RESEARCH ARTICLE

Assessing the perceptions of individuals with differing levels and backgrounds of education towards whole-body donation

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Abstract

***Introduction*:** The value of learning anatomy through cadaveric dissection is widely acclaimed; however, the demand for cadavers exceeds supply. For the number of donors to increase, there needs to be a broader understanding of what influences an individual s perception towards whole-body donation. The hypotheses were that individuals with a biomedical background or with higher levels of education would respectively have a more positive perception towards whole-body donation than those with an arts background or less education. Dissection experience was predicted to affect an individual s perception of whole-body donation negatively.
***Methods*:** To assess perceptions of whole-body donation, an online questionnaire was created consisting of statements developed using Thurstone and Chave's method. After ethical approval, the survey was distributed to students, academics, businesses and charities. Responses were allocated a mean score based on agreed statements. The Mann-Whitney U test was used to assess significance.
***Results*:** Significant difference in scores of individuals with biomedical science education compared to those with an arts education ($P = 0.028$, $U = 39$).No significant difference in scores of individuals with and without dissection experience ($P = 0.394$, $U = 654.5$).A significant difference in scores of postgraduates compared to graduates ($P = 0.036$, $U = 13.5$).
***Conclusion*:** Individuals with a biomedical science education reflected a significantly higher positive perception of whole-body donation in comparison to individuals with an arts background. Although postgraduates had a significantly higher positive perception of whole-body donation compared to graduates, there was no trend between level of education and score. Individuals with dissection experience didn t have a more negative perception of whole-body donation.

Abbreviations: RCS, Royal College of Surgeons; BA, Bachelor of Arts; BSc, Bachelor of Science; MBBS, Bachelor of Medicine and Bachelor of Surgery; PhD, Doctorate; Biomed, Biomedical science

Keywords: Whole-body; Donation; Dissection; Perception; Biomedical; Arts; Education

Introduction

Whole-body donation is an anatomical donation voluntarily made by the individual to give their body to an educational or research institute (Rokade and Bahetee, 2013).

Donors are a vital part of medical science for both scientific research and education. Regular cadaveric dissections are part of several medical school' s curricula, many including the General Medical Council and the Royal College of Surgeons of England (RCS) believe it is the best way to learn anatomy (Abdulrahman, 2020; Green et al., 2014; Konschake and Brenner, 2014; Rajasekhar et al., 2016; Rokade and Bahetee, 2013).

Cadaveric dissection has been shown to be a superior learning tool when compared to virtual learning simulation, which reflected a lesser proficiency of anatomical identification and three-dimensional features as well as spatial orientation (Abdulrahman, 2020; Rizzolo and Stewart, 2006; Saltarelli et al., 2014). Medical students in the United Kingdom find learning anatomy through cadaveric dissections more beneficial (Ali et al., 2015; Lempp, 2005).

The RCS anatomy conference saw discussion of how a poor anatomical knowledge can have severe consequences for the medical profession, potentially endangering patient safety (Rainsbury et al., 2007).

However, due to the rising student population and the unchanged number of donors, there is a shortage of cadavers. This can lessen the breadth of education and dissection experience of each student, as the number of students per cadaver increases, meaning less opportunity for each individual to perform dissections themselves (Green et al., 2014). In conjunction, there is a reported shortage of anatomy educators, which combined with the above factors leads to medical students on average spending less time studying anatomy (Rainsbury et al., 2007; Wilson et al., 2020). Furthermore, the costs involved in preserving cadavers and running an anatomy centre are considerable and may impact the decision to move away from cadaveric dissection (Ali et al., 2015).

As mentioned, the concern is that this reduction of anatomy teaching corresponds with a reduction in patient safety (Rainsbury et al., 2007).

United Kingdom and American medical schools mainly rely on voluntary whole-body donations made by the general public (Ghosh, 2015). Other nations such as Nigeria, India and Iran also rely on unclaimed bodies (Abbasi Asl et al., 2017; Anyanwu and Obikili, 2012; Ballala et al., 2011; Habicht et al., 2018; Rajasekhar et al., 2016).

It is therefore important to understand the existing donor population and to appreciate the types of individuals who are more likely to donate. Asad et al. report that the pre-existent idea of whom the main population of donors are (white, educated males aged 65+) is outdated (Asad et al., 2014).

Many studies in different nations and regions report different profiles of whole-body donors (Jedrzejewski and Ritter, 2016; Mueller and Conway, 2019).

In Poland, the majority of donors are working class individuals, residing in cities, aged 68.5 11.84 years old (Bajor et al., 2015). In California, the two central donor populations are on average 71.4 years old, educated married males, and 80.5 years old, less educated and unmarried (Asad et al., 2014). As the donor profiles are varied in age, ethnicity and socioeconomic status, understanding what leads each individual to the decision to donate is a way to improve the numbers of whole-body donors. The analysis of the profile of donors also provides an appreciation as to whether anatomical dissections are representing life. The significant target population of medicine are the elders, which in turn make up the majority of the donor population; therefore, dissections do impart an appropriate insight into morbidities (Konschake and Brenner, 2014).

Various other influences can impact the likelihood of individuals of donating their body to medical science. The death of a loved one is a sensitive and emotional time already. Added to this is that the prospect of whole-body donation having the potential to cause further stress for the family. With this knowledge, a person may not want to put their family through the process, despite being comfortable with whole-body donation themselves (Anyanwu et al., 2014; Bolt et al., 2011).

Another reason may be concerning medicine in general. One study has shown that individuals with a distrusting attitude of hospitals and less education were 40-60 % less likely to consider whole-body donation (Boulware et al., 2004).

A further impacting factor could be the lack of awareness and publicity of whole-body donation in the media. A Human Tissue Authority board member believes that better publicity is crucial to increasing whole-body donations (Rainsbury et al., 2007). Having misconceptions or limited information regarding the donation process can lead to an unwillingness to donate (Larner et al., 2015).

It follows that increased media coverage and publicity is necessary to increase public awareness and interest. Information could be made more readily available in nursing homes, hospitals or GP surgeries; which should hopefully lead to more donations (Bolt et al., 2013; Rokade and Bahetee, 2013; Sharma et al., 2014).

1.1 Aims

This study's objectives were:
To assess the perception of whole-body donation of individuals through an online questionnaire distributed to students,

academics and individuals without biomedical higher education.
To attempt to understand further which factors may lead to a negative perception of body donation.

There are several studies assessing different factors affecting attitudes towards whole-body donation but to our knowledge none comparing the individuals with arts and scientific backgrounds.

1.2 Hypotheses

1. Individuals with a nursing/medicine/ biomedical science background will have an increased positive perception towards whole-body donation.
2. The higher the level of education an individual has, the more positive their perception towards body donation.
3. Dissection experience may negatively affect an individual s perception towards whole-body donation.

2 Material and methods

2.1 Questionnaire design

The questionnaire was created by randomly arranging twenty written statements with varying degrees of positive and negative attitudes towards whole-body donation. The statements were then given to 5 individuals who were tasked with judging the statements according to positivity or negativity. The five judges were of various educational backgrounds and age. The individuals were given instructions on how to score each statement on a scale of 1- 11 according to the Thurstone and Chave method. Wherein a rating of 1 meant the statement had an extremely favourable attitude towards whole-body donation, six meant the statement had a moderate attitude towards whole-body donation and a rating of 11 meant the statement had an extremely unfavourable attitude towards whole-body donation. The individuals were asked not to express their own opinion on the statements but rather provide a judgement as to how favourable each statement was. They were disallowed from further participation in the questionnaire. A median was taken of the scores provided by the five individuals for each statement, to give the statement its scale of positivity/negativity (Fig. 1).

The questionnaire also consisted of questions about the individual's gender, age, educational background and dissection experience. It was created on 'Google Forms' to allow online participation.

An information sheet was included in the questionnaire on the first page, and the participants had to confirm they had read and understood it. Email addresses for the project leads were also included in case any of the participants required more information.

The exclusion criteria were based on the consent form and age; if the participant did not consent or was under 18 years of age, he/she was excluded.

2.2 Distribution

After ethical approval from the Research Ethics Committee of the Cardiff School of Biosciences, the questionnaire was distributed as follows.

Distribution was done via university email with a link to the questionnaire and project information to students and staff of varying subjects such as biomedical science, medicine and geography. It was also distributed to personnel outside of the university through email to contacts within businesses, local authorities and charities.

2.3 Data analysis

Each response to the questionnaire was then scored according to the previously determined judges score of each statement, and the average was taken. A lower overall score indicated a more positive perception of whole-body donation. The score was compared to the individuals declared educational background and dissection experience. A number of the statements were further analysed according to which participants agreed with the statements.

The data were analysed using Excel and IBM SPSS statistics package. The Mann- Whitney test was used to compare scores of participants by their subject field, as the data was in the form of scores and was not normally distributed. A P value of <0.05 was considered significant.

1. **Table of statements used in the questionnaire**

Number	Statement	Median
1	Learning anatomy through donors is something that should be appreciated and valued	2
2	Body donation is necessary for furthering scientific research	2
3	Without body donation, anatomical knowledge and understanding is incomplete	1
4	Body donation is more valuable and beneficial for scientific research than educational purposes	3
5	If there was more education/information surrounding whole-body donation the general population would be more willing to be donors	3
6	Textbooks and lectures are enough to gain the necessary level of anatomical education	8
7	There is an overall positive attitude towards whole-body donation	2
8	I would not like the idea of my family/friends being donors	9
9	I am against opting into whole-body donation	10
10	Body donation can affect the mourning process of relatives	8
11	I would be comfortable with my family/friends being body donors for educational/scientific purposes	3
12	I would consider opting into whole-body donation	4
13	More people should opt into body donation	1
14	Many people are not educated on the process of body donation	6
15	Donors should only be used for the education of medical students	6
16	The general public are as a whole adverse to whole-body donation	8
17	Medical science would be less advanced without whole-body donation	1
18	My family would be uncomfortable with me being a whole-body donor	8
19	I would prefer to not perform dissections on donors	8
20	I would only be comfortable with body donation for research purposes	6

Fig. 1. Table of statements in the order found in the questionnaire. The third column indicates their respective scoring, taken from the median of 5 judges.

3 Results

The questionnaire was answered by 78 participants, with the majority being female (75.6%). The age of participants ranged from 18 to 58 years, with the median age of both males and females being 21.

The most positive attitude about whole-body donation was a score of 1.8, indicating an extremely favourable attitude, and the highest score calculated was seven which indicates slightly less than a moderate perception of whole-body donation.

3.1 Individuals with a Bachelor of Arts (BA) educational background had a more negative attitude towards whole-body donation in comparison to individuals with a biomedical science background

When comparing the scores of individuals by educational backgrounds, there are differences (Fig. 2). The individuals with an arts educational background (BA) showed, on average, the highest score indicating a more negative attitude to whole-body donation. The lowest average score came from individuals with a biomedical science background. When comparing the scores of the BA individuals (n = 8) to those of the biomedical science background individuals (n = 21) using the Mann-Whitney U test, the null hypothesis of no difference in distribution was rejected ((p = 0.028, u = 39) Fig. 3.)).

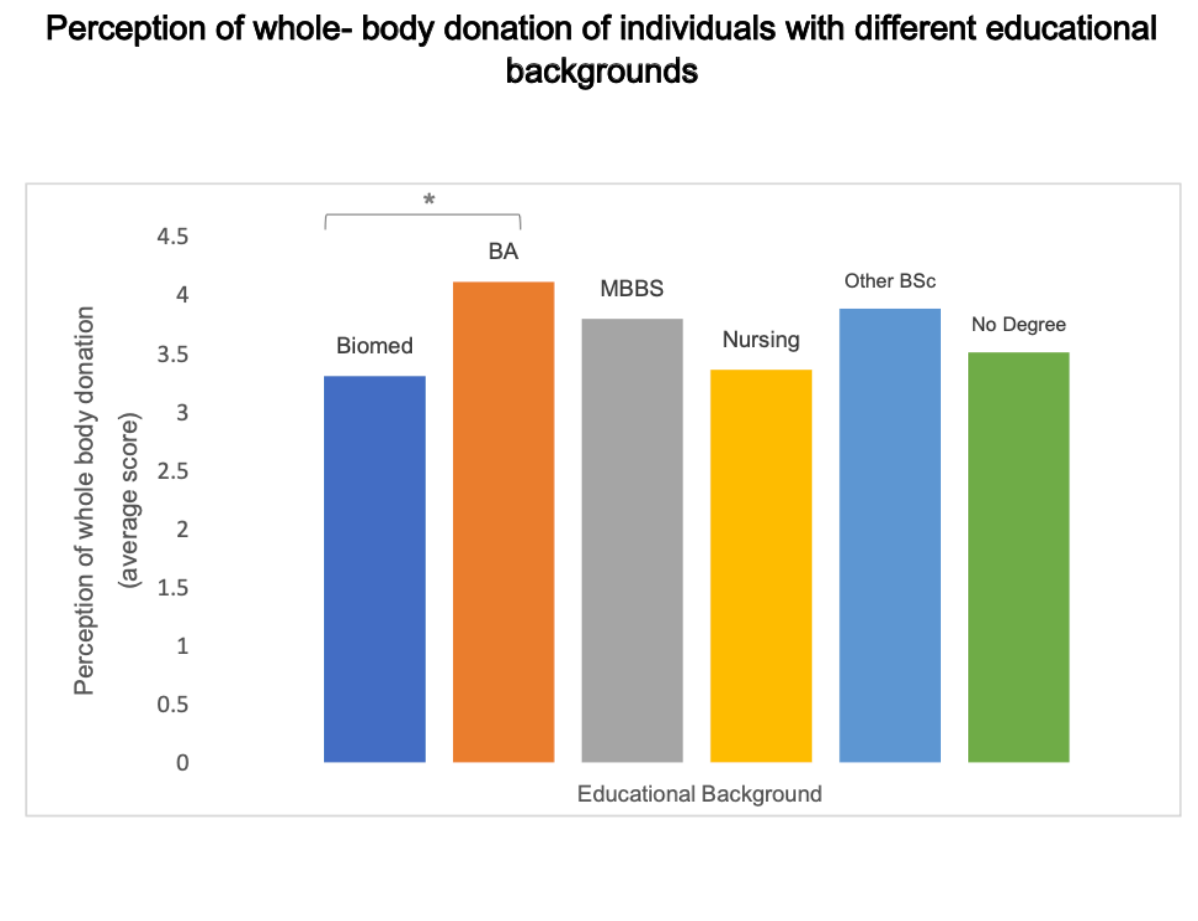

Fig. 2. Perception of whole-body donation separated by declared educational background at university (level of education not taken into account). BA background included design for performance, sociology & anthropology, history, human geography and international development. MBBS included individuals either currently enrolled in a bachelor of medicine and bachelor of surgery or those who had completed it and had gone onto further medical education e.g. Surgery. Other BSc classification included non-biomedical biological degrees, psychology, education, maths and law.
*= significant result (p > 0.05).

2. **Mann-Whitney U test results from each educational background**

Educational Background	Biomedical science	MBBS	Nursing	No Degree	BA	Other BSc
Biomedical science	-	0.059	0.623	0.63	0.028*	0.194
MBBS	-	-	0.412	0.651	0.436	0.569
Nursing	-	-	-	0.564	0.296	0.937
No Degree	-	-	-	-	0.221	0.705
BA	-	-	-	-	-	0.357
Other BSc	-	-	-	-	-	-

Fig. 3. P Value results from the Mann-Whitney U statistical test performed between each educational background. (BA=bachelor of arts, BSc= bachelor of science, MBBS= bachelor of medicine and bachelor of surgery)
*= significant result (p>0.05).

Therefore, individuals with a BA background had a significantly less favourable opinion of whole-body donation in comparison to individuals with a biomedical science background.

The score of the individuals with a biomedical science background was mainly between 2 and 3, while arts background individuals were between 4 and 5. Although there is a significant difference in the scores, both averages still represent a favourable perception towards whole-body donation.

For the rest of the educational disciplines, despite there being differences in average scores, there was no significant difference when each field was compared with one another using the Mann-Whitney U Test (Fig. 3). Therefore, there is no significant difference in perception of whole-body donation between biomedical science and individuals with different courses of studies excluding BA individuals.

3.2 Significant difference in scores between individuals with a postgraduate and graduate education

The group with the highest average score were the graduates, and the group with the lowest average score were the postgraduates (Fig. 4).

When individually comparing each group of differing levels of education using the Mann- Whitney U test, a significant difference is seen between the graduates and the postgraduates ((p = 0.036, U = 13.5) Fig. 5)). This indicates that the postgraduates have a more positive perception of whole-body donation in comparison to the graduates. However, both scores are still considered positive on the Thurstone and Chave scale.

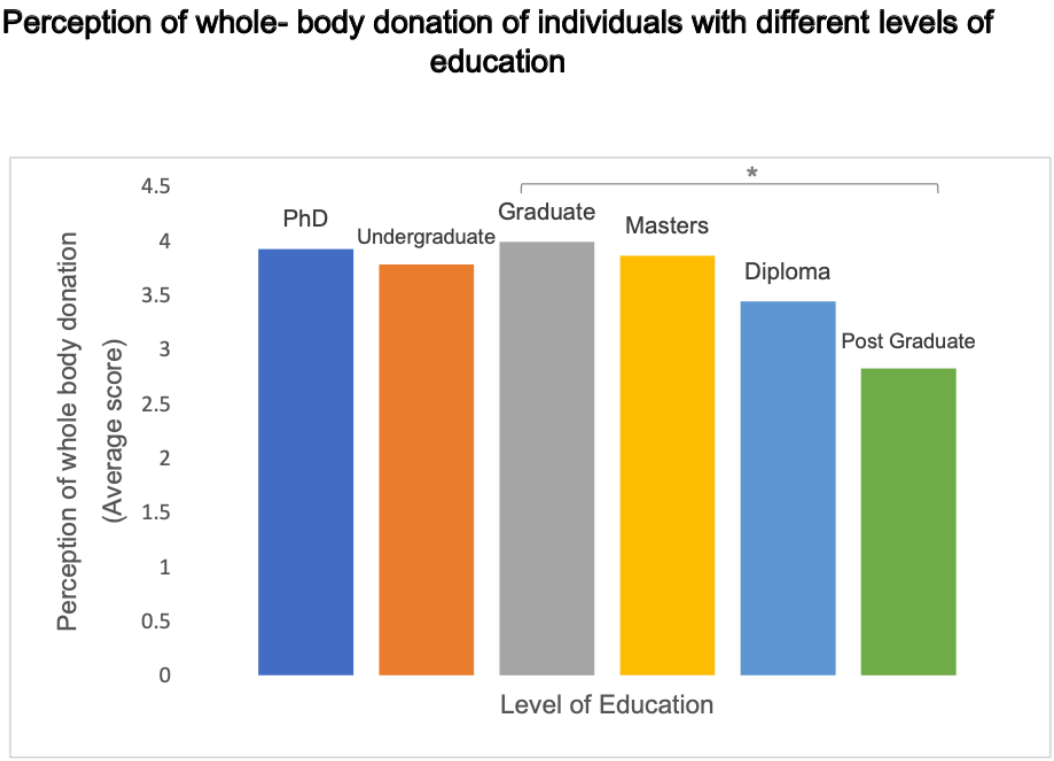

Figure 4. Perception of whole-body donation separated by declared level of education (field of education not taken into account) Undergraduate included all those currently undertaking an undergraduate degree graduate included participants who had completed an undergraduate degree but had not taken any further education. Post graduate included individuals who had declared post graduate education beyond an undergraduate degree that wasn't a masters. Diploma included participants with a diploma level education. PhD included individuals holding a doctorate. * = significant result ($p > 0.05$).

3. Mann-Whitney U test results from each educational level

Education Level	Diploma	Undergraduate	Graduate	Postgraduate	Masters	PhD
Diploma	-	0.571	0.313	0.297	0.827	0.732
Undergraduate	-	-	0.644	0.051	0.862	0.87
Graduate	-	-	-	0.036*	0.767	0.724
Postgraduate	-	-	-	-	0.101	0.167
Masters	-	-	-	-	-	0.909
PhD	-	-	-	-	-	-

Figure 5. P Value results from the Mann-Whitney U statistical test performed between each level of education. (PhD= doctorate)
*= significant result (p>0.05)

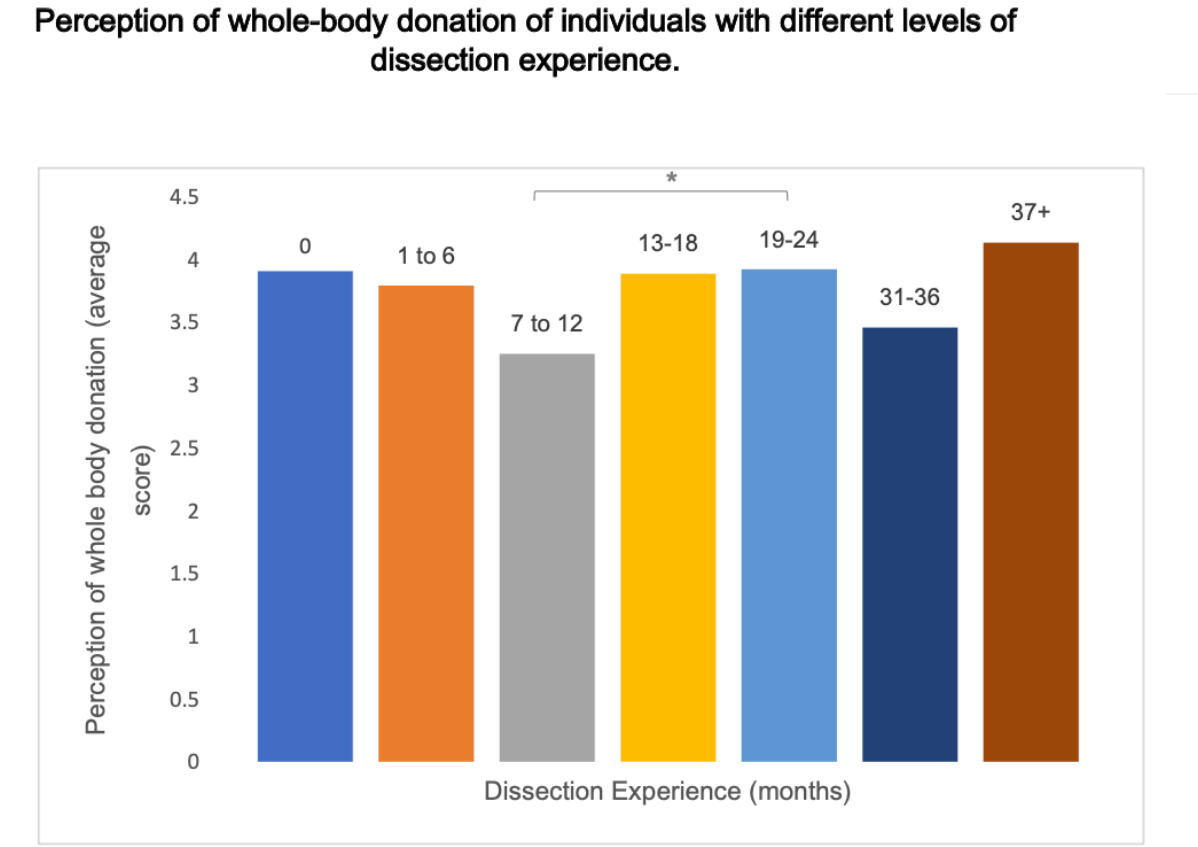

Fig. 6. Perception of whole-body donation separated by each individual's declared dissection experience. (lack of representation in the 25-30-month group, as no participants fell into this category)

*= significant result (p>0.05)

3.3 No significant difference in scores between individuals with and without dissection experience

Those with dissection experience (5- 204 months, n = 41) had, on average, a score of 3.69 versus those without dissection experience (n = 36) had a mean score of 3.90.

The difference in scores and the experience of each individual in months were analysed with the Mann-Whitney U test but had no significance (U = 654.5, p = 0.394).

However, upon breaking down the dissection experience into smaller categories of time and statistically comparing each group using the Mann-Whitney U test reveals a significant difference between two of the groups (Fig. 6). The '7 to 12 months' group and the '19 to 24 months' group had significantly different scores, and thereby different perceptions towards whole-body donation (U = 27.5, p = 0.032). Individuals with 7 to 24 months of dissection experience. Nevertheless, as mentioned before both group' s mean scores are still considered positive on the Thurstone and Chave scale.

3.4 Majority of participants would consider opting into whole-body donation

15.8% of participants agreed with the statement 'I am against opting into whole-body donation', but only one of the participants had a disclosed BA educational background, with the rest being biomedical and MBBS background.

The majority of participants (59%) agreed that they would consider opting into whole-body donation.

78.2% of participants believed that without whole-body donation, anatomical knowledge is incomplete. Yet out of those who agreed with that statement (n = 61), 62% said that they would consider opting into whole-body donation.

An interesting point is that 51.3% of participants agreed with the statement' body donation can affect the mourning process of relatives.'

This may factor into reasons why 25.6% of participants agreed with the statement ' I would not like the idea of my family/friends being donors'.

Moreover, 82.1% of participants believe that 'If there was more education/information surrounding whole-body donation, the general population would be more willing to be donors ' This might serve as an indication of why there is a shortage of donors.

4 Discussion

The results show that although there was a significant difference between the scores of two different educational backgrounds, both scores are still considered positive on the Thurstone and Chave scale. This positive perception reflects in the large percentage of participants who would consider whole-body donation. However, the number willing to donate is still lower than those who agree that whole-body donation is necessary for a complete anatomical education. Interestingly of those that said they wouldn't consider opting into whole-body donation (n = 14), 67% were biomedical science and MBBS students. These students have more knowledge and experience with body donation but are still adverse to opting in; which suggests that either they have had a negative dissection experience or there is more at play, such as cultural or religious beliefs (Mwachaka et al., 2016) The Netherlands found that the majority of their donors were non-religious, which would imply that beliefs of the sanctity of life and death could hinder a religious individual from donating their body to science. (Bolt et al., 2013).

A participant via the feedback section commented that they would love to be a donor but that they were unable to convince their family and loved ones, and they ended with the note that people s decisions are often influenced by more than their own desires. Accordingly, 24.4% of participants agreed with the statement 'My family would be uncomfortable with me being a whole-body donor'. These emotions could prevent someone from wanting to be a donor; as when an individual passes away, it is their loved ones who deal with the loss.

Some ways to help ease this have already been employed in schools across many nations. Memorial services are one of the ways implemented to provide emotional comfort and closure to the families, while humanising the donors for the students (Ghosh, 2015; Pawlina et al., 2011). Research has found that memorial services and alike promoted awareness and acceptance of whole-body donation (Jiang et al., 2020). Another institution trialled a program where the students meet the families of the donors before dissection progresses, they found that it humanised the donors and students were more thoughtful while dissecting. This could also ease the minds of the families in knowing that their loved one is being respected (Crow et al., 2012).

It must be noted that having dissection experience did not have any significant impact on a participant s score. This may be due to the smaller sample (n = 78), and ambiguous answers to time spent dissecting. The

questionnaire asked for participants to state dissection experience in years or months, but in hindsight, this did not pinpoint the actual time spent dissecting. Accordingly, the results may not be a true reflection of how dissection experience impacts the perception of whole-body donation.

This finding is different from research which suggested that dissection experience can negatively impact a student s willingness for themselves or their family to be donors (Cahill and Ettarh, 2008).

However, Cahill and Ettarh measured the student s perspective after a limited timeframe of only nine weeks of dissection, so the question is whether individuals with more experience have the same attitudes. A glimpse of this is seen in our results where there was a significant difference in whole-body donation perception between individuals with 7 to 12 months and 19 to 24 months of dissection experience. This provides evidence that the timespan of dissection experience might be relevant when deciding whether dissection is an impacting factor on attitudes towards whole-body donation.

An additional study showed that the more experience in years a medical professional had the more likely they were to consider body donation (Green et al., 2014) Whereas, other reports analysing experienced professional anatomists opinions highlighted that the majority were not registered donors and one of the main reasons was that they were concerned that their colleagues would be the ones dissecting their cadavers (Bolt et al., 2012; eh rl et al., 2004). So, for increased dissection experience, there is more complexity involved in one s perception of whole-body donation.

From personal experience dissections can be emotionally impactful, so one can understand why dissection might impact an individual s attitude to whole-body donation. Nevertheless, the importance of cadaveric dissection for undergraduate and postgraduate courses has been widely acclaimed for its ability to impart topographical knowledge and ethics into students, for their career as medical professionals (Gillingwater, 2008; Konschake and Brenner, 2014). Therefore, it is essential to try and solve emotional and psychological issues students might have by offering support sessions throughout the programme led by representatives of religion and medicine (B ckers et al., 2012; Chang et al., 2018; Pabst et al., 2014).

Another comment from a participant was that they have mixed reviews in donating my body, if I could choose where to put my body, such as medical student research, then I would consider it more. Anecdotal evidence and communication with individuals indicated an opinion that they would be comfortable with whole-body donation as long as it was done for research rather than education (Bin et al., 2016). This might be due to the inexperience of students with dissection compared to academics, or they might feel being a part of scientific research is a more valuable and helpful use of their loved one's bodies (Mwachaka et al., 2016).

It would seem that the populations with a more positive perception of whole-body donation are those who are more familiar with it as a concept due to the nature of their area of education (biomedical science, nursing and MBBS backgrounds). However, the mean scores of individuals with other educational backgrounds are still considered positive. Therefore, from this survey we can conclude that it is not apparent that educational background has an effect on whole-body donation perception.

The level of participant s education did not have a significant effect on the positivity of their score. Only between the postgraduate and graduate individuals was there a notable difference. This may be due to the postgraduates increased familiarity with the topic, due to their more extensive accumulated knowledge. Despite the significance, both mean scores are still considered positive on the Thurstone and Chave scale.

Furthermore, there isn't a linear relationship between the level of education and score, consequently it isn't simply a case of the more education one has the more positive their perception to whole-body donation.

Another critical point to discuss is the large portion of participants agreeing that If there was more education/information surrounding whole-body donation the general population would be more willing to be donors. Ergo, the challenge arises as to how to actually promote and raise awareness for body donation.

In the Netherlands, following media coverage of the reveal of body donor monuments there was an upsurge in donations (Bolt et al., 2013). Surveys have reflected that the primary motivation for registering to be a whole-body donor was to be useful and help advance medical science, so one could add meaning to their death (Bolt et al., 2010; Cornwall et al., 2018) Further research suggests that specific individuals would rather be organ donors

as opposed to whole-body donors due to the direct impact organ donation will have on saving lives (Bolt et al., 2012; Oktem et al., 2020).

However, with the requirements that need to be met for organ donation compared to whole-body donation, an individual is more likely to end up as a whole-body donor and their altruistic request will be honoured (Reis, 2010). It could be argued that positive press, as well as highlighting the benefits that whole-body donation brings to education and research, is necessary to formulate a favourable opinion of whole-body donation in the general public's minds (Rokade and Bahetee, 2013; Sharma et al., 2014).

4.1 Hypotheses, proven or disproven?

The first hypothesis was that individuals with a nursing/medicine/ biomedical science background would have an increased positive perception towards whole-body donation. This, in part, was proven to be accurate, as individuals with a biomedical science education had the most positive perception towards whole-body donation. Furthermore, there was a significant difference in the scores between biomedical science and arts individuals. However, despite the significant difference, both scores are still considered a reflection of a positive perception towards whole-body donation. When comparing participants from a nursing and medical background with the rest of the fields of education there was no significant difference, suggesting that having a nursing or medical background does not lead to a more positive perception of whole-body donation.

The second prediction was that the higher the level of education an individual has, the more positive their perception towards body donation. This was disproven as there was no linear relationship between level of education and score. However, there was a significant difference in the scores of the postgraduate and graduates; with the postgraduates displaying a more positive perception of whole-body donation.

The last hypothesis was that dissection experience might negatively affect the individual s perception towards whole- body donation. This was also disproven as there was no significant difference in the scores between individuals with and without dissection experience. Furthermore, there was not a linear relationship between the amount of dissection experience and the score of perception of whole-body donation. Though, there was a notable difference in perception of whole-body donation between individuals with 7 to 12 months and 19 to 24 months of dissection experience. The individuals with 7 to 12 months dissection experience had the most positive perception towards whole-body donation.

5. Conclusion

With the complex nature of humanity as a whole, there are undoubtedly going to be multiple factors to consider when trying to understand an individual' s perception of any subject matter. Whole-body donation increases this complexity due to its ability to raise different questions in each individual about their mortality and ethics. Hence, it is encouraging to see so many steps being made to discover the various opinions towards whole-body donation and how they can be used to improve the experience of families, students and researchers.

Nevertheless, it is also clear from both this study and surrounding research that there perhaps needs to be a more concerted effort made with awareness and education of whole-body donation.

5.1 Limitations

Some limitations of this study were that the statements used in the questionnaire were varied in nature. Certain statements that would increase the participants score thereby indicating a more negative perspective, were not necessarily the participants views but rather their opinion on other people's perspectives. For example, agreeing with the general population as a whole are adverse to whole-body donation would add a score of 8 to an individual s total, increasing the mean of their total score but not necessarily accurately reflecting their negative/positive attitude.

Also, the analysis of dissection experience is limited by the fact that only MBBS and biomedical science students would likely have dissection as part of their curriculum, so a separate evaluation is needed. However, in order for the groups to be evaluated discretely, a bigger sample size is needed.

In addition, to gain a more complete understanding of the different educational populations a bigger sample size would be necessary as not many non-biomedical/MBBS students responded to the questionnaire.

5.2 Recommendations

In order to realise the goal of increased donation, whole-body donation should have more of a presence in media and advertisements. This will have the potential to form a base level interest which can be furthered with the use of reliable information on websites from organisations such as the Human Tissue Authority and the Royal College of Surgeons.

After facing significant donor shortages in the 1960s and 1970s, countries such as the Netherlands and Austria, are now able to meet anatomical donation demands due to successful implementation of advertising and programs for students and families of donors (Bolt et al., 2010). Japan also presents itself as having sufficient donors, which has been achieved in part by running public relation activities (Sakai, 2008).

Nations which have resolved issues regarding lack of donors can be used as exemplar case studies of how to put into practice solutions for an increased donor population.

Funding statement

N/A.

Ethical approval

Project titled Assessing the Perceptions of individuals with differing levels and backgrounds of education towards Whole-body Donation is approved by the School of Biosciences Research Ethics Committee with number SREC 2003-01. Informed consent was obtained from each participant.

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