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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.

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. An 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

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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., 20–23], 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, and 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 nonaggressive 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.

2.3. 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, control-

ling 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 cannot be explained by a restriction of range (ceiling effect) in the satisfaction variable.

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. Fig. 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), $Z = 2.08$, $p = .037$ (Fig. 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.

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.

Table 1
Participant outcomes (means and standard deviations) depending on participant agreeableness and physician affiliativeness.

	Participants' outcomes					
	Satisfaction		Trust		Adherence	
	LA	HA	LA	HA	LA	HA
Low affiliative physicians	2.83 (.54)	2.86 (.61)	3.39 (.58)	3.46 (.52)	3.44 (.61)	3.53 (.57)
High affiliative physicians	3.77 (.51)	3.82 (.55)	3.72 (.58)	3.92 (.51)	3.58 (.66)	3.88 (.57)

Note: Entries are means and standard deviations are in parentheses. LA means low participant agreeableness and HA high participant agreeableness (after median split).

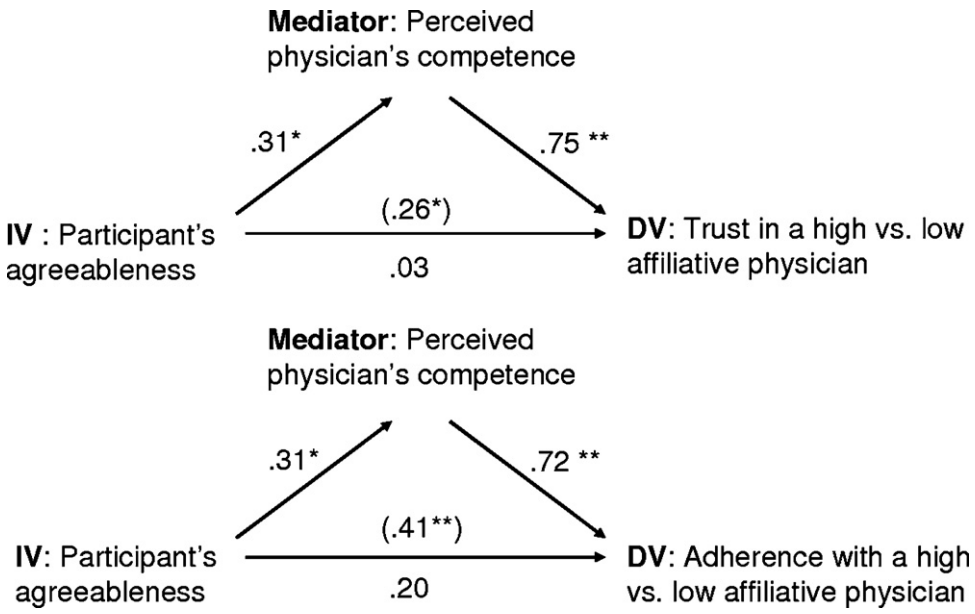

Fig. 1. The perception of the physician's competence as a mediator between the participant's agreeableness and the participant's trust and adherence with a high vs. low affiliative physician. The values represent standardized regression coefficients. The value in parentheses represents the effect of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

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.

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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None.

Conflicts of interest

The authors declare no conflict of interest.

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