

A Qualitative Study on the Factors Affecting the Willingness of 3rd Level Students to Register as Organ Donors in Ireland

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ABSTRACT

A wide range of factors contribute to an individual's choice whether or not to register as an organ donor. The knowledge of the Irish population at large around the area of donation and transplantation is varied. A research survey was designed to be completed by third level students. The purpose of the research was to determine the most important factors that played a role in their decisions regarding opting-in to organ donation. A second aim of the survey was to determine the participants' levels of knowledge and understanding on the 'opt in' donation system in place here in Ireland.

The survey was designed on Google forms and distributed online. A total of 315 valid responses were received. The findings of the survey demonstrated that education, and influence from family and friends were the major contributing factors for Irish students when choosing whether or not to register as an organ donor. Other data indicated that over 90% of participants wished to see an 'opt-out' donation system in place in Ireland. The latter finding suggests a need for change to the current legislation. This legislation states that the donor register is compiled from the voluntary 'opting-in' of donors.

KEYWORDS: Organ donation, willingness to donate, 'opt-out' system, 'opt in' system, 3rd level students

INTRODUCTION

Organ donation involves the replacement of a recipient's failing organs with healthy donor organs. Organ transplantation is an essential area of medicine. For some, a transplant can be a matter of life and death. The first organ transplantation occurred in Ireland in 1964 and the rate of organ donation has increased steadily ever since (Umana *et al.*, 2018). WHO defines an organ donor as a 'Deceased or living person from whom at least one solid organ or part of it has been recovered for the purpose of transplantation' (World Health Organisation, 2009). Ireland has one of the highest rates of donation worldwide, with 20.3 donors per million population (Beaumont Hospital Kidney Centre, 2017). In 2019, a total of 274 transplants were performed in Ireland from 85 donors (Connor, 2019). This service could not be performed without a register of organ donors willing to support those in need. However, there is a shortage of organ donors in Ireland, particularly living donors. In 2018, 40 kidney transplants were performed, despite the fact that over 400 people were waiting for the lifesaving treatment at the end of the same year (McMahon, 2019).

Research suggests that a number of factors influence individuals' willingness to register to donate. People's knowledge regarding organ donation and their faith plays a role in their willingness to donate after death (Wakefield, Watts, Homewood, Meiser & Siminoff, 2010). In 2015 in Ireland, a survey was

carried out by Organ Donation and Transplant Ireland on Public Attitudes to Organ Donation. This research was carried out on Omnipoll, Ipsos MRBI's telephone omnibus service. The sample used was RDD (random digit dialling) to ensure that both listed and unlisted phone numbers have the same probability of being contacted. Interviews were conducted via landlines and mobile phones. Of the 1005 people surveyed, 51% (513) were female. This study included individuals from the age of 15 to 65+. It was found that while 81% of the individuals surveyed would be willing to donate organs, only 36% of these individuals carried an organ donor card. Other factors surveyed included the awareness of organ donation. Of the respondents, 26% of individuals stated they were not well informed about organ donation (HSE, 2015).

Furthermore, in Ireland there is currently an opt-in system in place whereby one must register in order to be an available organ donor. This study also investigated if participants would like to see an opt-out system in place, whereby each citizen must legally strike their names from the available donor list. The current study was conducted to determine the factors which affect third level student's willingness to donate organs in Ireland. Responses were sought from university or college students over the age of 18 who are resident in Ireland for at least 6 months of the calendar year. To determine the nature of these factors, the authors' constructed a survey which consisted of a series of questions designed to obtain information on people's attitudes towards organ donation. This paper investigates the attitudes that third level students, in Ireland, have towards organ donation and the various elements that affect their views and willingness to donate organs.

MATERIALS & METHODS

In order to compile information regarding factors affecting the willingness of 3rd level students to register as organ donors, a completely anonymised survey was conducted on 3rd level students over the age of 18 who are ordinarily a resident in Ireland for at least 6 months of the calendar year.

The survey tool used was Google forms. The questions asked included both open questions, where the respondent was able to compose a reply, and closed questions where multiple choices were included for the respondent to select from. All 17 questions were optional, so was possible for respondents to skip questions if desired. An ethics form was completed prior to the distribution of the survey and approved by the MTU Research Ethics Committee.

The survey was distributed using two methods:

1. Promotion using social media websites such as Facebook, Messenger, and WhatsApp.
2. Circulation by the service surveys@umail.ucc.ie which distributed the survey to University College Cork students.

Methods used to carry out hypothesis testing:

Hypothesis testing was used to determine if the differences between specific results were significantly different or just due to sampling. Z scores were calculated using the following formula:

$$Z = ((\hat{p} - P_0))/(\sigma_{\hat{p}})$$

Where \hat{p} = the raw score

P_0 = the population mean

$\sigma_{\hat{p}}$ = the standard deviation

The purpose of the z-scores was to eliminate bias from the results which may have arisen from the difference between population sizes between males and females, and school sizes. Consequently, the results of populations could be compared to one another despite population size differences.

RESULTS

A total of 323 responses was collected from the 19th of February - 2nd of March 2020. Eight responses were deemed invalid as the respondents were not ordinarily resident in Ireland for at least 6 months of the calendar year; 315 of the responses were used to compile the data presented in the results. Microsoft Excel was used to sort the data according to factors including gender, school/department of study and religious beliefs.

Table 2: Registered organ donors according to gender among surveyed college students in Ireland in 2020

	Total	Registered organ donors	Not registered organ donors
Respondents	315	208 (66%)	107 (34%)
Male respondents	77	43 (53.7%)	34 (42.7%)
Female respondents	239	165 (69.2%)	74 (30.8%)

Hypothesis testing to determine if the percentage of registered females could be compared with the percentage of registered males despite the difference in population size:

Null Hypothesis: 69.2% of Females Being Registered with a population of 239 Females can be comparable to 53.7% of Males Being Registered with a population of 83 Males.

Alternative Hypothesis: 69.2% of Females Being Registered with a population of 239 Females cannot be comparable to 53.7% of Males Being Registered with a population of 83 Males.

$$N = 1 \quad Z = (p^{\wedge} - p_o) / (\sigma p^{\wedge}) = (0.692 - 0.537) / 0.407 = 0.381$$

$$\hat{p} = .692 \quad \sigma p^{\wedge} \approx \sqrt{(p_o(1-p)/N)} = \sqrt{(.537(1-.692)/1)} = \mathbf{0.407}$$

$$P_o = .537$$

As the Z value is greater than 0.05, the result is not significant, thus, the null hypothesis is accepted. Therefore, the results can be compared despite population size difference between male and female respondents.

The large majority of third-level student respondents were aware of the opt-in system for organ donation in place in Ireland (80.5% of females and 91% of males)

Furthermore, it was determined that 90.5% of respondents are in favour of changing current legislation to allow donation to an organ pool available to anybody in need. Figure 1 shows respondents' preference when it comes to being a living or post-mortem donor.

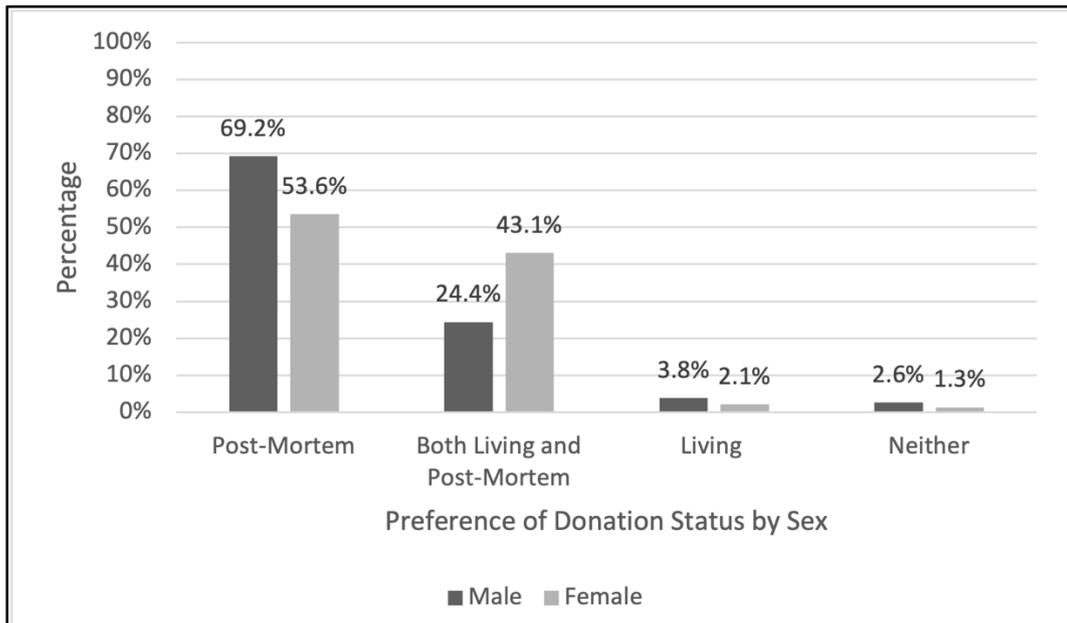


Figure 1: Respondent’s preference of donation status (living, post-mortem or both) or non-donation status with results divided by sex (male/female).

Figure 2 examines the subset of the population willing to donate organs and indicates the percentage of the survey respondents willing to donate individual organ types, whereby trends were similar for males and females.

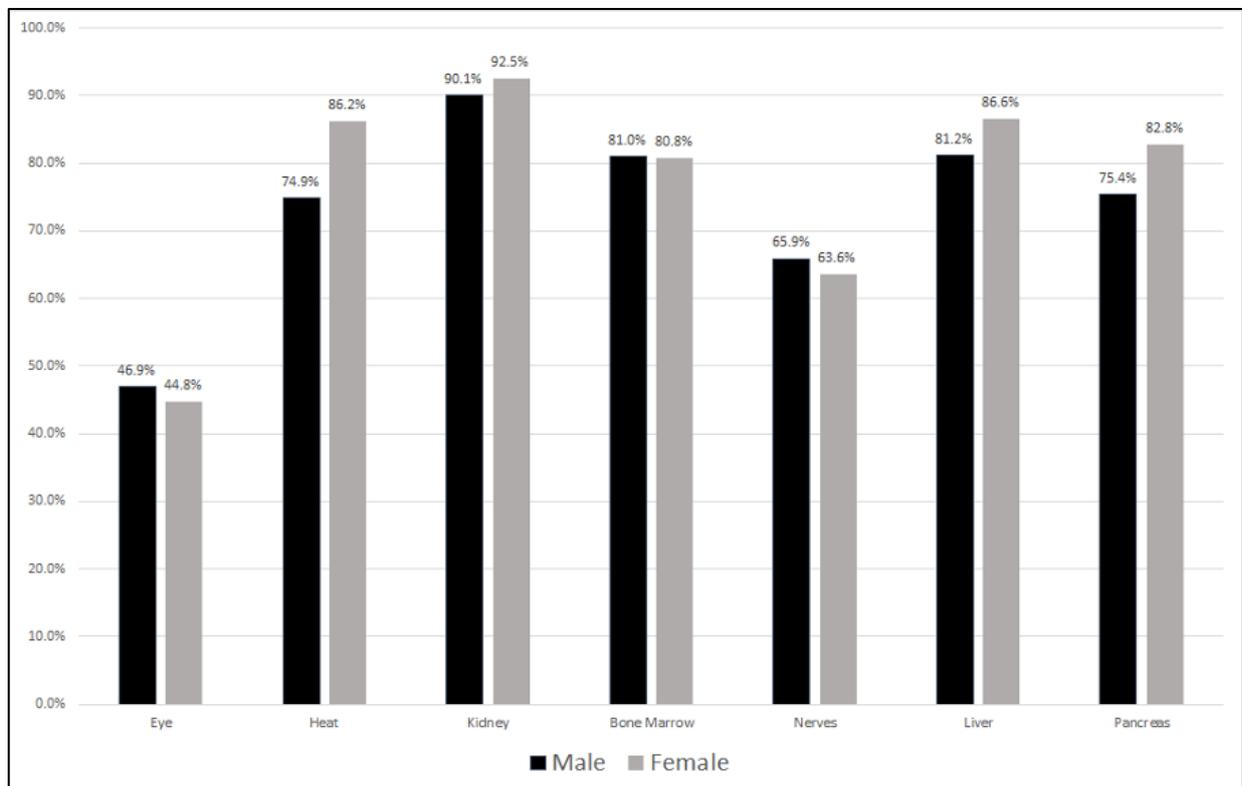


Figure 2: Willingness of participants (%) to donate individual organ types, responses differentiated by gender.

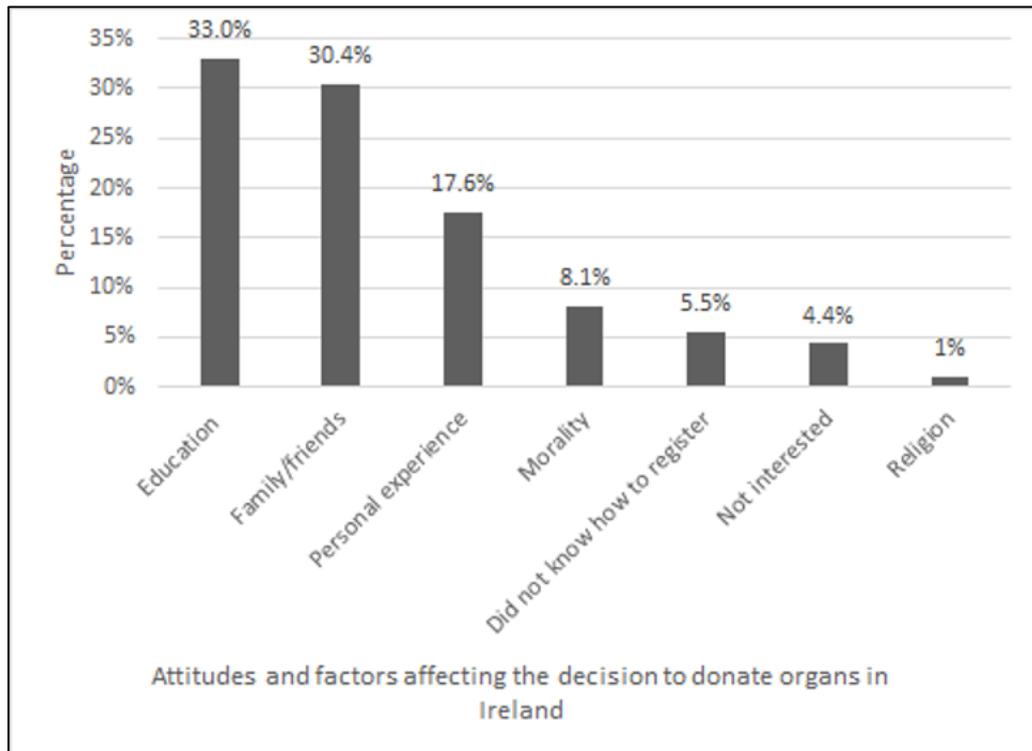


Figure 3: Factors that influence donating participants' decisions to donate organs

Figure 3 shows the results of asking respondents to indicate the factors influencing their decision to be an organ donor, whereby the influence of education and family and friends were the strongest factors cited.

Figure 4a gives an indication of the type of study being undertaken by the respondents and Figure 4b shows the proportion of each of these populations who are registered organ donors whereby the highest proportion of registered organ donors is among those studying medicine and health science (76%) and Science, Engineering and Food Science (66%) and despite population size differences, these comparisons are statistically valid, as indicated by the results of hypothesis testing shown in this section.

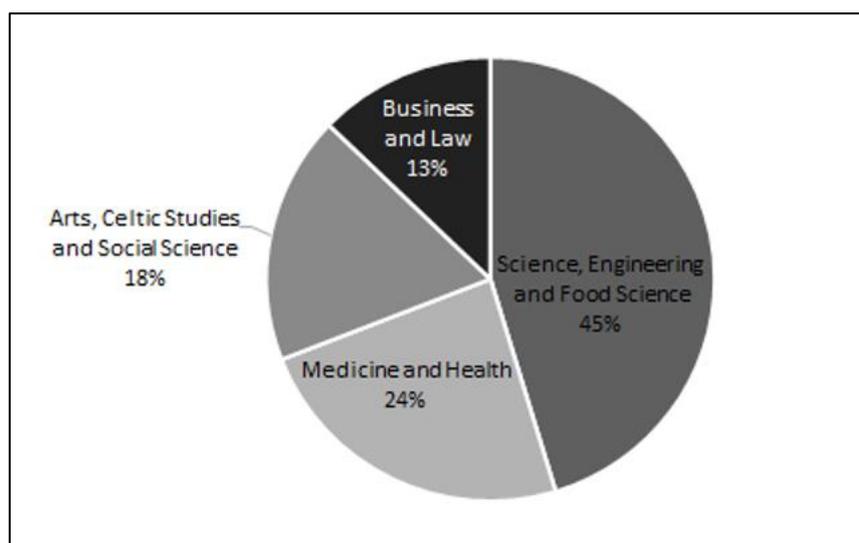


Figure 4 (a): Field of study of respondents

Hypothesis testing was carried out to determine if the results obtained from SEFS students can be compared to the results obtained from respondents from the other fields of study considered, despite differences in population size:

Null Hypothesis: 45.3% of SEFS Students can be comparable to the remainder schools, the lowest being 12.8% for Business & Law.

Alternative Hypothesis: 45.3% of SEFS Students cannot be comparable to the remainder schools, the lowest being 12.8% for Business & Law.

$$N = 1$$

$$Z = (\hat{p} - p_0) / (\hat{\sigma}_p) = (0.453 - 0.128) / 0.265 = 1.23$$

$$\hat{p} = .453$$

$$\hat{\sigma}_p = \sqrt{(p_0(1-p_0)/N)} = \sqrt{(0.128(1-0.128)/1)} = \mathbf{0.265}$$

$$p_0 = .128$$

As the Z value is greater than 0.05, the result is not significant, thus, the null hypothesis is accepted, and the results can be compared despite population size differences.

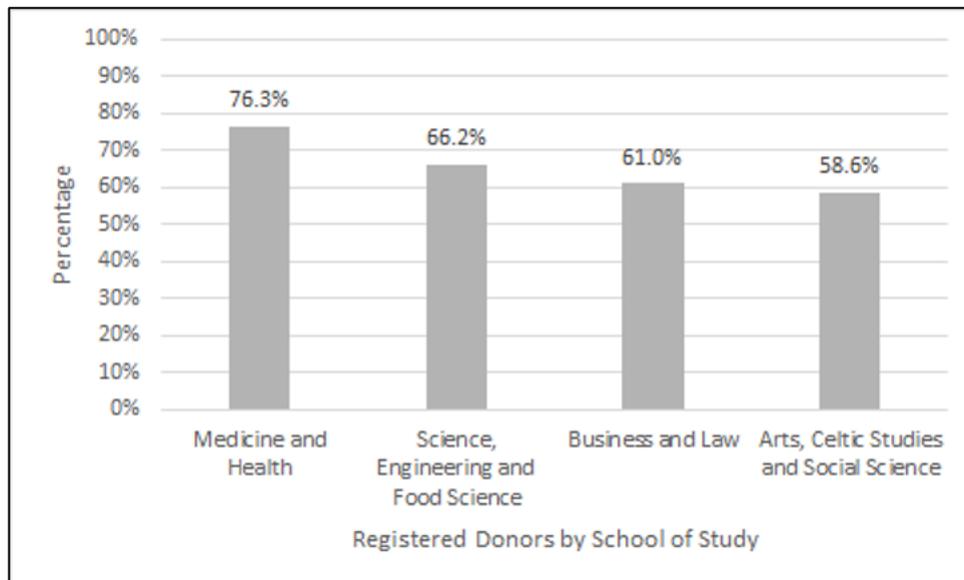


Figure 4 (b): Proportion of students that are registered organ donors, grouped by their field of study.

Figure 5 groups respondents according to whether they report themselves as religious or not and divides each of these two categories into organ donors and non-donors. It is shown that a higher proportion of non-religious respondents are organ donors (33%) versus those who classify themselves as religious (20%).

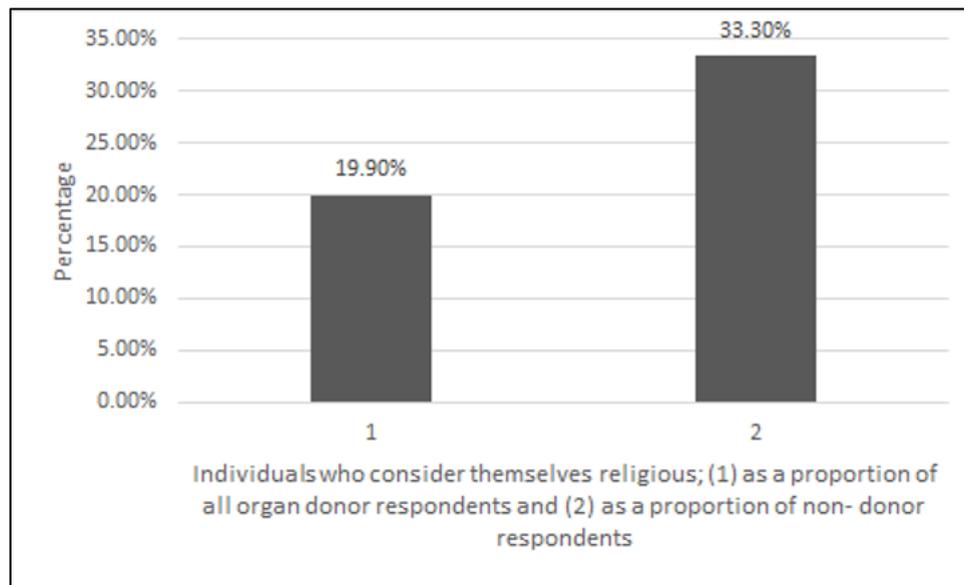


Figure 5: The proportions of all organ donor respondents who consider themselves religious vs. the proportion of all non-donor respondents who consider themselves religious

Hypothesis test to determine if the percentage of non-religious registered organ donors can be compared with the percentage of religious registered organ donors despite differences in population size:

$$z > 0.05$$

DISCUSSION

This study provided an insight into the various factors which influence Irish third-level students' willingness to register to donate organs in Ireland. According to the HSE 2019, an Irish individual is three times more likely to need a transplant than donate an organ (HSE, 2019). This statistic highlights the importance of encouraging young people to donate organs in Ireland. In Ireland in 2018, 81 donations were made by deceased individuals, resulting in 234 transplant surgeries. A total of 429 patients were awaiting renal transplantation (National Renal Transplant Centre Beaumont Hospital). It is therefore essential to identify the factors that influence willingness to become an organ donor. This survey will subsequently allow these factors to be examined and addressed to persuade more individuals to register to donate.

A total of 53.7% (43) of male respondents were registered organ donors, while 69.2% (165) of female respondents were registered organ donors. The higher percentage of organ donor registration in females may be attributed to several possible reasons. A study carried out by Wilczek-Ruzyczka et al. (2014) found that more females in a given study population tended towards becoming organ donors due to their higher levels of empathy and the influence of other psychological aspects such as beliefs and attitudes.

From the results illustrated in Figure 1, most male and female respondents indicated that they would rather be post-mortem donors than living donors, 69.2% and 53.6%, respectively. Comparably, only a small number of respondents, 3.84% of males and 2.1% of females preferred to be a living donor. This is reflected because only 40 of the total transplants carried out in Ireland in 2018 were living donations (ODTI, 2019). The preference towards post-humous donation may be due to the health repercussions associated with the invasive donation procedure and the potential impact on the quality of the donor's life. In 2009, a survey of living kidney donors was conducted in Germany by Wiedebusch et al. It was found that the donor's quality of life decreased post kidney resection. Pain and additional health

complications were common complaints. It was found that mental health in donors may also deteriorate post-donation, with some donors presenting with mental illnesses, including depression and anxiety.

It is essential to acknowledge that most respondents were interested in becoming organ donors, with only 1.3% and 2.7% of females and males indicating that they had no interest in becoming an organ donor. This percentage suggests that many of the unregistered organ donor participants, representing 34% of the total respondents, would be willing to donate if allowed to do so. This suggests that more practical support to facilitate easier registration for potential donors should be put in place. The current study's findings indicate that more campaigns should be carried out to promote the possibility of living organ donation and its benefits. Morgan et al. (2011) showed that increasing numbers of university staff and students signed organ donation cards and discussed donation with family members, following media and interpersonal campaigns through various university campuses.

From Figure 2, it is evident that respondents had differing preferences for which organs they would be willing to donate. Furthermore, the least popular option was cornea (eye) donation, the most popular being kidney donation. This could be due to several reasons, including concerns regarding disfigurement, the association of eyes with identity or the soul, and concerns about the need for eyes in an afterlife. These concerns are outlined in more detail in a paper titled *Specific Unwillingness to Donate Eyes: The Impact of Disfigurement, Knowledge and Procurement on Corneal Donation* (Lawlor et al., 2010). Kidneys were the most preferred organ to donate at 90.1%. This may be due to the fact kidney donations are more prominently featured in the media than others. For example, Selena Gomez and Sarah Hyland, two people presumed popular among young adults, have spoken publicly about their experience with kidney donation (National Kidney Foundation, 2017).

Figure 3 showed that there are different influencing factors on any individual's decision to become an organ donor, the strongest being education, family and friends and personal experience of the impact of organ donation. Education was the strongest influence on decisions whether to become an organ donor, suggesting the power of educational campaigns to increase the prevalence of organ donors among the population. Interestingly, in the current study, religious beliefs did not play a role in influencing respondents' decisions to register as an organ donor; shown in Figure 3, only 1% of students surveyed stated that religion influenced their decision to register as an organ donor.

As demonstrated in Figure 4(b), a total of 76.3% of the 76 students who responded studied in the school of Medicine and Health were registered organ donors. Medicine and Health students may be more likely to register as organ donors due to their experience in hospital-based placement. Science, Engineering and Food Science (SEFS) students had the second-highest percentage of registered organ donors with 66% of the 145 participants who study under this school registered. SEFS students may be more exposed to information regarding organ donation via their course content, such as through health and life science modules. These results may suggest a link between education and organ donation which concurs with the results derived that education was the single most significant factor influencing the cohort of students to become organ donors (see figure 4(b)). Business & Law and Arts, Celtic Studies & Social Science students were the least likely to be registered organ donors at 61% and 59%, respectively. It may be that students within these study fields are not likely to register as organ donors because they do not receive as much information on the topic as Medicine & Health and SEFS students.

While Figure 3 shows that only 1% of students surveyed stated that religion influenced their decision to register as an organ donor, there was a substantial difference between religious categories concerning registered organ donation. as illustrated in Figure 5, where 20% of the respondents who were registered organ donors considered themselves in some way religious. In contrast, 33% of the respondents who were not registered organ donors considered themselves religious. It can therefore be inferred that religion may play a subconscious role in the decisions of survey respondents to register as an organ donor or not. Although very few participants classed it as a significant influence, it is clear that those who consider themselves to be religious are less likely to become organ donors than those who are not inclined towards any religion.

The survey results indicated that many people are unaware that in Ireland, an 'opt in' system is in place to donate organs. Ireland is in the minority of European states using this 'opt in' system, with many other countries such as Spain and Croatia, have switched to an 'opt-out' system. 90% of survey respondents said they would like to see an 'opt out' system sanctioned by the Dáil. This 'opt-out' system could see increased organ donations as deceased individuals would be presumed to consent to organ donation before death. There may be ethical concerns about this such as sudden accidents to an individual before they can decide whether they want to be on or off the list. It would be important that next of kin or guardian can speak on behalf of the deceased to finalise whether the deceased's organs may be harvested.

In Ireland, living donors cannot donate organs to a stranger. The current legislation limits living donor programmes to a relative, spouse or close friend (Anatomy Act, 1832). Out of the total respondents, 90.5% of participants said that they would like to see this legislation changed to donate to an organ pool available to anybody in need. This could have an impact on the preference of individuals for living donation. If the current limiting Legislation is changed, it would be interesting to repeat this aspect of the survey to determine its impact on an individual's preference.

In conclusion, there are several factors that influence third level students participating in organ donation. The results of this study showed a substantial difference between the organ donation registration rate of males and females and differences in opinions between the two genders on organ donation. Furthermore, other factors that impacted the opinions of third level students on organ donation and willingness to register to donate included education, family and friends, personal experience, and religion. Many of these results can be compared to a study concerning the level of organ donation-related knowledge and attitude and willingness toward organ donation among a group of university students in Western China (Lei et al., 2018). It was also found in the current study that the majority of surveyed students were aware that there is an 'opt in' system in place for organ donation here in Ireland. This survey successfully illustrates the desire for change in Irish Legislation regarding organ donation. It is possible that if there is an opt-out system rather than an opt-in system in place, the willingness to register as an organ donor will increase. The findings of this study, while encouraging, suggest efforts are needed to heighten further students' awareness on the area of organ donation and transplantation, as it is clear that this plays a significant role in respondents' opinions.

One limitation to this study was that it was carried out online, so the respondents were not supervised by the survey creators and were therefore not able to ask questions about the survey. There may also be bias within the responses as people who have an interest in the topic of organ donation and transplantation are more likely to have completed it. Further research could be carried out with a larger population sample, i.e. either nationally or internationally. The increased sample size may help to obtain a more comprehensive understanding of the factors that affect people's willingness to donate organs in general. If an 'opt-out' system for organ donation is introduced in Ireland, it would be interesting to research the people who decided to deregister and their reasoning behind it. Furthermore, from this research, we see that education in respect of organ donation appears to have a bearing on an individual's decision-making and the fact that male respondents were less likely to be registered organ donors. It is possible that a more targeted education programme specifically for males would see a change in this finding.

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