



## Finding the right interactional temperature: Do colder patients need more warmth in physician communication style?



Gaëtan Cousin <sup>a,\*</sup>, Marianne Schmid Mast <sup>b,1</sup>, Nicole Jaunin-Stalder <sup>c,2</sup>

<sup>a</sup> University of Oxford, Department of Psychiatry, Warneford Hospital, Warneford Lane, Oxford OX3 7JX, United Kingdom

<sup>b</sup> University of Neuchâtel, IPTO, Rue Emile-Argand 11, 2000 Neuchâtel, Switzerland

<sup>c</sup> Policlinique Médicale Universitaire, Rue du Bugnon 44, 1011 Lausanne, Switzerland

### ARTICLE INFO

#### Article history:

Available online 7 September 2013

#### Keywords:

Physician–Patient communication  
Difficult patients  
Agreeableness  
Satisfaction  
Trust  
Switzerland

### ABSTRACT

Being aware of which communication style should be adopted when facing more difficult patients is important for physicians; it can help prevent patient reactions of dissatisfaction, mistrust, or non-adherence that can be detrimental to the process of care. Past research suggests that less agreeable patients are especially critical towards, and reactive to, their physician's communication style, compared to more agreeable patients. On the basis of the literature, we hypothesized that less agreeable patients would react more negatively than agreeable patients to lower levels of affiliativeness (i.e., warmth, friendliness) in the physicians, 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 questionnaires measuring their satisfaction with the physician, their trust in the physician, their determination to adhere to the treatment, and their trait of agreeableness. Physician affiliativeness was coded on the basis of the video recordings. Physician gender and dominance, 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; less agreeable patients reacted more negatively (in terms of satisfaction and trust) than agreeable patients to lower levels of affiliativeness in their physicians. This study suggests that physicians should be especially attentive to stay warm and friendly with people low in agreeableness because those patients' satisfaction and trust might be more easily lowered by a cold or distant physician communication style.

© 2013 Elsevier Ltd. All rights reserved.

### Introduction

Some patients are more difficult to interact with and more 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 as more 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 in 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 complaints), 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 patients lower on the agreeableness dimension can be 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, less agreeable patients report less satisfaction with medical care than people high in agreeableness (Hendricks, Smets, Vrielink, VanEs, & DeHaes, 2006). 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

\* Corresponding author.

E-mail addresses: [gaetan.cousin@psych.ox.ac.uk](mailto:gaetan.cousin@psych.ox.ac.uk) (G. Cousin), [marianne.schmid@unine.ch](mailto:marianne.schmid@unine.ch) (M. Schmid Mast).

<sup>1</sup> Fax: +41 32 718 13 91.

<sup>2</sup> Fax: +41 21 731 35 38.

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 et al. (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, less agreeable patients – maybe because they are more 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 less agreeable 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 more agreeable individuals do (Moskowitz, 2010). In sum, because less agreeable 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 expected them to show negative consultation outcomes particularly when the physician adopts an unfriendly communication style. More specifically, we predicted that less agreeable patients would 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 more difficult patient encounters can help guiding physician communication training. Being aware of which communication style to avoid when facing a more 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 signaled by 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., Andersen & Andersen, 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 are more demanding of physician affiliativeness than others (Cousin, Schmid Mast, Roter, & Hall, 2012; Graugaard & Finset, 2000).

### Patients lower on the agreeableness dimension

The dimension of agreeableness 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 less agreeable 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). This is potentially a problem because less agreeable 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 suggests that the personality trait of agreeableness predicts individuals' reactions to others' displays of affiliativeness, such as the level of attention individuals pay to affiliativeness in others (Hirschberg & Jennings, 1980), the level of distress they experience when facing non-affiliative behaviors in others (e.g., in interpersonal conflicts) (Suls & Martin, 2005), or the degree of quarrelsomeness they show in response to non-affiliative behavior in others (Moskowitz, 2010). However, the only studies that have investigated the influence of agreeableness on individual reactions in a medical context were simulation studies (Cousin & Schmid Mast, 2013a, 2013b). In those simulation studies, healthy and young participants were asked to put themselves into the shoes of real medical patients and to report their reactions to videos of physicians varying in their level of nonverbal affiliativeness. The present study is the first one to look at the effects of match (or mismatch) between physician level of affiliativeness and patient personality in a real medical setting. We measured agreeableness in actual patients seeing their actual general practitioners and we assessed the degree of affiliativeness in the doctor's communication style during the visit. Also, rather than relying solely on measures of physician nonverbal affiliativeness (i.e., smiling, nodding, leaning forward), we used a broader and more comprehensive measure, namely a composite measure of both verbal and nonverbal affiliativeness. 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; Willson & 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

Physicians were general practitioners working in the French-speaking part of Switzerland who were contacted by phone and asked for their voluntary participation. Seventy-two were contacted and 39 of them agreed 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).

For each physician, the first female patient and the first male patient who met the inclusion criteria (see below) and who agreed 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, if they had a diagnosed psychiatric disorder, or if they had consulted the physician more than four times at any point in the past. The last criterion was set for the following reasons. Patients who have a longstanding relationship with their doctor are likely to be satisfied or very satisfied with their doctor (otherwise, they would probably have stopped consulting this doctor). Including them might have led to a ceiling effect in the satisfaction measure (i.e., most data would be clustered toward the top of the scale), which is a well-known problem to researchers in the field (Moret et al., 2007). Prior discussion with physicians indicated that recruiting only patients who had never seen the physician in the past would have been too restrictive (because of the little number of new patients) and might have led to selection biases (e.g., recruiting only patients who were dissatisfied with their previous physicians and had decided to change). Including patients who had not consulted the physician more than four times in the past appeared as the most reasonable cut-off, ensuring both the feasibility and the validity of the study. In our sample, 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%) at any point 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 patients filled in a questionnaire measuring their satisfaction with the consultation, trust in the physician, and intention to comply with the treatment suggested by the physician (if a treatment was necessary), as well as their personality trait of agreeableness. 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, Canton Vaud, Switzerland.

#### Materials and measures

**Physician affiliativeness.** A naïve rater (i.e., a rater who had not received any prior training in the coding) viewed 3 × 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 = not 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) ( $M = 5.34$ ;  $SD = 0.90$ ; Cronbach's alpha 0.93). A second coder viewed and coded a subsample of 20 videos resulting in good inter-rater reliability ( $r = 0.83$ ).

**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 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 = 0.54) and Cronbach's alpha was 0.70.

**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 and Schmid Mast (2013a, 2013b) 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 = 0.83). 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 = 0.86). The three items measuring patient determination to adhere to the treatment (adherence) were: “I am determined to follow the treatment or advice of my physician to the letter”, “I don't think that I will follow all of the treatment or advice my physician gave me” (reversed item), and “I will rigorously follow the treatment and advice of my physician” ( $M = 4.50$ ,  $SD = 0.87$ ; Cronbach's alpha = 0.80). 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,  $r(68) = 0.65$ ,  $p = .000$ , but no significant correlation between the outcomes of satisfaction and adherence,  $r(68) = 0.14$ ,  $p = .310$ , nor between the outcomes of trust and adherence,  $r(68) = 0.24$ ,  $p = .084$  (two-tailed analyses).<sup>3</sup> 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 diagnoses were 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 the 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 the 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), and because physician dominance has been negatively associated with patient outcomes of satisfaction, trust, and adherence (Kiesler & Auerbach, 2003), it could constitute a confound in our study. This is why we coded physician dominance in order to control for it in the analysis. The same procedure as for

<sup>3</sup> Data were missing for one participants; the analyses were performed on 68 patients.

the coding of physician affiliativeness was followed and the coding was done by the same raters. Five adjectives were selected from the Revised Interpersonal Adjective Scale (IAS – R) of Wiggins et al. (1988) and adapted to the present study: “self-confident”, “dominant”, “authoritative”, “shy” (reversed), “unsure” (reversed) ( $M = 4.55, SD = 0.78$ ; Cronbach’s alpha = 0.80). Inter-rater reliability was good ( $r = 0.81$ ).

### 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 we 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 and age, and gravity of the medical problem (the latter four as control variables). Physician dominance was introduced as a control variable because it was negatively correlated with physician affiliativeness,  $r(69) = -0.55, p = .0001$ , 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 distributions, we used the bootstrap procedure (1000 samples, 95% confidence interval), as recommended in such cases (Efron & Tibshirani, 1993).

Note that each physician saw two patients (one female patient and one male patient; three physicians saw only one patient) and not only one patient (as would be the case in a fully independent sampling). In such cases, multilevel analyses might be required. So, we 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  $\chi^2_{\text{Change}} = 0.60, p > .05$ , which is an indicator that our data were statistically independent from each other and that multilevel analyses were not required.

### Results

With respect to patient satisfaction, results showed that the interaction between physician affiliativeness and patient agreeableness significantly predicted patient satisfaction,  $b = -0.27, p = .035, f^2 = 0.21$ . According to Cohen’s (1988) norms for  $f^2$  values, this indicates a medium to large effect size. 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  $> 0.112$ . Note that the results remained significant when the control variables were removed from the regression,  $b = -0.27, p = .030, f^2 = 0.21$ .

The significant  $R^2$  change from step 1 ( $R^2 = 0.24$ ) to step 2 ( $R^2 = 0.37$ ),  $\Delta R^2 = 0.13, p = .001$  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 less agreeable patients reacted more negatively than agreeable patients to lower levels of affiliativeness in the physician. Fig. 1 shows that patient satisfaction was very high in all cases, except when less agreeable patients faced physicians who showed low levels of affiliativeness. This result fits our predictions.

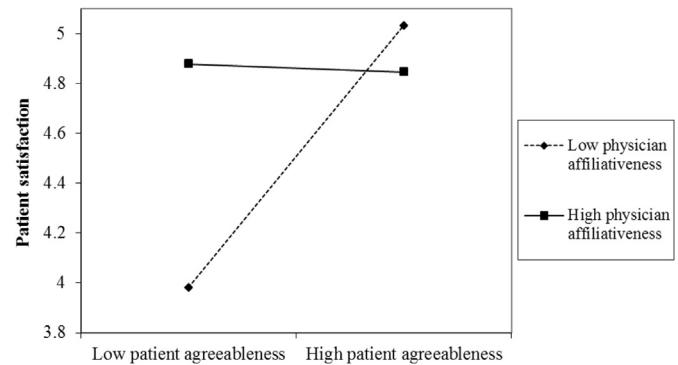


Fig. 1. The interaction between patient agreeableness and physician affiliativeness in predicting patient satisfaction. The lines are plotted at one standard deviation below and above the mean.

Results pertaining to patient trust showed also a significant interaction between physician affiliativeness and patient agreeableness,  $b = -0.16, p = .034, f^2 = 0.12$ . According to Cohen’s (1988) norms, this indicates a medium effect size. 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  $> 0.240$ , and the result remained significant when the control variables were removed out of the regression,  $b = -0.17, p = .008, f^2 = 0.12$ . 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. Fig. 2 shows that patient trust was very high in all cases, except when less agreeable patients faced physicians who showed low levels of affiliativeness, as we predicted. The significant  $R^2$  change from step 1 ( $R^2 = 0.27$ ) to step 2 ( $R^2 = 0.35$ ),  $\Delta R^2 = 0.08, p = .007$  shows that the addition of the interaction term enables us to predict significantly more variance in the trust outcome.

With respect to adherence, there was no significant interaction between physician affiliativeness and patient agreeableness in predicting patient determination to adhere to the treatment,  $b = 0.07, p = .739, f^2 = 0.005$ . Results of the three regressions (without control variables) are presented in Table 1.

Finally, note that physician affiliativeness and patient agreeableness were unrelated in our sample,  $r(68) = -0.09, p = .460$ . This indicates that, on average, physicians did not communicate in a less affiliative way with patients who were lower in agreeableness.

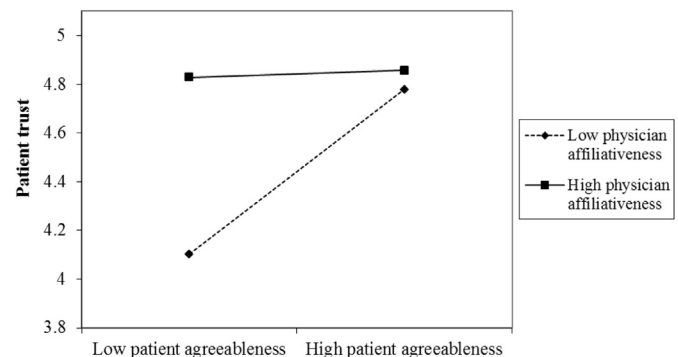


Fig. 2. The interaction between patient agreeableness and physician affiliativeness in predicting patient trust. The lines are plotted at one standard deviation below and above the mean.

**Table 1**  
Predictors of patients' satisfaction, trust, and adherence.

Variable	Satisfaction		Trust		Adherence	
	<i>b</i> <sup>a</sup>	95% CI <sup>b</sup>	<i>b</i>	95% CI	<i>b</i>	95% CI
<b>Step 1</b>						
Constant	4.71 <sup>d</sup>	[4.56, 4.86]	4.66 <sup>d</sup>	[4.54, 4.77]	4.51 <sup>d</sup>	[4.27, 4.74]
Physician affiliativeness	0.29	[−0.03, 0.54]	0.27 <sup>d</sup>	[0.06, 0.43]	−0.001	[−0.26, 0.20]
Patient agreeableness	0.17	[0.02, 0.34]	0.15 <sup>c</sup>	[0.03, 0.28]	0.02	[−0.40, 0.20]
<b>Step 2</b>						
Constant	4.69 <sup>d</sup>	[4.54, 4.84]	4.64 <sup>d</sup>	[4.52, 4.77]	4.52 <sup>d</sup>	[4.29, 4.75]
Physician affiliativeness	0.24 <sup>c</sup>	[0.04, 0.38]	0.24 <sup>d</sup>	[0.10, 0.32]	0.01	[−0.36, 0.34]
Patient agreeableness	0.22 <sup>c</sup>	[0.08, 0.31]	0.18 <sup>d</sup>	[0.06, 0.26]	0.02	[−0.36, 0.34]
Patient agreeableness X Physician affiliativeness	−0.27 <sup>c</sup>	[−0.43, −0.03]	−0.17 <sup>c</sup>	[−0.29, −0.01]	0.09	[−0.27, 0.59]
Total R <sup>2</sup>	0.35 <sup>d</sup>		0.40 <sup>d</sup>		0.01	
<i>n</i>	67		67		52	

<sup>a</sup> *b* = unstandardized regression coefficient.

<sup>b</sup> CI = confidence interval.

<sup>c</sup> *p* < .05.

<sup>d</sup> *p* < .01.

## Discussion

The goal of this study was to test whether patients who are lower on the agreeableness dimensions react more negatively (i.e., less satisfaction, less trust, and less adherence) than agreeable patients to lower levels of affiliativeness (i.e., warmth, friendliness) in their physician's communication style. Results confirmed our predictions for satisfaction and trust: in less agreeable patients, the outcomes of satisfaction and trust were lower when physician affiliativeness was lower, whereas in more 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 agreeableness and the physician's affiliativeness.

These results suggest that patients on the lower end of the agreeableness dimension are particularly reactive to physicians' display of coldness or unfriendliness compared to more agreeable patients, in terms of satisfaction and trust. They are in line with previous studies conducted on real physician-patient interactions suggesting that less agreeable patients are especially critical and demanding with their healthcare providers and that they are particularly reactive 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). Some previous research had been done in simulation designs (Cousin & Schmid Mast, 2013a, 2013b) investigating how patient agreeableness and physician affiliativeness interact in predicting patient outcomes, but the present study is the first one testing this interaction in a real medical setting.

Interestingly, previous simulation studies (Cousin & Schmid Mast, 2013a, 2013b) had reported a different pattern than the one we found in the present study. In those simulation studies, less agreeable individuals were less reactive to variations in the physician level of affiliativeness, compared to more agreeable individuals. Several reasons might explain the difference between the simulation studies and the present one, pertaining to differences in the design of the studies (simulated vs. real interactions), the characteristics of the participants (young and healthy participants vs. older and ill patients), and the measurement of affiliativeness (nonverbal cues only vs. both verbal and nonverbal cues). Notably because the present study involves real medical interaction and not simulated ones, it probably reflects a more accurate picture of reality than the previous simulation studies. The different operationalization of affiliativeness between the simulation studies and

the present study (nonverbal cues only vs. both verbal and nonverbal cues) might also partly explain the differences in the results. We know from the literature that the same message from the physician (e.g., communicating anger) can have exactly opposite impacts on the patients depending on whether the message is communicated verbally (e.g., through angry words) or nonverbally (e.g., through an angry tone of voice) (Hall et al., 1981). Future research might thus want to investigate whether patients react differently to physician affiliativeness, not only depending on patients' personality, but also depending on the channel (i.e., verbal, nonverbal, or both) through which affiliativeness is expressed by the physician. Less agreeable patients might be less reactive to the nonverbal displays of affiliativeness (e.g., smiling, nodding, leaning forward) compared to more agreeable patients (Cousin & Schmid Mast, 2013a, 2013b), but altogether – when both the nonverbal and the verbal aspects of affiliativeness are considered – they seem to be more reactive, in terms of satisfaction and trust.

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.

We cannot exclude that physicians who agreed to participate were not on average more affiliative (because they were more ready to co-operate) than the general population of physicians. Similarly, we cannot exclude that patients who agreed to participate were not on average more agreeable than the population who consults physicians for medical problems. However, such a potential restriction of range in the physician affiliativeness and in the patient agreeableness variables would have made it less likely to detect an interaction effect between physician affiliativeness and patient agreeableness on the outcome variables. Therefore, it seems unlikely that the effects we report in the present study are due to a particularity of our sample.

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 less agreeable, more difficult patients to different doctor communication styles needs to be investigated further.

### Conclusion

When less agreeable patients consulted cold and distant physicians (i.e., physicians low in affiliativeness), they were particularly dissatisfied with the consultation and their trust in the physician was lower. Less agreeable patients' satisfaction and trust were similar to the ones of more agreeable patients only when physicians communicated in a warm and friendly way.

### Practice implications

Physicians might need to be especially attentive to stay warm and friendly with patients who are less agreeable, because those patients seem to be especially reactive to physician's displays of coldness or unfriendliness (compared to more agreeable patients) in terms of satisfaction with the visit and trust in the physician.

### References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. London, England: Sage.
- Amitay, O. A. (2007). Supportive and undermining relational patterns in individuals vulnerable to major depression. *Dissertation Abstracts International: Section B. The Sciences and Engineering*, 67(12), 7362.
- Andersen, P. A., & Andersen, J. F. (1999). Measurements of perceived nonverbal immediacy. In V. Manusov (Ed.), *The sourcebook of nonverbal measures* (pp. 113–126). Mahwah, NJ: Lawrence Erlbaum Associates.
- Aruguete, M. S., & Roberts, C. A. (2002). Participants' ratings of male physicians who vary in race and communication style. *Psychological Reports*, 91(3), 793–806.
- Beck, R. S., Daughtridge, R., & Sloane, P. D. (2002). Physician-patient communication in the primary care office: a systematic review. *The Journal of the American Board of Family Practice*, 15(1), 25–38.
- Breeze, J. A., & Repper, J. (2002). Struggling for control: the care experience of 'difficult' patients in mental health services. *Journal of Advanced Nursing*, 28(6), 1301–1311.
- Buller, M. K., & Buller, D. B. (1987). Physicians' communication style and patient satisfaction. *Journal of Health and Social Behavior*, 28(6), 375–388.
- Burns, J. W., Higdon, L. J., Mullen, J. T., Lansky, D., & Wei, J. M. (1999). Relationships among patient hostility, anger expression, depression, and the working alliance in a work hardening program. *Annals of Behavioral Medicine*, 21(1), 77–82.
- Christensen, A. J., Wiebe, J. S., & Lawton, W. J. (1997). Cynical hostility, powerful others control expectancies, and patient adherence in hemodialysis. *Psychosomatic Medicine*, 59(3), 307–312.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York: Lawrence Erlbaum Associates.
- Costa, P. T., & McCrae, R. R. (1992). *Professional manual. Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI)*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (2007). *Inventaire de Personnalité – Révisé* (J.-P. Rolland, Trans.). Paris, France: Hogrefe.
- Cousin, G., & Schmid Mast, M. (2013a). Agreeable patient meets affiliative physician: how physician behavior affects patient outcomes depends on patient personality. *Patient Education and Counseling*, 90(3), 399–404.
- Cousin, G., & Schmid Mast, M. (2013b). Trait-agreeableness influences individual reactions to a physician's affiliative behavior in a simulated bad news delivery. *Health Communication* (in press).
- 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(2), 193–197.
- DiMatteo, M. R., Hays, R. D., & Prince, L. M. (1986). Relationship of physicians' nonverbal communication skills to patient satisfaction, appointment noncompliance, and physician workload. *Health Psychology*, 5, 581–594.
- DiMatteo, M. R., & Lepper, H. S. (1998). Promoting adherence to courses of treatment: mutual collaboration in the physician-patient relationship. In L. D. Jackson, & B. K. Duffy (Eds.), *Health communication research: A guide to developments and directions* (pp. 75–86). Westport, CT: Greenwood.
- Efron, B., & Tibshirani, R. J. (1993). *An introduction to the bootstrap*. London: Chapman and Hall.
- Elder, N., Ricer, R., & Tobias, B. (2006). How respected family physicians manage difficult patients encounters. *Journal of the American Board Family Medicine*, 19, 533–541.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.
- Fitzpatrick, R. (1991). Surveys of patient satisfaction: important general considerations. *British Medical Journal*, 203(6781), 887–889.
- Graugaard, P. K., & Finset, A. (2000). Trait anxiety and reactions to patient-centered and doctor-centered styles of communication: an experimental study. *Psychosomatic Medicine*, 62(1), 33–39.
- Haas, L. J., Leiser, J. P., Magill, M. K., & Sanyer, O. N. (2005). Management of the difficult patient. *American Family Physician*, 72(10), 2063–2067.
- Hall, J. A., Roter, D. L., & Rand, C. S. (1981). Communication of affect between patient and physician. *Journal of Health and Social Behavior*, 22(1), 18–30.
- Hays, R. D., Kravitz, R. L., Mazel, R. M., Sherbourne, C. D., DiMatteo, M. R., Rogers, W. H., et al. (2005). The impact of patient adherence on health outcomes for patients with chronic disease in the medical outcomes study. *Journal of Behavioral Medicine*, 17(4), 347–360.
- Hendricks, A. A. J., Smets, E. M. A., Vrieling, M. R., VanEs, S. Q., & DeHaes, J. C. (2006). Is personality a determinant of patient satisfaction with hospital care? *International Journal of Quality in Health Care*, 18(2), 152–158.
- Hirschberg, N., & Jennings, S. J. (1980). Beliefs, personality, and person perception: a theory of individual differences. *Journal of Research in Personality*, 14(2), 235–249.
- Horowitz, R. L., & Horowitz, S. M. (1993). Adherence to treatment and health outcomes. *Archives of Internal Medicine*, 153(16), 1863–1868.
- Kiesler, D. J., & Auerbach, S. M. (2003). Integrating measurement of control and affiliation in studies of physician-patient interaction: the interpersonal circumplex. *Social Science & Medicine*, 57(9), 1707–1722.
- Krupat, E., Yeager, C. M., & Putnam, S. (2000). Patient role orientations, doctor-patient fit, and visit satisfaction. *Psychology and Health*, 15(5), 707–719.
- Michaelsen, J. J. (2012). Emotional distance to so-called difficult patients. *Scandinavian Journal of Caring Sciences*, 26(1), 90–97.
- Moret, L., Nguyen, J.-M., Pillet, N., Falissard, B., Lombail, P., & Gasquet, I. (2007). Improvement of psychometric properties of a scale measuring inpatient satisfaction with care: a better response rate and a reduction of the ceiling effect. *BMC Health Services Research*, 7(197), 1–9.
- Moskowitz, D. S. (2010). Quarrelsomeness in daily life. *Journal of Personality*, 78(1), 39–66.
- Schwenk, T. L., Marquez, J. T., Lefever, R. D., & Cohen, M. (1989). Physician and patient determinants of difficult physician-patient relationships. *The Journal of Family Practice*, 28(1), 59–63.
- Steinmetz, D., & Tabenkin, H. (2001). The 'difficult patient' as perceived by family physicians. *Family Practice*, 18(5), 495–500.
- Street, R. L., Gordon, H., & Haidet, P. (2007). Physicians' communication and perceptions of patients: is it how they look, how they talk, or is it just the doctor? *Social Science & Medicine*, 65(3), 586–598.
- Street, R. L., & Wiemann, J. M. (1987). Patients' satisfaction with physicians' interpersonal involvement, expressiveness, and dominance. In M. McLaughlin (Ed.), *Communication yearbook* (pp. 591–612). Beverly Hills, CA: Sage.
- Strous, R. D., Ulman, A.-M., & Kotler, M. (2006). The hateful patient revisited: relevance for 21st century medicine. *European Journal of Internal Medicine*, 17(6), 387–393.
- Suls, J., & Martin, R. (2005). The daily life of the garden-variety neurotic: reactivity, stressor exposure, mood spillover, and maladaptive coping. *Journal of Personality*, 73(6), 1485–1509.
- Wiebe, J. S., & Christensen, A. J. (1996). Patient adherence in chronic illness: personality and coping in context. *Journal of Personality*, 64(4), 815–835.
- Wiggins, J. S., Trapnell, P., & Philipps, N. (1988). Psychometric and geometric characteristics of the revised interpersonal adjective scale (IAS - R). *Multivariate Behavioral Research*, 23(4), 517–530.
- Willson, P., & McNamara, J. R. (2002). How perceptions of a simulated physician-patient interaction influence intended satisfaction and compliance. *Social Science & Medicine*, 16(19), 1699–1704.