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Interacting with cancer patients: the significance of physicians' communication behavior

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Abstract

A diagnosis of cancer typically results in patients experiencing uncertainty about and loss of control over their situation, which in turn has a negative influence on their health outcomes. Cancer treatment further disrupts patients' quality of life. Throughout their cancer journey patients often rely on their physicians to provide them with social/interpersonal, informational, and decisional support. A growing body of research shows that physicians' communication behavior does indeed have a positive impact on patient health outcomes. Thus, the patient–physician interaction assumes great significance in the cancer care delivery process. It is encouraging to note that research in this area, largely dominated by studies conducted in primary care, is attracting the attention of cancer researchers. In an attempt to encourage and aid future research on patient–physician communication in cancer care, this paper presents a critical evaluation of existing literature on key elements of physicians' communication behavior (i.e., interpersonal communication, information exchange, and facilitation of patient involvement in decision-making). Different approaches to assessing physician behavior are discussed followed by a review of key findings linking physician behavior with cancer patient health outcomes. Finally, potential limitations of existing research are highlighted and areas for future research are identified.
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Introduction

"You have cancer," these words almost always cause devastation in the lives of their recipients. Feelings of uncertainty about and loss of control over one's life are common reactions (McWilliam, Brown, & Stewart, 2000; Molleman, Krabbendam, & Annyas, 1984). Over time, cancer patients face several situations that further disrupt their quality of life (QOL). Examples include: making sense of complex medical information; making difficult treatment decisions; dealing with treatment side effects; living with the fear of recurrence; and for some facing the possibility of impending death. In addition to prolonging survival, a key goal of cancer care thus, is to minimize the impact of the disease and treatment on patients' functioning and well-being (Arora et al., 2001; Gotay, & Muraoka, 1998).

At every stage of their journey, patients look towards their healthcare providers to meet several of their information and support needs, which if met, are likely to reduce the disruption in their QOL (Rose, 1990; Schain, 1990). The patient–physician interaction, a central component of the care delivery process, thus assumes an even greater significance in the cancer setting. As Siminoff, Ravdin, Colabianchi, and Sauders-Sturm (2000) observe, while the communication process between physicians and cancer patients shares most of the general features of standard patient–physician interactions, the stigma and fear associated with a cancer diagnosis, the complexity of medical information, and uncertainty regarding the course of the disease and treatment benefits adds a greater emotional dimension to the interaction. The manner in which

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physicians communicate with their cancer patients can thus have a significant impact on patients' QOL. Indeed, a growing body of literature has shown a significant association between physicians' communication behavior and patient health outcomes. These studies are discussed later in this paper.

Given the significance of the cancer patient–physician interaction, it is encouraging to see that research in this area is attracting the attention of cancer researchers (e.g., Blanchard, Labrecque, Ruckdeschel, & Blanchard, 1990; Butow, Dunn, Tattersall, & Jones, 1995; Ford, Fallowfield, & Lewis, 1996; Maguire, Faulkner, Booth, Elliott, & Hillier, 1996; Ong et al., 1999). In an attempt to encourage and aid additional research on patient–physician communication in cancer, this paper presents a critical evaluation of the literature on physicians' communication behavior. Following detailed description of key elements of physician behavior, the paper highlights two important aspects of research in this area: (1) Methods of assessment of physicians' communication behavior and (2) Relationship of physicians' communication behavior with cancer patient health outcomes. Finally, the paper identifies limitations of existing studies and presents recommendations for future research. Given that significant literature in this area exists in primary care that may also have relevance in a cancer setting, findings from studies conducted in non-cancer settings are discussed, as appropriate. Conversely, while the cancer context is emphasized throughout the paper, the discussion on limitations and future directions is applicable to other illness settings as well.

I acknowledge that physicians' communication behavior does not get generated in isolation and is likely to be influenced by a number of factors including patients' communication patterns. Indeed, several studies have focused on determinants of physician behavior including patient factors and have also specifically examined patients' communication behavior (e.g., Hall, Roter, Milburn, & Daltroy, 1996; Ishikawa et al., 2002; Street, 1991); however, evaluation of such studies was considered to be beyond the scope of this review. Similarly, studies focusing on interventions for improving patient–physician communication were also considered to be beyond the scope of this review; interested readers may refer to Anderson and Sharpe (1991) for a review of such studies. Finally, I also acknowledge that over the course of their cancer journey, besides physicians, patients interact with several other healthcare providers (e.g., nurses, social workers, nutritionists, pharmacists) who are as likely to impact patients' care experience as well as their health outcomes. While a majority of studies on patient–provider communication have focused on the patient–physician dyad, research on the interaction between non-physicians and patients is relatively limited and needs to be encouraged.

Elements of physicians' communication behavior

The paternalistic, medical model that once dominated patient–physician interactions is increasingly giving way to a shared decision-making or relationship-centered model of communication, especially for interactions between physicians and patients with chronic illnesses such as cancer (Charles, Gafni, & Whelan, 1999; Emanuel & Emanuel, 1992; Quill & Brody, 1996). Consistent with this model, three important goals have been identified for physicians to accomplish during their interactions with patients: establish a good *interpersonal relationship*, facilitate *information exchange*, and facilitate patient *involvement in decision-making* (Ong et al., 1995). These tasks have also been highlighted in recently published consensus statements on patient–physician communication (i.e., the Kalamazoo Consensus Statement, see Makoul, 2001; and the Toronto Consensus Statement, see Simpson et al., 1991).

Establish interpersonal relationship

Given the uncertainties associated with the disease and its treatment, cancer patients often require significant amount of reassurance about the normalcy and legitimacy of their reactions and concerns (Rose, 1990). They may also desire esteem support to compensate for threats to self-image and the stigma associated with having cancer. In addition to relying on them for information and decision-making, cancer patients often seek such support from their physicians (Rose, 1990; Takayama, Yamazaki, & Katsumata, 2001). Moreover, several studies suggest that a good interpersonal relationship with their physician, characterized by caring, compassion, respect, and trust can significantly help cancer patients adjust better to their illness (e.g., Bakker, Fitch, Gray, Reed, & Bennett, 2001; Finset, Smedstad, & Ogar, 1997; Fogarty, Curbow, Wingard, McDonnell, & Somerfield, 1999; McWilliam et al., 2000). However, it has been observed that cancer patients often experience problems in obtaining adequate support and/or in sustaining the level of desired support over time (Arora et al., 2001; Rose, 1990).

While critical in cancer, it is recommended that in general, a physician should create a warm and trusting atmosphere in which the patient is treated as a "person" and feels that the physician shows interest in, and is sensitive to, his/her problems and feelings (Bakker et al., 2001; Bensing & Dronkers, 1992). Several researchers consider such interpersonal communication by physicians to be a prerequisite for successful information exchange and collaborative decision-making to take place (e.g., Bakker et al., 2001; Finset et al., 1997; Golin, DiMatteo, & Gelberg, 1996). The Kalamazoo consensus statement (Makoul, 2001) concludes that establishing an interpersonal relationship with a patient is an ongoing

task within and across encounters and it undergrids the relatively more sequential tasks of information exchange and decision-making, as discussed below.

Facilitate information exchange

A large proportion of time during visits is typically spent in information exchange. Prior to imparting information, physicians have been recommended to actively listen to patients' story without interruption (Rosenblum, 1994; Simpson et al., 1991). This provides patients an opportunity to establish their identity and often generates greater rapport and feeling of openness between the physician and the patient (Rosenblum, 1994). Attentive, uninterrupted listening also helps physicians to get a better understanding of patients' subjective illness experiences, which is likely to result in treatment plans that minimize disruption in patients' QOL.

Physicians, however, cannot assume that patients will volunteer all relevant information. In fact, cancer patients are reluctant to disclose their psychosocial concerns, and often believe that experience of problems such as depression, fatigue, pain, etc. are inevitable consequences of their disease and its treatment (Bakker et al., 2001; Maguire, 1999). They may feel that there is no point mentioning them to the physician as nothing can be done. This avoidance on the part of patients is reinforced by the reluctance of physicians to inquire actively about patients' concerns and feelings (Ford et al., 1996; Maguire et al., 1996). For example, Stead, Fallowfield, Brown, and Selby (2001) reported that while all but one of 43 providers participating in their ovarian cancer study agreed that they should discuss patients' psychosexual concerns, only about 25% engaged in such discussion. Similarly, a study of follow-up consultations of survivors of colorectal cancer found little attention given to patients' psychosocial concerns; an average of 14.3 biomedical exchanges took place per consultation compared to 1.2 psychosocial exchanges (McCool & Morris, 1999). Similar findings have been reported in evaluations of palliative care consultations (Detmar, Muller, Wever, Schornagel, & Aaronson, 2001). Fallowfield, Lipkin, and Hall's (1998) study indicates that oncologists, indeed, consider eliciting and dealing with cancer patients' psychosocial problems to be amongst their most difficult communication challenges.

Given that cancer patients who have more concerns are likely to experience worse health outcomes (Maguire, 1999; Parle, Jones, & Maguire, 1996), physicians need to engage in behaviors that encourage patients' disclosure of such information. Physicians' interpersonal manner can play a key role. Physicians who listen to patients attentively and sympathetically, use open-ended questions, focus on and clarify psychological aspects, and communicate empathy, have been shown to elicit greater disclosure of concerns from patients (Maguire et al., 1996; Squier, 1990). In addition to helping physicians understand the patient's perspective, active listening by physicians also satisfies the need of patients "to be known and understood" (Ong et al., 1995).

With respect to information exchange, patients have another key need: the need "to know and understand" (Ong et al., 1995). Studies have consistently reported a majority of cancer patients to desire detailed information on a variety of topics such as prognosis, treatment options, associated side effects, risks, benefits, etc. (Blanchard Labrecque, Ruckdeschel, & Blanchard, 1988; Cassileth, Zupkis, Sutton-Smith, & March, 1980; Jenkins, Fallowfield, & Saul, 2001). Moreover, they consider physicians to be one of the most important sources of such information (Bakker et al., 2001; Silliman, Dukes, Sullivan, & Kaplan, 1998). At the same time, studies have also reported limitations in physicians' information giving behavior that often result in cancer patients leaving the medical visit confused and unsure about several aspects of their disease and its treatment (Chan & Woodruff, 1997; Fallowfield & Jenkins, 1999; Quirt et al., 1997).

For example, physicians have been shown to underestimate patients' desire for information and overestimate their own informativeness (Chaitchik, Kreitler, Shaked, Schwartz, & Rosin, 1992). While imparting information, physicians often use medical terms that cancer patients may not understand (Lerman et al., 1993; Lobb, Butow, Kenny, & Tattersall, 1999). For example, in a study of 97 women with breast cancer, Lerman et al. (1993) found that almost half the subjects (49.5%) reported difficulty understanding their physicians. At the same time, physicians tend to overestimate cancer patients' understanding of information given to them (Chaitchik et al., 1992; Gattellari, Butow, Tattersall, Dunn, & MacLeod, 1999). While physicians have been recommended to minimize the use of medical jargon with their patients and to explicitly assess patients' understanding of the information imparted, such assessment is one of the least conducted communication activities (Gattellari, Voigt, Butow, & Tattersall, 2002). Furthermore, physicians' information giving efforts are more likely to result in benefit for their cancer patients if the information addresses patients' main concerns and is perceived by patients to be relevant to their situation (Miller, Hope, & Talbot, 1999). However, studies show that information imparted by physicians is not always responsive to patient concerns (e.g., Chaitchik et al., 1992).

Finally, in addition to addressing patients' main concerns and ensuring that the imparted information is understood by patients, physicians may also need to display affective skills (such as a caring attitude, empathy, sensitivity, etc.) while giving information to

cancer patients, especially when it involves breaking bad news (Bakker et al., 2001; Finset et al., 1997; Holland, & Almanza, 1999).

Facilitate patient involvement in decision-making

Successful information exchange between physicians and patients ensures that patient concerns are elicited and explanations about treatment options are understood, thus laying the foundation for shared decision-making to take place (Richards et al., 1995). As Charles et al. (1999) explain, on the basis of this information exchange, treatment options can be evaluated "within the context of the patient's specific situation and needs rather than as a standard menu of options whose impact and outcomes are assumed to be similar for clinically similar patients." This process of evaluating options and arriving at the final decision requires physicians to elicit patient preferences for outcomes and opinions about their preferred treatment alternative. Physicians also need to explain the rationale for their recommendations. In the event where difference in opinion and preference exists, physicians are required to facilitate discussion and negotiation with patients and arrive at a decision that is acceptable to both (Charles et al., 1999; DiMatteo, & Lepper, 1998).

While this shared decision-making approach requires physicians to involve patients at various stages of the process, studies show that cancer patients who prefer greater involvement often fail to achieve their desired role during consultations (Degner et al., 1997; Gattellari, Butow, & Tattersall, 2001). Kaplan, Greenfield, Gandek, Rogers, and Ware (1996) suggest that in order to facilitate shared decision-making, physicians have to be more willing to offer treatment choices to, and share responsibility and control with their patients. In addition, in order for patients to be comfortable with expressing their opinions and preferences, physicians may first need to make patients feel that their contributions are valued and respected (Ford, Hall, Ratcliffe, & Fallowfield, 2000).

At the same time, a number of studies report that cancer patients vary substantially in their preference for participation in decision-making (e.g., Blanchard et al., 1988; Degner, & Sloan, 1992; Gattellari et al., 2001; Sutherland, Llewellyn-Thomas, Lockwood, Tritchler, & Till, 1989). Not all patients want to share or assume responsibility for treatment decisions and a number of them prefer physicians to make decisions on their behalf. In order to achieve active collaboration in decision-making, Guadagnoli and Ward (1998) hence recommend physicians to evaluate each patient's "level of readiness" for participation and tailor their decision-making approach accordingly.

While absent from the cancer literature, a study conducted with general practitioners (GPs) in England found GPs to indeed demonstrate flexibility in their decision-making approach; they were more likely to share decisions with patients who preferred more decisional control than with those who preferred to rely on them for decision-making (Makoul, 1998). In contrast, a number of studies in oncology report physicians to be poor judges of patient preferences for participation (e.g., Bruera, Sweeney, Calder, Palmer, & Benisch-Tolley, 2001; Bruera, Willey, Palmer, & Rosales, 2002; Rothenbacher, Lutz, & Porzsolt, 1997). For example, the studies by Bruera and colleagues show that physicians significantly underestimate cancer patients' preference for a shared approach to decision-making. Physicians have hence been recommended to explicitly assess the extent of involvement desired by their cancer patients (Degner et al., 1997; Rothenbacher Lutz, & Porzsolt, 1997; Schain, 1990). As Deadman, Leinster, Owens, Dewey, and Slade (2001) suggest, cancer patients may want to participate at different levels in the decision-making process. Some might only want to have direct informational input, while others might also want to take responsibility for the decision, and still others might not want to be involved at all. Physicians thus need to balance facilitation of patient involvement with patients' preference for the same.

While a number of studies in cancer and other settings have established an association between relatively stable patient characteristics such as age and education and patient participation preferences (e.g., Arora & McHorney, 2000; Cassileth et al., 1980; Degner et al., 1997), recent research in primary care has also demonstrated a relationship between patient preferences and more intervenable variables such as patient beliefs and attitudes (e.g., Arora, Ayanian, & Guadagnoli, 2001a), suggesting that patient preferences may more likely be states than traits. Indeed, a study by Butow, Maclean, Dunn, Tattersall, and Boyer (1997) showed that participation preferences of cancer patients do change over time. Thus, not only do physicians need to be flexible in their approach across different patients, they may also need to adjust their decision-making style for the same patient across multiple visits.

Findings from studies in cancer and other settings that indicate a positive impact of concordance/match between physician behavior and patient preferences on patient outcomes (e.g., Arora, 2000; Gattellari et al., 2001; Krupat, Yeager, & Putnam, 2000b; Krupat, et al., 2000a) suggest that a "one-size-fits-all" approach to decision-making by physicians may not work. Studies in oncology that evaluate the extent to which physicians tailor their decision-making approach to participation preferences of individual patients as well as assess the impact of such tailoring on patient outcomes are encouraged.

Assessment of physician behavior

Two different approaches have been utilized for measuring physicians' communication behavior. One approach records (either by standardized observation, audiotape, or videotape) actual medical encounters and analyzes them to code behavior using one of several interaction analysis systems (IAS) also called observational instruments (e.g., Bertakis, Callahan, Helms, Azari, & Robbins, 1993; Blanchard et al., 1983; Cegala, 1997; Maguire et al., 1996; Ong, Visser, Kruyver, Bensing, & van den Brink-Muinen, 1998). For example, one of the most commonly used systems, the Roter Interaction Analysis System (RIAS–Roter & Larson, 2002) takes the smallest unit of verbal expression or statement and assigns it to one of several mutually exclusive and exhaustive categories that reflect the content and form of the medical interaction, which are then combined into meaningful clusters such as open and closed questions, biomedical and psychosocial information-giving, partnership building, etc. The frequency of occurrence of each cluster is then computed.

An alternative approach focuses on patient perceptions of physician behavior (e.g., Cegala, Coleman, & Turner, 1998; Lerman et al., 1990; Loblaw, Bezjak, & Bunston, 1999; Takayama et al., 2001). Patient perceptions are assessed via surveys; they are asked to either rate on a rating scale, or report the occurrence or non-occurrence of, several elements of physician behavior. For example, the doctor facilitation subscale of the Perceived Involvement in Care Scale (Lerman et al., 1990) assesses physicians' facilitation of patient involvement by asking patients to *report*, using an agree/disagree response format, the occurrence/non-occurrence of activities such as "My doctor asked me whether I agree with his/her decisions;" "My doctor encouraged me to give my opinion about my medical treatment".

Thus, the literature includes both "behavioral/observational" as well as "perceptual" measures of physician behavior (Table 1 summarizes several such measures that have been utilized in recent cancer studies). Both approaches have their relative strengths and weaknesses. Observational measures are more objective as they assess actual patient–physician interactions. They code elements of physician behavior in terms of quantities such as frequencies, durations, or ratios of their occurrence; patients, however, may perceive physician behavior along both qualitative and quantitative dimensions. For instance, while the observational measures may very reliably capture the amount of time spent by physicians in information giving activities, they would fail to assess whether the information was easily understood by patients or whether it addressed their main concerns. Street (1992) observes that "by correlating such quantitative measures of behavior with outcomes, researchers assume that patients respond to physicians' communication in terms of "how often" or "how much" certain acts occur." Observational measures may thus be inadequate for accurately capturing the patient's perspective and the subjective impact of patient–physician communication on patient outcomes (Street, 1992; Tuckett & Williams, 1984; Waitzkin, 1990).

Patient perceptions, on the other hand, are more subjective in nature and are likely to be influenced by other factors such as patients' health status (Hall, Milburn, Roter, & Daltroy, 1998). It is thus possible that assessment of physician behavior using perceptual measures may not accurately reflect the reality of the consultation. However, researchers in favor of measuring patient perceptions suggest that since patients' post-visit outcomes are likely to depend upon how they perceive and interpret events of their medical visits, patient perceptions may have a greater impact on patient outcomes than actual physician behavior (Cleary et al., 1991; Street, 1992). Ruckdeschel, Blanchard, and Albrecht (1994) suggest that messages delivered by physicians are received by cancer patients after they pass through a "perceptual filter" by which patients understand/interpret the messages. It is the *perceived* message that then triggers a patient response (e.g., sadness, anxiety). Teasdale (1993) offers similar suggestions while discussing the inferential model of communication that emphasizes patient perceptions and inferences of actual provider communication.

Studies that simultaneously code physician behavior into behavioral indices and assess patient perceptions are limited. The few that exist however, offer interesting insights. In a study of 366 interactions between hospitalized cancer patients and oncologists, Blanchard et al. (1990) used trained observers to code the occurrence/non-occurrence of 34 physician behaviors using the Physician Behavior Check List (PBCL—Blanchard et al., 1983) and also assessed patient perceptions of those behaviors. Findings revealed a number of observer-coded behaviors to be unrelated to patient perceptions of the same. Also, patient perceptions accounted for a greater percentage of the variance in overall satisfaction than observed physician behaviors. Similar results were obtained by Street (1992) in his study of 115 pediatric consultations where he coded physician behavior from audiotapes of the interactions between physicians and parents of the patients and also assessed parents' perception of physician behavior. Perceptual measures tended to be better predictors of overall satisfaction than observational measures. Also, while physicians' use of patient-centered statements was predictive of parents' perception of physicians' interpersonal sensitivity and partnership building, the amount of information physicians provided was *not* related to parents' judgment of physicians' informativeness. Finally, in a study of 315 primary care patients,

Table 1
Summary of measures of physicians' behavior utilized in recent studies (1990–2002) with cancer samples

Study	Measurement instrument	Assessment strategy	What was measured?	Reliability estimates	Comment
Albrecht, Blanchard, Ruckdeschel, Coovert, and Strongbow (1999)	Moffitt accrual analysis system (MAAS).	Coding from videotaped consultations.	Occurrence/non-occurrence of 73 messages related to the legal/informational requirements of informed consent were coded on a checklist. Seventeen items assessing the effectiveness of patient–physician communication were rated by coders on a 7 point rating scale.	IRR[a]—checklist items: 0.67; rating items: 0.64.	This study used the MAAS to explore the relationship between physician behavior and accrual of cancer patients to clinical trials. Mixed cancer sample.
Blanchard et al. (1990)	Physician behavior check list (PBCL—(Blanchard et al., 1983).	Coding from direct observation of consultations and patient perceptions.	Occurrence/nonoccurrence of 34 physician behaviors that are likely to be observed during hospital rounds on an oncology ward were recorded. These included both task/instrumental and affective behaviors.	IRR—range of agreement on behaviors: 85%–100%, mean 95.4%.	This study applied the PBCL to evaluate the relationship between physician behaviors and hospitalized cancer patients' satisfaction. Mixed cancer sample.
Butow et al. (1995)	CN-LOGIT.	Coding from audiotaped consultations.	Each unit of speech was given three codes: source ($n = 3$ doctor, patient, other), process ($n = 5$ open question, statement etc.), and content ($n = 7$ diagnosis, treatment, etc.).	IRR—% agreement averaged 85%.	This study applied the CN-LOGIT to evaluate the first consultation of cancer patients with a specialist. Mixed cancer sample.
Ford et al. (1996)	Roter's interaction analysis system (RIAS—Roter & Larson, 2002).	Coding from audiotaped consultations.	Interactions were coded utterance by utterance into 34 mutually exclusive content categories representing various task/instrumental and affective behaviors of physicians and patients.	IRR—physicians: 0.68–1.00; patients: 0.60–1.00 (Ong et al., 1998).	This study applied the RIAS to evaluate "bad news" consultations of cancer patients. Mixed cancer sample.
Ford et al. (2000)	Medical interaction process system (MIPS).	Coding from videotaped consultations.	Each utterance by physician and patient were assigned one content (topic) and one mode of exchange codes (function). Eight affective independent modes were coded in parallel.	IRR[a]—mode: 0.88 (patients & clinicians); content: patients = 0.91, clinicians = 0.95.	This study reported the development of the MIPS for application in cancer care. Mixed cancer sample.
Galassi Schanberg, and Ware (1992)	The patient information index (PII) and the patient affective index (PAI) subscales of the patient reactions assessment (PRA).	Survey: patient perceptions.	Five items measured physicians' information giving behavior—PII (e.g., physician explained the treatment procedure clearly) and five items measured physicians' affective behavior —PAI (e.g., physician seemed interested in me as a person). Response: 7 point rating scales.	Cronbach's α—information giving (PII) = 0.87; affect (PAI) = 0.90.	This study reported the development of the PRA, a brief, visit-specific measure of the perceived quality of the patient–provider relationship. The study was conducted in a cancer setting. Mixed cancer sample.
Loblaw et al. (1999)	The Princess Margaret Hospital	Survey: patient perceptions.	This survey consisted of 29 items; 4 factors were identified: information exchange (10	Cronbach's α—information	This study reported the development and testing of an outpatient visit- specific

	satisfaction with doctor questionnaire.		items), interpersonal skills (8 items), empathy (6 items), and quality of time (5 items). Response: 4 point rating scale.	exchange = 0.92; interpersonal skills = 0.90; empathy = 0.88; quality of time = 0.88.	patient satisfaction questionnaire. The study was conducted in a cancer setting. Mixed cancer sample.
Maguire et al. (1996)	Authors developed their own coding system, no name.	Coding from transcripts of audiotaped consultations.	Each clinician's utterances were coded for form (e.g., question), function (e.g., checking), and content (e.g., psychological). Patient's utterances were coded for content and emotional level (scale of 0–3).	IRR—% of agreement: form: 91; function: 81; content: 87; and emotional level: 82.	This study applied the new rating scale to identify clinician behaviors that facilitate cancer patients' disclosure of concerns. Simulated patient sample.
Miller et al. (1999)	Breaking bad news assessment schedule (BAS).	Coding from videotaped consultations.	Eighty-one physician behaviors likely to occur during a "bad news" consultation were combined into 23 items that were rated on a 5 point rating scale.	IRR[a]—0.45–0.68; Cronbach's $\alpha = 0.93$.	This study reported the development of the BAS to aid in assessment of skills of physicians in breaking bad news to cancer patients. Simulated patient sample.
Roberts et al. (1994)	Cancer diagnostic interview scale (CDIS).	Survey: patient perceptions.	Eighteen items comprised the CDIS, a majority of which measured physicians' information exchange behavior (e.g., doctor encouraged me to express feelings; doctor discussed treatments), and interpersonal skills (e.g., doctor was warm and caring). Response: Likert scales, options not specified.	Cronbach's $\alpha = 0.92$.	This study reported the development of the CDIS for assessment of physician behaviors during the diagnostic consultation of breast cancer patients. Breast cancer sample.
Street, Voigt, Geyer, Manning, and Swanson (1995)	Doctor facilitation subscale of the perceived involvement in care scale (PICS—Lerman et al., 1990).	Survey: patient perceptions	Five items assessed physicians' facilitation of patient involvement in care (e.g., doctor asked if I agreed with decisions; encouraged me to talk about concerns; encouraged me to give my opinion, etc.). Response: agree/disagree.	Cronbach's $\alpha = 0.78$	This study examined issues related to involving patients in treatment decision-making. Breast cancer sample.
Takayama et al. (2001)	Perceived physician's communication style scale.	Survey: patient perceptions.	The survey consisted of 27 items that primarily assessed physicians' information exchange behavior (e.g., doctor asked whether you could understand what he/she explained), interpersonal skills (e.g., doctor was friendly and warm), and decision-making style (e.g., doctor asked whether you had any opinions). Response: 5 point rating scale.	Cronbach's $\alpha = 0.95$.	This study evaluated the relationship between patients' perceptions of physicians' communication behavior and patients' anxiety levels in an outpatient cancer setting. Mixed cancer sample.

[a] IRR = Inter rater reliability.

Stewart et al. (2000) also found that while their observational patient-centeredness measure coded from audio-taped consultations was not associated with any outcome measure, patient perceptions of patient-centered communication were significantly associated with a number of indicators of patient outcomes and care utilization. Furthermore, the observational measure was correlated with only a subcomponent of the perceptual patient-centered communication measure.

These studies present preliminary data suggesting that perceptual measures of physician behavior may not always be correlated with their more objective observational counterparts and patient perceptions may be better predictors of patient outcomes. However, to what extent are these results influenced by methods variance (i.e., measures derived from the same source-patient perceptions and patient outcomes- are likely to be more correlated than those derived from different sources-observational measures and patient outcomes) is not clear and needs further study. This may especially be an issue when the outcome variable is patient satisfaction since the predictor variable, patient evaluation of physician behavior, is essentially a component of the outcome variable, patients' overall satisfaction with care. Since none of the above studies focused on patient health outcomes in a cancer context, the extent to which observational and perceptual measures are correlated with each other and lead to similar findings of relationship between physician behavior and cancer patient health outcomes needs to be explored further. As noted by Cegala et al. (1998), understanding the reasons for, and sources of, discrepancies between observational and perceptual measures is important for furthering our understanding of how communication functions in the medical context. Thus, where possible, future studies should include both observational and perceptual measures of communication.

Physician behavior and patient health outcomes

Although the relationship between physicians' communication behavior and patient outcomes has been actively researched for 30 years, studies have predominantly focused on patient satisfaction and adherence (see Hall, Roter, & Katz, 1988; Inui, & Carter, 1985). With the exception of a small (but growing) body of work, the relationship between physician behavior and patient health outcomes such as QOL has been typically inferred than evaluated directly.

Communication research focusing on cancer patients' health outcomes is dominated by breast cancer studies. Many have examined the impact of being offered a choice of treatment. For example, based on their prospective study of 30 women with early stage breast cancer, Morris and colleagues (Morris & Royle, 1988; Morris, & Ingham, 1988) found a significant relationship between being offered a choice of surgery by the physician and reduced anxiety and depression, and improved physical functioning. Similarly, Fallowfield and colleagues (Fallowfield, Hall, Maguire, & Baum, 1990; Fallowfield, Hall, Maguire, Baum, & A'Hern, 1994), reported women with early stage breast cancer ($n = 269$) when treated by surgeons who preferred to offer choice of treatment, to experience less anxiety and depression in the long-term. However, when they compared women within the choice group, they could not find any difference in outcomes between women who had a genuine choice and those for whom technical constraints limited options to mastectomy alone. Deadman et al. (2001) found that women with early stage breast cancer ($n = 114$) who were advised to undergo mastectomy reported greater psychological morbidity, both before and after surgery, compared to women who were offered a choice. Furthermore, among women in the choice group ($n = 80$), those randomized to a subgroup that was explicitly asked to make the final decision reported more positive psychological outcomes than women randomized to the subgroup where the surgeon discussed available alternatives but strongly recommended one option.

Street and Voigt (1997) reported women with early stage breast cancer ($n = 51$) who, during the year following surgery, believed they were given more decisional control experienced higher levels of QOL. Similarly, Andersen and Urban (1999) showed patient self-reports of involvement in decision-making about the use of testing for recurrent disease, in a sample of 292 breast cancer survivors, to be significantly associated with improved QOL as measured by the SF-36. In a study of the initial consultation of 233 patients with different cancer diagnoses, Gattellari et al. (2001) found patients who were given the opportunity to participate in decision-making consistent with their participation preferences experienced significantly greater decrease in anxiety from pre- to post-consultation compared to those whose participation was greater or less than preferred.

Butow et al. (1995) reported that newly diagnosed cancer patients ($n = 142$; 51% had breast cancer) who had their questions answered by their physician during their first consultation showed better psychological adjustment at post-visit follow-up. Roberts, Cox, Reintgen, Baile, and Gibertini (1994) reported a positive relationship between their survey measure of physicians' behavior during the diagnostic consultation (the measure focused on information exchange and interpersonal skills) and psychological adjustment of women with breast cancer ($n = 100$) six months post-surgery. Lerman et al. (1993) found psychological distress among 97 women with early stage breast cancer receiving post-operative therapy to be associated with several aspects

of the patient–physician interaction including difficulty asking questions, expressing feelings, and understanding imparted information.

In a study of 123 breast cancer survivors and 87 women without cancer, Fogarty et al. (1999) found a positive relationship between more compassionate physician behavior (e.g., providing reassurance, touching the patient's hand, expressing support) and reduced patient anxiety. A recent study of the initial consultation of 96 patients diagnosed with various cancers conducted by Ong, Visser, Lammes, and de Haes (2000) however, could not find any association between physicians' communication behavior coded using the RIAS and patients' QOL. However, patients whose physician's affective tone of communication was rated as angry/irritated reported greater physical and psychological distress and those whose physician had an anxious/nervous tone reported lower global QOL. Finally, in their study of 147 cancer patients with mixed diagnoses (50% had breast cancer), Takayama et al. (2001) reported scores from "Perceived Physician's Communication Style Scale," that includes items assessing physicians' interpersonal manner, information exchange, and decision-making style, to be associated with changes in patients' anxiety levels from pre- to post-consultation. A number of similar studies conducted with non-cancer samples are reviewed by Stewart (1995).

The above findings present evidence for a beneficial effect of physician behavior on patient health outcomes. Given that a key focus of medical care for cancer patients is to improve their functioning and QOL, studies that ignore patient health status indicators as outcome variables are likely to be incomplete in their evaluation of the impact of patient–physician interaction. Future studies that would add to this growing base of research are encouraged. Also, given that the number of cancer survivors are increasing significantly and we still know relatively little about the quality of their follow-up care and their quality of life experiences, studies on patient–physician communication that focus on cancer survivors are especially needed (Gotay & Muraoka, 1998; Little, Sayers, Paul, & Jordens, 2000).

Research limitations and future directions

The following discussion highlights potential limitations of existing research and presents recommendations for future studies emphasizing three key areas: conceptual refinement, measurement, and study design.

Conceptual refinement

Research on patient–physician communication has largely been exploratory in nature. Hall et al. (1988) observe that in the absence of a guiding theoretical framework, studies either have no apparent hypotheses or have as many hypotheses as the number of pairs of variables in their correlation matrices. Also, some attempts at gaining conceptual clarity, such as Roter and Hall's reciprocity theory (Hall et al., 1988; Roter & Hall, 1991; 1992) have failed to receive empirical support in subsequent studies (see Roberts & Aruguete, 2000). Leventhal (1985) contends that a lack of a valid conceptual framework and theoretically driven hypotheses makes it difficult to translate research findings into improved clinical practice.

Studies exploring the underlying mechanisms by which physicians' communication behavior impacts patient outcomes are likely to contribute to improvements in cancer care. Two key theoretically driven mediators that have been discussed extensively in the literature but have not received adequate empirical attention in cancer studies are patient perceptions of uncertainty and personal control.

Mishel's theory of "uncertainty in illness" suggests that patients who perceive their physician as a credible source of information are able to use that information to construct meaning to their illness experiences, thereby reducing uncertainty and improving health outcomes (Mishel, 1999). A mediation effect of uncertainty is suggested by studies in non-cancer settings that have independently demonstrated empirical relationships between information adequacy in patient–physician interactions and uncertainty reduction (Sheer & Cline, 1995), and reduced uncertainty and improved QOL (Padilla, Mishel, & Grant, 1992) respectively. In addition, Mishel and Braden (1987) showed uncertainty to be a mediator of the relationship between social support and adjustment of women with gynecological cancer.

Similarly, conceptual frameworks of personal control (Averill, 1973; Reid, 1984; Roberts & White, 1990) consider cognitive/informational control and decisional control as key mechanisms via which individuals dealing with stressful situations (e.g., cancer) can regain a sense of control over their life and health. Qualitative research confirms that cancer patients do perceive a greater sense of control when they are satisfied with their physicians' efforts to inform them and involve them in decision-making (Bakker et al., 2001; McWilliam et al., 2000). Studies conducted in other chronic illness settings have also established a positive relationship between personal control and patient health outcomes (e.g.; Affleck, Tennen, Pfeiffer, & Fifield, 1987). Thus, patient perceptions of uncertainty and personal control are likely mediators of the relationship between physicians' communication behavior and patient outcomes; empirical tests of such mediational relationships in cancer research are encouraged.

In addition to exploring mediation effects, conceptual refinement can also be obtained by focusing attention on

moderator variables. Researchers often tend to adopt a "main effects" perspective to analyzing patient–physician interactions (Stiles, 1989; Street, 1992). That is, they assume that hypothesized relationships between physician behavior and patient outcomes will be consistent across all patients. This approach fails to acknowledge that patients may vary in their preferences and expectations for, and hence evaluations of, specific physician behaviors. Evaluation of moderation/interaction effects can shed light on the generalizability of hypothesized relationships.

While such effects are seldom explored, several theoretical frameworks can be utilized to generate theoretically driven moderation hypotheses. For example, models focusing on the role of expectations (expectancy theory: Burgoon, Birk, & Hall, 1991; reinforcement expectancy theory: Klingle, & Burgoon, 1995; expectancy-value model: Linder-Pelz, 1982) consider communication expectations to function as perceptual filters that influence how a receiver evaluates a communicator's message. These theories suggest that the impact of a physician's communication behavior on patient outcomes depends not only on the quality of the behavior but also on the patient's expectation for that particular behavior. Given that cancer patients vary substantially in their preference for participation in treatment decision-making, we could reasonably assume that only those patients who *prefer* an active role in decision-making would *expect/want* physicians to involve them. Based on these theoretical models, one could hypothesize that the impact of physicians' facilitation of patient involvement in decision-making on patient outcomes would be significant but for only those patients who prefer an active role. Thus, patient participation preferences may moderate the relationship between physicians' decision-making approach and patient outcomes. Such moderation hypotheses have been recently tested in a non-cancer sample (Arora, 2000), however their evaluation is lacking from cancer studies and is encouraged.

While evaluation of theoretically driven mediating and moderating relationships will enhance the validity of the hypotheses tested, such evaluations can be further strengthened by conducting them within the context of an overarching conceptual framework. Kreps, O'Hair, and Clowers' (1994) "Transformation Model of Communication and Health Outcomes" is one such framework. This model provides a framework for integrating and examining the interplay between antecedent conditions such as physician and patient attitudes and preferences, communication between physician and patient, and patient health outcomes. While existing empirical evaluations have seldom used this framework (or any other for that matter), the application of such frameworks is encouraged.

Measurement

The importance of measuring patient perceptions of physician behavior was highlighted in a recent report by the Institute of Medicine in the US that identified patient experience as the fundamental source for quality-of-care evaluation (see Berwick, 2002). Existing perceptual measures, however, suffer from several limitations that in turn present opportunities for future research, as discussed below.

Quite often investigators either generate items for measuring patient perceptions of physician behavior without any a priori conceptual framework, or they begin with pre-defined categories of physician behavior, but label the final dimensions of their survey purely on the basis of empirically driven, exploratory factor analysis. Such an approach can lead to misclassification of items. For example, Loblaw et al. (1999) identified 39 items of physician behavior categorized into five dimensions. Exploratory factor analysis however, resulted in four factors. While there seemed to be an overlap in the labels given by the researchers to the empirically driven factors and the five initial conceptual dimensions, a closer examination of the items in these factors revealed several conceptual misclassifications. The interpersonal skills factor contained items related to information exchange, e.g., "The doctor did not give me all the information I thought I should have been given;" and "I didn't have the chance to say everything I wanted or to ask all my questions." Conversely, the information exchange factor included an item, "This doctor was interested in me as a person and not just my illness" that is considered part of interpersonal skills in other surveys.

In addition, perceptual measures of physician behavior lack standardization. While some surveys provide an overall communication score, others include more detailed assessments, often varying in the level of detail provided. A number of perceptual measures do exist, however, no single survey emerges as the gold standard that is consistently used by investigators other than the developers themselves.

Given the importance of perceptual measures in the evaluation of the quality of medical interaction, improvements of these measures should be a research priority. A starting point would be to conduct a state-of-the-science evaluation of the published literature on these measures. Based on existing conceptual frameworks (e.g., the elements of physician behavior identified in the Kalamazoo Consensus Statement, Makoul, 2001), such an evaluation could identify gaps in the science by conducting a head-to-head comparison of the identified measures on several criteria. Criteria may include: elements of behavior assessed, sources of item generation (was patient input solicited?), strategies for item reduction and classification (empirically driven exploratory factor analysis vs. conceptually driven confirmatory

factor analysis), evidence of misclassification, strength of psychometric properties (reliability, validity, and sensitivity to change), etc. Validity of measures for application in cancer studies should also be determined. Such a review will help drive future survey development and evaluation efforts.

Future research efforts also need to focus on improving measures of patient participation/involvement. A number of studies assess patient preferences for participation using single item measures that may not be as reliable as multi-item scales and at the same time fail to capture different elements of participation (e.g., Arora & McHorney, 2000; Blanchard et al., 1988; Degner et al., 1997). The few existing multi-item measures of physicians' facilitation of patient involvement seem to have been developed without any patient input (e.g., Kaplan et al., 1996; Lerman et al., 1990).

Detailed literature reviews need to be conducted to identify elements of patient participation followed by extensive qualitative research (e.g., focus groups, interviews) with patients with cancer. A thorough understanding of how patients conceptualize "participation" is indicated (DiaMatteo & Lepper, 1998; Guadagnoli & Ward, 1998). Furthermore, similar efforts should be conducted with physicians. These qualitative studies would have the potential to inform us about similarities and discrepancies in the conceptualization of participation by physicians and patients. Such discrepancies, should they exist, may very well influence the course of the patient–physician interaction resulting in potentially unsatisfactory visits and sub-optimal patient outcomes.

Findings from such reviews and qualitative studies could be used to construct better survey measures of patient and physician preferences for patient participation and their perception of physicians' actual facilitation of patient participation. Such scales, based on existing research as well as direct input from patients and physicians, are likely to have greater validity. Detailed efforts should be made to establish their psychometric properties. Successful pilot tests should be followed by their application in longitudinal evaluations of the cancer patient–physician relationship.

Study design

A final set of limitations that need to be addressed in future studies relates to study design and analysis. A majority of studies in both cancer and other settings present cross-sectional "snapshots" of the patient–physician relationship by restricting themselves to a single visit per patient–physician dyad. In a chronic illness situation such as cancer, the patient–physician relationship is usually long-term and medical visits more frequent. In order to draw inferences about the impact of a physician's behavior based on what the physician does in a single encounter, one would have to assume patient–physician interactions to be relatively stable across visits. However, studies conducted with diabetic patients have demonstrated a substantial variation, both in the structure and content of communication across multiple visits (e.g., Hampson, McKay, & Glasgow, 1996; Van Dulmen, Verhaak, & Bilo, 1997). Even in cancer care, communication patterns in the initial diagnostic, "bad news" consultation are likely to be very different from subsequent visits where treatment decisions are formulated and followed-up. Results based on the analysis of a single visit should thus be interpreted with caution and longitudinal evaluations encouraged.

Studies also suffer from other methodological limitations that limit the generalizability and clinical application of findings, such as: (1) bivariate analyses that fail to account for confounding factors (e.g., patient socio-demographics, comorbidities, severity of illness, type of treatment) that could be significantly associated with patient outcomes (e.g., Street & Voigt, 1997); (2) relatively small sample sizes (e.g., Morris & Royle, 1988, $n = 30$); and (3) limited assessment of patients' health status-studies either assess only a single aspect of QOL, or only utilize global assessments of health, and/or utilize measures that lack psychometric rigor (e.g., Fogarty et al., 1999).

Future research can address such limitations by conducting prospective, longitudinal evaluations of patient–physician interactions using large samples that would be analyzed using multivariate analytical methods. Such cancer studies would, ideally, follow patients from a period close to their diagnosis for a length of time that would allow detection of changes in health outcomes, for example a year. Multiple methods of data collection should be utilized. For instance, during the course of this follow-up period, actual interactions between patients and physicians should be recorded for multiple visits over time. Survey data should be collected, at multiple time points, on patient role preferences, their perceptions of physician behavior as well as their own behavior during visits that were recorded, as well as their overall evaluations of the physician (non-visit specific). Similar data should be collected to assess physician role preferences and perceptions of their behavior and that of the patient (Cegala, McNeilis, McGee, & Jonas, 1995). Patient outcomes assessing several dimensions of QOL should be measured at multiple time points in parallel with data on patient–physician interaction. In addition, relevant organizational/structural as well as patient and physician characteristics (e.g., system of reimbursement: fee for service vs. managed care, physician specialty and training, physician and patient gender, age, ethnicity/race and other cultural indicators, patient education, income, severity of disease, etc.) that are likely to influence the patient–physician interaction as well as

patient outcomes should be measured (Adelman, Greene, & Ory, 2000; Street, 1991).

Such a design will allow for the study of the natural development of the patient–physician relationship and will facilitate the examination of several important research questions that have been raised in prior research but have received inadequate empirical attention, especially in oncology, such as: Do patient role preferences change over time, and if yes, to what extent (Butow et al., 1997)? Does physician behavior vary to accommodate changes in patient role preferences (Stiles, 1989)? Do patients and physicians differ in their perceptions of the interaction and how do these perceptions compare with objective indicators of what actually takes place during the interaction (Cegala et al., 1995)? Does such discrepancy, if any, change over time? Can the relationship between physician behavior and patient outcomes identified by cross-sectional studies be detected in the context of longitudinal designs? Do observational and perceptual measures of physician behavior differ in their relationship with patient outcomes (Blanchard et al., 1990)? Does the strength of the relationship between physician behavior and patient outcomes vary with patient role preferences (Arora, 2000)? Does congruence between physician and patient role preferences lead to better patient outcomes (Krupat et al., 2000a)?

An issue that such evaluations might need to address is one of multiple providers. There is growing evidence that specialists and generalists working together provide the best care for chronically ill patients (Ayanian, 2000). For patients cared for by a single physician for most of his/her care, be it a generalist or a specialist, longitudinal evaluations would focus on that patient–physician dyad. However, several questions arise where both the primary care physician and the specialist may contribute significantly to the care of the patient. For example, should studies focus on recording and analyzing the interactions of the patient with one physician or the other, or both? What are the implications for the assessment of perceptual measures of physician behaviors: should the patients be asked to rate each physician separately or should they be asked about their overall impression of the physicians who care for them? How should data be analyzed: combine the scores for both physicians or treat them separately? These issues are even more relevant in cancer care as during the course of cancer treatment a patient is likely to have significant interactions with several physicians (e.g., a woman with breast cancer could see a surgeon, a radiation-oncologist, and a hematologist/oncologist apart from her primary care physician). Such a potential one-to-many correspondence between a single patient and multiple physicians has not been acknowledged in existing studies and needs to be addressed in future evaluations.

In addition, consistent with the plea of Kreps (2001) to enhance the ecological validity of research, studies of patient–physician communication and patient outcomes should recognize that despite the salience of the patient–physician interaction, outcomes of cancer patients are also likely to be impacted by their interactions with other health professionals such as nurses (Deeny & McGuigan, 1999; Kruijver, Kerkstra, Bensing, & van de Wiel, 2000). Thus, in order to be able to attribute changes in patient outcomes to specific physician behaviors, the design and analysis strategies for future studies may need to adjust/control for the likely impact of non-physician health professionals' communication on those outcomes.

Conclusion

National surveys conducted in the US report that Americans rate communication ability to be one of the most important skills for physicians to have (DiMatteo, 1998). At the same time, surveys also identify a number of issues related to patient–physician communication as key quality concerns of the American public (Davis et al., 2002). It has been suggested that patient–physician communication is often poor as physicians themselves may not know what aspects of their behavior are responsible for ultimate therapeutic effect (Squier, 1990). This paper presented an extensive review on the significance of physicians' communication behavior. Results from empirical studies showed that indeed positive physician behavior is likely to result in significant health benefit to patients. However, studies in cancer care focusing on the relationship between physician behavior and patient outcomes are relatively limited and need to be encouraged. Several limitations of existing research were identified and future studies proposed. It is hoped that such studies will help further our understanding of the dynamics of the patient–physician relationship and lead to improvements in the quality of cancer care and enhanced health outcomes for cancer patients.

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