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Physician Gender Affects How Physician Nonverbal Behavior Is Related to Patient Satisfaction

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Background: Physician and patient gender both influence medical communication. Nonverbal behavior is generally under-researched in the medical encounter but plays an important role for patient outcomes such as satisfaction.

Objective: This article aims at identifying how specific physician nonverbal behaviors predict analogue patient satisfaction depending on physician and patient gender.

Research Design: Eleven physicians in a real medical encounter were videotaped and analogue patients indicated their satisfaction with each physician while viewing the videotapes.

Subjects: One hundred sixty-three university students participated (analogue patients).

Measures: From the videotapes, 17 physician nonverbal behaviors (related to face, body, voice/speech), 2 physician appearance cues, 2 characteristics of the examination room, and 1 patient behavior were coded. For each analogue patient, the correlation between each of these coded characteristics and the patient's satisfaction was calculated, across all physicians and across male and female physicians separately.

Results: There was no main effect for patient gender but most coded characteristics showed different relations to patient satisfaction according to physician gender. Analogue patients were most satisfied with female physicians who behaved in line with the female gender role (eg, more gazing, more forward lean, softer voice) while still stressing their professionalism (laboratory coat, medical-looking examination room). For male physicians, satisfaction was high for a broader range of behaviors, partly related to their gender role (eg, louder voice, more distance to patient).

Conclusions: To be satisfied, patients expect female and male physicians to show different patterns of nonverbal behavior. Awareness of these gender-specific expectations should be taken into account in medical training.

Key Words: nonverbal behavior, patient satisfaction, physician-patient communication, gender role

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Research on physician-patient communication has to date mainly focused on the analysis of the verbal exchange during the medical visit. This is reflected in the tools available to analyze physician-patient communication[1,2] of which the Roter Interaction Analysis System (RIAS)[3] is probably the most famous and most widely used system. In contrast, the role of nonverbal behavior during the medical encounter has gained considerably less research attention although there seems to be an emerging interest in the topic.[4–6] The present research aims to remedy this imbalance by asking which physician nonverbal behaviors are related to patient satisfaction and whether gender of the physician and/or gender of the patient moderate these relations.

In terms of the physician's and patient's nonverbal behavior, Street and Buller[7] reported that physicians and patients mirror their affiliative behavior (eg, gazing, body orientation), whereas they complement each other for more dominance-related behavior such as speaking time. Besides looking at how similar or different the nonverbal behavior of the physician and patient is, it is also important to study which physician nonverbal behaviors are related to patient satisfaction. Patient satisfaction is an essential variable to assess because it is related to positive health effects.[8] Satisfied patients are more willing to comply with medical recommendations,[9] have better health,[10] and are less likely to sue their doctors.[11,12]

The scarce research that has investigated the effects of physician nonverbal communication on patient satisfaction shows that patients are more satisfied with physicians who are good at reading and correctly interpreting other people's nonverbal cues.[13] As for specific nonverbal behaviors, physicians who displayed open arm and leg positions were perceived in a more positive way by patients than physicians who crossed their arms and legs.[14] Moreover, Larsen and Smith[15] showed that while leaning forward signals physician's concern and involvement and thus evokes patient satisfaction, touching the patient is interpreted as intimidating in a first medical encounter and thus results in low patient satisfaction. Hall et al,[16] in a review, found higher patient satisfaction to be associated with highly expressive physicians, characterized as physicians engaging in less time reading the medical chart, more forward leaning, more nodding, more gesturing, sitting closer to the patient, and more gazing. In a recent study, patients were more satisfied when physicians smiled much, had eye contact with the patient, leaned forward, had an expressive tone of voice and face, and gestured much.[17] Also, surgeons with a more dominant tone

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of voice run a higher risk to be sued for medical malpractice than surgeons with a less dominant tone of voice.[18]

However, as there is no definite meaning to one specific nonverbal cue, it is likely that many factors affect whether and how a specific nonverbal behavior is related to satisfaction. This more pronounced ambiguity and dependence on situational factors of nonverbal behavior as compared with verbal behavior might be a core reason why not more research has investigated nonverbal behavior in the medical field. There is research showing that gender affects the relation between specific nonverbal behaviors and patient satisfaction. As an example, in male physician-male patient consultations, physician interruptions were negatively related to satisfaction, whereas in female physician-female patient consultations, physician interruptions were positively related to patient satisfaction.[19] Likewise, Bradley et al[20] found that female doctors attained highest satisfaction ratings using a consultative communication style with younger and middle-aged patients, whereas male physicians using an authoritative communication style reached highest satisfaction ratings with middle-aged and older patients.

.Gender role expectations of patients might play an important role for patient satisfaction. For instance, whether a male physician is verbally very aggressive or nonaggressive did not affect patient compliance and satisfaction in an analogue study, whereas for female physicians, the more verbally aggressive she was, the less satisfied and the less compliant the patients were.[21] In the same vein, the leadership literature shows that women in leadership positions are evaluated particularly positively when they adopt a female gender-role congruent leadership style.[22,23] So maybe adherence to a gender-role congruent interaction style is also beneficial for physicians in terms of patient satisfaction because it matches the expectations held by patients.

In the present study, we examined the effect of physician and patient gender on how physician nonverbal cues are related to patient satisfaction. As mentioned earlier, the same nonverbal behavior might be differently related to satisfaction for a female versus male physician. To our knowledge, except the aforementioned study,[19] no other research has investigated physician behaviors correlated with satisfaction separately for male and female physicians. In the present study, we applied a novel method whereby the association between satisfaction and a given physician behavior (eg, smiling, gazing, forward lean, distance to patient) was calculated individually for each patient. In addition to examining physician gender as a moderator of the association between physician characteristics and patient satisfaction, we also examined gender differences in analogue patients' overall satisfaction with the physician.

METHODS

Participants

Participants were 163 analogue patients (60 males, 103 females) between 19 and 67 years old ($M = 27.6$), who were students at a Swiss university majoring in different domains. Analogue patients are participants who watch a clinical interaction pretending to be the patient. The analogue patient method has been effectively applied in several studies to obtain representative measures of patient behavior, perception, and evaluation.[24–26]

Procedure

Analogue patients were tested in groups of 10–40 people. They were asked to indicate their age and gender and were informed that they would see 11 different 2-minute physician-patient interactions (on videotape). They were asked to put themselves in the shoes of the patient of each of the 11 doctors and to report after each observed interaction how satisfied they would have been with the consulting doctor. This way, we standardized what the analogue patients were exposed to—they all saw the same 11 doctors. The physicians' characteristics, mostly nonverbal behaviors, were coded from the videotapes. The characteristics exhibited by the 11 doctors were varied enough (eg, some would smile much and some very little) so that we could study whether the behaviors were related to satisfaction.

Physicians on Videotape

The 11 videotaped physician-patient interactions were real consultations. All physicians were general practitioners in their private practice. They agreed to be videotaped while seeing their patients with the consent of the latter. For each of the 11 physicians, we selected 1 interaction (of 3–5 available per physician). We first excluded the ones in which the patient was not fluent in Swiss German or was older than age 67, and when the video was of poor quality. We then selected the second minute of the interaction and the third to last minute, to represent the beginning and the end of the interaction, and we skipped the first minute so that the interaction was already ongoing. We selected the third to last minute because for all the 11 interactions, this was after the physical examination (if there was one).

On the videotapes only the face and the upper part of the physician's body were visible. Patients on the videotape were not visible, but their voices could be heard. Patients on the videotapes were between 36 and 67 years old. Four interactions were male only, 3 were male physician-female patient, 3 were female physician-male patient, and 1 was a female only dyad.

Measures

Coded Characteristics. Based on the eleven 2-minute excerpts, 2–4 trained coders assessed physician nonverbal behaviors (face, body, voice/speech), physician appearance cues, atmosphere of the physician examination room, and 1 patient characteristic (speaking time). Although the main interest was in nonverbal behavior, physician appearance cues and the atmosphere of the examination room were also coded because they varied considerably among the 11 physicians and could influence patient satisfaction. For instance, research has shown that wearing a laboratory coat was preferred by patients and was positively associated with trust and confidence in the physician.[27]

There were 6 physician nonverbal behaviors related to the face (gazing, looking at patient chart, brow lower-

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ing, frowning, smiling, nodding), 6 related to the body (gesturing, self-touch, expansiveness, distance to patient, body orientation towards patient, forward lean), 5 related to voice and speech (speaking time, talking while doing something else, loudness of voice, modulation of voice, back channels, that is, short interjections while listening such as uh-huh and mm-mm), 2 physician appearance cues (formal clothing, rating of physician attractiveness), and 2 ratings of the atmosphere of the physician's examination room (medical, warm). Table 1 lists each of the coded characteristics with its respective coding rule and interrater reliability (mean *r* across coders).

Patient Satisfaction. Analogue patients indicated their satisfaction with the consulting physician after each of the 11 interactions on a scale from 1 (not satisfied at all) to 9 (very satisfied) ($M = 5.49$, SD = 1.97).

Characteristics Associated With Patient Satisfaction. Associations between satisfaction and the coded characteristics were assessed at the patient level. Specifically, we correlated, for each analogue patient separately, the patient's vector of satisfaction ratings for the 11 physicians with the vector of coded characteristics for the 11 physicians. The resulting correlation indicates how much a given characteristic (eg, physician smiling) was associated with that patient's satisfaction ratings, across all of the physicians. A positive correlation would indicate that smiling contributed positively to the patient's satisfaction, and a negative correlation would indicate the reverse.

We also calculated these patient-level correlations separately for female (N = 4) and male physicians (N = 7) to examine whether the coded characteristics had different associations with satisfaction depending on the gender of the physician. Because we had such an indicator for each of the assessed characteristics for each analogue patient, we could enter these indicators directly as data points into an analysis of variance (ANOVA) and test whether physician gender and/or patient gender affect the strength of the relation between satisfaction and the characteristic. Note that the 11 physicians only served as the targets, and that all analyses are based on the number of participants (N = 163). Thus, generalizations drawn are not about physicians but about analogue patients.

TABLE 1. Coded Characteristics, Coding Rules, and Interrater Reliability

Coded Characteristics	Description of Coding	*M*	SD	Interrater Reliability (*r*)
Physician Nonverbal Behaviors: Face				
Gazing	Time of the physician's eye contact with the patient (duration in seconds)	66.67	27.24	0.98
Looking at patient chart	Time how long the physician looks at the patient chart (duration in seconds)	36.77	30.25	0.90
Brow lowering	Time how long the physician keeps his brow lowered (duration in seconds)	3.27	7.20	0.99
Frowning	Time how long the physician is frowning (duration in seconds)	24.77	24.30	0.84
Smiling	Frequency of physician smiling	3.36	1.59	0.71
Nodding	Frequency of physician nodding	9.31	4.62	0.90
Physician Nonverbal Behaviors: Body				
Gesturing	Frequency of hand and arm movements during speech	8.77	4.76	0.87
Self-touch	Frequency of the physician touching his face or neck with his hands or fingers	6.70	13.27	0.71
Expansiveness	Openness of the physician's posture during the interaction (1 = very closed posture; 10 = very open posture)	4.50	1.50	0.86
Distance to patient	Distance between physician and patient (1 = 0 cm; 10 = 150 cm)	5.23	2.85	0.99
Body orientation towards patient	Physician's upper body orientation towards the patient (1 = 90-deg. angle, away from patient; 10 = 0-deg. angle, frontal to patient)	6.70	2.61	0.93
Forward lean	Time how long the physician leans forward (duration in seconds)	77.07	22.51	0.86
Physician Nonverbal Behaviors: Speech				
Speaking time	Every utterance of at least 1 word (duration in seconds)	71.32	17.76	0.98
Talking while doing something else	Time how long the physician is not looking at the patient or doing something else while speaking (duration in seconds)	17.07	19.79	0.88
Loudness of voice	Loudness of the physician's voice (1 = very soft; 10 = very loud)	6.50	1.58	0.82
Modulation of voice	Pitch of voice (1 = low modulation; 10 = high modulation)	6.41	1.64	0.95
Back channels	Frequency of physician giving back channels	2.45	4.24	0.95
Physician Appearance Cues				
Formal clothing	Formality of the physician's clothing (1 = not formal; 10 = very formal)	5.05	3.65	0.92
Attractiveness	Attractiveness of physician (1 = very unattractive; 10 = very attractive)	5.81	1.75	0.69
Atmosphere of Physician Examination Room				
Medical atmosphere	Medical atmosphere in the examination room (1 = not medical; 10 = very medical)	5.50	2.92	0.81
Warm atmosphere	Warm atmosphere in the examination room (1 = very cold; 10 = very warm)	4.91	2.44	0.92
Patient Behavior				
Patient speaking time	(see speaking time physician)	34.59	20.04	0.98

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RESULTS

Overall Predictors of Satisfaction

To test which physician characteristics, particularly nonverbal cues, analogue patients used to judge how satisfied they were with the physician, we transformed the patient-level correlation coefficients into Fisher *z* (for normalization) and then performed one-sample *t* tests against the null value of 0. If the physician characteristic was unrelated to the satisfaction ratings, one would expect a correlation of 0. Therefore, an average correlation coefficient significantly differing from 0 indicates that analogue patients used the specific cue to assess satisfaction. Table 2 shows the average correlation coefficient of each characteristic with satisfaction (back transformed into Pearson's *r*) and whether it was significantly different from 0. Many of the average correlations were significant, indicating that those physician characteristics were significant predictors of satisfaction. When the Bonferroni correction was applied to adjust for multiple comparisons, 10 of the 14 significant results remained significant by that more conservative standard ($\alpha = 0.002$).

Effects of Physician and Analogue Patient Gender on Predictors of Satisfaction

To examine the effects of physician and patient gender on the relation between different physician characteristics and satisfaction, we calculated a 2 (physician gender) × 2 (analogue patient gender) mixed-model ANOVA, with physician gender as the repeated measure, separately for each physician characteristic (again transforming the coefficients into Fisher's *z* before calculating).

For none of the 22 coded characteristics was there a significant main effect of the analogue patient's gender, meaning that the associations of physician characteristics to satisfaction were the same for male and female analogue patients. And, with the exception of talking while doing something else and looking at the patient's chart, there were no significant interaction effects (because they could have occurred by chance, these 2 effects are not discussed further).

In contrast, physician gender clearly affected how physician characteristics were related to satisfaction. Table 3 shows the average correlation coefficient between each characteristic and satisfaction separately for female and male physicians. The entries in the columns "female" and "male" are average Pearson correlations and the asterisks indicate whether analogue patients used the characteristic to assess satisfaction (*t* test indicating whether significantly different from 0). The table shows that many of the characteristics showed a significant relation with satisfaction for either male or female physicians. After applying the Bonferroni correction ($\alpha = 0.002$), 13 of the 18 significant effects for female physicians remained significant, and 14 of the 18 significant effects for male physicians remained significant. Note that the overall correlation coefficients in Table 2 are not the simple average of the correlation coefficients pertaining to female and male physicians reported in Table 3. The entries in Table 2 are correlations across 11 physicians, and the entries in Table 3 are correlations across 4 or 7 physicians (female or male physicians, respectively).

Table 3 also shows the *F* values for the physician gender main effects along with the corresponding *P* values. The physician gender main effect tells whether there was a difference in the association between the characteristic and satisfaction for male versus female physicians. Many of these gender differences were significant, with 11 of the 16 significant differences remaining so after application of the Bonferroni correction ($\alpha = 0.002$).

As can be seen in Table 3, 2 of the behaviors that predicted satisfaction positively for female physicians and negatively for male physicians—gazing and forward lean—are gender-typical: women are both believed to[28,29] and actually do[30] engage in higher levels of these behaviors than men do. The correlations thus indicate that as each gender of physician did more of a behavior that is typical for their gender (or less of a behavior that is not typical for their gender), satisfaction was higher. Physicians appear therefore to be rewarded for being gender typical in their behavior, and punished for being gender atypical. Two of the other behaviors showing a positive correlation for female physicians and a negative correlation for male physicians—orientation towards the other person and self-touch—can be seen in the same light because women in fact do these behaviors more than men do.[30] Thus, female physicians who did these behaviors more got higher satisfaction ratings, and male physi-

TABLE 2. Correlations Between Physician Characteristics and Patient Satisfaction

Physician Characteristics	Averaged Pearson *r*
Characteristics Positively Associated With Satisfaction	
Nodding	0.34‡
Forward lean	0.26‡
Back channels	0.23‡
Gesturing	0.21‡
Smiling	0.20‡
Modulation of voice	0.20‡
Formal clothing	0.14‡
Gazing	0.06†
Brow lowering	0.05†
Warm atmosphere in examination room	0.06*
Characteristics Negatively Associated With Satisfaction	
Medical atmosphere in examination room	−0.21‡
Self-touch	−0.16‡
Distance to patient	−0.12‡
Frowning	−0.05*
Characteristics Not Associated With Satisfaction	
Body orientation towards patient	0.01
Looking at patient chart	0.00
Talking while doing something else	0.03
Expansiveness	0.01
Loudness of voice	0.05
Attractiveness	0.02
Physician speaking time	−0.02
Patient speaking time	0.05

Entries are averaged (across analogue patients, N = 163) correlation coefficients indicating the relation between patient satisfaction and the physician's behavior.
Significance of the one-sample *t* test against 0; *$P < 0.05$; †$P < 0.01$; ‡$P < 0.001$.

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TABLE 3. Correlations between Physician Characteristics and Patient Satisfaction for Female and Male Physicians Separately

	Physician		Physician Gender Main Effect	
Physician Characteristics	**Female**	**Male**	***F***	***P***
Behaviors That Predicted Satisfaction Positively for Female Physicians and Negatively for Male Physicians				
Gazing	0.30‡	−0.06	21.48	0.001
Forward lean	0.27‡	−0.24‡	45.48	0.001
Body orientation towards patient	0.14	−0.13‡	10.02	0.01
Self-touch	0.23‡	−0.12‡	13.62	0.001
Brow lowering	0.32‡	−0.01	20.49	0.001
Behaviors That Predicted Satisfaction Negatively for Female Physicians and Positively for Male Physicians				
Looking at patient chart	−0.26‡	0.15‡	30.82	0.001
Talking while doing something else	−0.23‡	0.04	12.21	0.001
Distance to patient	−0.14†	0.14†	13.96	0.001
Expansiveness	−0.15*	0.25‡	24.32	0.001
Loudness of voice	−0.34‡	0.20‡	34.19	0.001
Gesturing	−0.15	0.34‡	33.31	0.001
Modulation of voice	−0.13	0.12†	1.54	0.22
Behaviors That Predicted Satisfaction in the Same Direction for Female and Male Physicians				
Speaking time	−0.30‡	−0.10†	3.79	0.05
Frowning	−0.06	−0.31‡	7.99	0.01
Patient speaking time	0.32‡	0.09*	7.43	0.01
Smiling	0.15*	0.12‡	0.20	0.65
Nodding	0.34‡	0.27‡	0.84	0.36
Back channels	0.24‡	0.26‡	0.05	0.83
Physician Appearance Cues and Atmosphere of the Examination Room and Their Relation to Patient Satisfaction				
Formal clothing	0.31‡	0.11‡	5.26	0.02
Attractiveness	0.34‡	0.22‡	1.78	0.18
Medical atmosphere in examination room	0.13*	−0.29‡	30.68	0.001
Warm atmosphere in examination room	0.15†	0.03	2.32	0.13

Entries for "physician female" and "physician male" are averaged (across analogue patients, N = 163) correlation coefficients indicating the relation between patient satisfaction and the physician's behavior.

Significance of the one-sample *t* test against 0; *$P < 0.05$; †$P < 0.01$; ‡$P < 0.001$.

F indicates main effect of physician gender; *P*, corresponding significance level.

cians who did these behaviors less got higher satisfaction ratings. Brow lowering, the final behavior in this section of the table, can also be viewed as stereotypic for women if it signifies empathic concern or general expressiveness.[30]

Behaviors that predicted satisfaction negatively for female physicians and positively for male physicians (Table 3) are similarly suggestive of a gender-stereotypic pattern of analogue patient responding. These behaviors were looking at patient chart, talking while doing something else, distance to patient, expansiveness, loudness of voice, gesturing, and modulation of voice. Assuming that looking at chart and talking while doing something else stand for not paying attention to the patient, both of these behaviors fit with gender stereotypes and actual gender differences concerning women's greater interpersonal focus.[28,30–32] Moreover, establishing a greater interpersonal distance, using expansive body postures, and having a loud voice are also gender typical behaviors (higher levels for men).[28,30] Using more gestures and modulation of the voice do not fit the pattern of gender typicality, but note that modulation of voice did not show a significant physician gender difference. Altogether, the pattern strongly supports the interpretation that satisfaction is maximized when physicians behave in a manner that is typical for their gender.

Behaviors that predicted satisfaction in the same direction for both female and male physicians (Table 3) were speaking time (negatively), frowning (negatively), speaking time of the patient (positively), smiling (positively), nodding (positively), and back channels (positively). Note that the latter 3 did not show a significant physician gender difference. The correlations for both physician and patient speaking time fit the same gender-stereotypic pattern described above because the correlations were significantly more pronounced for female than male physicians and speaking time is an established predictor of interpersonal dominance.[33] Thus, the data suggest that female physicians were evaluated especially highly when they showed less dominance (by speaking less) and their patient showed more dominance (by speaking more). Whether the physician gender difference in the association between frowning and satisfaction fits the

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gender-stereotypic pattern cannot be said because the literature does not provide either stereotypic or actual behavioral evidence for this behavior.

Formal dress and attractiveness were positively related to satisfaction for both female and male physicians (Table 3). Whereas formal clothing was significantly more related to patient satisfaction in female doctors as compared with male doctors, the attractiveness-satisfaction relation was not significantly different for male and female doctors.

The medical atmosphere of the room was positively related to satisfaction for female physicians and negatively so for male physicians, which was a significant gender difference (Table 3). The warmth of the examination room was positively related to satisfaction for female doctors and unrelated to satisfaction for male doctors (Table 3). However, this was not a significant gender difference.

Satisfaction as Predicted by Physician and Analogue Patient Gender

Finally, we tested whether gender of the physician and of the analogue patient affected analogue patient satisfaction. Each analogue patient's satisfaction was averaged across the 4 female and across the 7 male physicians and the resulting values were entered into a 2 (physician gender) × 2 (analogue patient gender) mixed-model ANOVA with the gender of the physician as the repeated measure factor. Physician gender was highly significant, $F(1,161) = 282.51$, $P < 0.0001$, with analogue patients being more satisfied with female ($M = 6.52$, SD = 1.03) than with male physicians ($M = 4.90$, SD = 1.24). There was no significant analogue patient gender main effect, $F(1,161) = 0.26$, $P = 0.61$. Also, there was a significant interaction effect, $F(1,161) = 33.91$, $P < 0.0001$, which showed that male analogue patients were more satisfied with female ($M = 6.25$) than with male physicians ($M = 5.27$) and that female analogue patients showed this same effect but to a more pronounced degree (M for female physicians = 6.68, M for male physicians = 4.68).

DISCUSSION

The goal of the present study was to investigate which physician characteristics and particularly which physician nonverbal behaviors are related to analogue patient satisfaction and whether gender of the patient and gender of the physician affect those relations. In addition, overall satisfaction was examined in relation to physician and analogue patient gender.

Regarding overall satisfaction, patient gender had no effect, confirming previous research.[19,20,34] However, analogue patients were more satisfied with female than male doctors. This neither confirms nor disconfirms past findings because previous research is very inconsistent on this question.[19]

Analysis of correlations between physician characteristics and satisfaction showed that physician gender moderated the relation between different behaviors and satisfaction, whereas patient gender did not. The fact that we found almost no effect of patient gender on the relation of different physician characteristics to patient satisfaction illustrates that women and men most likely share almost identical expectations about which behaviors a physician should show.

Moreover, our results showed that patients have different expectations about female and male physicians. More specifically, we found that patients were more satisfied if female physicians showed behaviors that are stereotypically female: behavior characterized by an interpersonal orientation, caring about others, and empathy on the one hand and a lack of assertion, dominance, and self-assurance on the other hand.[35–37] Stereotypically female behaviors included gazing at the interaction partner, sitting closer to the interaction partner, eliciting talk from the social interaction partner and therefore maybe more self-disclosure, and focusing on the interaction partner rather than doing something else (speaking less while doing something else and looking less at patient chart). Moreover, lowered eyebrows might be an indication of showing concern about what the interaction partner says and therefore a caring interest in him or her. Not talking much, having a softer voice, and being less expansive are all behaviors indicative of low self-assertion of women.

As for male physicians, satisfaction was greater when they engaged in stereotypically male behaviors such as more interpersonal distance, more expansiveness, less orientation toward the patient, more looking at patient chart, and louder voice. However, there were also some behaviors unrelated to the male gender role such as less medical atmosphere in the examination room, less frowning, and more gesturing. In sum, patients are also more satisfied with male physicians who adhere to the male typical role but because some behaviors were also nontypical for the male gender role, male physicians might be allowed a more diverse behavioral repertoire to render their patients satisfied. The findings are in line with research showing that female physicians who behave in a female role-congruent way have more satisfied patients, whereas male physicians seem to have more freedom how to behave for patients still to be satisfied with them.[21]

Also, our results also showed that satisfaction was higher when female physicians were more formally dressed and when they had more medical-looking examination rooms. Finding more patient satisfaction with female doctors wearing a white coat is reminiscent of the finding that trust and confidence in female physicians was higher if they wore a white coat and that this relation was significantly more pronounced for female as compared with male doctors.[27] The medical-looking examination room and the white coat being important predictors of satisfaction for female doctors most likely indicates that patients expect signs of professionalism in order to be satisfied with the (female) physician. The role of the physician is associated with men rather than with women,[38,39] which might explain why female physicians need to show their competence by arranging their examination rooms with medical equipment and by wearing a laboratory coat.

This study was different in comparison to studies in which the actual patients of the physicians indicate their satisfaction with the consultation and with the doctor. In our study, the analogue patients did not influence the nonverbal behavior of the physician, and all analogue patients saw the

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same physicians and therefore the same physician behaviors. This is an advantage because the satisfaction ratings provided by the analogue patients are thus unconfounded by their own behavior. To our knowledge, no other study has used such a method of standardizing the physician to compare the impact of different physician nonverbal behaviors on patient satisfaction between male and female physicians.

Furthermore, our findings relating patient satisfaction with physician nonverbal behavior in general (Table 2) are in line with the previous research, which might be seen as a validation of our new method involving patient-level correlations between satisfaction and physician characteristics. As in Hall et al (1995), our patients were more satisfied when physicians leaned forward more, nodded more, gestured more, had less distance to the patient, and gazed more. Also physicians were better evaluated when they smiled a lot and had a highly expressive voice as in a study by Griffith et al.[17]

Naturally, there are many other potential moderators (eg, age, economic or educational status) that we have not investigated in the present study and that merit further exploration. We do, for instance, not know whether older patients' satisfaction is linked in the same way to physician nonverbal behavior as it was in our sample.

What is to be deduced from the results of our study? Should female and male physicians make an extra effort to behave according to gender stereotypes? We think that because female and male physicians already differ in their behavior according to their gender,[40] they might not need extra encouragement to behave according to their gender role. Therefore, we do not advocate trying to change physicians' behavior styles. However, physicians might benefit from an awareness of how their characteristics, including their degree of gender-role conformity, are reflected in patient satisfaction. The awareness of the patients' expectations seems important to optimize communication in the medical encounter.

REFERENCES

1. Bales RF. *Interaction Process Analysis: A Method for the Study of Small Groups*. Cambridge, MA: Addison-Wesley; 1950.
2. Stiles WB. *Describing Talk: A Taxonomy of Verbal Response Modes.* Newbury Park, CA: Sage; 1992.
3. Roter DL, Larson S. The Roter Interaction Analysis System (RIAS): utility and flexibility for analysis of medical interactions. *Patient Educ Couns*. 2002;46:243–251.
4. Finset A. Nonverbal communication—an important key to in-depth understanding of provider-patient interaction. *Patient Educ Couns*. 2007;66:127–128.
5. Gorawara-Bhat R, Cook MA, Sachs GA. Nonverbal communication in doctor-elderly patient transactions (NDEPT): development of a tool. *Patient Educ Couns*. 2007;66:223–234.
6. Schmid Mast M. On the importance of nonverbal communication in the physician-patient interaction. *Patient Educ Couns.* 2007;67:315–318.
7. Street RL, Buller DB. Nonverbal response patterns in physician-patient interactions: a functional analysis. *J Nonverbal Behav*. 1987;11:234–253.
8. Pascoe GC. Patient satisfaction in primary health care: a literature review and analysis. *Eval Program Plann*. 1983;6:185–210.
9. Ware JE, Hays RD. Methods for measuring patient satisfaction with specific medical encounters. *Med Care*. 1988;26:393–402.
10. Ong LM, de Haes JC, Hoos AM, et al. Doctor-patient communication: a review of the literature. *Soc Sci Med*. 1995;40:903–918.
11. Beckman HB, Markakis KM, Suchman AL, et al. The doctor-patient relationship and malpractice. *Arch Intern Med*. 1994;154:1365–1370.
12. Levinson W, Roter DL, Mullooly JP, et al. Physician-patient communication: the relationship with malpractice claims among primary care physicians and surgeons. *JAMA*. 1997;277:553–559.
13. DiMatteo MR, Taranta A, Friedman HS, et al. Predicting patient satisfaction from physicians' nonverbal communication skills. *Med Care*. 1980;18:376–387.
14. Harrigan JA, Oxman TE, Rosenthal R. Rapport expressed through nonverbal behavior. *J Nonverbal Behav*. 1985;9:95–110.
15. Larsen KM, Smith CK. Assessment of nonverbal communication in the patient-physician interaction. *J Fam Pract*. 1981;12:481–488.
16. Hall JA, Harrigan JA, Rosenthal R. Nonverbal behavior in clinician-patient interaction. *Appl Prev Psychol*. 1995;4:21–37.
17. Griffith CH, Wilson JF, Langer S, et al. House staff nonverbal communication skills and standardized patient satisfaction. *J Gen Intern Med*. 2003;18:170–174.
18. Ambady N, Koo J, Rosenthal R, et al. Physical therapists' nonverbal communication predicts geriatric patients' health outcomes. *Psychol Aging*. 2002;17:443–452.
19. Hall JA, Irish JT, Roter DL, et al. Satisfaction, gender, and communication in medical visits. *Med Care*. 1994;32:1216–1231.
20. Bradley G, Sparks B, Nesdale D. Doctor communication style and patient outcomes: gender and age as moderators. *J Appl Soc Psychol*. 2001;31:1749–1773.
21. Burgoon M, Birk TS, Hall JR. Compliance and satisfaction with physician-patient communication: an expectancy theory interpretation of gender differences. *Hum Commun Res*. 1991;18:177–208.
22. Eagly AH, Karau SJ. Role congruity theory of prejudice toward female leaders. *Psychol Rev*. 2002;109:573–598.
23. Carli LL. Gender and social influence. *J Soc Issues*. 2001;57:725–741.
24. Fogarty LA, Curbow BA, Wingard JR, et al. Can 40 seconds of compassion reduce patient anxiety? *J Clin Oncol*. 1999;17:371–379.
25. Schmid Mast M, Kindlimann A, Langewitz W. Patients' perception of bad news: how you put it really makes a difference. *Patient Educ Couns*. 2005;58:244–251.
26. Shapiro DE, Boggs SR, Melamed BG, et al. The effect of varied physician affect on recall, anxiety, and perceptions in women at risk for breast cancer: a simulated study. *Health Psychol*. 1992;11:61–66.
27. Rehmann SU, Nietert PJ, Cope DW, et al. What to wear today? Effect of doctor's attire on the trust and confidence of patients. *Am J Med*. 2005;118:1279–1286.
28. Briton NJ, Hall JA. Beliefs about female and male nonverbal communication. *Sex Roles*. 1995;32:79–90.
29. Kramer C. Perceptions of male and female speech. *Lang Speech*. 1977;20:151–161.
30. Hall JA. *Nonverbal Sex Differences: Communication Accuracy and Expressive Style*. Baltimore, MD: Johns Hopkins University Press; 1984.
31. Hall JA, Murphy NA, Schmid Mast M. Recall of nonverbal cues: exploring a new definition of interpersonal sensitivity. *J Nonverbal Behav.* 2006;30:141–155.
32. Schmid Mast M, Hall JA. Women's advantage at remembering others' appearance: a systematic look at the why and when of a gender difference. *Pers Soc Psychol Bull*. 2006;32:353–364.
33. Schmid Mast M. Dominance as expressed and inferred through speaking time: a meta-analysis. *Hum Commun Res.* 2002;28:420–450.
34. Hall JA, Dornan MC. Patient sociodemographic characteristics as predictors of satisfaction with medical care: a meta-analysis. *Soc Sci Med*. 1990;30:811–818.
35. Bakan D. *The Duality of Human Existence.* Chicago, IL: Rand McNally; 1966.
36. Bem SL. The measurement of psychological androgyny. *J Consult Clin Psychol*. 1974;42:155–162.
37. Eagly AH. *Sex Differences in Social Behavior: A Social-Role Interpretation.* Hillsdale, NJ: Erlbaum; 1987.
38. Lenton AP, Blair IV, Hastie R. Illusions of gender: stereotypes evoke false memories. *J Exp Soc Psychol*. 2001;37:3–14.
39. Engleman EG. Attitudes toward women physicians. *J Med Educ*. 1974; 58:534–541.
40. Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication. *JAMA*. 2002;288:756–764.

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