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In jars: The integration of historical anatomical and pathological potted specimens in undergraduate education

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A R T I C L E I N F O

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A B S T R A C T

Introduction: Across the UK, many anatomy departments possess historical potted wet cadaveric specimen collections, such as organs preserved in fluid-filled jars. Although considered obsolete by some for anatomical education, there is immense potential for their utilisation in teaching, particularly in institutes that have limited access to cadavers or have had body donation rates impacted by the Covid-19 pandemic. Another benefit of historical potted cadaveric specimens is that severe pathology, often not seen today, can be observed by the student.
Material and methods: The aim of this study was to understand students' opinions and attitudes towards the use of historical anatomical and pathological potted wet specimen collections in undergraduate science teaching. Following their integration into the anatomy program of a Clinical Sciences degree, seventy-seven undergraduate students completed a five-point Likert questionnaire on their perspective for the integration of the historical potted specimens in anatomical education. This study was approved by the Research Ethics committee at the University of Bradford
Results: The study demonstrated that 90 % of students found the collection useful in teaching, 92 % would like to see the collection used more in teaching, and 76 % of students found that the collection encouraged them to consider medical ethics and the donor.
Conclusions: In conclusion, the survey findings suggest that further utilisation of historical potted wet specimen collections would be useful in the teaching of anatomy and that these collections could potentially encourage conversations on post-mortem bodily integrity, ethics, and organ donation.

1. Introduction

In the last half of the 20th century, historical potted wet specimen collections suffered some neglect in regard to their care and upkeep (Bocaege et al., 2013). Even though these medical collections were often an integral part of anatomical and pathological teaching in the past, their use in teaching has been in decline (Mogali et al., 2019). Some authors state that these collections simply take up valuable space in medical teaching environments (McMenamin et al., 2021). However, the revitalisation of historical collections in teaching and outreach has been beneficial in some cases of medical museum revival (Toomsalu and Randjärv, 2018). This has allowed for increased access to anatomical and pathological historical remains for students and the public, as well as encouraging interest in the topic. Across the UK, many anatomical and medical sciences departments hold historical potted wet anatomical and pathological specimen collections. Although considered obsolete by some for anatomical education (Tybjerg, 2022), there is significant potential for utilisation in teaching. Some studies have also considered 3D scanning of potted specimens as a means to allow for the original specimen to remain undamaged or for students to view copies of specimens that may be emotionally difficult to observe (i.e., foetal specimens) (Young et al., 2019). Another benefit of historical potted wet cadaveric specimens is that severe pathology, which is rarely seen nowadays, can be observed by the student, which may support their learning (Marreez et al., 2010). Previous studies have

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investigated the view of anatomists on dissection and donation (Arraez-Aybar et al., 2014), but there have been very few studies, if any, on attitudes solely towards the use of historical potted specimen collections in teaching anatomy students. However, others argue for the usefulness and value of historical potted specimens, which suggests that they could be further integrated into anatomy education (Gulczyński et al., 2018). In a comprehensive book on fluid preservation (Simmons and Marlin, 2014) the authors discuss the complexities surrounding the preservation of a specimen in fluid, including the emotional reaction it may elicit from viewers. Despite this statement, there has not been extensive surveying of potted wet cadaveric specimen viewers regarding their reactions upon interacting with such collections in teaching settings the UK.

Previous studies have investigated the emotional effect of dissection on students (O'Carroll et al., 2002) and found that students perceived it to be a positive and challenging experience. Furthermore, one study found that students exposed to donor information had increased positive responses to working with anatomical specimens (Greene and Rosen, 2019). In addition, Douglass and Glover (2003) found that plastinated specimens were enthusiastically received by students and effectively enhanced learning. Although different than potted wet cadaveric specimens, this still highlights the positive effect students have whilst working with human remains. These studies demonstrate the importance of learning anatomy and pathology utilising cadaveric specimens for both the understanding of anatomy and medical ethics, as well as developing empathy. Despite this, further research is required to elucidate the value of historical potted wet cadaveric specimens in a wider anatomy curriculum, including the field of anatomopathological teaching.

Although there are limitations in the retainment of potted wet cadaveric specimens due to the skills required in their upkeep and the fragility of the Perspex and glass containers they are often stored in, they have the potential to enhance teaching and encourage conversation surrounding difficult topics (Bocaege et al., 2013). Douglass and Glover (2003) also highlight the toxic, hazardous nature of fluid used in potted specimens and that there may be many health implications for students. However, unlike formalin-preserved cadavers in medical teaching, these specimens do not have to be dissected or handled and take up less room than tables required for full cadaveric dissection. Unlike frozen medical cadavers used in surgical skills courses for example, refrigeration is not required in the case of these potted fluid-preserved remains. Furthermore, the utilisation of these collections in teaching may encourage institutions to protect, preserve, and care for these collections.

In this study, we conducted multiple anatomical teaching lab practicals utilising potted wet cadaveric collections and collected student data via questionnaires on their perception of using the specimens. The aims of the questionnaire were (i) to understand student attitudes towards the use of historical potted specimens in teaching, (ii) to assess the usefulness of historical potted specimen collections in teaching, and (iii) to see if these collections can be used to generate conversation surrounding death, dying, and body donation.

2. Material and methods

The potted wet cadaveric specimen collection (Part of the Anatomy and Pathology Resource Centre at the University of Bradford) the students interacted with dated between the 19th and 20th centuries. The collection consists of 441 examples of both ‘normal’ anatomy as well as examples of pathologies, with pathology making up approximately 90 % of the collection (Fig. 1 and Table 1). Students were able to view all the specimens. The specimens consisted of organs, as well as limbs and examples of muscle structure. The collection was used throughout the Clinical Sciences course and

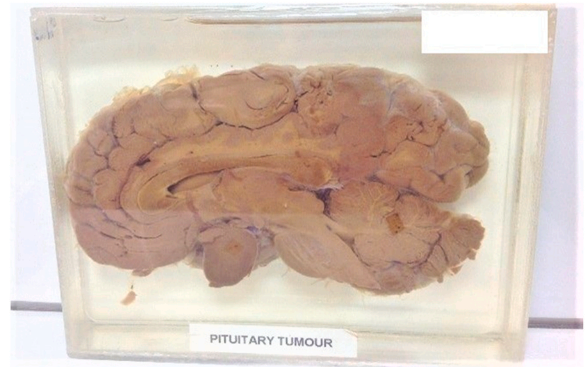

Fig. 1. An example of one of the potted specimens used in the bespoke practical classes. This is one of the later examples dating to the 20th century.

Table 1
Breakdown of collection for each anatomical system.

Anatomical system	*Total number of specimens*
Cardiovascular system	*49*
Gastrointestinal system	*126*
Endocrine system	*7*
Lymphatics and Integumentary systems	*10*
Musculoskeletal system	*59*
Nervous system	*52*
Respiratory system	*52*
Renal and reproductive system	*71*
Unidentified tissue	*15*

extensively in bespoke practical sessions, for both anatomical and pathological teaching. Students voluntarily took part and completed a questionnaire, which consisted of thirteen questions in total. The questionnaire was disseminated as a paper copy at the end of two lecture sessions. The survey consisted of a set of five-point Likert scale questions (with one being strongly disagree and one being strongly agree), questions with open responses, and a question on word association to see how students describe these remains. The word association questions were based on similar study by Kilminster (2003) who developed a word association survey to understand visitor perceptions in a museum. However, the exact words used in this study were developed as novel word association questions as there are no previous studies investigating the use of a word association survey in university students.

Certain words were chosen for the word association question as they are often used in discussions surrounded human remains in numerous fields, including medicine, anatomy, and archaeology. Word association has been used in a part study to understand undergraduate perceptions in the field of anatomy (Adams and Dewsbury, 2021). In the context of our study, we chose words in the same manner Kilminster (2003) chose a selection of words to understand visitor perceptions of human remains in museums. Ethical approval was obtained by the University of Bradford Research Ethics Committee. Statistical analysis was conducted using SPSS (IBM SPSS Statistics, Version 28.0).

3. Results

3.1. Responses

Eighty students completed the questionnaire, with seventy-seven responses deemed appropriate for analysis. Three students responded ‘no’ to being present for the teaching session in which the potted specimen collection was studied and were, therefore, not included in the data analysis. On four occasions, two students did not fill in some of the Likert scaled questions (this is indicated in the

Table 2
Statistical analysis of questions 4–10 which included the 5-point Likert scale.

	I found the wet specimen collection useful in teaching.	*I would like to see the wet specimens used more in teaching.*	*I found the wet specimen collection upsetting to view.*	*I have thought about where these collections/ donors have come from.*	*These collections are a good way to open up conversations on death and dying.*	*These collections have made me think more about body/ organ donation.*	*These collections have made me think about ethics and what happens to the body after we die.*
N=	77	77	77	75	75	75	75
Mean (SD)	4.4 (0.8)	4.5 (0.7)	1.9 (1.1)	3.9 (0.9)	3.6 (1.1)	3.5 (1.3)	4.0 (1.1)
Median	4	5	2	4	4	4	4
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00

Table 1). It is unclear as to why these statements were not responded to. However, it may have been because they were on the next page and the students did not see them. The statements were, 'I have thought about where these collections/ donors have come from', 'These collections are a good way to open up conversations on death and dying', 'These collections have made me think more about body/ organ donation', and 'These collections have made me think about ethics and what happens to the body after we die.' In this study, we used the phrase 'wet specimen' rather than 'potted specimen' to clarify for students as we felt they may not have been aware of this terminology. Statistical analysis is presented in Table 1. A copy of the questionnaire can be found in the appendix.

As part of the survey, we also gathered demographic data on participants. However, between 28.57 % and 33.76 % of participants did not fill in this section, so we did not deem it appropriate to incorporate as part of our discussion. This is further discussed in the limitations of this paper. The demographic data is present in Table 2.

3.2. Questions 2–3: word association and encounters with human remains

The words '*Person', 'Specimen'*, and *'Organ'* were circled most frequently in this study. The word *Organ* was circled most often, with *donor* only appearing once. Of the total number of words circled (n = 155), *Organ* was circled in 31.6 % (n = 49) of cases, followed by *Specimen,* which was circled in 31 % (n = 48) of cases, and then by *Person* which accounted for 24.5 % (n = 38) of circled words (Fig. 2 and Table 3).

In this study, 53.2 % (n = 41) of participants indicated that their encounter with the potted wet cadaveric specimen collection was their first-time encountering human remains. Nineteen percent (n = 15) of participants indicated this was not their first-time encountering human remains, with a further 28.5 % (n = 22) abstaining from answering the question. This may indicate the responders were uncomfortable answering the question, or perhaps did not deem it necessary to answer. Given the fact that many participants did not respond to this question, it was difficult to detect any correlation between the survey feedback and whether responders had viewed human remains before, such as in a medical museum.

3.3. Likert scale question responses

Questions four – ten of the questionnaire questions were assessed via a five-point Likert scale, with 1 representing *Strongly agree* and 5 representing as *Strongly disagree*. The results of the Likert scale are presented below (Fig. 3).

3.3.1. Questions 4–6: usefulness in teaching and upset regarding exposure to human remains

Responses to the usefulness of the collection in teaching were positive, with 90 % (n = 70) of participants selecting *Agree* or *Strongly agree* in response to question four. Students also responded positively to wanting the collection to be used further in teaching, with 92 % (n = 71) of participants selecting *Agree* or *Strongly agree* in response to question five.

The majority of students did not find the collection upsetting to view, with 67.53 % (n = 52) of students selecting *Strongly disagree* or *disagree in* response to question six. A further 22.07 % (n = 17) selected *Neither agree nor disagree*.

3.3.2. Questions 7–10: acquirement, death/ dying, and donation

Of the participants, 66 % (n = 50) stated they had thought about where the collection had come from. *Strongly agree* was the most selected answer to question seven *('I have thought about where these collections have come from*'), indicating the acquisition of these

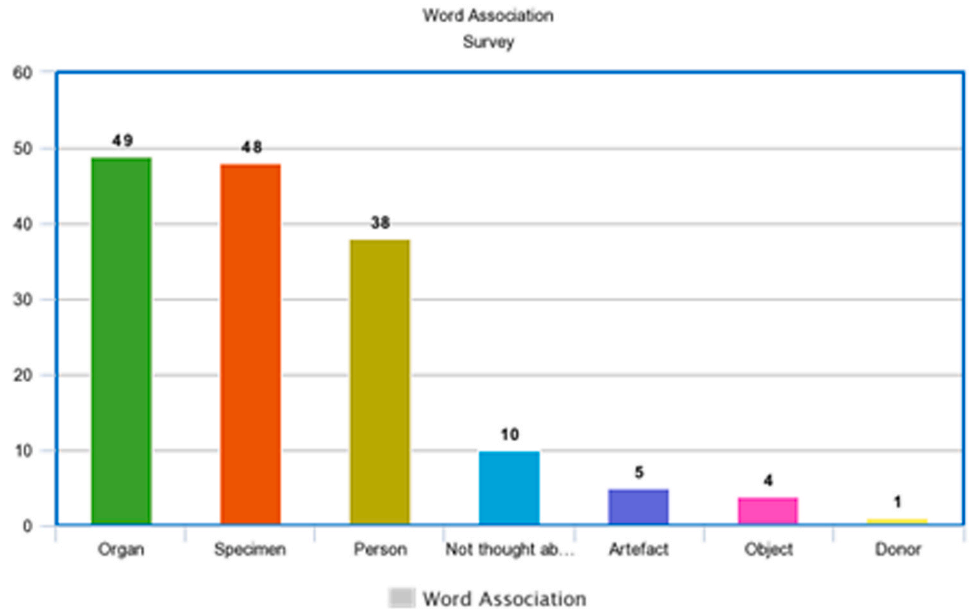

Fig. 2. Word association survey.

Table 3
Demographic Information.

Category	Subcategory	Frequency (n = 77)	Percentage	Response Rate
Age	18–29	55	71.43 %	71.43 %
	Blank	22	28.57 %	
Gender	Male	16	20.78 %	70.13 %
	Female	38	48.35 %	
	Blank	23	29.87 %	
Ethnicity	White	2	2.56 %	70.13 %
	Mixed or Multiple Ethnic Groups	2	2.56 %	
	Asian or Asian British	38	49.35 %	
	Black, African, Caribbean, or Black British	9	11.68 %	
	Other Ethnic Group	3	3.90 %	
	Blank	23	29.87 %	
Religion	Christianity	7	9.10 %	66.23 %
	Islam	39	50.65 %	
	Hindu	1	1.30 %	
	Other	4	5.19 %	
	Blank	26	33.77 %	

remains was on the mind of students to some extent as they interacted with the remains. Table 4.

Agree was also selected most often in response to question eight, with 51 % (n = 39) of participants agreeing that these collections could be used to facilitate conversations on death and dying. Coupled with the responses to question seven, there is a good indication that these collections have the potential to prompt discussion of topics related to the acquirement of donors and death and dying – both essential aspects in the teaching of the Clinical Sciences. Two respondents did not answer this question (n = 75).

In this study, 54.66 % (n = 41) of students indicated that these collections made them think about body and organ donation (in the context of 'organs in fluid' from whole-body dissection), with *Strongly agree* chosen most often in responses.

A total of 76 % (n = 57) of students indicated that these collections allowed them to think about the body and what happens to the body after we die.

4. Discussion

4.1. Usefulness of the historical fluid-preserved anatomical remains in teaching

This study elucidated that students found the incorporation of historical wet potted cadaveric specimens beneficial in their learning of anatomy and clinical science and that it could be used to support and enhance a wider anatomy curriculum. The learning of gross anatomy was deemed to be helpful in the context of the collection, with students referring to this aspect with the following quotes:

- Good for looking at landmarks (i.e., identifiable anatomical features on the body).
- Observation of structure.
- Showing how systems work.
- Looking how organs fit in the body.

With students in a previous study expressing their concern about their lack of anatomical knowledge (Ali et al., 2015), it is significant that students in this study found the potted specimen collections helpful in solidifying their anatomical knowledge. Students were interested in the fact that the collection was from a historic 'real' person, which suggests that historical potted specimens may be a useful resource in the teaching of anatomy and understanding of pathological conditions. Some quotes from students which illustrate this point included '*Props will never be like real specimens so always useful*', '*it gives a hands-on approach*', and '*Good to see real organs*.' These comments further solidify the fact that some students may prefer to work with real human specimens in the teaching of anatomy and pathology compared to plastic models or digital technology, and that historical potted specimens can be considered a beneficial resource. Textures, colours, and the 'feel' of real specimens can all rarely be replicated in the case of plastic models or digital technology, with potted wet cadaveric specimens allowing students an 'up close' view of elements of the human body without having to carry out any dissection themselves. This is particularly useful in the case of courses which do not offer cadaveric dissections or modern prosections as part of their teaching, when time is limited for hands-on handling of specimens, and in cases when there are limited donors available.

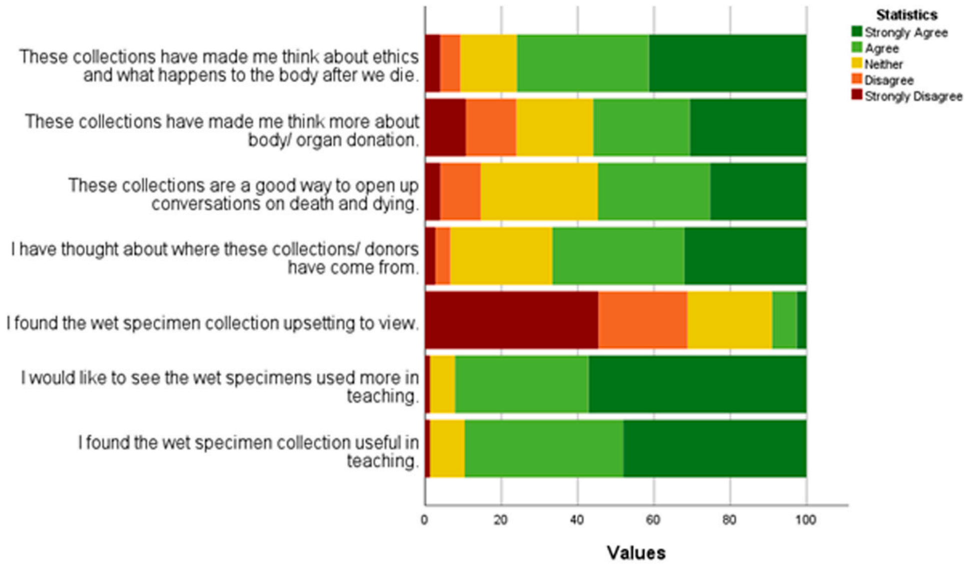

Fig. 3. Responses to 5-Point Likert scale. Feedback was positive, with students perceiving potted anatomical specimens to be beneficial for studying anatomy.

Table 4
Results in response to question eight (median = 4.00).

Response	Number (n = 77)
Strongly disagree	5
Disagree	8
Neither agree nor disagree	23
Agree	22
Strongly agree	17
Blank	2

Question 8 – These collections are a good way to open up conversations on death and dying.

The potted wet cadaveric specimens present in these collections were a good opportunity for students to observe rare pathologies in today's medical field, for example, tuberculosis, or advanced syphilis. With the emergence of some Victorian-era diseases in today's society, such as Rickets, the examination of diseases of the past is more important than ever (Greener, 2019). Supporting this, Gulczyński et al. (2018) state that these collections are valuable in observing diseases that are now unavailable for gross inspection due to the interventions of modern medical treatments. Potted wet cadaveric specimens from historical contexts are an excellent way for students to examine conditions that may become relevant again in contemporary medical fields, or simply to observe pathologies less common in developed countries.

Potted wet cadaveric specimen collections as a holistic component in teaching were discussed by Johnson et al., (2013), particularly when used in tandem with other resources such as modern cadavers, textbooks, and digital resources. The results of the study by Johnson et al. (2013) highlight the usefulness of potted wet cadaveric specimens as an additional teaching tool in anatomy education. Despite this, several anatomy or pathology departments have opted for the disposal of potted historical specimen collections due to a lack of resources regarding upkeep (McMenamin et al., 2021). Therefore, it is more important than ever to emphasise the potential benefits of these collections in teaching. Despite the potential benefits of potted wet cadaveric specimens, it is important to note that training is required for the proper upkeep of these collections. Therefore, staff may need to complete specialised courses. Chemicals required for submersion fluid preservation, replacement glass, Perspex containers, sealant, rods, and other specialised equipment need to be obtained by university departments. Therefore, the upkeep of these collections is often time-consuming and specialised. Although more modern formaldehyde-based solutions used for potted specimens are hazardous, it should also be noted that even fluid dating back to the 19th century also has the potential to cause harm (i.e., turpentine) (Simmons and Marlin, 2014).

4.2. Personhood, death and dying

The complexity regarding the personhood of these collections is suggested in the varying descriptions of the remains. Personhood may be defined as the 'condition or state of being a person' (Fowler, 2004). The personhood of these collections was not lost on students, with the word '*person*' being circled 24.5 % of the time (n = 38) and '*object*' being circled in 2.5 % of cases (n = 4). The fact that the word '*specimen*' was circled quite often (31 % with n = 48) suggests the fact that these specimens are not considered an object or a person, but rather is being 'used' to teach and educate. The word 'specimen' could be considered by some to be somewhat problematic, as this can be used to describe non-human samples. The complexity regarding personhood is illustrated in the following quotes:

- They are no longer alive, so 'specimen' is more appropriate than person.
- I do not think of it as a person, rather human remains.

However, as indicated by the responses to question six, students, on the whole, did not find the collection upsetting to view. This supports previous research conducted by O'Carroll et al. (2002) to understand the emotional impact of cadaver dissection on medical students. This was further illustrated in the student quote in this study, '*Do not really see it as human. It is a dismembered whole. I am detached from it*'. The act of pre-dismemberment before study seems to have created a 'barrier' allowing the student to disassociate themself from the reality that these are cadaveric specimens. Disassociation could be linked to a lack of empathy, which is concerning as empathic development is often a desired development in anatomical education (Ghosh and Chakraborty, 2018). Furthermore, cadaveric dissection can be quite confrontational for some students (Bernhardt et al., 2012), with Greene and Rosen (2019) highlighting that often when medical students encounter a deceased donor for the first time, they also must try and reconcile dissection on the deceased they have just seen. This confrontation did not occur in the case of the potted wet cadaveric specimens in this study, and although this was the first time at least 41 respondents saw cadaveric material for the first time, the collection was not upsetting to the cohort. A study carried out by Quince et al. (2011) suggested that medical students with a higher level of anxiety surrounding death were more likely to remember that the donor was ‘once a person.’ The fact that the student cohort was not upset by the University of Bradford potted specimen collection suggests they were not thinking about this fact. The personhood of the collection in this study did not go unmentioned, though, with one quote stating upon their first observation, ‘*Specifically, poor dead person*.’ The fact that the majority of students were not upset by the collection may be due to the fact that they expected to encounter such resources as part of their teaching within a Clinical Science degree program.

One student, as part of this study, also suggested that lecturers should hold a session before use of the collection to educate students on how to respect the donor. The suggestion of a workshop is interesting and would be beneficial to students to generate conversation and discussion regarding the ethical handling of these collections, and to further solidify the fact that these specimens are from people. A similar suggestion was made by Quince et al. (2011) and their investigation into students’ attitudes toward cadaveric dissection at a medical school in the UK.

4.3. Post-mortem bodily integrity

Many historical anatomical and pathological potted wet specimen collections may have been obtained in circumstances which merited a different set of ethical standards, with permission not always sought from donors or their families (Dittmar and Mitchell, 2016; Mitchell et al., 2011). The Anatomy Act of 1832 was introduced to try and tackle issues regarding the unethical acquirement of cadaveric samples. However, this Act was still problematic as it meant those of a lower socioeconomic status were often victim to dissection against the wishes of their families (Richardson, 2000). The use of these collections may serve as an ethical dilemma, for researchers and educators as they may have been obtained in unethical circumstances, such as from those of unclaimed bodies from families of a lower socioeconomic status in the 19th century (Richardson, 2000). However, it could be argued that not using the specimens is also a dilemma as you are not using a valuable resource that can be used for education. These are questions that organisations that maintain such collections should be asking. Furthermore, these collections are important reminders of contemporary topics which could be discussed within anatomical and pathological education.

Further discussion of this important information with students would allow these collections to be used to educate future scientists and clinicians on post-mortem body integrity. Many historical collections lack patient case notes or archival material, but they are still valuable for discussing patient symptoms, pain, and suffering. In the case of the Allan Burns anatomical collection (late 18th and early 19th century preserved collection attributed to the Scottish anatomist Allan Burns), Lee and Strkalj (2017) state, ‘*But ultimately, this ongoing process of critical thinking and evaluation about the history of these specimens, and others like them, is vital in providing a foundation for teaching medical history and ethics to the future generations of anatomists, doctors, and scientists*.’ The authors also state that it may be best to treat the human donor material from the collection as valuable ‘witnesses’ of the history of anatomy – making them an excellent resource to teach contemporary students about medical ethics. Although, in this instance, the authors are referring to a collection which dates back to the 18th century, the same sentiment can be applied to collections from later dates (such as the 19th and 20th-century collection at the University of Bradford) but are nonetheless not from contemporary donors post the 2004 Human Tissue Act. Student responses in the case of this study indicated they had considered where these specimens had come from, and that it made them think about what happens to the body after we die. This would further suggest that historical specimens, as indicated by Lee and Strkalj (2017), have the potential to serve as valuable ‘witnesses’ of social history and ethical considerations. In bringing up these conversations, students have the chance to reflect upon issues related to consent, retention of medical specimens, and the display of the dead body. Some students may have been unaware that some of the collection may have been obtained in circumstances with a different ethical approach before the introduction of the 2004 Human Tissue Act, or that they felt far removed from the specimens as they were presented ‘*in jars*’ (survey quote). Unfortunately, there is not much archival material with the University of Bradford collection (as is the case with numerous historical collections across the UK), so students were unable to look at case history notes to further understand the context of specimen acquirement. Despite this lack of information, and possibly due to it, the majority of students thought about the acquisition of the specimens.

Archaeological studies have successfully incorporated archaeological examples of death and dying as a means to generate conversation, suggesting that historical potted wet cadaveric specimen collections have the potential to do the same regarding the complex issue of post-mortem bodily integrity in medical education (Büster et al., 2018; Croucher et al., 2020). These complex issues have been discussed by such authors as Ruth Richardson and Elizabeth Hurren, who discuss historical anatomical specimen acquirement and issues regarding ethics, socioeconomic status and bereavement (Hurren, 2011; Richardson, 1987). The incorporation of historical potted specimen collections has enormous potential in discussing the complexities of body bequeathal and dissection with anatomical students. Topics such as socioeconomic status, ethics, informed consent, body display, and religious belief are still contemporary issues that can be discussed in the context of historical potted specimen collections. Without body donation, the teaching of anatomy and pathology would be severely impacted. However, students should be made aware of issues in medical ethics, and that consent is vital in the acquirement of cadavers. However, that is not to say that we should apply modern ethical standards to historically acquired specimens that were acquired as to the standards of the time, but rather that they can be used to open discussions.

4.4. Limitations

One limitation in our study was that we were unable to gather sufficient demographic data. Whilst we also included a section regarding demographics in the survey, between 28.57 % and 33.76 % of students did not fill in the questions in this section. This made it difficult to correlate any opinions on the use of potted specimens with gender identity or religious beliefs. Therefore, these aspects have not been considered for this paper. However, demographical information for the students who did fill in this section of the survey has been presented the Table 2 in the results section.

Another limitation is that the study sample only included undergraduate students with limited anatomy experience. The study results may be influenced by previous anatomy education experiences, or a sample that included graduate or students in advanced degrees. Future research should therefore investigate the investigate the use of potted pathological historic specimens in these cohorts.

5. Conclusion

To the authors’ knowledge, this is the first study to investigate student perceptions solely on the use of historical potted wet cadaveric specimens in anatomy education. This study allowed for significant insight into students’ perceptions towards a historical anatomical and pathological collection type that may be considered obsolete by some. The use of historical potted anatomical and pathological specimen collections has not often been the subject of vigorous surveying of anatomical students and professionals but has been a secondary aspect of some studies (Johnson et al., 2013).

Suggestions can be made by the authors with regards to integration of potted wet cadaveric specimens into the teaching of anatomy and pathology. Workshops on ethical tissue handling could be held ahead of practical classes, especially when considering potted specimens are heavy and filled with hazardous liquid. The use of whiteboard markers to show pathologies on the specimens (which can be easily wiped away), accompanying clinical notes when available, comparison with normal anatomy, and used in tandem with other cadaveric specimens, including plastinated specimens of or dissections, would allow for a holistic, effective approach in teaching. To further understand the teaching value of these specimens, comparisons of quiz results with students who have and students who haven't used the potted specimens is recommended in future studies.

The results of this study suggest that the further incorporation of historical potted wet cadaveric specimen collections in anatomy and pathology teaching would be beneficial to students. The positive attitude towards these collections in teaching seems to echo the expected response to more modern cadaveric remains even though potted collections are older are sometimes considered obsolete (Tybjerg, 2022). This study demonstrated that 90 % of students found the historical anatomical collection useful in teaching, 92 % would like to see the collection used more in teaching, and 76 % of students found that the collection encouraged them to consider the ethics and the donor. Furthermore, these collections have the potential to generate conversation surrounding complex topics such as death, dying, and body donation, which are important subjects for students to consider in clinical science-related degree programs.

Ethical approval

This study was approved by the Research Ethics committee at the University of Bradford.

Conflicts of interest

None.

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