ANESTHESIOLOGY

Influence of Sex and Body Language on Patient Perceptions of Anesthesiologists

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ABSTRACT

Background: Patient perception of physician competence is important. The role of body language and physician sex on patient perceptions has not been investigated. The authors hypothesized that patients perceive anesthesiologists displaying confident body language as more competent and that patients would prefer male anesthesiologists.

Methods: Two hundred adult patients presenting to the Preanesthesia Evaluation and Testing Center at the University of Virginia Health System were recruited to participate using consecutive sampling. Patients viewed four 90-s videos in random order. Each video featured a male or female actor displaying confident, high-power poses or unconfident, low-power poses. Each actor recited the same script describing general anesthesia. Patients were randomized (100 per group) to view one of two sets of videos to account for any actor preferences. Participants ranked each actor anesthesiologist on perceived confidence, intelligence, and likelihood of choosing that anesthesiologist to care for their family member. Participants also chose the one actor anesthesiologist who seemed most like a leader.

Results: Two hundred patients watched the videos and completed the questionnaire. Actor anesthesiologists displaying confident, high-power body language had greater odds of being ranked as more confident (odds ratio, 2.27; 95% CI, 1.76 to 2.92; $P < 0.0001$), more intelligent (odds ratio, 1.69; 95% CI, 1.13 to 2.18; $P < 0.0001$), more likely chosen to care for one's family member (odds ratio, 2.34; 95% CI, 1.82 to 3.02; $P < 0.0001$), and more likely to be considered a leader (odds ratio, 2.60; 95% CI, 1.86 to 3.65; $P < 0.0001$). Actor anesthesiologist sex was not associated with ranking for any response measures.

Conclusions: Patients perceive anesthesiologists displaying confident body language as more confident, more intelligent, more like a leader, and are more likely to choose that anesthesiologist to care for their family member. Differences in patient perceptions based on sex of the anesthesiologist were not detected.

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Patient perception of physician competence—regardless of the true competence of the physician—may play a significant role in establishing a positive relationship between patients and their physicians. The ability of a physician to quickly inspire positive perceptions of competence may be particularly important for an anesthesiologist who is attempting to gain patients' and their family members' trust in a stressful setting immediately before surgery. Increased trust helps decrease patient anxiety.[1] Patient anxiety may negatively affect their perioperative experience. For example, increased anxiety has been correlated with an increased likelihood of failure of a regional nerve block[2] and increased postoperative pain.[3,4] Patient perception of their physicians is important. Multiple studies have suggested that patient perception of physicians is influenced by physician attire.[5–7] In addition, patients' perceptions of the cultural competency of their physicians is associated with better compliance and higher patient satisfaction.[8] Neither the effect of physician body language nor physician sex on patient perceptions of physician competence, intelligence, or leadership ability has been thoroughly investigated.

Research in business and psychology suggests that body language, specifically power posing, strongly affects our perception of an individual. For example, practicing

EDITOR'S PERSPECTIVE

What We Know about This Topic

- Patient perception of physician competence may depend on physician sex and body language

What This Article Tells Us That Is New

- Actor anesthesiologists who maintained confident, high-power poses were considered smarter, more competent, more likely to be seen as leaders, and preferred by patients to care for a family member
- Sex of the actor did not alter perceptions of competence

confident, high–power poses leads to better performance in a job interview.[9] Posing in confident, high–power positions affects one's own hormone levels by increasing testosterone and decreasing cortisol.[10] We aimed to investigate whether power posing by anesthesiologists would lead to a difference in patient perception.

In addition, whereas medical student perceptions of physicians based on the sex of the physician have been described,[11] patient perceptions of physician competency based on the sex of the physician have not. Despite a growing number of women physicians entering not only the medical field as a whole but also anesthesiology in particular,[12,13] relatively few women seek careers in academic anesthesiology and those who do may be less academically successful. Female anesthesiologists trail behind their male counterparts in terms of research grants,[14] number of publications,[15] promotion to full professor,[14] and percentage of oral board examiners.[16] In addition, workforce data from a 2013 survey of American Society of Anesthesiologists members showed that female anesthesiologists are paid less than male anesthesiologists—a difference that persisted despite adjustments made for the total number of hours worked.[17] Is the well-documented gender bias that exists in medicine also pervasive in the way patients perceive anesthesiologists? The reasons for the differences in academic success and financial compensation between male and female anesthesiologists have not been elucidated. In addition, patient perceptions related to sex of their anesthesiologist have not been systematically investigated.

The aim of this study was to investigate patient perceptions of female anesthesiologists as compared with male anesthesiologists and the potential impact of body language on these perceptions. We hypothesized that gender bias exists, leading patients to judge male anesthesiologists as more intelligent, more confident, and more competent than female anesthesiologists. In addition, we hypothesized that patients perceive physicians who display confident body language as more capable and thus judge them to be more intelligent, more confident, and more competent.

Materials and Methods

After approval by the institutional review board (University of Virginia Health System, Charlottesville Virginia), 200 patients presenting to the University of Virginia Health System Preanesthesia Evaluation and Testing Center were enrolled in the study between June 22, 2017 and September 5, 2017. One of the researchers (C.K.) approached consecutive patients presenting to the Preanesthesia Evaluation and Testing Center who met inclusion criteria over the course of 36 weekdays. All but a very small number (less than 10) agreed to participate. The institutional review board waived the requirement for written informed consent. Each

participant instead received and reviewed a letter before agreeing to participate. Any English-speaking patient age 18 yr or older presenting to the Preanesthesia Evaluation and Testing Center was considered eligible to participate.

Figure 1 illustrates the organization of the study. After giving verbal consent, each participant viewed four videos. Each video was approximately 90 s in length and depicted a nonphysician actor playing the role of an anesthesiologist. The actors all recited the same script in which they described general anesthesia and the associated risks. Two of the videos portrayed male anesthesiologists and the other two videos portrayed female anesthesiologists. The actors were of the same approximate age and race to control for these factors. One male and one female actor demonstrated confident, high-power body language poses throughout the video, whereas the other male and female actors demonstrated unconfident, low-power body language poses (Video Set A). Figure 2 illustrates examples of the confident, high-power and unconfident, low-power poses used by the actors in the videos. To control for preferences for a specific actor, a second set of videos (Video Set B) was created in which the actors played different roles. For example, the male actor who demonstrated the confident poses in Video Set A demonstrated unconfident poses in Video Set B. Two videos of the same actor displaying confident (Supplemental Digital Content 1, http://links.lww.com/ALN/B818) and unconfident (Supplemental Digital Content 2, http://links.lww.com/ALN/B819) body language are available. Participants were randomized to view either Video Set A or Video Set B, and the four videos within each set were shown to each participant in random order (fig. 1). Simple randomization was performed by creating a repeating list of all possible video presentation combinations for both Video Set A and Video Set B (numbered 1 to 100 for Video Set A and 101 to 200 for Video Set B). A random number generator tool (Random.org) was used to generate a randomized list of numbers from 1 to 200. The original list of 1 to 200 was rearranged based on the randomized list of numbers generated. As patients were enrolled, they viewed the next consecutive video set and order of videos as dictated by the master randomized list.

After viewing all four videos, participants completed a questionnaire in which they were asked to rank each actor anesthesiologist in order of confidence, intelligence, and their likelihood of choosing that anesthesiologist to care for their family member. In addition, participants chose the one actor anesthesiologist who seemed most like a leader. The text of the questionnaire is provided in Appendix 1. Participant demographic data including age, sex, and ethnicity were collected.

Statistical Analysis

The questionnaire items on confidence, intelligence, and care of family member were measured on a scale of 1 to 4,
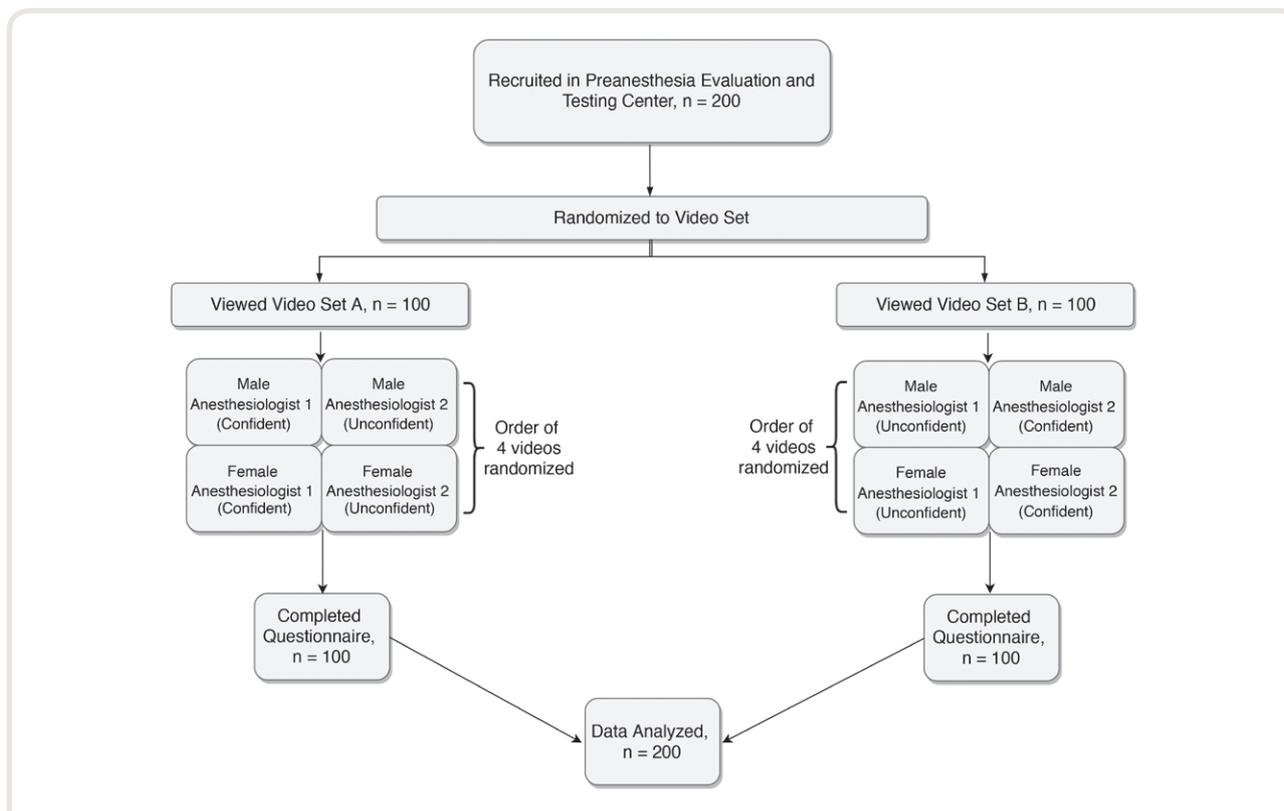
Fig. 1. This Consolidated Standards of Reporting Trials (CONSORT) flow diagram describes the organization of the study, including enrollment, randomization of the participants and videos, and analysis of the data.

with 1 representing the best actor anesthesiologist for each measure and 4 representing the worst actor anesthesiologist for the measure. A power analysis revealed that enrolling 200 patients would give a >85% chance of detecting a difference in ranking of one-half level or greater with a variance of 1 level for actor anesthesiologist sex or body language on the response measures (confidence, intelligence, care of family member). We recruited 200 participants.

The responses for questionnaire items on confidence, intelligence, and care of family member were considered as ordinal outcomes and analyzed in mixed-effects logistic regression models. The leadership endpoint was considered as a binomial outcome in a mixed-effects logistic regression. In these mixed-effects logistic regressions for ordinal outcomes (confidence, intelligence, and care of family member) and that for binary leadership, random intercept was specified to capture the heterogeneity among patients while accounting for within-patient correlation. Because our primary goal was to determine whether the actor anesthesiologists' sex and confidence level (based on body language) affected viewers' rankings, these factors were therefore considered as fixed main effects in the regressions. We also tested for an interaction between the actor anesthesiologists' sex and body language, but the interactions were nonsignificant and thus were not included in the final models. Age

was the only continuous variable, and a histogram for age did not indicate outliers or significant departures from normality. The potential confounding effects of patients' age, ethnicity, and sex were considered initially in the regression analyses but not included in the final models because of their nonsignificant effects. A two-sided test with P value less than 0.05 was considered statistically significant. All data analyses were performed using SAS, version 9.4 (SAS Institute Inc., USA), particularly using Proc Glimmix for the mixed-effects modeling.

Results

Two hundred patients viewed the four videos and completed the questionnaire. Two individuals had missing data (one participant did not respond to the intelligence measure and one participant did not respond to the intelligence measure or the leadership measure). Demographic data of the patient participants are depicted in table 1. Table 2 displays the results of the questionnaire data for the three ranked primary outcomes: confidence, intelligence, and likelihood of choosing the actor anesthesiologist to care for a family member. Scores closer to 1 (lower scores) indicate that patients preferred that actor anesthesiologist to those
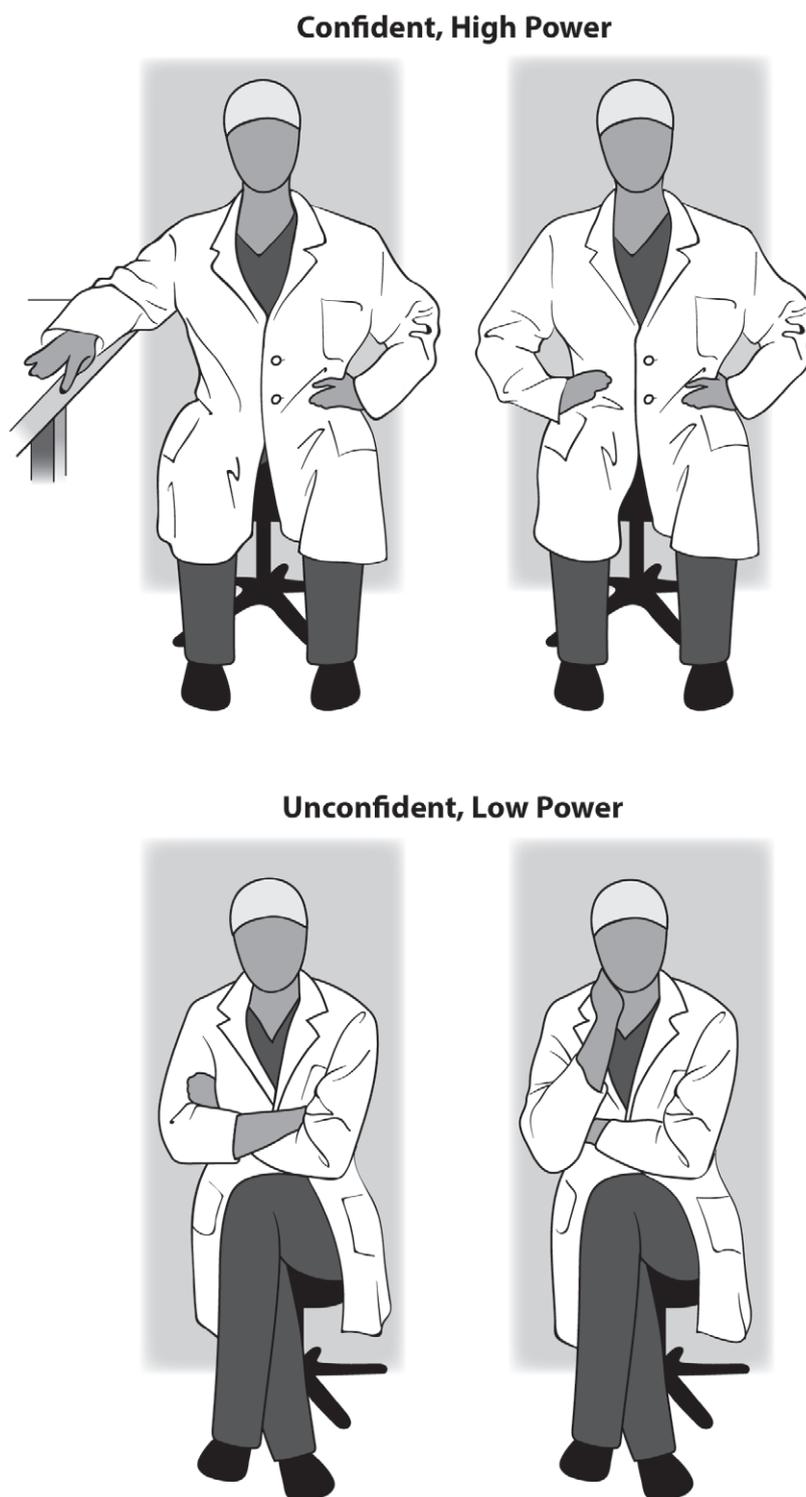
Fig. 2. The confident, high-power and unconfident, low-power poses displayed by the actors.

assigned higher scores as actor anesthesiologists were ranked on a scale of 1 to 4, with 1 representing the best anesthesiologist for each measure. Odds ratios with 95% CI for

sex (male *vs.* female anesthesiologist) and body language (confident *vs.* unconfident poses) from mixed–effects logistic regression are summarized in table 3 for these three

Table 1. Demographic Data Including Age, Sex, and Ethnicity for the Two Participant Groups Randomized to View Video Set A and Video Set B

Participant Demographics	Video Set A (n = 100)	Video Set B (n = 100)	Total (n = 200)
Age, y			
Range	19–89	20–86	19–89
Mean ± SD	56 ± 14	57 ± 13	57 ± 14
Sex			
Male	39	34	73
Female	61	66	127
Ethnicity			
White	86	84	170
Black/African American	10	11	21
Hispanic/Latino	3	3	6
Asian	0	1	1
Other	1	1	2

questionnaire items. Table 4 displays the tallied results for the single actor anesthesiologist participants chose as being most like a leader with the odds ratios and 95% CI for sex and body language for the leadership measure shown in table 5. Participants' age, sex, or ethnicity did not significantly influence their preferences for the actor anesthesiologists' sex or body language. In addition, participants did not display a systematic preference for specific actors; that is, results were not significantly different between participants who viewed Video Set A or Video Set B. For example, participants did not prefer male actor #1 over male actor #2 by choosing male actor #1 more frequently in Video Set A while playing the confident male anesthesiologist and then again prefer him more frequently in Video Set B while playing the unconfident male anesthesiologist.

Confidence

Confident body language had a powerful effect on patient perception of anesthesiologist confidence (table 3). The odds were 2.27 times greater for actor anesthesiologists displaying confident, high-power poses to be ranked as more confident than actor anesthesiologists displaying unconfident, low-power body language (95% CI, 1.76 to 2.92; *P* < 0.0001). The sex of the actor anesthesiologist had no significant effect on the patient perception of anesthesiologist confidence (odds ratio, 1.11; 95% CI, 0.86 to 1.42; *P* = 0.4221).

Intelligence

Confident body language had a powerful effect on patient perception of anesthesiologist intelligence (table 3). The odds were 1.69 times greater for actor anesthesiologists displaying confident, high-power poses to be ranked as more intelligent than actor anesthesiologists displaying unconfident, low-power poses (95% CI, 1.13 to 2.18; *P* < 0.0001). The sex of the actor anesthesiologist had no significant effect on patient perception of anesthesiologist intelligence (odds ratio, 0.84; 95% CI, 0.66 to 1.08; *P* = 0.1781).

Care for Family Member

Confident body language had a powerful effect on patient preferences regarding the care for a family member (table 3). The odds were 2.34 times greater for actor anesthesiologists displaying confident, high-power poses to be chosen to care for one's family member (95% CI, 1.82 to 3.02; *P* < 0.0001). The sex of the actor anesthesiologist had no significant effect on the odds that patients would choose a particular actor anesthesiologist to care for their family member (odds ratio, 1.18; 95% CI, 0.92 to 1.51; *P* = 0.1976).

Leadership

Confident body language had a powerful effect on which actor anesthesiologist was judged to be most like a leader (table 5). The confident male actor anesthesiologist was chosen as being perceived most like a leader by 79 participants (39.5%) as shown in table 4. The confident female actor anesthesiologist was chosen as the best leader by 55 participants (27.5%), the unconfident female actor anesthesiologist by 35 participants (17.5%), and the unconfident male actor anesthesiologist received the fewest responses for the best leader, with only 30 participants (15%). Overall, the odds were 2.6 times greater for anesthesiologists displaying

Table 2. Results of the Ranked Outcome Measures: Confidence, Intelligence, and Likelihood of Choosing the Anesthesiologist to Care for a Family Member

	Confidence			Intelligence			Care for Family Member		
	No. of Responses	Mean	Median	No. of Responses	Mean	Median	No. of Responses	Mean	Median
Confident male	200	2	2	200	2	2	200	2	2
Confident female	200	2	2	198	2	2	200	2	2
Unconfident male	200	3	3	200	3	3	200	3	3
Unconfident female	200	3	3	200	3	3	200	3	3

Table 3. Odds Ratios with 95% CI for Sex (Male *vs.* Female Anesthesiologist) and Body Language (Confident *vs.* Unconfident Poses) for the Outcome Measures Confidence, Intelligence, and Care for Family Member

Outcome Measure	Odds Ratio	95% CI		P Value
		Lower	Upper	
Confidence				
Sex	1.11	0.86	1.42	0.4221
Body language	2.27	1.76	2.92	< 0.0001
Intelligence				
Sex	0.84	0.66	1.08	0.1781
Body language	1.69	1.13	2.18	< 0.0001
Care for family member				
Sex	1.18	0.92	1.51	0.1976
Body language	2.34	1.82	3.02	< 0.0001

Table 5. Odds Ratios with 95% CI for Sex (Male *vs.* Female Anesthesiologist) and Body Language (Confident *vs.* Unconfident Poses) of Participants Choosing the Actor Anesthesiologist as Being Most Like a Leader

Outcome Measure	Odds Ratio	95% CI		P Value
		Lower	Upper	
Leadership				
Sex	1.30	0.94	1.81	0.1138
Body language	2.60	1.86	3.65	< 0.0001

confident poses to be considered a leader (95% CI, 1.86 to 3.65; *P* < 0.0001). The sex of the actor anesthesiologist had no significant effect on which actor anesthesiologist was judged to be most like a leader (odds ratio, 1.30; 95% CI, 0.94 to 1.81; *P* = 0.1138).

Discussion

We evaluated the effect of body language on perceived anesthesiologist confidence, intelligence, and leadership skills. Our results show that confident anesthesiologist body language strongly affects patient perception of anesthesiologist confidence, intelligence, competence, and leadership. Patients overwhelmingly preferred actor anesthesiologists displaying confident poses over those actor anesthesiologists displaying unconfident poses. Patients perceived actor anesthesiologists who displayed confident, high-power body language as being more confident, more intelligent, and more like a leader. Patients were more likely to choose actor anesthesiologists displaying confident, high-power body language to care for their family member.

These data suggest that the simple yet important concept of body language training could serve as a novel,

Table 4. Proportion of Patients Who Selected Each Actor Anesthesiologist as Being Most Like a Leader

	Responses for Leadership (n = 199)	
	n	%
Confident male	79	39.5
Confident female	55	27.5
Unconfident female	35	17.5
Unconfident male	30	15.0

nonverbal communication tool to increase patients' trust in the ability and competency of their anesthesiologist. This may be important particularly for anesthesiologists, who generally are not afforded the opportunity to meet their patients until the day of surgery and want to gain the trust of their patients in a very limited time before their procedure. The results of our study highlight the important positive impact confident body language poses can have on influencing patient perceptions. However, we can only comment on the specific confident body language poses used in our study and encourage teachers and trainees to be mindful that "confident" could possibly be perceived as "arrogant" when using body language techniques without other important communication tools to foster strong physician–patient relationships. We recognize that power posing has become a controversial topic, with the original research on power posing having come under intense scrutiny.[18–21] The results of our study do not directly support or refute all previous claims regarding power posing; however, our data suggest that confident body language affects patient perception.

It is interesting that we did not detect a preference for the anesthesiologist's sex based on patient responses. The absence of a difference in perception based on sex of the anesthesiologist in this study is encouraging, as it suggests that patients do not prefer their anesthesiologist to be one sex or the other. Before claiming that sex of the anesthesiologist has no effect on patient perceptions, however, we recognize that participants in our study viewed an equal number of men and women displaying both confident and unconfident body language. This is perhaps not the case in the clinical setting. For example, it may be that men are more likely to display confident, high-power poses than women. If so, does confident, high-power body language displayed more often by men influence their propensity to attain more leadership roles? Our study was not designed to answer this complex question but provides a platform to explore this possibility in the future.

This study has several limitations. First, although we have shown that body language has a powerful effect on patient perception, we do not know how this translates into the

actual healthcare environment. That is to say, we can only speculate on the practical significance of a one-point difference in ranking on a four-point scale. It is clear that anesthesiologists displaying confident body language are favored over those who do not; however, what does that mean? Also, we do not know what the reliability is of ranking four actor anesthesiologists on single measures. Another limitation of this study is that patients were asked to judge actor anesthesiologists based on their perceptions from viewing videos. Videos were used to control for as many factors as possible; for example, each patient viewed the same actors displaying the same poses for the same amount of time. However, the videos may not completely reflect interactions that occur in real-life circumstances in the hospital or outpatient setting. Another limitation of this study is that the participants were predominantly white (85%) and female (64%). A more diverse group may have yielded different results because of differing perspectives.

Brief empathy training for residents and fellows (of many specialties, including anesthesiology) has been shown to increase patients' assessment of empathy of those physicians.[22] The empathy training course employed in this randomized, controlled trial by Reiss and colleagues[22] required a relatively short time commitment (three 60-min sessions over 4 weeks) and yielded impressive results (increased empathy scores as rated by patients and increased ability to interpret facial expressions of emotion). In addition, an enhanced patient-centered communication style has been shown to increase patients' trust in their physician.[23] Residency training requirements have, rightly so, increasingly incorporated measures of professionalism. We argue that educators involved in residency training programs should focus on teaching both verbal and nonverbal communication techniques. Based on the positive impact confident, high-power body language demonstrated on patient perceptions in our study, we recommend that educators consider introducing body language training into medical training curricula.

In conclusion, body language that incorporates confident, high-power posing improves patient perceptions of anesthesiologists' intelligence, confidence, and competence. Sex of the anesthesiologist alone did not significantly affect patient perceptions. Body language training is a novel, nonverbal communication tool in the field of medicine that should be incorporated into practice to improve patient perception of anesthesiologists.

Research Support

Competing Interests

The authors declare no competing interests.

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Appendix 1. Physician Perception Study Questionnaire

Rank each physician in order of how likely you would be to choose the anesthesiologist to care for your family member:
_____ (Most Likely)
_____
_____
_____ (Least Likely)

Rank each physician in order of *confidence*:
_____ (Most Confident)
_____
_____
_____ (Least Confident)

Rank each physician in order of *intelligence*:
_____ (Most Intelligent)
_____
_____
_____ (Least Intelligent)

Which of these four physicians seemed most like a *leader*? (single answer)
Physician #: _____