Association between teaching in medical school and projected confidence teaching in residency

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BACKGROUND

- Teaching is an integral part of the task of the physician . On a daily basis, they are called up on to teach colleagues, residents, medical students and, perhaps most importantly, their patients.
- It is widely recognized that medical students benefit greatly from competent resident-teachers, and that over a third of their teaching comes from residents.
- A large volume of literature in medical education has been dedicated to exploring how to better train residents for teaching.
- There is growing interest in exploring whether exposure to teaching skills – either through formal didactics or through hands-on experiences -- should be started prior to residency.

OBJECTIVE

- While learning how to teach is a critical component of residency training, it is not generally a part of core medical school curricula for medical students.
- Many medical schools offer teaching curricula and experiences in teaching but there is a gap of knowledge regarding the impact of these experiences on medical students.
- We conducted a survey to assess types of teaching experiences students participate in, and to determine if participating in these experiences is correlated with higher level of confidence in teaching as well as interest in academic medicine and in clinical education.
- We hypothesized that practicing of teaching skills is related to improved predicted confidence in teaching and could lead to better teaching effectiveness in residency.

METHODS

- In winter of 2014, students from all years at a north-eastern medical school were asked to participate in an online survey which asked about:
  - types of teaching experiences both before and during medical school
  - demographic questions on age, gender and academic year
  - questions regarding self-reported attitudes towards teaching.
- The survey contained an assortment of question types including multiple choice, free-text and Likert scales.
- IRB approval was waived for this study.
- We analyzed the data using both non-adjusted and adjusted ordered logistic regression models.

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ACKNOWLEDGEMENTS

Thank you to Dr. Encandela and to Gary Leydon for their help in developing the survey and navigating the survey software. Thank you to clerkship coordinators for helping to distribute surveys.

RESULTS

Table 1 – Characteristics of students that did and did not teach in medical school

	Total; mean (sd); n (%)	Medical students that did not teach in medical school (n=77)	Medical students that taught in medical school (n=99)	P-Value
Age	26.0 (2.72)	25.3 (2.70)	26.5 (2.81)	0.01
Female	84 (46.93)	34 (44.74)	49 (49.49)	0.532
Preclinical	78 (40.41)	45 (58.44)	26 (26.26)	> 0.001
Clinical	115 (59.59)	32 (41.56)	73 (73.74)	
No undergrad teaching experience	31 (15.82)	19 (24.68)	8 (8.16)	0.003
Undergrad teaching experience	165 (84.18)	58 (75.32)	90 (91.84)	
No gap year teaching experience	59 (53.15)	29 (59.18)	25 (50.00)	0.359
Gap year teaching experience	52 (46.85)	20 (40.82)	25 (50.00)	
No prior to med school teaching experience	24 (12.18)	14 (18.18)	7 (7.14)	0.026
Prior to med school teaching experience	173 (87.82)	63 (81.82)	91 (92.86)	
Competency in basic sciences	3.62 (0.86)	3.44 (0.92)	3.75 (0.80)	0.07
Competency in clinical knowledge	3.45 (0.94)	3.21 (0.95)	3.66 (0.99)	0.02
Competency in clinical skills	3.72 (0.92)	3.50 (0.96)	3.90 (0.86)	0.04

Table 2 – Association between teaching in medical school to self-reported confidence and interest in teaching

	How much do you feel that medical school has prepared you for teaching in residency? (OR, p-value)	How important a role do you think educating others will have in your career? (OR, p-value)	How interested are you in pursuing a career in academic medicine? (OR, p-value)	How confident are you in your teaching skills? (OR)
Model 1	2.166 (p = 0.007)	2.905 (p = <0.001)	1.934 (p = 0.022)	3.275 (p = <0.001)
Model 2	2.103 (p = 0.013)	2.962 (p = 0.001)	1.657 (p = 0.092)	3.331 (p = <0.001)
Model 3	2.036 (p = 0.019)	2.731 (p = 0.002)	1.55 (p = 0.152)	3.014 (p = <0.001)
Model 4	1.55 (p = 0.154)	2.381 (p = 0.009)	1.288 (p = 0.428)	2.817 (p = 0.001)

Model 1: Ordered logistic regression comparing dependent variable with whether or not student participated in teaching in medical school; Model 2: Ordered logistic regression controlling for demographic factors (age, gender); Model 3: Ordered logistic regression controlling for demographic factors (age, gender) as well as for any teaching experience prior to medical school (undergraduate and gap-year teaching experiences); Model 4: Ordered logistic regression controlling for demographic factors (age, gender), teaching experience prior to medical school (undergraduate and gap-year teaching experiences) as well as self-reported competency in knowledge (basic science, clinical knowledge and clinical skills).

Figure 1 – Types of teaching experiences in which medical students participate

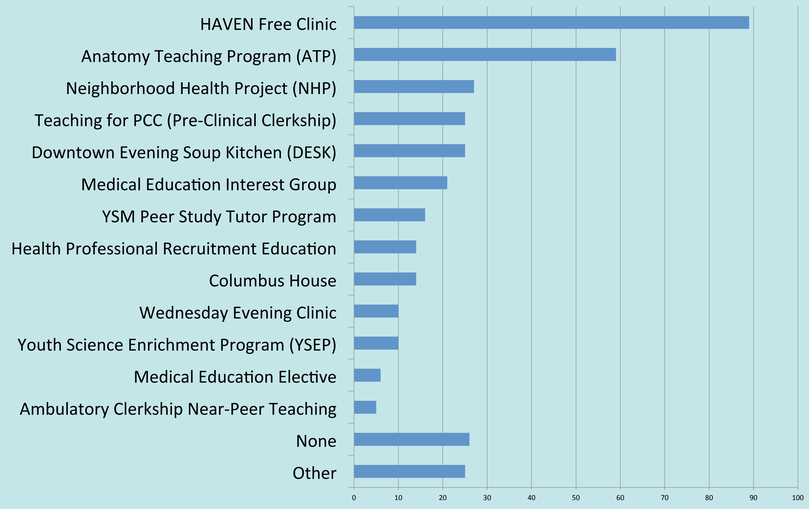
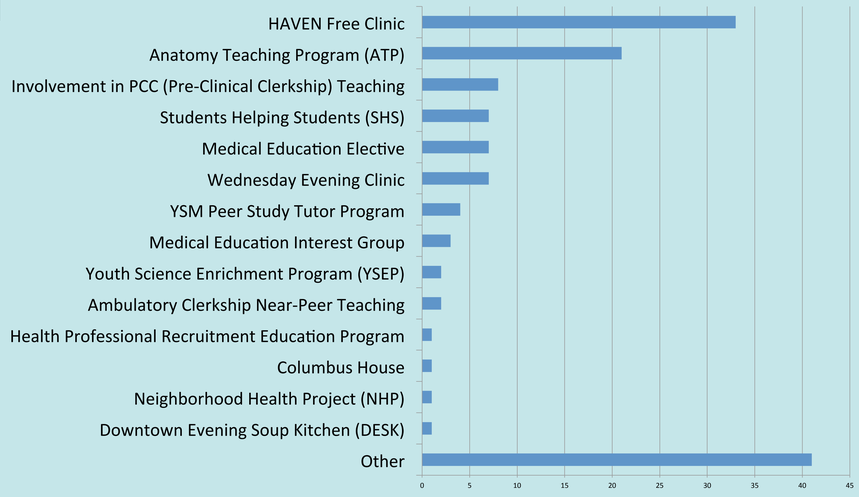


Figure 2 – The experience that medical students feel most prepared them for teaching in residency



Themes from student responses to question "How do you think your training to teach could best be complemented in medical school?"

- "Workshops, teaching medical students. Need more experience rather than lectures."
- "Teaching is best taught through practice AND good mentors (i.e. good teachers) who lead by example."
- "Optional online modules would be great tools to have available."
- "More experiences like HAVEN."
- "Online modules and optional lectures would be important to build a foundation and to learn theory. However, I believe that practical experience is most important."

SUMMARY OF RESULTS

- About 43% of the medical school body responded to the online survey distributed (n=203).
- A majority of medical students participate in teaching experiences (56%), and the largest number of these experiences occur at the HAVEN Free Clinic.
- Engaging in teaching in medical school was correlated with the student's perceived future interest in clinical education (OR=2.381; p=0.009), and with their confidence in their teaching skills (OR=2.817; p=0.001).
- Students felt that HAVEN Free Clinic prepared them best for teaching in residency (23%).

LIMITATIONS

Limitations of this study include:

- It is a cross-sectional analysis and neither the directionality nor the causality of the relationships can be determined.
- The survey was completed by only 43% of students (n=203), and we cannot know if the respondent population is representative of the total population of medical students.
- Furthermore, the research asks about perceived confidence in and attitudes towards teaching, but does not assess actual resident teaching competence.

CONCLUSIONS

This research suggests that exposing students to teaching opportunities in undergraduate medical curricula *could* improve confidence in teaching and interest in education and could, in turn, improve educational experiences for residents, medical students and patients. It would be interesting to determine how student participation in existing teaching experiences could be enhanced and how new programs could be created to increase students' knowledge of teaching as well as their confidence in teaching. Longitudinal research is needed to further assess the effects of undergraduate medical teaching experiences on quality of resident teaching.