Faculty attendance and perception of virtual educational conferences in pediatric emergency medicine during the COVID-19 pandemic

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Research Article

Keywords: Medical education, virtual learning, educational conferences, graduate medical education, didactics, faculty engagement

Posted Date: April 1st, 2021

DOI: https://doi.org/10.21203/rs.3.rs-362407/v1

Abstract

Background:

Attendance of in-person didactic conferences is a key component of graduate medical education and training in pediatric emergency medicine. Faculty participation in didactic conferences is important, although challenges to attendance exist. The SARS CoV-2 global pandemic disrupted in-person medical education and forced migration to virtual learning. Our goal was to describe how the change to virtual learning affected pediatric emergency medicine conference attendance by faculty in the division at a large academic medical center. Participants were also surveyed to provide insight into perceptions of virtual conferences.

Methods:

Faculty attendance of in-person conferences (fellow conference from 2017–2020, resident conference from 2019–2020) was compared to attendance of virtual conferences (April - June 2020). Conference participants were surveyed to assess attitudes towards the virtual format. Descriptive statistics were used to describe variables.

Results:

The transition to virtual learning increased pediatric emergency medicine faculty attendance of all conferences. Fellows conference attendance increased from 11.8–49.2% of available faculty (3.3 to 13.8 out of 28) (95% CI -14.0 to -9.09 $p < 0.001$). Resident conference attendance increased from 18.3–58.9% of available faculty (5.12 to 16.5 out of 28) (95% CI -20.89 to -8.60 $p < 0.001$). Survey response rate including fellows and residents was 67.5% (52/77), with 88.2% of faculty members responding to the survey (30/34). Most respondents (75%) regarded the virtual format as better or equal to in-person. All respondents (100%) indicated they would keep the option to virtually attend conference in the future.

Conclusions:

Virtual conferences increased faculty attendance in both fellow and resident pediatric emergency medicine educational conferences. It was well received by participants, and most would like to continue virtual learning in the future.

Background

Formal didactic conferences are an essential component of pediatric emergency medicine (PEM) education, particularly given the unpredictable clinical load unique to emergency medicine[1–3]. Faculty engagement enhances this type of education, although previous study has demonstrated that faculty

attendance of such conferences may be limited by clinical, administrative, and familial duties, as well as time and distance[3].

On March 12th, 2020, with the social distancing necessity of the SARS CoV-2 global pandemic, all educational in-person gatherings at our university were suspended. The didactic conferences for fellows and residents transitioned to virtual conferences, a pattern that reflects the broader medical education landscape as a result of the pandemic[4–11]. Virtual learning in pediatric emergency medicine has been studied previously and shown to have success, and the virtual conference format has been shown to be as effective as in-person didactic conferences for some specialties[2, 12–15]. We therefore looked to understand how the virtual conference format affected attendance patterns by our faculty.

We tracked data on faculty, fellow, and resident attendance of our fellow and resident conferences, analyzed patterns of faculty attendance before and after virtual conferences, and surveyed participants of this new format. We hypothesized that the virtual conference format, by removing some barriers of time and distance to attendance, would increase overall faculty attendance of these educational conferences.

Methods

Research Setting and Participants

The University of Texas Southwestern Medical Center, Division of Pediatric Emergency Medicine, has an active fellowship program and is the primary acute care pediatric experience for six independent residency programs across North Texas.

The fellowship program hosts a half-day weekly conference, with mandatory attendance for fellows. Changes were made to the conference over the years in order to improve faculty attendance: one hour of continuing medical education (CME) credit was added in academic year (AY) 2018–2019, and the conference day was changed from Wednesday to Tuesday in AY 2019–2020 to align with other educational activities in the department.

In September 2019, the division also created a weekly resident conference. Rotating residents on shift (3–6 per session) were provided a protected two-hour block of time in order to attend resident conference.

Intervention

On March 12, 2020, fellow and resident conferences were paused for two weeks to make adjustments to accommodate social distancing mandates. The fellow conference resumed on March 24, 2020 and the resident conference resumed on April 8, 2020, both using a virtual conference format on the software platform Zoom™. Zoom™ was chosen for its user-friendly features, cross-platform capabilities, and low cost. The fellow and resident conference Zoom™ links were distributed to faculty, fellows, and residents.

Attendance was opened to resident conference by sharing the Zoom™ link with the rotating residency programs.

Outcomes

For in-person conferences from 2017–2019, faculty attendance of fellow and resident conference was obtained on paper. Conference attendance was de-identified and entered in MedHub™, a personnel and scheduling program. For virtual conferences from April 2020 - June 2020, faculty attendance was taken from the participant list provided by Zoom™, de-identified and entered into MedHub™. The authors created a brief survey to assess attitudes towards virtual conferences (Appendix A). The anonymous survey link was distributed via e-mail to all virtual conference participants in July 2020 via RedCap™.

Statistical Analyses

Descriptive statistics were used to describe all variables such as rates of conference attendance. Students t-tests were used to compare faculty conference attendance between academic years. Paired T-tests were used to compare conference attendance before and after the institution of virtual learning format. Survey results were collected via RedCap™ and results collated. A p-value less than 0.05 in analysis was considered statistically significant. All statistical analyses were performed using JASP v0.12.2.0.

Institutional Review Board of University of Texas Southwestern Medical Center reviewed the study proposal and determined it to be exempt. An implied consent form was given to all participants when completing the survey.

Results

Fellow Conference

From AY 2017–2018 to AY 2018–2019, the period during which CME credit was added for in-person conferences, mean faculty attendance of in-person fellow conference was comparable: 27.5% and 28%, respectively (95% CI -1.19 to 1.52 $p = 0.80$) (Fig. 1).

From AY 2018–2019 to AY 2019–2020, the period during which the date of the conference was changed, mean faculty attendance improved from 28–36% (95% CI 6.98 to 10.85 $p < 0.001$) (Fig. 2).

From AY 2017–2020, after starting virtual conferences, mean faculty attendance increased from 11.8–49.2% (95% CI -14.0 to -9.09 $p < 0.001$) (Fig. 3).

Fellow attendance did not vary, as expected due to mandatory attendance, which is contrasted with faculty attendance in Fig. 4.

Resident Conference

Mean faculty attendance of resident conference increased after virtual conference implementation, from 18.3–58.9% (5.12 to 16.5, 95% CI -20.90 to -8.60; $p < 0.005$) (Fig. 5, Fig. 6). Mean resident attendance of resident conferences also increased, with the inclusion of non-rotating residents (95% CI -10.45 to -0.55; $p < 0.039$).

Survey Results

The survey was distributed to 77 eligible participants, with an overall response rate of 67.5% (52/77). The survey was completed by 88.2% of faculty (30/34), 77.8% of fellows (7/9), and 44.1% of residents (15/34). The majority of faculty responders (73.3%) would prefer the virtual conference format if given the option (22/30), with 23% having no preference (7/30), and 3% (1/30) preferring in-person (Fig. 7). Overall, most survey respondents including fellows and residents (69.2%) indicated a preference for the virtual conference option.

Of all respondents, 75% felt that virtual lectures were equal to or better than in-person in terms of meeting their educational needs, and 11.5% felt that the virtual format made no difference for them. Out of the 75%, 40.4% (21/77) selected that virtual was better than in-person, and 100% of these (21/21) cited the convenience of virtual attendance, with additional selections of decreased travel and childcare burden (85.7% and 19%, respectively). Out of those who felt virtual was worse than in-person (11.5%), some cited a preference for social interaction (83%) and perception of better in-person performance (50%). A total of 98.1% of respondents had no significant technical problems, and 100% of all respondents signified that if given the option, they would like to continue attending conference virtually in the future.

Discussion

Faculty attendance at all pediatric emergency medicine educational conferences increased after the transition to virtual conferences. Attendance corresponded with survey results, which showed most faculty respondents would select the virtual option if given a choice. Our experience with previous years of faculty attendance of conference had revealed a consistent attendance trend regardless of modifications such as offering CME credit. This contrasts with the study by Lefebvre et al that demonstrated offering CME increased faculty attendance of weekly in-person emergency medicine conferences[3]. However, faculty in the same study cited clinical and family obligation as reasons not to attend, and we did notice a modest increase in faculty attendance at fellow conference after switching the conference day to align with other departmental activities.

These are the types of obstacles overcome by virtual learning, as identified by our survey respondents. The increase in attendance by faculty of our educational conferences appears due to the convenient nature of virtual learning. This is also demonstrated by the increase in faculty attendance of resident conference, for which no CME credit is offered, once the conference was made virtual. In our study, the virtual conference format also did not appear to come at a sacrifice to perceived educational value, with

the majority (88.5%) of respondents noting that virtual lectures were equal to, no different from, or better than in-person lecture.

Virtual learning was also well received by fellows and residents, and anecdotally, resident and fellow satisfaction in conference increased in part due to increased faculty participation and discussion.

Our study has several limitations. The onset of SARS CoV-2 and shelter-in-place orders also correlated with a decrease in patient volume and therefore shift reductions amongst staff. While this was not significant at our institution, this may have increased the number of attendings available to participate in virtual conferences. The virtual format was also accompanied by technical difficulties such as internet connectivity, audio/video problems, and user error, although most participants surveyed did not encounter significant problems. The study authors also had no way to ensure attendance meant active participation. Finally, this is an experience at a single institution, and experiences at other institutions may vary.

Conclusion

Faculty participation is important for educational conferences, and the virtual conference format has increased faculty attendance. On-going assessment is necessary to ensure sustained interest in this modality and incorporate virtual conferences into a post-pandemic future, and further investigation evaluating outcomes for fellows and residents are needed.

Abbreviations

PEM = pediatric emergency medicine

CME = continuing medical education

AY = academic year

Declarations

Ethics approval and consent to participate: Institutional Review Board of University of Texas Southwestern Medical Center reviewed the study proposal and determined it to be exempt. An implied consent form was given to all participants when completing the survey. Informed consent was obtained from all participants. All methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication: Informed consent was obtained from all participants.

Availability of data and materials: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests

Funding: Not applicable

Author's contributions:

NV conceptualized the study, developed the study survey, collated results, wrote the manuscript and performed critical appraisal of the manuscript.

JM developed the study, performed literature review, performed statistical analysis, helped develop the survey, wrote the manuscript and performed critical appraisal of the manuscript.

SF performed literature review, helped develop the survey, wrote the manuscript and performed critical appraisal of the manuscript.

JN obtained statistical reports, helped develop the survey, performed statistical analysis, wrote the manuscript and performed critical appraisal of the manuscript.

All authors read and approved the final manuscript.

Acknowledgements: The authors would like to thank all the medical residents who participated in our virtual education initiative. The authors would also like to thank Dr. Jennifer Deramo, Pediatric Emergency Medicine Fellow, University of Texas Southwestern Medical Center, for her contribution to this manuscript, as well as our fellow colleagues at the Division of Emergency Medicine within the Department of Pediatrics at University of Texas Southwestern Medical Center, Dallas, TX.

References

1. Mittiga MR, Schwartz HP, Iyer SB, Gonzalez Del Rey JA. Pediatric emergency medicine residency experience: requirements versus reality. *J Grad Med Educ.* 2010;2(4):571–576.
2. Little-Wienert K, Hsu D, Torrey S, et al. Pediatric Emergency Medicine Online Curriculum Improves Resident Knowledge Scores, But Will They Use It? *Pediatr Emerg Care.* 2017;33(11):713–717.
3. Lefebvre CW, Hiestand B, Bond MC, et al. Increasing Faculty Attendance at Emergency Medicine Resident Conferences: Does CME Credit Make a Difference? *J Grad Med Educ.* 2013;5(1):41–45.
4. Ahmady S, Shahbazi S, Heidari M. Transition to Virtual Learning During the Coronavirus Disease-2019 Crisis in Iran: Opportunity Or Challenge? *Disaster Med Public Health Prep.* 2020:1–2.
5. Almarzooq Z, Lopes M, Kochar A. Virtual Learning during the COVID-19 Pandemic: A Disruptive Technology in Graduate Medical Education. *J Am Coll Cardiol*. 2020.
6. Alsafi Z, Abbas AR, Hassan A, Ali MA. The coronavirus (COVID-19) pandemic: Adaptations in medical education. *Int J Surg.* 2020;78:64–65.
7. Moadel RM, Zamora E, Burns JG, et al. Remaining Academically Connected While Socially Distant: Leveraging Technology to Support Dispersed Radiology and Nuclear Medicine Training Programs in

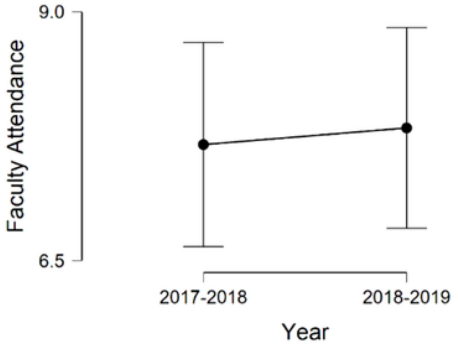
the Era of COVID-19. *Acad Radiol*. 2020.

8. Mukhopadhyay S, Booth AL, Calkins SM, et al. Leveraging Technology for Remote Learning in the Era of COVID-19 and Social Distancing: Tips and Resources for Pathology Educators and Trainees. *Arch Pathol Lab Med.* 2020.
9. Srinivasan DK. Medical Students' Perceptions and an Anatomy Teacher's Personal Experience Using an e-Learning Platform for Tutorials During the Covid-19 Crisis. *Anat Sci Educ.* 2020;13(3):318–319.
10. Zuo L, Dillman D, Miller Juve A. Learning at home during COVID-19: A multi-institutional virtual learning collaboration. *Med Educ.* 2020;54(7):664–665.
11. Eva KW, Anderson MB. Medical Education Adaptations: Really Good Stuff for educational transition during a pandemic. *Med Educ.* 2020;54(6):494.
12. Chang TP, Pham PK, Sobolewski B, et al. Pediatric emergency medicine asynchronous e-learning: a multicenter randomized controlled Solomon four-group study. *Acad Emerg Med.* 2014;21(8):912–919.
13. Burnette K, Ramundo M, Stevenson M, Beeson MS. Evaluation of a web-based asynchronous pediatric emergency medicine learning tool for residents and medical students. *Acad Emerg Med.* 2009;16 Suppl 2:S46-50.
14. Alnabelsi T, Al-Hussaini A, Owens D. Comparison of traditional face-to-face teaching with synchronous e-learning in otolaryngology emergencies teaching to medical undergraduates: a randomised controlled trial. *Eur Arch Otorhinolaryngol.* 2015;272(3):759–763.
15. Bertsch TF, Callas PW, Rubin A, Caputo MP, Ricci MA. Effectiveness of lectures attended via interactive video conferencing versus in-person in preparing third-year internal medicine clerkship students for Clinical Practice Examinations (CPX). *Teach Learn Med.* 2007;19(1):4–8.

Figures

Descriptives

	Group	N	Mean	SD	SE
Faculty Attendance	2017-2018	12	7.667	1.614	0.466
	2018-2019	12	7.833	1.586	0.458



Independent Samples T-Test

	t	df	p	Mean Difference	SE Difference	95% CI for Mean Difference Lower	95% CI for Mean Difference Upper
Faculty Attendance	0.255	22	0.801	-0.167	0.653	-1.521	1.188

Note. Student's t-test.

Figure 1

In-person faculty attendance changes after CME credit added to fellow conference

Group Descriptives

	Group	N	Mean	SD	SE
Faculty Attendance 2018-2020	2018-2019	12	7.833	1.586	0.458
	2019-2020	11	10.091	6.204	1.871

Independent Samples T-Test

	t	df	p	Mean Difference	95% CI for Mean Difference Lower	Upper
Faculty Attendance 2018-2020	9.538	22	< .001	8.913	6.975	10.851

Note. For the Student t-test, location parameter is given by mean difference *d* .

Note. Student's t-test.

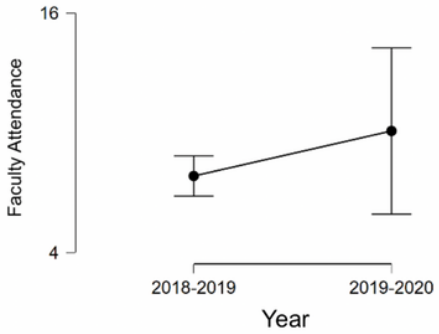


Figure 2

In-person faculty attendance changes after conference day-of-the-week changed

Figure 3

Faculty attendance changes before and after virtual learning AY 2017-2020

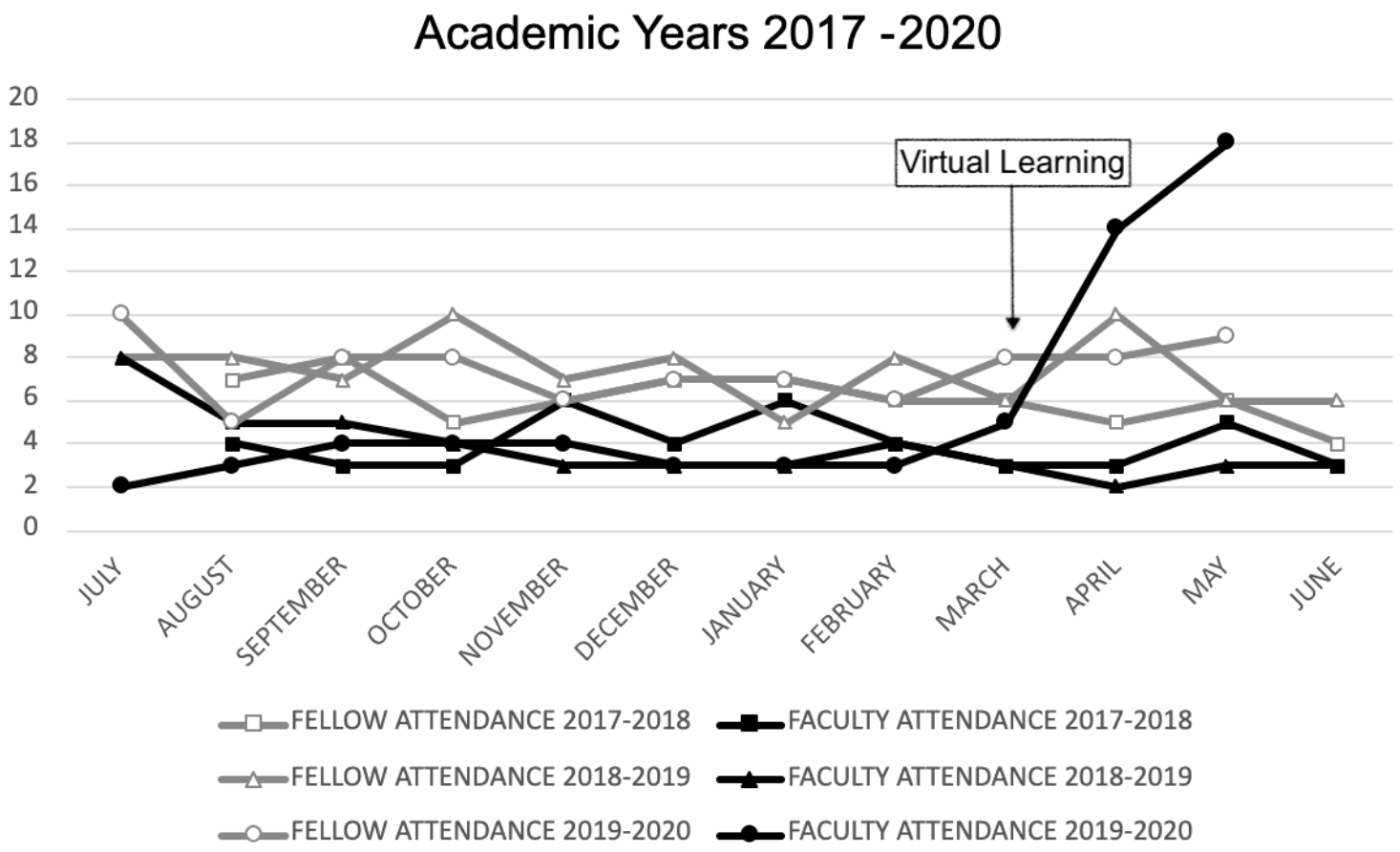


Figure 4

Faculty and fellow attendance at fellow conference AY 2017-2020

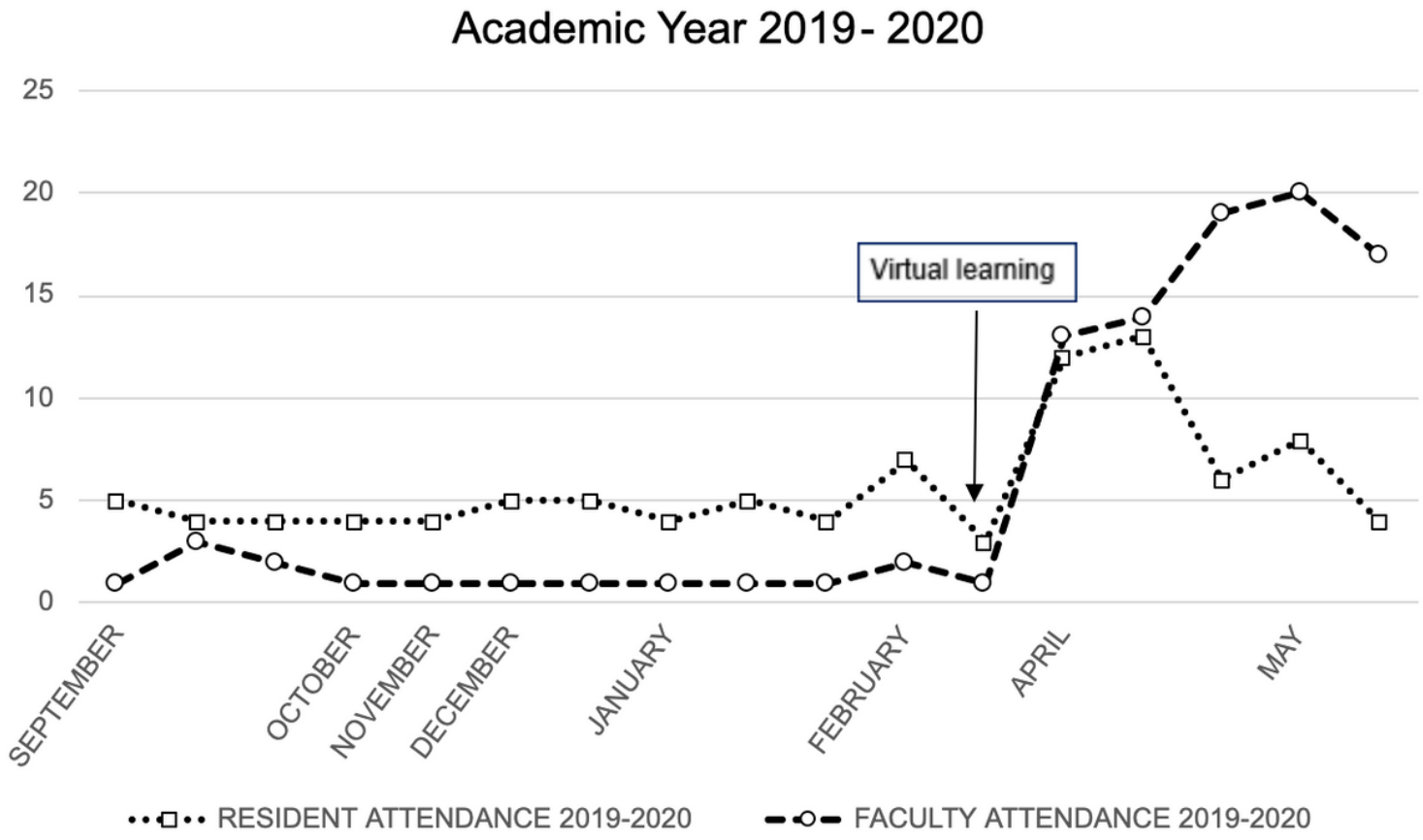


Figure 5

Faculty and resident attendance at conference AY 2019-2020

Descriptives

	N	Mean	SD	SE
Faculty Attendance prior	16	5.125	6.985	1.746
Faculty Attendance after	4	16.5	3.512	1.756

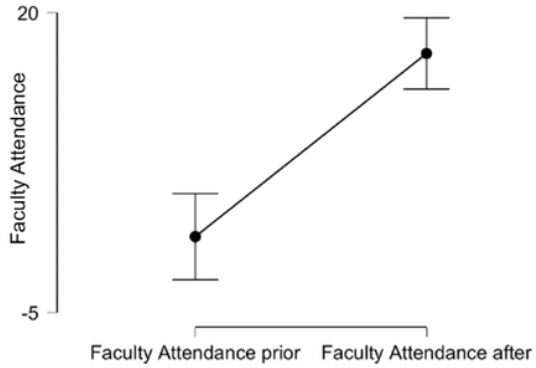


Figure 6

Faculty attendance of resident conference before and after virtual learning

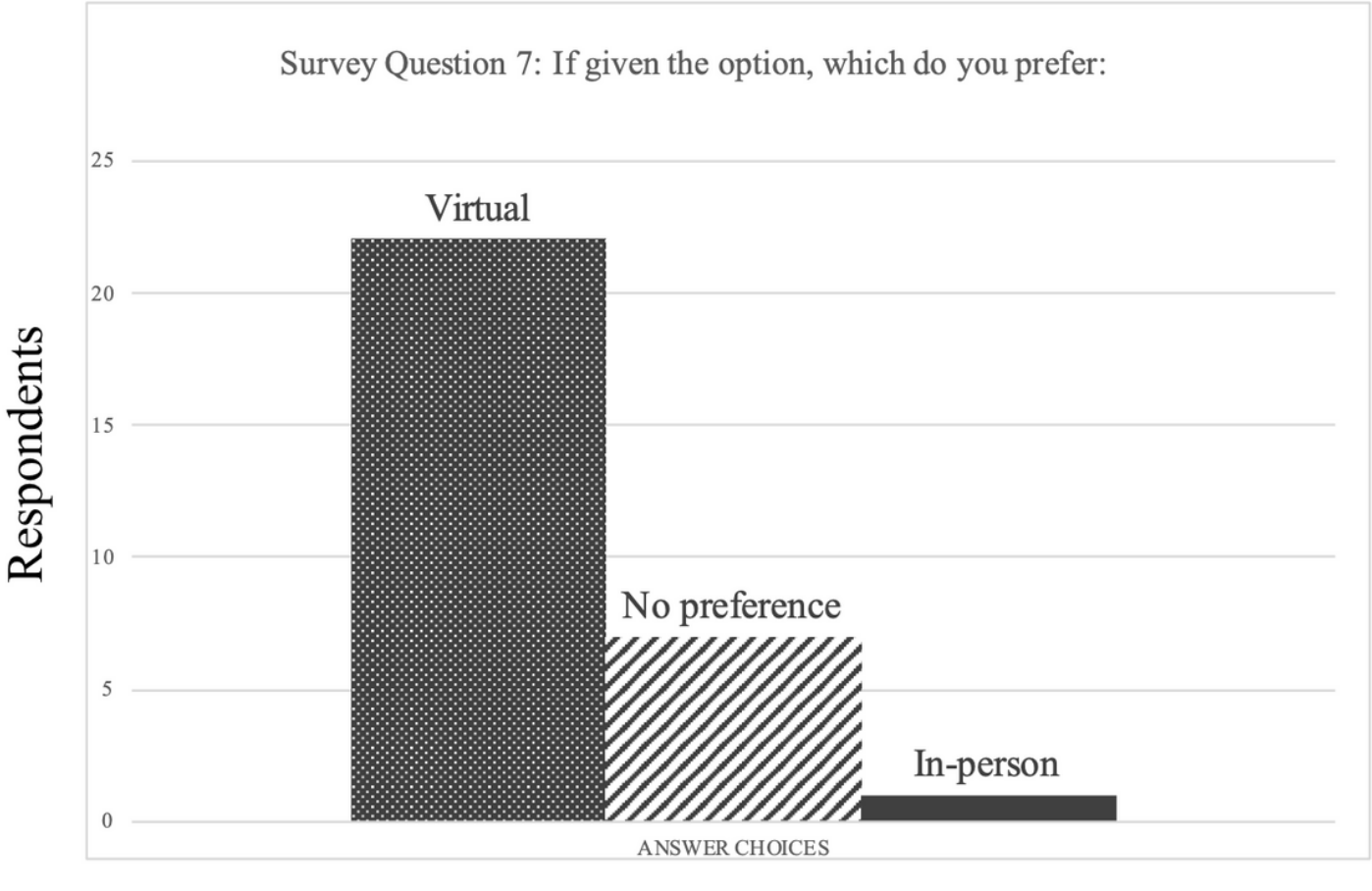


Figure 7

Faculty response to Survey Question 7

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- AppendixA.docx