ORIGINAL ARTICLE

Knowledge, Attitude and Practice of Organ Donation among Health Care Professionals Working in Rawalpindi and Islamabad

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Abstract

Background: Pakistan's healthcare fails to meet the demands of transplant for patients with end-stage organ disease. It is important to know the level of knowledge, attitude and practice of the healthcare workers towards organ donation as they have an important role in propagating healthcare knowledge.

Objectives: To assess the knowledge, attitude, and practices regarding organ donation and transplantation among healthcare professionals.

Method: This cross-sectional study was conducted from May to July 2023. The study included healthcare professionals from private and government setups of Rawalpindi and Islamabad. A self-designed questionnaire was used to determine knowledge, attitude and practice.

Results: The study was conducted on 338 participants, out of which 57.4% were males and 42.6% were females. Most of the study population were postgraduate trainees (39.1%). The mean age was 32.46±7.24 years. Among our study participants, 89.7% had adequate knowledge, and 71.1% were found to have a high level of attitude; however, there was no significant difference between participants' positive and neutral practices. About 90.5% of participants supported organ donation, 62.1% of our participants had donated their blood, and 50.1% plan to pledge their organs.

Conclusion: Despite having adequate knowledge and attitude about organ donation among health care professionals, the practice needs to improve.

Keywords: *Organ donation, organ transplant, Rawalpindi, Islamabad, knowledge, attitude, practice, health care professionals.*

INTRODUCTION

Organ donation and transplantation have revolutionised the medical management of patients with chronic end-organ failure, giving them a longer and higher-quality life [1]. The rising demand for organ donation has also raised the importance of organ cloning [2]. The organ cloning projects have faced many significant challenges and failures, have very slow and low success rates, and often pose ethical concerns, having left the current solution of organ transplant from a healthy, alive or dead individual [3].

Between 2010 and 2020, studies on recipients of solid organ transplants have shown a decrease in all-cause mortality rates and advancements in post-organ transplant management [4]. Organ transplantation has one of these major problems, which is a shortage of organs, leading to 17 patients dying while waiting for a suitable match for a transplant [5]. According to the Transplantation Society of Pakistan, 15,000 people with kidney failure, 10,000 with liver failure, and 6500 with heart failure are currently waiting for organ transplants, with kidney and liver transplants being the most in demand, which highlights the importance of connecting significant gaps in public organ donation perception [6, 7].

One important factor that has been highlighted in previous studies influencing organ donation practices is the socioeconomic factor, as it is directly associated with various factors like lack of awareness, education, and cultural beliefs. Whereas education was found to be one of the strongest risk factors for practising organ donation, Individuals with a lack of awareness may have a lower level of trust in medical health policies, leading to barriers to donating organs. In some cultures and religions, there may be misconceptions and taboos regarding organ donation that influence the decision-making process [8].

Religious beliefs are one of the significant barriers to organ donation in Pakistan. As many think, organ transplantation is forbidden in Islam, whereas it is declared that it is not contrary to the injunctions of Islam [9]. To ensure optimal practice of organ donation and transplants, the perception, attitude and practice of healthcare workers towards organ donation play a pivotal role, both in their knowledge and how they counsel patients [10]. It is reported that approximately 10 to 15 Pakistanis die daily due to a shortage of transplantable organs [11]. About 1800 kidney transplants are performed annually in Pakistan; however, the actual demand stands at 10,000 cases

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[12]. In Khyber Pakhtunkhwa, so far, reports of a total transplant of 300 organs highlight the shortage to meet the demand of organ transplants in end-stage disease [13].

With this shortage to meet the demand, knowing that the health care workers are credible and trusted sources for the information during the organ donation discussion. A positive and supportive attitude and practice of health care workers encourages patients and families to consider it openly. When health care staff and the workforce demonstrate positive practices and attitudes, it creates a culture supporting organ donation and transplantation.

This study aims to evaluate the knowledge, attitudes, and practices related to organ donation among healthcare professionals in Rawalpindi and Islamabad. It focuses on understanding their attitudes and practices, recognising their crucial role in guiding and educating patients and attendants about organ donation. This, in turn, can pave the way for a future where many lives can be saved.

METHODOLOGY

This was a cross-sectional study conducted by BMY Health Centre, which enrolled healthcare professionals from private and government healthcare workers located in the cities of Rawalpindi and Islamabad. The data was collected from May to July 2023. All graduated medical health professionals working in both private and government settings in Rawalpindi and Islamabad were included in the study. Medical students and those with less than 6 months of experience in healthcare, and those who did not fill out the questionnaire properly, were excluded from the study. Doctors performing or working in organ donations or related to transplant units were excluded from the study to have a generalised study population. The ethical review Approval was taken from the BMY Health Research Review Committee concerning protocol number (BMY-ERC1-15-2023).

Sample size was calculated by using the OpenEpi version 3.01 software sample size calculator for proportions. Keeping in view the prevalence of knowledge "outcome of interest" as 50% [14], keeping a margin of error of 5% and having a confidence interval of 95%, the sample size came out to be 375. Health care workers were approached using convenience sampling.

We collected the participants' responses online using Google Forms. The Google Form link for the informed consent and questionnaire was circulated in the form of social media networking in open educational groups. Participants were required to first fill out the informed consent form with permission to use the reported data for research purposes only, ensuring confidentiality. After submitting the forms online, participants were requested to fill out the questionnaire. We designed this questionnaire in the English language with a total of 23 questions and divided them into 3 subsections. After the socio-demographic information of the participants, like age, gender, religion, designation, and department, participants were required to answer the other subsections to assess the knowledge, attitude, and practice of participants regarding organ donation. The questions were close-ended, designed to quantify the participant's responses.

The knowledge section had a total of 8, attitude had 13, and practice had 2 close-ended questions with the option of yes, no, or maybe yes with a condition, and they were scored as one on each correct answer (**Table 1**). and these were classified through Bloom's criteria [15] that those who scored more than 80% were labeled as adequate knowledge and others as low knowledge; similarly, for attitude, those who scored more than 80 will be labeled

Table 1: Knowledge related to organ donation among participants.

Knowledge items	Groups	Frequency (%)
Are you aware of the Human Transplantation Act 2010?	Yes	189 (55.9)
	No	149 (44.1)
Do you know about an organ donation card and where to obtain it from?	Yes	34 (10.1)
	Yes, but I don't know where to obtain it	149 (44.1)
	No	155 (45.9)
Will a certified organ donor be immediately removed from ventilator support?	Yes	175 (51.5)
	No	93 (27.5)
	I don't know	71 (21)
Can a brain-dead patient's organs be donated?	Yes	261 (76.9)
	No	39 (11.5)
	I don't know	39 (11.5)
Can hepatitis B and C carrier patients donate all solid organs?	Yes	156 (46.2)
	Yes, except the liver	38 (11.2)
	No	103 (30.5)
	I don't know	41 (12.1)
Do you think malignancy is a contraindication for deceased organ donation?	Yes	197 (58.3)
	No	75 (22.2)
	I don't know	66 (19.5)
Do you think the donor and recipient's blood groups must be matched?	Yes	259 (76.6)
	No	43 (12.7)
	Maybe	36 (10.7)
What do you think is the minimum age for organ donation in Pakistan? (years)	12 years	72 (21.3)
	18 years	166 (49.1)
	21 years	78 (23.1)

as individuals with high attitude for organ donation and those with less than 80 as moderate level of attitude, and for practice, those with more than 80 % score were labeled as individuals with positive practice and those with less than 80 as neutral practice.

All statistical analysis is performed in SPSS version 23. All the descriptive statistics are represented by the mean, maximum, minimum, and standard deviation. All statistics will be represented in tabular form. We scored our questionnaire on the knowledge, attitude and practice subsection and divided it into two subsections on the basis of the total sum of each section greater or less than 80% according to Bloom's criteria.

RESULTS

Characteristics of Participant

The study included a total of 338 health professionals for the analysis, out of which 57.4% were males and 42.6% were females. The mean age of the participants is 32.46 ± 7.24 years. Among the participants, most were residents/ or fellows (39.1%), followed by senior registrar (23.1%). Mostly participants were from the surgery (17.2%) and medicine (18%) departments. Islam was the religion of the majority of respondents (95.9%**),** as shown in Table **2**.

Table 2: Demographic characteristics of participants.

Variable		Frequency (%)
Gender	Male	194(57.4)
	Female	144(42.6)
Designation	House officer	12(3.6)
	Medical officer	75(22.2)
	Resident/Fellow	132(39.1)
	Senior registrar	78(23.1)
	Assistant/Associate Professor	41(12.1)
Department	Cardiology	20(5.9)
	Surgery	58(17.2)
	Emergency	6(1.8)
	Dermatology	5(1.5)
	Urology	6(1.8)
	Medicine	61(18)
	Pediatrics	26(7.7)
	Gynecology/obstetrics	30(8.9)
	Orthopedics	10(3)
	Anesthesia	27(8)
	Ophthalmology	16(4.7)
	ENT (Ear, Nose, and Throat)	12(3.6)
	Other	61(18)
Religion	Islam	324(95.9)
	Christianity	12(3.6)
	Other	2(0.8)

Data are presented as Mean, SD or count (%) as applicable.

Knowledge regarding Organ Donation and Transplant

Around 55.9% of participants knew about the Human Transplantation Act 2010, and 54.1% knew about the organ donation card. Most of the individuals reported that the minimum age for organ donation is 18 years. The educational institutes were the major source (32%, n=108) of knowledge related to organ donation, as shown in **Fig. (1)**.

Attitude regarding Organ donation

The majority (90.5%) of the participants supported organ donation. Whereas 51.8% of the patients thought that the organ donation pledge would lead to premature termination of medical treatment. We found that most

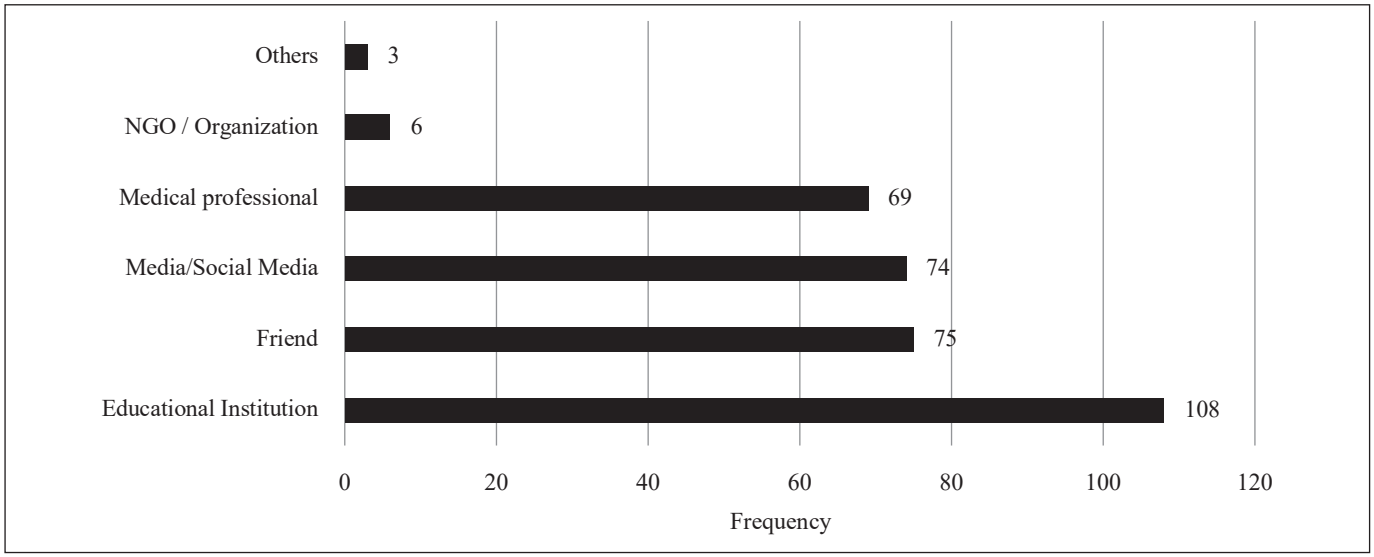

Fig. (1): Source of knowledge for organ donation.

Table 3: Attitude and practice of health care professionals regarding organ donation and transplant.

Attitude items	Groups	Frequency (%)
Do you support organ Donation?	Yes	306 (90.5)
	No	32 (9.5)
Do parents/guardians make decisions on behalf of mentally unstable children for organ donation?	Strongly disagree	125 (37)
	Disagree	93 (27.5)
	Agree	105 (31.1)
	Strongly Agree	15 (4.4)
Do you think it is ethical to sell one's organs for money?	Yes	8 (2.4)
	Yes, if the donor is poor	19 (5.6)
	No	311 (92)
Is it ethical to donate blood?	Yes	310 (91.7)
	No	28 (8.3)
Are you willing to donate your organs?	Only while living	142 (42)
	Both, while living and after death	135 (39.9)
	After I die	61 (18)
Do you feel comfortable thinking or talking about organ donation?	Yes	285 (84.3)
	No	53 (15.7)
Are you willing to donate your family member's organs when they die?	Yes	150 (44.4)
	No	83 (24.6)
	Depends on the family member's intentions	83 (24.6)
	May Be	22 (6.5)
Does your family support organ and tissue donation?	Yes, all of them	136 (40.2)
	Yes, some of them	100 (29.6)
	No	38 (11.2)
	I don't know	64 (18.9)
Do you think the body should be kept intact after death?	Yes	247 (73.1)
	No	91 (26.9)
Do you think donating one's organs adds meaning to life?	Yes	236 (69.8)
	No	44 (13)
	Maybe	58 (17.2)
Do you fear that organ donation can disfigure your body?	Yes	231 (68.3)
	No	107 (31.7)
Do you think an organ donation pledge will lead to premature termination of medical treatment?	Yes	175 (51.8)
	No	95 (28.1)
	I don't know	68 (20.1)
Does your religion support tissue donation and transplantation?	Yes	212 (62.7)
	No	50 (14.8)
	I don't know	76 (22.5)
Practice items		
Do you plan to pledge to organ donation?	Yes	171 (50.6)
	No	167 (49.4)
Have you ever donated blood?	Yes	210 (62.1)
	No	126 (37.3)

of the (90.2%, n=37) assistant professors and associate professors support organ donation and transplant (**Table 3**).

Practices regarding Organ Donation and Transplant

Nearly half of the participants (50.1%, n= 171) reported that they plan to pledge to donate their organ (**Table 3**),

and about (62.1%, n= 210) of the participants had donated their blood, which reflects their motivation and practice for donation.

Level of Knowledge and Attitude regarding Organ Donation

The scoring of the variables was done using Bloom's criteria and classified into two groups, as shown in Table **4**. We found the majority of the participants (89.7%) had adequate knowledge, and 71.1% were found to have high attitudes toward organ donation. However, in practice, we didn't find any significant difference between positive and neutral practice.

Table 4: Level of knowledge, attitude and practice among study participants.

Variables	Groups	Frequency (%)
Knowledge	Adequate	304 (89.7)
	Low	34 (10.3)
Attitude	High	241 (71.1)
	Low	97 (28.9)
Practice	Positive	183 (54)
	Neutral	155 (46)

DISCUSSION

Our research delves into the complex landscape of organ donation knowledge, attitudes, and practices among healthcare professionals in Rawalpindi and Islamabad. The study, encompassing 338 participants with a mean age of 32.46 ± 7.24 years, provides valuable insights into the factors shaping organ donation perspectives within this critical demographic. Demographically, our participants represented a diverse spectrum. This profile reflects the varied backgrounds within the healthcare workforce in the region. Studies have shown that there are certain factors like religious misconceptions, lack of trust in the medical system, lack of medical advancements and sociocultural factors contributing to the low organ donation rate, which requires strategies to overcome the problem. There various literature present on this topic conducted at different parts of the world and also in Pakistan but the fact having such healthcare workers and general population know, and willing to donate but when it comes latest statistics reported we don't find a significant change in the organ donation rate which also give importance to use different strategies to persuade individual to actively take part in it [16-18].

To ensure optimal practice of organ donation and transplants, the perception, attitude and practice of healthcare workers towards organ donation play a pivotal role, both in their knowledge and how they counsel patients [10]. A study showed that these practices are influenced by cultural, social, geographical, family, and religious backgrounds [19]. Awareness that organ donation can save lives has an impact on organ donation practices. Pakistan is lagging even in terms of blood donations, with only 0.46% to 0.78% of the population practising it [20]. Another study indicates that out of 82.18% of people who were aware of organ donation, only 26.3% of the participants showed a willingness to donate [21]. Although living organ donations have started to come into practice in the last two decades, the statistics of deceased organ donations are still unknown. Many studies show that the concept of organ donation to date has not been well grasped and understood by the general population of Pakistan. In one study, only 13.4% of the participants had knowledge about organ donation and transplant, which they learned from health care professionals [22]. Medical practitioners need to have command over this subject to appropriately inform patients and the public.

We found that senior health care workers exhibited a stronger inclination (90.2% support) towards supporting organ donation, potentially influenced by cumulative professional experiences and generational differences. However, past studies have reported the age-related disparity echoes findings from studies highlighting the impact of age and experience on attitudes towards organ donation, which was not found to be significant in our study. Notably, a significant proportion (51.8%) of participants expressed concerns about organ donation pledges leading to premature termination of medical treatment [23]. This nuanced belief highlights a crucial point for intervention, emphasising the need for targeted educational initiatives to dispel misconceptions. Such concerns are not unique to this study and have been observed in previous research, emphasising the pivotal role of education in improving knowledge and attitudes towards organ donation [24, 25].

Knowing the percentage of knowledge and willingness, there should be certain things that can be done to increase organ donation practices among our population. First, do mass education and awareness regarding donation practices, integrate schools and university colleges, involve religious leaders in the campaign, celebrate a national day for organ donation and transplant, and extend these campaigns to rural areas. Ensuring that the health care staff actively participate in organ donation, these health care professionals are well trained to persuade the patient and their attendees of the option of organ donation and transplant. Establishment of transplant centres in rural areas or well-equipped air ambulances to transport the donor to that particular transplant centre within a minimum duration.

Strengthen the policies and reforms governing organ donation and transplant centres to ensure ethical practices and protect the rights of donors and recipients. Consider providing incentives to the donor, such as health care and education benefits, and establish good supporting social media and programs with the donor and recipient families to share their experiences and encourage others to participate in such programs. Encourage prospective researchers for the transplant and reserve research grants for the transplant purposes to increase national data and upgrade the transplant centres, making centres specific for each organ with the latest facilities, taking both the donor and recipient into confidence about the procedure. Introducing medical training and postgraduate fellowship programs in the field of transplantation, which also help to accelerate national progress in this sub-speciality.

Knowing the fact that healthcare workers play an important role in patient counselling and major decision-making, we should involve healthcare workers to address the patient with recent advances and provide the most suitable available option for organ transplantation. After each OPD or any direct interaction with a physician, there should be an organ donation brochure given to patients and their attendants, giving them complete information, the miracles of end-stage patients with organ transplantation, and available programs to which they can enrol for organ donation and transplant. Briefing on the importance of deceased organ donation and addressing common cultural and religious concerns, giving clear-cut, confident counselling.

As we advocate for tailored educational interventions, our study contributes to the growing body of literature guiding strategies to enhance organ donation rates within the healthcare community. By leveraging educational interventions, adding patients organ donation counselling sessions in the medical training programs, allocating organ transplant research funds, conducting donor drives, addressing specific concerns related to religious misconception, and tailoring initiatives to different career stages, we have the opportunity to shape a healthcare workforce that not only supports organ donation philosophically but actively contributes to alleviating the organ shortage crisis through individual pledges and collective advocacy.

LIMITATIONS

Having a cross-sectional study design brings its inherent limitations, like a lack of establishing causal relationships, alongside the sampling technique and sample size used, which could be improved so that individual groups could be studied. The study was conducted in two urban cities, knowing that the majority of the population and burden of disease from the rural side mark the importance of conducting such studies in rural health care centres to study from their perspective. This study was conducted in the most approachable practices of Rawalpindi and Islamabad, and it does not represent the majority of the general physicians practising privately in smaller setups.

CONCLUSION

Most of the participants had adequate knowledge regarding organ donation and also supported and were willing to participate in organ donation. Despite the sufficient knowledge and high attitude about organ donation and transplant among the healthcare professionals, there is a significant need for improvement in practice towards organ donation among healthcare workers.

RECOMMENDATIONS

Future research could explore the longitudinal impact of educational interventions, examining whether increased knowledge and positive attitudes correlate with sustained commitment to organ donation. Moreover, investigating the effectiveness of workplace initiatives, mentorship programs, or community engagement efforts may offer additional avenues for fostering a culture of organ donation within healthcare settings. The implications of our research extend beyond statistical associations and percentages. Addressing the nuanced concerns, bridging age-related gaps, and leveraging the existing willingness to pledge offer actionable strategies for intervention. Public health initiatives should consider incorporating these findings into targeted programs, fostering a culture where organ donation is not only understood but actively endorsed within the healthcare community.

ETHICAL APPROVAL

Ethical approval was obtained from the Ethical Review Committee of BMY Health (REF letter No. BMY-ERC1-15-2023). All procedures performed in studies involving human participants were following the ethical standards of the institutional and/ or national research committee and the Helsinki Declaration.

CONSENT FOR PUBLICATION

Written informed consent was taken from the participants.

AVAILABILITY OF DATA

The data set may be acquired from the corresponding author upon a reasonable request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

Yumna Khan: Synopsis writing and approval, data collection, Manuscript writing

Mustafa Husssain Imam: Statistical analysis, Manuscript writing,

Farwa Batool: Manuscript writing, data collection and data entry

Muhammad Nauman: Manuscript writing, data collection and data entry

Fatima Iftikhar: Manuscript writing, data collection and data entry

Haziq Siddiqui: Manuscript editing and Final Approval

Taimoore Dogar: Manuscript writing, data collection and data entry.

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