



DOCTOR-PATIENT COMMUNICATION: A REVIEW OF THE LITERATURE

L. M. L. ONG,¹ J. C. J. M. DE HAES,¹ A. M. HOOS¹ and F. B. LAMMES²

¹Department of Medical Psychology, Academic Medical Hospital, Meibergdreef 15, 1105 AZ Amsterdam, The Netherlands and ²Department of Obstetrics/Gynecology, Academic Medical Hospital, Meibergdreef 9, 1105 AZ Amsterdam, The Netherlands

Abstract—Communication can be seen as the main ingredient in medical care. In reviewing doctor-patient communication, the following topics are addressed: (1) different purposes of medical communication; (2) analysis of doctor-patient communication; (3) specific communicative behaviors; (4) the influence of communicative behaviors on patient outcomes; and (5) concluding remarks.

Three different purposes of communication are identified, namely: (a) creating a good inter-personal relationship; (b) exchanging information; and (c) making treatment-related decisions. Communication during medical encounters can be analyzed by using different interaction analysis systems (IAS). These systems differ with regard to their clinical relevance, observational strategy, reliability/validity and channels of communicative behavior. Several communicative behaviors that occur in consultations are discussed: instrumental (cure oriented) vs affective (care oriented) behavior, verbal vs non-verbal behavior, privacy behavior, high vs low controlling behavior, and medical vs everyday language vocabularies. Consequences of specific physician behaviors on certain patient outcomes, namely: satisfaction, compliance/adherence to treatment, recall and understanding of information, and health status/psychiatric morbidity are described. Finally, a framework relating background, process and outcome variables is presented.

Key words—doctor-patient communication, purposes of communication, interaction analysis systems, communicative behaviors, patient outcomes

1. COMMUNICATION BETWEEN DOCTORS AND PATIENTS: AN INTRODUCTION

Communication between doctors and patients is attracting an increasing amount of attention within health care studies. In the past two decades descriptive and experimental research has tried to shed light on the communication process during medical consultations. However, the insight gained from these efforts is limited. This is probably due to the fact that among inter-personal relationships, the doctor-patient relation is one of the most complex ones. It involves interaction between individuals in non-equal positions, is often non-voluntary, concerns issues of vital importance, is therefore emotionally laden, and requires close cooperation [1]. While sophisticated technologies may be used for medical diagnosis and treatment, inter-personal communication is the primary tool by which the physician and the patient exchange information [2].

Certain aspects of doctor-patient communication seem to have an influence on patients' behavior and well-being, for example satisfaction with care, adherence to treatment, recall and understanding of medical information, coping with the disease, quality of life, and even state of health [3-20].

Interaction and communication are especially important in the case of life threatening diseases, such as cancer. The 'bad news consultation' for instance,

has become an important topic for research during the past decade [21-34]. Recently, researchers of communication have increasingly been paying attention to psychosocial aspects of cancer. For this reason, studies from psychosocial oncology will serve as examples in the following review. The presented literature refers mainly to British, Dutch and American data with cross-cultural references where they are thought appropriate.

To understand more fully why communication between doctors and patients (and cancer patients in particular) is such a powerful phenomenon, it is important to look at:

- (1) the different purposes of medical communication;
- (2) the analysis of doctor-patient communication;
- (3) the specific communicative behaviors displayed during consultations; and
- (4) the influence of communicative behaviors on certain patient outcomes.

2. DOCTOR-PATIENT COMMUNICATION: DIFFERENT PURPOSES

Three different purposes of communication between doctors and patients can be distinguished: creating a good inter-personal relationship,

exchanging information and making treatment-related decisions.

2.1. Creating a good inter-personal relationship

Creating a good inter-personal relationship between doctors and patients can be seen as an important purpose of communication [20, 35–37]. Roter and Hall [20] state that "...talk is the main ingredient in medical care and it is the fundamental instrument by which the doctor–patient relationship is crafted and by which therapeutic goals are achieved". From this viewpoint, a good inter-personal relationship can be regarded as a prerequisite for optimal medical care.

Communication researchers have different opinions on how to define a good interrelationship. Some authors refer to this relationship mainly as a social relationship where 'good manners' are most important. Necessary 'ingredients' are: laughing or making jokes, making personal remarks, giving the patient compliments, conveying interest, friendliness, honesty, a desire to help, devotion, a non-judgemental attitude and a social orientation [9, 10, 36, 38, 39].

Other authors with a more clinical/psychotherapeutic background claim that the importance of a good doctor–patient relationship is determined by its therapeutic qualities. Irwin *et al.* [40] see clinical medicine as communication between two people aiming to establish or sustain an effective working relationship in which mutual trust exists. Many of the concepts used by these psychotherapeutically oriented researchers are based on Carl Rogers' 'client-centered' theory. He distinguished basic 'core conditions' which are crucial to the efficacy of the therapy: empathy, respect, genuineness, unconditional acceptance, and warmth [41, 42]. Even though different authors define empathy in different ways, they agree that this core condition must be considered very important [17, 43]. Empathic doctor–patient relations consist of: eliciting feelings, paraphrasing and reflecting, using silence, listening to what the patient is saying, but also to what he is unable to say, encouragements and non-verbal behavior [44–48].

A closely related school of thought is represented by the so called 'patient-centered' method. Here, the doctor–patient relationship is viewed as egalitarian, as is the case with the client-centered method. It is defined in terms of doctors' responses which enable patients to express all their reasons for coming, including symptoms, thoughts, feelings and expectations [49]. The key to this approach is 'attention to these dimensions, the goal is to follow patients' leads, to understand patients' experiences from their point of view' [50]. The ideal medical interview integrates the patient-centered and physician-centered approaches: the patient leads in areas where he is the expert (symptoms, preferences, concerns), the doctor leads in his domain of expertise (details of disease, treatment) [51]. This is consistent with

what Levenstein *et al.* [52] call 'reconciling the two agendas'. This type of relationship is similar to what Roter and Hall [20] call 'mutuality', which is one of the four prototypes of doctor–patient relationships distinguished by them. Exchanges in which the doctor facilitates patient participation, and exchanges which reflect the doctor's role as an interpreter and synthesizer, comprise 10% of physician talk [53]. Roter *et al.* [53] point out that 'little attention has been given to these kind of statements in the literature, but they may be critical markers for a relatively more egalitarian exchange...'. The growing number of publications concerning 'shared decision-making' can be seen as a result of a growing interest in doctors and patients as equal 'partners' in the relationship.

2.2. The exchange of information

Another main purpose of medical communication is promoting the exchange of information between the doctor and the patient [53, 54]. Information can be seen as a resource brought to the verbal interactions by both parties [55]. The exchange of information consists of information-giving and information-seeking [37].

From a medical point of view, doctors need information to establish the right diagnosis and treatment plan. From the patient's point of view, two needs have to be met when visiting the doctor: 'the need to know and understand' (to know what is the matter, where the pain comes from) and 'the need to feel known and understood' (to know the doctor accepts him and takes him seriously). In order to fulfil doctors' and patients' needs, both alternate between information-giving and information-seeking. Patients have to impart information about their symptoms, doctors need to actively seek out relevant information. Once the diagnosis and treatment plan has been established, doctors have to efficiently impart this information to their patients. Patients' 'need to know and understand' may lead to additional information-seeking about what has just been told.

Although patients almost always want as much information as possible, physicians seem to underestimate patients' desire for information. Several studies report that where cancer is concerned, the need for information is especially great [1, 7, 26, 27, 56–61]. Blanchard *et al.* [57] for example, found that 92% of the interviewed cancer patients desire all information about their disease, good or bad. Much of cancer patients' dissatisfaction with the exchange of information stems from a lack of concordance between the perceptions of patients and doctors [1]. When informing cancer patients about their disease, doctors may define medical information objectively (type of disease, its stage, type of treatment) while patients define it in terms of its personal relevance (will I fully recover? how much pain will I have?). As a result, the physician may feel he has given precise and relevant information, the patient on the other hand may

feel he has learned nothing new [1]. A recent study showed that 47% of cancer patients reported that no information had been given about handling of their disease, although the majority desired such information [62]. Physicians should therefore first encourage their patients to discuss their main concerns without interruption [63].

Also, doctors should strive to elicit patients' perceptions of the illness and the feelings and expectations associated with the disease in order to achieve effective exchange of information [50, 52].

2.3. Medical decision-making

Another purpose of medical communication is to enable doctors and patients to make decisions about treatment. Traditionally the ideal doctor-patient relationship was paternalistic: the doctor directs care and makes decisions about treatment. During the past two decades, this approach has been replaced by the ideal of 'shared decision-making' [1, 55, 58, 60, 64]. It appears logical that in order to make such decisions, patients need information. The relationship between medical decision-making and patients' informational needs has received much attention. For example one study indicated that patients suffering from various chronic diseases expressed a strong desire for medical information. However, the same patients also placed responsibility for medical decision-making by their doctor [55]. As noted earlier, the desire for information about diagnosis, prognosis and treatment is especially great among patients who suffer from a life-threatening disease [1, 7, 27, 56-58, 65]. Again, several studies point in the direction of relative independence between the need for information and shared decision-making. Blanchard *et al.* [57] found that the majority (92%) of hospitalized adult cancer patients preferred all possible information to be given (either good or bad) but only 69% preferred to participate in treatment-related decisions. Of those wanting all the information, almost one fourth preferred a more authoritarian relationship with their oncologist. Results from a similar study showed a trend toward increased information-seeking with increased preference for participation in treatment decisions. Many of the interviewed cancer patients actively sought information, however, 63% felt the doctor should take primary responsibility in the decision-making process. Only 10% felt that they themselves should have major involvement [58]. Another recent study indicated that women who are newly diagnosed with breast cancer prefer to entrust control over treatment decisions to their physician [66].

Fallowfield *et al.* [67] explain the difficulty in giving cancer patients responsibility for medical decisions; it could be that patients will then also assume responsibility for the outcome of treatment. If the disease recurs, patients may feel that they have made 'the wrong choice'. They suggest that what many cancer patients probably want, rather than the ultimate

decision on treatment, is more adequate information as to why the physician recommends one treatment over another.

Medical decision-making seems especially difficult where clinical trials are concerned. In a study by Siminoff [59] it was found that 82% of breast cancer patients made final decisions about the treatment. Doctors were very clear about their own treatment preferences. Overall, patients followed these recommendations. However, only 45% of the trial-eligible cancer patients chose to enter offered trials. It appears that physicians do not communicate recommendation for clinical trials as effectively as non-trial treatments. Especially information about specific benefits of the trial was lacking. In a later study, Siminoff [60] found that patients who did not accept their doctors' recommendation received more detailed information about the benefits of the treatment and rated side-effects to be both more probable and severe. They also felt that their physician appeared less sure about the treatment recommendation. Nevertheless, results indicated that breast cancer patients will rely heavily on their doctors to make therapeutic decisions [60].

However, before patients decide whether or not to share decision-making power, they must first be *offered* the choice of participation by their doctors. Physicians' willingness to offer a trial to eligible patients and share responsibility for medical decision-making seems to be related to a clearly defined set of attitudes and beliefs that determine future behavior [68]. More specifically, a distinction can be made between so called 'therapists' and 'experimenters', with the majority of physicians (71%) falling in the first category.

These 'therapists' are reluctant to enter their eligible patients and wish to preserve the role of physician as responsible for primary decision-making. 'Experimenters' on the other hand, prefer to share decision-making power with their patients. They view doctors' loss of personal decision-making in a clinical trial as a prerequisite for pure scientific research [68].

3. ANALYSIS OF DOCTOR-PATIENT COMMUNICATION

Several so called 'interaction analysis systems' (IAS), also called observation instruments, have been developed to analyze the medical encounter. Systematic analysis of this encounter can be defined as the methodic identification, categorization and quantification of salient features of doctor-patient communications. The rationale for this analysis, suggested by the literature on this subject, is that aspects of these interactions can modify important components of the health care process [69]. On reviewing the relevant literature, several interaction analysis systems can be identified (Table 1). An underestimated problem in research on doctor-patient communication is the influence of a-theoretical decisions on concrete

research. The choice of an interaction analysis system is a good example. Such a system is often chosen because of its availability and/or proven high reliability, and thus without much further thought [37]. However, the choice and characteristics of an interaction analysis system are critical to the nature and utility of research findings.

Two types of interaction analysis systems can be identified: 'cure' systems which are meant to capture the instrumental (task focused) behavior, and 'care' systems which are meant to measure affective (socio-emotional) behavior [37]. These two types of systems reflect patients' need for cure and care when visiting a doctor: 'the need to know and understand' (cure) and 'the need to feel known and understood' (care). The Bales' Interaction Process Analysis, where the accent lies on information exchange, can be considered as a cure system [37].

The Patient-Centered Method [16] can be seen as an example of a more care oriented system. Many medical problems, however, cannot be solved by either instrumental or affective behavior. An interaction analysis system which attempts to capture both types of behavior, such as the Roter Interaction Analysis System, seems most realistic. Besides the cure-care distinction, observation instruments differ from each other with regard to their clinical relevance (is the system specifically designed for analysing communication in the medical setting?), observational strategy (coding from video-, audio-tape, direct observation or literal transcripts?), reliability/validity, and channels of communicative behavior (applicable to verbal, non-verbal behavior or both). Table 1 shows the differences between twelve interaction analysis systems.

4. SPECIFIC COMMUNICATIVE BEHAVIORS

Besides the different purposes of communication and ways of analyzing medical encounters, different communicative behaviors can be identified. Research into these behaviors is important because it is yet unclear if patients can discriminate between different physician behaviors, e.g. instrumental and affective communication. Some studies show that patients judge competence mainly by their doctor's technical behavior [9, 12, 36], other study results indicate that patients base their evaluation of the doctor's performance on the quality of the inter-personal skills [73]. In studying these specific behaviors, researchers can also gain insight in the influence of these behaviors on patients' behavior and well-being [20]. As a result, specific recommendations for improving communication in the medical setting can be formulated.

4.1. Instrumental (task focused) vs affective (socio-emotional) behavior

In medical communication, one important distinction is that between instrumental or task focused-

behavior (cure oriented) on one hand and affective or socio-emotional behavior (care oriented) on the other. The first type belongs to the cognitive, the second to the emotional domain [37]. Both types of behaviors are integrated into the role functions of the provider. Instrumental behaviors can be defined as "technically based skills used in problem solving, which compose the base of 'expertness' for which the physician is consulted" [36]. Affective behavior has been defined in different ways by different authors; e.g. 'verbal statements with explicit socio-emotional content, ratings of the affect conveyed in voice quality and counts of speech errors indicative of anxiety' [36], 'behaviors directed by the doctor toward the patient as a person rather than as a case' [35], or 'behaviors designed to establish and maintain a positive relationship between the doctor and his patient' [10].

Communication researchers have used different ways of measuring instrumental and affective behavior. Instrumental utterances include behaviors like giving information, asking questions, counselling, giving directions [75], identifying future treatment or tests, discussing side effects of tests or treatment, discussing test results with patient [73], specifically discussing tumor size, explaining reasons for treatment or nontreatment, explaining concept of micrometastatic disease [59]. Affective utterances consists of items like: very encouraging, very relaxed, extremely friendly, open and honest [10], showing concern, giving reassurance, showing approval, showing empathy [75], introducing self to patient, addressing patient by first name, providing verbal support, touching patient, engaging in small talk [73]. An interesting finding in Blanchard's study was that 'addressing the patient by name' was the most frequently observed type of behavior. It occurred in 71.8% of all interactions [73].

When one reviews the literature it appears that much attention has been paid mainly to instrumental focused-exchange.

Especially information-giving and information-seeking by doctors and patients has been a topic for research the past decade. Physicians' contribution to the medical dialogue is 60% (average amount), patients contribute only 40% to the conversation [53, 78]. In an overview of the literature on doctor-patient communication, Roter *et al.* [53] report that question-asking by physicians accounts for 23% of the interaction and is therefore the second most frequent kind of exchange for physicians. It usually takes place during history-taking. The questions asked are mostly closed-ended; a 'yes' or 'no' answer is expected. A meta-analysis done by Roter *et al.* [53] revealed that in reviewing physician communication, information-giving is most frequent: 35.3% of all interactions. Waitzkin [79] however, found that doctors spend very little time giving information to the patients—a little more than 1 min in encounters lasting about 20 min. Oncologists even deliberately withhold information from their patients on the

Table 1. Interaction analysis systems

Interaction analysis system	What does it measure?	Clinical relevance	Observational strategies	Inter-rater reliability (I.R.R.), validity	Channels of communicative behavior
Bales' Interaction Process Analysis.	Interaction, information-exchange between participants. Focus on instrumental behavior.	Not specific to clinical situation. Developed for research in small group discussions (problem-solving behaviour).	Usually literal transcripts from audiotapes (or direct observation, videotape).	I.R.R. = 0.91 [6]. Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Brown University Interpersonal Skill Evaluation (BUISE) [70].	Surgeons' interpersonal skills, appropriateness of physician's behavior for a particular clinical encounter.	Specific to clinical situation; interaction between surgeons and patients.	Coding from videotapes.	I.R.R. = 0.91. Criterion validity = 0.36. Concurrent validity ranging from 0.23 to 0.74 depending on time intervals.	Applicable to verbal and non-verbal behavior.
Interaction Analysis by Maguire <i>et al.</i>	Interaction interviewer-patient. Focus on key interviewing behaviors which are thought to facilitate disclosure of patients' concerns.	Specific to interaction with cancer patients.	Coding via transcripts prepared from audiotapes.	I.R.R. ranging from 0.81 to 0.91. Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Katz' Resource Exchange Analysis (REA).	Interpersonal behavior in terms of exchanges of 'resources' (e.g. information, attention, explanation). Also categorizes 'mode' of exchange: 'initiating' or 'responding'.	Resource categories derived from clinical setting: high degree of clinical relevance.	Direct observation or transcripts.	Reliability/validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Maastricht History-Taking and Advice Checklist [71].	Physicians' interviewing skills during initial interviews in primary health care.	Specific to clinical situation.	Coding from direct observation (or videotape).	I.R.R. ranging from 0.70 to 0.90. Validity described elsewhere [see 84].	Applicable to verbal and non-verbal behavior.
Medical Communication Behavior System (MCBS) [72].	Time spent by physicians and patients on specific behaviors in categories of informational, relational and negative situation behaviours.	Specifically designed for assessing communication that occurs in (stressful) situations involving multiple health-care providers and family units.	Coding directly from audiotape, using a hand-held electronic data-storage device. Also video or live observation.	I.R.R. = > 0.70. Concurrent validity is high. Some evidence of construct- and predictive validity.	Applicable to verbal and non-verbal behavior.
Observer Checklist (OC) [50, 60]	Discussion of specific treatment-related topics as doctor or patient initiated, or not having occurred at all (based on PBCL).	Specific to interaction with cancer patients (discussion of treatment).	Coding directly from audiotape (or videotape).	I.R.R. = 0.88. Validity could not be retrieved.	Specific to verbal behavior.
Patient-Centred Method [16].	Assessing doctor-patient interaction in terms of its patient-centredness.	Specific to clinical situation.	Coding directly from audiotape or direct observation.	I.R.R. = 0.91. Intra-R.R. = 0.88. Criterion validity = 0.51 and 0.89.	Restricted to verbal behavior.
Physician Behavior Checklist (PBCL) [57, 73, 74].	Occurrence of specific oncologists' behaviors during brief doctor-patient encounter (morning rounds).	Specific to interaction with cancer patients.	Coding from direct observation (or videotape).	I.R.R. ranging from 0.85 to 1.00 (mean 0.95). Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Rotter's Interaction Analysis System (RIAS) [75].	Doctor-patient interaction during medical consultations.	Specifically modified for the clinical setting (based on Bates' system).	Coding directly from audiotape (or videotape).	I.R.R. = 0.81 [9]. Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Stiles' Verbal Response Mode (VRM).	Language behavior implying interpersonal intent between communicator and recipient.	Not specific to clinical situation.	Coding via transcripts prepared from audiotape.	I.R.R. = 0.78 [76]. Validity could not be retrieved.	Applicable to verbal behavior only.
Observation System for Analyzing Interaction Between Doctors and Cancer Patients [77].	Communication between cancer patients and oncologists. Emphasis on occurrence of relevant topics, topic as being doctor or patient initiated, frequency of question-asking.	Specific to interaction with cancer patients.	Coding directly from audiotape.	I.R.R. ranging from 0.49 to 0.78 (mean 0.65). Validity could not be retrieved.	Applicable to verbal behavior only.

assumption that total disclosure will cause strong negative emotional reactions on the side of the patients [1, 29, 30, 80]. Support for this behavior is provided by the fact that topics concerning the emotional state of the patient (together with economic matters) are the least often discussed [59].

Holland *et al.* [81] investigated cultural differences in physician attitudes and practice regarding the revealing of a cancer diagnosis. The word 'cancer' was commonly substituted for words such as 'growth', 'blood disease' or 'unclean tissue' [81]. Also, oncologists from eight different countries estimated that a low percentage (<40%) of their colleagues revealed the word cancer (e.g. Africa, France, Japan, Spain). Twelve percent of the oncologists surveyed believed that disclosure of a cancer diagnosis had negative psychological consequences, such as depression or anger [81].

Doctors may also feel reluctant to fully inform cancer patients because of their own negative emotions which may come into play [22, 80]. It seems that "doctors need to learn to handle their own anxieties and uncertainties about cancer in a way that does not hinder the physician-patient communication" [80].

A recent study carried out by Street [2] however, revealed that the amount of information physicians give to their patients may be influenced by features of patients' communicative styles and personal characteristics. More specifically, patients who asked more questions, expressed more concerns, and were more anxious received more information than patients asking fewer questions, expressing fewer concerns and showing less anxiety.

Studies have also focused on patients' attribution to the medical visit. Roter [78] found that >50% of patients' attribution to the interaction consists of information-giving. However, much of this occurs in response to questions asked by their doctors. Findings on the information-seeking behavior of patients are somewhat inconsistent. Several studies have reported patients' reluctance to ask questions [82]. For example Roter [78] states that only 6% of the interaction involves patient question-asking. However, Sutherland *et al.* [58] found that in general, cancer patients were active in obtaining information as indicated by fairly high scores on the 'Information-Seeking Questionnaire', which included an assessment of active information-seeking. The frequency with which patients ask questions seems to be strongly related to the prevalence of doctors' information-giving behaviors. This finding coincides with Waitzkin's results [79] which show that female patients tended to ask more questions and also received more information from their doctors. Not many studies have focused on identifying factors influencing whether patients verbally attempt to get information from their doctors. However, recent research has indicated that patient information-seeking behaviors were more directly associated with

situational or socio-demographic factors [55]. Also, a longer interaction may be necessary for patient attitudes regarding desire for information (and participation in medical decision-making) to manifest themselves in actual information-seeking behaviors [55].

Although different descriptions and ways of measuring are being used for instrumental and affective behaviors, researchers agree about the importance of both in medical communication [7, 37]. There does not appear to be much consensus about the relative importance of both types of behavior. Some studies report that patients are not able to distinguish between both types of physician behavior, and as a result assess their doctor's performance on his/her affective qualities [10, 35]. Others report predominance of instrumental over affective behaviors, and claim that patients can and do discriminate between the two [9, 12, 36]. This lack of consensus could be due to the fact that different studies use different criteria for assigning physician communication to either the instrumental or affective dimensions. Roter *et al.* [9] mention the lack of distinction between the 'intrinsic character of a communication' and its 'affective significance' for the recipient. For example, information-giving in itself is not an affective behavior, it may however fulfil an emotionally supportive function for the patient [9]. Instrumental behavior can take on affective significance in two ways: through conveyance (e.g. voice quality), and through interpretation i.e. the impression created for the receiver of a communication [9, 78].

The above discussion of both types of behavior may lead to the preliminary conclusion that these may well be false dichotomies. The fact that Hall *et al.* [36] believe that all 'face-to-face' behavior carries affective content, even behavior which appears neutral or task oriented, seems to underline this conclusion.

4.2. Verbal vs non-verbal behavior

Researchers have long focused on the verbal components of the medical interview, and in doing so, neglected non-verbal communication between doctors and patients [4]. Affective behavior however, cannot always be verbally perceived. Only 7% of the emotional communication is conveyed verbally; 22% is transferred by voice tone; but 55% is transferred by visual cues, like eye contact, body positioning, etc. [37].

Non-verbal behavior has been operationalized in different ways. Tone of voice, gaze, posture, laughter, facial expressions, touch and physical distance are thought to convey the emotional tone of interpersonal interaction [3, 4, 18, 47, 83, 84].

Despite increased attention in this area, there are not many studies that use a systematic approach to coding non-verbal interaction. An exception to this is an investigation by Larsen and Smith [4], who use Mehrabian's classification. When empirical

studies do involve non-verbal communication in their classification schemes, they often consist of just one or sometimes two or three behaviors, e.g. physical proximity, time spent on chart reviewing [3], the proportion of time the doctor looks at the patient, shows interest [18], sits down while talking to the patient or touches the patient [57, 74].

Friedman [85] explains why patients are very sensitive to and observant of the non-verbal communications conveyed by their doctors. Illness usually involves emotions such as fear, anxiety and emotional uncertainty. As a consequence, patients will look for subtle cues to find out what they ought to be feeling and/or thinking. Also, most patients are active in searching for information about different aspects of their disease (severity, course, prognosis). Non-verbal communication 'leaks' messages that are not meant to be transmitted [47]. Patients are very sensitive to these messages, and to inconsistencies between physicians' verbal and non-verbal communication [43, 85]. These inconsistencies can be seen as a 'lack of genuineness', one of the 'core conditions' necessary for a good interpersonal relationship according to the client-centered approach.

4.3. Privacy behaviors

In reviewing the literature on doctor-patient communication, little attention has been devoted to privacy, which can be considered as a relevant aspect of the physician-patient dyad. Besides physicians' handling of personal patient files, privacy encompasses more than so called 'informational privacy'. Three other sorts of privacy can be distinguished: psychological, social and physical privacy [86].

Psychological privacy entails a patient's 'ability to control affective and cognitive inputs and outputs, to think and form attitudes, beliefs or values, and the right to determine with whom and under what circumstances [the patient] will share thoughts and feelings or reveal intimate information' [86]. However, asking personal questions and revealing intimate information is unavoidable if the doctor wants to establish an effective diagnosis and treatment. The extent to which physicians communicate in a more aggressive, high-control style, may be perceived by patients as violations of their psychological privacy.

Social privacy extends beyond informational and psychological privacy and includes the patient's "ability and effort to control social contacts in order to manage interactions or maintain status divisions" [86]. The degree of formality in a situation as well as how personal the conversational topics and language are define social privacy [85]. Doctors' behavior during patient examinations are governed by societal norms; it appears that during medical interactions less social privacy is desired. Sustained eye contact, for example, may be perceived by the patient as too

intimate for the relationship, thus violating norms in the medical context.

Physical privacy concerns the extent to which a patient "is physically accessible to others" [86]. Obviously, during medical examinations patients have very limited physical privacy; intimate touch is unavoidable and necessary. Some physician behaviors have been identified by patients as violations of physical privacy: watching a patient while getting ready for an examination, touching the patient unexpectedly, overhearing intimate conversation or activity [86]. Studies, however, show contradictory results concerning patients' appreciation of physicians' touch [4, 87]. Physical privacy can be seen as an important element of non-verbal communication and can have a large impact on the quality of the inter-personal relationship between doctors and patients.

4.4. High vs low controlling behaviors

Several researchers mention physician vs patient controlling behaviors as important aspects of medical communication [10, 13, 70, 88, 89]. Stewart and Roter [89] state that "the most common forms of the doctor-patient relationship exist on a spectrum of high and low control". If there is high physician control (and low patient control), he will be dominant in the relationship, meaning that the doctor will make decisions in what he perceives to be the patient's best interest. This type of relationship is similar to what Roter and Hall [20] call "paternalism", one of the four prototypes of control in the doctor-patient relationship. Stewart and Roter [89] note that the traditional form, where the doctor has high control, is still the most common one in medical practice. This type of 'doctor-centered' relationship can be regarded as the opposite of the 'patient-centered' relation, which is more egalitarian.

Platt and McMath [88] use the term "high control style" as an example of "clinical hypocompetence" in internal medicine. It involves behaviors such as asking many questions and interrupting frequently. This way the doctor keeps tight control over the interaction and does not let the patient speak at any length.

'Control' was used by Kaplan *et al.* [13] as one of three categories for classifying doctor-patient communication. An utterance is classified in the control category when it is aimed at controlling the behavior of the other party. They distinguish three patterns which describe all conversation during the consultation, including 'physician direction' (questions, interruptions, etc. by the doctor), 'patient direction' (questions, interruptions by the patient) and 'affect/opinion exchange'. The first two patterns include controlling behaviors.

Buller and Buller [10] state that there are two general styles displayed by physicians during medical visits: affiliation (affective behavior) and control. Control "includes behaviors that establish

and maintain the physicians control in the medical interaction”: dominating conversations, verbally exaggerating to emphasize a point, dramatizing, being very argumentative, constantly making gestures when communicating.

It appears that the difference in control in medical communication may stem from the patient’s limited understanding of medical problems and treatment, heightened uncertainty, doctors’ control of medical information, and the institutionalized roles prescribed for the doctor and the patient [35, 83].

4.5. *Medical vs everyday language vocabularies*

Despite the substantial body of research describing doctor–patient communication which has accumulated in the past two decades, relatively little attention has been devoted to the vocabulary adopted during medical consultations. Vocabulary can be seen as an ‘ingredient’ of the communication process, active during all doctor–patient interactions.

Doctors are bilingual: they speak their native everyday language (EL), but they are also fluent in medical language (ML). Patients are typically unfamiliar with ML and are only conversant in their everyday language. Communicative norms should favor strategies that maximize communicative effectiveness between health professionals and their patients [90]. Thus it can be expected that when communicating with their patients, physicians switch from ML to EL. On the other hand, patients may have some basic understanding of ML, and might attempt to use it for the sake of communicative effectiveness. Bourhis *et al.* [90] found that physicians reported switching to EL when communicating with their patients. However, patients and nurses did not perceive this. Patients reported attempting to switch to the ML of the health professional; doctors however, did not report a change in patients’ vocabulary register. The use of ML by physicians was regarded as a source of problems for patients, while EL was seen to promote better understanding. When discussing medical issues with their patients, it may be difficult for doctors to clearly differentiate between the two vocabularies.

Hadlow and Pitts [91] examined the understanding of common health terms by doctors, nurses and patients. The results of this survey showed that clear differences of understanding of common medical and psychological terms exist between doctors, nurses, other health care professionals and patients. The level of correct understanding was highest for physicians (70%) and lowest for patients (36%). The widest gap in physician–patient understanding was with respect to common psychological terms, e.g. depression, migraine, eating disorders. Terms like these are often used in doctor–patient interactions. However, they appear to have both a clinical and a lay meaning, constituting a basis for misunderstanding. This could lead to patient dissatisfaction and perhaps non-adherence to treatment advice [91].

5. THE INFLUENCE OF COMMUNICATIVE BEHAVIORS ON PATIENT OUTCOMES

Besides identifying and analyzing communicative behaviors, communication researchers have become interested in the consequences of ‘talk’. Several physician behaviors seem to have an influence on patients’ behavior and well-being. So called ‘patient outcomes’ have been used in health care studies to assess the extent of this influence. ‘Outcome’ as it is used in health care studies can be defined as “an observable consequence of prior activity occurring after an encounter, or some portion of the encounter, is completed” [15]. Many different patient outcomes have been identified for use in the past two decades, for example satisfaction, compliance (adherence to treatment), knowledge, understanding, coping, quality of life/health status, recall, psychiatric morbidity (anxiety, depression), recovery. Some of the frequently used outcomes which seem to be indicators of the effectiveness of doctor–patient communication will be discussed below.

5.1. *Patient satisfaction*

Patient satisfaction as outcome measure is by far the most recognized and widely used. This has to do with the fact that it has a “logical and intuitive appeal” [13].

Yet patients are frequently dissatisfied with the information they receive [62, 82]. Also, the proportion of dissatisfied patients has remained remarkably constant over the past 25 years [92–94]. The median % dissatisfied for hospital patients is 38, for general practice and community samples it is 26, and for psychiatric patients it is 39% [82]. This is partly due to the fact that physicians often underestimate patients’ desire for information. In 65% of the encounters doctors underestimated patients’ desire for information, in 6% they overestimated, and in 29% they estimated correctly [79]. In a recent study by Castejón *et al.* [62] results showed that 52% of the interviewed cancer patients reported desire for additional information, especially about prognosis, treatment and handling of their disease.

Studies have investigated the impact of instrumental and affective behaviors on patient satisfaction. Roter *et al.* [9, 78] found that doctors’ instrumental behaviors, especially doctors’ information-giving, were significantly related to patient satisfaction. Doctors’ affective behaviors showed weaker relationships to satisfaction. Smith *et al.* [3] also found that higher levels of information-giving by the doctor, time spent in discussion of preventive care by the doctor, and greater interview length were positively associated with patient satisfaction. Increased time spent in patient chart review led to decreases in satisfaction. Buller and Buller [10] predicted a positive association between physicians’ expression of affective behavior and patients’ satisfaction with

health care. This hypothesis was supported. Doctors who behaved in a more dominant, controlling style of communication produced less patient satisfaction. Bensing [18] also concludes from her study that affective behavior (especially non-verbal behavior: eye contact, shown interest) appears to be the most important factor in determining patients' satisfaction.

Another investigation examined interactions between oncologists and cancer patients during morning rounds [73] and the impact of these behaviors on cancer patient satisfaction [74]. Overall, using the patient's first name, attempting to establish privacy during an examination, a series of routine social skills (e.g. sitting down while talking to the patient, not interrupting), identifying future tests/treatments, and discussing plans for discharge were physician behaviors associated with higher satisfaction.

Other studies have investigated the relationship between doctors' patient-centered behaviors and patient satisfaction [8, 16]. Patient-centered care was defined as care in which the physician responded to patients in such a way as to allow him/her to express all of the patient's reasons for coming, including: symptoms, feelings, thoughts and expectations [16]. Although in both studies no significant relationships were found, the consultations with patient-centered scores in the highest quartile had the greatest percentage of patients highly satisfied [16]. Significant results were found in relation to outcomes such as patients' reported compliance (subjective measure) patients' feeling of being understood, resolution of patient concerns and the doctor having ascertained patients' reasons for coming [8]. These findings coincide with the results obtained by Like and Zyzanski [11] who found that when patients' requests are met, it increases their satisfaction with the medical encounter.

Larsen and Smith [4] studied the relationship between doctors' non-verbal activities and patient satisfaction. A higher non-verbal score in overall doctors' 'immediacy' (degree of closeness in interactions) was associated with higher patient satisfaction. An interesting finding was that physicians' touch was associated with lower satisfaction. It is possible that touch was perceived by the patients as a violation of their physical privacy. In Scarpaci's study [87] however, being touched by the physician was frequently cited by Chilean patients as a reason why they believed that the care they received was good. Apparently, cultural differences play a role.

5.2. Patient compliance/adherence to treatment

Patient compliance is also a widely used outcome, and is considered an indicator of the effectiveness of physician-patient communication.

However, unlike patient satisfaction study results do not indicate a clear association between

doctor-patient interaction and subsequent patient compliance. Where cancer patients are concerned, lack of information may lead to exploration of alternative cancer treatments [95]. The fact remains that patients often fail to follow medical advice. The average percentage of patients likely to be non-compliant seems to be between 40 and 50% [82].

Siminoff and Fetting [60] examined the communicative factors influencing cancer patients' acceptance or rejection of an oncologist's treatment recommendation. Patient decisions were most strongly influenced by the oncologist's recommendation (80% readily accepted). The small minority who did not accept their doctor's recommendation (20%) were told in more specific terms what the benefits of treatment would be. These patients also rated side effects to be more probable and severe, and assessed their doctor's recommendation as less strong.

Carter *et al.* [5] found a positive relationship between 'sharing opinions' and 'patient knowledge about illness', and subsequent adherence to medical recommendations. In an overview of Roter's meta-analysis [78] it was shown that compliance was weakly related to physician behavior. Compliance was only associated with more information-giving and positive talk. Compliance was negatively related to doctors' question asking and negative talk.

Stewart [8] examined physicians' patient-centered behaviors, namely those in which the patients' points of view are actively sought by the physician. Results demonstrated that a high frequency of patient-centered behavior was related to higher reported compliance. It did not however have an effect on objectively measured compliance, namely better pill counts.

5.3. Patient recall and understanding of information

Other outcome measures used to assess the quality of the doctor-patient relationship are patients' recall and understanding of information. Review of the literature suggests that patients often do not recall or understand what the doctor has told them. In an overview of three different investigations, it was shown that the percentage of general practice patients not understanding what they were told about the diagnosis varies between 7 and 47%. Between 13 and 53% of these patients did not understand what had been told about the prognosis of the disease [82]. Smith *et al.* [3] found that close physical proximity increased patient understanding. Larsen and Smith [4] also found that a higher score in overall physician immediacy (degree of closeness in interaction, such as leaning forward) was associated with higher understanding. More touching on the other hand, led to lower scores in understanding the information given. Besides physical closeness, understanding was significantly related to the amount of time spent by the doctor on providing information and medical opinions. Increased chart reviewing led to decreases

in patient understanding, possibly because this activity interferes with making eye-contact and communication in general.

Apart from not understanding the information imparted, patients are often unable to recall a great deal of what they are told in a consultation. Well known phenomena in communication studies are the so called 'primacy' and 'recency' effects, in which either the first (primacy) or last (recency) communications are the most salient and therefore remembered best. It is often stated that in order to improve patient recall of orally presented information the most important information, such as the disclosure of bad news, should be presented first [97, 24]. Still the fact remains that the percentage recall of information by hospital patients varies between 40 and 80% [82]. When the information is particularly upsetting, like hearing the diagnosis of cancer, most patients are too stunned to register any further information given to them [26, 31, 33, 34, 80].

As a consequence, cancer patients often feel they lack information, which in turn can lead to feelings of uncertainty, anxiety, depression [7, 27, 67, 96].

Other studies have investigated the effects of doctors' instrumental and affective behaviors on patient recall. Roter *et al.* [9] found that especially the amount of medical information imparted was highly associated with recall. Affective behaviors were more weakly related. Possibly, the relative absence of medical information, not the presence of affective behavior *per se* led to poorer recall. In a meta-analysis of the literature, recall of information was best predicted by doctors' information-giving behaviors [78].

5.4. Patients' health outcomes/psychiatric morbidity

Recently researchers have been increasingly interested in the question whether outcomes like patient satisfaction, compliance, recall etc. are sufficient measures for assessing the effectiveness of the doctor-patient relationship. If the ultimate aim of medical care is to produce optimal health outcomes then, ideally, effective doctor-patient communication should lead to the better health of patients. Patient satisfaction, compliance and other widely used outcomes, do not necessarily address the patients' health status. For example, patients may be satisfied with inadequate health care, and strict adherence to doctors' treatment recommendations does not always guarantee better health. However, health status or quality of life as patient outcomes are least used in empirical studies of doctor-patient relationships [14].

Kaplan *et al.* [13] investigated the relationship between specific aspects of physician-patient communication and 'better health' measured physiologically (blood pressure or blood sugar), behaviorally (functional status) and more subjectively (patients' perception of overall health status). The results showed that more patient and less physician con-

trolling behaviors (questions, interruptions), more affect (particularly negative affect expressed by doctor and patient), more information-giving by physician in response to effective information-seeking by the patient were related to better patient health status.

These findings suggest that the physician-patient relationship may have important consequences for patients' health outcomes. The authors conclude that the doctor-patient relationship can be seen as a primary bond that may act as a form of social support. "Physician behaviors that reinforce patients' self-confidence, motivation, and positive view of their health status may therefore indirectly influence patients' health outcomes" [13].

Psychiatric morbidity can be regarded as closely related to health status and quality of life. It is an outcome measure frequently used in psychosocial oncology studies. Lack of information seems to play an important role in psychological difficulties that can arise during the diagnosis and treatment phase of cancer, such as uncertainty, anxiety, depression and problems with coping [7, 28, 61, 67, 80, 96, 98]. A recent study by Castejón *et al.* [62] indicated that the most depressed and anxious cancer patients reported desire of additional information. Another study showed that breast cancer patients who thought they had received inadequate information were twice as likely to show signs of psychiatric morbidity (depression, anxiety) 12 months after the operation, compared to those patients who claimed to have been adequately informed [67].

6. CONCLUDING REMARKS

During the past three decades there has been a shift of attention from the biomedical side to the humanistic side of medicine. Fortunately, the realization that these two domains of medicine are of equal importance is becoming widespread. Despite the growing interest for a more biopsychosocial model of medicine, the former is still considered as 'science', whereas the latter is regarded more or less as 'art'. Being a multifaceted and multidimensional phenomenon, the doctor-patient relationship is one of the most complex social relations [1, 37] and therefore an especially difficult topic for research. In their efforts to understand this relationship, social scientists have focused on different aspects of the doctor-patient interaction. As a result, knowledge gained from research is not well integrated.

Where doctor-patient communication is concerned, several variables can be identified. These will be discussed below.

6.1. Background variables

Several background variables seem to play an important role in doctor-patient communication. First, wide *cultural variations*, and even widely disparate differences within a culture exist, regarding

doctor-patient communication [81, 87]. Studies show that cultural differences exist concerning for instance the beliefs about the elements of good medical care. What constitutes 'good medical care' is "determined culturally within a specific historical and geographic context" [87].

Secondly, patients, physicians and social scientists have different opinions of the *doctor-patient relationship*. Some consider this relationship as a prerequisite for optimal medical care—creating an egalitarian relationship becomes a goal in itself. This type of relationship can be described best by, as Roter and Hall phrase it, "mutuality" or "patient-physician partnership" [20]. Others have a more pragmatic viewpoint and see the doctor-patient relationship more as a 'means to an end'—the relationship makes it possible to establish the right diagnosis and treatment plan. Here the doctor-patient relationship is regarded as physician-controlled. Roter and Hall [20] refer to this relationship as 'paternalism'. Differences in the underlying theoretical notions about the doctor-patient relationship have resulted in separate research traditions, each producing their own data. As a consequence, these studies have not contributed to a better integration of results.

Thirdly, many different *types of patients and doctors* exist. Several patient characteristics have been studied to examine their influence on doctor-patient communication, e.g. various socio-demographic, psychological and psychosocial variables, their physical appearance and health [57, 58, 99–101]. Social scientists agree about the relevance of patient characteristics like these since they can have a profound impact on the doctor-patient relationship, and communication in particular [20].

Studies have also investigated physician characteristics, such as various socio-demographic (gender, age, social class origin) and personality variables (introversion vs extroversion, expressing emotions via non-verbal cues, recognizing patients' non-verbal expressions). Studies have shown that these individual characteristics can potentially affect how doctors talk with their patients [20].

Fourthly, patients have different *diseases*. Patients with various diseases have been included in communication studies, ranging from acute to chronic, mild to life threatening illnesses. It seems plausible that patients with different diseases have specified needs and expectations regarding their communication and relationship with the physician. Also, patients may have different needs and expectations depending on the particular stage of their illness, especially where chronic diseases are concerned.

6.2 Process variables

So called 'process variables', which occur within the medical encounter, also play an important role. These variables refer to the actual content of communication between doctors and patients. The review shows that many different *types of communica-*

tive behaviors can be identified. Communication researchers agree that perhaps the most important distinction is that between instrumental or task focused-behavior (cure oriented) on one hand, and affective or socio-emotional behavior (care oriented) on the other. As mentioned earlier, despite the consensus about the importance of the two types of behavior, researchers disagree about their relative importance. Until recently, communication studies focused mainly on either one of the two behaviors. It seems plausible however, that certain communicative behaviors are positively associated with others. So far, research which focuses on the interrelationship between doctors' instrumental and affective behaviors shows contradictory results [18, 36, 37, 102].

Studies such as these however, could result in the description of 'behavior typologies'. Identification of these typologies seems to enable prediction of physician behavior. For example Taylor's description of 'experimenters' and 'therapists' makes it possible to determine physicians' future behaviors concerning willingness to offer trials to eligible patients, sharing responsibility for medical decision-making, and disclosure of undesirable information [29, 68]. Yet the fact remains that in doctor-patient communication research 'information-giving' is the element of instrumental behavior which is most studied [37]. Especially doctors' information-giving behavior has been the focus of attention.

It is still unclear, however, whether patients can discriminate between instrumental and affective physician behaviors [9, 10, 12, 35, 36]. It could well be that patients do not perceive these two behaviors as distinct aspects of care, in which case it would be illogical for communication researchers to regard them as separate. As stated earlier in this review, a preliminary conclusion would be that instrumental vs affective behaviors may be false dichotomies. Doctors' affective behaviors could indeed be regarded as technical skills. This idea finds support in the fact that medical students can be taught several interviewing techniques focusing on affective behaviors [17, 103–110].

6.3 Outcome variables

To assess the effectiveness of doctor-patient communication, many different *patient outcomes* have been used in health care studies. Social scientists agree that outcomes such as satisfaction, compliance, recall and understanding of information are good indicators of the consequences of 'talk'. However, these outcomes are what Beckman *et al.* [15] call 'short-term and intermediate outcomes'. The limitation of using short-term outcomes is that the possible long-term consequences are unknown. For example a patient may intend to comply with the recommended medical treatment but may not show any symptom resolution over a longer period of time.

Because of the growing attention and changing policy with respect to informed consent, the quality of doctor-patient communication is evaluated in terms of the information-giving behaviors of the physician. As a result, outcomes such as patient recall and understanding of the information transferred are commonly used in communication studies. However, little is known about the influence of such information on patients' health status [14]. Measures of patient's health status are least used in studies investigating the doctor-patient relationship. Still the fact remains that to ultimately improve longer-term patient outcomes, such as quality of life, health status, symptom resolution or survival, research should identify communicative behaviors and interactions that produce these desired outcomes.

6.4. *Towards a theoretical framework*

Ultimately, apart from describing the many different variables that seem relevant, the most important goal would be to establish a systematic theory of doctor-patient communication. Such a theory would relate background, process and outcome variables (Fig. 1). It would also lead to clear hypotheses regarding these relations.

Starting with the relationship between background and process variables, cultural variations appear to have an effect on the information-giving behavior of physicians [81]. For example 'truth telling' in the case of a cancer diagnosis may be considered humane in one culture, and cruel in another [81]. There is however a clear trend towards open communication between doctors and cancer patients worldwide [81, 30].

Several factors seem to play a role in this shift towards disclosure; e.g. concern for patients' rights as consumers of medical care (which led to societal pressures) and questioning of the authority of physicians [81]. Probably, insight into the positive relationship between information-giving from doctors and subsequent patient compliance to treatment and/or advice [95, 5, 78] contributed to the 'truth telling' practice in most countries. Apart from its effect on the disclosure of a cancer diagnosis, cultural differences may have other important consequences for communication during medical encounters. Empirical data about the impact of cultural aspects on physicians' affective behaviors are lacking.

In all likelihood, the way the doctor-patient relationship is seen can have consequences for the actual content of communication. For example if the relationship is regarded as a paternalistic one with high physician control, then it is to be expected that instrumental/task oriented behaviors are salient in the encounter. Studies could be carried out to examine the relationship between these two variables.

Also, different patient and physician characteristics appear to have an effect on doctor-patient communication. Yet it is unclear how these various patient and doctor characteristics relate to one another and if these distinctions are uniformly negative or positive in their influence on communication specifically and patient care in general.

New studies could also give insight into how 'disease characteristics' influence doctor-patient communication; e.g. how does the staging of chronic, life-threatening diseases influence the communicative behaviors of physicians? The fact that physicians

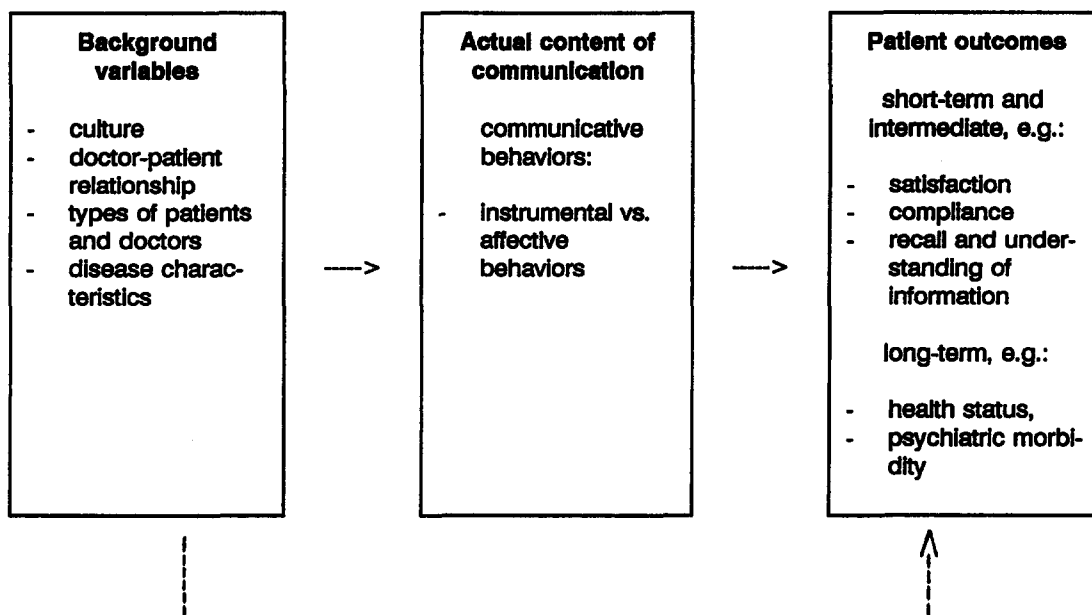


Fig. 1

like their healthier patients more than their less healthy ones [101], could imply that physicians also communicate differently with their healthier patients compared to their less healthy ones. If this is indeed the case, doctors' communicative behaviors may also differ depending on the particular phase of the patient's illness. However, so far no empirical evidence is available to support such expectations.

More is known about the relationship between process and outcome variables, as can be concluded from Section 5: "the influence of communicative behaviors on patient outcomes". However, most of the data available concern short-term or intermediate patient outcomes, such as satisfaction, compliance or recall of information. In order to achieve more effective interventions, future studies could focus attention on specific aspects of the doctor-patient interaction which have most significant effects on long-term patient outcomes, such as quality of life or health status.

Finally, how do background variables influence patient outcomes? As stated earlier, cultural aspects seem to play a role in patient's appreciation of physician's touch. Studies on patient satisfaction with touch show contradictory results [4, 87]. It seems plausible that cultural differences have an influence on other patient outcomes, besides satisfaction. Future studies could investigate the impact of culture on various outcomes relevant to doctor-patient communication.

Another study investigated patient and physician perceptions of their relationship and how these perceptions related to patient satisfaction [111]. Results showed that physicians who see their relationship with patients as a 'partnership' have more satisfied patients compared to physicians who have a more authoritarian relationship. Possibly the way the doctor sees the relationship affects the way he or she talks to patients. These different communicative behaviors in their turn influence patient satisfaction. Probably, background variables as well as process variables play an important role.

Hall's study [112] showed that healthier patients are more satisfied than those who are less healthy. Again the dissatisfaction of sicker patients may stem in part from doctors' communicative behaviors. Sicker patients may cease acting appreciative because they are not getting cured. Also, patients who do not feel very well are likely to act unresponsive or irritated [20]. The effect could be that less healthy patients receive more negative reactions from their doctors, which in turn may lead to dissatisfaction. Again both background and process variables appear to influence patient satisfaction.

In summary, background variables seem to influence communicative behaviors, these behaviors in their turn have an effect on patient outcomes. Whether all of these variables are in fact related to each other, and if so, in what way, should be studied empirically. A theory relating these different variables

could result in the development of interventions which improve communication in the medical setting, the doctor-patient relationship, and patient outcomes. In this review we have tried to set the framework for such a theory.

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