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You only have one chance for a first impression! Impact of Patients' First Impression on the Global Quality Assessment of Doctors' Communication Approach

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ABSTRACT

Patients' first impressions obtained during early contacts with doctors represent the basis for relationship building processes. Aim of this study was to verify how patients' first impression of doctors' communication approach influences patients' global assessment of doctors' performance. This cross-sectional study was part of a larger, multicenter observational study aiming to assess lay-people's preferences regarding patient–doctor communication. All participants (N = 136) were equally distributed over two selected Italian and Dutch recruitment centers as well as for gender and age. In each center, panels of 6–9 persons each watched the same set of eight videotaped *Objective Structured Clinical Examination* consultations. Participants performed different tasks as to pick up salient communication elements while watching the videos and to rate doctors' global communicative performances on a 10-point Likert scale. We performed a mediation analysis to assess direct and indirect effects of participants' first impression on participants' global assessment. Among the 439 collected first impressions, 284(65%) were positive. When the first impression was positive, the mean value of the global assessment of doctors' performance was significantly higher (M = 7.4, SD = 1.5) than when the first impression was negative (M = 6.0, SD = 1.6); $t(437) = 9.0$ $p < .001$. According to the mediation analysis, this difference was due to a direct (c' = 0.53) and an indirect effect (ab = 0.86) deriving from the total effect of first impressions on the global assessment of doctors' performances (c = 1.39). In conclusion, the first impression has a strong impact on positive and negative judgments on doctors' communication approach and may facilitate or inhibit all further interactions.

Introduction

The process of establishing interpersonal relationships usually relies, during the initial minutes of a conversation, on rapid, automatic, and effortless reciprocal judgments, based on limited information. These so-called first impressions aim to interpret and predict the behaviors of the addressed target person (Harris & Garris, 2008; Willis & Todorov, 2006; Wood, 2014). Moreover, it has been recently suggested that first impressions, once they occur, remain relatively stable over time (Gunaydin, Selcuk, & Zayas, 2017; Huettner & Linden, 2017). First impressions can be influenced by different factors, such as target person's race (Blair, Judd, & Chapleau, 2004), gender (Krueger & Rothbart, 1988), physical appearance (Naumann, Vazire, Rentfrow, & Gosling, 2009), facial features (Wolffhechel et al., 2014; Zebrowitz, Franklin, Hillman, & Boc, 2013), posture (Naumann et al., 2009), speech, and voice (Ambady & Rosenthal, 1992). Several studies showed that first impressions, even if quickly formed, are often accurate, since they allow the perceiver to correctly predict individual aspects of the target person (Ambady & Rosenthal, 1992; Biesanz et al., 2011; Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004; Hassin & Trope, 2000; Naumann et al., 2009). Indeed, Borkenau et al. (2004), using videotaped episodes as stimulus material, demonstrated significant associations between perceiver's first impressions and target's personality traits and intelligence.

The essential effects of perceiver's first impressions of the target person on perceiver's overall judgment have been underlined in many different contexts, such as in education (Wood, 2014), human resource management (Swider, Barrick, Harris, & Stoverink, 2011), in the criminal justice system (Blair et al., 2004; Zebrowitz & McDonald, 1991), and politics (Ballew & Todorov, 2007). For instance, it has been shown that final voting decisions can be affected by quick judgments of candidates' faces (Ballew & Todorov, 2007).

In the medical setting, the impact of patients' first impression on the global assessment of doctors' communication approach may have important implications. Previous studies suggest that patients' satisfaction and the development of a trustful therapeutic relationship greatly depend on the quality of doctor–patient communication (Clever, Jin, Levinson, & Meltzer, 2008; Ha & Longnecker, 2010). Doctors' communication approach can positively or negatively affect patients' treatment adherence (Hesse & Rauscher, 2018; Rochon et al., 2011), which then, in turn, may

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impact patients' prognosis and health outcomes (Stewart, 1995; Swain, Hariharan, Rana, Chivukula, & Thomas, 2015). Therefore, exploring the key elements underlying the development of patients' impression of doctors' communication approach during the medical consultation is highly relevant.

The existing evidence in this field shows that first impressions obtained during early contacts with doctors, such as the first medical encounter, represent the basis for building a stable relationship and may influence further interactions and adherence to treatment plans (James, 2016). According to findings by Van Dulmen, Verhaak, and Bilo (1997), the first encounter is of greater significance for the development of a solid, valuable relationship between patient and doctor than the second or third encounter. Studies assessing the importance of the first encounter as well as the impact of doctors' communication approach on patients' satisfaction suggested that factors, such as visit length or doctors' verbal dominance, are not associated with patients' satisfaction (Eide, Graugaard, Holgersen, & Finset, 2003; Graugaard, Holgersen, Eide, & Finset, 2005). However, patients explicitly remark other aspects of doctors' communication approach. For instance, they appreciate doctors adopting a *patient-centered communication approach*, in which the patient is considered as central, her/his emotional states, values, and preferences are acknowledged, and her/his empowerment is promoted and facilitated (Sharf & Street, 1997; Venetis, Robinson, Turkiewicz, & Allen, 2009). Specific patient-centered behaviors of healthcare providers, such as *listening, immediacy* (e.g., establishing eye contact, smiling) (Wanzer, Booth-Butterfield, & Gruber, 2009), or *empathy* (Schrooten & De Jong, 2016) have been found to be strongly associated with patients' satisfaction. Further, a *psychosocial communication pattern* taking into account, during the consultation, daily life problems as much as addressing social relations or feelings, is also positively related to patients' satisfaction (Beck, Daughtridge, & Sloane, 2002; Bertakis, Roter, & Putnam, 1991). Furthermore, it has been suggested that physicians, aiming to establish a good relationship with their patients since the first encounter, should adopt a *high caring communication style*, based on genuine interest in the patient, kindness, and empathy (Buller & Buller, 1987; Cousin, Schmid Mast, Roter, & Hall, 2012) Indeed, Cousin et al. (2012) demonstrated that a high caring communication style was more appreciated by the patients than a low caring style, thus leading to higher patient satisfaction. Finally, studies, which focused on specific phases of a single consultation, have found that healthcare providers' *informal talk* during the collection of the clinical history is highly valued (Nguyen, Hong, & Prose, 2013; Robinson & Heritage, 2006).

Despite the existing evidence, effort still has to be devoted to fully understand the role and the impact of the very first impression in the communication process between doctors and patients. In particular, it is still unknown to what extent patients' positive or negative judgments of doctors' behaviors in the early phases of the consultation will irrevocably influence their global evaluation, independently from what happens in the successive phases of that specific encounter. In other words, can patients' initial beliefs of doctor's communication approach be influenced by doctors' successive interventions during the interaction? For instance, can doctors change patients' negative perception by avoiding potential communication errors during the rest of the consultation or will the negative first impression inevitably compromise patients' global perception of the quality of doctors' communication? Therefore, the aim of the present study was to investigate, by using videos of simulated medical consultations, how participants' very early positive or negative judgments of doctors' communications approach (i.e., *first impressions*) influence, directly and indirectly, their global assessment of the quality of doctors' communication approach, considering participants' subsequent positive or negative impressions of doctors' communication approach (i.e., *successive judgments*) as potential mediator in this relationship.

Methods

Study design

This study was part of a multicenter cross-sectional research project (i.e., Mazzi et al., 2013) focusing on lay people's quality assessments of general practitioners' (GP) communication approach. A detailed description of the study design and its main results were previously published (Mazzi et al., 2013; Moretti et al., 2012). Among the former four participating countries, only Italy and the Netherlands were selected for the present study, while United Kingdom and Belgium were excluded due to a high number of missing data.

In each country, participants were recruited in 2010. Inclusion criteria were: (i) being older than 18 years and (ii) having had at least one visit to the GP in the last 12 months. Exclusion criteria were: (i) being involved in the last two years in a lawsuit/formal complaint against a healthcare professional/profession and (ii) not speaking the language of the country.

Recruitment and sample characteristics

Stratified Purposeful Sampling (Onwuegbuzie & Leech, 2007) was applied as recruitment method. The strata were differentiated by country and gender, participants were balanced by age within each stratum. This technique allowed having the same size for each of these sociodemographic characteristics. People were approached in public areas, such as shopping centers, and via calls in free local papers. The same recruitment procedure was used in both countries. In order to maximize potential differences among participants' experiences and preferences towards doctors' communication approach, leaflets were distributed in various community areas (e.g., hospitals, pharmacies, general practitioners' waiting rooms, patients' associations). Sociodemographic and clinical characteristics of the participants are presented in Table 1. According to these variables no relevant differences between countries were identified, therefore, the analyses have been performed on the whole sample.

Table 1. Sociodemographic and clinical characteristics of participants by country.

	NL $n = 58$	IT $n = 71$	Total $N = 129$	Test (p-value)
Age (%)				1.12
18–30	40.3	33.8	36.7	(.57)
31–50	28.1	36.6	32.8	
>50	31.6	29.6	30.5	
Gender (%)				0.35
Female	51.7	46.5	48.8	(.55)
Education (%)				0.15
None/primary school	19.3	21.2	20.3	(.93)
Secondary school	45.6	42.3	43.8	
Higher school	35.1	36.6	35.9	
Marital status (%)				0.91
Married/living together	40.4	32.4	35.9	(.63)
Widowed/divorced	12.3	12.7	12.5	
Single	47.3	54.9	51.6	
Occupation (%)				10.3
Employed	28.6	56.3	44.1	(.02)
Unemployed	7.1	5.6	6.3	
Student	35.7	18.3	30.0	
Other (housewife/retired/incapacitated)	28.6	19.7	23.6	
Chronic disease (%)				3.80
Present	29.8	15.5	21.9	(.05)
General physicians visits				0.92
<5 times in 1 year	67.2	74.7	71.3	(.63)
6–10 times in 1 year	22.4	18.3	20.2	
Monthly or more	10.4	7.0	8.5	
Specialist physicians visits				0.69
Never	31.0	38.0	34.9	(.41)
Emergency room visits				0.40
Never	74.1	78.9	76.7	(.53)
Hospital admissions				3.08
Never	81.0	91.6	86.8	(.08)

Instruments

Each participant had to watch a selection of four videotaped *Objective Structured Clinical Examination* (OSCE) consultations. Transcripts of the consultations were also provided. Two different scenarios were represented in the videos portraying medical encounters between fourth year medical students and healthy subjects simulating a gynecological disease (i.e., scenario *A - vaginal discharge*; scenario *B - severe menstrual pain*). Half of the participants watched the *Scenario A* and the other half the *Scenario B*. For each scenario, the participants observed four videotaped medical visits which included different ranges (i.e., low, middle, high) in the quality of doctors' communication as assessed by previous OSCE evaluations using the Liverpool Communication Skills Assessment Scale (LCSAS) and the Global Simulated Patient Rating Scale (GSPRS) (i.e., 10-point Likert Scale; Humphris & Kaney, 2001).

In order to identify participants' first impressions, successive judgments, and their global assessment of doctors' communication approach, each participant had to perform two tasks:

(1) *Identifying and evaluating key moments (partial judgments)*: While watching the video or immediately after the end of it, the participants were invited to indicate on the transcript of the consultation the doctors' communicative behaviors that captured their attention and to mark these with a plus (+) or a minus (-), if the impression was positive or negative, respectively.
   a. *First impression (independent variable)*: The first plus or minus given on the transcript was considered as *first impression.*
   b. *Successive judgments (mediating variable)*: All positive or negative impressions, following the first impression and indicated by pluses or minuses on the transcript, were then considered as *successive judgments*.
   Participants were also invited to add comments on the transcripts where they offered explanations for their choices, describing the verbal and non-verbal aspects that captured their attention. If the participants expressed neither positive nor negative opinions of certain transcripts, then those transcripts were considered as not informative and excluded from the analyses. These data represent the explanatory variables included in the regression models, which are described below.

(2) *Global Evaluation of Doctors' Communication Approach (outcome variable)*: After watching each video, the participants had to rate the quality of doctors' communication approach. On a 10-point Likert scale, they had to answer the question "*How would you rate the quality of doctors' communication approach and the use of communication skills?*" A score of 1 corresponded to a very low quality of doctors communication style and/or poor application of communication skills, while a score of 10 represented a very high quality of doctors' communication style and/or excellent communication skills.

Statistical analysis

Absolute frequencies and percentages are presented for categorical data.

Regarding the timing of the first impression (meant as the moment of the consultation in which participants' assign the first plus or minus to doctor's behavior), the comparison between positive and negative first impressions was performed using the Kolmogorov–Smirnov (K-S) test for equality of frequency distribution since the data distribution was skewed.

The difference in the global assessment of doctors' communication approach between those participants whose first impression was positive and those whose first impression was negative was evaluated with independent samples t-test, while the associations between the number of participants' positive and negative successive judgments and the global assessment of doctors' communication skills were assessed by Pearson correlation coefficient.

To determine the association between the first impression and the global assessment, taking into account the potentially mediating effect of participants' successive judgments, a two-level mediation analysis (MacKinnon, Fairchild, & Fritz, 2007) based on a sequence of consecutive steps (Krull & MacKinnon, 2001) was performed (see Figure 1). This multilevel methodology (Krull & MacKinnon, 2001) allowed taking into account the repeated measures (i.e., four transcripts for each participant). Applying the product approach proposed by MacKinnon et al. (2007) and considering the chronological order of the variables, it was possible

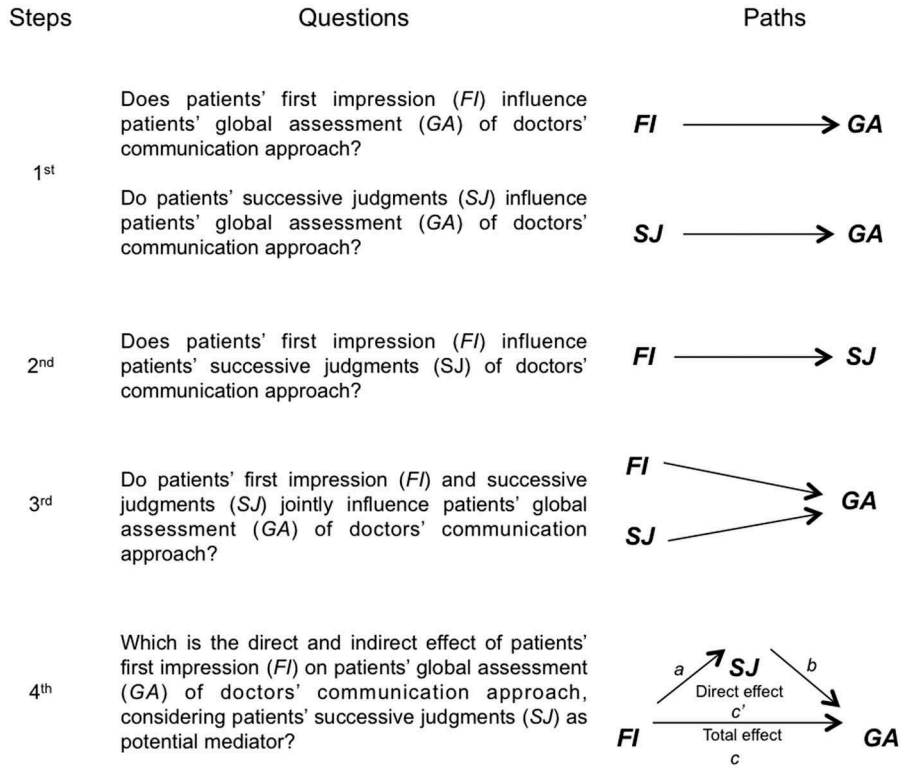

Figure 1. Sequence of consecutive steps and corresponding questions in the applied two-level mediation analysis.

to calculate the *direct* and the *indirect* effect of the first impression on the global assessment, taking into account successive judgments as mediation variable. In order to compare transcripts with a different amount of judgments, the mediation variable (*successive judgments*) was calculated as the proportion of positive successive judgments on the total amount of successive judgments of each transcript.

Unstandardized regression coefficients of the paths *a* and *b*, the indirect effect *ab* as well as the total effect and the direct effect, represented by the unstandardized regression coefficients *c and c'*, respectively, are reported. Moreover, the effect size P_M that indicates the ratio of the indirect effect to the total effect as well as the ratio of the direct effect to the total effect (1-P_M) are stated (see Preacher & Kelley, 2011).

The potential confounding effect of doctors' individual communication approach on the global assessment was preliminary evaluated by a one-way repeated measures analysis of variance (ANOVA) and then doctors' communication approach was included in the set of regressions in the context of the mediation analysis as an independent variable. Using a set of multilevel linear regression models controlled the influence of participants' clinical and sociodemographic characteristics on the global and specific assessments.

Stata 14.2 (College Station, TX 77845, USA) and its program ml_mediation were applied and $p \leq .05$ was considered significant.

Results

A total of 439 (81%) out of 544 consultations (4 for each of the 129 participants) were fully completed and therefore used for statistical analysis. All participants assessed at least 1 transcript and 66 (49%) participants rated all 4 transcripts. First impressions occurred on average at the 24th verbal turn (*SD* = 30; range: 1–157). The frequency distribution was skewed (*sk* = 1.9; *k* = 6.4) and the comparison between positive and negative first impressions was significant (K-S = 0.169, $p < .01$; *Mdn* positive judgment = 9 vs. *Mdn* negative judgment = 15). Table 2 shows doctors' behaviors, which were most frequently selected as positive first impression, together with participants' explanation for their choices (when provided). Table 3 shows doctors' behaviors, which were most frequently selected as negative first impression, together with participants' explanation for their choices (when provided).

First impressions were mainly positive (*n* = 284, 65%). When the first impression was positive, the global assessment of doctors' communication approach was significantly higher than in consultations where the first impression was negative (*M* = 7.4; *SD* = 1.5 and *M* = 6.0, *SD* = 1.6, respectively; $t(437) = 9.0$, $p < .001$). Positive first impressions were generally followed by a higher amount of positive successive judgments (*M* = 17, *SD* = 15.0) than of negative successive judgments (*M* = 5, *SD* = 8.1). Accordingly, negative first impressions were generally followed by a higher amount of negative successive judgments (*M* = 10, *SD* = 8.8) than of positive successive judgments (*M* = 5, *SD* = 6.7). Furthermore, the number of positive (*M* = 12.7; *SD* = 14.0; range:0–72) and negative (*M* = 6.8; *SD* = 7.7; range:0–70) successive judgments was significantly associated with the global assessment of doctors' communication approach ($r = .38$ $p < .001$ and $r = -.45$ $p < .001$, respectively). The global assessment of each doctor's communication approach (*M* = 6.89, *SD* = 1.65; *sk* = −0.62; *k* = 3.8) varied from 6.5 to 7.6.

Table 2. Doctors' behaviors most frequently selected by participants as positive first impression, together with participants' explanations for their selections (when provided).

Doctor's behavior	Time point of occurrence (verbal turns; minutes/ seconds)		Frequency	Participants' explanation (examples)
Nice to meet you my name is x. I'm a 4th year medical student and I've been asked to come in today and have a chat with you.		00:01	18	• Doctors should always introduce themselves and let them free to decide • Professional way for introducing • Nice introduction, trustful and self-confident
Hi, good morning my name is x. I'm one of the 4th year medical students here today, mmhh would it be ok if I just spoke to you for a little while about why you've come in?	1	00:03	16	• Good start
ok, I'm just gonna check this one, how are you feeling today?	5	00:10	13	• Shows interest in the patient • Nice start
My name is x, I'm a 4th year medical student and I've been asked by the doctor to speak to you to see why you are coming today. Is that all right with you?	3	00:02	12	• Professional way for introducing • I appreciate the fact that the doctor introduced himself • I like that he explains what is going on
My name is x. I'm a 4th year medical student and I have been asked to come and have a chat with you today is that ok?	3	00:02	11	• Introduction with name • Good introduction • Patient knows who is the doctor
Hi, I'm a 4th year medical student and the doctor asked me to take a history from you is that ok?	1	00:04	11	• Eye contact
Hi there, my name is x, I'm a 4th year medical student and I've been asked by the doctor to come and have a chat with you today, is that ok?	1	00:01	11	• Good introduction
Don't be embarrassed like I see people with this all the time so don't worry about it, mmhh have you noticed if it smells at all?	13	01:08	11	• Near the edge! It sounded a bit too joyous • Reassurance, but she should not apologize • Reassurance of the patient, which probably makes it easier for her to tell more • Puts the patient at ease
Right now if you had to rate the pain on a scale of 1 to 10, 10 being the worse pain you've ever felt and 1 being something very minor, how would you rate it out of 10?	27	01:59	10	• Nice tool • I like the use of a scale • Favors patient's understanding
Hi ya, I'm a 4th year medical student, my name is x, I've just been asked by the doctor to have a chat with you about why you are here, is that ok?	1	00:05	9	• Nice introduction • He asks the permission to ask questions
Thank you is it ok if I make notes?	3	00:07	8	• Nice question • Excellent to ask the permission • Informs the patient
Thick ok not to worry this is a really common thing, it's fine.	23	01:02	7	• It is good to reassure the patient, but the tone could have been better • Reassuring • Involvement • Try to calm the patient
25, I just write down something. Right, so how can I help you Jane?	9	00:29	7	• Open question • Clear indication that he's going to write down everything • Excellent the use of the verb "help" and the use of the first name • Put the patient at ease • Shows commitment and listens
right ok I'm gonna ask you some rather important but it might be personal questions to you so if you feel uncomfortable at any time just stop me, is that ok?	29	01:57	6	• Clear what is going to come next • Takes account of patient's emotions • Good introduction of these questions • It's nice that you can stop if you start feeling uncomfortable • Put the patient at ease, sensitive • Very kind and professional • He is aware that he is going to ask embarrassing questions and he provides the opportunity to be stopped • Reassuring, puts the patient at ease

Table 3. Doctors' behaviors most frequently selected by participants as negative first impression, together with participants' explanations for their selections (when provided).

Doctor's behavior	Time point of occurrence(verbal turns; minutes/seconds)		Frequency	Participants' explanation (examples)
I just try and get everything sorted and done first, could I have your name please?	3	00:21	8	• Sounds unprepared • Superfluous remark • Should have been sorted out already she seems more interest in the bureaucracy than in the relationship with the patient !! • Looks insecure
Hi, good morning my name is x, I'm one of the 4th year medical students here today, mmhh would it be ok if I just spoke to you for a little while about why you've come in?	1	00:02	6	• Declaring that you are a student reduces patient trust • I would had appreciated if the doctor better explained her role as a student • Looks insecure
Hi, I'm a 4th year medical student and the doctor asked me to take a history from you, is that ok?	1	00:04	6	• Not approachable. • No introduction • Forgets the name • Doesn't provide enough information on the visit
Don't be embarrassed like I see people with this all the time so don't worry about it, mmhh have you noticed if it smells at all?	13	01:08	6	• Sounds reassuring, but again she looks away, her face affectionate • Making excuses for asking questions! • Don't tell people how they feel; just reassure them • Don't talk about different patients • Strange reassurance • All the time? For me this doesn't have the effect of a reassurance • Not professional; better to keep more distance • Doesn't value patient's feelings • Sounds false
Hello, I'm x, one of the 4th year medical students can I ask your name please?	1	00:01	5	• Why asking? Of course you may ask that as a question
ok ok.. this, we'll do an investigation and things like that and hopefully we'll just try to get to some sort of like answers to what is going on, ok?	51	03:36	5	• Vague; be more clear! What kind of examination? • Looks insecure • Not professional language • "Things like that" is not a professional expression • Should explain to the patient that she should be worried • Muscular tension • No reassuring
ok and what's the trouble today?	13	00:32	3	• Why today? It could be a persistent problem • She says too often "ok"
Sorry ok and ok that's been going on for few days?	17	00:47	3	• Too many ok and sorry • I would prefer a more open question, such as: how long is it worrying you? • Already told by the patient before the question • Seems that she is not paying attention to the patient • Looks worried not self-confident
Thick, right, ok, it's not to worry, this is a really common thing it's fine.	23	01:02	3	• Conclusion/reassurance too fast • Even if it is a common problem it could be worrying • A bit strange, the patient didn't even express her concern • It's common but you should say it's good because you don't know yet • Verbal and non verbal behaviors are not coherent

The ANOVA test demonstrated a confounding effect of doctors' individual communication approach on the global assessment [F (7, 431) = 3 .8, p < .001], confirming the appropriateness to include doctors' individual communication approach as independent variable in the set of regressions. Table 4 shows preliminary explorations of the influence of participants' characteristics on doctors' communication approach, by using a set of multilevel bivariate linear regressions, accounting for doctors' communication approach. It can be noted that only two variables (i.e., *country* and *hospital admission in the last year*) were significantly related to the global assessment. These confounding variables were then

Table 4. Multilevel bivariate regression models, exploring the influence of patients' characteristics on global assessment of doctors' communication approach.

	Global assessment[a] Coefficient (*p*-values)
Country	
IT vs. NL	−0.42 (.04*)
Age	
31–50 vs. 18–30	0.14 (.57)
>50 vs. 18–30	0.40 (.11)
Gender	
Female vs. male	−0.14 (.42)
Education	
Higher school vs. other	0.07 (.75)
Marital status	
Married/living together vs. other	0.12 (.57)
Occupation	
Employed vs. other	−0.21 (.31)
Chronic disease	
Presence vs. absence	−0.09 (.72)
General physicians visits	
6–10 times in a year vs. less than 5	0.20 (.43)
Monthly vs. less than 5	0.55 (.14)
Specialist physicians' visits	
Just once in a year vs. never	−0.45 (.06)
More than once vs. never	−0.15 (.56)
Emergency room visits	
At least once a year vs. never	0.32 (.18)
Hospital admissions	
At least once a year vs. never	0.62 (.04*)

Note.
[a]All participants' sociodemographic and clinical variables were controlled for doctors' communication approach.
*$p < .005$.

included in the next step of statistical analysis (i.e., mediation analysis). Since the participants' characteristics did not maintain their significance, they were excluded from the final model. The final mediation analysis, in which in a set of regressions the effects of both predictors (i.e., first impression and successive judgments) were sequentially estimated (see Table 5), confirmed their significant association with the global assessment of doctors' communication skills.

By considering successive judgments as mediation variable, the total effect, defined as the sum of direct and indirect effects of the first impression on the global assessment (i.e., $c = 1.39$) was split into a *direct* ($c' = 0.53$) and an *indirect* effect ($a = 42.15$, $b = 0.02$; $ab = 0.86$). (see Figure 1). Thus, a first positive/negative impression increased/decreased the global assessment score by 1.39 points. Taking into account the mediation effect, the results showed that 62% of the effect of the first impression on the global assessment indirectly occurred through successive judgments ($P_M = 0.62$) and 38% directly (1-P_M).

Discussion

The present study expanded previous research about the impact of patients' first impression of doctors' behavior on patient–doctor relationships (Eide et al., 2003; Graugaard et al., 2005; James, 2016), being, to the best of our knowledge, the first study focusing on the effect of patients' first impression on their global assessment of doctors' communication approach by considering their successive judgments as potential mediating variables.

Table 5. Set of regressions in the applied two-level mediation analysis.

1st step: *Participants' global assessment of doctors* as dependent variable		
	Coefficient	95% Confidence interval
First impression	1.35**	[1.07, 1.63]
Design effect	Reference: doctor 1	[−0.52, 0.56]
Doctor 2	0.02	[−1.01, 0.04]
Doctor 3	−0.49	[−1.36, −0.31]
Doctor 4	−0.84**	[−0.77, 0.20]
Doctor 5	−0.28	[−0.87, 0.21]
Doctor 6	−0.33	[−1.24, −0.37]
Doctor 7	−0.81**	[−1.49, −0.51]
Doctor 8	−1.00**	
Intercept	6.49**	[6.07, 6.90]
2nd step: *Participants´ global assessment* of doctors as dependent variable		
	Coefficient	95% Confidence interval
Successive judgment	0.02	[0.02, 0.03]
Design effect	Reference: doctor 1	[−0.27, 0.73]
Doctor 2	0.23	[−0.84, 0.14]
Doctor 3	−0.35	[−0.95, 0.03]
Doctor 4	−0.46	[−0.52, 0.39]
Doctor 5	0.06	[−0.63, 0.37]
Doctor 6	−0.13	[−0.68, 0.15]
Doctor 7	−0.26	[−0.96, −0.05]
Doctor 8	−0.50*	
Intercept	5.26**	[5.19, 6.05]
3rd step: *Successive judgments* as dependent variable		
	Coefficient	95% Confidence interval
First impression	42.15**	[36.67, 47.64]
Design effect	Reference: doctor 1	[−19.36, 1.05]
Doctor 2	−9.15	[−15.75, 3.85]
Doctor 3	−5.95	[−28.98, −9.22]
Doctor 4	−19.10**	[−21.56, −1.52]
Doctor 5	−11.54*	[−19.50, 0.67]
Doctor 6	−9.41	[−34.14, −15.89]
Doctor 7	−25.01**	[−31.76, −11.69]
Doctor 8	−21.73**	
Intercept	43.79**	[35.95, 51.64]
4th step: *Successive judgments* as dependent variable		
	Coefficient	95% Confidence interval
First impression	0.53**	[0.22, 0.84]
Successive judgments	0.02**	[0.02, 0.02]
Design effect	Reference: Doctor 1	[−0.26, 0.74]
Doctor 2	0.24	[−0.84, 0.13]
Doctor 3	−0.35	[−0.93, 0.06]
Doctor 4	−0.44	[−0.49, 0.41]
Doctor 5	0.04	[−0.62, 0.38]
Doctor 6	−0.12	[−0.71, 0.12]
Doctor 7	−0.30	[−1.03, −0.11]
Doctor 8	−0.57	
Intercept	5.56	[5.13, 5.99]

Note.
[a]All participants' sociodemographic and clinical variables were controlled for doctors' communication approach.
*$p < .005$.

The most remarkable result of our study is that the first impression, evoked during the initial minutes of the medical consultation, showed a strong impact on successive judgments, which, in turn, affected the global assessment of doctors' communication approach. Considering the fact that participants reported their positive or negative first impressions between the first and third minute, it can be suggested that the factors, which have an impact on the patient from the very beginning of the consultation, have a strong influence on the overall perception of that interaction. Indeed, positive first judgments demonstrated to predispose to a more indulgent and benevolent attitude emphasizing doctors' appreciable behaviors and neglecting or downplaying potential undesirable interventions. On the contrary, a negative first impression led patients to focus their attention on critical and unwelcomed elements characterizing doctors' communication approach, increasing

their overall criticism and decreasing their overall view. The inductive reasoning process underlying these different evaluations seems to be due to a cognitive bias called *confirmatory bias*, which is the tendency to select and interpret information in order to confirm previous beliefs or hypotheses (Wason, 1960). A particular type of confirmatory bias, the *halo effect* (Thorndike, 1920), might have led participants to interpret all the following doctors' behaviors according to their first impression, reaching a global assessment in line with the one initially developed. It has been shown that the halo effect plays a role in different rater-based assessments (Foster & Ysseldyke, 1976; Schneider, Gruman, & Coutts, 2012), even if, as pointed out by Wood (2014), its relationship with the accuracy of raters' global evaluation is under debate and deserves further research (Wood, 2014).

The qualitative explanations provided by the participants regarding the most frequently chosen doctors' expressions imply several clinical considerations, particularly regarding the definition of desirable or unwanted behaviors of doctors during the consultation. For instance, *doctors' self-introduction and presentation* is the intervention most often reported by the participants as the first explicit moment in which they form a judgment on the doctor. During the consultation, patients are in a vulnerable position, where the "power" is often tipped in favor of healthcare providers, therefore actions done by doctors aiming to rebalance the relationship, are welcomed and valued as signals of respect and commitment. According to the participants, doctors, who introduce themselves with their personal name, their professional role and tasks, help patients in understanding better the entire situation they find themselves in. Furthermore, providing such information makes sure that the doctor is perceived as self-confident, professional, and trustworthy. This result is not surprising, since it confirms and reinforces from lay persons' point of view what is already widely advocated in the existing literature, namely that agenda setting expressions and doctors' self-introduction are key elements in fostering the relationship (De Haes & Bensing, 2009; Lipkin et al., 1995). A topic that caused different reactions among the participants and that seems to be more controversial to define in terms of appropriateness, is how doctors should *make patients feel at ease* when talking about potentially embarrassing issues. Interestingly, the same sentence that a doctor expressed during the consultation (*don't be embarrassed like I see people with this all the time so don't worry about it, mmm have you noticed, if it smells at all?*) was perceived very differently by participants. Doctors' intention to generalize and thus normalize the medical condition by referring to other previous cases was considered by several participants as an acceptable way for reassuring and implicitly reducing patient's potential discomfort. On the other hand, other participants stressed the depersonalization conveyed by such interventions (e.g., *don't talk about different patients* or *all the time?*), that might make patients feel like a "number" and not as a unique person dealing with a specific problem in a specific moment of his/her life. In a patient-centered approach, aiming to prevent the risk of premature or inappropriate responses to patients' emotional distress, doctors might consider applying interventions that intend first of all to explore feelings without assuming their presence or specific nature. According to the *Six-Functional Model* by De Haes and Bensing (2009), the initial endpoint regarding the function "addressing patients' emotions" is exploring patients' emotions and favoring their expression. Indeed, normalizing and legitimizing the feeling of embarrassment would then imply to start from evoking such an emotion. Open questions (e.g., *How are you feeling in this moment?*) or emphatic comments (e.g., *I imagine that it might be embarrassing for you to discuss this problem.*) can be considered the gold standard in favoring patients' emotional free expression (Derksen, Bensing, & Lagro-Janssen, 2013) and should therefore be preferred in the initial phase instead of premature reassurance.

Despite our very promising results, some limitations need to be pointed out. It could be argued that the definition of first impression applied in this study is too narrow, since the first impressions expressed by the participants could have been based not only on verbal and nonverbal communication elements, but also on other factors, which were not considered in our analysis. These potential sources of interference, such as sociodemographic factors (e.g., doctors' gender, ethnicity, age), personal/esthetic factors (e.g., doctors' bearing, attractiveness, clothing), or environmental elements (e.g., time pressure, characteristics of the medical office) (Blair et al., 2004; Krueger & Rothbart, 1988; Naumann et al., 2009) cannot be completely excluded. However, part of the variability, possibly related also to these aspects, was reduced by controlling several variables as described in the study design. For instance, the task given to the participants was clearly focused on doctors' communication skills, as they had to indicate on the transcript specific key moments that captured their attention. Moreover, the use of videotaped OSCE examinations allowed to reach a standardized assessment, and all the protagonists of the videos playing the role of the GP were fourth year medical students; therefore, they were all in the same age range. In addition, the recorded consultations took place in the same room within a fixed amount of time. Using simulated instead of real medical consultations also guaranteed to control for some potentially interfering variables, but it inevitably restricted the generalization of the results. However, the advantage of having standardized consultations with different communication competences of doctors, who deal with identical medical problems, balances this potential drawback. The applied standardization may limit the ecological validity of our findings, even if we believe that the methodology applied for data collection provided a sufficient reliability. In the literature, patients are usually invited to express their opinion on doctors' communication approach in two different ways: either answering to semi- or standardized interviews or questionnaires, which often miss to link patients' preferences to specific key moments taken from real consultations (e.g., Little et al., 2001), or through group discussions (e.g., focus groups), which are inevitably affected by interpersonal dynamics that make difficult to isolate single participants contributions (Kitzinger, 1994; Stalmeijer, McNaughton, & Van Mook, 2014). The adapted technique of *videotape review* usually applied in education studies (Frankel & Beckman, 1982; Frankel, Sung, & Hsu, 2005) permitted a personalized and precise identification of the key moments influencing the global quality assessment of doctors' communication approach. At the same time, using lay people instead of real patients avoided a low reliability, which may have occurred during personal interaction between patients and doctors, since patients tend to be either positively (Frankel & Beckman, 1982; Williams, Coyle, & Healy, 1998) or negatively (Blair, Steiner, &

Havranek, 2011; Bogart, Bird, Walt, Delahanty, & Figler, 2004; Street, O'Malley, Cooper, & Haidet, 2008) biased. Further observational studies should fully assess the ecological validity of our results as well as try to better identify to which doctors' communication skills correspond the key moments pointed out by the participants. This would help to adapt doctors' communication approach according to the different phases of the clinical encounter. Moreover, the influence of sociodemographic and clinical characteristics of lay people on their evaluation of doctors' communication approach might be further explored by including other potentially explicative variables, like personality traits, attachment, or the health locus of control.

In conclusion, our study confirms the importance of an appropriate and relationship-centered start of each medical consultation. Taking a few seconds for establishing a good relationship, based on the awareness that a medical visit is first and foremost an encounter between two human beings with personal preferences and needs, may pay back in the long period in terms of alliance and reciprocal engagement.

Disclosure of potential conflict of interest

The authors have no potential conflict of interest in relation to this study.

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References

Ambady, N., & Rosenthal, R. (1992). Thin slices of expressive behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, *111*, 256–274. Retrieved from https://ambadylab.stanford.edu/pubs/1992Ambady.pdf

Ballew, C. C., II, & Todorov, A. (2007). Predicting political elections from rapid and unreflective face judgments. *Proceedings of the National Academy of Sciences of the United States of America*, *104*, 17948–17953. 10.1073/pnas.0705435104

Beck, R. S., Daughtridge, R., & Sloane, P. D. (2002). Physician-patient communication in the primary care office: A systematic review. *The Journal of the American Board of Family Medicine*, *15*, 25–38. Retrieved from http://www.jabfm.org/content/15/1/25.full.pdf+html

Bertakis, K. D., Roter, D., & Putnam, S. M. (1991). The relationship of physician medical interview style to patient satisfaction. *The Journal of Family Practice*, *32*, 175–181. Retrieved from https://www.researchgate.net/publication/21166056_The_Relationship_of_Physician_Medical_Interview_Style_to_Patient_Satisfaction

Biesanz, J. C., Human, L. J., Paquin, A. C., Chan, M., Parisotto, K. L., Sarracino, J., & Gillis, R. L. (2011). Do we know when our impressions of others are valid? Evidence for realistic accuracy awareness in first impressions of personality. *Social Psychological and Personality Science*, *2*, 452–459. doi:10.1177/1948550610397211

Blair, I. V., Judd, C. M., & Chapleau, K. M. (2004). The influence of Afrocentric facial features in criminal sentencing. *Psychological Science*, *15*, 674–679. doi:10.1111/j.0956-7976.2004.00739.x

Blair, I. V., Steiner, J. F., & Havranek, E. P. (2011). Unconscious (implicit) bias and health disparities: Where do we go from here? *The Permanente Journal*, *15*(2), 71–78. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3140753/

Bogart, L. M., Bird, S. T., Walt, L. C., Delahanty, D. L., & Figler, J. L. (2004). Association of stereotypes about physicians to health care satisfaction, help-seeking behavior, and adherence to treatment. *Social Science & Medicine*, *58*, 1049–1058. doi:10.1016/S0277-9536(03)00277-6

Borkenau, P., Mauer, N., Riemann, R., Spinath, F. M., & Angleitner, A. (2004). Thin slices of behavior as cues of personality and intelligence. *Journal of Personality and Social Psychology*, *86*, 599–614. doi:10.1037/0022-3514.86.4.599

Buller, M. K., & Buller, D. B. (1987). Physicians'communication style and patient satisfaction. *Journal of Health and Social Behavior*, *28*, 375–388. Retrieved from http://www.jstor.org/stable/2136791

Clever, S. L., Jin, L., Levinson, W., & Meltzer, D. O. (2008). Does doctor–patient communication affect patient satisfaction with hospital care? Results of an analysis with a novel instrumental variable. *Health Services Research*, *43*, 1505–1519. doi:10.1111/j.1475-6773.2008.00849.x

Cousin, G., Schmid Mast, M., Roter, D. L., & Hall, J. A. (2012). Concordance between physician communication style and patient attitudes predicts patient satisfaction. *Patient Education and Counseling*, *87*, 193–197. doi:10.1016/j.pec.2011.08.004

De Haes, H., & Bensing, J. (2009). Endpoints in medical communication research, proposing a framework of functions and outcomes. *Patient Education and Counseling*, *74*, 287–294. doi:10.1016/j.pec.2008.12.006

Derksen, F., Bensing, J., & Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: A systematic review. *The British Journal of General Practice*, *63*, 76–84. doi:10.3399/bjgp13X660814

Eide, H., Graugaard, P., Holgersen, K., & Finset, A. (2003). Physician communication in different phases of a consultation at an oncology outpatient clinic related to patient satisfaction. *Patient Education and Counseling*, *51*, 259–266. doi:10.1016/S0738-3991(02)00225-2

Foster, G., & Ysseldyke, J. (1976). Expectancy and halo effects as a result of artificially induced teacher bias. *Contemporary Educational Psychology*, *1*, 37–45. doi:10.1016/0361-476X(76)90005-9

Frankel, R. M., & Beckman, H. B. (1982). Impact: An interaction-based method for preserving and analyzing clinical transactions. In L. Pettigrew (Ed.), *Straight talk: Explorations in provider and patient interaction* (pp. 71–85). Louisville, KY: Humana Press.

Frankel, R. M., Sung, S. H., & Hsu, J. T. (2005). Patients, doctors, and videotape: A prescription for creating healing environments? *The Journal of Alternative and Complementary Medicine*, *11*, 31–39. doi:10.1089/acm.2005.11.s-31

Graugaard, P. K., Holgersen, K., Eide, H., & Finset, A. (2005). Changes in physician–patient communication from initial to return visits: A prospective study in a haematology outpatient clinic. *Patient Education and Counseling*, *57*, 22–29. doi:10.1016/j.pec.2004.03.014

Gunaydin, G., Selcuk, E., & Zayas, V. (2017). Impressions based on a portrait predict, 1-month later, impressions following a live interaction. *Social Psychological and Personality Science*, *8*, 36–44. doi:10.1177/1948550616662123

Ha, J. F., & Longnecker, N. (2010). Doctor-patient communication: A review. *The Ochsner Journal*, *10*(1), 38–43. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096184/

Harris, M. J., & Garris, C. P. (2008). You never get a second chance to make a first impression. Behavioral consequences of first impressions. In N. Ambady & J. J. Skowronski (Eds.), *First impressions* (pp. 147–168). New York, NY: Guilford Publications.

Hassin, R., & Trope, Y. (2000). Facing faces: Studies on the cognitive aspects of physiognomy. *Journal of Personality and Social Psychology*, *78*, 837–852. doi:10.1037/0022-3514.78.5.837

Hesse, C., & Rauscher, E. A. (2018). The relationships between doctor-patient affectionate communication and patient perceptions and outcomes. *Health Communication*. Advance online publication. doi:10.1080/10410236.2018.1439269

Huettner, S. M., & Linden, M. (2017). Modification of first impression formation and "personality" by manipulating outer appearance. *Psychopathology*, *50*, 141–145. doi:10.1159/000453585

Humphris, G. M., & Kaney, S. (2001). The Liverpool brief assessment system for communication skills in the making of doctors. *Advances in Health Sciences Education*, *6*, 69–80. doi:10.1023/A:1009879220949

James, T. (2016). The patient-physician clinical encounter. In M. L. Martin, S. Heron, L. Moreno-Walton, & A. W. Jones (Eds.), *Diversity and inclusion in quality patient care* (pp. 69–81). Cham, Switzerland: Springer.

Kitzinger, J. (1994). The methodology of focus groups: The importance of interaction between research participants. *Sociology of Health and Illness*, *16*, 103–121. doi:10.1111/1467-9566.ep11347023

Krueger, J., & Rothbart, M. (1988). Use of categorical and individuating information in making inferences about personality. *Journal of Personality and Social Psychology*, *55*, 187–195. Retrieved from http://psycnet.apa.org/record/1989-01400-001

Krull, J. L., & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. *Multivariate Behavioral Research*, *36*, 249–277. Retrieved from http://www.public.asu.edu/~davidpm/classes/publications/2001MultivariateBehaviora lResearch.pdf

Lipkin, M., Jr., Putnam, S., Lazare, A., Carroll, J. G., Frankel, R. M., Keller, A., … Williams, P. K. (Eds.). (1995). *The medical interview: Clinical care, education, and research*. New York, NY: Springer.

Little, P., Everitt, H., Williamson, I., Warner, G., Moore, M., Gould, C., … Payne, S. (2001). Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. *Medical Journal*, *323*, 908–911. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC58543/pdf/908.pdf

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, *58*, 593–614. doi:10.1146/annurev.psych.58.110405.085542

Mazzi, M. A., Bensing, J., Rimondini, M., Fletcher, I., Van Vliet, L., Zimmermann, C., & DeVeugele, M. (2013). How do lay people assess the quality of physicians' communicative responses to patients' emotional cues and concerns? An international multicentre study based on videotaped medical consultations. *Patient Education and Counseling*, *90*, 347–353. doi:10.1016/j.pec.2011.06.010

Moretti, F., Fletcher, I., Mazzi, M. A., DeVeugele, M., Rimondini, M., Geurts, C., & Bensing, J. (2012). GULiVER – Travelling into the heart of good doctor-patient communication from a patient perspective: Study protocol of an international multicentre study. *European Journal of Public Health*, *22*, 464–469. doi:10.1093/eurpub/ckr071

Naumann, L. P., Vazire, S., Rentfrow, P. J., & Gosling, S. D. (2009). Personality judgments based on physical appearance. *Personality and Social Psychology Bulletin*, *35*, 1661–1671. doi:10.1177/0146167209346309

Nguyen, T. V., Hong, J., & Prose, N. S. (2013). Compassionate care: Enhancing physician- patient communication and education in dermatology. Part I:Patient-centered communication. *Journal of the American Academy of Dermatology*, *68*, 353.e1–8. doi:10.1016/j.jaad.2012.10.059

Onwuegbuzie, A., & Leech, N. (2007). A call for qualitative power analysis. *Quality & Quantity*, *41*, 105–121. doi:10.1007/s11135-005-1098-1

Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, *16*, 93–115. doi:10.1037/a0022658

Robinson, J. D., & Heritage, J. (2006). Physicians' opening questions and patients' satisfaction. *Patient Education and Counseling*, *60*, 279–285. doi:10.1016/j.pec.2005.11.009

Rochon, D., Ross, M. W., Looney, C., Nepal, V. P., Price, A. J., & Giordano, T. P. (2011). Communication strategies to improve HIV treatment adherence. *Health Communication*, *26*, 461–467. doi:10.1080/10410236.2011.554168

Schneider, F. W., Gruman, J. A., & Coutts, L. M. (2012). *Applied social psychology: Understanding and addressing social and practical problems* (2nd ed.). Thousands Oaks, CA: SAGE.

Schrooten, I., & De Jong, M. D. T. (2016). If you could read my mind: The role of healthcare providers' empathic and communicative competencies in clients' satisfaction with consultations. *Health Communication*, *32*, 111–118. doi:10.1080/10410236.2015.1110002

Sharf, B. F., & Street, R. L., Jr. (1997). The patient as a central construct: Shifting the emphasis. *Health Communication*, *9*, 1–11. doi:10.1207/s15327027hc0901_1

Stalmeijer, R. E., McNaughton, N., & Van Mook, W. N. (2014). Using focus groups in medical education research: AMEE Guide No.91. *Medical Teacher*, *36*, 923–939. doi:10.3109/0142159X.2014.917165

Stewart, M. A. (1995). Effective physician-patient communication and health outcomes: A review. *Canadian Medical Association Journal*, *152*, 1423–1433. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1337906/

Street, R. L., Jr., O'Malley, K. J., Cooper, L. A., & Haidet, P. (2008). Understanding concordance in patient-physician relationships: Personal and ethnic dimensions of shared identity. *Annals of Family Medicine*, *6*, 198–205. doi:10.1370/afm.821

Swain, S., Hariharan, M., Rana, S., Chivukula, U., & Thomas, M. (2015). Doctor-patient communication: Impact on adherence and prognosis among patients with primary hypertension. *Psychological Studies*, *60*, 25–32.

Swider, B. W., Barrick, M. R., Harris, T. B., & Stoverink, A. C. (2011). Managing and creating an image in the interview: The role of interviewee initial impressions. *Journal of Applied Psychology*, *96*, 1275–1288. doi:10.1037/a0024005

Thorndike, E. L. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, *4*, 25–29. doi:10.1037/h0071663

Van Dulmen, A. M., Verhaak, P. F., & Bilo, H. J. (1997). Shifts in doctor–patient communication during a series of outpatient consultations in non-insulin-dependent diabetes mellitus. *Patient Education and Counseling*, *30*, 227–237. doi:10.1016/S0738-3991(96)00965-2

Venetis, M. K., Robinson, J. D., Turkiewicz, K. L., & Allen, M. (2009). An evidence base for patient-centered cancer care: A meta-analysis of studies of observed communication between cancer specialists and their patients. *Patient Education and Counseling*, *77*, 379–383. doi:10.1016/j.pec.2009.09.015

Wanzer, M. B., Booth-Butterfield, M., & Gruber, K. (2009). Perceptions of health care providers' communication: Relationships between patient-centered communication and satisfaction. *Health Communication*, *16*, 363–383. doi:10.1207/S15327027HC1603_6

Wason, P. C. (1960). On the failure to eliminate hypotheses in a conceptual task. *Quarterly Journal of Experimental Psychology*, *12*, 129–140. doi:10.1080/17470216008416717

Williams, B., Coyle, J., & Healy, D. (1998). The meaning of patient satisfaction: An explanation of high reported levels. *Social Science and Medicine*, *47*, 1351–1359. doi:10.1016/S0277-9536(98)00213-5

Willis, J., & Todorov, A. (2006). First impressions: Making up your mind after a 100-ms exposure to a face. *Psychological Science*, *17*, 592–598. doi:10.1111/j.1467-9280.2006.01750.x

Wolffhechel, K., Fagertun, J., Jacobsen, U. P., Majewski, W., Hemmingsen, A. S., Larsen, C. L., & Jarmer, H. (2014). Interpretation of appearance: The effect of facial features on first impressions and personality. *PLoS ONE*, *9*, e107721. doi:10.1371/journal.pone.0107721

Wood, T. J. (2014). Exploring the role of first impressions in rater-based assessments. *Advances in Health Sciences Education*, *19*, 409–427. doi:10.1007/s10459-013-9453-9

Zebrowitz, L. A., Franklin, R. G., Jr., Hillmann, S., & Boc, H. (2013). Older and younger adults' first impressions from faces: Similar in agreement but different in positivity. *Psychological Aging*, *28*, 202–212. doi:10.1037/a0030927

Zebrowitz, L. A., & McDonald, S. M. (1991). The impact of litigants' baby-facedness and attractiveness on adjudications in small claim courts. *Law and Human Behavior*, *15*, 603–623. doi:10.1007/BF01065855