250–300 dyads. Therefore, the caveat is that the results are based on SEM testing that focused on confirmatory factor analysis and a preliminary investigation of simultaneous relationships among patient smoking behaviors, illness attribution reactions, and helping behaviors of caregivers. A major limitation that warrants further attention, however, is the low Cronbach alpha estimates for the latent variables, responsibility, and helping behaviors. Although factor loadings for fault and blame on responsibility were acceptable, the loading for responsibility was not. Similarly with helping behavior, the factor loadings for level of understanding and level of talking were acceptable but the loading for degree of assistance was not. The results of confirmatory factor analysis of indicators for responsibility suggested that caregivers were able to differentiate attributions of fault and blame from judgments of responsibility, which was empirically corroborated by a significantly strong correlation between the two indicators of fault and blame, but



Note. The circles indicate latent variables; the boxes indicate indicator variables; unidirectional arrows between the circles represent paths among the latent variables; unidirectional arrows connecting the circles with the squares designate factor loadings; the dashed arrow indicates the direct relationship between patient smoking and helping behavior of the caregiver; higher scores indicate greater cessation by the patient from tobacco usage at time of interview.

Figure 1. Model Specifications for Model 1

no significant correlations existed between fault and blame with responsibility, respectively. Weiner (1995) suggested that blame and, perhaps, fault are theoretically different constructs that are associated with “emotional negativity,” whereas responsibility is “affectively neutral” (Weiner, 1995, p. 14), an assertion that seems to be supported by strong correlations found in the current study between fault and blame with anger indicators, whereas no significant correlations exist among the indicator of responsibility with anger, annoyance, or aggravation. Regarding helping behavior, the level of assistance provided to the patient also appeared to be distinguishable by caregivers from their level of knowing and degree of talking as evidenced by significant correlations between level of talking and degree of knowing the patient's symptoms, but not between level of talking and degree of knowing with level of assistance, respectively. It is plausible that caregivers' reports on levels of assistance were about their provision of functional assistance to patients and that their reports on degree of talking and level of knowing reflected interactional aspects of helping. The results from a supplemental analysis of a model employing responsibility and degree of assistance as single-item measures resulted in weak-to-nonexistent correlations in model 1 (anger) and model 2 (pride) that did not support Weiner's model. However, when the study retained three indicators for each latent variable, the fit estimates indicated that models 1 and 2 had a good-to-excellent fit to the data. When the data is complete, the authors plan to determine whether employing only two item measures of fault and blame for responsibility, and talking and knowing for helping behavior in models 1 (anger) and 2 (pride), result in a change in Cronbach alpha estimates and model fit with the data collected from a larger sample. Depending on the variation of final sample characteristics, additional statistical analyses may entail subgroup analysis based on gender and age, as well as consideration of a recommendation for alternate frameworks for SEM analysis, in particular, the inclusion of other indicator variables for helping behavior that can potentially elicit a range of participant responses.



Note. The circles indicate latent variables; the boxes indicate indicator variables; unidirectional arrows between the circles represent paths among the latent variables; unidirectional arrows connecting the circles with the squares designate factor loadings; the dashed arrow indicates the direct relationship between patient smoking and helping behavior of the caregiver; higher scores indicate greater cessation by the patient from tobacco usage at time of interview.

Figure 2. Model Specifications for Model 2

Conclusions

The results of this analysis provide preliminary support for Weiner's (1995, 2006) theory on the link between attributional reactions and helping behavior. The theory withstood the inferential power of the latent-variable linear structural modeling technique reasonably well. First, an interrelation between patient smoking cessation and caregiver judgments of responsibility by the patient to control aspects of the disease, negative and positive states, and helping behavior by caregivers toward the patient do exist. Second, model 1 (with the smoking-responsibility-anger-helping pathway) had a near-perfect fit with the data compared to model 2 (pride pathway) that had a good fit. Model 1 provided an excellent representation of data showing how helping behaviors of caregivers can be affected by

patients' smoking behavior and attributions of fault, blame, and responsibility, as well as subsequent anger. Although the eliciting event of patient smoking abstinence had a direct impact on judgments of responsibility, it did not have a significant linkage with helping behaviors. These findings suggest that the impact of smoking cessation by patients on the helping behaviors of caregivers is mediated by the cognition-affect linkage, providing preliminary support for the cognitive-emotion linkage postulated in Weiner's theory (1995; 2006).

Implications for Practice

The preliminary results suggest that caregivers' attributions of blame, fault, anger, and pride affect their empathic helping behavior toward patients with lung cancer. Clinicians should be particularly aware that caregivers who perceive patients with lung cancer to be largely responsible for managing their disease also may be experiencing anger toward patients, depending on patients' current tobacco use. In turn, caregivers who blame or fault patients for having smoked or continuing to smoke and are angry with patients are at risk for providing suboptimal help to and communication with patients coping with lung cancer in the home setting. These results suggest that, when caring for a patient with lung cancer, nurses should assess the caregiver's feelings toward the patient, particularly when the patient is still smoking. Part of the assessment should involve soliciting the caregiver's beliefs about cigarette use with particular attention placed on whether they believe that cigarette smoking is a volitional act by the patient. Nurses can intervene by educating caregivers about the addictive nature of cigarette use and help caregivers to avoid making attributions of fault or blame. The final results of this ongoing study will incorporate a subgroup analysis of attributional reactions and emotions on the helping behavior of caregivers, depending on patients' smoking behaviors.

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