

Original Publication

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Peer-Led, Postanatomy Reflection Exercise in Dissection Teams: Curriculum and Training Materials

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Abstract

Introduction: The importance of emphasizing empathy, reflection, and professionalism during anatomy dissection has been well established. This small-group curriculum was developed to fulfill a need for structured reflection at the end of anatomy. **Methods:** In this 45-minute reflection session, each dissection team of first-year medical students in anatomy is led by one or two peer facilitators recruited from the second-year medical student class. The session is designed to include a time for sharing of personal reflections, a clinical observation activity about the cadaver's cause of death, and an appreciative inquiry approach to the dissection team experience. In addition to the reflection session curriculum, materials also include a 1-hour presession training module, containing a small-group facilitator skill-building and role-play and a 30-minute postsession debrief for peer facilitators. **Results:** We found that the majority of anatomy students felt that the end-of-course reflection was a meaningful way to conclude the course and that the session had a positive impact on their relationship with their dissection team. Fifteen peer facilitators participated in focus groups, and common themes included the value of giving back, making meaning of past experiences, countering burnout by recognizing one's own growth, and continued learning through peer teaching. **Discussion:** This anatomy reflection curriculum has been incorporated into our 7-week anatomy course and has been well received by both anatomy students and peer facilitators. We believe that peer-led small-group reflection sessions after intensive experiences in medical school can promote personal and professional growth among both junior and senior medical students.

Keywords

Peer-Teaching, Small Group Reflection, Anatomy Dissection, Team Experiences, Appreciative Inquiry, Professional Growth

Educational Objectives

By the end of this session, first-year anatomy students will be able to:

1. Reflect on how the anatomy dissection experience impacts their personal and professional lives and thank the cadaver.
2. Apply clinical observation skills of anatomy deformities, organ malfunction, and other identifying features to predict the cause of death of the cadaver.
3. Reflect on the experience of dissecting as a team and share appreciations for dissection team members.

By the end of the peer facilitator training and their involvement in the reflection session, second-year medical student peer facilitators will be able to:

1. Guide a small group of medical student peers in a discussion of emotional reflection.
2. Practice skills of communication, facilitation, and teaching.

Appendices

- A. End-of-Anatomy Reflection Session Facilitator Guide .docx
- B. Meet Your Cadaver Facilitator Guide.docx
- C. Sample Recruitment Email .docx
- D. Training - General Facilitation Strategies for Small Groups.docx
- E. Training - Facilitating Conflict Resolution in Small Groups.docx
- F. Training - Facilitating Conflict Resolution Role-Play.docx
- G. Feedback Survey for Learners.docx
- H. Feedback Survey for Peer Facilitators.docx
- I. Focus Group Question Guide.docx

All appendices are peer reviewed as integral parts of the Original Publication.

Introduction

Medical student attitudes and emotions toward anatomy lab are complex. Although some studies have suggested that students express a positive attitude surrounding cadaveric dissection,^{1,2} many have indicated that working with a human cadaver can result in other powerful emotions such as anxiety, fear, and stress.^{3,4} Moreover, anatomy dissection is typically a shared experience among a team of students, which can give rise to team dysfunction and conflict. In recent years, there has been a movement towards approaches that frame the experience of cadaveric dissection in a way that promotes professional formation as well as humanistic attitudes and behaviors in medical students.^{5,6}

Prior to the implementation of this curriculum, the sole medium for organized reflection for the anatomy dissection experience at the Johns Hopkins School of Medicine (JHSOM) was an optional student-run memorial service that would take place 1 to 2 months after the conclusion of cadaveric dissection. Given the profound and intense experience of the 7-week JHSOM anatomy course at the start of medical school, we conducted a needs assessment in the spring of 2014 to determine if more could be done for students after the course experience. Our survey showed that 82% of first-year medical student respondents felt that there should be an anatomy group reflection session at the end of the course.

During recruitment, we were impressed by the strong interest in the second-year medical student class to facilitate the anatomy reflection sessions. Twenty-one percent of the class of 2017 ($n = 25$) participated in the first iteration of the session. Peer teaching has been widely used in medical schools to alleviate teaching pressures on medical school faculty and for the benefit of chronological proximity to learners.^{7,8} For our curriculum, we felt that peer facilitation could provide an opportunity to both strengthen upper-level medical student teaching skills, and support a community-based learning environment.⁹ In particular, we decided to focus on team conflict during the postanatomy reflection session since we expected that competing personalities and interests would generate conflict in a significant number of anatomy dissection groups. We believed that being exposed to and working through team dynamic issues early on in medical school would be a useful introduction for dealing with future team conflict later in the preclinical and clinical curriculum.

Thus, this peer-facilitated reflection session was implemented for the first time at the JHSOM following the fall 2014 anatomy course and has since been held annually. Ideally, this small-group anatomy reflection session takes place within days to a week of completion of the anatomy dissection course. It may be paired with a “Meet Your Cadaver” session (see Appendix B), which takes place at the JHSOM at the beginning of anatomy course.

Methods

Target Audience

The target audience for this resource is anatomy students who have just completed cadaveric dissection. Note that at JHSOM, the anatomy course takes place in the beginning of the first year of medical school and is compressed into a 7-week intensive lecture and lab experience. First-year medical students are split into dissection groups of six, with whom they work for hours together each day.

Target Facilitators

The target facilitators for this resource are upper-level medical students who have a basic knowledge of pathophysiology; have completed an anatomy course including cadaveric dissection; and have an interest in teaching and facilitation. No prior teaching or facilitator experience is necessary. Note that there is a preexisting 30-minute “Meet Your Cadaver” session (Appendix B) in the beginning of the anatomy course that peer facilitators also receive training for and lead. Previously, the “Meet Your Cadaver” session was led solely by faculty.

Peer Facilitator Training and Recruitment

An email (Appendix C) is sent out a month prior to the start of the anatomy course to recruit second-year medical student peer facilitators. These peer facilitations will lead both a 30-minute session at the start of

the anatomy course, and a 45-minute reflection session at the end of it. The email is sent by the student leaders of the session and a faculty advisor was available for guidance and support during this process. We believe that the benefits of this exercise for both anatomy students and peer facilitators could be achieved without the first “Meet Your Cadaver” session, in which case, recruitment for peer facilitators can occur during the anatomy course.

Preparation

We recommend that peer facilitators have a minimum of 1 hour of training prior to the session. We do not expect second-year medical students to have experience facilitating small-group discussions and therefore have designed a training module that incorporates a short didactic on facilitation skills (Appendix D), information on techniques for handling conflict (Appendix E), and a 5-minute role-play to provide practice to facilitators (Appendix F). Student and/or faculty leaders should share resources, including facilitator-learner assignments, cause of death of cadavers, and training materials in advance to the training. For the training, we recommend that copies of the curriculum be provided, and role-play scenarios and parts should be available in paper form. We encourage that one to three medical students get involved in leading the training.

Anatomy Reflection Session

Although the complete breakdown of the reflection session is provided in the facilitator’s guide (Appendix A), an example schedule is included below:

- 10:30-11:30 AM: pre-session training for peer facilitators.
- 11:30-11:40 AM: anatomy students and peer facilitators transition to the anatomy lab.
- 11:40-11:45 AM: introduction to the session.
- 11:45-11:55 AM: personal reflections on anatomy experience.
- 11:55 AM-12:10 PM: clinical exercise with cause of death of cadaver.
- 12:10-12:25 PM: reflection on the dissection team experience and addressing of team conflict.
- 12:25-12:30 PM: closure of session with the sharing of appreciation for dissection team members.
- 12:30-1:00 PM: post-session debrief with peer facilitators.

Logistics

We hold this session after the final anatomy exam and typically provide a breakfast spread for anatomy students to celebrate their achievement prior to the start of the reflection session. The session takes place in the anatomy labs, near each cadaver. However, given feedback, we recommend giving small groups the option to leave the anatomy bay and finish the reflection session in a separate room if space allows. Following this session, both the anatomy student and student facilitator should complete the feedback surveys (Appendices G and H, respectively). A room should also be reserved for the post-session debrief (Appendix I). Finally, in a traditional setting, the cause of death for the cadaver was freely shared, if requested anytime during the course. For this curriculum, we request that the cause of death of the cadaver be kept unknown until the final session as a way to encourage observation of pathology during the course and to allow the anatomy dissection team to have the shared experience of finding out and reflecting on the cause of death together.

Deployment

The curriculum has been successfully used for 2 years, with high ratings from both anatomy students and peer facilitators. During the first year, we initially had both second-year medical student ($n = 25$) and faculty facilitators ($n = 5$), who either led on their own or paired with another facilitator. Through feedback, we found that upper-level medical students greatly valued the experience of facilitating. Given this and the difficulty in recruiting sufficient numbers of faculty, we recruited only second-year medical students during the second iteration of the session. There was immense interest with 35 students volunteering to facilitate. Three faculty members were available to serve as back-up facilitators for the session in case student facilitators required help. However, peer facilitators ultimately felt prepared and able to lead the session, and faculty help during the session was not required. Faculty were also available to lead the post-session debrief with peer facilitators.

Although peer facilitators did their best to adhere to the curriculum timeline, some groups finished later than others. Peer facilitators who finished late missed a large section of the postsession debrief, which due to time constraints occurred right after the reflection session and was limited to 30 minutes. In the future, we may organize a 1-hour peer facilitator debrief over lunch within a week of the session to discuss reactions to the experience and opportunities for improvement, to appreciate peer facilitators, and to recruit student leaders for future iterations of the course.

Results

A total of 240 first-year anatomy students and 60 peer facilitators have experienced and utilized this curriculum over 2 years. Five faculty members participated as facilitators during the initial iteration of the session in 2014. We evaluated the experience with two anonymous surveys, one survey for anatomy students (Appendix G) and one survey for peer facilitators (Appendix H), which were administered after the reflection session. We also conducted focus groups to better understand the session's impact on peer facilitators.

Anatomy Student Survey Results

The reflection session was well received by anatomy students. Ninety-one percent of survey respondents felt that the session left them with a positive perception of the value of anatomy dissection, and 87% felt that the session was a meaningful way to end the anatomy course. The vast majority of anatomy student survey respondents (95%) appreciated the way their peer facilitator guided the conversation. Interestingly, regarding the second learning objective for anatomy students, only 64% of survey respondents felt that learning the age and cause of death of the cadaver gave them a clearer understanding of what they had observed during the dissection. This may be better understood by the sentiment that many peer facilitators felt ill-equipped to discuss the medical rationale behind anatomy student observations of cadaveric pathology. Anatomy student suggestions for future improvement included changing the timing and location of the session and a desire by some anatomy students to have had the reflection material earlier. Additional student feedback included the following statements:

- “The ‘Meet Your Cadaver’ and reflection sessions were so important to transition. I find it hard to believe people last year didn’t have the chance to do it. Having the chance to reflect with my team gave me so much gratitude for them and also gave us a chance to talk about our fears and deep feelings we otherwise might not have.”
- “I thought [facilitator name] and [facilitator name] were EXCELLENT, and I feel so lucky to have had them as our facilitators.”
- “I’m not sure if having the group around the dissecting table was the best way to do the final reflection, as I think for many people that place and the sights and smells and sounds associated with it were a big part of the difficulty they may have had in anatomy.”
- “The timing of the ending session was terrible for reflection. We were all so excited to finish the exam that we did not feel ready to reflect.”
- “If a little more information had been given to us ahead of time that would have been great; also might have allowed us to ferment some ideas/emotions more expressively before the actual session itself.”

Peer Facilitator Survey Results

One hundred percent of peer facilitator survey respondents felt that they were prepared to lead the small-group reflections session after the trainings. Peer facilitators commented on their appreciation of the opportunity to lead the anatomy students, and felt that the sessions were well organized. Some echoed the sentiment that having the session right after a summative assessment might affect the anatomy students’ ability to engage with the reflection material. Additional examples of facilitator feedback included the following statements:

- “It was neat to be able to be on the other side of things, now 1 year older, and to pay it forward in a way, giving back to the first years in the same way that last year’s class did for us.”
- “It was really wonderful to get to know and form connections with six wonderful first years. One of

the students thanked me a few days after the beginning of anatomy ‘Meet the Cadaver’ reflection session saying that it was one of her most profound experiences of medical school.”

- “I thought it went really well and liked the structure.”
- “If there is any way to have the end of anatomy reflection at a different time so that it’s not so close to the end of the exam, I think that would be great. I worry that this proximity might make it difficult for some students to fully engage in the experience.”

Peer Facilitator Focus Group Results

After the first iteration of the session in the fall of 2014, which included five faculty facilitators and 25 peer facilitators, two hour-long focus groups with 15 peer facilitators were held in the winter of 2015. Common themes that arose during the conversation included the value of giving back, recognition of one’s own growth, and the unique role of the second-year medical student facilitator.

- “Creating that space for [the first years] . . . was nurturing for me.”
- “I felt like as a peer who could kind of break [anatomy] down in terms of the ways I had experienced it the year before, [I could] break through some of . . . that stilted formality that might otherwise exist.”
- “It was really good to be reminded of the privilege and gravity of anatomy dissection but also of medical education. Over the years I practice medicine, many patients will give a special gift of openness and trust. It’s easy to forget because we are in that position constantly.”
- “I appreciate the extra time to reflect on the privilege that it was to dissect a cadaver. I feel like this session has given me better insight into the growth I experienced over the course of the semester as I could see a distinct difference in the functioning of individuals and the group between the introductory and final reflection sessions.”

The overwhelmingly positive feedback from peer facilitators prompted us to limit our facilitator recruitment to second-year medical students in the second iteration of the course. Planned changes to the curriculum in response to feedback include distributing a goals and objectives handout with discussion questions to anatomy students a few days prior to the reflection session, and allowing anatomy dissection groups to have the choice to reflect in small rooms outside of the anatomy lab as needed during this session.

Discussion

The purpose of the reflection session was to provide a structured space at the end of the anatomy lab experience for medical students to reflect on the role of the cadaver in anatomy, the emotional experience of dissection, and the teamwork necessary for group dissection. We chose to involve upper-level medical students who had already undergone the intense experience of anatomy as peer facilitators for the reflection session. This curriculum could be used and modified for learners across the spectrum of education levels who have completed an anatomy course with a cadaveric dissection component. The greatest challenges in running this activity are logistical, and include making time to properly train all peer facilitators prior to the reflection session and finding a mutually convenient time for anatomy students and peer facilitators at the end of the anatomy course.

The feedback from anatomy students and peer facilitators was overwhelmingly positive. Anatomy students valued having peers lead them in the reflection of their anatomy experience. Peer facilitators felt prepared to lead the sessions, benefited from the opportunity to give back, and gained an appreciation of their own growth since taking the course.

Notably, we felt that this reflection session provided an additional opportunity for students within a learning community to meaningfully connect and cultivate relationships. At our institution, medical students are divided into four colleges.⁹ Anatomy dissection teams are formed from students from a single college, and we made efforts to pair peer facilitators with anatomy students from the same college. We believe that this reflection session can be easily incorporated into a preexisting curricular theme on the development of reflection skills, as it creates opportunity for anatomy students to reflect personally, as

well as a small group, and for peer facilitators to learn how to create an environment that promotes healthy group reflection.

Limitations

Evaluation of the reflection session consisted of online surveys. Our response rates were relatively low (learner response rate of 42.5% and facilitator response rate of 58.5%) and thus represent a limitation to the evaluation of this curriculum. Our results may bias towards a population of students who had an overwhelmingly positive experience or felt particularly impacted or invested in the session and thus were highly motivated to fill out the survey. To address this limitation, we may utilize a financial or grade-based incentive for learners in the future. For peer facilitators, in-person prompting at a less-rushed postsession debrief may improve survey response rates.

Opportunity to Improve

Peer facilitators may have a lack of medical knowledge relative to faculty and thus are less prepared to discuss cadaveric clinical findings in the anatomy lab. In the future, we may add additional survey questions to assess whether this component of the session was useful to anatomy students and whether there is a need to modify this portion of the exercise or provide additional training to peer facilitators. In addition, although the session was well rated, several anatomy students provided feedback stating that they would have appreciated further opportunities to reflect on their anatomy experience and discuss team conflict earlier on during the course. We recognize that although acknowledging team conflict at the end of an experience has its benefits, providing support to address disagreements and difficult team interactions mid-way through the course would potentially improve individual anatomy experiences. Thus, in the future, we may hold an optional mid-anatomy session to discuss emotional responses to cadaveric dissection, potential stressors, and team dysfunctionality. These sessions could incorporate creative activities such as writing or art, one-on-one discussion with an older peer, and/or small-group reflection prompts.

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Ethical Approval

This publication contains data obtained from human subjects and received ethical approval.

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