


Grab a Seat! Nudging Providers to Sit Improves the Patient Experience in the Emergency Department

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Abstract

Objective: We assessed whether provider sitting influenced patient satisfaction in an academic emergency department (ED) and if education and/or environmental manipulation could nudge providers to sit. **Methods:** This was a prospective, controlled pre–post trial of provider sitting and its influence on patient satisfaction within 2 urban, academic EDs. A 12-item survey was administered to a convenience sample of patients to assess for care satisfaction before, during, and after study interventions. Study interventions included (a) placement of branded folding seats and (b) an educational campaign. Only the intervention ED received folding seats. The primary outcome examined the influence of provider sitting on patient satisfaction. A secondary outcome examined the frequency of provider sitting. **Results:** During the entire study period, 2827 patients were surveyed; 63% were female and 65% were between the ages of 26 and 65. Sitting at any point during an ED encounter improved responses to satisfaction questions (polite [67% vs 59%], cared [64% vs 54%], listened [60% vs 52%], informed [57% vs 47%], time [56% vs 45%], $P < .0001$ for all measures). The odds of provider sitting increased 30% when a seat was placed in the room (odds ratio [OR] = 1.3, 95% confidence interval [CI]: 1.1–1.5). No change in provider sitting was observed in the control ED (OR = 1.0, 95% CI: 0.8–1.2). **Conclusions:** Placing a seat in a patient's room nudges providers to sit during an ED encounter. Education alone did not influence provider behavior. Sitting down resulted in significantly higher patient satisfaction scores during an ED visit.

Keywords

clinician-patient relationship, communication, emergency medicine, patient satisfaction, quality improvement

Introduction

The physician–patient relationship is fundamentally built upon verbal and nonverbal communication and is an important component for any medical encounter (1,2). Effective communication can be challenging during the provider–patient interaction, particularly in an emergency department (ED) setting (3–5). Patient dissatisfaction with ED encounters is frequently related to poor communication (2).

Nonverbal cues such as provider posture (sitting versus standing) during ambulatory and inpatient encounters increases the patient's perceived length of time spent by the physician which may improve provider–patient communication and ultimately patient satisfaction (6–9).

Additionally, physician communication positively correlates with patient adherence to treatment recommendations and affects patient experience with overall hospital care

(10,11). Patient experience is currently assessed using consumer-based satisfaction surveys and is a quality measure for the Value Based Reimbursement Program through the Center for Medicare and Medicaid Services (CMS) (12).

The effect of provider posture during an ED encounter has not been well studied. The primary objective of this

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study was to characterize the association between provider posture (sitting versus standing) and patient satisfaction. A secondary objective was to test whether education and/or environmental manipulation through placement of colorful, institution-branded folding seats changes provider behavior. We hypothesized that by altering the environment in which health-care professionals practice, we could change provider behavior, facilitate better communication, and positively influence patient satisfaction.

Methods

This was a prospective, controlled, pre–post trial within 2 urban, academic EDs within a single health system. The project was reviewed and approved as a quality improvement study by the University’s institutional review board. Patients were approached by trained research assistant (RAs) for verbal consent if they were 18 years or older, had a Glasgow Coma Score of 15, and were being discharged from the ED to home. Patients were excluded if they had dementia, acute psychosis, or clinical intoxication.

The intervention ED site was a large tertiary care ED with approximately 62 000 annual adult visits, and the control ED was a level-1 trauma center with 47 000 annual visits. Most emergency medicine attending physicians and all emergency medicine residents practice at both sites.

Intervention

Study interventions included (a) placement of institution-branded folding seats and (b) an educational campaign to highlight the importance of good communication. White folding seats were branded with a colorful institution logo and project slogan, “Grab a Seat,” and hung on hooks within eyesight in each patient room (Figure 1). The educational campaign included production of a 4-minute video (<https://vimeo.com/162120595>) that was disseminated to house staff, attending physicians, nurses, and advanced practice providers (APPs) through e-mail and in-person presentation by a study member. In order to study the benefit of a visual cue (the branded folding seats) on health-care workers, we exposed both EDs to the educational video whereas only the intervention ED received the folding seats.

Patients marked for discharge to home from the ED were eligible for enrollment. A convenience sample was obtained by trained RAs who enrolled patients between 7 AM and 12 AM, 7 days a week during the 10-month study period. The RAs administered a 12-item survey instrument that was designed by the authors and members of our hospital’s Patient and Family Advisory Council after review of prior patient satisfaction-based tools and approved by our hospital’s patient experience team to ensure compliance with CMS regulations (8,13). Patients were surveyed on a 4-point Likert scale (strongly disagree, disagree, agree, and strongly agree) assessing the patient’s perception of how well providers kept them informed, spent enough time with



Figure 1. A photo of the folding seat used in this study. Chairs were hung on the wall within eye sight of the provider. Stools were labeled with the project logo.

them, and whether they felt the provider listened, cared, was polite, and important for the provider to sit down. The survey also assessed if any health-care member sat down with the patient and, if so, who (doctor, APP, nurse, medical student, unsure, other; Appendix A). Providers in both EDs were blinded to data collection.

The survey was pilot tested and administered to patients at both EDs for 3 months prior to intervention to obtain baseline satisfaction scores and provider sitting behavior. The survey was then withheld as both interventions were introduced over a 4-week period followed by another 4-week washout period for providers to acclimate to the new seats in the clinical environment. During the 3-month intervention period, the survey included an additional question at the intervention ED for patients to report whether the provider used the folding seat to sit. The folding seats were then removed from the intervention ED and patients at both study sites were surveyed for an additional 3 months postintervention.

Measures

For the primary objective, the influence of provider posture on patient satisfaction was captured by calculating the frequency at which patients “strongly agreed” to each of the

Table 1. Characteristics of Patients Enrolled During the Study Period.

Demographics	Both EDs		Intervention ED					Control ED				
	Total	%	Pre	Study	Post	Total	%	Pre	Study	Post	Total	%
Total	2827		840	501	433	1774	62.8	247	373	433	1053	37.2
Age												
18-25	654	23.1	246	133	116	495	27.9	30	72	57	159	15.1
26-40	872	30.8	265	170	147	582	32.8	63	101	126	290	27.5
41-65	968	34.2	259	141	129	529	29.8	112	145	182	439	41.7
66-85	305	10.8	66	52	36	154	8.7	37	53	61	151	14.3
86+	28	1.0	4	5	5	14	0.8	5	2	7	14	1.3
Sex												
Female	1777	62.9	580	316	270	1166	65.7	141	224	246	611	58.0

Abbreviation: ED, emergency department.

satisfaction questions. This method of analysis is used in similar studies and consumer-based health-care surveys (8,11,12). The secondary objective was to determine whether either intervention (education alone or education and environmental manipulation), as measured by patient response to whether a provider sat down, increased provider sitting.

Statistical Analysis

Survey questions and patient demographics were summarized using frequencies and percentages for categorical variables and means with standard deviations for continuous variables. To determine the differences in patient satisfaction when a provider sat down, answers to survey questions were dichotomized based on response. Since more than half of patients strongly agreed to all survey questions, we compared “strongly agree” to the other 3 categories. χ^2 test was used to compare differences in patient satisfaction when a provider sat down versus did not sit regardless of period. Additionally, an overall satisfaction score (range 5-20) was developed combining 5 of the questions (provider was polite, cared, listened, kept well informed, and spent enough time) to examine overall satisfaction rather than the individual components. To determine the differences in satisfaction score over time, separate 2-way analyses of variance were performed by hospital with the 2 factors being study: period and sitting behavior. To determine the differences in sitting, pre-, during, and postintervention, logistic regression adjusting for patient satisfaction score and hospital was employed. All analyses were performed using SAS statistical software (Version 9.4, SAS Institute, Cary, North Carolina).

Results

During the entire study period, 2827 patients were surveyed at both study sites; 65% at the intervention ED and 45% at the control. Similar numbers of surveys were obtained during each study phase: preintervention (1087), intervention

(874), postintervention (866). Between both sites, 63% were female and 65% were between the ages of 26 and 65 (Table 1). Compared to the control ED, survey respondents at the intervention ED were significantly more likely to be female (66% vs 58%; $P < .0001$) and were more likely to be younger (age 18-40; 61% vs 43%; $P < .0001$). Incomplete surveys ($n = 86$) were discarded, leaving 2741 responses for final analysis. Regardless of hospital site, provider sitting at any point during an ED encounter as opposed to standing improved responses to satisfaction questions (polite [67% vs 59%], cared [64% vs 54%], listened [60% vs 52%], informed [57% vs 47%], time [56% vs 45%]; $P < .0001$ for all measures, Figure 2). Despite the improvement in satisfaction when a provider sat down, only 13% of patients strongly agreed that it is important for a provider to sit during an ED encounter.

Patients were surveyed to identify provider (physician, APP, nurse) sitting behavior. During the entire study period, at least 1 provider sat down 40% of the time at the intervention site compared to 44% at the control. If only 1 provider sat down, it was more likely to be a physician as opposed to an APP or nurse (Table 2). After implementation of the folding seats and educational video at the intervention site, the odds of sitting by a physician or APP increased by 30% (odds ratio [OR] = 1.3, 95% confidence interval [CI]: 1.1-1.5) adjusted for patient satisfaction. There was no difference in physician and APP sitting at the control site (OR = 1.0, 95% CI: 0.8-1.2). Additionally, removal of the folding seat at the intervention site resulted in a significant decrease in physician and APP sitting across both study sites followed by return to the preintervention baseline (Figure 3).

Discussion

The primary goal of this study was to explore ways in which we can improve communication with our patients through influencing the behavior of our providers. Effective communication relies on both verbal and nonverbal cues. Prior studies in the ambulatory setting suggest that communication,

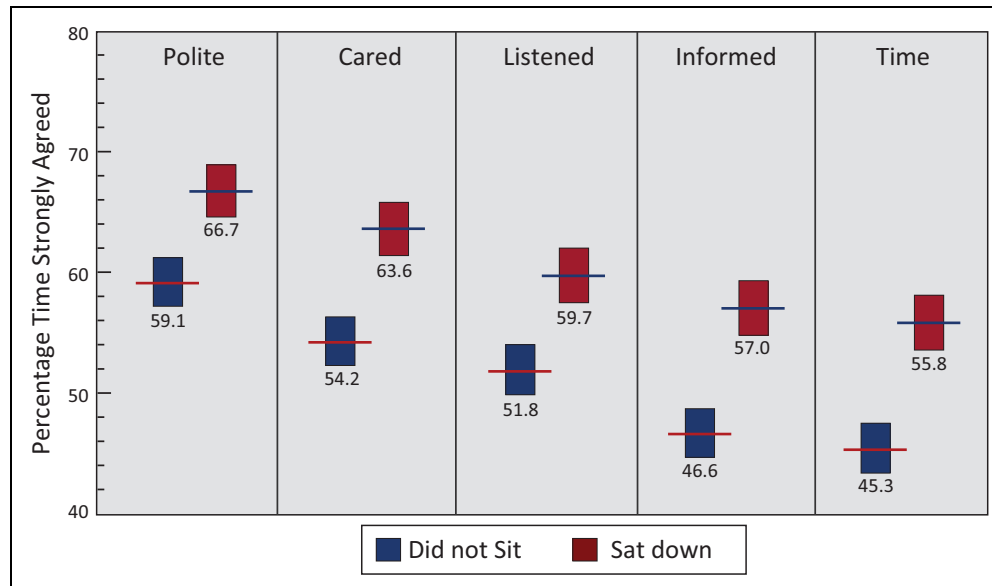


Figure 2. Emergency department respondents who “strongly agreed” with each of the 5 quality measures assessed on the discharge survey based on provider sitting. Responses are aggregated from both emergency departments during the entire study period (n = 2741), P < .0001 for each comparison.

Table 2. Characteristics of Provider Type Who Sat Down During a Clinical Encounter as Reported by Patient Survey Responses.

Provider	Intervention ED			Control ED		
	Pre (%)	Study (%)	Post (%)	Pre (%)	Study (%)	Post (%)
Total (MD, APP, Nurse)	477 (57)	290 (58)	184 (42)	173 (70)	201 (54)	212 (49)
MD	211 (25)	159 (32)	79 (18)	87 (35)	110 (30)	113 (26)
APP	97 (11)	53 (11)	56 (13)	27 (11)	24 (6)	14 (3)
Nurse	169 (20)	78 (16)	49 (11)	64 (26)	67 (18)	85 (19)

Abbreviations: APP, advanced practice providers; ED, emergency department; MD, (Attending, Resident).

measured by satisfaction surveys, is improved when a provider sits as opposed to stands (7,9). This is the first study to show that provider sitting at any point during the clinical encounter improves patient perception of their care and overall satisfaction in the ED setting. Furthermore, provider sitting was significantly influenced by placement of a colorful, branded folding seat in the clinical environment.

In 2008, Johnson et al studied 224 ED patient encounters and found that provider sitting was associated with an increased perceived length of time that a provider spent with patients; however, that study failed to show a significant benefit in patient satisfaction (13). In our larger, prospective observational study, we found a significant improvement in patient satisfaction when any provider sat down at any point during the clinical ED encounter. Interestingly, a majority of patients felt that provider posture was unimportant, yet the results suggest there is an unconscious patient preference for providers to sit down.

To encourage providers to sit down with patients in the ED, we tested whether education alone or a visual cue of a

folding seat in addition to education changed the behavior. Similar to prior studies, we found that educating providers on the importance of sitting had no effect on provider posture (14). We were able to overcome this barrier and improve physician nonverbal communication by “nudging” providers to sit down by providing them with a visual cue—the branded seat—in their clinical environment. Default preferences or “nudges” are a tool utilized in behavioral economics.

Behavioral economics is a field of study that combines economic theory and psychology to investigate the way in which individuals respond to their environment (15–17). In health care, behavioral economics is utilized in various ways: from addressing the childhood obesity epidemic to changing physician ordering behavior through default options in electronic health records (18,19). In this study, the branded folding seat with the slogan, “Grab a Seat,” served as a “nudge” to visually remind providers to sit down.

We found a statistically significant increase in the number of providers who sat during the intervention period at the

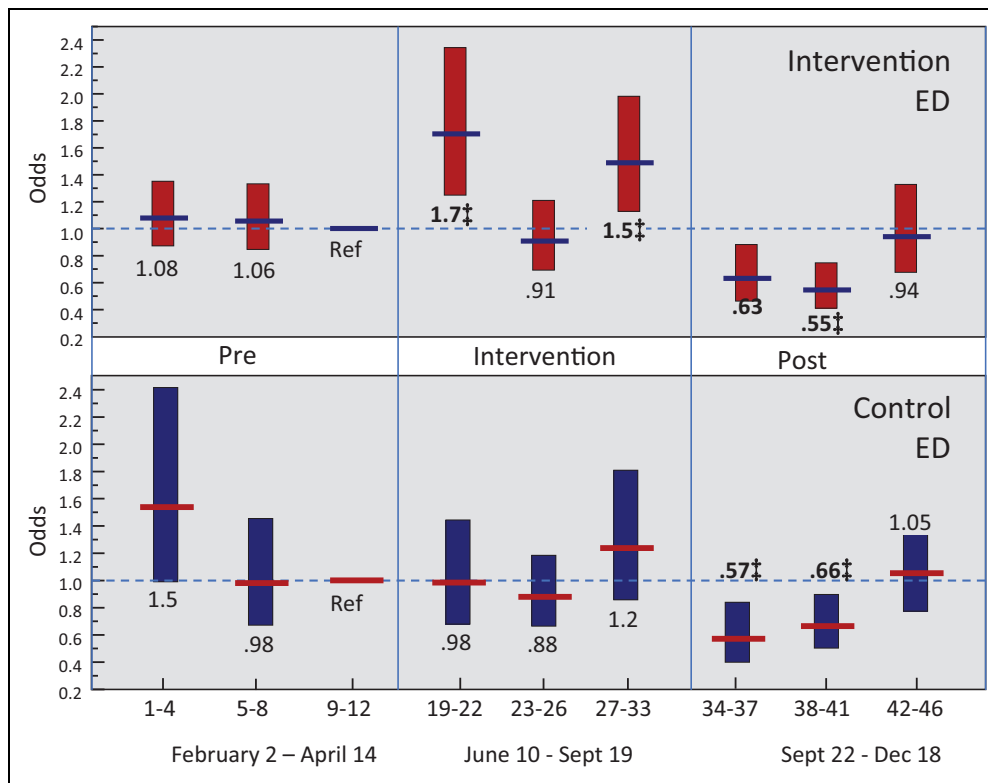


Figure 3. Sitting during each period of the study (pre-, during, and postintervention). Multivariate logistic regression adjusted for patient satisfaction score (5-20). All comparisons use reference period 9 to 12 weeks before intervention. Ref indicates reference; † = statistical significance.

intervention ED compared to the control ED. Of the providers who sat down, physicians were more likely to sit than an APP. This may be due to the patient population seen by APPs at our institution, where lower acuity patients are evaluated in a fast track setting. Sitting at the intervention site transiently returned to baseline during the intervention (weeks 23-26) before increasing again. This period spanned July, a time of trainee turnover in our academic health system. Once the seats were removed from the clinical environment, provider sitting significantly decreased across both study sites and eventually returned to the preintervention baseline. Interestingly, this result was observed at both sites. This phenomenon may be explained by the crossover of residents and attending physicians who work at both sites, further illustrating the powerful influence that visual cues can have on providers.

There are several limitations when attempting to attribute one intervention to patient satisfaction, particularly in an ED setting where multiple factors such as time of day, ED census, wait time, and hospital capacity all play a role in the overall patient experience. Further limitations of our study include the use of a convenience sample and survey as a method of data collection. Patients were immediately approached after discharge to minimize recall bias; however,

4% of intervention site and 5% of control site patients did not remember if any provider sat down. To minimize confounder bias, the patient was first asked about satisfaction, then was asked about whether a provider sat down. Patients may have been more willing to participate in the study if they were highly satisfied or highly dissatisfied with their care. Our study did not measure the actual frequency of use of the branded folding seat. Initially, our data collection was set to end 3 months after intervention rollout; however, after 3 seats broke, the study ended early due to safety concerns. We have since found a suitable alternative to the seats.

Conclusions

Using visual cues in the physical environment can nudge providers to sit down during the clinical encounter and improve patient satisfaction. The intervention is simple and can be easily adapted or implemented by other EDs or clinical settings. Future studies are needed to assess which part of the clinical encounter is the most important for providers to sit down. We believe that this relatively inexpensive, simple intervention will lead to improvement in perceived patient care and ED patient satisfaction.

Appendix A

Survey Instrument used for Data Collection. Question 7a was Omitted at the Control Site and in the Pre- and Postintervention Period at the Intervention site

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. My healthcare team listened to my questions and medical concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My healthcare team was polite to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. My healthcare team cared about me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My healthcare team spent the right amount of time with me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. It is important for a member of my healthcare team to sit down (as opposed to standing) when talking with me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. My healthcare team kept me well informed (Examples: checking on me, plans for tests, discussing results of tests, follow up plan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Did someone from your healthcare team sit down to talk with you? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Remember <input type="checkbox"/>				
7a. If someone sat down to talk to you, did they sit on the white stool with a blue, "Grab a SEAT" sticker? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Remember				
8. If someone from your healthcare team sat down to talk with you, who was it? <u>Please check all that apply.</u> <input type="checkbox"/> Doctor <input type="checkbox"/> Nurse practitioner/ Physician assistant <input type="checkbox"/> Nurse <input type="checkbox"/> Medical student <input type="checkbox"/> Unsure who <input type="checkbox"/> Other: _____				
9. What is your age? <input type="checkbox"/> 18-25 <input type="checkbox"/> 26-40 <input type="checkbox"/> 41-65 <input type="checkbox"/> 66-85 <input type="checkbox"/> over 85				
10. What is your gender? <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other				
11. Please use this space to provide any additional comments regarding the way in which doctors and nurses communicated with you and your family? (continue on the back if needed)				

Authors' Note

C.J.O., E.R.T., and J.S.M. conceived the study and designed the trial. C.J.O., E.R.T., J.S.M., and A.M.M. supervised the conduct of the trial and data collection. C.J.O. and E.R.T. undertook recruitment of participating centers and patients and managed the data, including quality control. F.S.S. provided statistical advice on study design and analyzed the data, C.J.O. drafted the manuscript, and all authors contributed substantially to its revision. A.M.M. takes responsibility for the paper as a whole. The study was presented at the American College of Emergency Physicians Scientific Assembly, Las Vegas, NV, October 2016; Society for Hospital Medicine, Las Vegas, NV, May 2017; Emergency Department Operations Study Group, Nashville, TN, June 2017.

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Declaration of Conflicting Interests

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