
Experiences of first year medical students from their teachers beyond the grave

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Abstract

Introduction Dissecting cadavers to study Human Anatomy is an integral part of first year medical education. The aim of this study was to describe the experiences of the first year medical students during their first day of cadaver dissection.

Methods This study analyzed interviews of three first year medical students, chosen via purposive sampling, who were present during the first day of cadaver dissection in gross anatomy. Interviews were transcribed and analyzed through a Husserlian descriptive phenomenological approach.

Results Five common themes were identified: 1) fear of the unknown, 2) group dynamics, 3) sense of awe and amazement of the cadaver's body, 4) respect for the body, and 5) taming of death as a rite of passage to being a doctor.

Conclusion Of the five emergent themes, taming death as a rite of passage to being a doctor is the essence of the experiences of the first year medical students during the first day of cadaver dissection.

Key words: Cadaver dissection, phenomenology, anatomy

Human anatomy, which deals with the study of the structures of the human body, is one of the

first and most basic subjects studied by students when they begin their medical education. Anatomy provides the very fundamental details of the human body. Anatomical dissection is a systematic exploration of preserved human cadaver by sequential division of tissue layers and liberation of certain structures by removal of regional fat and connective tissue with the aim of supporting the learning of gross anatomy by visual and tactile experience. Through dissection, students are able to visualize firsthand actual structures of the human body. Gross anatomy teaching in medical schools all over the world has been traditionally based around the use of human cadaveric specimens for complete dissection or as

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Presented in the 19th Annual Research Forum, April 11, 2017, University of the East Ramon Magsaysay Memorial Medical Center, Quezon City

prosected specimen.¹ The same is true for UERMMMCI College of Medicine although this is supplemented by anatomic models and videos.

In the UERMMMCI College of Medicine, where cadaveric dissection mainly constitutes preclinical teaching of anatomy, students are exposed to cadavers in the early stages of their medical education but this exposure induces both positive and unintended negative experiences in these students. It is the first time they are viewing the body from a perspective different from a textbook.² Diagrams and plastic body parts all have a "classic" look to them in textbooks, but when a student dissects a human, the body parts show real differences among individuals. Nevertheless, viewing a human cadaver may be quite unnerving for students.

The emotional impact and the students' ability to cope have been examined in several studies. Physical (smell, nausea, conjunctival irritation) and psychological (anxiety, stress, emotional trauma, depression) effects have been identified.³ The description of Helman centered on how separating the body into parts can contribute to a sense of the death of what was human, and how the dismantling of the body can play a part in the "taming of death".⁴ Sinclair described the dissection room as a place where students have their first hands-on, practical experience as doctors and where medical students move away from the lay world and towards the medical world.⁵

Other studies assessed reactions of undergraduate students to dissection. Most medical students are able to adapt to dissecting rooms; but a few students were reported to have high stress after dissection for which counseling and a compulsory formal course on death and dying was desired by students.⁶ A study found that Australian students were affected both physically and emotionally when they encountered a cadaver for the first.⁷ Thirty percent experienced dizziness, sore eyes, nausea, and constant references to the "horrible smell." Another 30% reported having psychological effects such as post-dissection anxiety and depression. Another study found that 10% of students exhibited a stress reaction one week following their first dissection, with percentages dropping to 6.3 at one month, 3.6 at eight months, 2.1 at one year, and 0 at 2 years.⁸

The value of the cadaveric dissection in teaching of anatomy, more so in the student's early stages of medical education needs to be established and the

experiences of the students on the first day of cadaver dissection is important in establishing this value. The value may differ from one student to another but is also relevant to discover the differences because from these differences the faculty can help students to cope better with the experience of cadaver dissection. The students' experiences will also be used to prepare the students for clinical practice especially on issues surrounding death and dying.

The aim of this study was to describe the experiences of the first year medical students during their first day of cadaver dissection. The results of this study will serve as basis for both the faculty of the Department of Anatomy and the institution in initiating measures to ensure that the initial encounters with cadaveric dissection will be less stressful, if not truly important to medical education.

Methods

The live experiences and perceptions of first year medical students were ascertained through a qualitative study using a Husserlian descriptive phenomenological approach.⁹ The investigators conducted individual semi-structured in-depth interviews with the participants on what they had experienced on the first day of cadaver dissection. Data analysis was done following the method of Giorgi.⁹ The study was approved by the Ethics Review Committee; informed consent was obtained from each of the respondents.

Regular first year students of UERMMMCI College of Medicine who were enrolled in Human Anatomy for the first time in SY 2015-2016 and were present during the first day of cadaver dissection were invited to participate and those who agreed to participate were asked to sign an informed consent. The participants were recruited by purposive sampling specifically to achieve a criterion sampling. Individual semi-structured in-depth interviews were conducted for 30-45 minutes in one of the rooms at the Department of Preventive and Community Medicine during the free time of the student. Interview questions were formulated based on the following: What were the experiences/perceptions of the first year medical students on the first day of anatomical dissection using cadavers? What was the impact of the first day of cadaver dissection on the student? To what extent did the cadaver dissection serve its function in understanding Human Anatomy and in

becoming a doctor? The interviews were recorded and transcribed verbatim for analysis. Field notes were made not later than the morning after each interview.

Transcribed data supplemented by field notes underwent the following steps or phases: 1) reading of the entire unit to get the sense of the whole, 2) discriminating units from participants' description of phenomenon being studied, 3) articulating the psychological insight in each of the meaning units, 4) synthesizing all of the transformed meaning units into a consistent statement regarding the participants' experiences (referred to as the structure of the experience) which was expressed on a specific or general level. Thematic analysis was conducted to determine the perceptions. The analysis moved from broad data towards discovering patterns and developing themes. Qualitative information gathered were encoded thereby developing "codes," words or phrases that served as labels for sections of data. Codes were developed to represent the identified themes.

Results

Twelve first year medical students with a mean age of 22 years, consisting of eight females and four males were interviewed. Half of them graduated from a premed course in college (BS Biology 3, BS Psychology 3) while the rest came from other courses (economics, advertising, computer science/information technology).

The respondents' description of their experiences on the first day of cadaver dissection clustered around five main themes: 1) fear of the unknown, 2) group dynamics, 3) sense of awe and amazement of the cadaver's body, 4) respect for the body and 5) taming death as a rite of passage to being a doctor.

Fear of the Unknown

A very evident theme in this analysis was the participants' experiences of fear of the unknown. Participants were all hesitant upon entering the gross anatomy laboratory especially in opening the cadaver bags of the cadavers assigned to them. A common fear was that of being haunted of the cadaver thereby deciding to initially cover the face. Because of the lack of previous experience, they were scared to make the first cut. They were scared to make mistakes and were asking themselves if this was indeed medical

school. It was difficult for them to look at an unfamiliar body compared to those seen during wakes and funerals. It was overwhelming, scary, surprising and shocking for them to be in a room with more than twenty cadavers.

"My first two weeks in anatomy was scary especially the first day of dissection. I have never even dissected a frog; so it was my first time to see a dead person aside from those that I saw during funerals plus I had to hold them. The feeling was overwhelming." (Male)

"My groupmates and I were all hugging our clipboards. We attempted poking the skin and realized that it was hard as leather. We covered the face immediately. We were scared that the cadaver will haunt us. Because of this, we didn't accomplish anything on the first day of dissection. We had no progress because we were not sure of what we were doing. The fear was that much that we had no direction. We were reading the manual and the atlas but we couldn't understand anything. It was culture shock because I have only been to two funerals my whole life and on that day I am in a room with 20-30 dead people." (Female A)

Group Dynamics

Another important theme was how the experience of dissection allowed them to work and continue with process despite the initial feeling of fear. Adjustment was hard because the pace was fast unlike in college and at work. All the participants relied on their groupmates to initiate dissection especially those who had prior experience or exposure, i.e., those who had physical therapy or nursing as a premed course. Looking at cadavers as teachers allowed them to progress with their dissection. Constant reminders from friends, senior medical students and groupmates that cadaver dissection was needed to learn Human Anatomy and to pass medical school gave them the will to study and appreciate the importance of dissection. The team interaction in the anatomy laboratory proved to advance student learning ability and comfort level around the cadavers. Students perceived that their

peers assisted them in improving their education in anatomy.

"During the first two weeks of first year medical school, I felt that there were a lot of things to do. I was lost initially but I had to remind myself that this is really medical school. On the first day of cadaver dissection, I initially felt that I didn't want to dissect first but when I talked with my groupmates, I was the only one who had a previous experience with dissection of the cat. My groupmates and I got along well after some short introductions. We always work together constantly reminding each other that it was something we needed to do otherwise we won't be able to identify anything." (Female B)

"With my med classmates, we can go on and on talking for like an hour about the things that we saw during cadaver dissection. It is a topic that we keep repeating every day, every gross lab, the dissection process." (Female A)

Sense of Awe and Amazement About the Body of the Cadavers

A significant theme was how the participants described the experience as awesome together with the sense of discovering something new. External and internal variations of the body were identified and found to be important in the understanding of Human Anatomy. All the participants noted the hard and leather-like human skin when preserved. The smell of the cadavers specifically the adipose tissue was repugnant, distinct and memorable. Everyone including the participants' families would notice if they came from cadaver dissection. One of the participants even realized that she had to lose weight so that her body wouldn't smell bad once preserved due to the amount of adipose tissue.

"Oh my God, why is the skin of the cadaver this hard...like leather. During the first few weeks of dissection, I was thinking of giving my body for continuing medical education; but I realized that whoever will dissect me might have a difficult time due to the amount of adipose tissue and the smell. If God was the one who made the body, He is truly intelligent. He knew where to place

each structure and the body is well thought of... every little detail matters. The body is just so amazing." (Female B)

"The first thing that I remembered when I entered the Gross Lab was the smell. The smell was distinct and too strong. When we started, we were just poking the skin which was so hard and leather-like. I started dissection because I felt that I had no choice. I can't just stand and look at the cadaver while others dissect but there were so many fascia. Compared to models, the structures are not color-coded like blue for vein and red for artery. You do need to study the relationship of structures. People would vary not just externally but also on the structures inside. I also didn't know before that the adipose tissue smells so bad. I also don't know why some of the cadavers are dark compared to the others then we realized while dissecting that our cadaver has a hematoma involving the whole back and my groupmates and I thought it's probably because of prison fight." (Female A)

Respect for the Body

Another important theme was the need to respect the body. Doing the first cut was difficult for the students because of the thought of the body having a soul and a previous life. Proper cadaver care was realized by the participants since they were utilizing the cadaver as a learning tool that will enable them to study anatomy. One of the participants would even ask permission while dissecting.

"We covered the face of the cadaver immediately because when I saw the face what I was thinking was that this person had a life before. What did he do?... I have a classmate who can spend the whole day 8 AM - 5 PM during free lab. He spent that whole day removing all the fascia, spraying formalin and taking care of the cadaver. Compared to all the other cadavers, their cadaver is soft, clean and smells good." (Female A)

"According to my groupmates, I should just think that the cadaver had to make a sacrifice for me to learn everything about his body. I felt relieved of my fear and not so guilty after that.

There would be times that I talk to our cadaver asking him to clearly show us the muscles and other structures that we need to identify." (Male)

Taming of Death as a Rite of Passage to Being a Doctor

Making death less powerful and controlling how they thought of the dead human bodies in the gross anatomy laboratory, to go on with the dissection process because of the need to identify structures in studying gross anatomy which is essentially taming of death as a rite to passage to being a doctor was the final theme. The students described dissection as an initiation to medical school and a requisite to achieving their dream of becoming a doctor. The participants appeared to make a link between the diversity seen in cadaveric structures and how they initially carried out the dissection process with the type of patients they will encounter in the clinics. They appreciated the variation in the orientation of certain structures during the dissection in contrast to ideal orientation in models and atlases. For many, it was the first glimpse of the structures that they will work with in their professional career. The variation simulated the variety in real life. Dissection was seen by participants as a training ground for treating patients because mistakes in cutting the structures can still be committed unlike on actual patients. Most of them considered the actual visualization of structures being studied very important in managing patients in the future.

"The first day of dissection felt like an initiation to medical school.....from what I have experienced, not all cadavers are the same. One side of our cadaver lacks a nerve or an artery which according to the teacher was not abnormal... only a variant. So that is what I realized that not all people are the same like actual patients. When I study the cadavers, it seems like you can pinpoint where the structures are and where they are connected not like in our notes it gets rumbled in my mind. Using the cadaver, there is visualization." (Female A)

"During dissection, at a point it is okay to commit mistakes now like not cutting the sartorius muscle on the belly which you can't do on actual patients because by then you have to

be very careful in cutting through structures." (Female B)

"If I am not going to dissect, I will not become a doctor to treat patients and serve the country. I should not be scared of the cadavers, the blood, the blades and the injections. Whatever happens, we have to experience anatomy and dissection, we have to do it because if we don't we can't treat patients properly and we can't be called doctors. The dissection process teaches you that not all muscles are the same.... not all conditions of the patients are like the book and are the same. It is still easier now that as a student we are dissecting cadavers.. dead body; but in the future this is a training ground where we will be sharpened and honed to be the finest doctors." (Male)

Discussion

During their first day of cadaver dissection, students primarily felt fear as a result of apprehension about what they were about to do, which was essentially to cut into the flesh of a dead human body. As they proceeded to the tasks for the day, reminders from professors and group mates that cadaver dissection was needed to learn Human Anatomy and to pass medical school gave them the will to continue with the dissection process and progress. They became habituated to the cadaver's presence and eventually became more capable of feelings such as a sense of awe and amazement about the process of dissecting a human being as well as the external and internal variation of the human body. They were also increasingly curious about the unique structure of the body and how the cadaver's body reflects but varies from the atlases and models as well as when compared with other cadavers. Recognizing that the cadaver had a previous life and a soul, the students realized the need to respect the body which meant taking care of the cadavers to even asking permission during the dissection process. By covering the cadavers' face, talking with them while dissecting to ask permission, reminding on the objectives, importance and benefits of the dissection process and taking care of the cadavers as a sign of respect during the first day of cadaver dissection was essentially taming death as a rite of passage to being a doctor.

The findings of this analysis validate prior researches on the experiences of the students during cadaveric dissection. Of the five emergent themes, taming death as a rite of passage to being a doctor is the essence of the experiences of the first year medical students during the first day of cadaver dissection. In making death less powerful and the thoughts on dissecting dead people more controllable, the students had to overcome their fear of cutting thru a dead human body through group dynamics and respect for the body guided by their sense of awe and appreciation of the external and internal variations in terms of structures. The findings are similar to those of Robbins wherein the students gained awareness of the uniqueness of each body through the surprising discovery of the irregularities in the bodies of the cadaver; but more importantly the students underwent an emotional experience that demanded from them a confrontation with death and mortality by which they were challenged to mature into young medical professionals.¹⁰ Undergraduate students found dissection as a tool that helps them better understand Anatomy and provides to visualize different organs of the human body and their relationship.¹¹

The emotional issues during cadaveric dissection should be addressed. Proper conditioning of students prior to entering the dissection hall may be beneficial, in addition to enforcement of this practice under guidance from teachers.¹²

This qualitative study was conducted in only one medical school with only a small sample which allowed the researchers to focus on detailed descriptions and their meanings. Therefore, the findings may not be generalizable but remain valuable as they generate important educational issues. The results are revealing because instead of the dissection process being a stressful and tedious process as described in most researches, the study showed an appreciation of the experience not just in relation to the study of Human Anatomy but more importantly to the entire medical curriculum.

This study highlighted the importance of dissection using cadavers in the study of Human Anatomy as well as other relevant and positive learning opportunities to enhance the psychomotor skills and attitudes of future doctors. This study showed that students learn much more than a simple

understanding of the intricacies of the human body. They did not only learn Human Anatomy; but they also learned the need for empathy, care, and respect.

Based on the findings of the study, students have to be prepared mentally and emotionally before the commencement of cadaveric dissection considering that graduates of non-premed courses are being accepted in medical school. Teachers of the course must take this into consideration for a productive and stress-free anatomy learning through dissection.

Of the five emergent themes, taming death as a rite of passage to being a doctor is the essence of the experiences of the first year medical students during the first day of cadaver dissection.

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