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Communication Study

# 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.
*Methods:* 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 ($2 \times 2$ 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.
*Conclusion and 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.


## 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

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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 ($2 \times 2 \times 2$ 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 et al. [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 = .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 et al. [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 cannot 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 = .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 = .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, $b^* = .12$, $p = .312$. Fig. 1 displays the simple slopes for low and high caring physicians.

### 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 ($R^2 = .17$), $\Delta R^2 = .05$ (Models 3 and 4), shows again that the addition of the

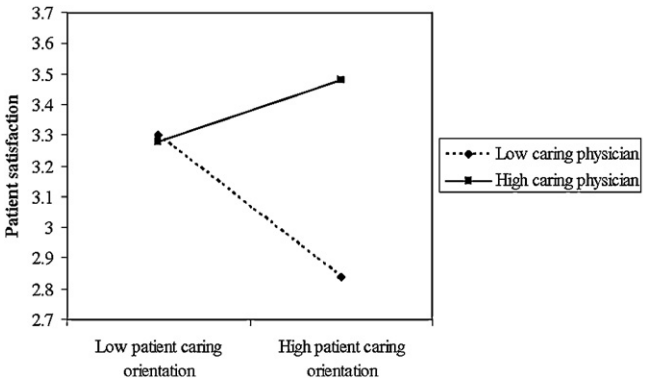


**Fig. 1.** Interaction effect of physician caring and participants' attitudes toward caring in predicting participants' satisfaction. The values used for this graph are the one of Model 1.

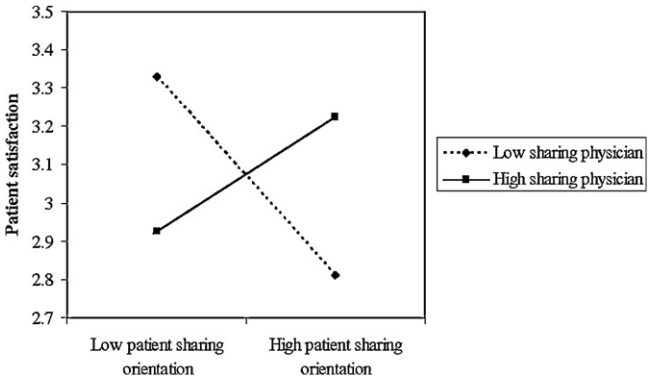


**Fig. 2.** Interaction effect of physician sharing and participants' attitudes toward sharing in predicting participants' satisfaction. The values used for this graph are the one of Model 1.

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 Fig. 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 toward 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.

## Conflict of interest

The authors declare no conflict of interest.

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