



Research Articles

Patient Understanding of the Resident Physician's Role in Orthopaedics

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Objectives

Patients at teaching hospitals interact with resident physicians, yet their understanding of residents' roles varies. Prior studies in other specialties have found gaps in patient knowledge of the medical training hierarchy. This study assessed patient understanding of the resident physician's role in an academic orthopaedic setting and evaluated patient perceptions of resident involvement in care.

Methods

After obtaining Institutional Review Board (IRB) approval, we conducted a cross-sectional survey of adult patients at Missouri Orthopaedic Institute, an academic orthopaedic hospital. The anonymous questionnaire collected demographics and included True/False knowledge questions about resident physicians (e.g., "A resident has completed medical school") and Likert-scale statements about patient preferences and comfort with resident involvement. No identifiable health information was collected, in compliance with the Health Insurance Portability and Accountability Act (HIPAA). Survey responses were analyzed with descriptive statistics, and results are presented with values rounded to two significant digits.

Results

A total of 168 patients completed the survey. The mean age was 44 (± 17) years; 57% were female, and 85% were White. Overall knowledge of the resident's role was high: 7 of 9 knowledge questions had over 80% of patients answering correctly. Nearly all patients (99%) knew that the Missouri Orthopaedic Institute is a teaching hospital, and 94% understood that residents work under supervision. However, only 68% knew that residents can prescribe medications, and 78% recognized that a resident is a medical doctor – indicating that roughly one-fifth of patients did not realize residents are licensed physicians who have completed medical school. About 11% of patients believed that resident physicians "do not get paid." Patient attitudes toward resident involvement were largely positive. A vast majority (96%) agreed or strongly agreed that they were comfortable with residents participating in their care in the clinic, and 81% were comfortable with resident involvement in the operating room. Only 9% of patients expressed concern that having residents involved leads to higher complication rates. Most patients (77%) felt they understood the resident's role in their own care, yet 43% indicated they would like more information about the training level of the providers caring for them.

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Conclusion

Patients in this orthopaedic academic practice demonstrated generally good understanding of the resident physician's role and were highly accepting of resident involvement in their care. Nonetheless, certain misconceptions persist (particularly regarding residents' qualifications and authority to perform duties such as prescribing medications), and a significant subset of patients desire greater transparency about providers' training levels. Targeted patient education efforts, for example, clarifying the credentials and supervision of resident physicians, could further improve patient understanding and comfort, thereby enhancing the clinical experience in teaching hospital settings.

INTRODUCTION

There is a high prevalence of resident physicians working in academic hospitals in the United States. However, patients' understanding of the medical training hierarchy and the role of resident physicians is often limited.¹ Previous studies have shown that many patients are unsure about the qualifications of resident doctors and may not fully recognize that residents are licensed physicians in training.^{2,3} This knowledge gap is important, as patient understanding of their providers' roles can impact trust, satisfaction, and informed consent for treatment.^{2,3} Furthermore, patients increasingly value transparency regarding the level of training of their healthcare providers.³

Our study aims to evaluate patients' understanding of the resident physician's role in an orthopaedic academic setting and to assess patient perceptions of resident involvement in their care. We sought to identify common misconceptions and gauge patient comfort with residents participating in outpatient clinics and surgery. We hypothesized that, while patients would generally recognize residents as doctors in training, there would be specific knowledge gaps (e.g., regarding residents' training completion or authority), and that patients would largely be accepting of resident involvement, provided appropriate supervision is in place.

METHODS

This study was conducted at the Missouri Orthopaedic Institute, which is a tertiary academic orthopaedic hospital. The study protocol was reviewed and approved by the Institutional Review Board (IRB) of our institution. We designed a survey to assess patient knowledge and attitudes regarding resident physicians. Adult patients (age ≥ 18) presenting to our orthopaedic clinics and pre-operative areas were invited to participate. Participation was voluntary, and responses were anonymous. Completion of the survey was considered implied consent. No personal identifiers were collected to protect patient privacy in accordance with the Health Insurance Portability and Accountability Act (HIPAA).

The survey instrument included three sections: (1) Demographic information (age, gender, race/ethnicity, education level, and annual household income); (2) Knowledge questions about resident physicians; and (3) Patient preferences and perceptions regarding resident involvement in

care. The knowledge section consisted of a series of True/False statements about residents [Table 1], for example, their training status, supervisory requirements, and capabilities. Patients were asked to mark each statement as "True" or "False" according to their understanding. Each knowledge question had an objectively correct answer (based on definitions of resident roles and training). In the preferences section, patients responded to statements about their comfort and opinions regarding resident participation, using a 5-point Likert scale (Strongly Agree, Agree, Neither, Disagree, Strongly Disagree). These statements addressed topics such as whether the patient typically knows the level of training of their caregivers, comfort with residents' involvement in clinic and operating room settings, perceived impact of residents on complication rates, the patient's self-assessed understanding of the resident's role in their care, and their desire for more information about providers' education levels. The survey content was developed by the study team, drawing on prior surveys in the literature, and was reviewed for face validity.^{2,3}

Surveys were distributed and collected in person by research staff in clinic waiting areas and pre-operative waiting rooms over 3 months. Completed surveys were kept confidential and stored securely. A total of 180 surveys were distributed; 168 patients returned completed questionnaires, yielding a response rate of approximately 93%.

All responses were entered into a secure database for analysis. We used descriptive statistics to summarize the data. For the True/False knowledge questions, we calculated the percentage of patients who answered each item correctly. For the Likert preference statements, responses were grouped into five categories and reported as the percentage selecting each response option. We report key numerical results rounded to two significant digits, as requested by the journal. We also examined whether certain demographic factors (such as education level) corresponded with differences in overall knowledge scores or attitudes, using exploratory subgroup analyses (chi-square tests for categorical comparisons). However, our study was primarily descriptive and was not powered for detailed subgroup analyses.

RESULTS

PATIENT DEMOGRAPHICS

A total of 168 patients completed the survey. The demographic characteristics of respondents are shown in Table

Table 1. Knowledge Questions

Knowledge Questions	True	False
The University of Missouri is a teaching hospital.	True	False
A resident is a doctor.	True	False
A resident has completed medical school.	True	False
An attending is a supervising doctor who has completed all of their training.	True	False
When caring for patients, a resident is always under direct or indirect supervision.	True	False
A resident is a type of doctor who is pursuing specialized training.	True	False
A resident can write prescriptions for medications.	True	False
A resident does not get paid.	True	False
Residents can perform surgery without the supervision of a senior doctor.	True	False

Table 2. Demographics of Survey Respondents (N = 168)

Parameter	Value
Age (years)	44 (± 17)
Gender	
Female	96 (57%)
Male	72 (43%)
Ethnicity	
White	143 (85%)
Black or African American	13 (7.7%)
Asian	2 (1.2%)
Hispanic	8 (4.8%)
Other Race	2 (1.2%)
Highest Level of Education	
Graduate Degree	31 (19%)
College Degree	61 (38%)
High School Graduate	63 (39%)
Did Not Complete High School	6 (3.7%)
Annual Income	
<\$25,000	51 (33%)
\$25,000-\$50,000	46 (30%)
\$50,001-\$75,000	29 (19%)
>\$75,000	29 (19%)

2. The mean age of participants was 44 years (standard deviation ± 17). The cohort was 57% female and 43% male. Most patients were identified as White (85%), with smaller representations of Black or African American (7.7%), Hispanic (4.8%), Asian (1.2%), and other races (1.2%). Nearly all respondents had completed high school, and 57% had a college or graduate degree. The sample spanned a range of annual household incomes, with about one-third of patients reporting income under \$25,000 and about one-fifth reporting over \$75,000.

PATIENT KNOWLEDGE OF RESIDENT ROLES

The questionnaire included 9 True/False statements to assess patients' knowledge of resident physicians. These statements, along with the proportion of patients who answered each correctly, are presented in [Table 3](#). Overall,

patient knowledge was quite high. For 7 of the 9 knowledge questions, at least about 80% or more of respondents answered correctly. Notably, almost all patients surveyed (99%) were aware that Missouri Orthopaedic Institute is a teaching hospital (i.e., affiliated with a residency program). A large majority (94%) understood that a resident physician is always working under direct or indirect supervision by a senior doctor (attending). Likewise, over 90% knew that an attending is a fully trained physician who supervises residents, and 95% correctly recognized that residents cannot perform surgery without a senior doctor's supervision.

However, the survey revealed specific knowledge gaps. Only 68% of patients knew that a resident could write prescriptions for medications (meaning nearly one-third of respondents were not aware that residents, as licensed physicians, have prescribing authority). Additionally, 77.7% (approximately 78%) correctly indicated that a resident is a

Table 3. Patient Knowledge of Resident Physician Roles

Knowledge Question	Correct (%)
Missouri Orthopaedic Institute is a teaching hospital.	99%
A resident is a Doctor of Medicine.	78%
A resident has completed medical school.	83%
An attending is a supervising doctor who has completed all of their training.	90%
A resident is always under direct or indirect supervision.	94%
A resident is a type of doctor who is pursuing specialized training.	86%
A resident can write prescriptions for medications.	68%
A resident does not get paid.	89%
Residents can perform surgery without the supervision of a senior doctor.	95%

Note: The table shows the percentage of patients (N=168) who answered each True/False knowledge item correctly. Correct answers are based on standard definitions of resident physicians' roles (for example, the correct answer to "A resident does not get paid" is "False," since residents receive a salary).

Doctor of Medicine – implying that about 22% of patients did not consider a resident to be a physician. Similarly, 83% knew that a resident had completed medical school, while 17% answered incorrectly. Furthermore, 89% knew that residents do get paid, but about 11% of patients held the misconception that resident physicians are unpaid. These results highlight that while the general concept of residents as part of the care team is familiar to most patients, a notable minority do not understand that residents have already finished medical school and are fully licensed doctors. No significant differences in overall knowledge were observed across subgroups defined by age, gender, or education level. However, there was a trend toward higher knowledge scores among patients with a college or graduate degree (data not shown due to the study's descriptive focus).

PATIENT PREFERENCES AND PERCEPTIONS

Patient attitudes and perceptions regarding resident involvement in their care are summarized in [Table 4](#). Overall, respondents reported high levels of comfort with resident physicians participating in their care. When asked whether they are comfortable with residents being involved in their medical care in the clinic setting, 96% of patients agreed or strongly agreed (44% strongly agreed, 52% agreed). Similarly, 81% of patients were comfortable with resident involvement in the operating room (35% strongly agreed and 46% agreed that they are comfortable with residents participating in their surgical care). The remaining respondents were mostly neutral on these questions; notably, none of the patients explicitly disagreed with being comfortable with residents in the clinic, and only about 2.6% disagreed (and 0% strongly disagreed) with resident involvement in the operating room.

Patients generally did not perceive resident involvement as detrimental to outcomes. Only 1.9% of patients strongly agreed and 7.0% agreed with the statement "There is a higher rate of complications when residents are involved in medical care," totaling approximately 8.9% expressing that concern. In contrast, 34% disagreed, and 13% strongly disagreed that complications are higher with resident involvement, while about 45% neither agreed nor disagreed. This

suggests that while a sizable fraction had no strong opinion, those who did were far more likely to disagree that resident participation increases complication rates, indicating overall confidence that care is not worsened by resident participation.

Regarding understanding and transparency, about one-third (35%) of patients strongly agreed and 39% agreed that they typically know whether the person caring for them is a medical student, resident, or supervising doctor. However, 18% were neutral, and roughly 7% disagreed, indicating that some patients are unsure about the roles of their caregivers during their medical encounters. Importantly, most patients felt they personally understood the role the resident plays in their own care: 33% strongly agreed, and 44% agreed (total ~77% agreement). Only 5% of patients felt they did not understand the resident's role (4.5% disagreed and 0.6% strongly disagreed), with the remainder being neutral.

Finally, a considerable proportion of patients expressed interest in more information about the training level of individuals involved in their care. About 13% strongly agreed, and 30% agreed that "I would like to know more about the education level of those involved in my medical care," for a total of roughly 43% who actively desired more information. Around 45% neither agreed nor disagreed, and about 13% disagreed or strongly disagreed with that statement. This finding suggests that while many patients are already comfortable and feel sufficiently informed, a significant minority would appreciate greater transparency or education regarding whether their providers are students, residents, or fully trained attending physicians.

DISCUSSION

Our study provides insight into how well patients in an orthopaedic academic setting understand the role of resident physicians and how they feel about resident participation in their care. Overall, the findings are encouraging showing that the patients demonstrated a high level of knowledge about key aspects of resident physicians' roles. They expressed considerable comfort with residents' involvement in both clinical and surgical settings. These results align with prior research in other specialties, which has generally

Table 4. Patient Preferences Regarding Resident Physicians

Survey Statement	Strongly Agree (%)	Agree (%)	Neither (%)	Disagree (%)	Strongly Disagree (%)
I typically know whether the person caring for me is a medical student, resident, or supervising doctor.	35%	39%	18%	7%	0.6%
I am comfortable with residents participating in my medical care in the clinic.	44%	52%	3.9%	0%	0%
I am comfortable with residents participating in my care during the operating room procedure.	35%	46%	17%	2.6%	0%
There is a higher rate of complications when residents are involved in medical care.	1.9%	7.0%	45%	34%	13%
I understand the role that the resident has in providing my medical care.	33%	44%	17%	4.5%	0.6%
I would like to know more about the education level of those involved in my medical care.	13%	30%	45%	9.6%	3.2%

Note: The table displays the distribution of responses to each statement about patient perceptions of resident involvement (N=168). Percentages may not total 100% in a row due to rounding to two significant digits.

shown that patients appreciate the importance of medical education and are willing to be cared for by trainees, especially when appropriate supervision is assured.^{4,5}

Notwithstanding the generally positive findings, we identified specific knowledge gaps among patients. Notably, nearly one in three patients did not know that resident physicians are licensed doctors who can prescribe medications, and about one in five were unaware that residents have completed medical school. This confirms our hypothesis that certain misconceptions persist – a trend that has also been observed in earlier studies. For example, Unruh et al. reported that a significant subset of patients did not understand that residents were fully credentialed physicians.² In our survey, 22% of respondents answered “False” to the statement “A resident is a doctor of medicine,” indicating a similar misunderstanding. Such gaps may be due to the term “resident” itself (which may imply to some patients that they are still in school or not yet doctors) or a lack of explanation by healthcare teams about the roles of different providers. This is an important area to address, as patients who underestimate a resident’s qualifications might be needlessly concerned about the care they receive or might fail to trust the resident’s medical advice. Conversely, patients who overestimate a trainee’s independence (for example, not realizing that residents are supervised) might hold the attending physician less accountable or be confused about who is ultimately responsible for their care.

On the other hand, our data suggest that most patients do recognize the collaborative nature of care in a teaching hospital. An overwhelming majority knew that attendings are supervising physicians and that residents work under supervision. It is reassuring that only a very small fraction of patients believed that residents operate unsupervised, implying that messaging about oversight is reaching patients. Ensuring that patients know an attending surgeon is present and in charge, especially during surgery, is crucial for maintaining patient confidence.⁴

Patients’ perceptions and comfort with resident involvement were very favorable in our study. More than 95% of

respondents were comfortable with residents participating in clinic visits, and over 80% were comfortable with their involvement in the operating room. These high levels of acceptance are consistent with previous surveys of surgical patients. Nahhas et al., for instance, found that over 94% of patients agreed that residents should perform surgeries as part of their education.⁵ Other studies in general surgery and other fields have similarly reported that a majority of patients are willing to have trainees involved in their care, particularly when the attending physician is present.^{4,6} We also found that few patients in our sample held negative perceptions about the impact of resident involvement on outcomes – only ~9% suspected that having residents involved might increase complication rates. In contrast, the rest were neutral or disagreed with that idea. This is an encouraging indicator that patients do not broadly view the presence of trainees as a risk factor. In fact, some literature suggests that many patients perceive teaching hospitals as providing equal or even better care due to the multiple layers of providers and oversight involved.⁷ Our study did not directly measure such perceptions. Still, the low concern about complications aligns with the notion that patients do not generally feel their safety is compromised by resident involvement.

One interesting finding was that, while most patients felt they understood the resident’s role, a large proportion (around 43%) expressed a desire to learn more about the education level of those caring for them. This suggests that transparency and education about provider roles can be improved. Even though most patients reported knowing whether their treating provider is a student, resident, or attending, a considerable minority remain unsure. Wray et al. noted that patients place great importance on knowing their physicians’ training level, with over 90% of respondents in their study wanting disclosure of trainee involvement.³ Our results mirror that sentiment – patients appreciate clear identification of who is who in the healthcare team. Ensuring that all care team members introduce themselves with their title (e.g., “I am Dr. X, an orthopaedic surgery resident working with Dr. Y, your attending sur-

geon”) at every encounter can reinforce this understanding. Some hospitals have implemented patient education materials or staff badges that clearly indicate provider roles (“Attending Physician,” “Resident Doctor,” “Medical Student,” etc.), which may also help. Given that 79% of our patients were unsure or didn’t know whether residents had been involved in their care previously (as reported in other studies), proactive communication is essential.

Our findings underscore an opportunity for educational interventions to further improve patient understanding and comfort. Studies have shown that providing patients with targeted information about trainees can positively influence their attitudes. For instance, Beale et al. conducted a randomized trial where an educational video explaining the roles of students, residents, and attendings was shown to inpatients before surveying them; patients who received that education had more favorable perceptions of resident involvement in certain scenarios.⁶ Similarly, Kempenich and colleagues demonstrated that structured patient education (whether through videos or pamphlets) can increase patients’ willingness to accept resident participation in their surgical care.^{8,9} Implementing such interventions at our institution – for example, a brief informational handout in the clinic or a preoperative orientation discussing trainees – might address the specific misconceptions noted (such as clarifying that residents are qualified doctors) and satisfy patients’ curiosity about provider training levels.

It is also important to set appropriate expectations. Our data and prior research suggest that when patients know to expect resident involvement, they are generally welcoming of it.⁶ In our study, those who indicated they typically knew their caregivers’ roles were also more likely to be comfortable with residents. This aligns with the idea that transparency builds trust. By openly discussing the resident’s role from the outset (e.g., “Dr. A is a resident who will assist in your surgery under my supervision”), providers can foster an environment of trust and collaboration. Such discussions can also be an opportunity to emphasize the benefits of involving residents, such as the additional vigilance of multiple team members and the potential to bring the most up-to-date care practices.

This study has several limitations. It was conducted at a single academic institution within orthopaedic clinics, which may limit generalizability to other settings or specialties. Our patient population was predominantly White and educated; perceptions might differ in more diverse populations or among those less familiar with teaching hospitals. The survey relied on patient self-report and understanding at a single point in time; we did not objectively test patients’ knowledge beyond the True/False questions, nor did we follow up to see if educational interventions would change their perceptions (though that would be a useful area for future research). Additionally, because our analysis was primarily descriptive, we did not perform extensive statistical modeling to identify predictors of knowledge or attitudes; the study may have been underpowered to detect small subgroup differences. Despite these limi-

tations, the study provides valuable insight into patients’ awareness and attitudes in a real-world teaching hospital environment, and the high response rate suggests that our findings reflect our clinic population.

CONCLUSION

In conclusion, patients at our orthopaedic academic hospital generally have a solid understanding of the resident physician’s role and are very accepting of resident involvement in their care. This indicates successful integration of trainees into the care team without compromising patient trust. However, specific misconceptions – notably about residents’ training status and authority – remain in a subset of patients. There is also a clear patient interest in greater transparency regarding who is providing their care and each provider’s level of training. To address these needs, healthcare teams in teaching hospitals should continue to educate patients about the roles of students, residents, and attending physicians. Simple interventions, such as clear provider introductions and educational materials about the training hierarchy, could further enhance patient understanding. By improving patient awareness and setting expectations, we can maintain patient confidence in the care delivered at teaching institutions and ensure patients feel fully informed and comfortable with resident physicians’ involvement.

DECLARATION OF CONFLICT OF INTEREST

The authors do NOT have any potential conflicts of interest for this manuscript.

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DECLARATION OF ETHICAL APPROVAL FOR STUDY

The study was approved by the Institutional Review Board with the approval number of 00000731, 00009014, FWA Number: 00002876

DECLARATION OF INFORMED CONSENT

informed consent was obtained from all individual participants.

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