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The effect of clinical teaching on patient satisfaction in rural and community settings

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Introduction: Few studies have examined the effect of clinical teaching on patient satisfaction in rural and community-based settings. We sought to examine whether patient satisfaction differed when patients were seen by a physician alone or by a physician and medical student in these settings.
Methods: We conducted a cross-sectional study in rural and community-based settings in southern Ontario (3 obstetrician–gynecologist offices and 4 family medicine clinics). Patients seen by a physician with or without a medical student present completed satisfaction and attitudes questionnaires about their experience.
Results: Patient satisfaction was high across both groups and did not differ when segregated by patient age, sex or employment status. Satisfaction scores were similar for patients seen by a physician with or without a student present. Satisfaction scores did not differ based on practice location. Patients' reasons for agreeing to be seen by a medical student included helping to teach students about medical concerns and helping to train future doctors.
Conclusion: Patients in rural and community-based outpatient settings were satisfied with their care when a medical student was involved.

Introduction : Peu d'études ont analysé l'effet de l'enseignement clinique sur la satisfaction des patients en milieux rural et communautaire. Nous avons cherché à déterminer si la satisfaction des patients différait lorsqu'ils étaient accueillis par un médecin seul ou par un médecin et un étudiant en médecine dans ces contextes.
Méthodes : Nous avons réalisé une étude transversale en milieux rural et communautaire du sud de l'Ontario (3 bureaux d'obstétriciens-gynécologues et 4 cliniques de médecine familiale). Les patients reçus par un médecin accompagné ou non d'un étudiant en médecine ont rempli des questionnaires sur la satisfaction et les attitudes au sujet de leur expérience.
Résultats : La satisfaction des patients était élevée dans les deux groupes et ne différait pas lorsqu'elle était distinguée selon l'âge et le sexe du patient ou le statut d'emploi. Les scores de satisfaction étaient semblables pour les patients reçus par un médecin accompagné ou non d'un étudiant. Les scores de satisfaction n'ont pas différé en fonction du lieu de pratique. Les raisons pour lesquelles les patients ont accepté d'être vus par un étudiant en médecine comprenaient le fait d'aider à donner aux étudiants de la formation au sujet de problèmes médicaux et d'aider à former de futurs médecins.
Conclusion : Les patients reçus en clinique externe dans les milieux rural et communautaire étaient satisfaits des soins reçus lorsqu'un étudiant en médecine était présent.

Introduction

The provision of medical education is increasingly being distributed away from large urban centres toward rural and community-based settings.[1] However, there are limited data on the effect of medical students on patient satisfaction in rural and community-based settings.

There is evidence that most patients will accept student involvement in their care in urban ambulatory care settings.[2–8]

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Patient consent to medical student involvement in their care is affected by the specific information given to patients and at what point leading up to the clinical encounter they are asked, the nature of the visit, the degree of doctor supervision and prior experience with medical students.[8,9]

Supervision of medical students increases physician satisfaction and improves medical practices.[10] However, concerns expressed by physicians about supervising medical students include patient fatigue, disruption of the doctor–patient relationship, pressured patient consent and interference with patient comprehension.[9,11] Physicians tend to underestimate the effect of teaching encounters on patient satisfaction.[9,11–13] Patients report a number of advantages when involved in the teaching of medical students, including feelings of altruism, enhanced patient education and improved care.[2,3,14–18] Patient age, sex, employment status and practice type have been previously found to influence patient satisfaction.[19]

We sought to determine whether the presence of a medical student in a rural or community-based clinic consultation affected patient satisfaction and which factors influenced patients' decision to consent to medical student involvement in their care.

METHODS

We used a modified version of the American Board of Internal Medicine Patient Satisfaction Questionnaire (ABIM PSQ)[20] to assess patients' general satisfaction with their consultation. The questionnaire contains 9 questions and is scored on a 5-point Likert scale that ranges from "strongly agree" to "strongly disagree." Questions are intended to measure the quality of physicians' communication skills, humanistic behaviour and the appraisal of professionalism in medicine.[21]

As well, patients who attended a teaching consultation were given a second questionnaire to determine their expectations of student involvement and reasons for participating in teaching. This questionnaire was also scored on a 5-point Likert scale and ranged from "strongly agree" to "strongly disagree." Because there were no pre-existing questionnaires that met the study needs in this area, we created a survey using themes from other research on the expectations of involvement and reasons for agreeing to participate in teaching. To help counteract the expected ceiling effect of high satisfaction ratings, we framed the questionnaire to encourage critical responses.

Study setting and participants

The McMaster Community and Rural Education Program (Mac-CARE) arranges educational opportunities for third-year medical students in communities and rural areas in the southern Ontario regions of Niagara, Brantford and Waterloo–Wellington. Preceptors affiliated with Mac-CARE were contacted by email and invited to take part in the study over a 2-month period. Physicians who expressed interest were enrolled in the study. Study locations included obstetrician–gynecologist (OB-GYN) offices and family medicine clinics, and all were in communities throughout southern Ontario. Participants were patients of the preceptors who were visiting their doctor with a wide variety of medical inquiries. Only patients aged 18 years or older were asked to participate.

Data collection

Sampling was carried out on a single morning or afternoon in each clinic by the primary investigator. When patients arrived at the office, the receptionist explained the study and directed patients to the investigator, who explained the nature of the research and obtained consent. At this time, patients were asked if they would consent to the experimental group where they would be seen by a medical student and the physician. If they did not agree, they were asked for their participation in the study's control group, where they were seen only by the physician and would fill out the modified ABIM PSQ. This study did not lend itself to random sampling because patient consent was required to allow a medical student to be present. Following their appointments, patients in the experimental group completed the modified ABIM PSQ and the questionnaire that assessed their reasons for engaging with a medical student. Participants in the control group completed only the modified ABIM PSQ. Participants completed the surveys in or near the waiting room, and the investigator remained in the room to answer questions. To increase the response rate among patients unable to read the survey, patients were given the option of having the investigator read the questions aloud and record their responses.

The goal was to obtain an equal number of patients who were involved in a teaching encounter and those who interacted with the doctor alone.

Ethical considerations

The research ethics board of Hamilton Health Sciences and McMaster University gave ethical approval.

Patients were assured that the study was completely voluntary, and the investigator was identified as independent of the clinical staff. Consent to participate was verbal, so no identifying information was recorded from patients. Participants who did not have enough time following their consultation to complete the survey were given a blank questionnaire and return envelope.

Statistical analysis

Analysis was performed using SPSS statistical software. The reliability of the modified ABIM PSQ was determined to be 0.96 using Cronbach α analysis, indicating that the variance in satisfaction scores was due to variation in true differences between individuals, rather than an inaccuracy in the measurement tool. All questionnaires were properly completed and scores for the modified ABIM PSQ were expressed as a summed total, with 45 being the highest obtainable score. Higher scores indicate higher levels of satisfaction among participants. Differences were considered statistically significant at $p < 0.05$. We used the Student *t* test to detect differences in mean satisfaction ratings between the groups. To ensure our data were normally distributed, we used the nonparametric Wilcoxon rank-sum test to verify these results. Because a control group was not available for the results from 1 clinic, the data were removed and the analysis repeated with the remaining participants to ensure consistency. We compared demographics (sex, age and employment status) between groups to ensure similar populations. We used the Mann–Whitney *U* test for continuous comparisons and the Fisher exact and χ^2 tests to compare categorical variables between groups.

Because patient age, sex and employment status, and practice type were previously found to influence patient satisfaction,[19] we analyzed pooled satisfaction scores using regression analysis. Clinical teaching questions on the second survey were analyzed using descriptive statistics. For the purposes of analysis, the responses "agree" and "strongly agree" were combined, as were "disagree" and "strongly disagree." We used χ^2 tests to compare proportions.

RESULTS

We contacted 13 preceptors affiliated with MacCARE. Seven doctors were enrolled from 7 clinics; 3 were OB-GYN offices and 4 were family practices. For 1 practice, we were unable to obtain a control group because most of the patients had been previously involved with medical students and agreed to be involved in this type of consultation. The primary investigator distributed surveys for 45 patients at the 7 locations and all were returned, yielding a 100% response rate. Of the surveys, 44 were completed immediately after the consultation and 1 was submitted by mail.

Patient characteristics

Table 1 shows the characteristics of patients in both groups. Of note, the sample consisted of a higher proportion of female than male patients (86.7% women: 83.3% women in the group seen by a physician only; 88.9% women in the group seen by a physician and medical student). There were no notable differences in demographic characteristics between the groups.

Level of satisfaction

Patient satisfaction scores were high across both groups and were not affected by the presence of a medical student ($t_{43} = 0.23$, $p = 0.1$) (Table 2). In the group who had students present during their visit, the mean satisfaction score was 43.07 out of 45; participants who saw their doctor alone had a mean score of 42.72 out of 45. One site lacked a control group and these patients had more experience with medical students, which raised the concern that this group may not accurately reflect the general population. However, removal of these patients from the analysis revealed no difference in the satisfaction scores (data

Table 1. Characteristics of 45 patients seen by a physician with or without a medical student present

Characteristic	Group; no. (%)*		
	No student present, *n* = 18	Student present, *n* = 27	*p* value
Age, mean (SD), yr	50.2 (18.7)	47.6 (20.1)	0.6†
Female sex	15 (83.3)	24 (88.9)	0.6‡
Employment status			0.5†
Employed	9 (50.0)	11 (40.7)	
Retired	8 (44.4)	8 (29.7)	
Looking after home	1 (5.6)	4 (14.8)	
Looking after family	0	1 (3.7)	
Student	0	2 (7.4)	
Unable to work	0	1 (3.7)	

SD = standard deviation.
*Unless stated otherwise.
†Mann–Whitney *U* test.
‡χ^2 test.

not shown). We also compared satisfaction ratings within individual practices and found there was no statistical difference between patients seen by physicians with and without students present (Table 2).

Factors affecting satisfaction

Patient satisfaction ratings did not differ when segregated by patient age, sex or employment status. Our study identified no significant differences in patient satisfaction at OB-GYN clinics compared with family practice settings (Table 2). Similarly no significant differences were seen in patients' satisfaction ratings in rural practices versus community-based locations (Table 2).

Patient engagement in student teaching

Table 3 shows the results from the second questionnaire given to patients who saw a medical student.

DISCUSSION

Medical student involvement during outpatient visits did not adversely affect patient satisfaction in these rural and community-based settings. Patients who met with medical students reported doing so to help further the students' education and to help train future doctors. Of the patients who saw a medical student, 93% would recommend participating in medical teaching to friends and family, which further highlights patient acceptance of students in these settings. These findings are in line with previous studies on this topic done in community-based settings.[2,3,14–18]

According to previous findings, the intimate nature of OB-GYN examinations makes women less likely to consent to involvement by medical students.[8,22–24] In contrast, this study found that women reported a higher level of satisfaction with teaching appointments at OB-GYN clinics than patients at family medicine practices. Another unexpected finding was that patients were willing to allow student participation even if they were not comfortable with the encounter. In addition, the presence of a medical student during a sensitive procedure is enough to make some patients feel uncomfortable, yet it does not deter them from participating in clinical teaching, as seen in Table 3. This finding is important for preceptors in rural medicine to ensure that they ask for patient consent to student involvement in gynecologic examinations and in discussing sexual or emotional topics.

Research has shown that patients in rural and small communities often give more value to continued care from the same physician, building trust and forming personal relationships,[25] which stresses the importance of examining satisfaction in these settings. As in the rest of Canada, rural and small communities have been facing a shortage of family physicians and specialists.[26] One interpretation of our study group's willingness to take part in clinical teaching may stem from the belief that by exposing more medical students to their practice, they will have a better chance of attracting them to work in their community.

Table 2. Satisfaction ratings of patients seen by a physician with or without a medical student present

	Group; mean satisfaction rating*			*p* value	
Measure	No student present	Student present	Total	Within groups	Within locations
Overall	42.72	43.07	42.93	0.8	
Setting					0.1
Rural	41.44	41.75	41.62	0.9	
Small community	44.00	44.13	44.08	0.9	
Practice type					0.2
OB-GYN	45.00	43.69	44.06	0.07	
Family practice	41.85	42.50	42.19	0.8	
Clinic					0.008
1	NA	41.75	41.75	NA	
2	45.00	45.00	45.00	> 0.9	
3	44.00	45.00	44.50	0.4	
4	44.25	42.75	43.50	0.6	
5	45.00	44.20	44.43	0.6	
6	42.50	45.00	44.00	0.3	
7	35.33	36.33	35.83	0.9	

NA = not applicable; OB-GYN = obstetrician–gynecologist.
*Out of a possible score of 45.

The finding of extremely high levels of patient satisfaction across all consultations may lead some to believe that the study surveys were unable to detect a difference in satisfaction due to low sensitivity.[4] However, because this study was able to show a statistical difference in patient satisfaction ratings between individual clinics, the study instruments would have revealed a student-induced change in patient satisfaction if one existed. We believe that the perfect response rate was influenced by the fact that the survey was noninvasive and people were happy to participate.

This study provides information on patient satisfaction in rural and community-based settings. It offers a Canadian perspective to the literature on clinical teaching in rural and community-based settings, which otherwise comprises mostly American or Australian studies. Qualitative reporting from patients offers a glimpse into their opinions about clinical teaching and their desire to ensure an adequate supply of health care providers in their communities. It also highlights patients' altruistic motives in consenting to student involvement in their care, which extends to procedures that make them feel uncomfortable.

Limitations

One limitation of the study is that we were unable to use randomization to eliminate bias from patients who may have positive feelings toward students in general, which are then reflected in their satisfaction scores. Replication of this study using patients randomly assigned to student groups would aid in validating our findings, but this would involve logistics and ethical considerations.

Table 3. Questionnaire responses of 27 patients seen by a physician and medical student

Question	Response; % of patients				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I agreed to participate in medical student involvement because:					
I wanted to help in the training of future doctors	81.5	18.5	0	0	0
I wanted to teach the student about my medical concerns	51.9	25.9	18.5	3.7	0
I feel I help the development of professional skills and attitudes	63.0	25.9	11.1	0	0
My doctor asked me to	33.3	22.2	33.3	7.4	3.7
I understand my illness/treatment much better after hearing the doctor teach the student	18.5	44.4	37.0	0	0
Meeting with the student reinforced my feelings of ill health	3.7	3.7	14.8	40.7	37.0
I worry that the student will discuss me after my visit	3.7	3.7	11.1	40.7	40.7
I prefer to see my doctor alone	3.7	0	51.9	18.5	25.9
I was told exactly what activities the medical student would be helping with	55.6	37.0	3.7	3.7	0
I would agree to allow the medical student to take part in the following situations:					
Taking medical history	66.7	33.3	0	0	0
Gynecological or internal exams	33.3	37.0	18.5	11.1	0
Emotional issues	40.7	33.3	14.8	7.4	3.7
Sexual problems	29.6	25.9	33.3	7.4	3.7
I would feel comfortable if the medical student was involved in the following situations:					
Taking medical history	70.4	29.6	0	0	0
Gynecological or internal exams	33.3	22.2	18.5	25.9	0
Emotional issues	40.7	33.3	11.1	11.1	3.7
Sexual problems	29.6	33.3	22.2	11.1	3.7
I would agree to be examined by a student with my doctor present	55.6	37.0	7.4	0	0
I would agree to be examined by a student without my doctor present	18.5	33.3	11.1	33.3	3.7
I would recommend participating in these medical teachings to family and friends	55.6	37.0	7.4	0	0

Another limitation is the disproportionate representation of female patients. Even after we controlled for OB-GYN clinics, women still outnumbered men in the study. However, women have been found to use medical services more often than men, so having more women is not surprising.[27] In addition, previous research has disputed the claims that patient sex has any significance in overall patient satisfaction ratings.[28,29]

Finally, prior experience with a medical student is a facilitating factor in allowing student involvement in appointments[22] and having a higher level of satisfaction.[8,9,17,28,30–33] The practices involved in our study often serve as teaching sites; it is unclear whether new teaching sites would have similar satisfaction ratings or if patient satisfaction with student involvement takes time to develop.

CONCLUSION

To ensure the continued success and growth of distributed education, a better understanding is needed of how clinical teaching affects the patient experience. Results of this study provide a more in-depth understanding of patients' satisfaction with the teaching of medical students during family physician visits, specifically in rural and community settings, together with an understanding of why they would agree to this type of teaching encounter. Patient satisfaction ratings remained consistent with student involvement, and patients outlined their role in contributing to medical student development. These findings can help to inform the preceptor physician in rural and community-based settings to understand the benefits of student engagement in their practice and the ways to avoid adverse effects on patient satisfaction.

Competing interests: None declared.

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