Patient Satisfaction with Medical Student Participation in the Private OB/Gyn Ambulatory Setting

Katie G. Mellington, MD
Faculty Mentor: Benjie B. Mills, MD
Disclosure

• The authors have no meaningful conflicts of interest
Background

• Access to healthcare is a profound problem worldwide

• AAMC projects a shortage of 61,700 to 94,700 physicians by 2025 in the US
  – Training capacity must increase to fill this demand\(^1\)
In 2014, there were 223 active physicians per 100,000 people in SC
  – Deficit of 28 physicians per 100,000 people compared to the rest of the US

USCSOM-G was created to help satisfy this demand
  – 45% of those graduating in SC will stay in SC
Background

• Meaningful educational opportunities needed
• Academic medical institutions are at maximum capacity
• More community preceptors are desired to fill this need
  – Barriers to increasing community physician engagement
    • Perceived decrease in patient satisfaction
    • Fear of decreased productivity
    • Concern for increased time required per patient
Background

- Patient satisfaction and acceptance of medical students is high
- 75.8% of patients across multiple disciplines are willing to accept students\(^8\text{-}10\)
- Patients have a desire to contribute to the education of students and prefer to be informed before the medical student arrives\(^5\)
- Student gender is a factor in patient acceptance of students
  - Male students receive less extensive experience in OB/Gyn due in part to patient refusals\(^4\)
  - Patient comfort is higher with female vs. male students in OB/Gyn\(^12\)
Objectives

• **Primary**
  – To compare patient satisfaction with their OB/Gyn visit when seen by an attending & medical student pair with patient satisfaction when seen only by an attending

• **Secondary**
  – To determine if differences in patient satisfaction, comfort, and other measures exist based on
    • Demographic data
    • Visit characteristics
    • Student gender

• **Tertiary**
  – Provide pilot data for validation of the survey instrument
Methods

• Survey study design
• Pilot study for questionnaire validation
• Setting: Greenville Health System Department of OB/Gyn private practice offices
• Inclusion criteria
  – Patients seen by a provider who serves as a community preceptor
  – Outpatient visit
• Exclusions
  – < 18 years of age
  – Not willing to read consent and instructions
  – Not voluntarily filling out survey
Methods

• Patients were asked to voluntarily fill out a survey about today’s visit and medical student participation at time of checkout

• Survey instrument
  – Demographic and visit data
  – Satisfaction and comfort with the visit
  – Likelihood of returning to the provider
  – Likelihood of referring provider to family and friends
  – Assessment of patients’ desired level of medical student involvement
Visual Analog Scale

- Traditionally used for pain measurement
- Increasing usage for subjective factors
- More accurate than Likert scales

Distance in mm = score

Very Dissatisfied

Very Satisfied
Validation

• Validation – Collingridge method
  – Step 1 – Evaluate face validity
  – Step 2 – Run a pilot test
  – Step 3 – Clean collected data
  – Step 4 – Use Principal Components Analysis (PCA)
  – Step 5 – Check internal consistency
  – Step 6 – Revise your survey
Methods

• Validation of the instrument – Collingridge method
  – Step 1 – Evaluate face validity
  – Step 2 – Run a pilot test
  – Step 3 – Clean collected data
  – Step 4 – Use Principal Components Analysis (PCA)
  – Step 5 – Check internal consistency
  – Step 6 – Revise your survey
A 15% difference in patient satisfaction, comfort, happiness, or likelihood was considered significant.

A power calculation revealed an appropriate sample size to be 23 participants in each group – $\alpha = 0.05$, $\beta = 0.1$. 
Statistical Analysis

- JMP Pro 12 used for statistical analysis
- Least squares used to calculate means and standard errors
- t-tests used to compare means
- Linear regression and Pearson’s chi-square test were used in evaluation of the extent of medical student participation allowed by the patient
- Pearson’s chi-square test was used to evaluate length of visit
Results

66 Surveys Collected

1 survey excluded
No answer on student involvement

32 No Student

33 With Student

6 Declined Student

26 No Student Available
Results

• No differences in demographic characteristics between the two groups
• Patient satisfaction scores were high, with and without students
• No statistical differences in satisfaction scores based on presence of a med student alone
• No differences in length of visit with and without students
Effect of Age

- < 40 with Student (n=21)
- < 40 without Student (n=20)

- >= 40 with Student (n=12)
- >= 40 without Student (n=11)

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction</th>
<th>Comfort</th>
<th>Likelihood of Return</th>
<th>Likelihood of Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 40 with Student</td>
<td>95</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>&lt; 40 without Student</td>
<td>95</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>&gt;= 40 with Student</td>
<td>95</td>
<td>p=0.025</td>
<td>95</td>
<td>NS</td>
</tr>
<tr>
<td>&gt;= 40 without Student</td>
<td>95</td>
<td>p=0.008</td>
<td>95</td>
<td>NS</td>
</tr>
</tbody>
</table>

- p-values: 0.025, 0.008, 0.017
Effect of Race/Ethnicity

White with Student (n=30)
White without Student (n=28)

Other race/ethnicity with Student (n=3)
Other race/ethnicity without Student (n=3)

Satisfaction  Comfort  Likelihood of Return  Likelihood of Referral

p=0.018  p=0.030  p=0.020

NS  NS  NS  NS
Effect of Provider Gender

Female with Student (n=23)
Female without Student (n=25)

Male with Student (n=10)
Male without Student (n=7)
Effect of Visit Type

- OB with Student (n=13)
- OB without Student (n=5)

- Gyn with Student (n=20)
- Gyn without Student (n=26)

Satisfaction
Comfort
Likelihood of Return
Likelihood of Referral

- OB with Student
- OB without Student

- Gyn with Student
- Gyn without Student

p=0.012
p=0.013
p<0.001
p=0.021
NS
NS
NS
NS
p=0.021
p<0.001
p=0.013
p=0.012
NS
NS
NS
NS
## Student Gender Has No Effect

<table>
<thead>
<tr>
<th></th>
<th>Male Student (SE)</th>
<th>Female Student (SE)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit Satisfaction</td>
<td>81.5 (6.1)</td>
<td>95.8 (8.6)</td>
<td>0.094</td>
</tr>
<tr>
<td>Visit Comfort</td>
<td>80.6 (6.2)</td>
<td>95.3 (8.8)</td>
<td>0.091</td>
</tr>
<tr>
<td>Likelihood of Return</td>
<td>84.3 (6.2)</td>
<td>94.3 (8.7)</td>
<td>0.178</td>
</tr>
<tr>
<td>Likelihood of Recommendation</td>
<td>83.6 (6.4)</td>
<td>92.3 (9.0)</td>
<td>0.219</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allow Med Student</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, always</td>
<td>20 (87)</td>
<td>6 (67)</td>
<td>0.186</td>
</tr>
<tr>
<td>No or Yes, with restrictions</td>
<td>3 (13)</td>
<td>3 (33)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allow Med Student to Observe Exam</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, always</td>
<td>18 (78)</td>
<td>4 (44)</td>
<td>0.069</td>
</tr>
<tr>
<td>No or Yes, with restrictions</td>
<td>5 (22)</td>
<td>5 (56)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allow Med Student to Perform Exam</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, always</td>
<td>12 (52)</td>
<td>2 (22)</td>
<td>0.125</td>
</tr>
<tr>
<td>No or Yes, with restrictions</td>
<td>11 (48)</td>
<td>7 (78)</td>
<td></td>
</tr>
</tbody>
</table>
Strengths

• Variety of preceptors queried
• Only one survey eliminated
• Use of Visual Analog Scale instead of a Likert scale
• Large number of male students
• 9.2% of patients declined a student vs. 24% in the published literature
• Many survey instrument questions were adapted from Press-Ganey
Limitations

• Not every patient answered every question (missing data)
• Very few comments
• Alteration of perception on responses due to internal and external factors
• Respondents had to be aggregated into larger groups due to small numbers in more narrow categories (e.g., age, race/ethnicity)
• Limited generalizability because the patient population was very specific
Conclusions

• Patient satisfaction, comfort, likelihood of returning to provider, and likelihood of recommending provider to others are all very high with or without medical student participation
  – Some statistically significant differences were noted in patients who were 40 and older, white, and being seen for a Gyn visit
    – Scores remained 82% or higher
• Patient satisfaction was not affected by student gender
• Length of visit was not affected by student participation
Discussion

• Small but significant differences in patient satisfaction were seen in patients who were ≥ 40, white, or being seen for a Gyn visit

• This difference in satisfaction must be weighed against the anticipated physician shortage and the need to train more physicians
Future Work

• Conduct a Principle Components Analysis on the survey instrument and complete validation process
• Survey more practices with a broader patient population
• Study strategies to improve patient acceptance and satisfaction with student participation
References
