Neurosurgical patients' perceptions of the “surgeon+”: a qualitative study

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OBJECTIVE Neurosurgical patients bear a varying degree of anxiety when confronted with having to undergo surgery or even visit with a neurosurgeon in consultation. Previous studies have suggested that patient perceptions can heavily influence the patient-physician encounter. Accordingly, a better understanding of these perceptions can marshal our knowledge regarding strategies for improving patient-physician interactions during such an apprehensive time. The aim of the present study was to qualitatively examine patient values and preferences for a neurosurgeon who participates in extraclinical activities (i.e., a “neurosurgeon+”) and understand the factors that influence these perceptions.

METHODS Semistructured face-to-face interviews with 47 neurosurgical patients were conducted. Patients were recruited from the Toronto Western Hospital neurosurgery clinics for cranial and spinal conditions. Descriptive summary statistics were used to characterize the study participants. Family members were encouraged to contribute to the interviews. Interviews were audio-recorded, transcribed, and subjected to thematic analysis by using open and axial coding.

RESULTS Patients generally indicated that they want to feel confident in their neurosurgeon. A number of factors contribute to this confidence, including a strong positive referral from another physician. Patients are inclined to search for information pertaining to the qualifications of neurosurgeons online, and a perception of the neurosurgeon's adeptness given his or her qualifications is important for patients. Although there were some differences in patient values between those in the cranial and spinal groups, overall, neurosurgical patients tend to positively view their neurosurgeon's involvement in extraclinical duties.

CONCLUSIONS This study details the first comprehensive clinical qualitative study of patient perceptions of neurosurgeons and provides a descriptive framework for understanding patient values in this clinical domain.

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KEY WORDS neurosurgeon+; patient perceptions; patient values

NEUROSURGICAL patients bear varying degrees of apprehension and anxiety when confronted with potentially having to undergo neurosurgical intervention. This anxiety is likely to be attenuated if the patient feels assured and confident in the quality of care provided by the surgeon. In choosing a neurosurgeon, posited ideal qualities include effective skills in communication with patients and colleagues, surgical acuity, and humility in judgment.⁶ More generally, the literature has identified a number of patient preferences for a physician, including age, training location, and sex, among others.⁵ Conversely, general patient attributes that influence physician perceptions have been identified and include sex and ethnicity

of the patient.¹ Altogether, it is evident that physician and patient perceptions can influence the patient-physician encounter.

Accordingly, a better understanding of these perceptions can marshal our knowledge of strategies for improving patient-physician interactions, particularly during times of potentially heightened patient anxiety. Specifically, a patient's perception of the surgeon may influence his or her experience and anticipated outcomes. The relationship between patient perceptions of a surgeon's proficiency and the extent to which the surgeon participates in extraclinical duties (a “neurosurgeon+”), such as research, administration, philanthropy, or education, has not yet been

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investigated. However, it is highly relevant in the context of neurosurgery, which is an intrinsically academic specialty, and neurosurgeons at tertiary care hospitals are typically engaged in scientific research and teaching, among other activities. Patients may have greater confidence in their neurosurgeon if he or she is involved in activities outside the scope of clinical neurosurgery, such as conducting research, education, administration, or international philanthropic development. Conversely, such neurosurgeons with extensive extraclinical responsibilities may be perceived as lacking in technical skillfulness and/or time to focus on clinical neurosurgery.

To address this topic broadly, we qualitatively examined the physician-seeking patterns and preferences of patients for neurosurgeons who engage in extraclinical activities. This study also afforded us the opportunity to assess a number of secondary factors that affect patient perceptions of and preferences for neurosurgeons. These factors include sex, ethnicity, and age of the surgeon, as well as geographical region of practice (whether the neurosurgeon works in an urban academic center or community hospital). These interesting dimensions of patient-physician interactions have not yet been explored within the scope of neurosurgery.

Methods

Study Design

A prospective qualitative study was conducted to examine the perceptions of patients with regards to their neurosurgeon's involvement in extraclinical duties (i.e., being a neurosurgeon+) and the extent to which they are interested in knowing about these activities. An additional set of questions was included for the purpose of a secondary analysis to gauge patient preferences regarding general attributes of neurosurgeons, such as his or her sex, age, and ethnicity and the geographic location of his or her practice. Patients included in the study were those who were being followed or seen for the first time in a clinic for neurosurgical management of a cranial or spinal condition.

Setting and Participants

Participants were ambulatory patients recruited from the practices of 2 neurosurgeons (M.B. and M.F.S.) in a tertiary referral hospital. The patients were seen for consultation and surgical or nonsurgical follow-up. The patients were recruited after completion of their clinic visit, and consecutive patients were approached. The patients were asked to participate in the study if they 1) had undergone or were scheduled to undergo a neurosurgical procedure or were being managed nonoperatively, 2) were > 18 years of age, 3) were able to speak and understand English well, and 4) did not have any cognitive deficits, either secondary to their neurological condition or otherwise. There were no eligible patients who declined to participate. Family members or friends who were accompanying the patients to their clinic visits were also invited to participate.

Sample Size

Interviews were conducted until data saturation was

achieved. Saturation is a concept in qualitative research methodology describing the situation in which new concepts do not continue to emerge from successive interviews.^{2-4,7-12} The total cohort consisted of 47 patients (26 in the cranial group, 21 in the spinal group).

Data Collection

Semistructured open-ended interviews were conducted with each participant, as well as a family member(s) or friend in some cases. All interviews were conducted face-to-face with patients by 1 investigator (N.S.). The interviews were based on an interview guide (Appendix), but themes were explored as they arose. Each interview was audio-recorded and transcribed. Demographic information, including age, sex, ethnicity, faith, marital status, education, and occupation, was collected. Operative status (i.e., preoperative, postoperative, or nonoperative monitoring) was also recorded.

Data Analysis

Responses to all questions from all participants were tabulated. Subsequently, the interview data were examined through modified thematic analysis using open and axial coding.⁴ Open coding involves deconstructing patient responses into common groupings based on shared ideas, whereas axial coding involves organizing information according to overarching themes. Each of the 3 investigators, who all contributed to developing the coding framework, independently examined the transcripts and tabulated responses.

Research Ethics

Participation was entirely voluntary, and informed consent was obtained from the patients and any family members or friends who participated in the study. Audio records and anonymized transcripts were encrypted and stored in a secure location. The study was approved by the Research Ethics Board of the University Health Network.

Results

Patient Information

Demographic data of the 47 study participants are shown in Table 1. Clinical consult classifications (i.e., preoperative, postoperative, and nonoperative monitoring) are provided in Table 2.

Thematic Analyses

Primary Analysis

Analysis of the interviews resulted in 4 overarching themes that are described in greater detail below and supported with verbatim quotes from study participants:

1. An important determinant of patients' confidence in their neurosurgeon before their first clinic visit is a strong referral.

The introductory questions in the interview guide sought to explore what patients already knew about their neurosurgeon's extraclinical involvement in activities such as research and education, among others. In both the cra-

TABLE 1. Patient demographics

Demographic	No. of Patients		
	Cranial Group	Spinal Group	Total
Age (median 50–60 yrs)			
<30 yrs	1	2	3
30–40 yrs	5	1	6
40–50 yrs	5	5	10
50–60 yrs	6	9	15
>60 yrs	9	4	13
Sex			
Male	11	14	25
Female	15	7	22
Ethnicity			
Caucasian	18	6	24
European	4	8	12
African-American	1	1	2
Other	3	6	9
Faith			
Christian	15	12	27
Agnostic/atheist	9	4	13
Jewish	2	2	4
Muslim	0	2	2
Hindu	0	1	1
Marital status			
Married	20	17	37
Not married	6	4	10
Education			
Postgraduate	5	8	13
Postsecondary	13	5	18
Secondary	8	6	14
Primary	0	2	2

nial and spinal groups, patients consistently emphasized that they valued first a strong referral from their general practitioner, another health care professional (such as a neurologist or another neurosurgeon), and/or a family member or friend.

“[The] referral was a very big factor in coming to see him. He was very highly recommended by my neurologist.”

“I didn’t know a lot [about him] to be perfectly honest. It came as a referral from another colleague, and I was relying on their relationship.”

2. Patients are interested in knowing their neurosurgeon’s qualifications (found through online searches).

Participants were also asked if they searched for their neurosurgeon online before their first clinic visit and what specifically they were interested to learn through the online search. Most patients or their family members looked up their neurosurgeon online. There was no clear correlation between those patients who looked up their neurosurgeon online and socioeconomic status, as estimated by highest level of education completed and occupation.

TABLE 2. Operative consult category of study subjects

Consult Category	No. of Patients		
	Cranial Group	Spinal Group	Total
Preoperative	8	5	13
Postoperative	5	11	16
Nonoperative monitoring	13	5	18

Those with a presumed lower socioeconomic status were inclined to perform online searches, and those who did not do so cited a lack of computer access. Participants classified as having a higher socioeconomic status were also inclined to perform these searches, and those who did not indicated that they would have liked to have done so but did not have time. Patients frequently indicated that they were interested in knowing the qualifications of their neurosurgeon through these online searches.

“[I looked him up online] to see what he’s involved in; where else he’s worked and what he’s published on.”

Family member: “I want to know what they’ve done, education, letters behind their name.” *Patient:* “How involved they are in the profession in terms of research, teaching, and issuing papers.”

“If I Google ‘neurosurgeon’ I want to know if they participated in conferences or presented in other conferences. This instills confidence as a family member.”

3. Patients believe that involvement in extraclinical duties as a neurosurgeon+ positively influences a neurosurgeon’s professional practice.

One of the major questions this study aimed to understand was whether patients perceived being a neurosurgeon+ as a positive attribute, one that enriches the professional duties of the neurosurgeon, or if extraclinical duties would be perceived negatively because those other activities might theoretically take away from the neurosurgeon’s clinical practice. In some instances, patients indicated that participation in extraclinical duties that require travel abroad may translate into less time for patients should something arise and they need their neurosurgeon urgently. However, nearly uniformly, in both the cranial and spinal groups, patients strongly believed that neurosurgeons’ participation in activities outside their formal clinical duties positively influenced their professional responsibilities.

“Involvement in extraclinical duties makes him more well rounded. Patients really look for a quality physician.”

“I know from my own experience that it makes you more knowledgeable about your field, enriches your professional life, and makes you a happier doctor.”

4. Patients in the spinal group tended to favor research, whereas patients in the cranial group were less discriminant with regards to the particular extraclinical duty in which their neurosurgeon participates.

Patients were asked directly how they would rank a hypothetical neurosurgeon who 1) performs only clinical

duties, 2) is a clinician-scientist, 3) is a clinician-educator, or 4) is a clinician-philanthropist. Broadly speaking, patients found this to be a difficult question, and most of them specified only a least-preferred or most-preferred neurosurgeon of the choices provided. The majority of the patients in the spinal group were partial to clinician-scientists. To some extent, this preference was accompanied by the perception that researchers may be better equipped to handle an unfamiliar clinical situation that may arise.

"The researcher first. If something were to go wrong, he would probably adapt the fastest to something new."

"You assume the surgeon-scientist has enough clinical exposure and is also evidence-based and on the forefront of new technology."

Conversely, although the patients in the cranial group consistently showed a preference for neurosurgeons who participate in some extraclinical activity over those who participate only in clinical duties, there were no consistent patterns observed with respect to those preferences.

"Research is the top priority—it shows that the surgeon keeps himself up to date."

"Ideally, he would participate in all of these activities."

"Good bedside manner is desirable, so someone who volunteers outside the country may have patience."

Secondary Analysis

Preference for the Geographic Location of a Neurosurgeon's Practice

Overall, most patients preferred to have a neurosurgeon at a large urban academic hospital. Patients frequently attributed this preference to "more equipment," "more funding," and generally greater expertise, particularly with nonroutine cases. For patients who did not have a preference for the geographic location of their neurosurgeon's practice, they specified that they would go wherever the "good" and reputable doctor worked.

Preferences for Age, Sex, and Ethnicity

Patients generally did not have a preference for the age of their neurosurgeon but indicated that they desired to weigh having an experienced neurosurgeon against one who has reached his or her physical limitations for safely conducting a neurosurgical procedure.

Unanimously, the patients did not have a preference for the sex of their neurosurgeon. With regards to ethnicity, although the patients and their family members did not have a preference for the ethnicity of their neurosurgeon, many of them qualified their response by indicating that he or she must be proficient in communicating in English.

When asked the open-ended question of what additional attributes they value in a neurosurgeon, patients in both groups strongly emphasized communication in terms of the neurosurgeon's ability to effectively explain medical terms to patients and to be a good listener. Patients in the cranial group were also more likely to value a neurosurgeon who was compassionate and personable. Many patients and their family members emphasized that having to see a neurosurgeon is associated with significant anxiety:

"When I heard my daughter had to see a neurosurgeon, that word sent me running for the hills."

"You have a feeling in the pit of your stomach when you have to see a neurosurgeon."

Discussion

In this study, we qualitatively explored the perceptions and values of patients with regards to specific attributes of neurosurgeons in a large, diverse cohort of neurosurgical patients. Qualitative research in general, and within the field of neurosurgery specifically, provides significant insight into patient perceptions that is otherwise challenging to collect and quantify, which provides a rationale for using this methodology in the study.^{2,3,7-12} The primary analysis revealed that the patients consistently valued a well-rounded neurosurgeon. The patients acknowledged that although neurosurgeons who participate only in clinical duties may have the most experience, they felt that extraclinical duties would enrich their professional lives. These values seemed to transcend sex, age, and socioeconomic status. These results seem to indicate that the patients valued the quality of a neurosurgeon's experiences over his or her duration of clinical experience. Although one of the interview guide questions asked patients to rank neurosurgeons by their specific extraclinical activity, oftentimes these spheres significantly overlap. For example, researchers also often participate in teaching students and residents, and a neurosurgeon-philanthropist may also be an educator abroad. It is also important to note that, although the patients perceived extraclinical duties to have a positive impact on a neurosurgeon's professional practice, they did not believe that a lack of involvement in such activities had a negative impact on a neurosurgeon's adeptness and skill.

Patients with cranial or spinal problems are often referred for conditions of varying acuity and short- and long-term implications on their quantity and quality of life. As a result, we elected to assess if there were differences in the attitudes and perceptions of patients in the cranial group in comparison with those of patients in the spinal group. The overall results from the cranial and spinal groups were generally parallel. Patients and family members were largely inclined to search online for information on their neurosurgeon, including his or her qualifications and experiences. Previous studies have shown that neurosurgical patients often turn to the Internet to acquire information.³ Patients and family members in both groups also keenly emphasized the importance of having a neurosurgeon who is well rounded and an effective communicator. Previous reports supported the importance of effective communication between neurosurgeons and their patients to enable them to make meaningful choices regarding their care and give truly informed consent.¹⁰

There were some notable differences in patient preferences observed between the cranial and spinal groups. The patients in the spinal group tended to favor neurosurgeon-scientists, citing particularly that they valued research in fields such as chronic pain and spinal cord regeneration. The patients in the spinal group often indicated that a neu-

rosurgeon-scientist would be more likely to act promptly and wisely should something go awry in the operating room. It is unclear if the reason for this perception is because these patients believe that neurosurgeon-scientists are more capable of thinking innovatively or if they do not realize that research involvement may not always translate into immediate clinical implementation. There may also be a possibility that patients have differential inherent perceptions of spine surgeons in comparison with brain surgeons. One theory is that patients may perceive spine neurosurgery as less exacting than cranial neurosurgery and consequently prefer that a spine surgeon participate in academic endeavors such as scientific research.

The patients in the cranial group largely favored a neurosurgeon who was compassionate and personable, and this patient cohort generally did not demonstrate a pattern in their preference for the specific extraclinical duty in which the neurosurgeon chose to participate. These findings may correlate with the demographics of this patient cohort in that they were predominantly a neuro-oncology population, and patients with brain tumors may have different values than those with spinal conditions, perhaps by virtue of the relative acuity of their illness in some cases.

There were some inherent limitations to our study design. We examined patient perceptions of neurosurgeons in a large academic hospital, and each patient surveyed received care from a neurosurgeon who would be categorized as a neurosurgeon+. Furthermore, access to physicians is an important consideration that was not directly addressed in this study. Perhaps those patients who had a preference for highly academic surgeons sought care at this institution and as such, the study was biased to select for these patients; in other words, perhaps patients who had no preference for academic neurosurgeons would not have come to this hospital. Last, this study describes a Canadian experience; however, the findings may be translated to neurosurgery practices around the world, because patients in many health care systems may actively seek neurosurgeons based on specific preferences.

Conclusions

To our knowledge, this study details the first and only clinical qualitative study of patients' perceptions of neurosurgeons and provides substantial insight into the general values of neurosurgical patients. With an intrinsically academic specialty such as neurosurgery, involvement in extraclinical duties as a neurosurgeon+ is viewed positively by patients, may enrich one's neurosurgery career, and may advance the field of neurosurgery in general.

References

1. Babitsch B, Braun T, Borde T, David M: Doctor's perception of doctor-patient relationships in emergency departments: What roles do gender and ethnicity play? **BMC Health Serv Res** 8:82, 2008
2. Bramall A, Djimbaye H, Tolessa C, Biluts H, Abebe M, Bernstein M: Attitudes toward neurosurgery in a low-income country: a qualitative study. **World Neurosurg** 82:560–566, 2014
3. Bramall AN, Bernstein M: Improving information provision for neurosurgical patients: a qualitative study. **Can J Neurol Sci** 41:66–73, 2014
4. Corbin J, Strauss A: **Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory**. Thousand Oaks, CA: Sage Publications, 2008
5. Furnham A, Petrides KV, Temple J: Patient preferences for medical doctors. **Br J Health Psychol** 11:439–449, 2006
6. Haines SJ: How to choose your neurosurgeon. **Pract Neurol** 10:2–3, 2010
7. Hayhurst C, Mendelsohn D, Bernstein M: Low grade glioma: a qualitative study of the wait and see approach. **Can J Neurol Sci** 38:256–261, 2011
8. Jagadeesh H, Bernstein M: Patients' anxiety around incidental brain tumors: a qualitative study. **Acta Neurochir (Wien)** 156:375–381, 2014
9. Ravishankar N, Bernstein M: Religion benefiting brain tumour patients: a qualitative study. **J Relig Health** 53:1898–1906, 2014
10. Rozmovits L, Khu KJ, Osman S, Gentili F, Guha A, Bernstein M: Information gaps for patients requiring craniotomy for benign brain lesion: a qualitative study. **J Neurooncol** 96:241–247, 2010
11. Yu JJ, Bernstein M: Brain tumor patients' views on deception: a qualitative study. **J Neurooncol** 104:331–337, 2011
12. Zener R, Bernstein M: Gender, patient comfort and the neurosurgical operating room. **Can J Neurol Sci** 38:65–71, 2011

Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

Author Contributions

Conception and design: all authors. Acquisition of data: Bernstein, Samuel. Analysis and interpretation of data: all authors. Drafting the article: all authors. Critically revising the article: all authors. Reviewed submitted version of manuscript: all authors. Approved the final version of the manuscript on behalf of all authors: Bernstein. Study supervision: Bernstein, Samuel.

Supplemental Information

Online-Only Content

Supplemental material is available with the online version of the article.

Appendix. <http://thejns.org/doi/suppl/10.3171/2015.4.JNS15113>.

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