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The Impact of Physician Communication Style as a Function of Patient Characteristics

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By

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LITERATURE REVIEW 2

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Key words: Physician-patient interaction, personality, affiliation, agreeableness, attitude, gender, uncertainty

Mots-clés: Interaction patient-médecin, personnalité, affiliation, agréabilité, attitude, genre, incertitude

Abstract

During the last decades, numerous studies have been conducted to determine how physician communication style is related to patient outcomes such as the their satisfaction with the medical visit, their trust in the physician, or their adherence to the treatment. However, past research has rarely considered how patients' individual characteristics (e.g., personality, attitudes, gender) moderate the links between the physicians' communication style and the patients' outcomes. The present doctoral dissertation aimed at filling this research gap. This investigation is important in order to shed light on patients who poorly benefit from common communication guidelines and for whom adaptations in the physician communication style are to be desired. In this dissertation, I focused on three aspects of the physicians' communication style, namely their degree of affiliativeness (i.e., warmth, friendliness) and dominance in communicating with the patients, and their expression of medical uncertainties. With regard to the patients' characteristics, I considered patients' personality trait of agreeableness, attitude toward affiliativeness, attitude toward dominance, and gender. The format is the one of a thesis by publication (article thesis). In five empirical studies based on laboratory or field settings, I notably showed that: 1) patients with low levels of agreeableness need more physician affiliativeness in order to report the same level of satisfaction and trust in their physician than patients with high levels of agreeableness; 2) all patients, independently of their attitude toward affiliativeness, are more satisfied with a physician communication style that is high in affiliativeness rather than low in affiliativeness; 3) patients' attitude toward physician dominance determines whether they report more satisfaction with a physician communication style that is high in dominance or with a physician communication style that is low in dominance; and 4) more expressed uncertainty is associated with less patient satisfaction when the physician is a woman and the patient is a man. The theoretical and practical implications of these results are discussed, as well as future perspectives regarding the issue of physicians' communicative adaptations to their patient individual characteristics.

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Note. Page numbers of sections B to I (in parentheses in the table) are only indicative; each manuscript attached to each section is presented with its original pagination.

A) UMBRELLA

Introduction

Physicians differ between them in the extent to which they put warmth, humor, dominance, or hesitations in their communication style (e.g., Beck, Daughtridge, & Sloane, 2002; Gordon, Joos, & Byrne, 2000; Roter & Hall, 2006). And all patients do not react equally to the same physician communication style in terms of satisfaction and liking of the physician, trust in the physician, or adherence to the treatment (e.g., Buller & Buller, 1987; Graugaard & Finset, 2000; Levinson, Kao, Kuby, & Thisted, 2005). The French writer Proust made a perfect illustration of it as early as in 1919:

> As my chokings had persisted long after any congestion remained that could account for them, my parents asked for a consultation with Professor Cottard […]. Cottard's hesitations were brief and his prescriptions imperious. "Purges; violent and drastic purges; milk for some days, nothing but milk. No meat. No alcohol." […] My mother murmured that […] restricting my diet would make me worse. […] He was trying to think whether he had remembered to put on his mask of coldness […]. In his uncertainty, and, so as, whatever he had done, to put things right, he replied brutally: "I am not in the habit of repeating my instructions. Give me a pen. Now remember, milk! […], *au lait*! You'll enjoy that, since Spain is all the rage just now; *ollé, ollé*! […] He listened with icy calm, and without uttering a word, to my mother's final objections, and as he left us without having condescended to explain the reasons for this course of treatment, my parents concluded that it had no bearing on my case […]. Then, as my health became worse, they decided to make me follow out Cottard's prescriptions to the letter; in three days my "rattle" and cough had ceased, I could breathe freely. […] And we realized that this imbecile was a clinical genius (Proust, 1919/2006, pp. 462-464).

Some physicians, like Prof. Cottard, communicate in a cold and dominant way, express little doubts about the diagnosis or the treatment, and do not bother answering the patients' questions. Some patients, like the narrator's parents in the excerpt, react especially strongly to this form of physician antipathy and dominance and wait until the patient's health status clearly deteriorates before they follow the treatment recommended by a

physician adopting such a communication style. This doctoral dissertation is not on Proustian literature – be reassured! – but it focuses on how patient individual characteristics influence their reactions to their physician's communication style.

Investigating how patients react to a given physician's communication style depending on their personality is important because the patient's health can ultimately be at stake (Street, Makoul, Arora, & Epstein, 2009). Communication has been hypothesized to heal, either directly, by impacting on patients' *primary* medical outcomes (e.g., health status, physical functioning, psychological adjustment to the illness) or indirectly, by impacting on patients' *secondary* medical outcomes (e.g., satisfaction with the medical visit, trust in the physician, adherence to the medical treatment) (Street et al., 2009). Secondary medical outcomes can be considered as an indirect way through which physician communication heals, and thus as important to consider, because they are related with primary medical outcomes: To illustrate, it has been shown that patients who are more satisfied (secondary medical outcome) with their physician are more likely to adhere the medical treatment (primary medical outcome) (Fitzpatrick, 1991; Wilson & McNamara, 2002) and adherence has been associated with recovery and health status (Hays et al., 2005; Horowitz & Horowitz, 1993).

Physicians face a plethora of communication guidelines teaching them how to talk and how to behave with their patients in order to ensure the best possible patient outcomes (e.g., satisfaction, trust, adherence, health status) (e.g., Hart, 2010; Hewson, Kindy, VanKirk, Gennis, & Day, 1996; Moyer, 2012; Roter & Hall, 2006; Stewart, Brown, & Donner, 2000). For instance, there is evidence that a physician communication style that is higher in affiliativeness (warmth, friendliness) or lower in dominance (directivity, control) usually leads to more patient satisfaction (Beck et al., 2002; Bertakis, Roter, & Putnam, 1991). However, there is also preliminary evidence that the same physician communication style does not have the same impact on all patients (Benbassat, Pilpel, & Tidhar, 1998; Finset, 2012; Graugaard & Finset, 2000; Levinson et al., 2005). Research shows for instance that older or less educated patients have more tolerance – or even prefer – a physician communication style that is dominant compared to a physician communication style that is non-dominant (Benbassat et al., 1998; Levinson et al., 2005). Nevertheless, individual preferences are clearly under-investigated, and relatively little is known about how patients'

individual characteristics influence the way they react to the communication style of their physicians. Also, research on the topic of physician *adaptivity* (i.e., on how physician can adapt to the particularities of their patients in order to reach good or better interaction outcomes) is scarce (Holloway & Rogers, 1992; Holloway, Rogers, & Gershenhorn, 1992; Hudon et al., 2012; Rosenberg, Kirmayer, Xenocostas, Dao, & Loignon, 2007). The main goal of my thesis was to contribute filling this research gap. A deeper knowledge of the influence of individual characteristics on patient reactions to physician communication is important to gain, because such knowledge might enable physicians to adapt to the particularities of the patients, in order to increase patients' satisfaction, trust, adherence – and ultimately patients' health.

The theoretical framework of my research is primarily based on Leary's (1957) interpersonal theory, which postulates that two main dimensions organize interpersonal communication and behavior, namely the *affiliation* dimension and the *dominance* dimension. Using this theoretical framework and elaborating on past research in physician-patient communication, I first investigated whether the patients' personality trait of agreeableness predicts their reactions to the physician's degree of affiliativeness (i.e., warmth, caring) in communication style, in terms of satisfaction with the medical visit, trust in the physician, and determination to adhere to the treatment (Studies 1, 2, and 3). Then, I looked at whether patients' attitude toward affiliativeness predicts their satisfaction with the level of affiliativeness shown by physicians in their communication style, and whether patients' attitude toward dominance predicts their satisfaction with the level of dominance shown by the physicians (Study 4). And in a last study (Study 5), I looked at another important variable in physician-patient communication, related to dominance, namely physician communication of medical uncertainties: I investigated whether the gender of the patient and of the physician determines patient satisfaction with physician expressed uncertainty.

The format is the one of a thesis by publication. Regarding the structure, the present section (section A) presents the theoretical underpinnings of my work, describes the main methodological features of the five empirical studies we conducted, present their main results, synthesize and discuss the implications of those results, and suggest future

directions for research on how patients' individual characteristics influence their reactions to the physician's communication style.

The following sections (sections B to I) report in their entirety the manuscripts related to the five empirical studies (three of them are published or in press; two of them are submitted for publication), as well as two published literature reviews and one in-press handbook chapter. So, the details of each of the five empirical studies (e.g., detailed characteristics of the sample and of the procedure, sample items of the questionnaires, reliability measures, statistical procedures) can be found in the corresponding sections (B to F), after the present umbrella (section A). Also, when I make references to the two literature reviews and to the handbook chapter in the present umbrella, further details about the methodology and the results can be found in sections at the end of the doctoral dissertation (sections G to I).

1. Physician-patient interactions and their outcomes

Physician-patient communication has been the focus of researchers for several decades and has been related to many patient outcomes, such as patient satisfaction with the medical visit (Beck et al., 2002; DiMatteo, Hays, & Prince, 1986; Hall, Murphy, & Schmid Mast, 2007; Hall, Roter, & Katz, 1988), trust in the physician (Aruguete & Roberts, 2002; Kiesler & Auerbach, 2003), understanding and recall of physician's explanations regarding the diagnosis and the treatment (Hall et al., 1988), adherence to the treatment (Aruguete & Roberts, 2002; DiMatteo & Lepper, 1998), psychological adjustment to the illness (Roberts, Cox, Reintgen, Baile, & Gilbertini, 1994), or health status (Ambady, Koo, Rosenthal, & Winograd, 2002). Physician behaviors investigated in past research are also numerous and include for instance verbal behaviors such as communicating empathy to the patient, asking open questions to him or her, sharing medical information and decision, expressing medical uncertainty (e.g., Beck et al., 2002); and nonverbal behaviors such as smiles, head nods, facial expressivity, gestures, and many others (e.g., Anderson & Anderson, 1999).

The doctoral project presented in this umbrella is based on the interpersonal model of Kiesler and Auerbach (2003) for studying physician-patient interactions. Research conducted in the field of physician-patient has often been criticized for lacking of theoretical frameworks (Hall & Schmid Mast, 2009) and, related to this theoretical vacuum and the

proliferation of different coding systems, for producing results that are difficult to integrate (see section I). The interpersonal model of Kiesler (1983; 2003) synthesizes research conducted on physician-patient communication during the last decades by grouping physician communication behaviors along two main interpersonal dimensions: the dimension of *affiliation* and the dimension of *dominance* (described in more details later in this umbrella). For instance, this model integrates research on *patient-centeredness* (Graugaard & Finset, 2000), a concept that is widely used in the scientific literature on physician-patient communication. Patient-centeredness can be defined as a physician communication style that takes the patient's perspective into account, that adopts a bio-psychosocial perspective on the illness (as opposed to a purely biomedical one), that enhances the patient-doctor relationship, and that includes the patient in the decision process (Mead & Bower, 2000; Stewart et al., 1995). But more succinctly, patient-centeredness can also be described as a communication style high in affiliativeness and low in dominance (Emanuel & Emanuel, 1992; Roter et al., 1997). In my view, the interpersonal model of Kiesler and Auerbach (2003) has the advantage of offering an integrative and parsimonious theoretical framework for studying physician-patient communication. Moreover, it can serve an interesting heuristic tool – as I will try to demonstrate.

Beside the dimensions of affiliation and dominance in physician communication style, I will also focus on a particular aspect of physician (low) dominance, namely the physician's communication of medical uncertainties. Communicating medical uncertainties is often advocated as a good practice in medical communication guidelines (Henry, 2006; Hewson et al., 1996; Moyer, 2012), but its impact on patient outcomes is unclear so far (Blanch, Hall, Roter, & Frankel, 2009; Epstein et al., 2007; Gordon et al., 2000; Johnson, Levenkron, Suchman, & Manchester, 1988). Expressed uncertainty has a problematic of its own, somehow different from the one of dominance, as we will see. And this is why I investigated it separately from the general dimension of dominance.

In the next paragraphs, I will present the patient outcomes that have been related to these three important aspects of the physician's communication style: their level of affiliativeness (warmth, friendliness), their level of dominance (control, agency), and their expression of medical uncertainty. Also, I will start presenting evidence that patients,

depending on their individual characteristics, react differently to these communication variables.

1.1 Physician affiliativeness

Affiliativeness is an interpersonal concept that refers to both cognitive (i.e. benevolence, empathy, trust, forgiveness) and behavioral elements (i.e. a warm and friendly interaction style) in a communication style (Kiesler & Auerbach, 2003). It is expressed with the aim of creating and/or maintaining a good relationship with the patient (Aruguete & Roberts, 2000). Like in other social contexts, affiliativeness in physician-patient communication conveys warmth, friendliness, interest, empathy, a desire to help, and honesty (Buller & Buller, 1987), and can be expressed either verbally or nonverbally (Roter & Hall, 2006).

Many other concepts can be found in the literature that are close to the one of affiliativeness, but those differences in the terminology are more a sign of conceptual vagueness rather than fundamental differences of meaning (Kiesler & Auerbach, 2003). These concepts are for instance: *caring* (e.g., Krupat, Rosenkranz, et al., 2000; Schmid Mast, Hall, & Roter, 2007), *warmth* (e.g. Hall, Harrigan, & Rosenthal, 1995; Neumann et al., 2011), *friendliness* (e.g., Moskowitz, 1988; Uhas, Camacho, Feldman, & Balkrishnan, 2008), *communion* or *communality* (e.g., Hausman & Mader, 2004; Wiggins, 1991), *emotionality* (e.g., Levenstein et al., 1989; Schmid Mast et al., 2007), and *immediacy* (e.g., Anderson & Anderson, 1999; Conlee & et al., 1993). We can also retain the concept of *hostility*, as it is considered by many authors (e.g., Jacobs & Scholl, 2005; Kiesler & Auerbach, 2003; Wiggins, 1979) as the negative pole of affiliativeness. For the sake of clarity, I will only use the concept of affiliativeness in the present doctoral dissertation when referring to the results of studies having used similar concepts such as the ones listed above. I chose to use the concept of affiliativeness among all others because: 1) it has less of a positive and moral connotation compared to words such as *friendliness* or *sympathy*; 2) it does not focus only on the affect like words such as *emotionality* do but also include more cognitive aspects; and 3) it relates to the interpersonal model of Kiesler (1983; 2003), which I use as a theoretical framework in this doctoral dissertation.

Research has shown that physician affiliativeness has a positive impact on patient outcomes. Affiliativeness in the physician's speech has been related to more satisfaction in the patient (Beck et al., 2002), to more adherence to the treatment (DiMatteo & Lepper, 1998), and to better psychological adjustment to the illness (Roberts et al., 1994). Verbal behaviors that can be considered as affiliative and that have been related to positive patient outcomes (at least one) are the following ones: expressed empathy, statements of reassurance and support, positive reinforcement (e.g., congratulating the patient), laughing and joking, courtesy (e.g., holding the door), and psycho-social talk (compared to purely bio-medical talk) (see review of Beck et al., 2002). In my literature review on the predictors of patient trust (see section H), I have highlighted affiliative verbal behaviors in the physician (named *caring* verbal behaviors in the literature review) that have been related to the patient outcome of trust in particular.

Furthermore, as we have shown in our in-press handbook chapter on the role nonverbal communication within the medical encounter (see section I), physician affiliativeness can also be communicated nonverbally. Nonverbal affiliativeness is related to higher levels of patient satisfaction (DiMatteo et al., 1986; Hall et al., 2007), self-disclosure (Aruguete & Roberts, 2002), understanding and recall of medical information (Hall et al., 1988), trust in the physician, adherence to the medical recommendations (Robinson, 2006; Roter, Frankel, Hall, & Sluyter, 2006), and to a better patient health status (Ambady, Koo, et al., 2002). Nonverbal behaviors that can be considered as affiliative and that have been related to at least one positive patient outcomes are the following ones: direct eye contact, facing body orientation, forward lean, physical proximity (less interpersonal distance) (Hall et al., 1988), head nods, open arm position (Ambady, Koo, et al., 2002; Aruguete & Roberts, 2002), and touch (Gueguen, Meneiri, & Charles-Sire, 2010).

However, physician affiliativeness does not have the same impact on all patients. In my literature review on the predictors of patient trust (see section H), I have shown that certain affiliative behaviors are more important for certain patients than others (e.g., respecting the patient's feelings seems especially important for younger patients; Thom, 2001). Also, physician affiliativeness seems to have more of a positive impact on patient outcomes when the patients have less severe illnesses (Buller & Buller, 1987; Street & Wiemann, 1987) and when they do not know the physician well (i.e., smaller number of prior

visits) (Buller & Buller, 1987). In some cases, a physician communication style that is low in affiliativeness might even be better than a communication style high in affiliativeness. For instance, Graugaard and Finset (2000) have shown that individuals low in trait-anxiety react better to a physician communication style high in patient-centeredness (high in affiliativeness and low in dominance) than to a physician communication style low in patient-centeredness (low in affiliativeness and high in dominance), but that for individuals high in trait-anxiety, it is the opposite: Patients high in trait-anxiety show more negative arousal (as measured by self-reported negative affect and salivary cortisol responses) when the physician communicates in a more patient-centered way. Similarly, it has been found that fibromyalgia patients with alexithymia (i.e., difficulty in identifying and expressing emotions; Zimmermann, Rossier, DeStadelhofen, & Gaillard, 2005) reacted more negatively (i.e., more confusion, less vigor, and higher heart rate) to physicians high in patient-centeredness than to physicians low in patient-centeredness (Finset, in press). Note however that because the concept of patient-centeredness encompasses both dimensions of affiliativeness and dominance (Emmanuel & Emmanuel, 1992; Roter et al., 1995), it is not possible to disentangle the respective effects of those dimensions in the studies that use this concept.

1.2 Physician dominance

Dominance in social interactions can be characterized by an interaction partner's intention to exert or maintain power or influence over the other interaction partner(s) (Schmid Mast, 2010). Because of their medical expertise and professional role, physicians usually have more power than patients (Schmid Mast, 2004) – more "expert power" (French & Raven, 1959). However, this does not necessary mean that physicians behave in a dominant way, because power is not necessarily associated with dominant behaviors (Schmid Mast, 2010). Physicians are dominant when they show a lack of shared decision-making (Emanuel & Emanuel, 1992; Roter et al., 1997), when they use a directive communication style characterized by orders, interruptions, and/or unilateral setting of the agenda (i.e., deciding which topics will be discussed during the visit), when they use medical jargon, or when they ask close-ended questions (Hall, Roter, & Katz, 1987; Platt & McMath, 1979; Roter et al., 1997; Street & Buller, 1987). On the nonverbal side, dominance in physician-patient communication, like in other social contexts, is expressed through louder

voice, interruptions, physical proximity (less interpersonal distance), expansiveness in gestures and body posture (Hall, Coats, & Smith LeBeau, 2005), visual dominance (defined as the ratio of the proportion of time spent looking while speaking to the proportion of time spent looking while listening) (Exline, Ellyson, & Long, 1975), and longer speaking time (Schmid Mast, 2002). However, it is important to note that even if few nonverbal behaviors are related to actual power or influence, many nonverbal behaviors are perceived as expressions of it: lowered eyebrows, facial expressiveness, nodding, absence of self-touch, other-touch, erected or tense postures, body and legs shifts, high vocal variability, rare pausing, fast speech rate, low voice pitch, and vocal relaxation (Hall et al., 2005).

There are some differences in terminology between the studies. Some authors use the words *control* (e.g., Buller & Buller, 1987; Flocke, Miller, & Crabtree, 2002), *agency* (e.g., Moskowitz, 1994), or *verticality* (e.g., Hall et al., 2005) when referring to what I will name physician *dominance* in the present doctoral dissertation. I chose the concept of dominance because it appears to be one of the most commonly used concepts in the literature on physician-patient communication (e.g., Beck et al., 2002; Bertakis et al., 1991; English, 1985; Ferri, 2003; Fung et al., 2005; Schmid Mast, 2004; Schmid Mast, Hall, & Roter, 2008) and can apply both to verbal and nonverbal communication (while the concept of *control*, for instance, tends to be used more frequently when referring to verbal communication). Note that the concept of *sharing* (e.g.,Krupat, Yeager, & Putnam, 2000) is also used sometimes in the literature to name the dimension of dominance. The difference between the dimension of dominance and the dimension of sharing is that their poles are reversed (i.e., high dominance means low sharing, and low dominance means high sharing).

Verbal dominance in physician communication style has been related to negative or ambivalent patient outcomes. Physicians who are verbally more dominant have patients who are less satisfied (e.g. Bertakis et al., 1991; Cecil & Killeen, 1997) and who disclose less medical information (Schmid Mast, Hall, & Roter, 2008), which might have an influence on the quality of the diagnosis and treatment. The potential influence of physician verbal dominance on patient adherence to the treatment is more complex: More adherence is observed when physicians show either low or high levels of verbal dominance (DiMatteo & Lepper, 1998). As we argue in a book chapter (not included in the present doctoral dissertation) on the nonverbal expression of power and dominance (Schmid Mast & Cousin,

in press), such results suggest that the effects of behavioral dominance on the outcomes of social interactions – including physician-patient interactions – are not always linear. Regarding patient health status, high levels of dominance in the physician communication style have been related to poorer health outcomes in the patient (e.g., smaller symptom resolution, more physical limitation, more anxiety) (Stewart, 1995).

Verbal behaviors in the physician that can be considered as dominant and that have been related to negative patient outcomes are the following ones: non-encouragement of the patient's questions, not allowing the patient's point of view to guide the conversation in the concluding part of the visit, less sharing of medical data with the patient, less discussion of the treatment effects, less receptivity to patient questions and statements, less talking into account of the patient's remarks, more interruptions, and more speech directivity (see review of Beck et al., 2002).

As shown in our handbook chapter on nonverbal communication within the medical encounter (see section I), less research has been conducted on the influence of physician nonverbal behavior on patient outcomes than on the influence of physician verbal behavior. What research has shown so far is that nonverbal dominance in the physician's communication style is related to lower patient satisfaction (Bertakis et al., 1991; Burgoon et al., 1987; Hall, Irish, Roter, Ehrlich, & Miller, 1994b). When the physician dominates the interview by talking more (Bertakis et al., 1991; Burgoon et al., 1987) and when his or her voice conveys more dominance, patients report less satisfaction. Moreover, perceived nonverbal dominance in female physicians is more strongly related to patients' dissatisfaction than perceived dominance in male physicians (Schmid Mast, Hall, Klöckner, & Choi, 2008). Also, in another published study that is not included in this doctoral dissertation (Schmid Mast, Hall, Klöckner Cronauer, & Cousin, 2011), we have shown that the same dominant behavior (e.g., talking loudly) is generally perceived as more dominant when expressed by a female physician than when expressed by a male physician.

However, patient individual characteristics determine their reaction to the physician's verbal and nonverbal dominance (Benbassat et al., 1998; Bertakis & Azari, 2007; Bruera, Willey, Palmer, & Rosales, 2001; Epstein et al., 2007; Franks & Bertakis, 2003; Levinson et al., 2005; Vertinsky, Thompson, & Uyeno, 1974). Patients who prefer a more passive role in the

decision process related to their treatment are typically older (Benbassat et al., 1998; Ende, Kazis, Ash, & Moskowitz, 1989; Stewart, 1983), less educated (Benbassat et al., 1998; Ende et al., 1989; Levinson et al., 2005), and male rather than female patients (Benbassat et al., 1998; Levinson et al., 2005; Vertinsky et al., 1974). Also, patients who suffer from more severe medical conditions prefer a less active role in the decision-making process (Benbassat et al., 1998; Ende et al., 1989). Finally, the emotional state of the patient determines their reaction to the physician's dominance too: Patients who are highly anxious have a more pronounced tolerance (in terms of reported satisfaction) for physicians whom they perceived as dominating than patients who are less anxious (Street & Wiemann, 1987).

1.3 Physician expressed uncertainty

Expressing uncertainty, in the medical context, means disclosing doubts or different outcome possibilities regarding the diagnosis, the best treatment to adopt, or the consequences of the treatment, and may stem from the physician's incomplete medical knowledge, or from objective limits in the current medical science (Fox, 1980). Expressed uncertainty can be seen as related to dominance: Adopting a communication style low in dominance implies that the physician shares medical information with the patient (Epstein et al., 2005), and such information is sometimes composed of uncertainties, regarding for instance the nature of the diagnosis, the best treatment to adopt, the patient's reactions to the treatment (e.g., side effects, duration of the treatment) (e.g., Gordon et al., 2000; Hewson et al., 1996). Physicians may be well trained and competent, there are some limits inherent to the current medical knowledge (Johnson et al., 1988): certain constellations of symptoms do not unequivocally lead to precise diagnoses, and individual as well as situational characteristics may influence patients' reactions to the treatment, making them to a certain extent unpredictable. Task uncertainty pervades the medical profession as well, as there is often some degree of uncertainty regarding the medical acts that must be performed in a given situation (Mayor, Bangerter, & Aribot, 2012).

Communication guidelines for physicians usually encourage them to express medical uncertainties to their patients (Henry, 2006; Hewson et al., 1996), as it is viewed as more ethical and as a way to prevent unrealistic expectations (Gordon et al., 2000). However, the existence of medical uncertainties is not always recognized by the patients – which is what Quill and Suchman (1993) call the *illusion of certainty* in medicine – and the effects of

physicians' expressed uncertainty on patient outcomes (e.g., satisfaction, trust) are still unclear: Some studies show no effect of physician expressed uncertainty on patient satisfaction (Epstein et al., 2007; Gordon et al., 2000), while other studies show a negative association between physician expressed uncertainty and patient satisfaction or trust (Blanch et al., 2009; Johnson et al., 1988; Odgen et al., 2002). However, those studies have not taken into account patient characteristics. It might be that certain patients react negatively to physician expressed uncertainty, whereas others do not. As I will explain later in this doctoral dissertation, we suspected that differences in the composition of the samples between past studies (Blanch et al., 2009; Epstein et al., 2007; Gordon et al., 2000; Johnson et al., 1988; Odgen et al., 2002), notably in terms of gender, explained the different outcomes of these studies.

2. Patient characteristics and reactions to physician communication style

Past research shows that certain communication behaviors (e.g., high affiliativeness, low dominance) are related to better patient outcomes than others (e.g., low affiliativeness, high dominance) (e.g., Beck et al., 2002; Bertakis et al., 1991). However, this type of research fails to consider individual differences in the patients that may play a role in the way single individuals react to their physician's communication style. Patients differ from each other with regard to several characteristics, including for instance personality, attitudes, gender, age, or disease gravity. As we saw, there is accumulating evidence that all of these individual differences can shape the patient's reactions (e.g., satisfaction, trust, adherence, emotional state after the visit) to the physician's communication style (Benbassat et al., 1998; Graugaard & Finset, 2000; Levinson et al., 2005; Thom, 2001; Wiebe & Christensen, 1996). In the following paragraphs, I will explain why other individual characteristics such as patient personality (i.e., agreeableness), attitudes (i.e., toward affiliativeness and toward dominance), and gender were hypothesized to be key determinants of patients' reactions to the physicians' communications style in this doctoral work.

In *Figure 1*, I present the different variables in the physician communication style and in the patient's characteristics that are investigated in the five studies of which my thesis is composed. As we can see in the figure, Studies 1, 2, and 3 investigate how patient

agreeableness moderates the link between the physician's degree of affiliativeness in communication style and the patient outcomes (satisfaction, trust, and determination to adhere to the treatment). Study 4 investigates how patient attitude toward affiliativeness moderates the relationship between the physician's degree of affiliativeness in communication style and patient satisfaction. Also, Study 4 investigates how patient attitude toward dominance moderates the relationship between the physician's degree of affiliativeness in communication style and patient satisfaction. Finally, Study 5 investigates how patient gender and physician gender (the latter not on the figure) moderate the link between physician expressed uncertainty and patient satisfaction.

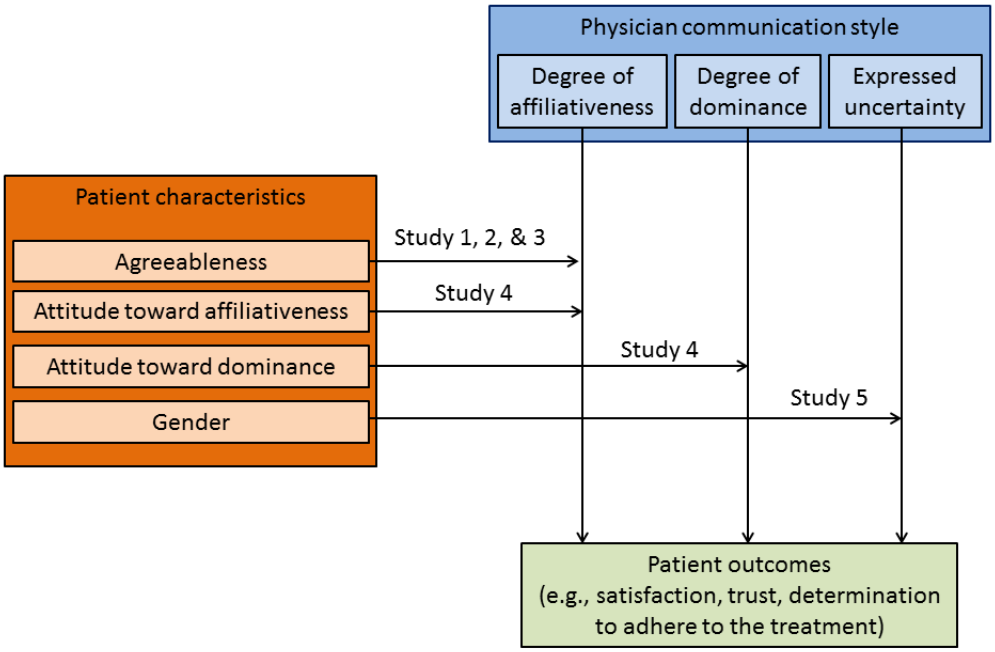

Figure 1. Investigated moderations of the links between physician communication style and patient outcomes by patient characteristics – Studies 1 to 5.

2.1. Patient agreeableness

Personality influences the way individuals react to their interaction partners' verbal and nonverbal behavior (Costa & McCrae, 1992). The physician-patient interaction is no exception and patient personality has an influence on the way patients react to their physicians' communication style (Braman & Gomez, 2004; Graugaard & Finset, 2000). As shown earlier in this doctoral dissertation, we know that trait-anxiety determines how

patients react to their physician's degree of patient-centeredness (Graugaard & Finset, 2000). Also, it has been shown that patients with a less assertive (i.e., dominant) personality prefer a more passive role within the physician-patient relationship (Braman & Gomez, 2004). However, research on the influence of patients' personality traits on patients' reactions to physicians' communication style is still scarce. This doctoral dissertation contributed to filling this research gap by investigating how the patients' personality trait of agreeableness moderates patients' reactions to the level of affiliativeness shown by the physicians.

In the interpersonal model of Kiesler and Auerbach (2003), one of the two main dimensions that organize interpersonal relationships is the dimension of affiliation. Physician affiliativeness and patient agreeableness both belong to the affiliation dimension, the only difference being that affiliativeness refers to a behavior while the concept of agreeableness refers to a personality trait (Carson, 1969; Costa & McCrae, 1992). This is why agreeableness is sometimes called *trait affiliativeness* (Gifford, 1982). As I will explain in the next paragraphs, there were several reasons to believe that patient agreeableness is a key element when investigating the effect on patient outcomes of physician affiliativeness in communication style.

Some individuals have a stronger personality tendency to display affiliative behaviors than others. Costa and McCrae's (1992, 2007) concept of agreeableness can be used to describe this tendency to show high levels of affiliativeness in one's behavior and communication. People high in agreeableness tend to act in a friendly way across different situations, with familiar as well as unfamiliar others (Moskowitz, 1988). The concept of agreeableness is also characterized by positive attitudes toward others, interest and concern about them, and a desire to create positive and warm relationships (Costa & McCrae, 2007).

Many studies have shown the impact of agreeableness on social interactions. For instance, agreeableness is linked with pro-social behavior (Graziano, Habashi, Sheese, & Tobin, 2007) and cooperation (Koole, Jager, VandenBerg, Vlek, & Hofstee, 2001) and more agreeable individuals are perceived as more supportive by others (VandeVliert, Branje, & VanLieshout, 2005). Agreeableness is also associated with the way individuals perceive others and react to their behaviors. More agreeable individuals trust others more (Costa &

McCrae, 2007), they are more tolerant and less critical with others (Amitay, 2007), they forgive more easily (Mansfied-Blair, 2003), and they react less strongly (i.e., with less quarrelsomeness) to quarrelsome behaviors in other individuals (Moskowitz, 2010).

Patient agreeableness is associated with better medical interaction outcomes (Burns, Higdon, Mullen, Lansky, & Wei, 1999; Christensen, Wiebe, Wiebe, & Lawton, 1997; Hendriks et al., 2006; Green, Hadjistavropoulos, & Sharpe, 2008). In the context of cognitive psychotherapies, agreeableness is a predictor of patient satisfaction and perception of the treatment as "smooth" (Green, Hadjistavropoulos, & Sharpe, 2008). Hendriks et al. (2006) found that patients' agreeableness predicted their satisfaction with hospital care. Also, several studies have shown that the negative pole of the agreeableness dimension – hostility – is related with negative patient outcomes: Hostility is associated with a poorer alliance with the physician (Burns, Higdon, Mullen, Lansky, & Wei, 1999) and more suspicion and mistrust (Christensen, Wiebe, & Lawton, 1997). Christensen, Wiebe, and Lawton (1997) have also shown that hostility is associated with lower adherence to medical treatments.

Now, do patients high in agreeableness need higher levels of physician affiliativeness in order to show the same levels of satisfaction, trust, and adherence than individuals low in agreeableness? This is suggested by the positive correspondence hypothesis of Kiesler and Auerbach (2003) that I will present in the next paragraph.

Dimension of affiliation: The positive correspondence hypothesis

According to the interpersonal theory of Leary (1957), developed later by authors such as Carson (1969), Wiggins (1979), Kiesler (1983), and Kiesler and Auerbach (Kiesler & Auerbach, 2003), interpersonal behavior can be mapped on two main dimensions, namely the dimension of affiliation, which goes from an extreme of hostility to an extreme of friendliness; and the dimension of dominance, which goes from an extreme of submissiveness to an extreme of dominance. These two dimensions are orthogonal to each other and form an interpersonal *circumplex* (or *circle*). Individuals' behavior and/or personality can be situated anywhere within this circle, depending on their degree of affiliativeness and dominance. This theory – based on the early work of the American psychiatrist Harry Stack Sullivan – was developed by Leary (1957) in the psychiatric setting, as a way to diagnose personality types (and personality disorders) from an interpersonal

point of view. Depending on where individuals were situated within the circumplex, Leary (1957) distinguished the following eight personality types (starting from the top of the circle and turning clockwise): managerial-autocratic, responsible-hypernormal, cooperative-overconventional, docile-dependent, self-effacing-masochistic, rebellious-distrustful, aggressive-sadistic, and competitive-narcissistic.

This interpersonal theory was later developed by Carson (1969), who defined more clearly the intermediate personality traits and behaviors that are situated between the extremes of each dimension. Pathological behaviors and personality types were situated at the borders of the circle, while more adaptive ones were situated in the middle of the circle. In the present doctoral dissertation, I will focus on behaviors that remain adaptive (vs. pathological). So, along the dominance dimension, I will consider behaviors that go from dominant to submissive (rather than dictatorial to subservient). Similary, along the affiliation dimension, I will consider a behavioral and personality range that goes from hostile to friendly (rather than sadistic to devoted). In *Figure 2*, the spectrum of behaviors and personality traits that I consider is represented by first and second circles in the center of figure and excludes the third circle.

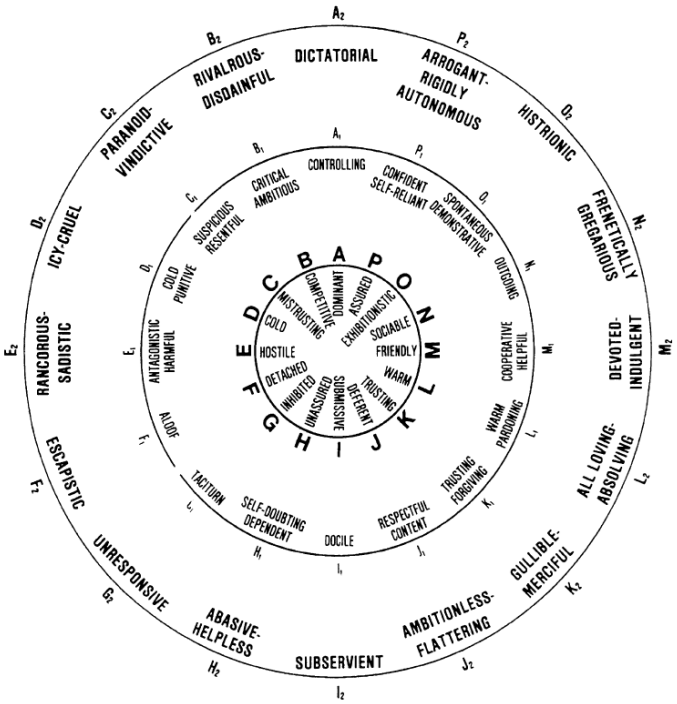

Figure 2. The interpersonal circumplex (Kiesler, 1983).

According to interpersonal theorists (Kiesler, 1983; Kiesler & Auerbach, 2003; Wiggins, 1979), individuals seek and reach complementarity in their interpersonal behavior. Along the affiliation dimension, complementarity takes place in the form of correspondence: high affiliativeness (warmth, friendliness) tends to elicit high affiliativeness, while low affiliativeness (coldness, hostility) tends to elicit low affiliativeness. This claim has received some empirical support inside and outside the medical context (e.g., Sadler, Ethier, Gunn, Duong, & Woody, 2009; Street & Buller, 1987). During medical interactions, it has been shown that physicians and patients reciprocate each other's level of affiliativeness through nonverbal behaviors such as gaze and facing body orientation (Street & Buller, 1987). So, correspondence in affiliative behaviors is more frequent than non-correspondence during medical interactions. But does correspondence lead to better interaction outcomes?

Kiesler and Auerbach (2003) suggested that this was the case and that higher correspondence along the affiliation dimension between the physician and the patient would lead to more successful primary medical outcomes (e.g., patient health status, patient psychological adjustment to the illness) as well as more successful secondary medical outcomes (e.g., patient satisfaction with the medical visit, patient trust in the physician, patient adherence to the treatment) (Kiesler & Auerbach, 2003). However, this hypothesis was never tested directly and this is what we did in Studies 1 to 3 of the present doctoral dissertation.

Previous research indirectly supports the hypothesis that correspondence along the affiliation dimension leads to better interaction outcomes (Hill, 1991; Hirschberg & Jennings, 1980; Koss & Rosenthal, 1997; McIntosh, 2006; Suls & Martin, 2005). It has been shown, for instance, that individuals who describe themselves as more affiliative pay more attention to the level of affiliativeness shown by others (Hirschberg & Jennings, 1980). This could mean that affiliativeness in others is more important for people high in agreeableness than for people low in agreeableness. Also, it has been shown that individuals with high levels of agreeableness react especially strongly (i.e., more affective distress) to social stressors (i.e., interpersonal conflicts) (Suls & Martin, 2005). Low affiliativeness, in the form of hostility, can be considered as a social stressor, and more agreeable individuals could thus react especially negatively to low affiliativeness in others. Furthermore, research has shown that people with strong affiliative needs express more interest in interactions when their partner is warm and

empathetic and express more desire to avoid the interaction when the partner is less warm and less empathic; conversely, people who report lower affiliative needs express little preference for interacting or avoiding the interaction, independently of the partner's behavior (Hill, 1991). So, in the context of physician-patient interactions, patients high in agreeableness might try to avoid physicians low in affiliativeness and seek physicians high in affiliativeness, whereas patients low in agreeableness might show little preferences for one or another communication style. Finally, some evidence exists that correspondence in the form of interactional synchrony or mimicry is associated with more positive interaction outcomes (e.g., more liking of the interaction partner, more feeling at ease with the interaction partner), in social interactions in general (McIntosh, 2006), and in the physician patient-interaction in particular (Koss & Rosenthal, 1997). All of the above-mentioned studies tend to support the hypothesis that correspondence between the physician and the patient along the affiliation dimension leads to better interaction outcomes.

However, other empirical and theoretical evidence show that the opposite prediction could be made (Amitay, 2007; Costa & McCrae, 1992; Moskowitz, 1994, 2010; Sadler et al., 2009). We know that hostile behaviors tend to be reciprocated just like friendly behaviors do (e.g., Sadler et al., 2009): if A behaves in a low affiliative, hostile way, it is likely that B will behave in a low affiliative, hostile way as well. Individuals low in agreeableness, being less tolerant, more critical (Amitay, 2007), and more irritable than individuals high in agreeableness (Costa & McCrae, 1992) might be more likely to reciprocate hostile behaviors than individuals high in agreeableness, and reciprocation of hostile behaviors is unlikely to lead to positive interaction outcomes. So, physician display of hostile or cold behaviors with patients low in agreeableness could be expected to lead to an escalation in hostility more than the display of hostile behaviors with patients high in agreeableness. It had been shown that disagreeable individuals respond with greater quarrelsomeness to quarrelsome behavior (operationalized through behaviors such as not responding to questions or comments, criticizing, raising one's voice, showing impatience) than agreeable individuals do (Moskowitz, 2010). The concept of quarrelsomeness is very close to the one of low affiliativeness (Moskowitz, 1994). It could thus also be hypothesized that correspondence along the affiliation dimension (at least correspondence on the lower end of this dimension) would lead to poorer interaction outcomes (e.g., less patient satisfaction, trust, or

determination to adhere to the treatment) than non-correspondence, in contradiction to the hypothesis of Kiesler and Auerbach (2003).

In the next paragraph, I am going to present the three studies (Studies 1, 2, and 3) that I conducted in order to test the correspondence hypothesis of Kiesler and Auerbach (2003). The first two studies were simulation studies, conducted on a student population, and using experimental designs. The first one simulated a common medical consultation, while the second one simulated a bad news delivery. The third study was a field study, conducted with real patients and physicians.

Remember that for each of the three studies, I will present only the main methodological features and the main results. The details of each study can be found in the related sections (B, C, or D) were I report in their entirety the manuscripts stemming from those studies.

Study 1: Correspondence in affiliation in a simulated standard medical interview

➔ See section B: Cousin, G., & Schmid Mast, M. (in press). Agreeable patient meets affiliative physician: How physician behavior affects patient outcomes depends on patient personality. *Patient Education and Counseling*. Advance online publication. doi:10.1016/j.pec.2011.08.004.

Study 1 was conducted with 58 student participants (34 women / 24 men) who watched 2 min silent video excerpts of 4 physicians (2 men / 2 women) displaying a highly affiliative nonverbal behavior and of 4 physicians (2 men / 2 women) displaying a less affiliative nonverbal behavior (affiliativeness had been coded by 224 independent raters). An *analogue patient* methodology (VanVliet et al., 2012) was used, meaning that participants were asked to put themselves in the shoes of a patient, imagine consulting each of the physicians on the videos with a medical problem (no further precisions were given), and to report what they thought their satisfaction would have been in a real medical interview with the physician, their trust in the physician, their determination to adhere to the treatment, and their perception of the physician's competence. They also filled in the agreeableness scale of the NEO-PI-R (Costa & McCrae, 2007) personality questionnaire.

Note that the use of analogue patients is relatively frequent in the field of physician-

patient communication (e.g., Schmid Mast, Kindlimann, & Langewitz, 2005; Shapiro, Boggs, Melamed, & Graham-Pole, 1992; Wilson & McNamara, 2002) and has shown to be a valid methodology (Blanch-Hartigan, Hall, Krupat, & Irish, in press; VanVliet et al., 2012). Also, note that we chose to focus on the nonverbal aspect of physician affiliativeness in this first study because literature shows that perceived affiliativeness in an interaction partner is linked to the nonverbal aspects of his or her communication style more than to the verbal ones (Bensing, 1991; Burgoon, Buller, & Woodall, 1996).

Our results revealed that the more agreeable the analogue patients were, the more they trusted the physicians who displayed high rather than low levels of nonverbal affiliativeness, the more they thought they would follow a treatment given by such physicians, and the more competent they perceived them (control variables were: analogue patients' gender, age, perceived health status, and experience with medical care). Study 1 confirmed Kiesler and Auerbach's (2003) hypothesis in showing that correspondence between patient and physician along the affiliation dimension led to better interaction outcomes (in this case: more patient trust, more patient determination to show adherence to the treatments, and the patient's perception that the physician is more competent).

Moreover, the perception of the physician's competence mediated (explained) the effect of patients' agreeableness on their reactions to the physician's degree of affiliativeness. The higher the personality trait of agreeableness in the patients, the more competent they perceived physicians behaving in a highly affiliative way compared to physicians behaving in a less affiliative way, and this explained why patients with higher levels of agreeableness had more trust in the more affiliative physicians, and were more determined to show adherence to the treatments of such physicians.

In a second study (Study 2), we wanted to test whether these results could be replicated when the physician has to communicate bad news to the patient concerning the diagnosis. Disease gravity determines the importance of a given physician communication style on patient outcomes: As the gravity of the disease increases, so decreases the importance of the physician communication style (Wiebe & Christensen, 1996). So our question was: Are analogue patients higher in agreeableness still more sensitive to the physician's degree of nonverbal affiliativeness when they imagine receiving bad news about

a diagnosis (i.e., in a situation in which they should care less about physician communication style)?

Study 2: Correspondence in affiliation in a simulated medical bad news delivery

➔ See section C: Cousin, G., & Schmid Mast, M. (in press). Trait-agreeableness influences individual reactions to a physician's affiliative behavior in a simulated bad news delivery. *Health Communication*.

In Study 2, the diagnosis of a potentially serious disease – hepatitis B – was communicated to analogue patients. Like in Study 1, we investigated whether participants with high scores of agreeableness need more physician nonverbal affiliativeness to report the same levels of satisfaction, trust, and adherence than participants with low scores of agreeableness. Bad news typically elicit strong negative emotions in the patients (Fallowfield & Jenkins, 2004). In this study, we focused on the emotion of anger as a potential mediator of the effect of physician communication style on participants' reaction depending on their personality (i.e., mediated moderation). Patient anger is of special interest because it has been related to poorer physician-patient alliance (Dan et al., 2007; Leombruni et al., 2009), and such alliance is important for the success of the treatment (Roter, 2000). We predicted that participants with higher scores of agreeableness would report less anger in a bad news delivery situation when facing a highly affiliative physician than when facing a less affiliative physician, and that this decrease in anger would explain why more agreeable participants report more satisfaction, trust, and determination to adhere to the treatment when facing more affiliative physicians.

Eighty student participants (40 women / 40 men) were randomly allocated either to a condition in which a male actor portrayed a physician giving a diagnosis of hepatitis B while adopting a highly affiliative nonverbal behavior, or to a condition in which the same actor delivered this diagnosis (same verbal content) while adopting a nonverbal behavior that was less affiliative (e.g., less gazing at the patient and less facial expressiveness as expressed through less smiling, less frowning, and less eyebrow raising). Participants were asked to imagine receiving this diagnosis in a real medical interview (analogue patient methodology, like in Study 1) and to report what their satisfaction with the physician would have been, as well as their trust in him, their determination to adhere to the treatment, and their

emotional reaction of anger. They also filled in the agreeableness scale of the NEO-FFI (Costa & McCrae, 2007) personality questionnaire.

Results confirmed our hypotheses for the outcomes of anger and trust, and not for the outcomes of satisfaction and adherence (analogue patients' gender was a control variable in all analyses). The more agreeable the analogue patients were, the less anger and the more trust they reported with a highly affiliative physician as compared to a less affiliative physician. Like in Study 1, Kiesler and Auerbach's (2003) hypothesis was supported: correspondence between patient personality and physician nonverbal behavior along the affiliation dimension (i.e., a patient low in agreeableness facing a physician low in affiliativeness or a patient high in agreeableness facing a physician high in affiliativeness) led to better interaction outcomes (i.e., less patient anger, more patient trust). Results for the outcome of trust are presented in *Figure 3*.

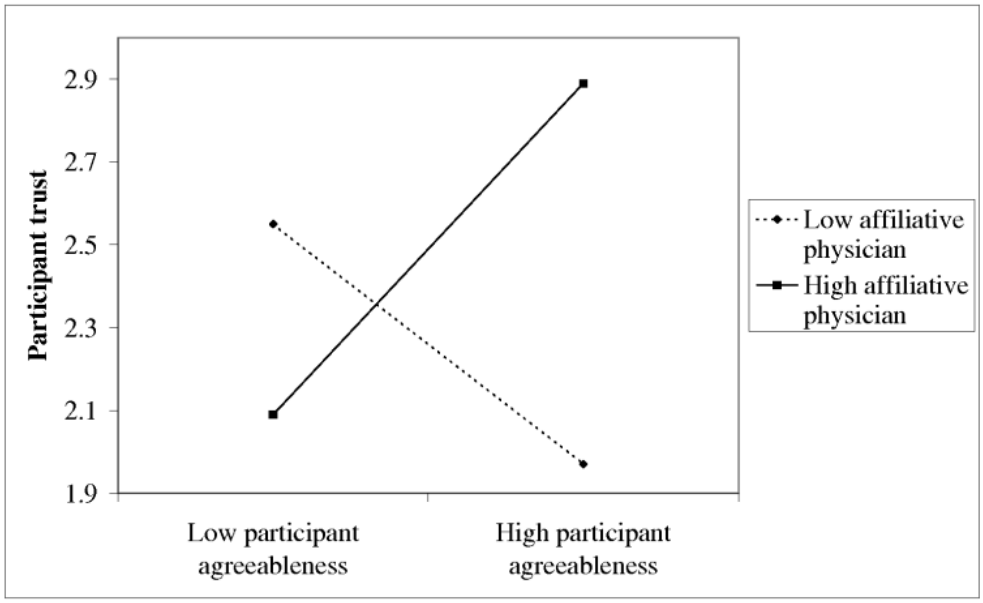

Figure 3. Correspondence along the affiliation dimension and patient trust (Study 2).

Moreover, analogue patients' reported anger mediated (explained) the link between their personality trait of agreeableness and their reaction of trust depending on the physician's degree of affiliativeness. Patients with higher levels of agreeableness reported less anger when the physicians communicated in a highly affiliative way rather than in a less

affiliative way, and this decrease in anger explained why patients with higher levels of agreeableness had more trust in the more affiliative physicians.

The results of Study 2, like the results of Study 1, were based on simulated medical interviews, and on samples of healthy, young, and well-educated individuals (university students). This could potentially be a problem in terms of external validity and generalization of the results. In a next study (Study 3), we tended to replicate the results obtained in Studies 1 and 2 in a real medical setting (i.e., real physician-patient interactions). Also, Studies 1 and 2 had only focused on physician nonverbal affiliativeness. In Study 3, we measured physician affiliativeness on the basis on both verbal and nonverbal cues.

Study 3: Correspondence in affiliation in a field setting

➔ See section D: Cousin, G., & Schmid Mast (2012). *Breaking the ice: Difficult patients are especially sensitive to physician warmth in communication style.* Manuscript submitted for publication.

Thirty-six general practitioners (16 women / 20 men) working in their own practice in Switzerland were filmed during their consultations with 69 patients (one male and one female patient for each physician; 3 missing data). Patients were on average 50.72 years old (*SD* = 18.19) and faced different medical problems (e.g., back pain, asthma, hypertension). After the visit, patients were asked about their satisfaction with the physician, their trust in him or her, and their determination to adhere to the treatment. Also, they filled in the NEO-FFI (Costa & McCrae, 2007) agreeableness scale.

Physician affiliativeness was coded by an independent rater on the basis of the videos. The rater viewed 3 x 5 min excerpts of each video and made a global rating of physician affiliativeness (based on both verbal and nonverbal cues) using adjectives from the Revised Interpersonal Adjective Scale (IAS – R) of Wiggins, Trapnell, and Philipps (1988). The coding procedure consisting of taking excerpts (in this case: 3 x 5 min excerpts) is known as the *thin slice* procedure (Ambady, Bernieri, & Richeson, 2000). This procedure has proved to be a valid on, as the frequency of interactants' behaviors in short excerpts (e.g., 1 min, 5 min) are usually representative of the frequency of those behaviors in longer excerpts (e.g., a 15 min interaction) (Murphy, 2005).

Like in simulation studies (Studies 1 and 2), results showed that the personality trait of agreeableness predicted patients' reactions to the physician's level of affiliativeness in communication style, with regard to the outcomes of satisfaction and trust, and not for the outcome of adherence (controlling for physician gender, physician dominance in communication style, patient gender, patient age, and the gravity of the medical problem). However, the shape of the interaction was different from the one in Studies 1 and 2: In the present field study, patient satisfaction and trust was very high in all cases, except when patients low in agreeableness faced physicians who were also low in affiliativeness. These results contradicted Kiesler and Auerbach's (2003) hypothesis of a positive effect on patient outcomes of correspondence between physician and patient along the affiliation dimension: Our results showed that correspondence between the patient personality and the physician communication style on the lower end of the affiliation dimension (i.e., patients low in agreeableness facing physicians low in affiliativeness) was associated with worse rather than better patient outcomes (i.e., less patient satisfaction and less patient trust in the physician). The results are displayed in *Figure 4* (for the outcome of satisfaction) and in *Figure 5* (for the outcome of trust).

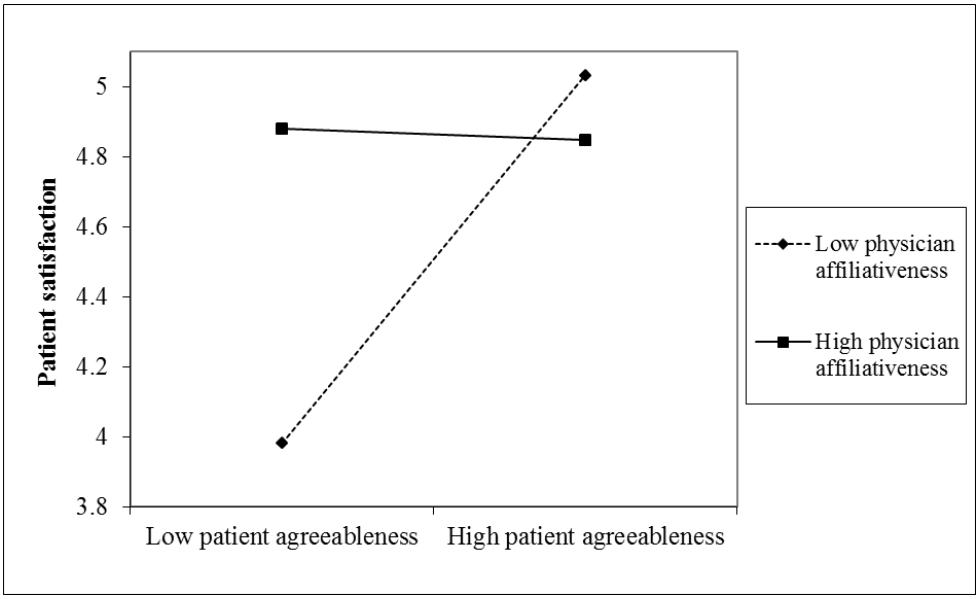

Figure 4. Correspondence along the affiliation dimension and patient satisfaction (Study 3).

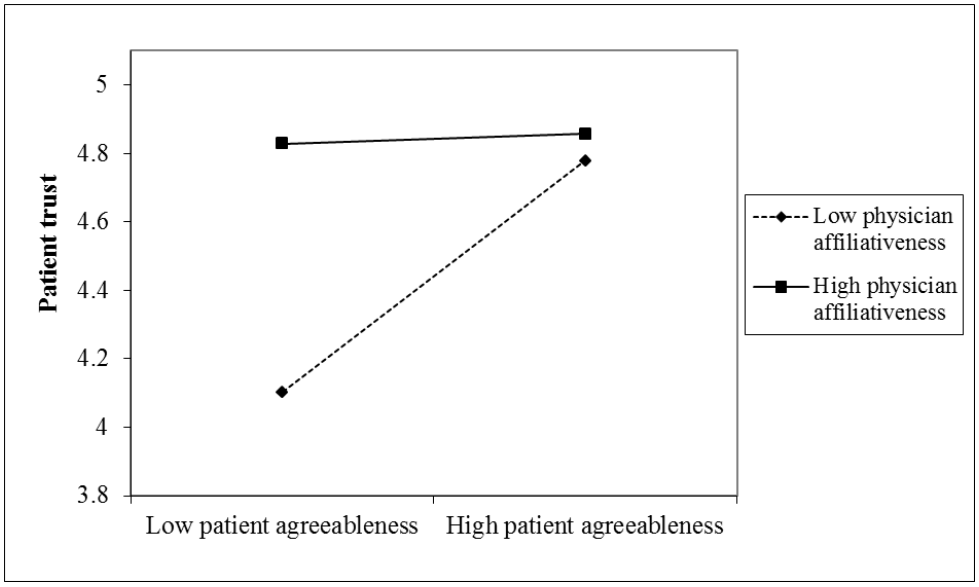

Figure 5. Correspondence along the affiliation dimension and patient trust (Study 3).

2.2 Patient attitudes

The concept of attitude refers to relatively enduring and general evaluations made by an individual about concepts, objects, persons, and behaviors (VandenBos, 2007). Many studies have been conducted on how correspondence between physicians' and patients' attitudes toward physician communication style (i.e., agreement between physicians and patients about how physicians should communicate) leads to better interaction outcomes (see review of Kiesler & Auerbach, 2006). Those studies show for instance that when physicians and patients give the same importance to patient-centeredness (i.e., high level of affiliativeness and low level of dominance) in physician communication style, patients are more satisfied (Krupat, Hsu, Irish, Schmittdiel, & Selby, 2004; Krupat, Rosenkranz, et al., 2000). Also, it has been shown that correspondence between the physician and the patient regarding their attitude toward physician dominance leads to more patient trust in the physician (Krupat, Bell, Kravitz, Thom, & Azari, 2001).

However, past research had usually not studied attitudes toward affiliativeness and dominance separately, but had merged them into the concept of attitude toward patient-centeredness, which makes difficult to disentangle their respective effects. Also, most studies had measured physician attitudes toward affiliativeness and dominance, but not physician affiliativeness and dominance in their *actual communication style*. This is potentially problematic because there may be a gap between what a physician considers as

an appropriate communication style and how he or she actually behaves with a patient in a real situation. For instance, a physician might value physician sharing of medical information positively (i.e., have a negative attitude toward physician dominance), but not have the time, the experience, or the determination to actually share medical information with the patients in real consultations. In Study 4, we aimed at seeing whether 1) correspondence between patient attitude toward affiliativeness and physician actual affiliativeness in communication style leads to more patient satisfaction, and 2) whether correspondence between patient attitude toward dominance and physician actual dominance in communication style leads to more patient satisfaction.

Note that in the manuscript that was published on the basis of Study 4 (see section E), we used the term *caring* instead of affiliativeness and the word *sharing* instead of dominance (high sharing corresponds to low dominance). For the sake of clarity, I will use the terms affiliativeness and dominance in the following paragraphs, like in the rest of this doctoral dissertation.

Study 4: Do patients' attitudes predict their reactions to physician affiliativeness and dominance?

➔ See section E: Cousin, G., Schmid Mast, M., Hall, J. A., & Roter, D. L. (2012). Correspondence between physician communication style and patient attitudes predicts patient satisfaction. *Patient Education and Counseling, 87,* 193-197.

We analyzed data from a previous study conducted by Schmid Mast, Hall, and Roter (2007) in which 167 student participants had been asked to imagine that they were consulting a physician for recurrent headaches (analogue patient methodology) and interacted with a virtual physician presented on a computer screen. Participants had been randomly allocated to one out of four conditions that varied in the level of physician verbal affiliativeness (high vs. low) and in the level of physician verbal dominance (high vs. low) (2 x 2 design). At the end of the interaction, participants reported their satisfaction with the virtual physician and filled in Krupat and colleagues' (2000) questionnaire on attitudes toward affiliativeness (affiliativeness orientation) and dominance (dominance orientation).

Results confirmed our hypotheses. The more analogue patients valued physician affiliativeness (i.e., had a positive attitude toward physician affiliativeness), the more satisfied they were with a physician high in affiliativeness compared to a physician low in affiliativeness. Similarly, the more analogue patients valued physician low dominance (sharing), the more satisfied they were with a physician low in dominance compared to a physician high in dominance. Moreover, the results showed that all analogue patients – independently of their attitude toward affiliativeness – were more satisfied with a physician high in affiliativeness than they were with a physician low in affiliativeness, while the dominance orientation of the participants determined whether they would be more satisfied with a physician that was high in dominance or with a physician that was low in dominance. Those results are reported in *Figure 6* (for correspondence between patient attitude toward affiliativeness and physician affiliativeness) and in *Figure 7* (for correspondence between patient attitude toward dominance and physician dominance).

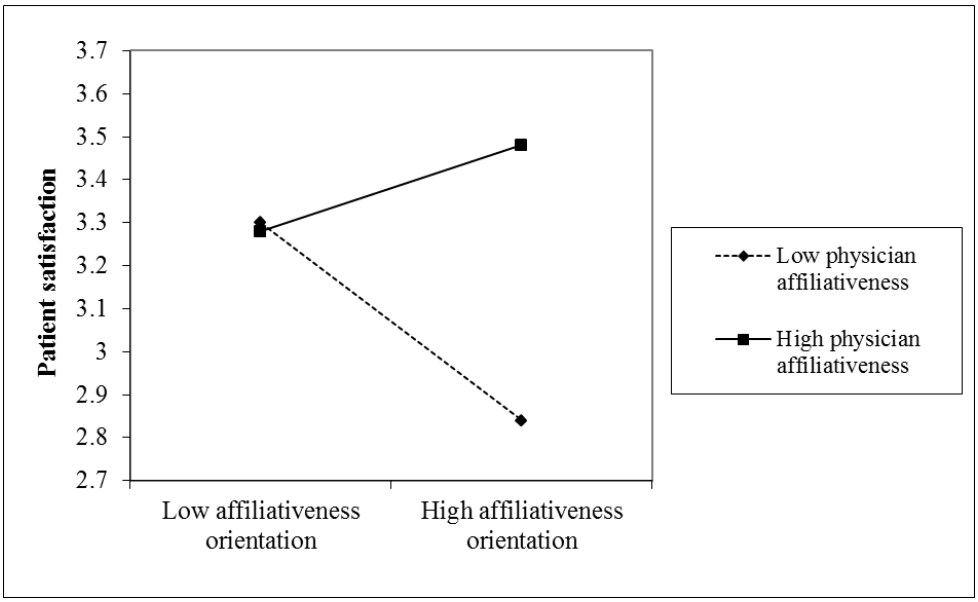

Figure 6. Correspondence between patient attitude toward affiliativeness and physician affiliativeness.

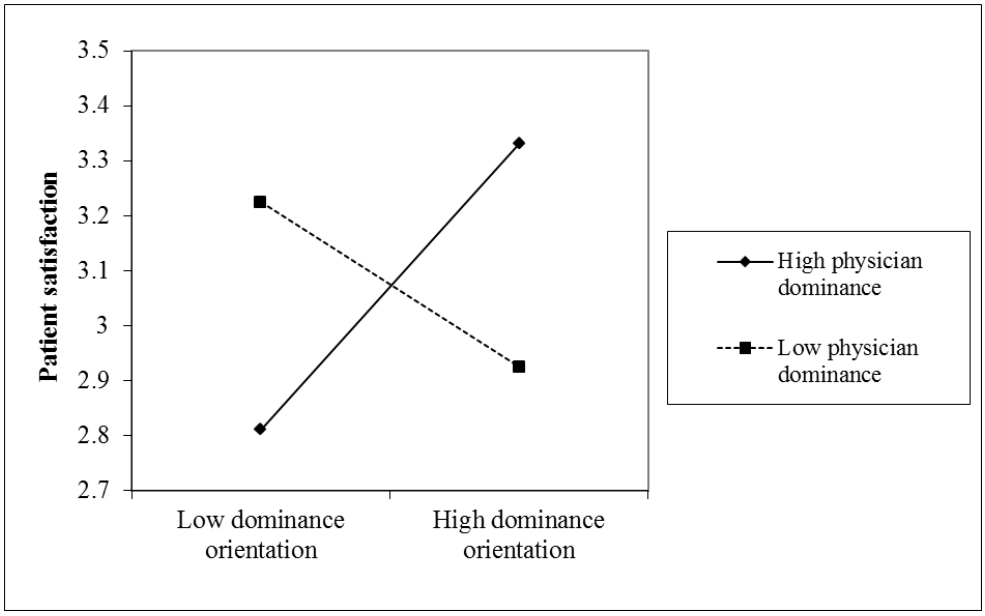

Figure 7. Correspondence between patient attitude toward dominance and physician dominance.

2.3 Patient gender

Research shows that gender plays an important role in physician-patient interactions: In a published review of the literature on gender within medical consultations (see section G), I have shown that physicians and patients do not communicate in the same way depending on the gender of the physician (Hall, Irish, Roter, Ehrlich, & Miller, 1994a; Henderson & Weisman, 2001; Roter & Hall, 2004; Roter, Hall, & Aoki, 2002), on the gender of the patient (Bertakis & Azari, 2007; Chapman, Tashkin, & Pye, 2001; Hall & Roter, 1995; Martin, Gordon, & Lounsbury, 1998), and on the interaction between the physician's gender and the patient's gender (Baumhäkel, Müller, & Bohm, 2009; Gross et al., 2008; Zaharias, Piterman, & Linddell, 2004). For instance, it has been documented that male patients communicate in a less affiliative way and ask fewer questions than female patients do (Hall & Roter, 1995). In analyses of audiotaped consultations, male patients' voice was found to expresses more boredom and less interest than female patients' voice, and sounded less anxious (Hall et al., 1994a). Also, physicians (both female and male) communicate differently depending on the gender of the patient: They express more empathy to female patients than to male patients, they talk in a less dominant way with female patients, and they ask about female patients' emotions more than they ask about male patients' emotions (Hall &

Roter, 1995). Moreover, physicians communicate more information and do more prevention with female patients than they do with male patients (Bertakis & Azari, 2007). In Study 5, we hypothesized that patient gender would play a role on patients' reactions to an important variable of the physician's communication style, namely physician communication of medical uncertainty. Key elements of our reasoning are presented in the following lines.

Communicating medical uncertainty is a delicate issue for physicians. On the one side, medical guidelines usually recommend that physicians honestly disclose uncertainties regarding the diagnosis or the treatment (Henry, 2006; Hewson et al., 1996), as it is viewed as part of the patient-centered attitude, as a component of shared decision-making, as more ethical, and as a way to prevent unrealistic patient expectations regarding the course of the illness and treatment (Gordon et al., 2000). On the other side, research on the potential impact of such communication of uncertainty has produced conflicting results in the literature so far, showing either no relationship (Epstein et al., 2007; Gordon et al., 2000) or a negative relationship between physician expressed uncertainty and patient satisfaction (Blanch et al., 2009; Johnson et al., 1988). In Study 5, we made the hypothesis that gender differences in the composition of the samples were likely to explain past inconsistencies in research on the links between physician expressions' of medical uncertainties (regarding the diagnosis, the treatment, or the consequences of the treatment) and patient satisfaction.

Research shows that the gender of the patient (and the gender composition of the physician-patient dyad) is important when predicting patient outcomes (Franks & Bertakis, 2003; Hall et al., 1994a; Koss & Rosenthal, 1997; Zaharias et al., 2004). Opposite-gender constellations typically result in less positive interactions than same-gender constellations (Franks & Bertakis, 2003; Hall et al., 1994a; Koss & Rosenthal, 1997; Zaharias et al., 2004) and the female physician – male patient dyad typically produces the most negative interaction outcomes (e.g., lowest patient satisfaction rates, patient voice judged by external raters as expressing more dominance and more boredom than in other types of gender dyads) (Hall et al., 1994a, 1994b; VandenBrink-Muinen, VanDulmen, Messerli-Rohrbach, & Bensing, 2002). The poorer outcomes of the female physician – male patient dyad might be explained by the conjunction of two factors: the persistence of negative stereotypes regarding women in traditionally male professions (Biernat & Kobrynowicz, 1997; Boldry,

Wood, & Kashy, 2001; Heilman, 2001) and the fact that men are more prejudiced regarding women than women do (Bierly, 1985; Swim, Aikin, Hall, & Hunter, 1995).

Because of the potential existence of negative stereotypes regarding female physicians in male patients, we suspected that male patients would perceive female physicians' expression of uncertainty more negatively (e.g., as a sign of incompetence or as a lack of self-assurance) than female patients, and react more negatively (i.e., less satisfaction) to such expression of uncertainty. This is what we aimed at testing in Study 5.

Study 5: Does patients' gender predict their reactions to physician expressed uncertainty?

➔ See section F: Cousin, G., Schmid Mast, M., & Jaunin-Stalder, N. (2012). *When physician expressed uncertainty negatively impacts on patient satisfaction: A gender study*. Manuscript submitted for publication.

The data came from Study 3 (see pp. 32-33): Thirty-six general practitioners (16 women / 20 men) were filmed during their consultations with 69 patients (33 women / 36 men) of different age groups (*M* = 50.72; *SD* = 18.19) and presenting different medical problems. At the end of the medical visit, patients received a questionnaire including questions about their satisfaction with the physician, their trust in the physician, and their determination to adhere to the treatments.

Physician's communication of medical uncertainties was coded by an independent rater on the basis of the videos. Some attempts have been made by researchers to develop coding schemes for physicians' expressions of uncertainty (Blanch et al., 2009; Gordon et al., 2000; Johnson et al., 1988), but no validated scheme exists so far. In Study 5, we used global ratings of physician expressed uncertainty: The rater viewed the videos in their entire length and rated each physician's expressed uncertainty on Likert scales (0 = *no uncertainty* to 10 = *total uncertainty*) with respect to three aspects: 1) uncertainty regarding the nature of the medical problem (i.e., the diagnosis), 2) uncertainty regarding the (best) treatment to adopt, and 3) uncertainty regarding the consequences of the treatment (e.g., side effects, time until remission). The ratings of each of three aspects were then averaged, creating a global score of expressed uncertainty for each physician.

The analyses showed that the effect of physician communication of medical uncertainties interacts with patient gender and physician gender in predicting patient

satisfaction. Physician communication of medical uncertainties was associated with less patient satisfaction only when the physician was a woman and the patient was a man. In all three other gender combinations (i.e., male physician with a male patient, male physician with a female patient, female physician with a female patient) physician expressed uncertainty was not significantly related to patient satisfaction.

Note that a test of the slope differences revealed that the slope of the regression in the female physician – male patient dyad (slope n° 4 in *Figure 8*) differed significantly from the slope of the female physician – female patient dyad (n°3) and from the slope of the male physician – male patient dyad (n°2), but not from the slope of male physician – female patient dyad (n°1).

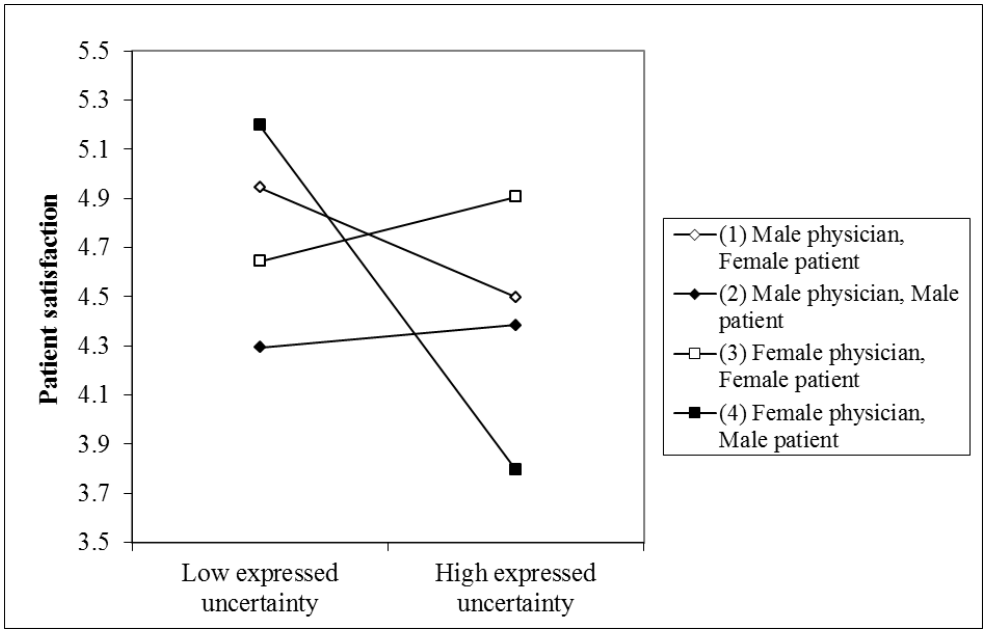

Figure 8. Male patients' dissatisfaction with female physicians' expressed uncertainty.

3. Results synthesis and discussion

In this section, I will synthesize and discuss the results of Studies 1 to 5 about the influence of patient individual characteristics on their reactions to their physicians' communication style. First, I will present the results related to the influence of patients' personality trait of agreeableness on their reactions to physician's affiliativeness in communications style and give potential explanations for the different patterns of results that we have observed between the two simulation studies (Studies 1 and 2) and the field study (Study 3). Then, I will discuss the results of Study 4 regarding the influence of patients' attitude towards physician affiliativeness on their reactions to physician's affiliativeness, and on the influence of patients' attitude toward dominance on their reactions to physician's dominance. Finally, I will discuss the results of Study 5 regarding the influence of patient (and physician) gender on patients' reactions to the physician's expression of medical uncertainties, and speculate about the potential interpretations that can be given to those results.

3.1 Patient agreeableness

The results of Studies 1 (section B), 2 (section C), and 3 (section D) show that the patient's personality trait of agreeableness interacts with the physician's degree of affiliativeness in predicting patient outcomes such as satisfaction (Study 3), trust (Study 1, 2, and 3), and determination to show adherence to a medical treatment (Study 1). The three studies show that patient agreeableness needs to be taken into account when predicting patient reactions to physician affiliativeness in communication style.

However, the shape of the interactions between physician behavior and patient personality along the affiliation dimension differed between the two simulation studies (Studies 1 and 2) and the field study (Study 3). In the simulation studies, correspondence between the analogue patient's degree of agreeableness and the physician's affiliativeness led to better patient outcomes (e.g., see *Figure 3*, p. 36). In the field study, correspondence along the affiliation dimension led to *poorer* patient outcomes (see *Figure 4,* p.38, and *Figure 5*, *p. 39*). Put differently, in the simulation studies, individuals high in agreeableness were the most sensitive ones to differences in the physician's degree of affiliativeness (the ones for which high affiliativeness had the most positive impact compared to low affiliativeness),

while in the field study, it was the opposite: the most sensitive ones to differences in the physician's degree of affiliativeness were the patients low in agreeableness (the ones for which low affiliativeness had the most negative impact compared to high affiliativeness).

How can we understand the difference between the simulation studies and the field one? First, it is important to remember that the simulation studies and the field one differed from each other with respect to several aspects, and notably with regard to three things: 1) the operationalization of physician affiliativeness (nonverbal cues alone vs. interaction of verbal and nonverbal cues), 2) the design (simulated vs. real interactions), and 3) the socio-demographics of the sample (young samples vs. older sample). There is no simple answer to the question about the origin of the difference in the results, because it can stem from any of the differences in the design and methodology of the studies, or from a combination of those differences. In the next paragraphs, however, I will try to present the most likely explanations.

Does the difference in the shape of the interaction (between physician affiliativeness and patient agreeableness) come from the fact that in the simulation studies (Studies 1 and 2) we only manipulated the nonverbal aspect of physician affiliativeness, while in the field study (Study 3) we used a composite measure of both verbal and nonverbal physician affiliativeness? This seems plausible, at first, because we know from previous literature that the impact of the nonverbal communication on certain emotions (e.g., anger, anxiety) can be the exact opposite of the impact of the verbal communication on the same emotions (Hall, Roter, & Rand, 1981): For instance, patients are more satisfied when the tone of voice (i.e., nonverbal channel) of the physician expresses more anger and more anxiety, but they are *less* satisfied when the physician speech (i.e., verbal channel) expresses more anger and more anxiety. This is why we did a second coding of physician affiliativeness in Study 3 with the videos in silent mode (in order to capture nonverbal affiliativeness only). However, the results of these additional analyses revealed that with such a coding, the effect of patients' agreeableness on their reactions to physician affiliativeness merely disappeared (i.e., there was no significant interaction effect any more). We could not replicate the results of the simulation studies (i.e., correspondence along the affiliation dimension between the patient's personality and the physician's nonverbal behavior leads to better patient outcomes). As a consequence, the addition of the verbal channel in Study 3 does not explain

– at least not alone – the difference that we found in the pattern of the results between the simulation studies and the field study.

Let us now consider the designs of the studies. In the simulation studies, patients had to imagine that they were consulting physicians shown on videos, but they did not suffer from actual medical problems, as it was the case in the field study. Analogue patients of the simulation studies had to *imagine* what their satisfaction, trust, and adherence would be in a real medical interview if they were facing the physicians shown on the videos, while patients of the field study reported their satisfaction, trust, or adherence with real physicians they consulted for actual medical problems. It might be that individuals react differently to expressed affiliativeness depending on their level of agreeableness and depending on whether they have to imagine what their reactions would be in a real situation or whether they actually face a real physician with a real medical problem. Individuals low in agreeableness might show little involvement in simulation studies because they are little cooperative and helpful (Costa & McCrae, 1992), whereas they are likely to be fully involved in a real study (because they care about their health). Individuals high in agreeableness, on the contrary, might show involvement in both types of study: in the simulation studies because they are cooperative and helpful (Costa & McCrae, 1992), and in the field study because they care about their health. This would explained why in the simulation studies, disagreeable individuals reported no or less variations in satisfaction depending on the level of nonverbal affiliativeness shown by the physician on the video (Study 1) or why they tended to prefer a physician low in affiliativeness (Study 2), but why they seemed to react more negatively to physician low affiliativeness in a real situation (Study 3). However, this does not explain the results we found for individuals high in agreeableness: If patients high in agreeableness were involved in both in the simulation studies and in the field study, why did they seem to react to the physician's communication style in the simulation studies (Studies 1 and 2), but seemed *not* to react to it in the field study (Study 3)?

The fact that patients high in agreeableness reacted to the physician's communication style in the simulation studies, but did not react to it (or less) in the field study might be explained by an additional factor, namely by the different populations that where studied in the simulation studies and in the field study. In the simulation studies, we investigated student populations, whereas in the field study, we used a sample that was

more representative of the population that consults for medical problems (i.e., older patients on average and a wide age range). Young adults typically have lower levels of agreeableness than older individuals (Costa & McCrae, 1992) and our samples were no exception to the rule. The consequence of this is that analogue patients considered as "high" in agreeableness in the older sample (Study 3) were on average higher in agreeableness that the analogue patients considered as high in agreeableness in the younger samples (Study 1 and 2), and might have been even more tolerant and accepting with regard to their physician communication style. This would explain why patients of the field study labeled as "high" in agreeableness (who were actually "very high" in agreeableness compared to patients of the simulated study) were highly satisfied with the low affiliative physicians. Then, because they were already highly satisfied with low affiliative physicians, they had no reason or no possibility to show much of an increase in satisfaction with more affiliative physicians. On the contrary, patients "high" in agreeableness in the simulation studies (who were actually only "moderately high" in agreeableness compared to patients of the field study, and thus maybe more critical with their physicians) were only moderately satisfied with the physicians low in affiliativeness and had the opportunity to show an increase in satisfaction with physicians higher in affiliativeness. This would explain why patients of the simulation studies who were (moderately) high in agreeableness agreeable reacted to an increase in physician affiliativeness in the simulation studies, while patients of the field study who were (very) high in agreeableness did not react to it.

Because young individuals are lower in agreeableness (Costa & McCrae, 1992), the results related to the young samples of the simulation studies (Studies 1 and 2) might only generalize to people who are on the lower end of the agreeableness dimension, but not to the whole population that consults for medical problems (i.e., higher mean age, larger age range) (Study 3). As a consequence, there is more external validity in the results of the field study (Study 3). Also, if it is true that patients low in agreeableness showed little involvement in the simulation studies and if this explains why they did not react to changes in the physician's degree of affiliativeness in the simulated setting, the results of our simulation studies should be taken with caution. Study 3 probably gives a more accurate picture of reality than Studies 1 and 2 do. So, a tentative conclusion would be that correspondence, along the affiliation dimension, does *not* lead to better patient outcomes,

in contradiction to the hypothesis made by Kiesler and Auerbach (2003). Future research will have to replicate the results of Study 3 in order to confirm this claim.

3.2 Patient attitudes

In Study 4 (section E), patients' attitudes moderated the link between the communication style of a virtual physician and analogue patients' outcomes. The more positive patients' attitude toward physician affiliativeness, the more satisfied they were with a physician who adopted a communication style that was high rather than low in affiliativeness. Similarly, patients' attitude toward dominance predicted how analogue patients reacted to a virtual physician's dominance in communication style: The more positive patients' attitude toward physician dominance, the more satisfied they were with a physician communication style that was high rather than low in dominance.

Several studies had shown that correspondence between patient and physician attitudes toward affiliativeness and dominance led to better patient outcomes (e.g., Krupat et al., 2004; Krupat, Rosenkranz, et al., 2000). Study 4 was a simulation study but it is the first one – to the best of my knowledge – that showed a positive correspondence effect between physician *actual communication style* and patient attitudes on a patient outcome. In this study, physician behavior was manipulated. The advantage is that we could test a causal relationship and see whether the interaction between patient attitudes and physician communication style produced the predicted effect on the satisfaction outcome. However, patients were not real patients and physicians were computer avatars. The results will have to be replicated in a field study in order to reach higher levels of external validity.

3.3 Patient gender

In Study 5 (see section F), we have shown that patient gender interacts with physician gender in predicting patients' satisfaction when physicians communicates uncertainty regarding the diagnosis, the treatment to adopt, and/or the consequences of the treatment. Physician expressed uncertainty had no impact on patient satisfaction, except when the physician was a woman and the patient a man: In the latter case, the more uncertainties female physicians expressed during the medical consultation, the less satisfied male patients were.

These results are interesting in that they suggest that male and female patients do not use the same criteria for judging male and female physicians. In the manuscript issued from the study (section F), we make the argument that the results could be explained by two phenomena: 1) by negative stereotypes and expectations regarding women's performance in high status position (Eagly & Carli, 2007; Eagly & Karau, 2002; Eagly, Makhijani, & Klonsky, 1992; Heilman, 1983), and 2) by the fact that men are more prejudiced against women than women are (Bierly, 1985; Swim et al., 1995). In other words, female physicians' expression of uncertainty might confirm negative expectations toward them and lead to lower patient satisfaction, and especially in male patients because men are more prejudiced against women than women are.

Two major comments need to be made on the results of Study 5. The first one relates to the fact that expressed uncertainty showed a significant (negative) correlation with patient satisfaction only in the female physician – male patient dyad, but that this result was not significantly different from the one of the opposite gender composition, namely the male physician – female patient dyad. It might be that expressed uncertainty leads to lower satisfaction not only when the physician is a woman and the patient is a man, but in both types of opposite-gender dyads. A replication with a larger sample size will be needed to answer this question.

The second comment pertains to the fact that Study 5 used a global rating of physician expressed uncertainty. Such global rating probably has the advantage of capturing subtle expressions of uncertainty that would be difficult to capture with a definite list of expressions of uncertainty. However, the disadvantage is that we do not know which specific expressions of uncertainty in female physicians led to lower satisfaction in male patients. As documented in the literature (Odgen et al., 2002) , certain expressions of uncertainty (e.g., "let's see what happens", "I don't know") can be more detrimental to patient satisfaction than others (e.g., "I'm not sure about this", "I need time to find out"). It might have been that the communication of uncertainty was different in the female physician – male patient dyad than it was in other dyadic gender compositions, which would be an alternative explanation for our results. This probably needs to be investigated further, with a coding of physicians' specific expressions of uncertainty.

4. Integration: Toward selective adaptations in physician-patient communication

In this subsection, I will integrate the results of the different studies presented in this doctoral dissertation and consider what they suggest in terms of physician's communication adaptations to patient characteristics. No definitive conclusions can be drawn from such a limited number of studies, but our results nevertheless suggest that adaptation of physician communication style to patient characteristics is desirable in some cases, unnecessary in some others, or even problematic sometimes. As I will show in the following paragraph, what we probably need is what I would like to call *selective* adaptations, namely adaptations of only certain aspects of the physician communication style (e.g., dominance) to certain characteristics of the patient (e.g., attitude toward dominance).

4.1 Are adaptations to the patient's agreeableness superfluous?

I have investigated the influence of the patients' personality trait of agreeableness on their reaction to the degree of affiliativeness shown in physician communication style across three studies: Studies 1, 2, and 3. After having discussed the results of these studies (see subsection 3.1, pp. 46-50), I have concluded that Study 3 probably reflects a more accurate picture of reality than Studies 1 and 2 do (notably because of the field setting and more representative age of the participants of Study 3). This is why I will focus on the results of Study 3 in this section. In the latter study, patient satisfaction and trust were high except in one case: When patients with low levels of agreeableness faced physicians with low levels of affiliativeness. In such case, patient satisfaction and trust decreased.

The fact that patients reacted differently to physician affiliativeness depending on their personality trait of agreeableness does not necessarily call for physician's adaptivity in communication style. Our results only suggest that when physicians do not adopt a highly affiliative communication style, this is more detrimental to the satisfaction and trust of patients low in agreeableness than to the satisfaction and trust of patients high in agreeableness. However, even patients who had the least positive attitude toward affiliativeness did not react better to low physician affiliativeness than to high physician affiliativeness. This suggests that physicians should remain highly affiliative with all patients,

independently of the patient's level of agreeableness, with confidence it will ensure the highest levels of satisfaction and trust. As a consequence, it does not seem necessary that physicians adapt their level of affiliativeness to their patients' personality trait of agreeableness – at least with regard to the patient outcomes that we considered (i.e., patient satisfaction, trust, and determination to adhere to the treatment).

4.2 Adapting to patients' attitudes toward dominance seems necessary

Study 4 showed that analogue patients, depending on their attitudes toward affiliativeness, reacted differently to the level of verbal affiliativeness shown by a virtual physician in terms of satisfaction with the physician. Also, depending on their attitudes toward dominance, patients reacted differently to the level of dominance shown by the physician in terms of satisfaction with the physician. However, while all analogue patients reported more satisfaction with highly affiliative physicians than with less affiliative physicians, independently of their attitudes toward affiliativeness, patients' attitudes toward dominance determined whether they were more satisfied with a physician high in dominance or with a physician low in dominance.

These results first suggest that physicians should communicate in a highly affiliative way with all patients, independently of their patients' attitudes toward affiliativeness, because high levels of physician affiliativeness ensure the highest levels of satisfaction in all patients (even in those who have a less positive attitude toward affiliativeness). In other words, it does not seem necessary that physicians adapt their level of affiliativeness to patients' attitudes toward affiliativeness. This conclusion is the same as the one I just made with regard to the unnecessarily adaptation of physician affiliativeness to patients' personality trait of agreeableness.

However, results of Study 4 suggest that physicians should adapt their level of *dominance* to the patients' attitudes toward dominance. This is particularly interesting because patient-centeredness, which is often advocated as the best communication style for physicians (Epstein, 2000; Hart, 2010; Mead & Bower, 2000; Roter & Hall, 2006; Stewart et al., 1995) is notably characterized by behaviors that are low in dominance (e.g., information sharing, shared decision-making, open questions, non-directivity) and low dominance seems to be considered by those authors as better than high dominance with respect to patient

outcomes. However, the results of Study 4 suggest that some patients value more and are more satisfied with a communication style that is *high* in dominance rather than low in dominance. This adds to the literature showing that some patients (e.g., male patients, older patients, less educated patients) prefer more dominance in their physician's communication style (Benbassat et al., 1998; Levinson et al., 2005). The results of Study 4 might explain previous results too: For instance, if older and less educated patients prefer more dominance in their physician's communication style, this might be *because* they have a more positive attitude toward dominance than younger and more educated patients do.

These results regarding physician dominance – if replicated by future studies – could have interesting practice implications. Rather than making inferences about the patient's desire for physician dominance based on the patient's socio-demographic characteristics (e.g., gender, age, education) – as previous studies would suggest to do (Benbassat et al., 1998; Levinson et al., 2005) –, physicians might want to measure it directly by asking the patient's about his or her attitude toward dominance. For instance, the short questionnaire we used in Study 4 (Krupat, Rosenkranz, et al., 2000) (which contains items such as: "The doctor is the one to decide what is to discuss during a doctor's appointment", with which the patient has to indicate his or her degree of agreement) could be given to the patients prior to the medical interview (e.g., in the waiting room of the medical consultation) and physicians might then adapt their communication style based on the patient's answers.

4.3 Let's pay attention to patient gender

As shown in our first literature reviews (see section G), research on the influence of gender in physician-patient interaction is ample. This doctoral thesis contributed to a small extent to the existing literature on the topic by showing in Study 5 that patient gender interacts with physician gender in predicting patients' reactions to the physician's communication of medical uncertainties. In a field setting, we showed that expressed uncertainty was associated with less patient satisfaction when the physician was a woman and the patient a man, and not significantly in other types of gender dyads.

Although interesting, those results do not call unambiguously for female physicians' adaptivity in expressed uncertainty depending on the gender of their patients. In other words, they do not necessarily mean that female physicians should stop disclosing medical

uncertainties to their male patients. Physician disclosure of medical uncertainty has implications that go beyond patient satisfaction and that pertain to ethics, patients' right to be informed (e.g., about the risks associated with a treatment or about the probability that a treatment does not produce the expected effects), and to the prevention of false expectations in the patients (e.g., regarding the outcomes of the treatments) (Gordon et al., 2000). Nevertheless, by showing that expressed uncertainty by female physicians may negatively impact on male patients' satisfaction, these results suggest that female physicians should be careful when communicating medical uncertainties to a male patient. If our results were to be replicated, female physicians might want to do communicate uncertainty to their male patients with circumspection (e.g., when really necessary, with paying attention to the words that are used), and/or try to compensate the potential negative effects on male patients by emphasizing other important communication skills (e.g., high level of affiliativeness, right level of dominance). Of course, this is only speculative at this stage. But if future research indeed confirms our results, it might also want to investigate whether there are possible strategies for female physicians to counterbalance the potential negative effects of communicating medical uncertainties to their male patients – and what those strategies would be.

5. Future directions

5.1 Theoretical re-adjustments

In their paper advocating for the use of the interpersonal circumplex (see *Figure 2*, p. 25) and its dimensions of affiliation and dominance as a theoretical framework for understanding physician-patient interactions, Kiesler and Auerbach (2003) hypothesized that correspondence between physician and patient along the affiliation dimension would lead to better patient outcomes. Study 1 and 2 confirmed this hypothesis, while Study 3 invalidated it. And as discussed earlier (see subsection 3.1, pp. 46-50), Study 3 probably gives a more accurate picture of reality than Studies 1 and 2 do, mostly due to the field setting of Study 3 and its sample, which was more representative of the population that consults for medical problems. Our results suggest that adopting a colder communication style with a more disagreeable patient (correspondence along the affiliation dimension) would only make the situation worse, leading to lower patient satisfaction and lower patient trust. Theoretical

adjustments might thus be necessary with regard to the correspondence hypothesis of Kiesler and Auerbach (2003).

An important theoretical issue pertains to the definition that we give to *high* and *low* affiliativeness. In particular, does *low* mean being *cold,* or does it mean being *hostile*? Theoretically, the affiliation dimension goes from an extremely hostile behavior to an extremely friendly behavior. However, in the studies we conducted, no physician adopted a behavior that could be qualified as *hostile*. In most cases, the physicians labeled as *low in affiliativeness* (in comparison to other physicians) adopted a behavior that was merely cold and distant and not a behavior that was hostile. The pattern of results that we obtained in our studies might have been different if we had compared patients' reactions to *hostile* vs. friendly physicians instead of patients' reactions to cold vs. friendly physicians (e.g., agreeable patients might be more upset than disagreeable patients when physicians behave in a hostile way). The correspondence hypothesis of Kiesler and Auerbach (2003) does not address the issue of the anchors (i.e., the exact meaning of *low* and *high*) and should probably be refined accordingly.

Also, Kiesler and Auerbach (2003) assume linear effects of interactions between physician and patient along the affiliation dimension. However, these interaction effects might be curvilinear. Individuals situated on the extremes of the agreeableness dimension (i.e., either very low in agreeableness or very high in agreeableness) might show no or little reactions to variations in the physician's degree of affiliativeness because the influence of the personality might be stronger in the extremes in determining patient outcomes: Patients very low in agreeableness might be very dissatisfied, distrustful, and non-compliant, independently of the physician's degree of affiliativeness; and similarly, patients very high in agreeableness might be very satisfied, trustful, and compliant independently of the physician's degree of affiliativeness. Comparatively to individuals situated in the lower and upper ends of the agreeableness dimensions, people with *medium* scores in agreeableness might be more sensitive and more reactive to variations in the physician's degree of affiliativeness, because personality might play less of a role in determining their reactions. This might be an alternative explanation for why individuals low in agreeableness in the young samples of the simulation studies (Studies 1 and 2) seemed not to react to variations in the physicians degree of affiliativeness, while patients labeled as "low" in the field study

(who were actually “medium” in agreeableness compared to the patients labeled as “low” in the simulation studies) did react to such variations.

5.2 Future studies

5.2.1 Dealing with coding issues

In the studies presented in this doctoral dissertation, we have alternatively coded (or manipulated) physician nonverbal behavior (Study 1 and 2), physician verbal behavior (Study 4), or a composite of physician verbal and nonverbal behavior (Studies 3 and 5). Future research might want to further disentangle the effects of physician verbal and nonverbal communication on patient outcomes depending on patient personality, because we know that the verbal and nonverbal channels sometimes have opposite effects on patient outcomes when conveying the same message (e.g., an emotional state) (Hall et al., 1981). As mentioned earlier, Hall, Roter, and Rand (Hall et al., 1981), had found that the same physician emotions of anger and anxiety showed opposite correlations with patient satisfaction depending on whether they were expressed verbally (through the content of the physician’s speech) or nonverbally (through the physician’s tone of voice): Patients were less satisfied when physicians expressed anger and anxiety verbally, while they were *more* satisfied when physicians expressed anger and anxiety nonverbally. One possible explanation given by the authors was that patients might have perceived verbal expressions of anger and anxiety as a lack of support and/or professionalism, but their nonverbal expression as expressing more involvement and seriousness. Future research might want to manipulate verbal and nonverbal expressions of dominance (or affiliativeness, or uncertainty) independently from each other and see what their respective impacts on patient outcomes are, depending on patient personality.

In our appended handbook chapter (see section I), we discuss in detail several other issues related to the coding of physician behavior. One of them pertains to the use of validated coding instruments. Although some validated coding systems exist – i.e., the *Roter Interaction Analysis System* (RIAS) (Roter & Larson, 2002) or the *Relational Communication Scale for Observational Measurement* (RCS-O) (Gallagher, Hartung, Gerzina, Gregory, & Merolla, 2005), they do not measure the constructs of affiliativeness and dominance as defined by Kiesler and Auerbach (2003) and other interpersonal theorists (e.g., Carson, 1969;

Leary, 1957; Wiggins, 1979). If the interpersonal model of Kiesler and Auerbach (2003) and its dimensions of affiliation and dominance were really to become a reference theoretical framework for the study of physician-patient communication (as claimed by the authors), researchers would need to develop validated coding schemes specific to those dimensions of affiliation and dominance.

5.2.2 Using lower order constructs

In the present doctoral dissertation, I have used what is sometimes called in the literature *broad* constructs (e.g., Bosscher & Smit, 1998) or *high order* constructs (e.g., Scullen, Mount, & Judge, 2003), namely constructs having a high level of abstraction (i.e., affiliativeness, dominance, agreeableness). For instance, the concept of affiliativeness encompasses many behaviors, as diverse as smiling, making jokes, showing empathy, or listening carefully. Such high levels of abstraction probably have the advantage of "showing the whole picture" and can enable us to observe general patterns and make general predictions (e.g., disagreeable patients react more negatively than agreeable patients to decreases in the physician's degree of affiliativeness). The downside is that such broad constructs might also have little predictive validity for specific situations. Future research might want to decompose the broad constructs we used to describe the physician's communication style (e.g., affiliativeness) into lower order constructs (e.g., empathy, humor, listening) and check for which of those lower order constructs our results hold true. Similarly, the broad personality dimension of agreeableness that we used to describe the patients in Studies 1, 2, and 3 could be decomposed into its facets (e.g., trust in others, altruism, conflict avoidance). To illustrate, the result of Study 3 was that patients low in agreeableness (broad construct) reacted more negatively than patients high in agreeableness to physicians' decreases in affiliativeness (broad construct). Decomposing the broad constructs of agreeableness and affiliativeness into lower order constructs (e.g., patient tendency to trust others, physician smiling) could lead to different results: For instance, do patients with low levels of trust in others (lower order construct) react more negatively than patients high in trust when physician smile (lower order construct) less? It might be that patients with low levels of trust interpret physician smiling as unauthentic and react more negatively to smiling physicians than to non-smiling physicians. Future research might want to use lower order constructs and determine for instance for which specific

aspect of physician affiliativeness and for which specific facet of patient agreeableness our results can be replicated.

5.2.3 Considering other patient characteristics

Future studies could aim at testing the moderating influence of other types of individual characteristics (e.g., other personality traits, other attitudes) on the link between physician communication style and patient outcomes. The list of individual characteristics that might have a moderating influence on the link between physician communication style and patient outcomes is long. For instance, future research might investigate whether highly neurotic individuals react more negatively to the expression of uncertainty by their physician compared to individuals low in neuroticism. Considering that individuals with high level of neuroticism have by definition a more pronounced personality tendency to experience negative affective states than individuals with low levels of neuroticism (Costa & McCrae, 1992), more neurotic individuals might react more negatively (e.g., more anxiety, less satisfaction) to physicians' expressions of uncertainty.

Another research focus might be patients' attitude toward uncertainty, which could be a moderator of the link between the physician's communication of uncertainty and the patients' outcomes. It has been shown that patients with more negative attitudes toward uncertainty are less likely to participate in testing for cancer (Braithwaite, Sutton, & Steggles, 2002). A possible explanation for this result might be that the expression of uncertainty generates higher levels of anxiety in patients with a more negative attitude toward uncertainty. So, it might be interesting to test whether patients with a more negative attitude toward uncertainty react more negatively (e.g., more felt anxiety) to expressions of uncertainty by their physicians.

5.2.4 Running experimental field studies

An avenue for future research would be to test in field settings whether adaptations of the physician communication style to the patient's individual characteristics leads to better interaction outcomes, compared to non-adapted communication styles (i.e., same communication style with every patients, independently from their individual characteristics). As we have shown in our handbook chapter on nonverbal communication in the medical encounter (see section I), some studies have experimentally tested the impact

of physician behavior (e.g., touch) on patient outcomes during real medical consultations (Gueguen et al., 2010). A future path could be to use similar experimental and field designs to test whether adaptations to given patient characteristic in a real medical setting lead to better patient outcomes when compared to non-adaptations.

To date, research in the field of physician-patient communication has mostly relied on experimental simulation studies (e.g., Aruguete & Roberts, 2000, 2002; Schmid Mast, Hall, & Roter, 2008), enabling causal inferences but having limited external validity; or on cross-sectional field studies (e.g., Ambady, LaPlante, et al., 2002; Bertakis et al., 1991; Hall, Horgan, Stein, & Roter, 2002), typically having high external validity but enabling no causal inferences. Experimental field designs, although demanding in terms of resources, probably need to be developed as they can show causal relationships and still have high external validity. With a few exceptions (e.g., Gueguen et al., 2010), the use of such designs is still very rare in the field of physician-patient communication (see our handbook chapter: section I).

Experimental field designs will be needed in order to see whether adaptions of the physician's communication to the patient's characteristics lead to better interaction outcomes (i.e., patient satisfaction and recall of physician recommendations regarding the treatment). Some isolated attempts have been made in the past: For instance, Holloway and Rogers (1992) had randomly allocated patients to a condition in which the physician adapted his communication style on the basis of information regarding the patients' health locus of control (i.e., the extent to which the patient has a feeling of control over his or her health) or to a condition in which the physician did not adapt his communication style. Results showed that adaptation did not lead to better interaction outcomes. However, such attempts should be probably be replicated in light of the most recent findings about patients' reactions to their physician's communication style depending on their personality – including the ones presented in this doctoral dissertation.

In Study 4 (see section E), we have shown that depending on their attitudes toward dominance, patients report more satisfaction with a virtual physician communicating with little dominance, while others report more satisfaction with a physician communication in a highly dominant way. A next step could be to test in a real setting whether physicians who

adapt to the level of dominance that their patients value have patients who report higher levels of satisfactions, compared to physicians who show the same level of dominance with all their patients. For instance, a questionnaire measuring patient attitude toward dominance could be given to real patients before their visit with a physician; then, the patients could be randomly allocated to a condition in which the physician communication style matches the patient's preference toward dominance (high or low), or to a condition in which the physician shows the same level of dominance with all patients. If patients report better outcomes (e.g., more satisfaction, more trust, more adherence to the treatment) in the adaptation condition compared to the non-adaptation condition, and if effect sizes are substantial, this would indicate that tailoring the physician's level of dominance to the patients' attitudes toward dominance is worth the necessary time and efforts and should be part of contemporary medical education and practice.

5.2.5 Searching for mediators

An important challenge will be to understand the mediators of the interaction effects that were found so far between patient characteristics and physician communication style on patient outcomes. For instance, in Study 1, young analogue patients with higher scores of agreeableness perceived videotaped physicians high in nonverbal affiliativeness as more competent that videotaped physicians low in nonverbal affiliativeness, and this seemed to explain why more agreeable analogue patients reported more trust with the highly affiliative physicians and imagined that they would show more determination to adhere to the treatments of such physicians (mediated moderation). In Study 2, young analogue patients reported that they would feel less angry when there was correspondence between the physician's nonverbal communication style and the patient's personality along the affiliation dimension (i.e., when the physician was low in affiliativeness and the patients were low in agreeableness, or when the physician was high in affiliativeness and the patients were high in agreeableness) rather than non-correspondence. In turn, lower reported anger seemed to explain why analogue patients trusted physicians more when there was correspondence than when there was no correspondence. This suggested that both cognitive (e.g., perceived competence of the physician) and emotional (e.g., anger) factors explain why those young analogue patients reacted differently to the physician's degree of nonverbal affiliativeness depending on their personality trait of agreeableness.

We tried to replicate these findings in real medical interviews (Study 3). However, in the real setting of Study 3, neither patients' perception of the physician competence nor patients' anger explained patients' reactions to the physician's degree of affiliativeness depending on their personality trait of agreeableness. Also, in Study 5, we looked at whether perceived physician incompetence explained why male patients were less satisfied when their female physicians expressed more uncertainties regarding the diagnosis, the treatment, or the consequences of the treatment. There was no significant mediation of perceived incompetence on the link between female physicians' expressed uncertainty and their male patients' satisfaction. The explanation for the lowest satisfaction rates observed in male patients facing a female physician who expressed medical uncertainty has thus to be found elsewhere, in other emotional or cognitive mediators.

The study of potential cognitive and emotional mediators of the effects of participants' individual characteristics on their reactions to their physicians' communication style is important in my view. I believe that knowing why patients react differently to their physician's communication style depending on their personality could help formatting communication adaptations in ways that are most efficient in terms of patient outcomes. For instance, if we find that patients who report positive attitudes toward physician dominance are more satisfied with physicians showing high rather than low levels of dominance *because* they feel anxious when they have to take a more active part in clinical visit (mediating influence of anxiety), we would shed a new light on the observed phenomenon and the results would have additional or alternative practice implications; physicians might then want to help patients with their anxious feelings, rather than simply adapt to patient preferences for physician dominance in communication style.

5.2.6 Applying the results to other medical and psychotherapeutic contexts

At the origin of the hypotheses of Kiesler and Auerbach (2003) that we tested in Studies 1 to 3, stems the interpersonal theory of Leary (1957) and Carson (1969), who were both clinical psychotherapists. The interpersonal theory was thus first grounded in the psychotherapeutic context. Leary (1957) developed this theory in trying to organize different interpersonal styles around the two main dimensions of affiliation and dominance, and on a continuum going from adaptive functioning to psychopathology. Carson (1969) was interested in how patients interacted with other individuals and in particular in how they

interacted with the psychotherapist; he was also interested in how the psychotherapist could best interact with the patients depending on the patients' interaction style. Later, authors such as Kiesler (1983; 2003) applied the concepts and research questions of this interpersonal theory to the medical field in its whole, in order to understand which physician communication style best suited which specific patients. So, concepts used in the psychotherapeutic field were applied to the somatic-medical one. And in turn, I believe that empirical results issued from the somatic-medical field could be applied to the psychotherapeutic one.

In my view, the psychotherapeutic context and the somatic-medical context share many common features: the caregiver-patient relationship (Salamin et al., 2009), the therapeutic alliance and its importance for the success of the treatment (Flückiger et al., 2012; Roter, 2000), the patient primary outcomes (e.g., psychological or physical health, emotional well-being, adaptation to the illness) and secondary outcomes (e.g., satisfaction with and trust in the caregiver, adherence to the medicinal or psychotherapeutic treatment) (Street et al., 2009), and the uniqueness and needs of each patient. The results we found across the different studies presented in this doctoral dissertation might be extended to other medical contexts as well as to psychotherapeutic contexts. Physicians, nurses, psychiatrists, psychologists, and psychotherapists are all healthcare providers who need to communicate with their patients in a way that ensures the best possible patient outcomes. In the psychotherapeutic context, the concept of *complementary therapeutic relationship* (Caspar, 1995; Caspar, Grossman, Unmüssing, & Schramm, 2005) has been successfully applied to describe therapeutic situations in which the therapist adapts to the individual characteristics (e.g., goals, emotions) of the patients. And it appears that psychotherapists show less complementarity (i.e., successful adaptations) when patients are less agreeable (Caspar et al., 2005). Now, can we replicate the results that we found in the somatic-medical context? Do patients low in agreeableness, in the psychiatric context, react especially negatively to a psychotherapist's communication style that is cold and distant? Also, do male patients react negatively to the communication of uncertainty by female psychotherapists? In my opinion, these questions would be worth testing in future research.

6. Significance

First, regarding the issue of correspondence between physicians and patients along the affiliation dimension, the results presented in this doctoral dissertation bear practical significance. Previous research suggests that correspondence along the affiliation dimension – i.e., adopting the same degree of coldness or warmth as one's interaction partner – is more frequent than non-correspondence during medical interactions (Michaelsen, 2012; Street & Buller, 1987; Street, Gordon, & Haidet, 2007). This is potentially a problem, because according to the results of Study 3, correspondence along the affiliation dimension leads to poorer interaction outcomes in real medical interviews. This suggests that physicians should fight their documented tendency to be colder and less friendly with less agreeable patients (Michaelsen, 2012; Street et al., 2007) because those patients seem to react more negatively than agreeable patients to a decrease in physician's level of affiliativeness, at least with regard to the outcomes of satisfaction and trust.

Another result with potentially interesting practical implications is that physician communication of medical uncertainty had a negative impact on patient satisfaction when the physician was a woman and the patient a man. If this result is replicated in future studies, female physicians will then face the difficult dilemma of communicating uncertainty and risking a negative impact on their male patients' satisfaction, or avoiding communication of certain medical uncertainties and preserving their patient's satisfaction. This will be a real challenge in my view, because on the one hand, patient dissatisfaction and mistrust can potentially have a negative impact on patient adherence (Fitzpatrick, 1991; Wilson & McNamara, 2002), and patient adherence is related to patient recovery and health (Fitzpatrick, 1991; Wilson & McNamara, 2002); but on the other hand, communicating uncertainty is often seen as more ethical and as a way to prevent unrealistic patient expectations regarding the course of treatment (Henry, 2006; Hewson et al., 1996; Moyer, 2012). In the particular case of expressed uncertainty, physician adaptation to one of the patient's characteristics (i.e., gender) does not only raises questions of relevance or feasibility, but also questions of ethics.

In its whole, my doctoral dissertation shows that adaptations of the physician communication style to the patient's individual characteristics might be desirable with

regard to certain aspects of the physician communication style (e.g., some patients value low levels of physician dominance and others value high levels of physician dominance), whereas it might be unnecessary with regard to others aspects of the physician communication style (e.g., high physician affiliativeness seems to have a better impact than low physician affiliativeness, independently of patients' personality trait of agreeableness and attitude toward affiliativeness), or even potentially unethical (e.g., if female physicians started to hide medical uncertainties to their male patients, male patients might be ill-informed about their medical condition). These results can have a practical utility in that they inform physicians about the adaptations that they might want to make to their patients' individual characteristics (e.g., taking the lead with patients who prefer more dominant physicians), the ones that do not seem worth the time and energy they require (e.g., adapting one's level of affiliativeness to the patient's personality trait of agreeableness or to the patient's attitude toward affiliativeness), and the ones that could have unpleasant consequences (e.g., communicating less medical uncertainty to male patients).

As I argued earlier in this dissertation, our results could probably be extended to other medical and psychotherapeutic contexts and inform healthcare providers such as nurses, psychologists, or psychiatrists about the best ways to communicate with their patients. I would even go a step further and say that they might be extended to non-clinical contexts (i.e., social contexts outside the medical and psychotherapeutic field) in order to better understand how individual characteristics shape individuals' reactions to others' communication styles during social interactions in general (as opposed to medical interactions in particular). Do people with less agreeable personalities comparatively need more affiliative behaviors in their interaction partners in order to trust them and follow their advice? Do people who value dominance look for interaction partners who display more dominant communication styles? With a close inspection of the cognitive and emotional mediators of these differentiated reactions, such research would ultimately shed light on our communication needs and tendencies – and on the very mechanisms that lead us to like, trust, or follow other people when they communicate with us.

Table of figures

7. References

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B) STUDY 1

Cousin, G., & Schmid Mast, M. (in press). Agreeable patient meets affiliative physician: How physician behavior affects patient outcomes depends on patient personality. *Patient Education and Counseling.* Advance online publication. doi:10.1016/j.pec.2011.02.010

Agreeable Patient Meets Affiliative Physician:

How Physician Behavior Affects Patient Outcomes

Depends on Patient Personality

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Abstract

Objective: This study tests whether the personality trait of agreeableness in simulated patients moderates their reactions to the physician's behavior. We predicted that the more agreeable the participants, the more positive the interaction outcomes when they see a high affiliative physician as compared to a low affiliative physician.

Methods: Participants (60 students) watched videotaped excerpts (2 min each) of 4 physicians exhibiting a high affiliative behavior and of 4 physicians exhibiting a low affiliative behavior. Participants reported after each physician their satisfaction, trust, determination to adhere to the treatment recommendations, and their perception of the physician's competence. They also completed the agreeableness scale of the NEO-PI-R personality questionnaire.

Results: The higher the agreeableness scores of the participants, the higher was their trust with the high affiliative physicians as compared to the low affiliative physicians, their perception of the physician's competence, and their determination to adhere to the treatment.

Conclusion: Results confirmed that the more agreeable the simulated patients were, the better they reacted to a physician behavior that was high rather than low in affiliativeness.

Practice Implications: These results suggest that the more agreeable patients are, the more important it is that physicians adopt a high affiliative behavior.

Keywords: physician-patient communication, agreeableness, affiliativeness, nonverbal behavior

1. Introduction

There seems to be a widespread consensus about the fact that a patient-centered physician communication style is beneficial for the patient as well as for the doctor. Although there is no overall agreed-upon definition of patient-centeredness [1], patient-centered communication includes taking the patient's perspective and taking into account the psychosocial context of the patient, as well as establishing shared understanding and sharing of power and responsibility [2]. There is considerable evidence showing that a patient-centered communication style benefits patients. Patients who see a physician who adopts a patient-centered communication style have better health [3], are more satisfied with the consultations [4-6], trust the physician more [7], and adhere better to the treatment recommendations [8-10].

However, research also shows that not all patients expect or benefit equally from patient-centeredness: patients' beliefs, sex, age, and educational level, for instance, moderate their reactions to a patient-centered communication style [11-13]. Comparatively less research has addressed the role of patient personality, although personality is associated with ways to react and interpret others' behavior [14]. We believe that in order to use patient-centeredness appropriately, physicians need to know how different patients react to this communication style depending on their individual characteristics – including their personality.

1.1. Patient characteristics affect the reaction to physician communication style

The fact that patients' individual characteristics affect what they expect and how they react to the physician's communication style has been documented in the literature to some extent. A important body of research has shown that patients who face physicians who share their beliefs about what the physician's communication style should be report better outcomes (e.g., satisfaction, trust, adherence, or health status) (for a literature review, see [15]). Patients are more satisfied and trust their physicians more when there is concordance between patients and

physicians in the importance they give to patient-centeredness [16]. Male patients, older, less educated people, and people with a lower income prefer less patient-centered physicians [11,12]. Also, the anxiety level of mildly anxious individuals decreases when they face a patient-centered physician, whereas the anxiety level of more anxious individuals increases in the same situation [17]. In the same vein, more anxious patients have a more pronounced tolerance for physicians whom they perceive as angry [18] or dominating [19] than less anxious patients.

1.2. Physician affiliative behavior

According to the Interpersonal Theory [e.g., 20,21-23], human interactions – including the medical one [22]– can be characterized along two major dimensions. The "vertical" dimension refers to the dominance aspects of interactions (i.e., how dominant or submissive the interaction partners are with each other); the "horizontal" dimension, refers to the affiliativeness aspect of the interaction (i.e., how friendly or hostile the interaction partners are with each other). According to this conceptual framework, some authors describe patient-centeredness as verbal and nonverbal physician behavior that is low on the vertical dimension (i.e., low in dominance) and high on the horizontal dimension (i.e., high in affiliativeness) [24,25]. In this study, we focus on the horizontal dimension (i.e., on affiliativeness).

A behavior is perceived as affiliative if it is perceived as friendly and caring [22]. In physician-patient interactions, affiliativeness has a positive impact on patient outcomes, independently of the physician's dominance [26,27]. This is why we focus on affiliativeness and not on patient-centeredness (note that patient-centeredness includes both concepts of affiliativeness *and* dominance). Many other concepts in the literature are close to the one of affiliativeness (e.g., warmth, communion, immediacy), but all of these concepts refer to the horizontal dimension of interpersonal behavior. We use affiliativeness to describe this horizontal dimension.

We focus on nonverbal behavior in the present study because perceived affiliativeness has been related to nonverbal behavior more than to verbal behavior in the patient-physician interaction [6], like in other social interactions [28]. Examples of nonverbal behaviors associated with affiliativeness are: smiling, eye contact, nodding, facial expressiveness, face-to-face position, forward lean, open arm position, soft touch (i.e., for reassurance, comfort, or greeting), bodily relaxation, or close interpersonal distance [7,22,26]. Nonverbal affiliativeness in the physician has been related to patient satisfaction [4,5], to their understanding and recall of medical information [26], to their trust in the physician, and to their intend to comply with the medical recommendation [29].

1.3. Patient agreeableness and physician affiliative behavior

Agreeableness and affiliativeness both belong to the "horizontal dimension" of the Interpersonal Theory [21,22]. Agreeableness means the *trait* aspects of this dimension, defined as the tendency to act in an altruistic, friendly and non aggressive way, and the motivation to show empathy and sensitivity. Affiliativeness describes the *behavioral* aspects of the vertical dimension, defined as showing friendliness and caring. The main difference is that the concept of "agreeableness" refers to a *personality trait,* while the concept of "affiliativeness" refers to a *behavior*. Agreeable individuals are individuals who, among other things, generally behave more affiliatively [30].

Research shows that people who see themselves as high in agreeableness pay more attention to the degree of affiliativeness in the other's communications style than people who see themselves as low in agreeableness [31]. Furthermore, people are attracted to and like more others whom they perceive as similar [32]. High agreeable individuals may thus be more attracted – and react better – to physicians who are high affiliative than to physicians who are low affiliative because high agreeable individuals are generally more affiliative themselves [30].

Finally, correspondence in affiliative behavior (mimicry) during social interactions, generally leads to more liking and comfort with the interaction partner [33], and Kiesler and Auerbach [22] hypothesize that correspondence in affiliative behavior is related to more positive patient outcomes in the physician-patient interaction as well. We test this correspondence hypothesis with respect to the correspondence between one interaction partner's *behavior* and the other's *personality trait* on the horizontal dimension. In other words, we expected that the more agreeable the patient, the more positively he or she would react to a high affiliative as compared to a low affiliative physician.

1.4. Patient outcomes

We measured patient satisfaction, trust, treatment adherence, and perception of the physician's competence. Satisfaction, trust, and adherence have been related to the physician's behavior [5,7,9] and research outside the field of physician-patient communication shows that perceived competence is also affected by the sender's nonverbal behavior [34]. Satisfaction, trust, and perceived physician competence affect patient adherence [35,36], and adherence has an impact on the patient's recovery and consequently on his or her health status [e.g., 37,38]. Although some of these outcome measures are inter-related, we think that it is important to look at them separately. In other words, we believe that a person can be satisfied with the way the doctor interacts but might still not necessarily trust the doctor's medical competence, not intend to adhere to the treatment, and not perceive his or her doctor as competent.

2. Method

2.1. Participants

Sixty participants (34 women and 24 men) took part in this study. These participants were simulated patients, asked to imagine that they were patients of physicians shown on videos

(described in more detail below). Two participants were excluded from the analyses because their scores on one or more of the agreeableness subscales exceeded the mean by two standard deviations; they were considered outliers. The final number of participants was thus 58 (average age of 23 years).

Participants were recruited in three French-speaking Swiss universities. The great majority of them were Bachelor (55.2%) or Master students (34.5%) majoring in different domains. Most reported seeing a doctor once or twice a year (39.7%) or less than once a year (34.5%). Most of the participants rated their health status as "good" (62.1%) or "very good" (27.6%), a minority as "medium" (8.6%), and one participant as "bad". No participant indicated a "very bad" health status. Participants received 15 Swiss francs for their participation in the study. They were tested in groups of two to five and the testing session lasted 45 min.

2.2. Materials

2.2.1. Physician affiliativeness. We used videotapes of real interactions between physicians and their patients in the physicians' private practices. The videotapes featured four female and four male physicians, each interacting with one of his or her patients (not visible) during the second minute and the antepenultimate one (i.e., third counting from the end) of the consultation (2 min video per physician). The age of the physicians varied between 33 and 56 (M = 47). The eight videos were selected from a database of 11 existing videotapes of physicians [described in more details in Schmid Mast, Hall, Klöckner, and Choi: 39] whose nonverbal behavior had been coded for affiliativeness by independent third raters (N = 224). Raters had imagined that they were seeing each of the videotaped physicians and had indicated for each how affiliative they perceived the physician to be with the sound of the videos off. Perceived nonverbal affiliativeness for each of the 11 physicians was assessed with six items, rated on a scale from 1 ("not at all") to 9 ("very much"). Adjectives used were: "friendly", "interested",

"respectful", "attentive", "empathetic", and "partnership-oriented". Cronbach's alphas for perceived physician affiliativeness varied between .85 and .92.

On the basis of the perceived affiliativeness ratings, we selected eight videos: the two male and the two female physicians who received the highest scores on affiliativeness, and the two male and two female physicians who received the lowest scores on affiliativeness. The mean affiliativeness score for the four high affiliative physicians was 7.05 (*SD* = 1.21) and 4.91 (*SD* = 1.49) for the four low affiliative physicians. The videos were presented to the participants always in the same order (physician sex and affiliativeness of the physician alternated on the videotape). Note that the physicians we call "low affiliative" are low with respect to the other physicians. Their mean score of affiliativeness (4.91) is close to the middle of the scale (5); this indicates that the "low affiliative" physicians were perceived by the raters as colder than the high affiliative physicians, but not that they were perceived as unfriendly or hostile.

Nonverbal behaviors of the 8 physicians were coded to ascertain that the affiliative ratings of the raters were really based on displayed differences in nonverbal behavior among the high and low affiliative physicians. Indeed, the high affiliative physicians smiled more, $t(6) = 2.35$, $p = .05$, $d = 1.91$, established more eye contact, $t(6) = 2.61$, $p = .040$, $d = 2.13$, and nodded more, $t(6) = 2.66$, $p = .038$, $d = 2.17$, than the low affiliative physicians, which is in line with the literature on nonverbal affiliativeness [7,22,26].

2.2.2. Participants' outcomes. We assessed participants' satisfaction with the physician, trust in the physician, perception of the physician's competence, and how much adherence participants thought they would show to a treatment suggested by the physician. Each variable was assessed with three items on a 5-points Likert scale (1 = "completely disagree", 5 = "completely agree"). Participants' satisfaction was rated with the three following items: "I would be satisfied with this physician's behavior", "I would judge his or her behavior as disagreeable"

(reversed item), “I would like the way he or she behaves”. Scores were averaged across items and higher values indicated more satisfaction (*M* = 3.31, *SD* = .42; Cronbach’s alpha = .89). Items measuring participants’ trust in the physician were: “I think I would trust him or her”, “I would find him or her trustworthy”, and “I would mistrust him or her” (reverse item) (*M* = 3.62, *SD* = .46; Cronbach’s alpha = .87). To measure treatment adherence, we used the following items: “I would certainly adhere to his or her treatment recommendation”, “I would carefully comply with the treatment”, and “I would be hesitant to follow his or her recommendations” (reverse item) (*M* = 3.61, *SD* = .57; Cronbach’s alpha = .85). Perceived physician competence was measured with the following 3 items: “This physician seemed competent to me”, “I had the feeling that this physician had all the necessary knowledge to treat his or her patients”, and “I felt that this physician lacked competence” (reverse item) (*M* = 3.64, *SD* = .40; Cronbach’s alpha = .74).

2.2.3. Participants’ agreeableness. We assessed agreeableness with the corresponding scale of the NEO-PI-R [14], which is composed of six facets: trust (i.e., tendency to trust others), straightforwardness (i.e., tendency to act in an honest and non-manipulative way), altruism (i.e., tendency to care about others’ well-being and to act in a friendly and altruistic way), compliance (i.e., tendency to avoid conflicts, to cooperate, and to act in a non-aggressive way), modesty (i.e., tendency to be modest regarding one’s qualities and realizations), and tender-mindedness (i.e., the tendency be empathetic and sensitive to other people’s misfortunes). The questionnaire length resulted in 48 items describing both behaviors and attitudes that had to be rated with a 5-points Likert scale (1 = “completely disagree”, 5 = “completely agree”). Mean value (*M* = 124.57; *SD* = 16.14) on this scale was within the norms of the population of this age (18-24 years old, French studies) [14]. Cronbach’s alpha was .83.

2.4. Procedure

Participants looked at the eight videos in silent mode, as we were interested in the effect of physician nonverbal behavior on the participants' outcomes. Participants were placed in the situation of so-called simulated patients [40,41]: they had to imagine that they had a medical problem and that they were consulting with the physician in the videotape ("If you were facing this physician with a medical problem, what would your impressions be?"). The use of simulated patients is not rare in the field of physician-patient communication [e.g. 36,40,41].

After watching each physician, participants indicated how satisfied they would have been in a medical consultation with that specific doctor, how much they would trust this physician, how determined they would be to adhere to the treatment recommendations, and how competent they perceived the physician. They also indicated how attractive they found each physician to be on the video, and how pleasant they found the atmosphere of each consultation room (control variables). After having seen all eight physicians, participants filled in the NEO-PI-R [14] agreeableness scale. To conclude, participants answered a short questionnaire about demographic data (sex, age, and education level) and other control variables (perceived health status and experience with medical consultations).

3. Results

To test whether simulated patients' trait agreeableness moderated the link between the physician's affiliative behavior and the simulated patients' outcomes, we first calculated for each of the dependent variables (satisfaction, trust, treatment adherence, and perceived physician competence) a difference score between the participant's reaction to the high and to the low affiliative physician. Satisfaction (and accordingly trust, treatment adherence, and perceived physician competence) with the low affiliative physician was subtracted from satisfaction with the high affiliative physician. This was possible because the high affiliative versus low affiliative physician variable was a within-subjects factor, meaning that all participants viewed all the

physicians, the high and the low affiliative ones. Positive values of this difference score indicate how much more satisfaction (trust, treatment adherence, and perceived physician competence) the participant experienced with the high as compared to the low affiliative physician.

We then correlated this difference score with the participant's trait of agreeableness. Recall that we predicted that the more agreeable a participant, the more he or she would profit from a high as compared to a low affiliative physician's communication style in terms of outcomes. In other words, the participant's trait of agreeableness was expected to moderate the link between the physician communication style and the outcomes. A positive correlation between the difference score and agreeableness would show that. We calculated one-tailed partial correlations, controlling for the participants' sex, age, education level, perceived health status, and experience with medical care.

Results confirmed our predictions for trust, treatment adherence, and perceived physician competence, but not for satisfaction. The higher the participant's agreeableness score, the more he or she trusted the high as compared to the low affiliative physician, $pr(50) = .26$, $p = .033$, $d = .54$, the higher his or her treatment adherence with the high as compared to the low affiliative physician, $pr(50) = .40$, $p = .002$, $d = .87$, and the more competent he or she perceived the high as compared to the low affiliative physician to be, $pr(50) = .31$, $p = .013$, $d = .65$. However, participants' score in agreeableness was not related to satisfaction with the high as compared to the low affiliative physician, $pr(50) = .14$, $p = .154$, $d = .28$. As shown in Table 1, this absence of a result can not be explained by a restriction of range (ceiling effect) in the satisfaction variable.

[Table 1]

We were wondering whether perceived physician competence explained why agreeableness moderated the link between the physician's affiliativeness and the simulated

patient's trust and determination to adhere to the treatment. We tested whether the more a person is agreeable, the more he or she perceives the high affiliative physician as competent with respect to a low affiliative physician, and whether this difference in perceived physician competence explains the increase in trust and treatment adherence when seeing a high affiliative as compared to a low affiliative physician. In other words, we tested whether the increase in perceived physician competence was responsible for the relation between participant's agreeableness and participant's increase in trust and in treatment adherence when seeing a high affiliative as compared to a low affiliative physician. *Figure 1* (top) shows that the standardized regression coefficient $\beta = .26$ of agreeableness on the increase in trust (when with a high affiliative rather than a low affiliative physician) drops to $\beta = .03$ when controlling for the increase in perceived physician competence. This drop was significant according to the Sobel test [42], $Z = 2.11$, $p = .004$. As the regression coefficient was no longer significant after the mediation analysis, we can conclude that the participant's perception of the physician's competence completely mediated the relation between the participant's agreeableness and the participant's increase in trust when seeing a high as compared to a low affiliative physician.

We repeated the same mediation analysis for treatment adherence and the drop from $\beta = .41$ to $\beta = .20$ when controlling for perceived physician competence was also significant (Sobel test), $Z = 2.08$, $p = .037$ *(Figure 1*, bottom). The regression coefficient was only marginally significant after the mediation analysis. The participant's perception of the physician's competence thus also mediated the relation between the participant's agreeableness and the participant's increased intention to adhere to the treatment when seeing a high as compared to a low affiliative physician.

[Figure 1]

As expected, the outcomes were inter-correlated. Participant satisfaction was correlated with trust in the physician, $r(58) = .71$, $p = .0001$, and with the determination to adhere to the treatment, $r(58) = .64$, $p = .0001$. Participant trust was also related to the determination to adhere to the treatment, $r(58) = .75$, $p = .0001$.

4. Discussion and Conclusion

4.1. Discussion

The goal of the present study was to test whether the personality trait of agreeableness in simulated patients affects their reaction to high affiliative as compared to low affiliative physicians with respect to satisfaction, trust, treatment adherence, and perceived physician competence. According to our predictions, the higher the agreeableness scores of the participants, the more they profited from a consultation with a high as compared to a low affiliative physician with respect to trust, perceived physician competence, and treatment adherence. However, we did not find an effect for satisfaction. Moreover, we showed that the more agreeable a participant is, the more he or she perceives the high affiliative physician to be competent as compared to the low affiliative physician, and that this difference in perceived physician competence explained why more agreeable participants trust high affiliative physicians more and adhere more to their treatment recommendations than they trust or adhere to low affiliative physicians.

High agreeable individuals seem to be more sensitive than low agreeable individuals to the degree of affiliativeness expressed by their physicians. In the former, the degree of physician's affiliativeness has a larger effect with respect to the consultation outcomes. One possible explanation is that high agreeable patients have a stronger need for affiliativeness than low agreeable patients. Indeed, research shows that people with stronger affiliative needs express more interest in interactions when their partner is warm and empathetic, and express more desire to avoid the interaction when the partner is less warm and less empathic [43].

Kiesler and Auerbach's [22] suspicion was that the outcomes of a medical interaction would be more positive when the interaction partners show more correspondence on the horizontal dimension. Indeed, we demonstrated that the more agreeable the simulated patients were, the more positive the impact of a high affiliative communication style. However, the term correspondence may be misleading in that it suggests that low agreeable individuals react better to low affiliative physicians than they react to high affiliative physicians. This was not the case. High affiliativeness in physicians was related to better outcomes than low physician affiliativeness for all participants, but the more agreeable the participants were, the more important this impact was. Because patient trust and adherence have an impact on patient treatment and recovery [38,44], physicians should be aware of the fact that high agreeable patients may be especially sensitive to their physician's affiliativeness.

We did not find the expected results for satisfaction. We think that this is so because we operationalized satisfaction as measuring satisfaction with the physician behavior. We think that high agreeable patients might profit more than low agreeable patients from an increase in physician affiliativeness mostly with respect to variables that affect more directly their medical condition like treatment adherence and trust. In a way this shows that the communication style of the physician has more impact on the treatment of the medical condition than on a maybe more superficial assessment of satisfaction with the physician behavior. Note that our research pursued a patient perspective by investigating how physician behavior is perceived from the patient perspective (e.g., perceived physician competence) and how this perception affects the patient in terms of outcomes (e.g., satisfaction, trust, and treatment adherence), and by standardizing the physician (i.e., showing all simulated patients the same videotaped physicians) which entails that all the variance in the dependent variables can solely come from the simulated

patients; it is thus a strict patient perspective because the physicians do not interact with the simulated patients.

4.2. Limitations

The analogue design of this study imposes some considerations. The participants did generally not suffer from real medical problems, nor experienced the same intensity of related psychological distress as real patients. Disease gravity and stress level are also potential moderators of the link between the physician's behavior and the patient's outcomes [45]. The young age of the participants could also be a potential limit to the generalization, as patients of all age consult with physicians. Furthermore, we investigated patient determination to adhere to the treatment, but not patient actual adherence; further research should examine how patient agreeableness moderates the link between the physician's behavior and the patient's actual adherence to the treatment. Also, this study focused exclusively on the effect of patient agreeableness on the link between physician *nonverbal* affiliativeness and patient outcomes. Future research might want to test if the results can be replicated with verbal affiliativeness.

4.2. Conclusions

The higher the scores of the participants on the agreeableness scale, the more trust they reported with the high affiliative physicians as compared to the low affiliative physicians, and the more adherence they were determined to show with the former. The perception of the physician's competence explained these associations.

4.3. Practice Implications

Physicians should be aware of the fact that nonverbal affiliativeness has a general positive impact on patient outcomes [29] and that the more agreeable the patients are, the more important this impact seems to be. Physician smiling, eye contact, and nodding are quite simple behaviors that are associated, especially in high agreeable individuals, with their perception of the

physician’s competence, with their trust in the physician, and with their determination to adhere to the treatment.

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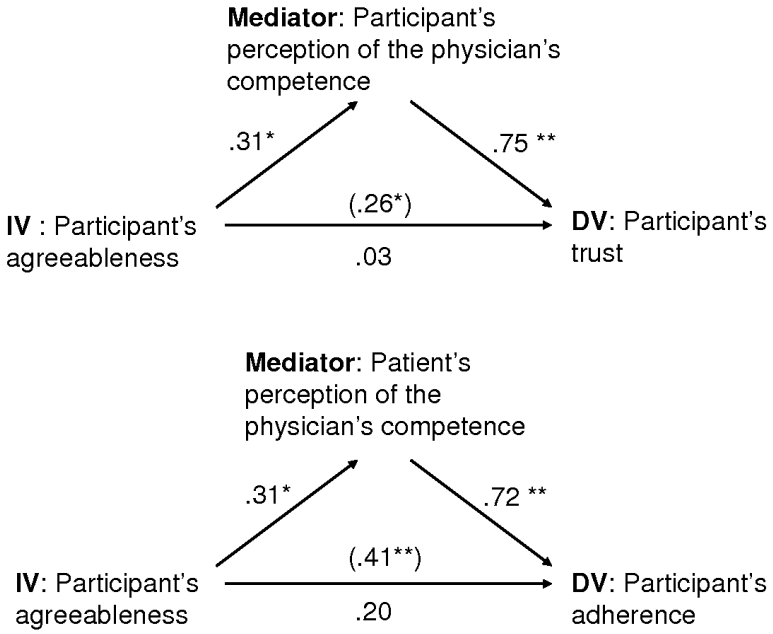

Figure 1. The perception of the physician's competence as a mediator between the participant's agreeableness and the participant's trust and adherence with a high vs. low affiliative physician. The values represents standardized regression coefficients. The value in parenthesis represents the effect of the IV on the DV before the mediation analysis is made. The value situated under the parenthesis represents the effect of the IV on the DV after having taken into account the mediation effect.

C) STUDY 2

Cousin, G., & Schmid Mast (in press). Trait-agreeableness influences individual reactions to a physician's affiliative behavior in a simulated bad news delivery. *Health Communication*.

Trait-Agreeableness Influences Individual Reactions to a Physician's Affiliative Behavior in a Simulated Bad News Delivery

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Abstract

We tested whether the personality trait of agreeableness predicts different individual reactions to the level of nonverbal affiliativeness shown by a physician, in the context of a simulated bad news delivery. We predicted that individuals with high levels of agreeableness would react better to a physician adopting a highly affiliative communication style compared to individuals with low levels of agreeableness. We used an experimental design with analogue patients. Eighty participants (40 men / 40 women) were randomly assigned to watch a video of a physician who communicated a bad diagnosis either in a highly affiliative or in a less affiliative way. Participants reported their reactions of anger and trust in the physician, and completed the agreeableness scale of the NEO-FFI (Costa & McCrae, 2007). In accordance with our predictions, the higher the agreeableness score of the participants, the less anger and the more trust they reported after viewing the high as compared to the low affiliative physician. These results suggest that people with high levels of agreeableness may be especially sensitive to highly affiliative physician nonverbal behavior when receiving bad news.

Keywords: agreeableness, affiliativeness, nonverbal behavior

Introduction

Bad news are any kind of information that negatively alters a person's expectations regarding the present or the future (Buckman, 1984). In the medical encounter, bad news may be diagnosis of a severe diseases (e.g., HIV diagnosis), bad results regarding the evolution of the disease (e.g., elevation of the blood sugar level in diabetic patients), or pessimistic prognoses regarding the patient's recovery (e.g., transition from curative to palliative care in cancer patients). Existing trainings, programs, and guidelines that teach physicians how to break bad news (e.g., Baile, Buckman, Lenzi, Glober, Beale, & Kudelka, 2000) often aim at reducing negative emotions that patients generally experience in such situations – such as shock, grief, or anger (Fallowfield & Jenkins, 2004). Among those negative emotions, anger is of special interest and importance, in that it has been related to a poorer patient-physician alliance (Dan et al., 2007; Leombruni, Fassino, Lavagnino, Orofino, Morosini, & Picardi, 2009), which is of crucial importance for the success of the treatment (Roter, 2000). Also, it has been shown that patients who report higher levels of anger adhere less to the treatment provided by their physicians (Dan et al., 2007; Leombruni et al., 2009). Much can be gained if the physician succeeds in reducing the patient's felt anger when receiving bad news because it lays the basis for a constructive physician-patient relationship based on trust and on the willingness of the patient to adhere to the treatment recommendations.

Physician affiliativeness

Physicians differ in the way they communicate bad news. Sparks et al. (2007), for instance, have revealed four different strategies used by physicians to communicate them: an *indirect* strategy, in which the physician tries to avoid the topic; a *direct* strategy, in which the physician communicates bad news in a straightforward but relatively cold way; an *empowerment* strategy, in which the physician puts an emphasis on making the patients feel that they have some

power over the situation; and finally, a *comforting* strategy, in which the physician uses verbal and nonverbal *affiliativeness* (immediacy) to alleviate the patient's emotional distress. Affiliativeness characterizes any behavior carried out with the aim of maintaining or enhancing one's personal relationship with the other(s) (VandenBos, 2007). In the physician-patient relationship, physician affiliativeness may be communicated verbally and nonverbally though physician expressions of warmth, empathy, or support (Kiesler & Auerbach, 2003). Note that other concepts are also used in the literature (e.g., immediacy or caring) that are all very close to the concept of affiliativeness. In this paper, we will use the term affiliativeness to refer to all of them.

Affiliativeness is primarily transmitted nonverbally, in everyday social interactions (Burgoon, Buller, & Woodall, 1996), as well as in physician-patient interactions (Bensing, 1991). Furthermore, when there is a contradiction between the verbal and the nonverbal content of a message (e.g., someone saying "I really care for you" with a stern facial expression), people typically rely more on nonverbal cues than on verbal ones to form their impressions (e.g., of the sender's affiliativeness) (Knapp & Hall, 2010). This is why we focus on the nonverbal aspect of affiliativeness in this study. Physician nonverbal behaviors known in the literature as communicating affiliativeness include for instance smiling, gazing, nodding, facial expressiveness, face-to-face position, forward lean, open arm position, soft touch (i.e., for reassurance, comfort, or greeting), bodily relaxation, or close interpersonal distance (Hall, Harrigan, & Rosenthal, 1995; Kiesler & Auerbach, 2003).

Most programs for teaching communication style to physicians recognize the importance of physicians to show affiliativeness, and especially when the physicians have to communicate bad news (Martin, 1989). Existing research shows that when physicians adopt an affiliative nonverbal behavior, patients are more satisfied (e.g., Hall et al., 1995), trust them more (Aruguete

& Roberts, 2002; Cousin, 2011), and adhere better to the treatment (Aruguete & Roberts, 2002). In the context of bad news delivery, research shows that patients want their physician to communicate in an affiliative way (e.g., Parker, Baile, de Moor, Lenzi, Kudelka, & Cohen, 2001). A lack of physician affiliativeness is potentially problematic because an insensitive, low affiliative communication style can impede patients' ability to adapt and adjust to their condition, and can even lead to litigation (Fallowfield & Jenkins, 2004).

Patients' reactions of anger

The way bad news is communicated can influence patients' emotional experience as well (Fallowfield & Jenkins, 2004), and in particular their anger response (Ablon, 2000; Schmid Mast, Kindlimann, & Langewitz, 2005). A less affiliative communication style increases the probability of patients feeling angry (Fallowfield & Jenkins, 2004; Schmid Mast et al., 2005). In their study with analogue patients, Schmid Mast, Kindlimann, and Langewitz (2005) have shown that when a physician on a video conveyed bad news in an highly affiliative way, participants reported less anger than when the physician conveyed bad news in a less affiliative way. We will focus on physician affiliativeness in the present study because of its likely influence on the prevention or reduction of patients' reactions of anger – which can negatively impact on the physician-patient relationship and on the treatment success (Dan et al., 2007; Leombruni et al., 2009; Roter, 2000).

Some people are more prone than others to experience anger; the personality trait of agreeableness, in particular, captures those individual differences (Costa & McCrae, 1992). Agreeableness refers to individual differences regarding attitudes toward others (e.g., trust, sensitivity, concern) and regarding the tendency to display low or high affiliative behaviors (as defined earlier)(Costa & McCrae, 1992). Less agreeableness is associated with more hostility, a poorer alliance with the physician, less trust in him or her, and a lower adherence to the treatment (Burns, Higdon, Mullen, Lansky, & Wei, 1999; Christensen, Wiebe, & Lawton, 1997). Because

of the potential influence of patients' agreeableness on their feelings of anger toward the physician and on their alliance with the physician (i.e., trust and adherence), we will focus on this personality trait in the present article.

Correspondence between patient and physician

According to the interpersonal theory of Carson (Carson, 1969), refined later by Wiggins (1979) and by Kiesler (Kiesler, 1983; Kiesler & Auerbach, 2003), agreeableness and affiliativeness are part of the same dimension of interpersonal behavior, namely the affiliation dimension. They both represent a continuum that goes from cold/hostile behaviors to warm/friendly behaviors. The difference is that the term *affiliativeness* refers to the behavior, while the term *agreeableness* refers to the personality tendency to display this behavior. Many studies have shown that *correspondence* between patients and physicians regarding their *beliefs* on how a physician should behave (e.g., regarding the level of affiliativeness the physician should display) leads to better patient outcomes (e.g., more satisfaction, more trust) (for a literature review, see Kiesler & Auerbach, 2006). However, to the best of our knowledge, only one study investigated potential positive effects of correspondence between patient personality and physician *actual behavior* along the affiliation dimension: Cousin and Schmid Mast (2011) have shown that the more agreeable individuals were, the more they trusted and the more determined they were to adhere to the treatment of a physician who adopted a highly affiliative rather than a less affiliative nonverbal behavior. In other words, highly agreeable individuals seem to benefit more than less agreeable individuals from a physician's high level of affiliativeness with respect to the outcomes of trust and adherence. However, this effect was not investigated in the context of bad news delivery. Furthermore, the mechanisms explaining this positive effect of correspondence along the affiliation dimension were not investigated. The present research

intended to fill these gaps and to show that patients' reduced anger is a potential explanation for positive correspondence effects.

On the basis of the studies cited above, we predicted that correspondence between patient agreeableness and physician affiliativeness would reduce the patients' emotional reaction of anger (Hypothesis 1), and increase their trust in the physician (Hypothesis 2a) and intentions to adhere to the suggested treatment. Moreover, we expected that patients' felt anger would explain why greater correspondence between the patient and the physician with respect to the affiliation dimension results in more trust and better adherence. More specifically, we predicted that the reduced anger patients feel when seeing a doctor whose behavior matches their personality (on the affiliation dimension) would be responsible for them experiencing more trust in this physician (Hypothesis 3a) and for them showing more adherence (Hypothesis 3b).

Method

Participants

Eighty participants (40 male and 40 female students) were recruited in two universities of the French-speaking part of Switzerland. Participants were approached by a research assistant in the social areas of the universities (i.e., cafeterias, halls, and libraries) and asked for voluntary participation. Recruitment was performed at random times of the day and random days of the week. The only selection criteria were being a student and being above 18 years old.

Participants' mean age was 23.37 (*SD* = 3.18; range: 18-31) and they studied in different domains. Thirty-two percent of the participants consulted a physician less that once a year, 36% of them saw a physician 1-2 times a year, 23% consulted 3-4 times a year, 5% saw a physician 5-6 times a year, and 4% saw a physician more than 6 times a year. Participants received 5 Swiss francs for their participation in the study. They were tested individually and each testing session lasted about 20 min. The data were collected between September and November 2010.

Material

Videos. Two videos were created, in which an actor played the role of a physician who adopted either a low affiliative or a high affiliative nonverbal behavior. The actor had been filmed while giving (to a patient supposed to be behind the camera) a bad diagnosis (a diagnosis of hepatitis B). The physician on the videos was a male actor – the same for both videos. The two videos varied only in the physician's nonverbal affiliativeness, while the verbal content remained the same in the two videos.

To create the highly affiliative condition, the actor received the following instruction: "Play a physician who likes his or her patient, who is interested in his or her health, and who cares about making him or her feel good (or not too bad)". To create the less affiliative condition, the actor received the following instruction: "Play a physician who does not like his or her patient, who is not very interested in his or her health, and who does not care about making him or her feel good or bad". The nonverbal behaviors of the physician (gaze, smiling, raised eyebrows, frowning, gesturing; measured in durations) were then coded in order to see whether nonverbal behaviors the conditions differed: In the highly affiliative condition, the physician looked at the patient more than in the less affiliative condition (a total duration of 18.5 s of looking at the patient in the highly affiliative condition vs. 9.8 s in the less affiliative condition), smiled more (1.5 s vs. no smiling at all), raised his eyebrows more (3.1 s vs. 1.1 s), frowned more (3.5 s vs. 0.3 s), and gestured more (25.2 s vs. 3.3 s).

A pre-test was conducted with 17 independent participants to check our manipulation. Participants were randomly assigned to watch one of the two videos and to then rate the physician's affiliativeness by using the following adjectives: friendly, distanced (reversed item), kind, cold (reversed item), nice, unfriendly (reversed item). The pre-test confirmed that the highly

affiliative physician was perceived as significantly more affiliative than the less affiliative physician, $t(15) = 3.94$, $p = .001$ (two-tailed).

The script of the verbal content was reviewed by a real physician for verisimilitude and correspondence with actual medical procedures. Excerpts of the script include: "So, we saw each other some days ago for a blood test. I now have the results. Unfortunately, they confirm the hypothesis of hepatitis B. We now have reliable tests to detect the presence of the virus in the blood. These tests suggest that you have been in contact with it (...). It is a rather serious disease, but it can be cured in 90% of the cases. However, unfortunately, it turns into a chronic form in 10% of the cases (...)".

Participant anger. The reaction of anger was self-assessed by the participants with four adjectives. The adjectives were: angry, annoyed, irritated, and mad. Participants rated each of these adjectives on a 5-point Likert scale (1 = "not at all" to 5 = "completely") to indicate the degree of intensity of anger they would have felt (e.g., "During this medical interview, would you have felt angry?") in a real medical interview with the physician. Ratings for the adjectives were averaged and larger values indicated more anger. The mean was 2.5 ($SD = 1.07$) and Cronbach's alpha .85.

Participant trust and adherence. Participants self-assessed each variable with three items on a 5-point Likert scale (1 = "completely disagree", 5 = "completely agree"). The three items measuring participants' trust in the physician were: "I would entirely trust this physician", "I would find him absolutely trustworthy", and "I would mistrust certain things he said" (reversed item) ($M = 3.07$, $SD = .93$; Cronbach's alpha = .79). The three items used to measure participants' determination to adhere to the treatment were: "If I had faced this physician with this medical problem, I would have been determined to follow the treatment or advice he gave me", "I don't think that I would follow all of the treatment and advice this physician gave me"

(reversed item), and "I would rigorously follow the treatment and advice of this physician" (*M* = 3.40, *SD* = .89; Cronbach's alpha = .84).

Participant agreeableness. We assessed agreeableness with the corresponding scale of the NEO-FFI (Costa & McCrae, 2007), which consists of 12 items rated on a 5-point Likert scale (0 = "completely disagree", 4 = "completely agree"). Sample items are: "I try to be nice with every person I meet", "Some people think that I'm selfish and that I only think of myself" (reversed), "I prefer to cooperate rather than compete with people". Item scores were summed up and larger values indicated more agreeableness (*M* = 32.60; *SD* = 6.48, Cronbach's alpha .79).

Procedure

We used an experimental design with two conditions. In one condition (*N*=40), the physician adopted a less affiliative behavior; in the other condition (*N*=40), the physician adopted a highly affiliative behavior. Participants were randomly assigned to one of the conditions, while an equal number of male and female participants was maintained in each condition (20 men and 20 women). Participants were asked to imagine that they had undergone a test for hepatitis B, that they were going to receive the results, and that the physician shown on the video was a real physician. On the video, the physician communicated a diagnosis of hepatitis B. After having watched the video, participants indicated how much anger, if any, they would have felt during a real consultation with the physician, and what their satisfaction and trust in the physician would have been, as well as their determination to adhere to the treatment indicated by the physician. Participants then completed the agreeableness scale of the NEO-PI-R (Costa & McCrae, 2007) personality questionnaire.

Results

We calculated separate regression analyses for the three dependent variables of anger, trust, and adherence. To test if correspondence between participant agreeableness and physician

affiliativeness predicted reduced participant anger (or enhanced trust or adherence), we proceeded to regression analyses controlling for participant gender. We followed the recommendations from Aiken and West (1991) and standardized the continuous predictor (participant agreeableness). The dichotomous predictor (physician affiliativeness) was dummy coded, and two models were created: in Model 1, the low affiliativeness condition was coded as 0 and the high affiliativeness condition as 1 (0 = low affiliativeness, 1 = high affiliativeness); in Model 2, it was the opposite (0 = high affiliativeness, 1 = low affiliativeness). At step one of the hierarchical regression (in Model 1 as well as in Model 2), participants' anger (or trust, or adherence) was regressed onto the physician's affiliative behavior and onto participant agreeableness (predictors), as well as onto participant gender (control variable). At step two, we added the product of participant agreeableness and of the physician's affiliativeness, in order to see whether the addition of this interaction term explained significantly more variance.

Participant anger

Results confirmed Hypothesis 1 according to which higher correspondence between participant agreeableness and physician affiliativeness results in less participant anger. In Model 1 as well as in Model 2, there was a significant interaction between physician affiliative behavior and participant's agreeableness score in predicting participant anger, $b^* = -.44$, $p = .010$ (Model 1), $b^* = .38$, $p = .010$ (Model 2). The negative coefficient in Model 1 and the positive coefficient in Model 2 show that more correspondence results in less anger. The significant R^2 change from step 1 to step 2, $\Delta R^2 = .08$, $p = .010$ (Models 1 and 2), shows that the addition of the interaction term enables us to predict significantly more variance in the anger outcome (Table 1).

[Table 1]

We then looked at the main effect of participant agreeableness in Model 1 and we compared it to the one in Model 2 in order to see if participants' agreeableness predicted their

emotional reaction of anger differently depending on the condition. Model 1 (in which the 0 of the dummy coded variable represented the low affiliativeness condition) showed that when the participants saw the physician who was low in affiliativeness, their trait of agreeableness did not predict their level of anger, $b^* = .22$, $p = .193$. Model 2 (in which the 0 of the dummy coded variable represented the high affiliative condition) showed that when the participants saw the highly affiliative physician, their trait of agreeableness predicted their level of anger, $b^* = -.36$, $p = .019$. (Table 1): The more agreeable the participants were, the less anger they experienced with the highly affiliative physician. *Figure 1* displays the simple slopes for physicians low and high in affiliativeness depending on the participant's agreeableness.

[Figure 1]

Participant trust and adherence

Our next hypotheses were that higher correspondence between participant agreeableness and physician affiliativeness results in more participant trust in the physician (Hypothesis 2a) and in more determination to adhere to the treatment (Hypothesis 2b).

Hypothesis 2a was confirmed. In Model 1 as well as in Model 2, there was a significant interaction between physician affiliativeness and participant agreeableness in predicting participant trust, $b^* = .38$, $p = .027$ (Model 1), $b^* = -.33$, $p = .027$ (Model 2). The positive coefficient in Model 1 and the negative coefficient in Model 2 show that more correspondence resulted in more trust. There was a marginally significant R^2 change from step 1 to step 2, $\Delta R^2 = .06$, $p = .027$ (Models 1 and 2).

Model 1 (in which the 0 of the dummy coded variable represented the condition that was low in affiliativeness) showed that when participants saw the physician who was less affiliative, their personality trait of agreeableness did not predict their level of trust, $b^* = -.18$, $p = .294$. Model 2 (in which the 0 of the dummy coded variable represented the highly affiliative

condition) showed that when participants saw the physician who was high in affiliativeness, their personality trait of agreeableness predicted their level of trust, $b^* = .32$, $p = .037$: The more agreeable the participants were, the more they trusted the highly affiliative physician. *Figure 2* displays the simple slopes for physicians low and high in affiliativeness depending on the participant's agreeableness (Model 1).

[Figure 2]

Hypothesis 2b was, however, not confirmed. There was no significant interaction effect between the physician's affiliativeness and the participant's agreeableness score in predicting participant adherence, $b^* = .11$, $p = .513$ (Model 1), $b^* = -.19$, $p = .513$ (Model 2).

Mediated moderation

Results of the testing of Hypothesis 1 and 2a showed that correspondence between physician affiliativeness and participant agreeableness predicted participant outcomes of anger (negatively) and trust (positively). Hypothesis 3 stated that the participants' anger – which depends on the correspondence between physician affiliativeness and participant agreeableness –, *explains* their trust in the physician (Hypothesis 3a) and their adherence (Hypothesis 3b). In other words, we predicted that participant anger would mediate the correspondence effect of physician affiliativeness and participant agreeableness on participant trust and on patient adherence. Since the correspondence effect is a moderation (of the link between physician affiliativeness and participant anger by participant agreeableness), we investigated what is known as 'mediated moderation' (Fairchild & MacKinnon, 2009). The procedure for testing mediated moderation is the same as the one for testing normal mediation, except that the causal variable is an interaction term of two variables (in this case: Physician Affiliativeness X Participant Agreeableness) rather than just a single variable (Baron & Kenny, 1986). The model we used is represented (with the results of the analyses) in *Figure 3.*

[Figure 3]

Hypothesis 3a was confirmed: Participant anger explained (mediated) the link between the interaction term (i.e., correspondence) of participant agreeableness and physician affiliativeness, and participant trust (Hypothesis 3a). Our data met the criteria of Baron and Kenny (1986) for establishing a mediation: The interaction of the participant's agreeableness and of the physician's affiliativeness predicted the outcome of trust, $b^* = .38$, $p = .027$ (Model 1), $b^* = -.33$, $p = .027$ (Model 2); the interaction of the participant's agreeableness and of the physician's affiliativeness predicted the emotion of anger, $b^* = -.44$, $p = .010$ (Model 1), $b^* = .38$, $p = .010$ (Model 2); and the emotion of anger predicted the outcome of trust when controlling for the interaction of the participants' agreeableness and of the physician's affiliativeness, $b^* = -.43$, $p = .000$ (Model 1 and 2). The interaction effect of participant agreeableness and physician affiliativeness on participant trust, $b^* = .38$, $p = .027$ (Model 1), $b^* = -.33$, $p = .027$ (Model 2), drops to a non-significant relation $b^* = .19$, $p = .237$, $b^* = -.16$, $p = .237$ (Model 2), when controlling for the mediator – i.e., participant anger. This drop was significant according to the Sobel test (Baron & Kenny, 1986), $Z = 2.21$, $p = .027$ (Model 1), $Z = -2.21$, $p = .027$ (Model 2). As the regression coefficient was no longer significant after the mediation analysis, we can conclude that the participant's anger completely explains the effect that correspondence between participant agreeableness and physician affiliativeness has on participant trust (*Figure 3*). This means that the more correspondence there was between the participant's agreeableness and the physician's affiliativeness, the less anger participants experienced when receiving bad news, which in turn was responsible for the fact that they had more trust in the physician.

Since Hypothesis 2b – which was a prerequisite for the mediation analysis – was not confirmed, we could not confirm Hypothesis 3b, according to which participants' anger

explained the influence of the correspondence between participant agreeableness and physician affiliativeness on the participants' determination to adhere to the treatment.

Discussion

The goal of this study was to demonstrate that correspondence along the affiliation dimension between participant personality and physician behavior – i.e. correspondence between the participant's personality trait of agreeableness and the physician's degree of nonverbal affiliativeness – reduces participants' reactions of anger in the context of a simulated bad news delivery (Hypothesis 1) and enhances participant trust and adherence (Hypothesis 2a and 2b). An additional goal was to show that reduced anger explains why participants show increased trust and adherence when they see a physician who fulfills their needs for affiliativeness (Hypothesis 3a and 3b).

We confirmed Hypothesis 1 and showed that correspondence between participant agreeableness and physician affiliative behavior reduces participants' reactions of anger. We also confirmed Hypothesis 2a and showed that correspondence between participant agreeableness and physician affiliativeness increases participant trust. However, our results do not confirm Hypothesis 2b; the correspondence was unrelated to participant adherence. Hypothesis 3a was confirmed; the fact that correspondence between the participants' personality trait of agreeableness and the physician's level of affiliativeness led to more participant trust was explained by the fact that correspondence diminished the participants' reactions of anger. Hypothesis 3b could not be confirmed because confirmation of Hypothesis 2b was a prerequisite to test it (and Hypothesis 2b was not confirmed).

Regarding the outcome of anger, our results indicate that highly agreeable individuals experience significantly less anger than less agreeable individuals when physicians adopt a nonverbal behavior that is high rather than low in affiliativeness (*Figure 1*). We therefore show

that depending on the patient's personality, the same physician behavior may elicit different levels of anger, which then can impact on the quality of the patient-physician relationship, as suggested by the fact that less anger in our participants led to more trust in the physician.

Our results with respect to trust confirm previous findings in the literature showing that the more correspondence there is between the participant's personality and the physician's behavior along the affiliation dimension (i.e., more affiliative physicians for more agreeable patients), the more trust the participants had in the physicians (Cousin & Schmid Mast, 2011). This study extends the results of Cousin and Schmid Mast (2011) in revealing a potential *mechanism* explaining why correspondence along the affiliation dimension between the patient and the physician may lead to more patient trust. Patient anger seems to be an important factor explaining the positive outcome of the correspondence. In our study, participants reported less anger when the physician's nonverbal behavior was in line with their personality, and the decrease in their reaction of anger preserved their trust in the physician.

Contrary to what had been previously found by Cousin and Schmid Mast (2011), there was no relation between patient and physician correspondence along the affiliation dimension and the participant's determination to adhere to the treatment. Maybe the fact that the disease presented in this study was rather serious (hepatitis B with a risk for chronic development) was responsible for this. We might not have found an effect of the correspondence to adherence because research shows that as disease gravity increases, the impact of the physician's communication style and behavior on patient adherence decreases (Wiebe & Christensen, 1996).

These results suggest that physicians should be especially affiliative with patients who present high levels of agreeableness, in order to minimize patient reactions of anger and preserve their trust. Physicians should be able to detect the level of agreeableness of their patients simply by interacting with them, because meta-analytical results show that people are rather accurate in

inferring others' personality traits – including agreeableness –even when they are not or only little acquainted (Connelly & Ones, 2010).

In this study, we opted for an experimental design to ensure that all the variance in the patients' reactions could only stem from differences in the physician's nonverbal behavior. Such a design enabled us to establish a causal relationship between the physician's nonverbal behavior and the participants' reactions of anger and trust. This is valuable because most research in the field of physician-patient communication rely on correlational data that do not allow for such causal inferences (Cousin, 2011). For ethical reasons, however, it would have been problematic to manipulate the affiliativeness level of a physician who delivers bad news to *real* patients. This is why we used an experimental design with analogue patients, in order to test our hypotheses without the risk of harming patients who already face an emotionally difficult situation.

Nevertheless, using analogue patients has some limitations. Patients facing a real medical diagnosis of hepatitis B most likely experience stronger emotions than the participants of our study, who only had to imagine such a scenario. Participants reported the emotion of anger they thought they would feel in such a situation. The same reservation can be made for trust and adherence. However, the fact that we found results in a simulated situation with non-real patients suggests that our results rather are an underestimation of the real effects.

The use of a college sample may also limit the generalizability of our findings, because the young may face fewer health threats and feel less vulnerable. Future research will thus need to replicate our findings with participants of different age groups and with different degrees of medical concerns.

Note that we chose a male actor to portray the physician on the videos. We know that the gender of the physician may have an impact on how *dominant* his or her communication style is perceived by the patient (Schmid Mast, Hall, Klöckner Cronauer, & Cousin, 2011). However,

there is no evidence that affiliativeness is perceived differently depending on the gender of the physician. In Cousin and Schmid Mast' (2011) study, the gender of the physician did not moderate the correspondence effect found between physician affiliativeness and participant personality on participants outcomes. It follows that our results may well apply to female physicians, as well. Nevertheless, future researchers might want to address this question in a separate study.

Because nonverbal cues usually play a bigger role than verbal ones in conveying affiliativeness (Bensing, 1991; Burgoon et al., 1996), this study focused on physician nonverbal behavior. Future researchers might want to investigate the effect of physician *verbal* affiliativeness on patient outcomes depending on the patient's personality trait of agreeableness, alone and in interaction with nonverbal affiliativeness.

Conclusions

Depending on their personality trait of agreeableness, participants reacted differently to the same level of physician's affiliativeness. The more correspondence there was between the participant's agreeableness level and the physician's affiliativeness, the less anger the participants reported after receiving bad news, which then preserved their trust in the physician.

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Table 1

Predictors of Participant Anger After Receiving Bad News

	Participant anger			
	Model 1		Model 2	
	*b**	*p*	*b**	*p*
Step 1				
Physician affiliativeness	-.19	.094	.19	.094
Participant agreeableness	-.11	.378	-.11	.378
Participant gender	-.14	.232	-.14	.232
Step 2				
Physician affiliativeness	-.19	.089	.19	.089
Participant agreeableness	.22	.193	-.36*	.019
Participant gender	-.15	.184	-.15	.184
Participant agreeableness X Physician affiliativeness	-.44*	.010	.38*	.010
ΔR^2	.08	.010	.08	.010
ΔF	6.97*	.010	6.97*	.010

Note. Model 1 = 0 of the dummy coded variable represents the low affiliative condition and 1 represents the high affiliative condition. Model 2 = the 0 of the dummy coded variable represents the high affiliative condition and the 1 represents the low affiliative condition.

* $p < .05$

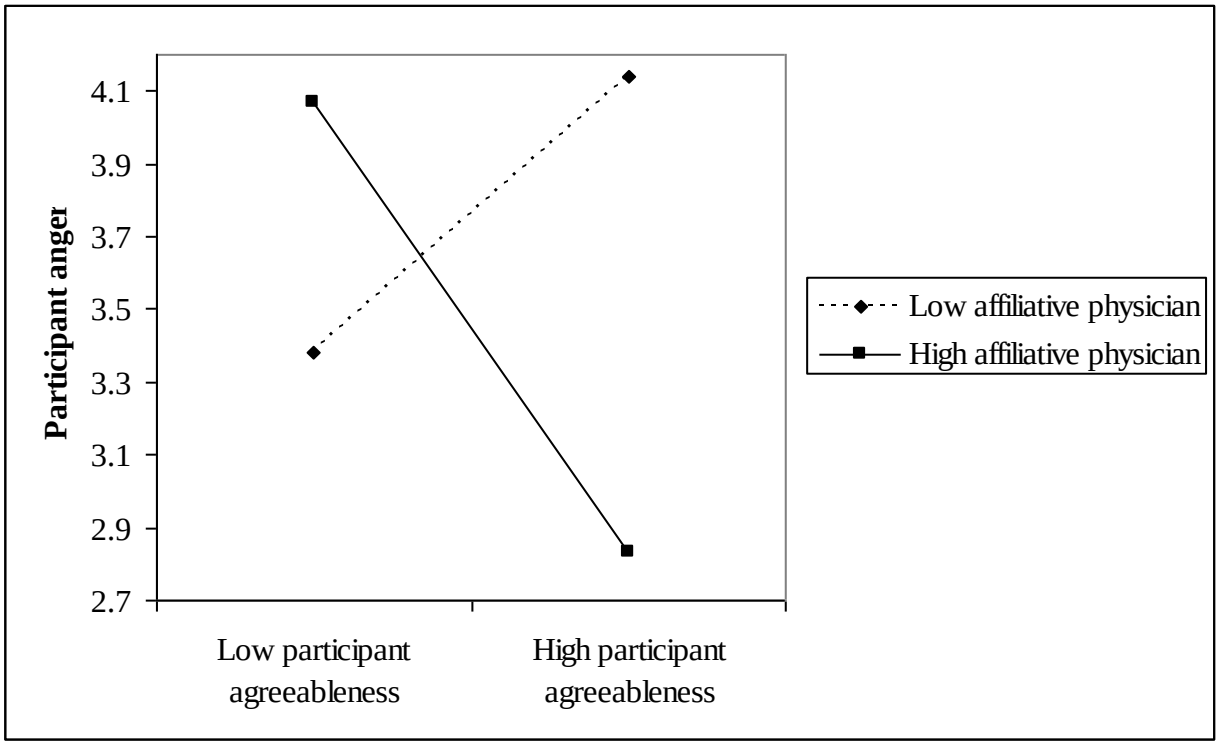

Figure 1. Participant anger after having seen a low affiliative vs. a high affiliative physician, depending on participant agreeableness.

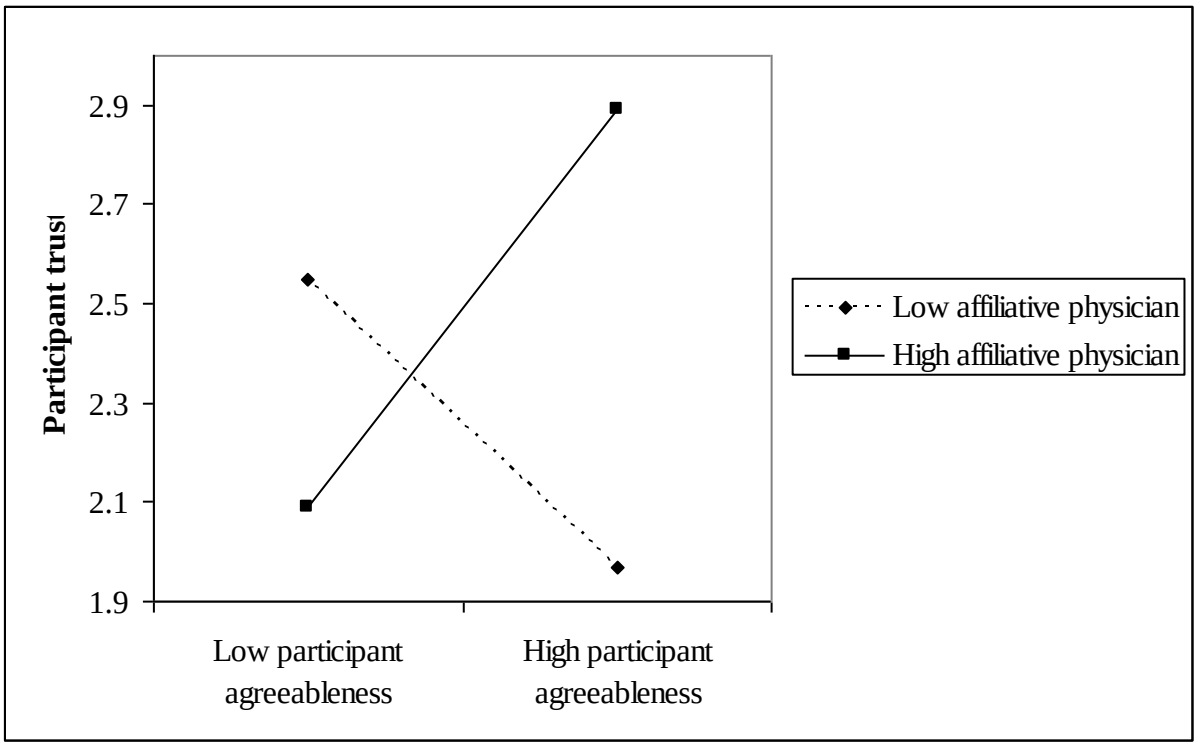

Figure 2. Participant trust after having seen a low affiliative vs. a high affiliative physician, depending on the participant's agreeableness.

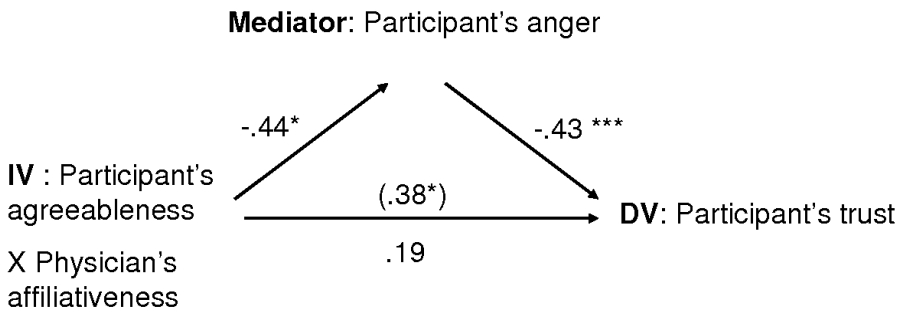

Figure 3. Participant anger as a mediator between the interaction term of participant agreeableness and of physician affiliativeness, and participant trust. The values represent standardized regression coefficients. The value in parenthesis represents the effect of the IV on the DV before the mediation analysis is made. The value situated under the parenthesis represents the effect of the IV on the DV after having taken into account the mediating variable.

D) STUDY 3

Cousin, G., & Schmid Mast, M. (2012). *Breaking the ice: Difficult patients are especially sensitive to physician warmth in communication style*. Manuscript submitted for publication to Social Science & Medicine.

Breaking the Ice: Difficult Patients Are Especially Sensitive to Physician Warmth in Communication Style

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Abstract

During social interactions, individuals tend to reciprocate their interaction partners' degree of affiliativeness (i.e., warmth, friendliness). Physicians are no exception to the rule; when facing a disagreeable patient, they tend to adopt a colder and less friendly communication style. Such reciprocation might be very problematic as past research suggests that disagreeable patients are more critical and sensitive to their physician's communication style than agreeable patients are. On the basis of the literature, we hypothesized that disagreeable patients react more negatively than agreeable patients to a decrease in the physician's degree of affiliativeness (i.e., warmth, friendliness) in terms of satisfaction with the physician, trust in the physician, and determination to adhere to the treatment. Thirty-six general practitioners (20 men / 16 women) working in their own practice in Switzerland were filmed while interacting with 69 patients (36 men / 33 women) of different ages (*M*= 50.7; *SD* = 18.19; range: 18-84) and presenting different medical problems (e.g., back pain, asthma, hypertension, diabetes). After the medical interview, patients filled in a questionnaire asking for their satisfaction with the physician, their trust in the physician, and their determination to adhere to the treatment. Physician affiliativeness was coded on the basis of the video recordings. Physician gender, patient gender and age, as well as the gravity of the patient's medical condition were introduced as control variables in the analysis. Results confirmed our hypothesis for satisfaction and trust, but not for adherence; disagreeable patients reacted more negatively (in terms of satisfaction and trust) than agreeable patients to a decrease in the physician's degree of affiliativeness. This study suggests that physicians should put extra-effort in staying warm and friendly with people low in agreeableness because those patients' satisfaction and trust can be more easily lowered by a cold or unfriendly physician communication style.

Keywords: physician-patient communication, difficult patients, agreeableness, satisfaction, trust

Breaking the Ice: Difficult Patients Are Especially Sensitive

to Physician Warmth in Communication Style

The notion of the *difficult patient* has been frequently used in the literature to describe patients who are difficult to interact with and difficult to treat (e.g., Breeze & Repper, 2002; Elder, Ricer, & Tobias, 2006; Haas, Leiser, Magill, & Sanyer, 2005; Steinmetz & Tabenkin, 2001; Strous, Ulman, & Kotler, 2006). Patients are considered difficult, for instance, when they do not adhere to treatment recommendations, when they are especially demanding (e.g., in terms of staff, time, or resources), when they are disruptive, when they are rude, or when they are hostile (Breeze & Repper, 2002; Schwenk, Marquez, Lefever, & Cohen, 1989; Steinmetz & Tabenkin, 2001). When such difficult behavior of the patient does not relate to an underlying psychopathology (e.g., psychosis, borderline personality) or to the complexity of the diagnosis (e.g., patient with multiple complains), it often relates to personality characteristics represented by the lower end of the agreeableness dimension of Costa and McCrae's (1992) Big Five model of personality (Schwenk et al., 1989).

Research has shown that such disagreeable patients (i.e., patients low on the agreeableness dimension) are difficult patients in that they typically have a poorer alliance with their physicians (Burns, Higdon, Mullen, Lansky, & Wei, 1999), report more suspicion and mistrust with their healthcare providers, and show less adherence to the treatment (Christensen, Wiebe, & Lawton, 1997). Moreover, disagreeable patients report less satisfaction with medical care (Hendricks, Smets, Vrielink, VanEs, & DeHaes, 2006) than people high in agreeableness. Given this susceptibility for negative consultation outcomes, disagreeable patients might be particularly sensitive to the physician's communication style and react especially negatively to physicians' displays of a cold or unfriendly communication style. Indeed, qualitative research on difficult patients suggests that physicians can compensate some of the negative effects of

patients' disagreeableness on the interaction outcomes (e.g., low satisfaction, mistrust in the physician, non-adherence to the treatment) by being especially attentive, empathetic, tolerant, non-judgmental – in other words by being particularly *affiliative* with those patients (e.g., Breeze & Repper, 2002; Elder et al., 2006; Haas et al., 2005; Steinmetz & Tabenkin, 2001; Strous et al., 2006). For instance, in summarizing previous research done on difficult patients, Haas and colleagues (2005) recommend that physicians improve listening behaviors and interrupt patients less, avoid blaming the patient, and express empathy. Such research suggests that conversely, when physicians adopt a communication style low in affiliativeness, disagreeable patients – maybe because they are especially demanding and critical with others (Amitay, 2007; Costa & McCrae, 1992) – react more negatively than agreeable patients do. Research conducted outside the physician-patient context has shown that disagreeable individuals respond with greater quarrelsomeness to quarrelsome behavior (e.g., not responding to questions or comments, criticizing, raising one's voice, showing impatience) in others than agreeable individuals do (Moskowitz, 2010). In sum, because disagreeable individuals are less tolerant and lenient with others (Amitay, 2007; Costa & McCrae, 1992) and more reactive to unfriendly behaviors (Moskowitz, 2010) than agreeable individuals, we expect disagreeable patients to have negative consultation outcomes particularly when the physician adopts an unfriendly communication style. More specifically, we predict that disagreeable patients will react *more* negatively than agreeable patients to a relatively low level of physician's affiliativeness (i.e., to a physician behaving and communicating in a colder, more distant, and less friendly way) in terms of satisfaction with the medical visit, trust in the physician, and determination to adhere to the treatment. Identifying a physician communication style that negatively affects difficult patient encounters can help guiding physician communication training. Being aware of which communication style to avoid

when with a difficult patient is important for a physician in order to provide these patients with the same quality of care as patients who are easier to deal with.

Physician affiliativeness

Physician affiliativeness is made of behaviors that convey warmth, friendliness, interest, empathy, a desire to help, honesty, a nonjudgmental attitude, and /or humor (Buller & Buller, 1987). It can be expressed through nonverbal behaviors such as smiling, nodding, facial expressiveness, vocal backchannels (e.g. "uh-uh", "mmh"), soft touch, face-to-face position, forward lean, bodily relaxation, close interpersonal distance, or interactional synchrony (e.g. Anderson & Anderson, 1999). It can also be expressed verbally, through sentences reflecting empathy, through statements of reassurance and support, positive reinforcement, laughing and joking, courtesy, or psychosocial talk (for a review, see Beck, Daughtridge, & Sloane, 2002). Physician nonverbal and verbal affiliativeness has been related to many positive patient outcomes, including patient satisfaction (Beck et al., 2002; DiMatteo, Hays, & Prince, 1986), trust in the physician (Aruguete & Roberts, 2002), and adherence to the treatment (Aruguete & Roberts, 2002; DiMatteo & Lepper, 1998). However, patients react differently to the same physician communication style (Hall, Roter, & Rand, 1981; Street & Wiemann, 1987) and some patients seem more demanding of physician affiliativeness than others (Graugaard & Finset, 2000).

Patient disagreeableness

The dimension of agreeableness (vs. disagreeableness) represents the degree to which an individual tends to act and to communicate in an affiliative way (Costa & McCrae, 2007). Agreeableness is characterized by cooperative behaviors, a desire to create positive and warm relationships, and by trust in others. Disagreeableness represents the negative pole of this dimension and it is characterized by the opposite behaviors (e.g., non-cooperative behaviors, no

or less of a desire to create positive and warm relationships, mistrust in others). Research shows that healthcare providers adopt a colder and more distant communication style with disagreeable patients (e.g., patients who express less positive affect and who are contentious) than they do with agreeable patients (Michaelsen, 2012; Street, Gordon, & Haidet, 2007). We argue in this paper that this is potentially a problem because disagreeable patients, having a tendency to be easily upset (Moskowitz, 2010) and to be critical towards others (Amitay, 2007), might react more negatively (e.g., in terms of interaction outcomes such as satisfaction, trust, and/or adherence) than agreeable patients to a physician communication style that is colder, more distant, and less friendly.

Research has shown that the personality trait of agreeableness is particularly relevant when studying people's reaction to others' displays of affiliativeness also in the realm of the physician-patient communication (Battistich, 1980; Cousin & Schmid Mast, 2011; Hirschberg & Jennings, 1980; Moskowitz, 2010). For instance, in two simulation studies, participants' agreeableness predicted their reaction to variations in the level of the physician's nonverbal affiliativeness (e.g., smiling, nodding, facial and gestural expressivity) (Cousin & Schmid Mast, 2011, in press). One study showed that disagreeable participants did not react to physicians' decrease in nonverbal affiliativeness in terms of satisfaction, trust, and adherence (Cousin & Schmid Mast, 2011) and the other study showed that disagreeable participants preferred a physician low in affiliativeness to a physician high in affiliativeness (Cousin & Schmid Mast, in press). The results of these studies were opposite to what we predict in the present paper and we suspect that it is because disagreeable participants have shown little involvement in the simulation studies. Disagreeable individuals typically show less cooperative behaviors and thus maybe less involvement when the interaction is less engaging (a simulation as opposed to a real face-to-face medical visit) (Costa & McCrae, 2007). In the present study, we measure

disagreeableness in actual patients seeing their actual general practitioners and we assess the degree of affiliativeness in the doctor's communication style during the visit. The patient outcomes that we consider are patient satisfaction, patient trust, and patient determination to adhere to the treatment. Satisfaction and trust in the physician have been related to patient adherence (Fitzpatrick, 1991; Wilson & McNamara, 2002), and patient adherence has been related to patient's recovery and health status (Hays et al., 2005; Horowitz & Horowitz, 1993). This is why we investigated those important patient outcomes in the present study.

Method

Participants

We used a convenience sample of physicians contacted by telephone and asked for their voluntary participation. Seventy-two were contacted and 39 of them accepted to participate (54% of the contacted physicians). For three of them, it was not possible to recruit patients that fulfilled the inclusion criteria (see below) resulting in a total of 36 physicians (20 male physicians and 16 female physicians). Physicians were general practitioners in their own practices in Switzerland.

For each physician, the first female patient and the first male patient who matched the inclusion criteria (see below) and who accepted to participate on the day of the data collection were included in the study (for three physicians, it was only possible to recruit a male but not a female patient). Sixty-nine patients (36 men and 33 women) participated in the study. Patients' mean age was 50.7 (*SD* = 18.19; range: 18-84) and they consulted for different reasons (e.g., check-up, cold, back pain, asthma, hypertension, diabetes). The mean duration of the consultations was 31 min (*SD* = 13.43).

Patients were excluded from the study if they were less than 18 years old, if they did not speak French fluently, or if they had a diagnosed psychiatric disorder. Patients who have a longstanding relationship with their doctor are likely to be very satisfied with their doctor

(otherwise, they would have probably stopped consulting this doctor). To avoid a potential ceiling effect in our satisfaction measure, we thus excluded patients that had seen the physician more than four times in the past. Patients had either never seen the physician before (31.9%), or they had seen him or her once (21.7%), twice (17.4%), three times (13%), or four times (13%) in the past (missing data: 2.7%).

Procedure

Physicians and patients provided written informed consent to be part of the study prior to the medical interview. Both physicians and patients explicitly agreed to the consultation being videotaped (with the patient not visible on the screen but audible on the video), and patients also agreed to complete a questionnaire after the visit. After the consultation, the patient filled in a questionnaire measuring his/her satisfaction with the consultation, trust in the physician, and intention to comply with the treatment suggested by the physician (if a treatment was necessary). Patients also reported their age, gender, and profession. The entire procedure was reviewed and approved by the regional ethic committee for research on human subjects.

Materials and Measures

Physician affiliativeness. A naive rater viewed 3 x 5 min excerpts of each video (the first 5 min of the medical consultation, the 5 min of the middle of the interview, and the 5 last min), and rated physician affiliativeness on a 7-point Likert scale (1 = no at all; 4 = moderately; 7 = extremely) with 5 adjectives based on the Revised Interpersonal Adjective Scale (IAS – R) of Wiggins, Trapnell, and Philipps (1988) and adapted to the present study: “friendly”, “kind”, “agreeable”, “sympathetic”, “cold” (reversed item). For each video, an affiliativeness score was computed by averaging the adjective ratings of the 3 excerpts of the interview (first 5 min, 5 last min, and 5 min in the middle). A second coder viewed and coded a subsample of 20 videos

resulting in good inter-rater reliability (r = .83). Note that the entire sample was coded by one person only (M = 5.34; SD = .90; Cronbach's alpha .93).

Patient agreeableness. Patients' personality trait of agreeableness was assessed with the agreeableness scale of the NEO-FFI (Costa & McCrae, 2007), which is a widely used and validated self-report measure of personality. It consists of 12 sentences to which patients indicate their degree of agreement, using a 5-point Likert scale (1 = *I do not agree at all,* 5 = *I completely agree*). Sample items are: "Certain people think that I am selfish and that I do only think of myself" (reversed item) or "Most people I know do like me". Scores were averaged across items and higher values indicate more agreeableness. The mean was 3.96 (SD = .54) and Cronbach's alpha was .70.

Patient outcomes. Patient satisfaction, trust in the physician, and determination to adhere to the treatment were assessed with a list of sentences to which patients indicated their degree of agreement (also on 5-point Likert scales). Those sentences were taken from Cousin & Schmid Mast (2011, in press) and adapted to the present study. Patient satisfaction was measured with the following two items: "I'm absolutely satisfied with the way my physician has conducted this medical interview" and "The general attitude and behavior of my physician suited me perfectly well". Scores were averaged across items and higher values indicate more satisfaction (M = 4.72, SD = 0.70; Cronbach's alpha = .83). The two items measuring patient trust in the physician were: "I trust my physician entirely" and "He or she seems absolutely trustworthy" (M = 4.67, SD = 0.54; Cronbach's alpha = .86). The three items measuring patient determination to adhere to the treatment (adherence) were: "I am determined to follow the treatment or advices of my physician *to the letter*", "I don't think that I will follow all of the treatment or advices my physician gave me" (reversed item), and "I will rigorously follow the treatment and advices of my physician" (M = 4.50, SD = 0.87; Cronbach's alpha = .80). Note that for 22 patients (31% of the sample), no

treatment recommendations were given by the physician after the visit (because no treatment was necessary or because the diagnosis was not clear enough yet). The consequence was that for the outcome of adherence, the sample size used in the analysis was smaller (n = 47).

There was a significant correlation between the outcomes of satisfaction and trust, $r(68)$ = .65, p = .000, but no significant correlation between the outcomes of satisfaction and adherence, $r(68)$ = .14, p = .310, nor between the outcomes of trust and adherence, $r(68)$ = .24, p = .084 (two-tailed analyses). Given that not all the outcome variables were correlated, we considered every outcome individually and did not create a composite measure of patient "positive outcomes".

Disease gravity. On the basis of the videos, a research assistant created a list of the patients' medical problems as they were verbalized by the physician (either as diagnoses or, when no diagnosis was given, as hypotheses regarding the diagnosis). An independent physician (the third author of this paper) rated the gravity of each patient's medical condition on a 5-point Likert scale (1= "very minor medical problem that has no or little consequences on the patient's life and functioning"; 5 = "very serious medical problem that has a massive impact on the patient's life and functioning"). In case of a hesitation between two codes (for 9 of the 69 patients), a second rater (the first author of this paper) watched the video and took the final decision. The majority of the patients had medical problems of medium (44.9 %) or low (30.4%) gravity, corresponding to grades 3 or 2. A minority of patients had no or minor medical problems and received a grade 1 (15.9%), or presented medical problems that were considered as rather serious (grade 4: 8.7%). No patient had medical problems that received a grade 5 ("very serious").

Physician dominance. Physicians perceived as high in affiliativeness also tend to be perceived as low in dominance (Krupat, Yeager, & Putnam, 2000). Physician dominance has been associated with patient outcomes of satisfaction, trust, and adherence (Kiesler & Auerbach,

2003) and could constitute a confound in our study. This is why we coded physician dominance in order to control for it in the analysis. We followed the same procedure as for the coding of physician affiliativeness, by the same naïve raters. Five adjectives were selected from the Revised Interpersonal Adjective Scale (IAS – R) of Wiggins, Trapnell, and Philipps (1988) and adapted to the present study**:** "self-confident", "dominant", "authoritative", "shy" (reversed), "unsure" (reversed) (M = 4.55, SD = 0.78; Cronbach's alpha = .80). Inter-rater reliability was good (r = .81).

Analyses

To test whether the interaction between patient agreeableness and physician affiliativeness predicted patient satisfaction (or trust, or adherence), we calculated hierarchical regression analyses separately for each of the 3 outcome variables. We followed the recommendations from Aiken and West (1991) and standardized the continuous predictors and control variables. In step one of the hierarchical regression, patient satisfaction (or trust, or adherence, respectively) was regressed onto the physician's affiliativeness and onto patient agreeableness (predictors), as well as onto physician gender, patient gender, patient age, and gravity of the medical problem (the latter 4 as control variables). Physician dominance was introduced as a control variable because it was negatively correlated with physician affiliativeness, $r(69) = -.55$, $p = .0001$, and could thus constitute a confound.

In step two, we added the product of patient agreeableness by physician affiliativeness to test whether the addition of this interaction term explained significantly more variance in the dependent variable. Because there was a ceiling effect in the outcome variables of satisfaction, trust, and adherence that violated the assumption of normality of the distribution, we used the bootstrap procedure (1000 samples, 95% confidence interval), as recommended in such cases (Efron & Tibshirani, 1993).

Note that our observations were not completely independent because every physician saw two patients (one female patient and one male patient; three physicians saw only one patient). As a consequence, we also tested whether multilevel analyses were requested for our data, following the procedure indicated by Field (2009). Results showed that for each regression there was no significant change in the -2 log-likelihood when the multilevel structure was taken into account, all $\chi^2_{\text{Change}} = 0.60$, $p > .05$. This indicates that multilevel analyses were not requested.

Results

With respect to patient satisfaction, results showed that the interaction between physician affiliativeness and patient agreeableness significantly predicted patient satisfaction, $b = -.27$, $p = .035$, $f^2 = .21$. None of the control variables (i.e., physician gender, patient gender, patient age, gravity of the medical problem, and physician dominance) was a significant predictor of the satisfaction outcome, all p's > .112, and the results remained significant when the control variables were removed from the regression, $b = -.27$, $p = .030$, $f^2 = .21$. Following the recommendations of Field (2009) we re-ran the regression without the control variables. The significant R^2 change from step 1 ($R^2 = .24$) to step 2 ($R^2 = .37$), $\Delta R^2 = .13$, $p = .001$ shows that the addition of the interaction term enables us to predict significantly more variance in the satisfaction outcome. The negative sign of the regression coefficient shows that disagreeable patients reacted more negatively than agreeable patients to a decrease in physician affiliativeness. *Figure 1* shows that patient satisfaction was very high in all cases, except when disagreeable patients faced physicians who showed low levels of affiliativeness. This result fits our predictions.

[Figure 1]

Results pertaining to patient trust showed also a significant interaction between physician affiliativeness and patient agreeableness, $b = -.16$, $p = .034$, $f^2 = .12$. Again, none of the control

variables (i.e., physician gender, patient gender, patient age, gravity of the medical problem, and physician dominance) was a significant predictor of the trust outcome, all *p*'s > .240, and the result remained significant when the control variables were removed out of the regression, b = -.17, p = .008, f^2 = .12. The negative sign of the regression coefficient shows that correspondence between physician behavior and patient personality along the affiliation dimension resulted in less patient trust. *Figure 2* shows that patient trust was very high in all cases, except when disagreeable patients faced physicians who showed low levels of affiliativeness, as we predicted. The significant R^2 change from step 1 (R^2 = .27) to step 2 (R^2 = .35), ΔR^2 = .08, p = .007 shows that the addition of the interaction term enables us to predict significantly more variance in the trust outcome.

[Figure 2]

With respect to adherence, there was no significant interaction between physician affiliativeness and patient agreeableness in predicting patient determination to adhere to the treatment, b = .07, p = .739, f^2 = .005. Results of the three regressions (without control variables) are presented in Table 1.

[Table 1]

Discussion

The goal of this study was to test whether disagreeable patients are more sensitive and react more negatively (i.e., less satisfaction, less trust, and less adherence) than agreeable patients to a decrease of affiliativeness (i.e., warmth, friendliness) in the physician's communication style. Results confirmed our predictions for satisfaction and trust: Disagreeable patients' satisfaction and trust decreased when physician affiliativeness decreased, while agreeable patients' satisfaction and trust remained unchanged, independently of the variations in the physician's

affiliativeness. Patient adherence to the treatment recommendations was unaffected by the interplay of the patient's trait of disagreeableness and the physician's affiliativeness.

These results are interesting for several reasons. First, because individuals have a natural tendency to reciprocate others' levels of affiliativeness; in other words, to behave friendly with friendly individuals and unfriendly with unfriendly individuals (Kiesler & Auerbach, 2003). Healthcare providers are no exception to the rule (Michaelsen, 2012; Street et al., 2007). Our study suggests that when followed by physicians, this tendency can be detrimental to patient outcomes: Reciprocating unfriendly behavior with disagreeable patients might have particularly negative consequences on these patients' outcomes. Disagreeable patients seem particularly sensitive to their physician's display of unfriendliness compared to more agreeable patients. These results are in line with previous studies conducted on real physician-patient interactions suggesting that disagreeable patients are especially critical and demanding with their healthcare providers and that disagreeable patients are particularly sensitive to variations in their physician's communication style (Breeze & Repper, 2002; Burns et al., 1999; Christensen et al., 1997; Hendricks et al., 2006; Steinmetz & Tabenkin, 2001).

Our hypothesis with respect to treatment adherence was not confirmed. The fact that a substantial part (31%) of our sample did not receive any treatment recommendation (e.g., patients coming for check-ups or at the stage of the diagnosis) might be an explanation for this absence of a result. Furthermore, we did not measure actual adherence, but only patients' intention, at the end of the visit, to adhere to the physician's recommendations. Patients' actual adherence might be different from their intention to adhere, and future studies might want to focus on actual adherence.

Note that in the present study, we assessed medical problem gravity and controlled for it in the analysis. However, the majority of the patients had medical problems of medium or low

gravity. Past studies suggest that as the gravity of the medical condition increases, the importance of the physician's communication style on patient outcomes tends to decrease (Wiebe & Christensen, 1996). The effect of severity of the medical problem on the reactions of disagreeable or difficult patients to different doctor communication styles needs to be investigated further.

Conclusion

When disagreeable patients consult with cold and unfriendly (low affiliative) physicians, they are particularly dissatisfied with the consultation and their trust in the physician is reduced. Disagreeable patients' satisfaction and trust were similar to the ones of agreeable patients only when physicians communicated in a warm and friendly way.

Practice implications

Even if people have a tendency to be less friendly with less friendly individuals, physicians might need to put extra effort in staying warm and nice with patients who are disagreeable and difficult. Indeed, disagreeable patients seem to be especially sensitive to physician's displays of coldness or unfriendliness (compared to more agreeable patients) and react negatively in terms of decreased satisfaction and trust.

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Table 1

Predictors of Patients' Satisfaction, Trust, and Adherence

	Satisfaction		Trust		Adherence	
Variable	*b*	95% CI[a]	*b*	95% CI	*b*	95% CI
Step 1						
Constant	4.71[c]	[4.56, 4.86]	4.66[c]	[4.54, 4.77]	4.51[c]	[4.27, 4.74]
Physician affiliativeness	0.29	[-0.03, 0.54]	0.27[c]	[0.06, 0.43]	-0.001	[-0.26, 0.20]
Patient agreeableness	0.17	[0.02, 0.34]	0.15[b]	[0.03, 0.28]	0.02	[-0.40, 0.20]
Step 2						
Constant	4.69[c]	[4.54, 4.84]	4.64[c]	[4.52, 4.77]	4.52[c]	[4.29, 4.75]
Physician affiliativeness	0.24[b]	[0.04, 0.38]	0.24[c]	[0.10, 0.32]	0.01	[-0.36, 0.34]
Patient agreeableness	0.22[b]	[0.08, 0.31]	0.18[c]	[0.06, 0.26]	0.02	[-0.36, 0.34]
Patient agreeableness X Physician affiliativeness	-0.27[b]	[-0.43, -0.03]	-0.17[b]	[-0.29, 0.01]	0.09	[-0.27, 0.59]
Total R^2	.35[c]		.40[c]		.01	
n	67		67		52	

[a] CI = confidence interval.

[b] $p < .05$.

[c] $p < .01$.

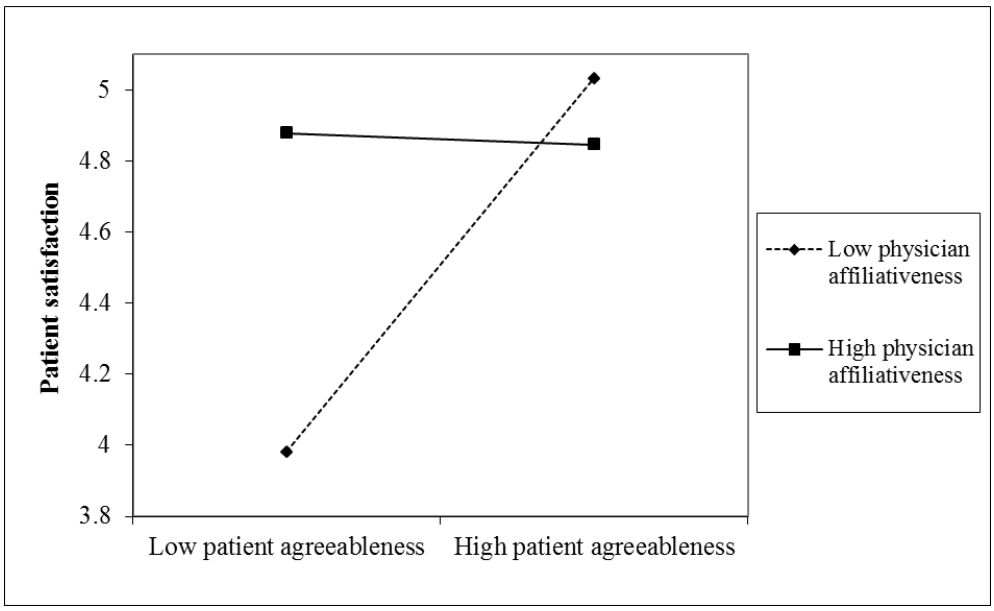

Figure 1. The interaction between patient agreeableness and physician affiliativeness in predicting patient satisfaction.

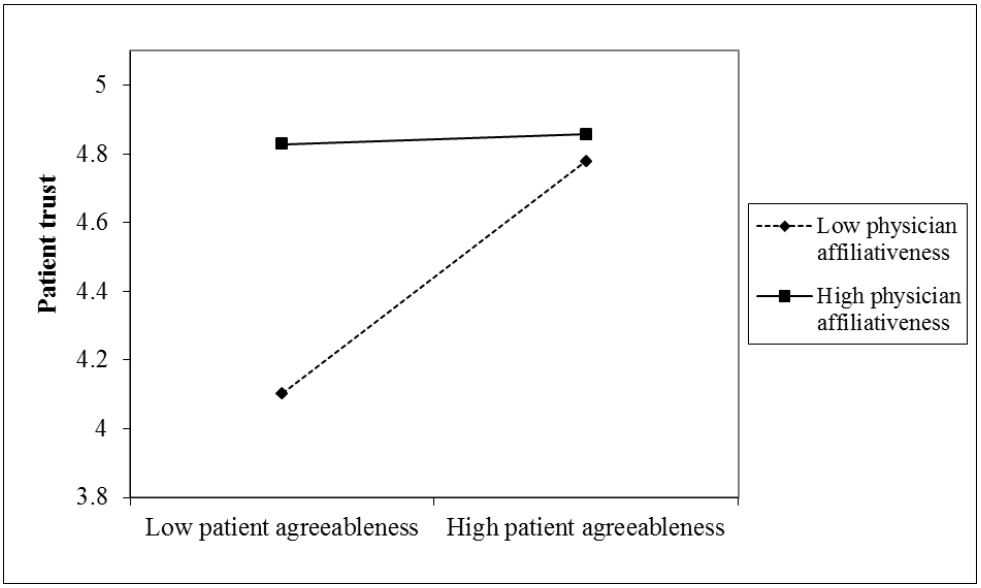

Figure 2. The interaction between patient agreeableness and physician affiliativeness in predicting patient trust.

E) STUDY 4

Cousin, G., Schmid Mast, M., Roter, D. L., & Hall, J. A. (2012). Concordance between physician communication style and patient attitudes predicts patient satisfaction. *Patient Education and Counseling, 87,* 193-197.

Concordance Between Physician Communication Style and Patient Attitudes Predicts Patient Satisfaction

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Abstract

Objective: This study tested whether the impact of the physician's communication style on patient satisfaction differs depending on patients' attitudes toward caring and sharing. We predicted that the impact of physician caring on patient satisfaction depends on patient attitudes toward caring, and that the impact of physician sharing on patient satisfaction depends on patient attitudes toward sharing.

Method: Participants (N=167) were asked to imagine that they were consulting for recurrent headaches. They interacted on a computer with a virtual physician that communicated either in a low or high caring way and either in a low or high sharing way (2 X 2 design). Then, participants answered questions about their attitudes toward caring and sharing and about their satisfaction with the physician.

Results: Hypotheses were confirmed. Furthermore, a high caring physician communication style led to higher satisfaction than a low caring one, regardless of participants' attitudes toward caring, while satisfaction with physicians' level of sharing was dependent on the participants' attitude toward sharing.

Practice Implications: Physicians may adopt a high caring style with confidence that all patients will benefit. Adoption of a sharing style should be more carefully adjusted to patient attitudes.

Keywords: physician-patient communication, caring, sharing, patient attitudes

1. Introduction

Patient-centeredness has often been presented as the best communication style for physicians [1]. It may be considered as a communication style that implies high levels of *caring* and *sharing* [2,3]. A caring communication style aims at creating and maintaining a good relationship with the patient, and conveys warmth, friendliness, interest, empathy, and a desire to help [4]. Sharing (also called low dominance) is notably conveyed through shared decision-making [2,3] and through a nondirective communication style characterized by the absence of orders and interruptions, by joint setting of the agenda (i.e., the physician and the patient decide together which topics will be discussed during the visit), by avoidance of medical jargon, and by the use of open-ended questions [3,5,6].

Caring in the physician's speech has been related to more satisfaction in the patient [7], more adherence to treatment [8], and better psychological adjustment to the illness [9]. Verbal behaviors that have been shown to be related to at least one positive patient outcome and that can be considered as caring are the following: expressed empathy, statements of reassurance and support, positive reinforcement, laughing and joking, courtesy, and psychosocial talk [for a review, see 7].

Low sharing (high dominance) has also been revealed to influence patient outcomes. A physician verbal behavior that is perceived as low in sharing generally leads to lower satisfaction in the patients [10]. Patients who interact with a low sharing physicians also speak less and disclose less medical information [11]. Low sharing behaviors that have been shown to be related to negative patient outcomes (at least to one of them) are the following ones: non-encouragement of the physician's for patient's questions, not

allowing the patient's point of view to guide the conversation in the concluding part of the visit, less sharing of medical data with the patient, less discussion of the treatment effects, less receptivity to patient questions and statements, talking less into account the patient's remarks, more interrupting, and more speech directivity [7].

However, there is also evidence that individual characteristics moderate patient reactions to the physician's communication style. Caring and dominance do not have the same impact on all patients. For instance, caring has a stronger influence on patient satisfaction when the patients have less severe illnesses [4,12]. With some patients, low caring behaviors seem even better than high caring behaviors. To illustrate, patients who are more anxious about their health status accept, and sometimes prefer, physicians whom they perceive as sounding less positive, but more serious and concerned [13]. The same pattern seems to emerge when anxiety is not just a state but a personality trait. Graugaard and Finset [14] have shown that the anxiety level of individuals with low trait-anxiety decreased when they faced a high caring rather than a low caring physician, whereas the anxiety level of individuals with high trait-anxiety *increased* when they faced a high caring rather than low caring physician. Patients' characteristics and personality traits may thus moderate their reactions to the physician's caring.

Similarly, there is evidence that certain patients prefer physicians who adopt a low sharing rather than a high sharing communication style, especially in regard to decisions related to the treatment (shared decision-making). Some patients prefer to be passive in the decision processes related to their illnesses and to avoid information; older, less well educated, and male patients generally prefer a more passive role [15,16]. Patients with a more severe illness prefer to play a less active role in the decision-making process

[16,17]. The emotional state of the patient also plays a role; anxious patients respond more positively to a dominant and thus less sharing physician than less anxious patients [12].

Research on patient-physician match is ample [18], and it has been shown that higher concordance between patients' and physicians' attitudes toward patient-centeredness (i.e., high caring and high sharing) is associated with greater patient satisfaction [19,20]. Furthermore, the more concordance there is between physician and patient attitudes toward a *sharing* communication, the more trust patients put in their physicians; however, there seems to be no effect on patient satisfaction [21].

In most studies, attitudes toward caring and sharing have been merged into attitudes toward "patient-centeredness". It is thus difficult to disentangle the separate effects of these dimensions. Moreover, most of these studies focused on physician attitudes and not on physician actual *communication style*. This is potentially a problem because a physician can have positive attitudes toward patient-centeredness but not have the resources, knowledge, or abilities to adopt this style in the interaction with the patient.

In this study, we explored the independent impact of caring and sharing in physician communication style on patient satisfaction depending on the patients' attitudes toward these dimensions of care. We postulate that the more caring-oriented a patient is, the more satisfied he or she is with a physician who adopts a more caring communication style (Hypothesis 1), and that the more sharing-oriented a patient is, the more satisfied he or she is with a physician who adopts a more sharing communication style (Hypothesis 2).

2. Method

2.1. Participants

Participants were 167 students (80 male students and 87 female students) majoring in different areas at the university of Zurich, in Switzerland. Their mean age was 26.5 years old (*SD* = 5.19; range: 19-45). The experiment lasted about an hour.

2.2. Procedure

Participants were asked to imagine that they were consulting a physician for recurrent headaches. They were informed about their symptoms and told that they were seeing the physician for the second time in order to discuss lab results, discuss the symptoms, and make a decision about the treatment. The physician was a 3-dimensional virtual human that appeared on a computer screen in front of the participant. He moved in a human-like manner, possessed human features (its face was created on the basis of photographs of real humans), and spoke with a (prerecorded) human voice.

Depending on the condition to which the participant was randomly assigned, the physician was either a male or a female physician, which communicated either in a low or high caring way, and either in a low or high sharing way (2 X 2 X 2 design). The physician made pre-recorded statements every time the participant pressed a key. Participants were asked to speak to the physician with the aid of cards describing the content of what had to be conveyed (e.g., "Your headaches have become more frequent during the past two weeks"). They were encouraged to use their own words to express the content of the cards, but not to change topic or ask questions to the physician. They pressed a key once they were finished with their statement. The cards and the physician prerecorded statements were designed to ensure that the conversation was meaningful. The entire interaction lasted about 15 min. A detailed description of the stimulus material

and scenarios can be found in Schmid Mast, Hall, and Roter [22]. Then, the participants answered a series of questionnaires about their satisfaction with the physician, their perception of him or her, and their attitudes toward caring and sharing in a physician's communication style.

The use of a virtual paradigm enables the researcher to standardize the verbal and nonverbal behavior of the interaction partner – in this case the physician. This ensures that the behavior of the physician (generated by a computer algorithm) was strictly identical for all participants in the same experimental condition, which would have been nearly impossible in a real setting. Although this virtual setting presents less ecological validity than a real one, it has the advantage that all the variance observed in the dependent variables, within each condition, is attributable to the participants, and enables us to infer causal relationships between the physician communication style and the participants' reactions (in this case their satisfaction).

2.3. Material

2.3.1. Physician communication style. Physician's communication style was manipulated by varying levels of caring and sharing while keeping information content the same. Four different scripts were developed that reflected the phases of a medical consultation (opening, data gathering, participant education and counseling, and decision making). The high caring communication style contained expressions of concern, empathy and reassurance from the physician, while the low caring communication style did not. For instance, when adopting the high caring style, the physician said: "I am sorry to hear that your headaches have gotten worse", while in the low caring style he or she said: "Yes, OK, the headaches are more frequent than in the past".

The high sharing communication style was characterized by open questions, asking for the participant's opinion, asking for the participant's permission, partnership statements, and shared decision making, while the low sharing communication style was characterized by the absence of the above. For instance, when adopting a high sharing style, the physician said: "OK, yes, so let's talk about the headaches and review your lab results. We can then make a decision together about your treatment and any medication, if that is OK with you", while when adopting a low sharing style, he or she said: "OK, I want to talk about your headaches and review your lab results so I can make a decision about the treatment and any medication".

For the purpose of the manipulation check, the 4 scripts had been coded with the Roter Interaction Analysis System (RIAS), which revealed the intended differences in levels of caring and sharing [22].

2.3.2. Participants' satisfaction with the physician. Participants' satisfaction was measured with 36 items with which the participants had to indicate they degree of agreement, on a scale going from 0 (not at all) to 5 (very much). Those items were based on an existing questionnaire [23] and adapted to the present study. Examples of items are: "I would recommend this physician to others", "I am satisfied with this physician", or "This physician did not understand me" (reversed item). The mean was 3.24 (*SD* = 0.84) and the Cronbach's alpha .98.

2.3.3. Participants' attitudes toward caring and sharing. Participants' attitudes toward caring and sharing were measured with Krupat, Yeager, and Putnam's [20] Participant-Practitioner Orientation Scale (PPOS). This questionnaire consists of 18 items measuring opinions about the importance and relevance of a caring and sharing

communication style in physicians. Participants indicated the degree of agreement on a 5-point Likert-scale (0 = not at all, 5 = very much).

Sample items of the caring orientation are: “A treatment can not be successful if it is in conflict with the lifestyle or values of the participant”, “The most important part of a consultation is the medical” (reversed), or “If physicians are really good at diagnosis and treatment, their relationship to the participant does not matter so much” (reversed). The mean was 3.70 (*SD* = 0.66) and the Cronbach’s alpha was .67.

Sample items of the attitudes toward sharing are: “The doctor is the one to decide what is to be discussed during a doctor’s appointment” (reversed), “Participants should be treated as partners, equal in power and status”, “It should always be clear to the participant that it is the doctor who is responsible” (reversed). The mean was 3.66 (*SD* = 0.60) and the Cronbach’s alpha was .65.

2.3.4. Control variables. In addition to their age and gender, we asked participants to indicate the frequency of their visits to physicians per year (0 = none, 1 = 1-2 times, 2 = 3-5 times, 3 = 6-8 times, 4 = 9-12 times, 5 = more than 12 times, *M* = 1.35 [i.e., 1-2 times a year], *SD* = 1.05), and their health status (on a scale from 0 = very bad to 4 = very good, *M* = 3.28, *SD* = .68). We also controlled for their perception of the reality of the experiment (7 items to rate on a scale from 0 to 5, *M* = 2.58, *SD* = .91); an example of item for perceived reality was: “I felt the virtual interaction was close to reality”.

2.3.5. Statistical analyses

To test whether the impact of the physician’s caring on the participant’s satisfaction differed according to the participant’s attitudes toward caring (Hypothesis 1), we proceeded to a hierarchical regression analysis. Following standard recommendations

from Aiken and West [24], we first standardized the continuous predictor (participant's attitudes toward caring) as well as the control variables (see below). The dichotomous predictor (physician's caring) was then dummy coded, and two models were created: Model 1 used the low caring condition as the 0 (0 = low caring, 1 = high caring), and Model 2 used the high caring condition as the 0 (0 = high caring, 1 = low caring).

At step one of the hierarchical regression (in Model 1 as well as in Model 2), participants' satisfaction was regressed onto the physician's caring communication, the participant's attitude toward caring, and the control variables: physician gender, physician sharing in communication style, participant's age, gender, frequency of visits to physicians, self-perceived health status, and perceived reality of the experiment. In the second regression step we added the product between the physician's caring communication and the participant's caring orientation, in order to investigate whether the addition of this interaction term would add significant explained variance to the model.

To test whether the impact of the physician's sharing on the participant's satisfaction differed according to the participant's attitudes toward sharing (Hypothesis 2), we used the same statistical procedures as for the first hypothesis. Participants' satisfaction was regressed onto the physician's sharing communication and the participant's attitude toward caring, and we controlled for the physician's gender and caring communication style, and the participant's age, gender, frequency of visits to physicians, self-perceived health status, and perceived reality of the experiment. Again, we created two models which represented both ways of dummy coding physician communication style: Model 3 used the low sharing communication style as the 0 (0 =

low sharing, 1 = high sharing), and Model 4 used the high sharing communication style as the 0 (0 = high sharing, 1 = low sharing).

For the sake of clarity, we only report results relating to the hypotheses and do not report results relating to the control variables. Note, however, that participant gender and physician gender did not affect the results.

3. Results

3.1. Hypothesis 1

The results confirmed Hypothesis 1 according to which the impact of the physician's caring communication style on participants' satisfaction depends on the participant's attitudes toward caring. In both models, there was a significant interaction between physician caring communication style and participant's attitudes toward caring in predicting participants' satisfaction, $b^* = .26$, $p = .014$ (Model 1), $b^* = .28$, $p = .014$ (Model 2). The significant R^2 change from step 1 ($R^2 = .11$) to step 2 ($R^2 = .14$), $\Delta R^2 = .03$ (Models 1 and 2), shows that the addition of the interaction term enables us to predict significantly more variance in the satisfaction outcome.

We then looked at the main effect of participants' attitudes toward caring in Model 1 and we compared it to the one in Model 2 in order to see if participants' attitudes toward caring predicted participants' satisfaction differently depending on the physician's level of caring (low vs. high). Model 1 (in which the 0 of the dummy coded variable represented low caring) showed that when the physicians communicated in a low caring way, participants' attitudes toward caring predicted their satisfaction, $b^* = -.27$, $p = .014$. The more caring orientated the participants were, the less satisfied they were with the low caring physicians. Model 2 (in which the 0 of the dummy coded variable represented high

caring) showed that when the physicians communicated in a high caring way, participants' attitudes toward caring did not predict their satisfaction, $b^* = .12$, $p = .312$. Figure 1 displays the simple slopes for low and high caring physicians.

[Figure 1]

3.2. Hypothesis 2

Results also confirmed Hypothesis 2 according to which the impact of the physician's sharing communication style on participants' satisfaction depends on the participant's attitudes toward sharing. In both models, there was a significant interaction between physician sharing communication style and participants' attitudes toward sharing in predicting participants' satisfaction, $b^* = .31$, $p = .002$ (Model 3), $b^* = -.37$, $p = .002$ (Model 4). The significant R^2 change from step 1 ($R^2 = .11$) to step 2 ($R^2 = .17$), $\Delta R^2 = .05$ (Model 3 & 4), shows again that the addition of the interaction term enables us to predict significantly more variance in the satisfaction outcome.

We then looked at the main effect of participants' attitudes toward sharing in Model 3 and we compared it to the one in Model 4 in order to see if participants' attitudes toward sharing predicted participants' satisfaction differently depending on the physician's level of sharing (low vs. high). Model 3 (in which the 0 of the dummy coded variable represented low sharing) showed that when the physician communication style was low in sharing, participants' attitudes toward sharing predicted their satisfaction level, $b^* = -.31$, $p = .005$. The more sharing-orientated the participants were, the less satisfied they were with the low sharing physicians. Model 4 (in which the 0 of dummy coded variable represented high sharing) showed that when the communication style was

high in sharing, participants' attitudes toward sharing did not predict their satisfaction, $b^* = .18$, $p = .139$. These results are displayed graphically in Figure 2.

[Figure 2]

4. Discussion and Conclusion

4.1. Discussion

The first hypothesis was that the impact of physician's caring on participants' satisfaction depends on participants' attitudes toward caring. This hypothesis was confirmed. The second hypothesis was that the impact of physician's sharing on participants' satisfaction depends on participants' attitudes toward sharing, and this second hypothesis was also confirmed.

Independently of their attitudes toward caring, participants were generally more satisfied with a physician communication style that was higher in caring. Further analyses showed that while participants' attitudes towards caring predicted their satisfaction with low caring physicians, attitudes did not predict their satisfaction with high caring physicians. The interaction simply shows that high caring-oriented participants – i.e., participants for whom caring is an important aspect of the physician's communication style – were especially dissatisfied when physicians communicated in a low caring way.

One explanation for this differential influence of attitudes depending on physician's level of caring would be that participants experience negative feelings (e.g. irritation, disappointment, mistrust) when they put high emphasis on caring but face low caring physicians, while they do not experience especially negative feelings in the reversed situation, that is when they put low emphasis on caring but face high caring

physicians. We did not look at the potential mediation of affects or cognitions in this study, but this should be investigated in future research.

Results about the aspect of sharing in the physician's communication style similarly showed that the more sharing oriented the participants were, the less satisfied they were with low sharing physicians. When physicians were high sharing, participants' attitudes toward sharing did not predict their satisfaction level. However, the highest satisfaction rates were not always found with the high sharing communication style; depending on their attitudes toward sharing, patients were most satisfied with a high level of sharing *or* with a low level of sharing. The results were not due to a ceiling effect in either communication style as there were no differences in the standard deviation of satisfaction.

These findings may explain some of the inconsistencies in the literature about the effects of high sharing on patient satisfaction; along with other characteristics that have been found to moderate patient reactions to the sharing aspect of the physician's communication style [15,16], attitudes seem to explain why certain patients prefer a physician communication style with high levels of sharing, while some others prefer a more directive communication style.

Caring and sharing are regarded as core characteristics of the physician's communication [3]. They are at the very heart of a patient-centered communication, and related to satisfaction [7], trust, and adherence [8]. Our findings, however, suggest something more complex in the relationship between physician style and patient outcomes; patient attitudes toward caring and sharing moderate their reaction to physician style. Regardless of attitudes, all study participants were more satisfied with the

high caring communication style than with the low caring communication style. This was not the case for sharing; participant orientation toward sharing predicted if they would be most satisfied with the high *or* with the low sharing communication style.

Some studies have shown that higher concordance between patients' and physicians' attitudes toward patient-centeredness (i.e. high caring and high sharing) was associated with more satisfaction in the patients [19,20], but this is the first study, to the best of our knowledge, that investigated concordance effects between patient attitudes and a behavioral measure of physician *communication style*. The experimental design enables us to say that it was the manipulation of the physician communication style that produced the effects on the participants' satisfaction, depending on those participants' attitudes toward caring and sharing, rather than the more commonly confounding factors of physician gender or patient self-selection to particular physicians.

Our participants were potential patients of physicians, but they did not consult for actual medical problems. Furthermore, students are typically young adults and benefit from a higher educational level than the general population. There is research showing that, in fact, age and educational level affect patient preferences with regard to the physician communication style [15,16]. However, the focus of our research was on interaction effects between patient preferences and physician communication style. Such interaction effects are likely to occur in different age groups and in patients across different educational levels. We therefore think that our results are not specific to the student population. Nevertheless, future research should replicate our findings in real physician-patient interactions and with different age groups.

It has to be noted that patient preferences were measured here as relatively stable attitudes toward caring and sharing. However, patient preferences may vary from one situation to another. Future studies might thus also investigate contextual influences on patient preferences and consider them in a non-static way.

4.2. Conclusion

Participants' attitudes toward caring and sharing in physician's communication style predicted their satisfaction with physicians who communicated in a low caring or in low sharing way. A more caring physician communication style led to higher satisfaction regardless of participants' attitudes toward caring. However, satisfaction with physicians' high *or* low sharing communication style was influenced by the participant's attitude toward sharing.

4.3. Practice implications

Physician adoption of a high caring communication style is likely to optimize patient satisfaction regardless of variation in patient attitudes toward caring. However, the same cannot be said of high sharing. Consequently, we suggest that physicians incorporate high caring into routine practice style with confidence that all patients will benefit. The adoption of a high sharing or low sharing communication style, however, is more problematic and physicians may need to consider how to best align this aspect of their communication style to individual patient preference.

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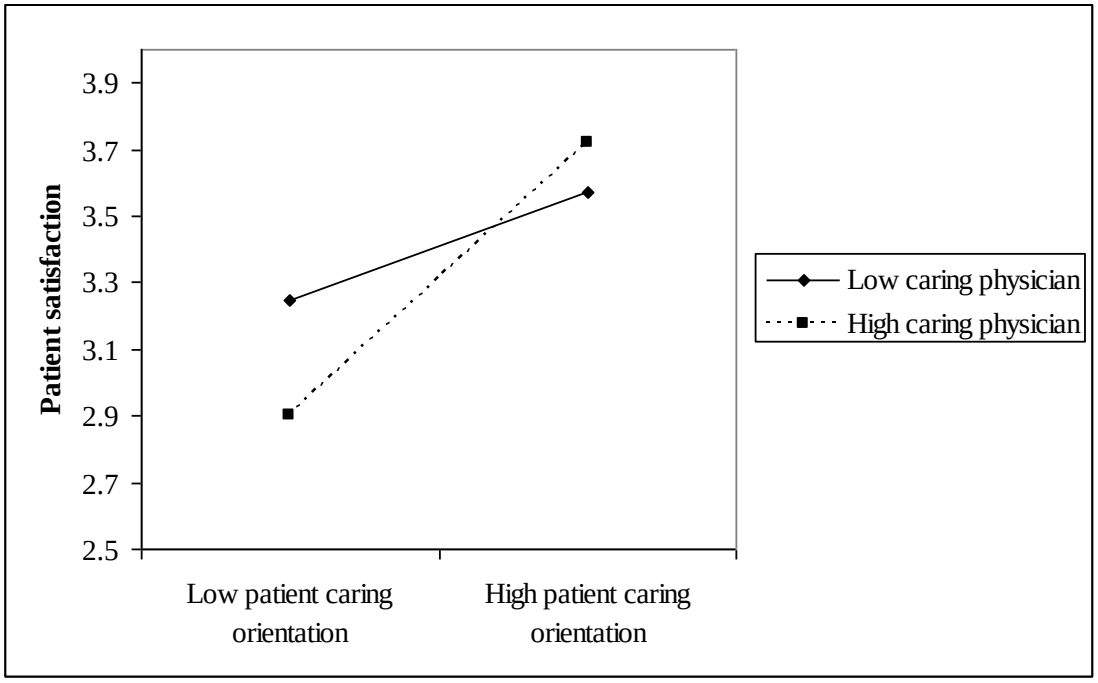

Figure 1. Interaction effect of physician caring and participants' attitudes toward caring in predicting participants' satisfaction. The values used for this graph are the one of Model 1.

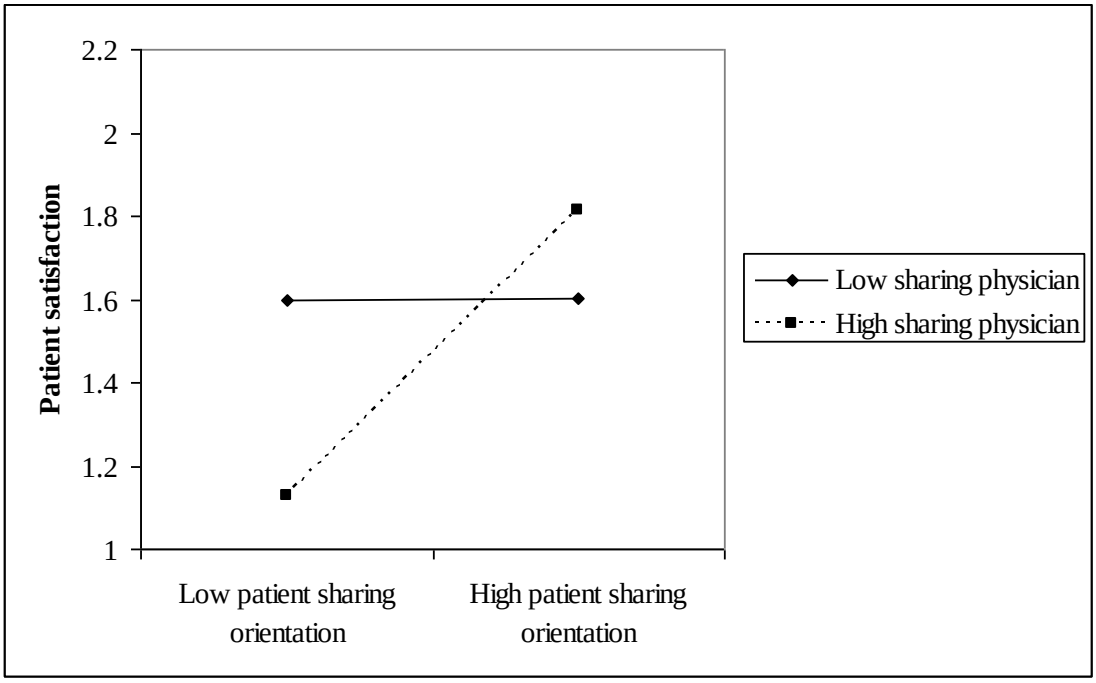

Figure 2. Interaction effect of physician sharing and participants' attitudes toward sharing in predicting participants' satisfaction. The values used for this graph are the one of Model 1.

F) STUDY 5

Cousin, G., Schmid Mast, M., & Jaunin-Stalder, N. (2012). *When physician expressed uncertainty negatively impacts on patient satisfaction: A gender study.* Manuscript submitted for publication to Medical Education.

When Physician Expressed Uncertainty Leads to Patient Dissatisfaction: A Gender Study

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Abstract

Context. Communication guidelines often advise physicians to disclose medical uncertainty to their patients regarding the diagnosis, the origin of the problem, and the treatment. However, the effect of such expressed uncertainty on patient outcomes (e.g., satisfaction) has produced conflicting results in the literature – showing either no effect or a negative effect. A potential explanation for the differences in the results of past studies is that potential gender effects on the link between physician expressed uncertainty and patient outcomes were never investigated systematically. *Objective.* On the basis of previous research documenting that female physicians' competence might be under scrutiny compared to the one of male physicians, and that men are more prejudiced than women regarding women, we predicted that physician expressed uncertainty would have more of a negative impact on patient satisfaction when expressed by a female rather than by a male physician, and especially so when the patient is a man. *Research Design and Patients.* We conducted two studies with complementary designs: Study 1 was a randomized controlled trial conducted in a simulated setting (120 analogue patients) and Study 2 was a field study conducted on real medical interviews (36 physicians / 69 patients). *Measures.* In Study 1, participants were presented with vignettes that varied in physician gender and in physician expressed uncertainty (high vs. low). In Study 2, physicians were filmed during real medical consultation and their level of expressed uncertainty was coded by an independent rater on the basis of the videos. In both studies, patient satisfaction was assessed with a questionnaire. *Results and Conclusions.* Results confirmed that expressed uncertainty was negatively related to patient satisfaction only when the physician was a woman (Study 1 and 2) and when the patient was a man (Study 2). Potential implications for medical education are discussed.

Keywords: doctor-patient interaction, communication, patient satisfaction, gender, primary care

Introduction

Even when physicians have all the necessary competence, uncertainties often remain regarding the diagnosis, the treatment, and/or the consequences of the treatment due to objective limits in the current medical scientific knowledge.[1, 2] In the interest of full disclosure and treating the patient as a partner in decision-making, existing medical communication guidelines typically ask physicians to communicate these medical uncertainties to the patients[1, 3, 4]; it is seen as more ethical and as a way to prevent unrealistic patient expectations concerning treatment effects or the development of the impairment. However, the effects of such disclosure on patient outcomes (e.g., satisfaction) are not extensively investigated and existing research has produced inconsistent results, showing either a negative effect[5, 6] or no effect[2, 7]. The goal of the present research is to study whether physician expressed uncertainty affects patient satisfaction differently depending on the gender of the physician and of the patient. Some of the inconsistencies in the empirical findings might stem from different gender compositions of the physician-patient dyads in the samples. That physician gender affects medical interactions and their outcomes[8-10] and that patient gender also influences the medical communication[8, 11, 12] has been documented in the literature; therefore, physician and patient gender might determine whether physician expressed uncertainty entails lower patient satisfaction.

The effects of expressed uncertainty

Physician uncertainty can stem from incomplete medical knowledge the physician possesses or reflect limits in the current medical scientific knowledge[1, 2] – we will not make this distinction here. Some of the past research on the expression of uncertainty shows no effect on patient satisfaction. For instance, a study[2] conducted on 216 medical consultations of male patients with 43 physicians showed that when controlling for physician patient-centeredness, physician expressed uncertainty had no impact on patient satisfaction. A similar result was

reported in a study[7] on 100 primary care physicians and 4'746 patients, which looked at physicians' expressions of uncertainty in response to patients' questions regarding the severity of their medical condition.

Other research shows a negative relation between patient satisfaction and expressed uncertainty.[5, 6] Hospital patients were presented videos of a simulated medical visit in which the level of uncertainty expressed by a physician was manipulated: Patients reported being more satisfied when the physician expressed no uncertainty than when the physician expressed uncertainty.[5] In another study, Blanch, Hall, Roter, and Frankel[6] recorded 72 simulated clinical examinations between medical students expressing different levels of uncertainty and standardized actor patients portraying different medical problems. They showed the 72 videos to 244 analogue patients who reported what they satisfaction would have been if they had been the patient on the video in a real medical interview. Analogue patients reported less satisfaction when medical students expressed more uncertainty and this link tended to be stronger (marginally significant difference) when facing male compared to female medical students.

Gender and expressed uncertainty

To the best of our knowledge, Blanch and colleagues[6] were the first researchers who looked at a potential moderating influence of physician gender on the link between physician expressed uncertainty and patient satisfaction. However, to the extent that patients react differently to female and male physicians[10] and perceive them differently even when they show the same behavior,[13] patients might react differently also to expressed uncertainty by female as compared to male physicians. Negative stereotypes regarding women in traditionally masculine positions still exist[14-16] and being a doctor is implicitly considered a masculine profession.[17] Women in high status positions (like the one of doctor) are typically evaluated more harshly than men in the same positions,[18-21] and patients adopt more severe criteria for judging female physicians than for

judging male physicians: For instance, although female physicians adopt a communication style that usually leads to more patient satisfaction,[9] patients are not more satisfied with female physicians than they are with male physicians.[8] Patients might thus perceive uncertainty more negatively when it is expressed by a female physician (e.g., as a lack of personal medical knowledge or self-assurance) than when it is expressed by a male physician (e.g., as the honest disclosure of current limits in the medical science), leading to lower satisfaction with female physicians.

Moreover, the gender of the patient (and the gender composition of the physician-patient dyad) is also important when predicting patient satisfaction.[22] Opposite-gender constellations typically result in less positive interactions than same-gender constellations,[22-25] and the female physician – male patient dyad seems particularly problematic.[22, 26] Also, it is documented that men have more negative attitudes towards women than women do.[27, 28] It might thus be possible that female physicians' expressions of uncertainty lead to dissatisfaction particularly in male patients.

The goal of the present research was to find out how physician expressed uncertainty affects patient satisfaction depending on physician and patient gender. We expected that expressed uncertainty would lead to less patient satisfaction particularly when the physician is a woman and maybe even more so when the physician is a woman and the patient a man. To test those hypotheses, we conducted two studies with complementary designs: a simulation study using an experimental design (to test for causal relations) and a field study conducted on actual physician-patient interactions (to ensure good external validity of the results).

Study 1: Simulation Study

Method

Participants. Participants were 120 adults (60 M, 60 F) of different ages (*M* = 36.02 years old: *SD* = 12.51; age range: 18-60) and different educational levels (7.5% obligatory school; 15.0% basic and 10.8% advanced vocational, 18.3% bachelor's, 34.2% master's, and 3.3% PhD degree; 10.9% missing). They were recruited on the campuses of different Swiss universities and received no money for their participation.

Procedure. Participants were so-called *analogue patients*,[29, 30] namely participants asked to imagine that they had been suffering from acute back pain for a couple of weeks and that they were consulting a physician they were unfamiliar with for this back problem. Participants were presented with a vignette said to report the physician's explanations regarding the origin of the back pain and recommendation of a treatment. Participants were randomly assigned to one of four conditions (2 x 2 design) that varied in how much uncertainty the physician communicated (low vs. high) and in the gender of the physician. After having read the vignette, participants were asked to report what their satisfaction would have been in a real medical interview with the physician presented on the vignette, as well as their demographics.

Vignettes. We based our manipulation on previous work of Gordon, Joos, and Byrne[2] and added to the statements of the physician either direct expressions of uncertainty (e.g., "I cannot tell you") or probability words (e.g., maybe, probably) to create the high uncertainty condition. As an example, in the low uncertainty condition, the physician said: "Cold or warm compresses are ineffective" whereas in the high uncertainty condition, he or she would say: "*I cannot tell you whether* cold or warm compresses are effective". The vignettes were reviewed by a real physician (the third author of this paper) for verisimilitude with actual medical practice. The gender of the

physician was manipulated by a sentence at the beginning of the vignette saying either that the physician was a man or that it was a woman.

Patient satisfaction. Patient satisfaction was measured with 8 items selected from the scales of Blanch, Roter, and Frankel,[6] Langewitz, Keller, and Denz,[31] and Cousin and Schmid Mast,[32, 33]. Each item consisted of a sentence to which patients indicated their degree of agreement on a 5-point Likert scale (1 = *do not agree at all*, 5 = *totally agree*). Sample items are: "I would be satisfied with the way the physician conducted this interview" or "I would recommend this physician to a friend" (M = 2.65, SD = 1.09, Cronbach's alpha = .96).

Results

We calculated a 2 (expressed uncertainty: low vs. high) by 2 (physician gender) by 2 (participant gender) ANCOVA with patient satisfaction as the dependent variable and participant age and educational level as covariates. As expected, physician gender interacted with physician expressed uncertainty in predicting patient satisfaction, $F(1, 97) = 3.97$, $p = .049$, $\eta^2 = .04$.

Contrast analyses[34] showed that when seeing a female physician, patient satisfaction was significantly lower when the female physician expressed high levels of uncertainty (M = 2.32; SD = 0.88) as compared to low levels of uncertainty (M = 3.51; SD = 0.88), contrast-$t(101) = 6.50$, $p < .010$, d = 1.29. On the contrary, when the physician was a man, patient satisfaction did not significantly differ depending on whether the physician expressed high levels of uncertainty (M = 2.49; SD = 1.12) or low levels of uncertainty (M = 2.72; SD = 1.05), contrast-$t(101) = 1.26$, $p > .050$, d = 0.25.

The 3-way interaction (physician expressed uncertainty X physician gender X participant gender) was not significant, $F(1, 97) = 2.49$, $p = .121$, $\eta^2 = .03$.

Study 2: Field Study

Method

Participants. Seventy-two general practitioners of the French-speaking part of Switzerland were contacted by mail or phone for voluntary participation and 36 of them (20 M, 16 F) accepted to participate in the study. Their mean age was 47.18 (*SD* = 9.55).

A day for data collection was fixed and the first male patient and the first female patient who fulfilled the inclusion criteria (described below) were asked for voluntary participation. For three physicians, only one patient fulfilled the criteria. In total, 69 patients completed the study (36 M, 33 F). Patients included in the study consulted for different reasons (e.g., check-up, back pain, hypertension) and were patients of different age groups (*M* = 50.72 years old; *SD* = 18.19).

Exclusion criteria for patients were: being less than 18 years old, not being fluent French speakers, having a diagnosed psychiatric disorder, or having consulted the physician more than four times in the past. The latter criterion was introduced because we assumed that patients who already knew their physician well would be on average very satisfied (otherwise they would have looked for another doctor), which might have posed a problem in terms of a ceiling effect in the satisfaction measure.

Procedure. Only the physicians were filmed during the consultation; no patient appeared on the video, but the patients' voice could be heard off camera (both physician and patients were explicitly informed and gave signed informed consent for videotaping). Immediately after the consultation, the patient filled in a questionnaire measuring his or her satisfaction with the consultation, the number of previous visits with the physician, and his or her gender and age.

Based on the videotapes, we first coded the degree of uncertainty expressed by the physician. Then, we coded physician patient-centeredness, as it was a confound in Gordon, Joos, and Byrne's study.[2] Also, we coded the severity of the medical problem because past research

suggests that the impact of physician communication style on patient outcomes decreases as the severity of medical condition increases.[35] The procedure was reviewed and approved by the regional (canton of Vaud) research ethics committee.

Physician expressed uncertainty. To date, no validated coding scheme exists for coding expressed uncertainty in medical consultations, but several attempts have been made to create taxonomies and select relevant expressions of uncertainty.[2, 5, 6] In synthesizing those previous attempts, we developed coding guidelines (available upon requests) with different examples of direct and indirect expressions of uncertainty used in previous research to code physician verbal expressions of uncertainty. Examples of direct expressions of uncertainty are for instance: "I don't know" or "I have difficulties answering this question". Examples of indirect expressions include for instance certain adverbs (e.g., probably, maybe), probability statements ("There's a *good chance* that…"), modal verbs (e.g., might, may, should), or conditional sentences ("*If* you feel better in a week…")[2, 6]. An independent rater, blind to our hypotheses, viewed all the videos in their entire length and then gave global ratings of each physician's verbal expression of uncertainty related to three aspects: 1) the nature of the medical problem, 2) the (best) treatment to adopt, and 3) the consequences of the treatment (e.g., side effects, time until remission). Expressions of uncertainty that were not related to one of those three medical aspects (e.g., uncertainty about the weather) were not considered. Each aspect was rated using an 11-point Likert scale (0 = *no uncertainty* to 10 = *total uncertainty*) (M = 1.45, SD = 2.27; Cronbach's alpha = .89). A second independent and naive rater coded a subsample of 20 videos and inter-rater reliability was r = .77.

Patient satisfaction. Patient satisfaction was assessed with a brief questionnaire consisting of three items to which patients indicated their degree of agreement on a 5-point Likert scale (1 = *do not agree at all*, 5 = *totally agree*). This questionnaire was used by Cousin and

Schmid Mast[32, 33] in previous studies on physician-patient communication, and was slightly adapted to the present study. The three items are: "I'm absolutely satisfied with the way my physician has conducted this medical interview", "For certain things, the interview could have been a little better" (reversed item), and "The general attitude and behavior of my physician suited me perfectly well". (*M* = 4.62, *SD* = .73; Cronbach's alpha = .74).

Physician patient-centeredness. The two dimensions that characterize patient-centeredness are affiliativeness and dominance.[36, 37] A naive rater (different from the ones who coded uncertainty) viewed 3 x 5 min excerpts ("thin slices" method[38]) of each video (the first 5 min of the medical consultation, 5 min in the middle of the interview, and the last 5 min) and rated physician affiliativeness and dominance on 7-point Likert scales (1 = *no at all*; 7 = *extremely*) with 10 adjectives based on the Revised Interpersonal Adjective Scale (IAS – R)[39]. For affiliativeness: "kind", "gentle", "agreeable", "empathetic", "cold" (reversed) (Cronbach's alpha = .93, *M* = 5.34, *SD* = 0.90). For dominance: "self-confident", "dominant", "authoritative", "shy" (reversed), "unsure" (reversed) (Cronbach's alpha was .80, *M* = 4.55, *SD* = 0.78). A second rater coded a subsample of 20 videos for inter-rater reliability (affiliativeness: *r* = .83; dominance: *r* = .81).

Severity of the medical condition. A research assistant created a list of the patients' medical problems verbalized by the physicians on the videos. A physician who was blind to the gender of the patient and who had not seen the videotaped interactions (the third author of this paper) then rated the severity of each patient's medical condition on the basis of the list. For this purpose, she used a 5-point Likert scale (1= *very minor medical problem that has no or little consequences on the patient's life and functioning*; 5 = *very serious medical problem that has a massive impact on the patient's life and functioning*) (*M* = 2.46; *SD* = 0.87).

Analyses. Most physicians saw two patients and we thus first tested whether a multilevel analysis was needed. We followed the procedure indicated by Field.[40] Results indicated that there was no significant change in the -2 log-likelihood when the multilevel structure was taken into account, $\chi^2_{\text{Change}} = 3.32$, $p > .05$, which indicates that a multilevel approach was not necessary or appropriate. We therefore used hierarchical regression analyses to test how physician expressed uncertainty affects patient satisfaction depending on physician and patient gender. We followed the recommendations from Aiken and West[41] and standardized the continuous predictors and the control variables (i.e., physician affiliativeness, dominance, and age, patient age, and the severity of the medical problem). The dichotomous predictors (i.e., physician gender and patient gender) were dummy coded and combined to create four models. Importantly, with such a coding of the gender variables, the regression coefficient of expressed uncertainty in each model represents the effect of expressed uncertainty on patient satisfaction in a given dyad. For instance, when the code 0 is assigned to female physicians (0 = female, 1 = male) and also to female patients, this allows to extract the effect of physician expressed uncertainty on patient satisfaction *for female physician – female patient dyads*.

Results

Our hypothesis was confirmed, as expressed uncertainty interacted with physician and patient gender in predicting patient satisfaction: Results showed a significant 3-way interaction (b = (-) 1.101, p = .020). Adding the 3-way interaction term to the regression analysis predicted significantly more variance in the satisfaction outcome (R^2 change from step 2 to step 3 ΔR^2 = .09, p = .019).

To better understand the results of the 3-way interaction, we looked at the effect of physician expressed uncertainty on patient satisfaction within each type of dyadic gender composition separately (i.e., within each model, see *Analyses*). *Figure 1* depicts these results.

Only for female physician – male patient dyads, physician expressed uncertainty was negatively related to patient satisfaction, $b^* = -.95$, $p = .012$. For all other gender dyads, physician expressed uncertainty was unrelated to patient satisfaction, all $b^* < .30$ and all p's $> .293$.

General Discussion

Results confirmed our hypothesis that the impact of physician expressed uncertainty on patient satisfaction depends on physician and patient gender. In Study 1 (simulation setting), physician expressed uncertainty led to less patient satisfaction only when the physician was a woman. In Study 2 (field setting), physician expressed uncertainty was associated with less patient satisfaction only when the physician was a woman and the patient was a man.

We think that the negative performance stereotypes harbored against women in high status positions[18-21] are responsible for the lowered satisfaction with female doctors when they express medical uncertainty. A plausible explanation for our results is that when the female doctor expresses uncertainty, the low performance expectations harbored against women are confirmed (e.g., "she lacks knowledge or self-confidence as a doctor and indeed her expressing uncertainty confirms this assumption"), which results in lower satisfaction with her.

However, the picture is even more refined. In Study 2 we found that the negative relation only existed when the physician was a woman and the patient was a man. This is line with previous research showing that men are more prejudiced against women than women are,[27, 28] and that female physician-male patient dyads are particularly difficult.[22, 26] Male patients might be particularly critical towards female physicians and take signs of uncertainty as confirmation for their negative views, explaining why their satisfaction is low. A potential explanation for the difference between the simulation study (both female and male patients were dissatisfied with female physician's expression of uncertainty) and the field study (only male patients were dissatisfied) might be that female patients hold negative stereotypes against women only in the

simulation context (i.e., when they have to imagine a female physician), but that confrontation with reality attenuates those negative stereotypes.

Note that our results contradict some of the findings of Blanch and colleagues[6] who report that analogue patients reacted negatively to female *and male* physicians' expressions of uncertainty, and tended to be less satisfied when male medical students expressed uncertainty than when female medical students expressed uncertainty (marginally significant difference). The participants in their study were typically younger and better educated than the sample of our Study 1 and especially so compared to the sample of our Study 2. It is possible that younger and well-educated people have high performance expectations towards both female and male doctors, which would explain the negative relation between patient satisfaction and female and male physicians' expressed uncertainty in their study. More educated patients typically search medical information on the internet and when the doctor expresses uncertainty, they might wonder why they consulted a medical specialist. Moreover, the gender stereotypes might be less pronounced in Blanch et colleagues'[6] younger and more educated sample.

Physician expressed uncertainty was measured with global ratings made by external observers on the basis of the videos. Global ratings have the advantage of "seeing the whole picture" and of capturing subtle and indirect expressions of uncertainty (which would have been much more difficult with a coding list of given expressions of uncertainty). The disadvantage of global ratings is that we do not know which precise expressions of uncertainty in female physicians triggered the negative effect on patient satisfaction. This is not an issue in Study 1 in which the uncertainty statements were identical for female and male physicians. However, in Study 2, the type of uncertainty statement might have been different depending on physician gender (and maybe also depending on patient gender), and we know that some expressions of uncertainty (e.g., "let's see what happens", "I don't know") have a more detrimental effect on

patient outcomes than others (e.g., “I’m not sure about this”, “I need time to find out”).[42] Future research might want to explore the different aspects of uncertainty and their respective effects.

Conclusion and Practical Implications

Female physicians might need to carefully consider the advantages (e.g., ethics, realistic patient expectations) and the disadvantages (e.g., less patient satisfaction) of disclosing medical uncertainties to their patients. If the preliminary results presented here are replicated by future studies, they might have challenging implications for medical educators.

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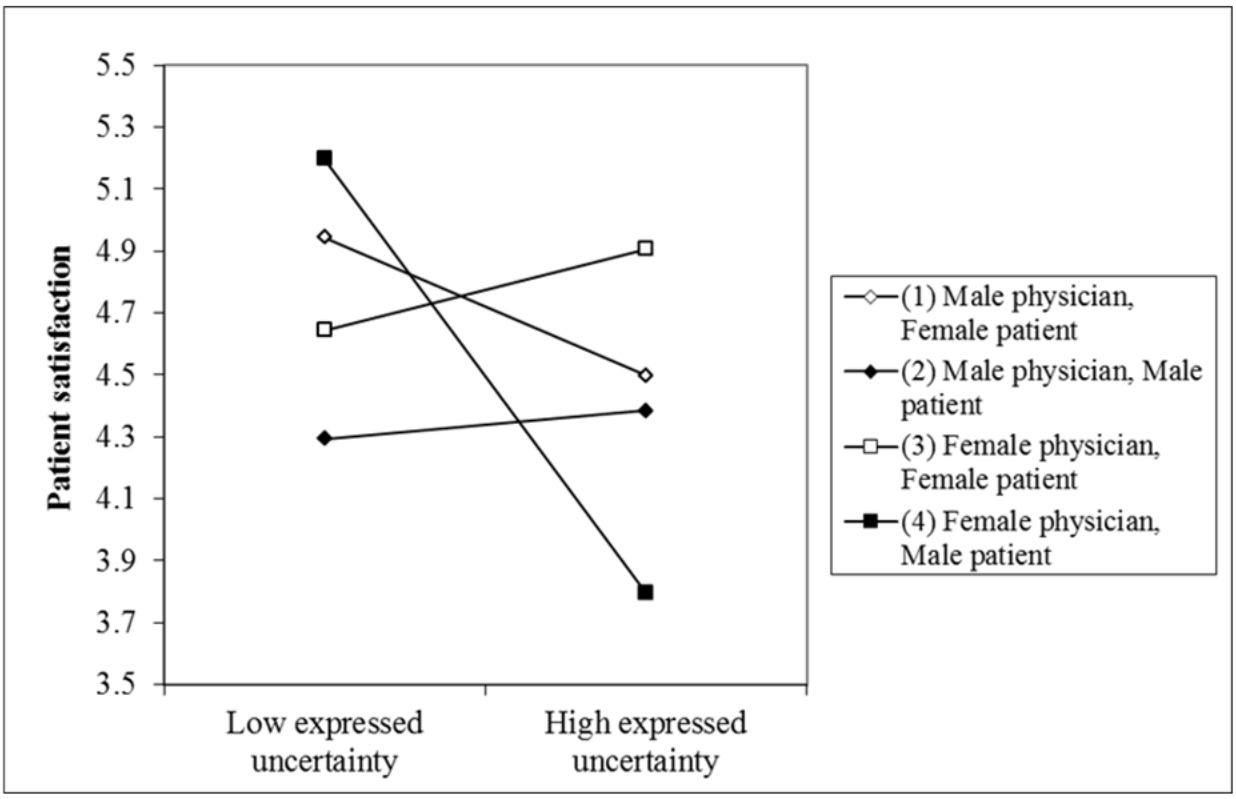

Figure 1. Patient satisfaction depending on physician expressed uncertainty, physician gender, and patient gender.

G) LITERATURE REVIEW 1

Cousin, G., & Schmid Mast, M. (2010). Les médecins hommes et femmes interagissent de manière différente avec leurs patients: Pourquoi s'en préoccuper? [Interactions between patients and physicians: Why should we care about gender issues?]. *Revue Médicale Suisse, 257,* 1444-1447.

Les médecins hommes et femmes interagissent de manière différente avec leurs patients : Pourquoi s'en préoccuper ?

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INTRODUCTION

L'état de la recherche actuel montre que le style de communication et le comportement des médecins permettent de prédire un certain nombre de variables liées à la perception des soins par les patients et à leur état de santé, telles que leur satisfaction vis-à-vis de la consultation, la probabilité qu'ils se rendent au prochain rendez-vous, la quantité d'informations médicales qu'ils retiennent, leur adhérence au traitement, leur état physique et leur bien-être subjectif.[1] Bien qu'il existe certaines exceptions dues aux caractéristiques individuelles de ces patients – leur âge, leur statut socio-économique ou leur personnalité, par exemple –, ces recherches suggèrent qu'un style de communication non autoritaire, chaleureux et participatif de la part du médecin a le meilleur impact. Ce style de communication se définit par des éléments verbaux (contenu du discours, quantité d'informations transmises au patient, implication du patient dans le processus de décision), paraverbaux (ton de voix, intonations, vitesse de parole) et non verbaux (expressions faciales, posture, mouvements). Plusieurs études montrent par ailleurs qu'il existe des différences de pratique entre médecins hommes et femmes et que, de leurs côté, les patients communiquent et se comportent différemment selon leur genre. Cet article vise à présenter les résultats principaux de la recherche actuelle sur les différences de genre dans les relations patients-médecins. Dans la mesure où ces différences peuvent avoir un impact sur les patients et sur leur santé, les différences entre hommes et femmes médecins ne sont pas anodines et méritent d'être connues.

EFFETS DE GENRE SUR LES MEDECINS

Les recherches montrent que les hommes et les femmes médecins donnent à leurs patients la même quantité d'information médicale, mais que les hommes médecins discutent moins facilement des aspects psychosociaux de la maladie (par ex. des conséquences d'un traitement sur le bien-être au quotidien) – et notamment des aspects émotionnels.[2] Ils font également moins de

prévention,[3] et posent moins de questions à leurs patients, que ces questions soient d'ordre médical (symptômes, traitement, médication) ou psychosocial (hygiène de vie, vécu relatif à la maladie, émotions ressenties).[2] Les femmes médecins adoptent, de leur côté, un style de communication plus participatif en impliquant plus facilement le patient dans la discussion (par ex. avec des locutions comme « N'est-ce pas ? » ou « Qu'en pensez-vous ? »). Elles expriment plus facilement leur accord avec le patient, de même qu'elles l'encouragent et le rassurent plus souvent. Sur le plan non verbal, elles adoptent généralement des comportements plus chaleureux (par ex. en souriant plus fréquemment ou en faisant plus de signes d'acquiescement).[2] Les médecins hommes adoptent quant à eux un style de communication moins empathique, mais leur ton de voix est plus calme et semble communiquer moins d'anxiété.[4]

Le genre du patient influence de son côté la communication et le comportement des médecins. Ces derniers ont tendance à montrer plus d'empathie vis-à-vis des femmes, à leur parler avec une voix plus calme et moins dominante et à les questionner plus fréquemment sur leur ressenti.[5] Ils fournissent également plus d'informations à leurs patientes – qui les questionnent davantage -, mais les interrompent plus fréquemment. Il semblerait également qu'ils fassent plus facilement de la prévention auprès d'elles qu'auprès des patients hommes.[6] Dans une certaine mesure, le genre du patient influence également les processus de diagnostic. Pour les mêmes symptômes cardio-vasculaires, les femmes se voient attribuer plus facilement des causes psychologiques.[7] Certains examens diagnostics, par exemple à la recherche de problèmes cardio-vasculaires ou d'une maladie pulmonaire obstructive chronique, sont en moyenne un peu moins poussés chez les femmes.[8]

EFFETS DE GENRE SUR LES PATIENTS

Les patients hommes et femmes présentent des styles de communication différents. Les patients hommes communiquent de manière moins chaleureuse (en exprimant par exemple moins

d'émotions positives), se montrent moins curieux et posent moins de questions.[5] A l'instar des médecins de leur sexe, ils ont une voix qui est perçue comme exprimant plus d'ennui et moins d'intérêt que celles des femmes, mais qui semble également plus calme et moins anxieuse.[4]

La communication et les comportements des patients sont influencés, surtout, par le genre de leur médecin. Les patients parlent en moyenne davantage à une femme médecin. Ils communiquent à celle-ci plus d'informations, non seulement de type psychosocial, mais aussi de type médical.[9] Ce point est important en ce qu'il peut déterminer la quantité d'informations disponibles pour le diagnostic, le choix du traitement et d'éventuels ajustements ultérieurs de ce traitement. Il doit être mis en lien avec la tendance des médecins femmes à poser plus de questions à leurs patients, mais il pourrait aussi découler des attitudes plus chaleureuses et plus participatives qui caractérisent leur style de communication. Les patients expriment d'ailleurs plus fréquemment leur accord et font plus de remarques positives aux femmes médecins – ce qui pourrait être le signe d'un plus grand confort émotionnel. En revanche, les patients semblent se comporter avec elles de manière plus dominante qu'avec les médecins hommes ; ils les interrompent plus souvent, se montrent plus assertifs dans leur discours et adoptent un comportement non verbal plus dominant.[9]

EFFETS D'INTERACTION DE GENRES

Il existe peu de recherches montrant des différences dans la pratique et les traitements donnés par les médecins en fonction de type de dyade patient-médecin ; néanmoins, lorsque les médecins sont des hommes et les patientes des femmes, l'état de santé des patients est, sur l'ensemble des consultations, jugé moins sévère que dans n'importe quel autre type de dyade.[10] Par ailleurs, une étude récente montre que lorsqu'ils traitent des femmes présentant des problèmes cardiaques chroniques, les médecins hommes – contrairement à leurs homologues féminins – prescrivent moins de médicaments et à des doses plus faibles que lorsqu'ils traitent

des patients hommes, et ceci en opposition avec les lignes directrices concernant la médication de ces patients hommes et femmes.[11]

De manière assez compréhensible, les patients préfèrent avoir affaire à des médecins du même sexe qu'eux lorsqu'ils doivent se soumettre à des examens intimes tels que les examens rectaux ou génitaux.[12] Cette préférence semble partagée par les médecins ; les étudiants en médecine rapportent se sentir plus à l'aise avec une personne de même sexe lors d'examens physiques en général, mais également être plus sensibles aux problèmes des personnes de leur sexe.[13] De fait, on observe dans la pratique que les femmes médecins sont plus susceptibles de faire de la prévention concernant les problèmes médicaux féminins: examens pelviens, tests de Pap et mammographies.[3]

ATTENTES LIEES AU GENRE

Un style de communication participatif et chaleureux est associé, comme nous l'avons vu, à une plus grande satisfaction des patients vis-à-vis de la consultation, à une adhérence plus grande aux traitements et à un meilleur état de santé chez ces derniers. Ce style caractérise plus fréquemment les médecins femmes ; or, il n'a pas pu être démontré que les patients réagissaient mieux à leur style de communication qu'à celui des médecins hommes. Les études qui se sont penchées sur la question montrent des résultats contradictoires.

Les attentes liées au genre sont une explication possible à cette apparente contradiction.[14] La profession de médecin a longtemps été réservée aux hommes et les femmes médecins occupent encore dans les représentations populaires un rôle traditionnellement réservé aux hommes. Les attentes des patients vis-à-vis du style de communication des femmes médecins semblent par ailleurs plus grandes. Nous savons par exemple que la satisfaction des patients n'est pas influencée par la dominance exprimée à travers le style de communication des médecins hommes; mais qu'en revanche, plus une femme médecin se montre dominante, moins ses patients

sont satisfaits.[15] Par ailleurs, les mêmes comportements (par ex. : parler en faisant autre chose, parler fort, être expansif dans ses gestes) sont plus rapidement perçus comme dominants chez une femme médecin que chez un homme médecin.[16] Conformément aux stéréotypes de genre, les femmes sont vues comme plus chaleureuses, plus empathiques et moins dominantes que les hommes ; lorsqu'une femme médecin adopte un style de communication plus autoritaire et plus distant, elle contredit ces attentes – ce qui semble être vécu négativement par les patients. Les médecins hommes ont ainsi plus de latitude dans leur style de communication. Sous plusieurs aspects, les femmes médecins communiquent mieux que leurs homologues masculins, mais les attentes de leurs patients semblent parallèlement plus élevées.

DISCUSSION

L'état de la recherche actuel montre que les médecins hommes et femmes diffèrent dans leur style de communication, dans leurs comportements et dans leurs pratiques selon leur genre et selon le genre de leurs patients. Plusieurs des différences de genre que l'on observe chez les médecins ne font que refléter les différences que l'on trouve dans la population générale, et il n'est évidemment pas réaliste de demander aux médecins de renoncer à leur identité de genre pour exercer leur profession. Cependant, nombre d'entre elles mériteraient davantage d'être prises au sérieux. Nous avons montré dans cet article que les femmes médecins posent plus de questions, à la fois d'ordre psychosocial et médical, et reçoivent plus d'informations de la part de leurs patients. Si ces informations supplémentaires sont pertinentes, il se peut donc qu'elles soient plus renseignées sur leurs patients que ne le sont les médecins hommes, ce qui pourrait avoir un impact sur la précision du diagnostic et la qualité du traitement. De même, le fait que les patients hommes reçoivent moins d'informations sur leur condition médicale et sur les conséquences psychosociales de celle-ci, quel que soit le genre de leur médecin, est également à prendre en considération. Enfin, les différences observées dans l'évaluation de l'état de santé dans les

interactions entre hommes médecins et patientes femmes par rapport aux autres types de dyade doivent être investiguées. Il existe deux interprétations possibles à ces résultats, qui toutes deux méritent notre attention : la première, que les médecins femmes surestiment la gravité des problèmes médicaux des patientes femmes ; la seconde, que les médecins hommes la sous-estiment.

CONCLUSION

Les recherches actuelles montrent qu'il existe plusieurs différences dans le style de communication et dans le comportement des médecins et des patients selon leur genre. Cet article a tenté de poser les jalons d'une réflexion sur l'impact du genre dans les relations médecins-patients, dont l'objectif sera à terme d'offrir aux premiers un plus grand confort dans l'exercice de leur profession, et aux seconds une plus grande égalité dans les soins.

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ANNEXE 1

Implications pour la pratique

- Les médecins hommes fournissent à leurs patients moins d'informations sur les implications sociales et émotionnelles des maladies et des traitements que les médecins femmes
- Les médecins hommes questionnent moins leurs patients et recueillent moins d'informations sur eux, que ces informations soient d'ordre psychosocial ou médical
- Les femmes médecins adoptent un style de communication plus participatif et un comportement non verbal plus chaleureux que les médecins hommes
- Les mêmes comportements sont plus vite perçus comme dominants chez les femmes médecins et sont moins bien acceptés par les patients
- Les patients hommes sont traités de manière moins empathique et reçoivent moins d'informations que les patientes femmes, quel que soit le genre du médecin

ANNEXE 2

Recherche de littérature

Les études citées dans cette revue de littérature ont été sélectionnées dans Medline après une recherche des articles publiés depuis 1980. Les articles ont été inclus dans notre liste de références s'ils traitaient des effets des genre – lors de consultations médicales – sur le style de communication, le comportement ou la pratique des médecins, ou sur le style de communication des patients, sur leur comportement ou sur leurs perceptions du médecins lors de l'interaction. Les spécialités médicales impliquant des populations spécifiques (par ex : gynécologie, pédiatrie, gériatrie) ont été exclues. Les mots-clés principaux utilisés étaient « physician* » et/ou « patient* » en combinaison avec « gender ». A ces mots-clés principaux, nous avons utilisé ajouté successivement l'un des termes suivants : « communicat* », « behav* » et « practice ».

H) LITERATURE REVIEW 2

Cousin, G. (2011). A literature review on how patient trust is affected by patient proximal percepts and by physician behavior. *Studies in Communication Sciences, 11*, 157-171.

A Literature Review on How Patient Trust Is Affected by Patient Proximal Percepts and by Physician Behavior

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Abstract

Patient trust is a crucial element of the patient-physician relationship in that it determines patient adherence to the medical treatment and can have an important impact on patient recovery and health. This literature review aims at identifying which patient proximal percepts and which physician verbal and nonverbal behavior predict patients' trust in their physicians. The review shows that patients have more trust in physicians whom they perceive as competent, caring, and information sharing, and who display the correspondent behavior. However, research also shows that depending on their individual characteristics, patients sometimes react differently to the same physician communication style. In order to elicit patient trust, the physician thus needs to adapt his or her communication style to the patient.

Keywords: physician-patient communication, patient trust, adaptivity

1. Introduction

"Do physicians kill people? – Undoubtedly; and I knew a man who proved by good reasons that we should never say, such a one is dead of a fever, or a catarrh, but she is dead of four doctors and two apothecaries" (Moliere, 1665/2000).

This excerpt of a 17th century drama of the French playwright Molière shows (in a provocative way) that mistrust in physicians is not a recent problem. Physicians deal with illnesses that often cause physical pain and psychological distress or that may have vital consequences; they have to make right diagnoses, prescribe appropriate treatments with a minimum of side effects; they also have to inform their patients and make them willing and able to follow the treatment. Health and well-being of patients thus depend in great proportions on their physician's medical as well as relational competences, and these competences may vary from physician to physician. Even if the medical knowledge and practice have immensely evolved since the times of Molière, patients still do not always trust their physicians. What influences patient mistrust or trust? This is what I propose to show in this literature review.

Trust is reliance on or confidence in the worth, truth, or value of someone or something (APA, 2007). In the physician-patient interaction, patient trust can be defined as the belief that the physician is honest, competent, will preserve the patient's confidentiality, and will act in the patient's best interest (Fiscella, et al., 2004; McKinstry, Ashcroft, Car, Freeman, & Sheikh, 2006). Trust can be understood as a necessary basis for the quality of the care process, in that it may enable patients' disclosure and discussion of their medical problems, acceptance of physical examination, and acceptance of the treatments. Also, it can be the result of a deliberate, rational process, or an automatic and spontaneous reaction to the physician's behavior (Skirbekk, 2009).

Trust has raised the interest of researchers in physician-patient communication since the end of the nineties. Studying patient trust is important because it determines patient adherence to the treatment recommendations, as well as continuity of care (Thom, Ribisl, Stewart, & Luke, 1999). Recent studies have shown that trust of diabetic patients predicted their level of glycemic control, in other words, that trust had an impact on their health status (Mancuso, 2010; Selby, et al., 2007). Lack of trust may also lead to higher transaction costs, for instance when patients need to be reassured trough additional tests, or when they do not fully disclose information – which may prevent the medical condition to be treated quickly and effectively (Creeds & Miles, 1996). Moreover, patient trust influences patients' intention to stay with their physician (Platonova, Kennedy, & Shewchuk, 2008) and not to look for second opinions (Hall, et al., 2002), which prevents "doctor-shopping" and its related costs for the patient as well as for society as a whole.

In this paper, I will present a review of the literature on the predictors of patient trust in their physicians. Some studies have investigated how specific verbal and nonverbal behavior cues were related to patient trust, while others have considered global perceptions (i.e. the interpretations made of these behavior cues by the patients) and have not looked at the cues themselves. These more global interpretations of verbal and nonverbal behavior are called "proximal percepts" by some authors (e.g. Burgoon, Birk, & Pfau, 1990) – which is the term that will be used through this paper. To illustrate, a smile (nonverbal behavior) may be perceived as a sign of sympathy (proximal percept). In this literature review, I will consider both types of studies and will build bridges between them. To date, the attempts made to teach physicians behavior that increases patient trust have produced no effect (Thom, 2000; Thom, Bloch, & Segal, 1999), probably because we still lack a clear understanding on the processes that lead patients to trust their physicians. Therefore, only if we have a clear idea of how specific physician behavior influences patient proximal percepts and of how these proximal

percepts influence patient trust, will we be able to teach physicians more effective communication styles.

The aim of this literature review is to better understand which patient proximal percepts and physician verbal and nonverbal behavior may lead patients to trust their physician. However, since most studies in the field use cross-sectional designs, few causal links can be proved. In this review, potential predictors for perceived physician trust will be considered, but the reader must keep in mind that the direction of the causality between the variables is rarely established. Experimental designs and mediation analyses will be needed to prove the existence of those links. The organization I adopt in presenting the results follows a heuristic purpose and reports the causations suggested – but rarely proved yet – by researchers in the field.

2. Method

To conduct this review, I searched the databases Medline and PsychInfo for articles containing in their abstracts the words (i) trust, distrust, or mistrust, (ii) patient*, and (iii) physician* behav* or physician* communicat*. The search was limited to articles published in English between January 1980 and March 2011. After removal of duplicates, 56 studies remained, the abstracts of which were screened for relevance. Studies were included if they reported variables of the physician's communication style or behavior that predicted patient trust. Both quantitative and qualitative studies were considered. Exclusion criteria were: case studies, studies investigating patient trust in the medical profession in general (as opposed to patient trust in a specific physician), studies investigating the consequences of trust (rather than the potential predictors of trust), and studies conducted with children, adolescents, or with patients suffering from psychiatric disorders. Finally, 27 studies were retained.

3. Results

In this section, I organize the results according to the patient proximal percepts of physician competence, caring, and information sharing. I chose these three percepts because they were by far the most frequently investigated ones and because many of the remaining percepts could be related to them (for instance, the percept of 'involvement' can be related to the percept of 'caring'). Every time, I report specific verbal and nonverbal physician behaviors that have been linked to patient trust and I relate those behaviors to the proximal percepts of physician competence, caring, and information sharing. Finally, I present patients' individual characteristics that have been shown to moderate the link between the physician behavior and the patient trust.

3.1. Perceived physician technical competence

Physician competence may be divided in two categories: on the one hand, *technical competence*, which encompasses the medical knowledge and technical ability to perform the examination, interpret the symptom and prescribe the appropriate treatment; on the other hand, *interpersonal competence*, which relates to the social skills of the physician and to his or her ability to foster the relationship with the patient (Young, 1980). Patients report that the physician's interpersonal competence has a crucial influence on their trust (Mechanic & Meyer, 2000), but as interpersonal competence will be discussed later in this paper (e.g. through perceived caring and information giving), I will focus in this section on perceived technical competence, i.e. on patients' proximal percept of their physician's technical competence.

According to cancer patients, physician's technical skills and expertise have an influence on their level of trust (Oliffe & Thorne, 2007; Wright, Holcombe, & Salmon, 2004). Furthermore, the association between perceived physician competence and patient trust is suggested by several indirect measures. Oncologists think that lack of *knowledge* (e.g.,

regarding new studies published in the field) when talking to the patients results in less patient trust (Friedrichsen & Milberg, 2006). Also, patients believe that most verbal expressions of uncertainty by their physicians (e.g., "Let's see what happens", "I don't know", "I think it might be...") negatively influence patients' trust in their physicians (Odgen, et al., 2002). Lack of knowledge and expressed uncertainty may thus be perceived as a lack of competence and negatively influence patient trust. Furthermore, an early study on the topic (Young, 1980) showed that perceived technical competence of the physician positively influenced patient willingness to disclose symptoms, and trust is a likely explanation for this result.

Now, which specific verbal and nonverbal cues emitted by the physician have been related to patient trust? At the end of the nineties, an exploratory study with focus groups constituted of patients (Thom & Campbell, 1997) identified an element of the physician's communication style that, according to those patients, influenced their trust in their physicians and that – according to the authors – can be considered an element of perceived technical competence: the perception that the physician had *thoroughly evaluated the problems*. Verbal behaviors such as *exploring the patient's personal experience of the disease* (Fiscella, et al., 2004) and *listening to the patient* (Keating, Gandhi, Orav, Bates, & Ayanian, 2004) have been related to patient trust also in other studies, and these associations were probably due to the fact that they convey an impression that the physician thoroughly evaluated the problem.

And which specific physician behaviors have been related to the proximal percept of physician competence? A study conducted by Blanch-Hartigan, Hall, Roter, and Frankel (2010) has shown that medical students who adopted a patient-centered communication style (e.g., open questions, psychosocial talk, asking for patient's opinion) and behavior (e.g., showing interest or empathy) were perceived as more competent by analogue patients (note that in one of the conditions, the effect was shown only for male medical students). However, due to the lack of studies investigating which nonverbal cues are used by patients to judge

their physician's competence, we must turn to the general literature on perceived competence in order to generate hypotheses. Burgoon, Birk, and Pfau (1990) have conducted a study on speakers who were rated on perceived competence. In this study, the perception of the speaker's competence was related to behaviors that might have been perceived as signs of verbal ease (i.e. speech fluency), self-confidence (i.e. facial expressiveness), and caring (i.e. smiling and facial pleasantness). More research will be needed to see if these nonverbal behaviors play the same role in the patients' perception of their physicians' competence, and if they influence patient trust.

3.2. Perceived physician caring

Perceived competence is not the only element to play a role in patient trust. Patients trust their physicians more when they perceive them as *caring* (Henman, Butow, Brown, Boyle, & Tattersall, 2002; Keating, et al., 2004; Mechanic & Meyer, 2000; Ommen, et al., 2008; Robb & Greenhalgh, 2006; Thom, 2001) – in the sense that patients have the impression that their physician cares for them and for their well-being. Research using related concepts also shows that patients trust their physicians more if they perceive them as *involved* (Kowalski, et al., 2009), *kind, interested* (Torke, Corbie-Smith, & Branch, 2004), and as *empathetic* listeners (Hojat, et al., 2010).

But what specific physician behaviors have been related to patient trust? *Providing emotional support* (Arora & Gustafson, 2009; Ommen, et al., 2008) has been related to patient trust. Also, *exploring the patient's personal experience of the disease* (Fiscella, et al., 2004) and more *listening* to the patient (Davey & Butow, 2006; Henman, et al., 2002; Keating, et al., 2004) – which I have already mentioned as related to patient trust –, do certainly not only convey a sense of thorough evaluation of the problems but also convey a sense of caring.

On the nonverbal side, it has been shown that patients who reported that their physicians *greeted them more warmly*, were more *gentle during the examination*, or made *more eye contact* trusted them more (Thom, 2001). Warmth during greetings and gentleness during the physical examination may again be interpreted by patients as signs of caring, as well as eye contact indicating attention, a component of caring. Time physicians spend with their patients has also been related to patient's trust (Eggly, et al., 2006; Fiscella, et al., 2004; Keating, et al., 2004), possibly because it also conveys a sense of caring.

Other nonverbal behaviors that may be used to convey caring are for instance smiling, direct eye contact, head nods, open arm position, forward lean, direct body orientation, and less interpersonal distance (Ambady, Koo, Rosenthal, & Winograd, 2002; Aruguete & Roberts, 2002; Hall, Roter, & Rand, 1981; Harrigan & Rosenthal, 1983). In an experimental study, Aruguete and Roberts (2002) have demonstrated that nonverbal behaviors conveying caring (vs. distance) positively influenced patient trust in physicians. Participants were patients waiting in a student health clinic who saw the physician on a video tape. The physician was played by an actor who – depending on the condition – made moderate to high eye contact with the patient, rarely attended to the patient's chart, used concerned facial expression, smiled frequently to him or her, leant toward the patient, and was seated approximately 2 feet from him or her (caring condition), or else who made little eye contact, frequently attended to the chart, used neutral facial expressions, adopted a distant body posture, and was seated approximately 4 feet from the patient (distant condition). In the caring condition, patients reported significantly higher trust levels than in the distant condition. This indicates that nonverbal behaviors conveying caring have a positive influence on patient trust.

However, many other verbal and nonverbal physician behaviors have been related to the patient's proximal percept of caring and may thus have an influence on patient trust. For instance, expressed empathy, statements of reassurance and support, positive reinforcement,

laughing and joking, courtesy, and psycho-social talk are perceived as signs of caring by patients (Beck, Daughtridge, & Sloane, 2002). Future research should thus investigate whether these behaviors also play a role in patient trust.

3.3. Information sharing

Results of several studies indicate that information sharing is another key element in explaining the trust patients put in their physicians (Berrios-Rivera, et al., 2006; Davey & Butow, 2006; Henman, et al., 2002; Keating, et al., 2004; Ommen, et al., 2008; Thom, 2001; Thom & Campbell, 1997). Information sharing encompasses for instance physician's answering the patient's questions, explanations of what the physician is doing during the physical examination, and information about what patients should do if the medical problems persist.

In a prospective study with 20 physicians and 414 patients (Thom, 2001), patients answered a questionnaire at the end of the visit about the physician's behavior and about their trust in him or her. Trust was measured again 1 month and 6 months later. Physicians who, according to the patients, *encouraged and answered patients' questions* and *took more time to explain what they were doing* were most trusted. Similar results were found with specialist physicians (cardiologist, neurologist, nephrologist, gastroenterologist, rheumatologist, or oncologist): patients reported more trust when they indicated that they had received as much *information* as they wanted (Davey & Butow, 2006; Hall, Roter, & Katz, 1988; Keating, 2004) and that they had been *told what to do* if the problems or symptoms continued (Keating, et al., 2004). Clarity of the physician's communication seems important as well. Patients say they trust more physicians who communicate *clearly and completely* (Thom & Campbell, 1997). Finally, patients trust their physician more when they have the feeling that the physician communicates *openly* (Schousboe, et al., 2011), and he or she is *honest* and

straightforward in the information that is given (Butow, Dowsett, Hargerty, & Tattersall, 2002)

3.4. Moderating influence of patients' individual characteristics

The same physician behavior may influence patient trust differently depending on the patient characteristics. Gender and age are some of these individual characteristics. As an example, Thom (2001) found that *referring to a specialist* when was strongly associated with female patient trust, but that it had no association with male patient trust. Referring to a specialist was also associated with trust of patients younger than 45, but not with older patients. Furthermore, some elements of the physician's communication and behavior may have a positive influence on the trust level of all patients, but have a stronger influence on the level of trust of some groups. Also in Thom's (2001) study, *checking progress* was associated with higher levels of trust in all patients, but this correlation was especially important in female patients. Similarly, the perception that the physician *respected the patient's feelings and opinions* was related with higher trust in all patients, but was especially important for younger patients.

Although patient-centeredness (i.e. a communication style that conveys high levels of caring, that is low dominant and egalitarian, and that includes the patient in the decision process) is often advocated as the best communication style for physicians. Many studies have shown that some patients (e.g. older or less educated patients) prefer a physician communication style that contradicts some of the principles of a patient-centered communication (Benbassat, Pilpel, & Tidhar, 1998; Levinson, Kao, Kuby, & Thisted, 2005). Correspondence between patients' and physicians' opinions about how patient-centered a physician should be is related to patient trust (Krupat, Bell, Kravitz, Thom, & Azari, 2001) more than patient-centeredness considered alone. On a more general level, patients who perceive themselves more similar to their physicians in beliefs and values do also trust their

physicians more (Street, O'Malley, Cooper, & Haidet, 2008). Finally, patient personality determines how they react to the physician's behavior; research shows that the more agreeable the patient, the more important it that the physician adopts a warm and friendly behavior in order to foster patient trust (Cousin & Schmid Mast, 2011).

4. Discussion

4. 1. Discussion

In this paper, the literature on patient trust was reviewed and I showed which patient proximal percepts and physician verbal and nonverbal behaviors are related to patient trust. Research shows that patients have more trust in physicians whom they perceive as competent, as caring, and as sharing information. Physicians may be perceived as more competent for instance when they show technical skills, up-to-date knowledge, explore the patient's experience of the disease, and listen to the patient. Physician may be perceived as caring for instance when they provide emotional support, express empathy, make frequent eye contact with the patient, and use concerned facial expressions. Finally, physicians may be perceived as sharing information when they encourage and answer patient questions, take more time to explain what they are doing, give as much information as the patient wants, and communicate clearly.

Research is this field is still disparate and – with one exception (Aruguete & Roberts, 2002) – relies on cross-sectional designs. We lack systematic investigations: patient proximal percepts such as competence or caring have been related to enhanced patient trust, but we do not always know which specific physician behaviors contribute to form these perceptions; on the other hand, some studies have investigated direct relations between specific physician behaviors and patient trust, but without looking at how these behaviors were perceived and interpreted by patients (i.e. without looking at patient proximal percepts). This literature review has tried to link those two types of studies in order to better understand the dynamic of

patient trust, but future research will have to test the proposed hypotheses using experimental designs.

Future research should first consider important proximal percepts related to patient trust: I have proposed perceived competence, caring, and information sharing, but others might also be added, like shared decision-making (Thom & Campbell, 1997), for instance, which has also been reported as potentially influencing patient trust. Physician specific verbal and nonverbal behaviors associated with those patient proximal percepts in the literature should then be investigated in a systematic way for their potential links with patient trust. For instance, I have provided examples of verbal behaviors (e.g. expressing empathy, making statements of reassurance or support) and nonverbal behaviors (e.g. smiling or nodding) generally perceived as conveying caring by patients; some of the links between these behaviors and patient trust have been studied, but some others not. The same is true for verbal and nonverbal behaviors associated with perceived competence, and for verbal behaviors related to information sharing.

The importance of perceived physician competence in determining patient trust is not surprising, as it may be very intuitive. How could we trust a physician who does not seem to have the necessary knowledge or ability to treat us? However, the cues patients use to form an opinion about this competence are less obvious. Thom (1997) reported proxies of this perceived competence (i.e. the perception that the physician has thoroughly evaluated the problem and that he or she has prescribed an effective treatment), but no direct measure of perceived competence was made. We know from studies outside of the physician-patient interaction field that certain nonverbal cues influence perceptions of competence (Burgoon, et al., 1990). But what role do these nonverbal cues play in the medical interview? And how do they influence patient perceptions of the physician's competence, and subsequently their trust in him or her?

It appears clearly in the literature that patients need the impression that their physicians *care* for their well-being and health in order to trust them. This result is interesting in a time in which we sometimes consider that technical competence is the only thing we can reasonably expect from physicians, and that empathy or concern should be expressed by family or close friends, but not by medical professionals. This literature review shows that expressions of caring should not be optional but be part of physicians' communication as it impacts positively patient trust. The importance for the patients to be informed is interesting as well. Patients seem not only to rely on their physician's knowledge but want their questions to be answered (Thom, 2001) and information to be given in a clear, comprehensive (Thom & Campbell, 1997), and honest way (Butow, et al., 2002). As internet web pages on health and diseases proliferate, the physician constitutes a professional and reliable source of medical information that may be especially important.

However, it takes time to explore the patients' experience of the disease, express empathy, and to answer their questions. It is certainly not a coincidence if time spent with the patients has been related to their trust (Fiscella, et al., 2004; Keating, et al., 2004). As physicians are often under time pressure to reduce medical costs it may be particularly important to remember that patients who trust their physicians are more satisfied (Cousin & Schmid Mast, 2011), adhere more to their treatments (Thom, Ribisl, et al., 1999), do less doctor-shopping (Hall, et al., 2002), and have better health condition (Mancuso, 2010; Selby, et al., 2007). This suggests that reducing time patients spend with their physicians is probably not the best way to reduce health-related costs.

Finally, this literature review shows that patient individual characteristics moderate their reactions to their physician's communication style. There is no one-size-fits-all communication style, and physicians have to adapt to those patient characteristics. Certain elements of the physicians' communication style have more influence on the trust level of

some groups of patients (e.g. women, younger patients) than on the trust level of other groups, and patient-centeredness does not always have the best impact on patient trust. We need more research on this important issue, in order for physicians to know how to adapt their communication style to their patients and to enhance their trust.

4.2. Conclusion and Practice Implications

Thorough evaluation of the medical problem (Fiscella, et al., 2004; Thom, 2001), caring behavior (Aruguete & Roberts, 2002), and information sharing (Keating, et al., 2004; Thom, 2001) are examples of behaviors that have been related to higher levels of patient trust. As such, they should probably constitute the physician behavior "by default". Much more research is needed to know how physicians should interact differently with specific groups of patients (e.g. patients of different gender, ethnicity, age, attitudes), but we already know that the physician's communication style has different effects on patient trust depending on those patients' characteristics (Doescher, Saver, Franks, & Fiscella, 2000; Kayaniyil, et al., 2009; Keating, et al., 2004; Krupat, et al., 2001; Thom, 2001). Patient trust is a crucial outcome of the physician-patient interaction, and more research in this field is needed to understand how to increase it.

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I) BOOK CHAPTER

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The Role of Nonverbal Communication in Medical Interactions: Empirical Results, Theoretical Bases, and Methodological Issues

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Abstract

The goal of the present chapter is to provide an overview of the existing literature on nonverbal communication in the medical encounter. After introducing the different functions of nonverbal behavior and its importance in the medical context, we present empirical evidence showing how physician nonverbal behavior relates to different patient outcomes such as satisfaction, trust, or adherence. We then present different models and assessment tools with which nonverbal behavior in the medical encounter can be studied. The physician's ability to pick up and correctly interpret the patient's nonverbal cues (interpersonal sensitivity) and its impact on patient outcomes will be reviewed. We close the chapter by providing a summary of the main results and an outlook on open questions in the field.

Introduction

In September 2011, the New York Times reported on a generous gift of $42 million given to the University of Chicago to create a training facility to improve doctors' bedside manners. At the origin of this gift: a bad experience of Ms. Bucksbaum with a physician who treated her in an arrogant and brusque way. Such treatment is not only determined by a doctor's verbal statements meaning by *what* he or she says but also to a large extent by *how* a person is addressed and *how* information is conveyed through nonverbal behavior. Indeed, research demonstrates that nonverbal communication plays a crucial role in the medical encounter.

In the present chapter, we will first define what nonverbal communication is and present the most important findings pertaining to physician nonverbal communication and patient outcomes such as satisfaction, trust, and adherence. We will then shed light on possible theoretical perspectives under which nonverbal communication in the medical encounter can be studied and present different nonverbal communication assessment measures. We will show that the physician's sensitivity to the patients' nonverbal cues (physician interpersonal sensitivity) is important and present how it can be assessed. We end the chapter with a discussion about future research directions and open questions.

Research in the domain is usually conducted with physicians, and this is why we will use the term physician in this chapter. Note however that most of the findings and issues presented here are relevant for other healthcare providers as well (e.g., nurses, social workers, psychologists).

1. What Is Nonverbal Communication?

Nonverbal communication is commonly defined as communication behavior without linguistic content (Knapp & Hall, 2010). Note that the delimitation with verbal behavior is not always that clear cut (e.g., an emblem such as the gesture of "thumbs up" is a nonverbal gesture

with a defined linguistic content). Typically, nonverbal behavior expressed by different parts of the body are distinguished. Of particular interest often is the *face* with nonverbal behaviors including smiling, gazing, frowning, eyebrow raising, or, on a more general level, facial expressivity. Nonverbal behavior related to the body is expressed through *posture*, like arm and leg positions (crossed vs. uncrossed), body orientation (toward the interaction partner or not), interpersonal distance, or through *gestures*, such as *emblematic* gestures (e.g., thumb up), *illustrative* gestures (e.g., indicate the size of an object), *regulating* gestures that coordinate the verbal exchange (e.g., to slightly open one's mouth and lean forward to manifest one's intention to speak), *adaptive* gestures that satisfy a personal need (e.g., scratching oneself to relieve a sensation of itching), or gestures that express *emotions* (e.g., to clench one's fist when expressing hostility). Nonverbal behavior related to the *voice* includes for instance loudness, voice pitch (low vs. high), monotony (vs. variations), and speech rate.

Nonverbal communication serves different purposes, such as coordinating speech, signaling interpersonal orientations (e.g., attention, sympathy), expressing emotions, or conveying physiological states (e.g., pain) (Knapp & Hall, 2010). Also, nonverbal behavior often interacts with verbal behavior in that it can stress the verbal content, complement it, substitute for it, repeat it, regulate it, or even contradict it. Nonverbal behavior seems to have a certain primacy over the verbal content. Researchers estimate that less than 10% of affects and emotions are communicated verbally, the rest being conveyed by nonverbal cues (Ong, DeHaes, Hoos, & Lammes, 1995). Furthermore, when there is contradiction between what a person expresses verbally and what she or he expresses nonverbally (e.g., when someone says "I really like this" while adopting a stern facial expression conveying the opposite impression), people tend to trust the nonverbal expression more than the verbal one (Argyle, Alkema, & Gilmour, 1971). A

potential explanation for this primacy of the nonverbal is that nonverbal displays are more difficult to hide or simulate than verbal ones.

One and the same nonverbal behavior can mean very different things depending on factors such as behavior morphology (e.g., a sociable vs. a Duchenne smile), features of the situation (e.g., interaction between strangers or friends), observer characteristics (e.g., gender, age), and on additional verbal and nonverbal behaviors that are produced simultaneously (what one calls behavioral composites; Knapp & Hall, 2010; Richmond & McCroskey, 1987). In other words, there is no such thing as a dictionary of nonverbal behavior providing unambiguous meanings attributable to specific nonverbal cue (Schmid Mast, Klöckner, & Hall, 2010).

According to interpersonal theories (e.g., Carson, 1969; Kiesler, 1983; Kiesler & Auerbach, 2003; Leary, 1957; Wiggins, 1979), interpersonal behavior can be mapped onto two main dimensions: affiliation and control. Given that the focus of our chapter is on nonverbal communication as it occurs in a social interaction (between physician and patient), we use these two dimensions to order and classify the different nonverbal behaviors investigated in the field. The dimension of affiliation is characterized by friendliness, warmth, caring, helping, and cooperating behaviors (Kiesler & Auerbach, 2003), and goes from an extreme of coldness and hostility to an extreme of warmth and friendliness. The dimension of control is characterized by dominance and controlling behaviors. It goes from an extreme of submissiveness to an extreme of dominance.

Encoders' nonverbal behaviors that are usually perceived by the interaction partner as affiliative are for instance: eye contact, smiling, nodding, facial expressiveness, vocal backchannels (e.g., "mmh", "uh-uh"), gestural behavior, soft touch of the interaction partner, face-to-face position with the interaction partner, forward lean, bodily relaxation, close interpersonal distance, and interactional synchrony (Anderson & Anderson, 1999). These

affiliative behaviors can be expressed and perceived in various social interactions, including the physician patient one. Nonverbal behaviors that are generally perceived as indicators of dominance are for instance: absence of smiling, visual dominance (relatively more percentage of gazing while speaking than percentage of gazing while listening), facial expressiveness, postural rigidity, standing close to the other(s), louder voice, interruptions, or long speaking times (Dovidio & Ellyson, 1982; J. A. Hall, Coats, & Smith LeBeau, 2005). The affiliation and dominance dimensions are also present in physician-patient interactions and offer a pertinent conceptual framework to study nonverbal communication in the medical encounter (Kiesler & Auerbach, 2003). This is why we will use this framework of the affiliation and the dominance dimensions to present the existing results of the effect of physician nonverbal communication on patients.

2. How Does Physician Nonverbal Communication Affect Patient Outcomes?

Physician nonverbal communication has been shown to be linked to patient outcomes such as satisfaction, adherence, trust, patient behavior, and better health. Each of these outcomes will be reviewed separately in this section. In general, two types of physician nonverbal behavior are investigated: single, specific physician nonverbal cues (e.g., smiling, nodding) or so-called proximal percepts (i.e., global perceptions based on the physician's nonverbal behavior such as physician caring, involvement, or dominance). The first type of studies informs about the specific cues that bring about the measured or observed effect (e.g., physician nodding is related to better patient satisfaction). In their review of this type of literature, Beck, Daughtridge, and Sloane (2002) showed that physician behaviors related to at least one positive patient outcome were: head nodding, forward lean, direct body orientation, uncrossed arms and legs, arm symmetry, and less mutual gaze. Because the cues are known, they can be taught and trained. However, this type of study says nothing about why a specific cue is related to a specific outcome. As an example,

finding that physician nodding is related to patient satisfaction does not explain why it is so. Maybe physician nodding evokes perceived physician involvement which then translates to more satisfaction. Or, physician nodding translates into feeling accepted by the physician and those positive affects are responsible for better satisfaction. The second type of studies, those in which global perceptions are assessed, can provide more information on the level of interpreting the nonverbal communication. However, when thinking about teaching, those studies provide less concrete information. As an example, if a study finds that a caring physician evokes more patient satisfaction, one needs to know what concrete behavior of the physician conveyed the impression of caring in order to be able to teach it to a physician. Ideally, the two types of studies are combined because they complement each other in that proximal percepts generally mediate (i.e., explain) the link between specific physician nonverbal cues and patient outcomes.

2.1. Patient Satisfaction

Of all patient outcomes, patient satisfaction is the one that has received the most research attention. Among the types of nonverbal behaviors that have been related to patient satisfaction, affiliation behaviors play a particularly important role. Physician affiliative behaviors (also called "immediacy", "rapport", "warmth", "communion", or "caring" behaviors with minor differences in meaning) are physician behaviors that aim at establishing or maintaining a positive relationship with the patient through communicating friendliness, empathy, a desire to help, and a nonjudgmental attitude (Buller & Buller, 1987).

An early meta-analysis by Hall, Roter, and Katz (1988) had highlighted that patient satisfaction was related to physician affiliativeness (called *immediacy* by the authors and defined as physician gazing, touching of the patient, forward leaning, facing orientation, and close interpersonal distance). An later literature review on both medical and psychotherapeutic contexts (J. A. Hall, Harrigan, & Rosenthal, 1995) showed that patient satisfaction was related to the

following physician and therapist behaviors: less time reading the patient's chart, less touch of the patient, more forward lean, more nods and gestures, and closer interpersonal distance. Finally, research focusing on house-staff (Griffith, Wilson, Langer, & Haist, 2003) shows that patients are more satisfied when clinicians smile more, make more eye contact, lean forward, are facially and vocally more expressive, and gesture more. All the behaviors cited in this paragraph can be considered as caring or affiliative behaviors (Anderson & Anderson, 1999).

Aruguete and Roberts (2000) manipulated the communication style of a physician shown on a video to observe the reactions of participants (students) asked to imagine that they were facing the physician in a real medical interview and to report what their satisfaction would be. Participants were more satisfied when the physicians displayed affiliative behavior (operationalized nonverbally through a friendly facial expression, forward leaning, back-channel responses like "uh-huh" or "yeah", and open-ended questions) than when the physician displayed "controlling" behavior (operationalized nonverbally by sitting upright, using a neutral facial expression, and asking close-ended questions). This study demonstrated a causal link between physician nonverbal behavior and analogue patients' satisfaction.

Depending on situational factors and on the patient characteristics, physician affiliativeness (both verbal and nonverbal) can affect patients differently. Physician affiliativeness (rated by patients) had a stronger influence on patient satisfaction when the patients were younger, had less severe illnesses, or had made less prior visits to the physician (i.e., who knew the physician less) (Buller & Buller, 1987). Also, an analysis of audiotapes of medical consultations showed that patients who are highly anxious (as judged from their voices by 144 independent judges) are less dissatisfied with physicians who sound angry, compared to patients who are less anxious (J. A. Hall, Roter, & Rand, 1981).

A second type of behavior is also important for predicting patient satisfaction: dominance behaviors. Patients are generally less satisfied with physicians who adopt high dominant nonverbal behaviors rather than low dominant ones (Bertakis, Roter, & Putnam, 1991; Burgoon et al., 1987; J. A. Hall, Irish, Roter, Ehrlich, & Miller, 1994). When physicians dominate the interview by talking more (Bertakis et al., 1991; Burgoon et al., 1987), or when they adopt a dominant tone of voice (as judged by independent raters) (Bertakis et al., 1991; Burgoon et al., 1987), patients report less satisfaction.

Research suggests that the impact of physician nonverbal behavior on patient satisfaction also depends on physician gender (Schmid Mast, Hall, Klöckner, & Choi, 2008). Student participants watched 2-minute videotape excerpts of real medical consultations and were asked to imagine that they were the patients facing these physicians and to report what their satisfaction would have been after the consultation. Results showed that the satisfaction with female physicians was particularly pronounced when these female physicians exhibited nonverbal behavior in line with the female gender roles (e.g., more gazing, more forward lean, softer voice). At the same time, satisfaction with female physicians was also increased if they showed signs of professionalism (wearing a laboratory coat or having a medical-looking consultation room). Satisfaction with male physicians depended less on the physician's nonverbal communication than was the case for female physicians. Nevertheless, patient satisfaction with male physicians was higher when they adhered to behavior typical for the male gender role (e.g., louder voice, more interpersonal distance)(Schmid Mast, Hall, Klöckner, et al., 2008).

2.2. Patient Trust

Patient trust has been defined as the patient's belief that the physician is honest and competent, that he or she will preserve the patient's confidentiality, and that he or she will act in the patient's best interest (Fiscella et al., 2004; McKinstry, Ashcroft, Car, Freeman, & Sheikh,

2006). As shown in a recent literature review (Cousin, 2011), patients have more trust in their physicians when they perceive them as competent, affiliative (caring), and communicative (information sharing). While information sharing pertains only to the verbal aspect of physician communication, the impressions of competence and affiliativeness are conveyed by both verbal and nonverbal cues. We still lack studies investigating which physician nonverbal behaviors are related to perceived physician competence (Cousin, 2011), but the link between physician nonverbal behavior and perceived physician affiliativeness is well documented (e.g., Anderson & Anderson, 1999). In the following paragraphs, we will review the nonverbal behaviors that have been associated with patient trust, while highlighting the mediating effect of perceived physician affiliativeness.

In a study by Aruguete and Roberts (2002), patients of a health clinic were randomly presented videos of actors portraying physicians. In the high affiliative conditions (concern), the physicians made moderate to high eye contact with the patient, rarely attended to the patient chart, used concerned facial expressions, smiled frequently at the patient, leaned in toward the patient, and was seated approximately two feet away from the doctor. In the low affiliative conditions (distance), the physicians made little eye contact, frequently attended to the chart, used neutral facial expressions, adopted a distant body posture, and were seated approximately four feet away from the patient. Results showed that patients had more trust in the high affiliative physicians than in the low affiliative ones.

Other affiliative behaviors have been shown to influence patient trust. Patients of physicians who report that their physician greeted them more warmly, were more gentle during the examination (Thom 2001), and listened to them more (Keating et al. 2004), also trust their physician more. Finally, length of the visit has also been related to patients' trust (Eggly et al.

2006; Fiscella et al. 2004; Keating et al. 2004); longer visits are associated with more patient trust.

Patient characteristics moderate the influence of affiliative behaviors on patient trust. Participants who watched silent videos of physicians varying in caring behavior (operationalized though different levels of smiling, eye contact, and nodding) reported how much trust they would have in the physicians in the video. Results showed that the personality trait of agreeableness influenced their reaction to the physician's level of affiliativeness (Cousin & Schmid Mast, 2011): The more agreeable the participants were, the more important it was that the physician adopted a high affiliative nonverbal behavior in order to foster participants' trust.

2.3. Patient Adherence

Physician nonverbal communication and particularly affiliativeness affect the patient's willingness to show adherence. Patient adherence (also called compliance) is understood as the patient's ability to conform to a treatment regimen, and in particular to medication (VandenBos, 2007). When exposed to a physician with increased affiliative nonverbal behavior (more eye contact with the patient, less look at patient chart, more concerned facial expressions, frequent smiling, forward leaning, and close distance), patients reported to be more willing to adhere to the treatment proposed by the physician (Aruguete & Roberts, 2002).

In a field experiment, physician touch increased patient adherence (Gueguen, Meneiri, & Charles-Sire, 2010). Patients of physicians who touched their patients on the forearm for 1-2 s at the end of the visit while saying: "It's very important for you to take your medication in order to prevent a reoccurrence" showed more medication adherence (antibiotics) one week later than patients of physicians who did not touch them while saying the same sentence. Again, perceived affiliativeness explained this influence of touch on adherence.

2.4. Patient Behavior

According to interpersonal theorists (e.g., Kiesler & Auerbach, 2003), people interacting usually achieve *correspondence* (also called "assimilation" or "congruence") in their behavior along the affiliation dimension (Sadler, Ethier, Gunn, Duong, & Woody, 2009). This means that if the physician behaves in a high affiliative way, the patient is prone to do likewise. Kiesler and Auerbach (2003) suggest that correspondence between patient and physician along the affiliation dimension should result in positive medical outcomes.

Interpersonal theorists (e.g., Kiesler & Auerbach, 2003) also predict that people interacting usually achieve *contrast* (also called "reciprocity") in their dominance behavior (Sadler et al., 2009; Schmid Mast, Hall, & Roter, 2008). This means that if the physician adopts a dominant interaction style, the patient is likely to show low dominance behavior. Furthermore, high contrast leads to more liking of the interaction partner and more interpersonal comfort than low contrast (Tiedens & Fragale, 2003). These predictions have received some empirical support also from the physician-patient research. With respect to correspondence, Street and Buller (1987) have shown that when the physician looked away from the patient or was not oriented toward the patient, the patient mirrored these non-affiliative behaviors (correspondence). Contrary, when the physician spoke more, which can be considered as a dominance behavior, the patient showed the opposite behavior and spoke less (contrast). In line with these results supporting the hypothesis of a correspondence effect for affiliative behavior, research also shows that patients and physicians display more interactional synchrony when they feel at ease with their interaction partner (Koss & Rosenthal, 1997).

2.5. Other Outcomes

Other patient outcomes have been related to physician nonverbal behavior. *Recall of medical information* is associated with the physician's expression of nonverbal affiliativeness

through more gaze, more forward lean, more touch, more facing orientation, and closer interpersonal distance with the patient (J. A. Hall et al., 1988), or through behaviors such as more eye contact with the patient, less look to the patient's chart, more concerned facial expressions, frequent smiling, forward leaning, and close distance (Aruguete & Roberts, 2002).

The latter behaviors (i.e., more eye contact with the patient, less look to the patient's chart, more concerned facial expressions, frequent smiling, forward leaning, and close distance) have been shown to positively influence *patient self-disclosure* (Aruguete & Roberts, 2002). Direct facial orientation, as well as facial reinforcement (trough nodding and facial animation) are additional physician behaviors positively associated with patients' self-disclosure (Duggan & Parrott, 2001).

Physicians who look at patients more notice more accurately patient psychological distress (Bensing, Kerssens, & van der Pasch, 1995). Also, physician facial expressiveness (i.e., a composite of smiling, nodding, and frowning) was associated with physical (i.e., mobility and level of activity) and cognitive functioning (e.g., ability to focus attention or to have a coherent speech) in elderly patients (N. Ambady, Koo, Rosenthal, & Winograd, 2002).

Regarding physician dominance, it has been shown that surgeons with a more dominant tone of voice are more likely to be sued by their patients than those who have a less dominant tone of voice (N. Ambady, LaPlante, et al., 2002).

In a nutshell, physician nonverbal communication that conveys affiliativeness seems to affects patient outcomes positively while physician nonverbal communication that conveys dominance may have a negative effect on patient outcomes. Affiliativeness and dominance have been identified as the two core dimensions of patient-centeredness (also called "control"; vs. "sharing")(e.g., Krupat, Hiam, Freeman, & Fleming, 1999; Krupat, Yeager, & Putnam, 2000). Patient-centeredness (e.g., Mead & Bower, 2002; Stewart et al., 1995) has been defined as the

adoption of a biopsychosocial perspective, thus talking into account the patient's perspective and his or her representation of the illness, as well as shared decision-making regarding the agenda and the treatment (Mead & Bower, 2002). Stewart and colleagues (1995) stress that patient-centered physicians must aim at "understanding the patient as a whole person" (i.e., taking into account his or her familial, social, and cultural context) and must find a "common ground" with the patient (i.e., in negotiating the goals and the treatment). Besides the patient-centeredness framework, there are other theoretical frameworks that are important in the study of nonverbal communication in the medical encounter and these will be reviewed in the next section.

3. Which Theories and Models Inform the Study of Physician-Patient Nonverbal Communication?

The field of physician-patient communication has sometimes been criticized for not being theoretical enough (J. A. Hall & Schmid Mast, 2009) and indeed, few models exist about the role of nonverbal communication in the medical encounter. One reason for this lack might be that research in this field is relatively recent. We have already used the interpersonal theories approach (e.g., Kiesler & Auerbach, 2003) to order the results emerging from the literature and we have linked the two dimensions of affiliativeness and dominance to the notion of patient-centeredness (e.g., Mead & Bower, 2002; Stewart et al., 1995). Therefore we will not review these two theoretical approaches in the current section. We will discuss in more detail *the typology of physician-patient relationship* (Roter & Hall, 2006), *the E4 model for physician-patient communication* (Keller & Carroll, 1994), and *the Parallel Process Model of Nonverbal Communication* (Patterson, 2006). All are examples of potentially useful theoretical frameworks or models for the investigation of physician-patient nonverbal communication. Note that some of the theories and models are not specific to nonverbal communication (e.g., the E4 model for physician-patient communication by Keller and Carroll, 1994), while others focus explicitly on

nonverbal communication (e.g., Parallel Process Model of Nonverbal Communication (Patterson, 2006). Moreover, some models are specific to the physician-patient communication (e.g., the typology of physician-patient relationship by Roter and Hall, 2006) while other approaches can be used in the study of other types of interactions as well (e.g., Parallel Process Model of Nonverbal Communication, Patterson, 2006). The reader should, however, keep in mind that our review is not exhaustive, and that the number of theories, models, and conceptual frameworks that have been or could be used is much more extensive than the ones presented here.

3.1. The Typology of Physician-Patient Relationships

The physician-patient relationship can be characterized according to how control over the medical interaction (e.g.., regarding the setting of the agenda, the topic addressed, the questions that are asked, the decisions that are taken) is divided between the physician and the patient (Roter & Hall, 2006). Four prototypical types of physician-patient relationships emerge: *paternalism* (high physician control, low patient control), *consumerism* (high patient control, low physician control), *default* (low physician control, low patient control), and *mutuality* (high physician control, high patient control).

When the physician has a high level of control over the medical interaction and the patient has low control (e.g., when the physician sets the agenda of the visit without asking the patient, or takes medical decisions without involving the patient or without considering the patient's desires or opinions), the physician-patient relationship can be characterized as *paternalistic*. This is usually considered as the traditional form of physician communication. To the extent that research shows that physician nonverbal behavior which encodes dominance and thus control has negative effects on patient outcomes, we can state that the more a relationship between a physician and a patient is paternalistic, the worse are the outcomes for the patient.

If the patient has more control over the medical interaction than the physician (e.g., if the patient sets the goals of the visits, and takes the final decisions regarding his or her treatment), the physician-patient relationship can be characterized as a *consumerist* one. In such a relationship, the physician is mainly seen as providing a service (i.e., medical expertise) to a client.

When both the physician and the patient have low levels of control over the interaction (e.g., when the goals are unclear to both, when patients and physicians cannot negotiate the decisions, or when the physician's role is unclear), the term *default* characterizes the nature of the physician-patient relationship. In this kind of relationship, the patient typically sees his or her expectations unmet and the relationship stagnates or will be terminated by the unsatisfied patient.

Finally, when both the physician and the patient show high levels of control over the interaction (e.g., when they are both involved and see each other as equal partners, when patients and physicians share the decisions regarding the treatment), their relationship can be characterized as *mutual.* This last type of relationship is usually the one advocated as the best by researchers in the field of physician-patient communication (Roter & Hall, 2006) and it fits the notion of relationship-centered care (Beach & Inui, 2006) advocating the reciprocal influence of the physician and the patient as one of its core ingredients (among other things such as: seeing the patient as a person in his or her biopsychosocial context, acknowledging the importance of affect and emotions in the relationship, and valuing a genuine relationship).

The typology of physician-patient relationships suggests adopting a perspective of *relative* control or dominance among the patient and the physician. For instance, the distribution of speaking time during a medical encounter can be used as such a measure and results show that the more the physician speaks during the medical encounter, the less the patient tends to talk (Street & Buller, 1987). Note that not much research has addressed the relative aspect of control or has looked at the difference or similarity in physician nonverbal behavior and patient

nonverbal behavior. Often, only one is investigated in a given study and mostly, studies have been focusing on physician nonverbal behavior.

3.2. The E4 Model for Physician-Patient Communication

The E4 model for physician-patient communication was created by Keller and Carroll (1994) on the basis of a literature review and based on the authors' clinical experience. This theory was then applied in several workshops (according to the authors, more than 5000 workshops conducted with 8000 physicians) and benefited from feedback of the participating physicians. According to the E4 model, there are four communication tasks that the physician must perform: *Engage*, *Empathize*, *Educate*, and *Enlist*. *Engage* means setting the conditions for an engagement of both the patient and the physician in the communication process; *empathize* means showing empathy and creating a setting that is psychologically safe; *educate* refers to information sharing about the medical problem and checking for the patient's understanding; and *enlist* means including the patient in decision making and encouraging his or her adherence to the treatment. While *educating* and *enlisting* mostly refer to verbal communication *engaging* and *empathizing* are to be accomplished through verbal as well as though nonverbal communication.

According to the authors, *engaging* is communicated nonverbally through behaviors conveying interest in the patient, such as leaning forward and looking at him or her. *Empathizing* would be communicated nonverbally through eye contact, expressivity (opposite of "blank stare"), and non-interruptions (e.g., limitation of telephone calls or nurses' questions). The authors also advice not to write and listen at the same time, to look at the patient when listening to them or questioning them, to alternate listening and writing rather than doing them simultaneously, to sit or stand at the same level of eye height with the patient (because unequal height would convey dominance), and not to sit behind the desk (which may constitute a "barrier" between the physician and the patient).

Although not focusing exclusively on nonverbal communication, this model offers a useful framework to test potential associations between physician nonverbal behaviors and patient outcomes. As reviewed above, the model received some empirical support in that physician nonverbal behavior related to affiliativeness (which certainly includes aspects of showing engagement and empathy) was found to be related to positive patient outcomes. It would however be interesting to test whether perceived physician engagement and empathy result in positive patient outcomes and – more importantly in the current context – which physician nonverbal behaviors convey engagement and empathy to the patients.

3.3. The Parallel Process Model of Nonverbal Communication

The parallel process model of nonverbal communication (PPNC) (Patterson, 1995, 1999) is a broad and relatively complex model that aims at describing the elements involved in the *dynamic* processing of nonverbal cues. It distinguishes between the encoder (or expresser or sender, which is the person emitting the nonverbal cues) and the decoder (or perceiver which is the person reading or interpreting the nonverbal cues of the sender). Because of its high complexity, a detailed description is not possible here, but we will present some of its major characteristics.

The model retains a broad definition of nonverbal cues which encompasses visual cues (e.g., facial expressions, gestures, or posture), as well as vocal cues (e.g., tone of voice, speech loudness), and physical characteristics (e.g., gender, age, appearance). The PPNC distinguishes three elements that explain encoding and decoding of nonverbal cues: 1) the *determinants* such as the culture, gender, or personality of the encoder and of the decoder; 2) the *social environment* that they face, which encompasses their interaction partner and the setting; and 3) *cognitive-affective components*, such as the encoder's and the decoder's interpersonal expectancies, affects, goals, and dispositions. All these elements shape and explain how nonverbal cues are processed,

from the sender to the decoder, and influence the behavior and the impression formation of both the encoder and the decoder.

This model posits that even if encoding and decoding processes are usually studied separately (for the sake of clarity), they actually are inter-dependent. This means that encoders constantly adapt their nonverbal behaviors to what they infer of the perceiver's judgments (i.e., meta-judgments) on their nonverbal behavior. To illustrate, if the encoder feels that his or her nonverbal behavior might be perceived as dominant by the decoder, he or she might re-adjust this behavior in order to appear less dominant. In other words, there is a permanent mutual influence between the encoder's and the decoder's impression formation and behavior.

Among many other things, the model distinguishes between rapid and automatic processing of nonverbal cues by the decoder, and slower and more elaborate forms of processing. More elaborate processing would be possible when the decoder has: 1) sufficient resources available (e.g. intelligence, energy), 2) sufficient motivation to do this additional processing, and 3) when some elements make the decoder doubt about the accuracy of the initial inference.

This model has the advantage of offering a comprehensive review of the elements that explain the processing of nonverbal cues. The PPNC has been used by researchers of nonverbal communication, but, with a few exceptions (e.g., Takayama & Yamazaki, 2004), not in the field of physician-patient interaction. In offering a vast overview of the factors at stake in communication processing, and with its focus on the interactional and dynamic nature of nonverbal communication, it can however serve as a useful theoretical framework for researchers in this field. It also points to the necessity to investigate both physician and patient nonverbal communication simultaneously in a given interaction in order to obtain a clearer picture of the influence of physician nonverbal communication on patient outcomes.

4. How to Assess Nonverbal Communication in the Medical Encounter?

Different approaches exist for measuring physician (or patient) nonverbal communication in the medical encounter. They vary in whether a standardized or an ad hoc coding scheme is used, as well as in their level of detail and specificity (e.g., frequency of smiling versus global ratings of warmth). We will discuss the assessment of physician nonverbal communication with study-specific coding schemes and contrast them with the use of standardized coding schemes. Also, we will discuss studies that used manipulation of the physician's nonverbal communication to test its impact on patient outcomes.

4.1. Study-Specific Coding Schemes

Although there is a wide array of validated nonverbal assessment tools available (Manusov, 2005), only few of them have been applied to the study of nonverbal communication in the medical encounter. Researchers have a tendency to create their own, study-specific coding schemes. The advantage of such tailored coding schemes is that they capture the nonverbal behavior the researcher really is after in a given study without having to code aspects that are not in the center of the research question. Also, the researcher can choose the level of detail or abstraction on which the nonverbal communication should be coded (e.g., single nonverbal behavior cues or global ratings conveying general impressions based on nonverbal behavior). They come however at the expense of the possibility to compare results among different studies, because the types of nonverbal behaviors assessed and how exactly they are coded is specific to each study and thus varies from one study to the other.

In study-specific coding schemes, either third uninvolved observers code the nonverbal behavior of the physician based on audio- or video-recordings or patients rate the physician's behavior at the end of the visit. In both cases, either specific nonverbal cues are coded (e.g., smiling, nodding, and frowning) or global ratings based on the observation of nonverbal

communication are performed (e.g., affiliativeness or dominance). In the former case, the meaning of a specific nonverbal cue needs to be inferred either through a correlation with another measure from the same study (e.g., physician speaking time is related to the physician being perceived as dominant by the patient) or it can be inferred based on existing knowledge on correlates of nonverbal behaviors (e.g., smiling is a sign of affiliativeness) (Schmid Mast et al., 2010). When nonverbal communication is measured through global ratings, the meaning is already attached to the coding category (e.g., dominance), but one lacks information about which specific nonverbal behavior of the physician is responsible for the impression of dominance. As argued before, such knowledge is important for physician training.

When patients rate their physician's nonverbal behavior at the end of the visit, they typically characterize the physician's behavior after the consultation by indicating, for instance, how much a list of adjectives describes the physician's behavior during the medical encounter (e.g., "open to patient concerns", "involved", "dominant"), using Likert scales (e.g., Thom, 2001). Besides such global ratings based on the physician's verbal and nonverbal behavior, patients might also be asked about the physician's specific nonverbal behavior (e.g., smiling). However, patients' ratings of the physician's behavior can be problematic for different reasons. First, patients are not objective observers. They are part of the physician-patient relationship thus their answers are not independent from other outcomes that the researcher investigates (e.g., patient satisfaction with the visit). Second, with this type of measure, it is not possible to know whether differences in the ratings come from differences in the physician's behavior or from differences in the patient's characteristics (e.g., some patients might be much more critical than others). Third, there might be an attentional or recall bias in patients' answers (i.e., some patients may pay more attention to certain behaviors than other patients, and some patients have a better memory than others), especially when patients are asked about their physician behavior not

directly after the visit but some time later (e.g., through a telephone interview) (e.g., Keating, Gandhi, Orav, Bates, & Ayanian, 2004).

Coding of the nonverbal communication in a medical encounter is extremely time-consuming. In order to limit the time spent on coding, researchers often use so-called *thin* slices (Nalini Ambady, Bernieri, & Richeson, 2000), namely excerpts of a videotaped interaction that are taken as representative of the entire videotaped interaction. These excerpts are brief (i.e., less than 5 min) and contain dynamic information (photographs do not qualify as thin slices) (Nalini Ambady et al., 2000). At least for certain behaviors (i.e., gaze, gestures, nodding, smiling, and self-touch), it seems that a 1 min video is usually pretty representative of a 15 min interaction (Murphy, 2005).

Another promising technological development aiming at dramatically decreasing the time for coding are so-called automatic sensing systems. These are devices such as microphones, cameras, or smart phones that register verbal and nonverbal behavior automatically in the field and instead of using third-observer coding, specially developed computer algorithms code and analyze the recodings (e.g., Gatica-Perez, in press; McCowan, Lincoln, & Himayan, 2008). An example is the microcone, a device for identifying and recording up to 6 different speakers in a room with a software that permits to extract directly the speak turns, pauses, and interruptions of a conversation (Gatica-Perez, Lathoud, Odobez, & McCowan, 2007; Maganti, Gatica-Perez, & McCowan, 2007; McCowan et al., 2008). Another example consists of a computer algorithm that can identify the gazing direction of a person on a videotape and directly deliver the information about how long this person gazed at an interaction partner during a conversation, without human coders needing to pass hours on watching and coding this behavior (Gatica-Perez, in press).

4.2. Standardized Coding Schemes

There are only a few established coding schemes that specifically measure the physician's nonverbal communication, and, as argued before, they are relatively rarely used. One of the most commonly used standardized coding schemes in the field of physician-patient communication is the Roter Interaction Analysis System (RIAS) (Roter & Larson, 2002). The RIAS was created to analyze mainly the verbal part of the physician's communication style. However, global affect ratings are also performed by the trained coders. On a 6-point Likert scale going from 1 (*low*) to 6 (*high*), coders are asked to rate the physician and the patient on the following dimensions: anger/irritation, anxiety/nervousness, depression/sadness (only patient), emotional distress/upset (only patient), dominance/assertiveness, interest/attentiveness, friendliness/warmth, responsiveness/engagement, sympathetic/empathetic, hurried/rushed, and respectfulness. Note that these global ratings are based on both verbal and nonverbal cues, and usually focus mostly on vocal qualities (such as voice tone, pitch, loudness, or variations).

Another example is the *Relational Communication Scale for Observational Measurement* (RCS-O) (Gallagher, Hartung, Gerzina, Gregory, & Merolla, 2005), which consists of 34 items measuring physician *intimacy* with the patient, *composure*, *formality*, and *dominance*. Sample items are: "The physician was intensely involved in the conversation with the patient" (intimacy), "The physician was calm and poised with the patient" (composure), "The physician made the interaction very formal" (formality), or "The physician tried to control the conversation" (dominance). Again, this test does not clearly distinguish nonverbal behaviors from verbal ones (e.g., physician control over the conversation can be expressed either through nonverbal behaviors or through verbal ones or both). This scale has been used for instance by Gallagher, Gregory, Bianchi, Hartung, and Harkness (2005) who showed that the power difference (asymmetry) between the physician and patient – as expressed though the physician and the

patient voice – is greater when the interview focuses on the biomedical aspects rather than on the psychosocial ones.

Similarly, the Four Habits Coding Scheme (FHCS) (Krupat, Frankel, Stein, & Irish, 2006) was created to assess the physician's communication style, without distinguishing its verbal and nonverbal components. This coding scheme consists of 23 items used by external raters to evaluate the physician communication style. These items are organized according to four categories of skills that the physicians should master according to the authors: *Invest in the beginning* (Habit 1), *Elicit the patient's perspective* (Habit 2), *Demonstrate empathy* (Habit 3), and *Invest in the end* (Habit 4). *Investing in the beginning* means for instance showing familiarity and warmth by talking to the patient, engaging in small talk, or eliciting the agenda with him or her; *eliciting the patient's perspective* means investigating the patient's representation of the medical problem, his or her goals in consulting the physician, and the impact of the medical problem on his or her life; *demonstrating empathy* refers to the physician's encouraging the patient to express emotions, to showing acceptance of the patient's emotions, and adopting a nonverbal behavior that conveys interest and concern for the patient. *Investing in the end* refers to physician behaviors such as giving clear explanations to the patients, testing for his or her understanding, or involving him or her in the treatment decisions. This coding system has been used for instance to demonstrate that a communication skills trainings based on the Four Habits model led to significant improvements in the physician's communication skills (Jensen et al., 2011). As in the previous coding schemes, the verbal and nonverbal aspects of the physician's communication are intertwined. To illustrate, one of the items is: "[the clinician] signals verbally and nonverbally that it is okay to express feeling". It is thus not possible to isolate the nonverbal part of the physician's communication from its verbal part.

However, standardized coding schemes focusing exclusively on nonverbal communication are being developed. In particular, the Nonverbal Accommodation Analysis System (NAAS) (D'Agostino & Bylund, 2011) was created to analyze physician and patient accommodation (i.e., behavioral adaptation to each other) through nonverbal behavior during medical interviews. It codes the following physician and patient behaviors: eye contact, smiling, laughing, nodding, gesturing, talk time, pauses, simultaneous speech, speech rate, and interruption frequency. Coding rules are given for each of the nonverbal behaviors (e.g., smiling: "A relaxation of the facial features, with lips parted or closed, and with the corners of the lips turned upward. Proportion per minute calculated for each conversational party"). Inter-rater and intra-rater reliability are good, which shows that the coding system is rather unambiguous and reliable. Preliminary validation tests show that it offers good convergent and discriminant validity too (D'Agostino & Bylund, 2011).

4.3. Manipulation of Nonverbal Behavior

The measures we have presented so far are typically used in correlational studies. To establish a causal relationship between a physician (or patient) nonverbal behavior and interaction outcomes, one needs an experimental design in which the physician (or patient) behavior is manipulated. Few studies have used such a manipulation (e.g., Aruguete & Roberts, 2000, 2002; Cousin & Schmid Mast, 2011; Gueguen et al., 2010).

Typically, a real physician or an actor portraying a physician delivers the same speech (i.e., the verbal content remains the same), while varying the nonverbal behavior from one condition to the other. To illustrate, in a study (Aruguete & Roberts, 2000) using a male and a female actor portraying a physician whose communication style was either affiliative or controlling, the following manipulation was performed: In the high affiliative condition, the male or female physician used a friendly facial expressions, leaned forward, used back-channel

responses (e.g., “uh-huh”, “yeah”), gave suggestions, and asked open-ended questions. In the controlling condition, the physician used neutral facial expressions, sat upright, gave directions rather than suggestions, and asked closed-ended questions. This study demonstrated a causal link between the physician’s affiliative communication style and the participant’s satisfaction, trust, self-disclosure, and compliance. However, in this study, physician nonverbal behavior was not varied independently of the verbal behavior. It is thus not possible to know whether the effects of the manipulation were due to the physician’s nonverbal or verbal behavior. In another study, Aruguete and Roberts (2002), manipulated the nonverbal behavior only, by varying physician expressed concern vs. distance. In the concern condition, the physician smiled frequently, made moderate to high contact with the patient, had concerned facial expressions, rarely attended to the patient’s chart, leaned forward toward the patient, and sat 2 feet from him or her. In the distance condition, the physician made little eye contact with the patient, had neutral facial expressions, frequently attended to the patient’s chart, displayed a more distant body posture, and sat 4 feet from the patient. Results showed that physician nonverbal expression of concern positively influenced patients’ satisfaction, trust, self-disclosure, and recall of information.

Similarly, Cousin and Schmid Mast (2011) manipulated the physician’s nonverbal behavior in presenting silent videos excerpts of physicians who varied in their level of smiling, gazing, and nodding across the high affiliative and the low affiliative conditions. Physician’s increase in affiliativeness positively influenced the participants’ trust in the physician, their perception of the physician’s competence, and their determination to adhere to the treatment.

In the three examples we just provided (Aruguete & Roberts, 2000, 2002; Cousin & Schmid Mast, 2011), analogue patients were used. These are participants who were asked to imagine that they were in a medical situation but did not actually suffer from a real medical problem at the time the study was conducted. However, it is also possible to manipulate physician

nonverbal communication during a real medical visit. Researchers (Gueguen et al., 2010) have shown that when the physician touched the patient at the end of the visit while stressing the importance for the patient to follow the treatment, actual medication adherence was better than when the physician did not touch the patient while saying exactly the same things.

With the latter kind of manipulation, the researchers can show that the nonverbal behavior of the physician has an impact on a given outcome. Furthermore, the real medical setting (vs. laboratory setting) ensures good external validity to the findings. However, manipulations of the physician behavior are not always feasible. Such designs are difficult to implement, and some manipulations go against deontological and ethical standards. For obvious reasons, for instance, it would not be possible to manipulate physician hostility.

5. Physician Interpersonal Sensitivity

Another aspect of nonverbal communication in the medical setting is the physician's interpersonal sensitivity, defined as the physician's ability to draw accurate inferences about a person's states (e.g., emotions, attitudes, desires, needs) or traits (i.e., personality) based on this person's behavior, both verbal and nonverbal, and on this person's appearance (Judith A. Hall & Bernieri, 2001). Sometimes, the term is used not only to describe accurate inferences, but also to describe a person's tendency to act and respond to others with tact (Hogan & Hogan, 1995) or to perceive criticism and rejection from others (e.g., Pilkonis, Kim, Proietti, & Barkham, 1996). Neither of these latter meanings will be used here.

Hall (2011) showed that physicians have relatively poor levels of interpersonal sensitivity (both verbal and nonverbal) regarding patients' emotional states, satisfaction with the visit, health beliefs, and views about their own health. Medical students, also, seem to be weaker than students from other disciplines (i.e., students who were not science majors) in decoding nonverbal cues (Giannini, Giannini, & Bowman, 2000).

Physicians' interpersonal sensitivity assessed with a standardized test (Profile of Nonverbal Sensitivity, PONS)(Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979) has been positively related to their patients' satisfaction (DiMatteo, Friedman, & Taranta, 1979; DiMatteo, Taranta, Friedman, & Prince, 1980) and to a higher rate of their patients' appointment keeping (DiMatteo, Hays, & Prince, 1986). Also, when physicians were more sensitive to emotional expression through body movement and posture (as measured by the PONS), patients' ratings of the physicians' interpersonal competence (perceived physician caring, helpfulness, and sensitivity) were higher (DiMatteo et al., 1980). Similarly, simulated patients liked medical students more and perceived them as higher in compassion when the medical students had increased nonverbal sensitivity.

Besides these positive effects, there might, however, also be some disadvantages for highly sensitive physicians. Physicians who scored higher on the PONS seemed to be over-inclusive in their judgments of psychiatric problems (pathological anxiety and/or depression) when their judgments were compared with patients' answers to established questionnaires for detecting those psychiatric problems (Robbins, Kirmayer, Cathebras, Yaffe, & Dworkind, 1994).

It is important to note that self-perceived nonverbal sensitivity by physicians may not be a good indicator of their actual interpersonal sensitivity. Physicians who self-report that there are better able to accurately read emotions in their patients, are *less* accurate in detecting anxiety and depression in their patients than physicians who are more modest in reporting their level of interpersonal sensitivity (Robbins et al., 1994).

Following Hall (2011), interpersonal sensitivity is typically assessed either in vivo or with standardized tests. In vivo measurement refers to measures of interpersonal sensitivity assessed in a live interaction. Typically, patients and physicians are asked to answer the same questions (e.g., regarding the patient's feelings or attitudes), and higher correlations between their answers are

taken as a sign of more pronounced physician interpersonal sensitivity. In vivo measures face methodological challenges. One of the major problems concerns the distinction between the decoder's interpersonal sensitivity and the encoder's level of expressiveness. When a person (decoder) is not able to correctly infer an interaction partner's traits or states, this may be due to two different things. Either this person shows a lack of interpersonal sensitivity, *or* the interaction partner was unexpressive and emitted few observable cues. Disentangling those two influences is difficult and requires additional analyses (e.g., analysis of videos) (J. A. Hall, 2011). Furthermore, this type of measure does not distinguish the nonverbal influence from the verbal one. It is not possible to measure physician interpersonal sensitivity based only on the nonverbal behavior of the patient. The physician will always have the verbal and the nonverbal information available.

There are, however, a number of standardized interpersonal sensitivity tests available. With one exception, they are not specific for the physician-patient interaction. As an example, the aforementioned *Profile of Nonverbal Sensitivity* (PONS) (Rosenthal et al., 1979) consists of silent video excerpts in which a woman acts or reacts nonverbally to different social situations (e.g., she talks about her wedding, expresses strong dislike, orders food in a restaurant). For each video except, the observer has to choose from two possible answers alternatives which one is the right one. Nonverbal behavior on the video excerpts is expressed through different channels: face, body, and voice. The PONS is the test most commonly used in assessing nonverbal sensitivity (e.g., DiMatteo et al., 1980).

Another widely used test is the *Diagnostic Analysis of Nonverbal Accuracy* (DANVA) (Nowicki & Duke, 1994). The DANVA consists of 24 pictures of female and male individuals enacting four emotions (i.e., happiness, sadness, anger, and fear). These pictures are presented for 2 s after which the test-taker indicates which of the four emotions was presented. It is a test that is

specific to facial emotional displays and has been used by authors for the study of physician-patient interactions (J. A. Hall, Roter, Blanch, & Frankel, 2009).

There is one interpersonal sensitivity test specific to the physician-patient interaction available: the *Patient Emotion Cue Test* (PECT) (Blanch-Hartigan, 2011). This test independently measures physician verbal and nonverbal sensitivity to patients' expressions of emotions. The PECT consists of 47 video clips in which an actress dynamically portrays a patient expressing an emotion (i.e., anger, sadness, happiness, anxiety, or confusion) or no emotion. These clips independently vary in verbal and nonverbal intensity (high, low, or neutral). Examples of verbal expressions are: "I completely disagree with you" (anger: high intensity), or "It was a whole week before he got the results back" (anger; low intensity). Examples of nonverbal expressions are: intense gaze, increased rate of speech, eye rolling, furrowed brow, and heavy breathing (anger; high intensity), or moderate gaze, slightly increased rate of speech, moderate frowning, and slightly heavier breathing (anger; low intensity). Respondents have then to indicate which emotion was portrayed (or if no emotion was portrayed) on a forced-choice response format. Preliminary validation tests shows that reliability indices are modest and validity indices are adequate (notably through convergent validity with the DANVA and PONS measures of interpersonal sensitivity) (Blanch-Hartigan, 2011).

To summarize, physician interpersonal has been mostly related to positive patient outcomes (i.e., satisfaction, appointment keeping, perceived competence of the physician), even if it may have a negative influence on some other aspects of the medical visit (e.g., physicians being over-inclusive in their judgments of patient psychiatric problems). The measurement of interpersonal sensitivity is crucial, as in-live measurement and self-assessment pose many methodological problems. The use of standardized and validated tests (e.g., PONS, DANVA, PECT) will ensure the good quality of future research on this topic.

6. Summary, Conclusions, and Outlook

Research on nonverbal communication in the medical encounter is growing. We now have strong empirical evidence that physician nonverbal behavior has an impact on the patients. For instance, research has demonstrated that the nonverbal expression of affiliativeness, through behaviors such as looking at the patient, nodding, or forward leaning, has a positive impact on patient satisfaction. Conversely, nonverbal dominance, in the form of long physician speaking time or dominant tone of voice for instance, has a negative impact on satisfaction. Also, it has been shown that a physician's nonverbal behavior that expresses concern, for instance, through frequent eye contact, concerned facial expression, or close interpersonal distance, leads to more patient trust than a physician's behavior that conveys more distance. Regarding patient adherence, it has been shown that physician touching of the patient increases patient adherence with their medication.

While the effect of physician nonverbal behavior on patient satisfaction, trust, and adherence is relatively firmly established by research using sound methodologies and experimental designs, its effect on other patient outcomes such as for instance patient health status or psychological distress still lack. Studies on these outcomes typically rely on correlational designs (Crane & Crane, 2010; J. A. Hall, Horgan, Stein, & Roter, 2002). This can be problematic for interpretation. To illustrate, the association found by Ambady et al. (2002) between physician expressiveness and elderly patients' health status can be due to the fact that patients reacted to the physician expressiveness (causal influence of the physician nonverbal behavior) or to the fact that physicians were more expressive when the patients were healthier (causal influence of the patients' health status). Future research will have to use appropriate methodologies in order to answer these questions.

The field of nonverbal communication in the medical encounter has often received the critique of not being theoretical enough (Hall & Schmid Mast, 2009). Even if this critique is not fully justified, it is true that researcher is the field still lack models for predicting specific patient outcomes out of specific physicians' nonverbal behavior. As actual research will probably continue to build evidence on the effect of physician nonverbal behavior on different patient outcomes, efforts will be needed to explain, on a theoretical level, the documented effects. Also, existing theories from the nonverbal literature as well as from other domains (e.g., interpersonal perception, verbal communication) may prove useful to ground future research. We have provided some examples of theories or models that can be useful to researchers in the field. Additionally, cross-fertilization between verbal and nonverbal theories may enhance the quality of research in both domains.

Regarding the measures and assessment tools in the field, it has to be noted that researchers have rarely used standardized instruments. Researchers often create their own criteria and coding rules. This is probably partly due to the fact that research in the field is relatively young and that researchers sometimes lack consensus on which nonverbal behaviors are worth measuring, and how. Also, different research questions might necessitate the assessment of different aspects of nonverbal behavior. Nevertheless, we hope that as coding systems specific to the physician-patient interaction will develop, researchers will use more reliable, valid, and comparable measures of nonverbal behavior.

As methodologies and theoretical underpinnings will develop, and results hopefully accumulate, researchers will probably try to refine their analyses and invest more in the search for individual and situational characteristics that moderate the links between physician (or patient) nonverbal behavior and patient outcomes. As we have shown, not all patients react equally to the same physician behavior, and situational factors play a role as well. Moreover, the

interplay between the physician's and the patient's nonverbal behavior and their separate or joint effect on consultation outcomes has rarely been studied. Note that although there exists research that looked at patient nonverbal behavior, the great majority of studies has investigated physician nonverbal behavior. This is also the reason why we focused on the effect of physician nonverbal behavior on patient outcome in the present chapter. To fully understand the impact of physician nonverbal behavior on patient outcome, it is crucial look at both physician and patient nonverbal behavior within one and the same study.

Furthermore, nonverbal behaviors have often been studied in isolation from each other, and we lack information about the interaction effects of patterns of behavior (behavioral composites) (Patterson, 1995). For instance, a smile might convey different meanings when associated with raised eyebrows (e.g., interest) than when associated with frowning (e.g., mockery). Furthermore, the interaction between the verbal and the nonverbal aspects of communication will need to be investigated. As Robinson (2006) reminds us, nonverbal behavior is intrinsically related to verbal behavior. However, this has not been seriously investigated so far (Crane & Crane, 2010). This is certainly another promising avenue of research for the field of research on the role of nonverbal communication in medical interactions.

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