



Original Article

Renal Transplantation: What We Need to Do More? A Perception Based Study in the Medical Colleges of Peshawar

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ABSTRACT

Renal transplantation, is the most frequently carried out transplantation procedure globally and is the treatment of choice and improves the quality of life in end-stage renal disease, but there is a deficiency of kidney donors despite its high need. Medical students and personnel play a pivotal role in shaping the patient's perception regarding a procedure. **Objectives:** To assess the knowledge and attitudes of medical students regarding renal transplantation in Pakistan. **Methods:** It was a cross-sectional conducted at public and private medical colleges of Peshawar targeting 4th and final year MBBS students. The study was conducted from December 2019 to October 2020. **Results:** There were 160 participants, 90 (57 %) males and 69 (43 %) female students. The knowledge about renal transplantation was found high. 24.4 % believed that only family members can donate and 64.4 % believed that there is an age limit for kidney donation. The study participants supported kidney donation (93 %). Similarly, only 34 % favored cadaveric donation over live kidney donation. This attitude was reflected in 38 % of the students disapproving of the thought of donating their own kidneys, as compared to 60 % favoring the idea of donating their kidneys after their death. **Conclusions:** For medical students, good scores in knowledge mean a better understanding of the transplantation procedures and the needs of the community. However, inadequate utilization of these services for needy patients resulted in a negative attitude. Awareness seminars, and the use of all forms of media to bring the change in perceptions, especially in the medical community.

INTRODUCTION

The kidney serves numerous functions such as; a cleansing body of its toxic by-products, erythropoiesis, water and electrolyte balance, etc. Kidney transplantation is the replacement of a dysfunctional kidney with a healthy, living-donor, or deceased-donor kidney. It is the successful and preferred treatment option for patients with end-stage renal disease [1]. It improves the quality of life and has a better long-term survival [2]. The global prevalence of chronic kidney disease is 8 – 10 % and is associated with high mortality [3]. In Pakistan, this prevalence is 100 per million population [4]. However, because of the scarcity of healthy organs, organ transplantation has assumed public health importance. Currently, there are organ donations both in the living and deceased states. In the United States, organ donation and transplantation accounted for 1% in

2002, with the kidney as the most commonly donated organ, followed by the liver and other organs [5]. It is estimated that current organ donations cover less than 10 % of organ transplantation needs, and European countries especially France and Spain are countries with high rates of organ donation [1]. Renal transplantation is heavily hampered by the shortage of kidneys in both developed and developing countries. In Pakistan, live-related renal transplants (LRRT) prevail over cadaveric (deceased) transplants in terms of practice owing to the social stigma and ignorance that surrounds the notion of cadaveric transplantation [6,7]. Apart from socio-cultural factors, availability of renal transplant services, optimal medical care, and lack of renal transplant specialists have also been identified as factors affecting transplantation [6]. Most

LRRTs are performed at Sindh Institute of Urology and Transplantation (SIUT), the largest public-sector kidney center in Pakistan. SIUT developed an integrated dialysis and transplant program. The transplant program offered recipient and donor follow-up and post-transplant immune-suppressive drugs. Data from the SIUT shows that the ratio of male to the female recipient is 3:1 while the donor pool is populated mostly by blood relatives. The current transplant rate in Pakistan is about 8 – 10 cases per million population [4]. Studies show that long term improvement in organ donation rates both live-related and cadaveric can be achieved by educating and motivating both the common people and, health care workers who naturally are a source of knowledge that impacts the attitude of the common people about renal or any organ transplantation for that matter [8,9]. The knowledge and attitude of health care workers regarding renal transplantation, and their willingness to donate their kidneys, they set a good example for the public to follow. Thus, they are very crucial in the development, improvement, and sustenance of transplant programs. Though religion and socio-economic status also take part in the individual willingness to donate a kidney [10]. The present study is designed to evaluate thoughts on kidney transplantation among health care workers and provides an opportunity to reflect on the reasons for the relatively small and decreasing donor pool in Pakistan. The objectives of this study are to assess the knowledge and attitudes of medical students regarding renal transplantation in Pakistan and identify factors that hamper transplantation programs in the country.

METHODS

The knowledge and attitude regarding renal transplantation were evaluated using a cross-sectional study design. The study setting was selected public and private medical colleges of Peshawar targeting 4th and final year MBBS students. The study was conducted from December 2019 to October 2020. In order to collect data, six (6) medical colleges were selected from the government and private sectors. Of the total strength of 4th and final year MBBS, from each college; 10 % were selected. The total sample size for the study was 160. An equal number (50 %) of students were selected from both the classes i.e. 4th and final year MBBS. The students were selected using a simple random sampling technique by lottery method of all the roll no. from the respective years.

Data Collection Tool: Data was collected through a validated questionnaire exploring medical students' perceptions regarding renal transplantation. The questionnaire had 15 questions. Knowledge was measured with ten (10) questions and attitude with five (5) questions in

the questionnaire. The ethical approval was taken from the Ethical Review Committee (ERC) of Rehman Medical College. Administrative permission was granted from the medical colleges. The study participants explained the purpose of the study and informed consent was taken from the participants.

Statistical Analysis: Data were entered and analyzed using SPSS version 22. Qualitative variables were analyzed using frequencies, and percentages. Quantitative variables were analyzed using Mean values. Data was presented in the form of charts and graphs.

RESULTS

There were 160 participants, with a response rate of 100 %. None of the questionnaires was discarded. There were 90 (57 %) male students and 69 (43 %) female students. Year-wise participation was equal i.e (50 %) for both the 4th year and final year of MBBS. College-wise participation is mentioned in Figure 1.

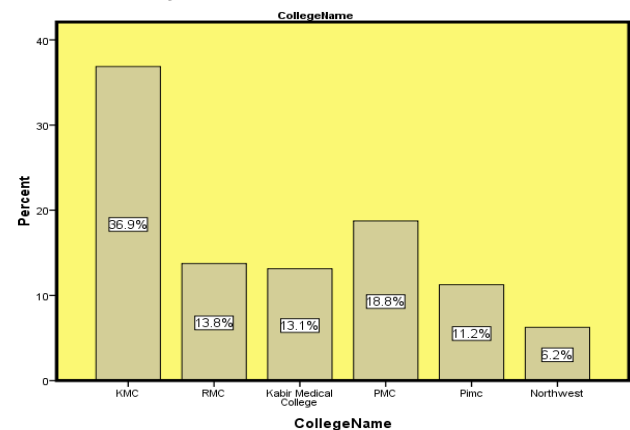


Figure 1: College Wise Participation Percentage

The maximum participation was from Khyber Medical College, with 37 % and the minimum percentage (6 %) was from North West Medical College. This fluctuation in percentage participation is because of the number of students in the respective medical colleges.

Knowledge Regarding Renal Transplantation: The knowledge regarding renal transplantation from students was sought using four (4) knowledge-based questions. Table 1 shows the results, the knowledge about renal transplantation was found high among the medical students, and the need for blood typing before renal transplantation. Whether a family member should donate a kidney or not, 24.4 % believed that only family members can donate and 64.4 % believed that there is an age limit for kidney donation.

Q	Questions	YES	NO
Q1	Do you know about renal transplantation?	157(98.1%)	3(1.9%)
Q3	Only a family member can donate a kidney?	39(24.4%)	121(75.6%)

Q4	Is there any age limit for renal transplant?	103(64.4%)	57(35.6%)
Q7	Is blood typing necessary before a renal transplant?	160(100%)	0

Table 1: Knowledge Regarding Renal Transplantation

Attitude Regarding Renal Transplantation: There was a general consensus among the study participants on the support of kidney donation. This attitude was reflected in a positive response to the said question in 93 % of the study population. Similarly, only 34 % favored cadaveric donation over live kidney donation. This percentage of favoring the cadaveric donation also changed the participants' perception regarding their own organ donation. 38 % of the study participants disapproved the thought of donating their own kidneys, as compared to 60 % favoring the idea of donating their kidneys after their death. Table 2 depicts the attitude of participants towards kidney donation.

Q	QUESTIONS	YES	NO
Q 11	Do you support kidney donation?	149(93.1%)	11(6.8%)
Q 12	Do you agree to donate kidneys when you die?	98(60.5%)	62(38.3%)
Q 13	Do you think live kidney donation is better than cadaveric kidney donation in solving shortages?	104(64%)	56(34.6%)

Table 2: Attitude Regarding Renal Transplantation.

DISCUSSION

Kidney transplantation is the replacement of one's kidneys with a donor's kidneys. It is very essential for patients with renal failure, especially on dialysis. It leads to a better quality of life among end-stage renal patients. It started in Pakistan in 1979 from living-related donors in public sector hospitals [4]. Our study aims to assess the knowledge and attitude regarding renal transplantation among 4th and final-year MBBS students from Peshawar. A total of 160 students participated in the study with a response rate of 100 %. With regards to knowledge, 98% of participants knew about renal transplantation. All participants knew that blood typing was necessary before transplantation. Whereas the negative aspect of knowledge among participants was that regarding age limit, 64% thought there is an age limit for kidney donation. In fact, there is no age limit. Organs are allocated by blood group and waiting time only. Regarding attitude, 93% of participants supported kidney donation, however, only 61 % of participants agreed on donating their kidneys after death and 64 % thought that live kidney donation is better than cadaveric donation. The Chi-Square test between study variables and Gender and Year of the study showed no significance and difference in the knowledge and attitude about renal organ donation and transplantation. Overall, participants showed a positive attitude and a high level of knowledge regarding donation and transplantation. The results of this study are in agreement with the studies done in the UK, Saudi Arabia, and Pakistan. Studies done in the

UK, Saudi Arabia, and Pakistan described the knowledge regarding organ transplantation as 91.6 % [11], 90.9 % [12], and 88.7 % [13] respectively as compared to 98 % in this study. However, a study from India showed low levels of knowledge in medical students from early years [14,15]. Increased knowledge and positive attitude were associated with the level of medical education attained [16]. All the studies showed a positive attitude of students towards organ transplantation. When we compared transplantation attitudes with other studies, it was observed that international studies showed more positive attitudes than national studies. A study from Italy and Germany showed 88 % [7] and 75.8 % [17] respectively, the willingness of medical students to donate their kidneys as compared to 61 % in this study. A study from Karachi showed this percentage to be 34.6 % [13]. A study from Saudi Arabia mentioned the student's willingness to donate their kidneys to their family members and to deserving patients at (50.9 % and 41.2 %) respectively [12,18]. Preference between live and cadaveric organ donation, 64 % of the study participants supported live organ donation, while a French study on medical students showed this percentage to be 81 % [19]. An Italian study reported a positive outlook of participants on live organ donation at 76.8 %, and this percentage was not affected by any educational intervention. Cadaveric renal organ donation perception was affected by the knowledge status of the study participants [20]. In this study, medical students were knowledgeable regarding renal organ donation and transplantation. This part is comparable to the studies done nationally and internationally on the subject, whereas attitude was found highly variable. Although positive, studies show that a strongly positive attitude is associated with knowledge, trust, and fear [17]. Those who are willing to donate had higher degrees of trust in the health care system and in their doctor, and at the same time lower levels of fear about their disfigurement or death because of the procedure [21].

CONCLUSIONS

Medical students' knowledge and attitudes were assessed in this study. The students were knowledgeable, however, the attitude needs to have the trust of the students themselves in the health system, doctors, and government itself. The study enlightens the readers on three areas that need to be targeted in order to increase organ donors. Knowledge regarding the transplant procedures, competency of the doctor related to the risk associated with renal donation, and a strong health care system, so that donations shall reach the people in genuine need. Legislation is a key to ensure that those who are willing to donate their organs live or cadaveric, it must reach the deserving. This also needs more awareness sessions and

more knowledge through seminars, and symposiums to highlight the shortage of organs and the need for more live organ transplantations.

REFERENCES

- [1] Sachdeva S, Sulania A and Dwivedi N. Knowledge, Attitude, and Practices Regarding Organ Donation among Adult Visitors in a Public Hospital in Delhi, India. *Indian J Transplant*. 2017;11(3):6.
- [2] Balajee K, Ramachandran N and Subitha L. Awareness and attitudes toward organ donation in rural Puducherry, India. *Ann Med Health Sci Res*. 2016;6(5):286. doi.org/10.4103/amhsr.amhsr_63_15.
- [3] Sahay M, Jasuja S, Tang SCW, Alexander S, Jha V and Vachharajani T et al. Aetiology, practice patterns and burden of END-STAGE kidney disease in South Asia and SOUTH-EAST Asia: A questionnaire-based survey. *Nephrology*. 2021;26(2):142–52. doi.org/10.1111/nep.13825.
- [4] Rizvi SA, Naqvi SA, Zafar MN, Hussain Z, Hashmi A and Akhtar F et al. Pakistan abolishes kidney market and ushers in a new era of ethical transplantation. *International Journal of Organ Transplantation Medicine*. 2010;1(4):193.
- [5] Uwingabiye ML, Baziga V, Chironde G and Rajeswaran L. Assessment of knowledge, attitude and perceptions regarding kidney donation among nursing students at the University of Rwanda. *Int J Afr Nurs Sci*. 2021;15:100317. doi.org/10.1016/j.ijans.2021.100317.
- [6] Iqbal MM, Hossain RM, Hossain K, Faroque MO, Islam S and Iqbal S et al. Knowledge, Attitude, and Perception About Renal Transplantation of CKD Patients, Caregivers, and General Population. *Transplant Proc*. 2018;50(8):2323–6. doi.org/10.1016/j.transproceed.2018.04.048.
- [7] Burra P, De Bona M, Canova D, D'Aloiso MC, Germani G and Rumiati R et al. Changing Attitude to Organ Donation and Transplantation in University Students During the Years of Medical School in Italy. *Transplant Proc*. 2005;37(2):547–50. doi.org/10.1016/j.transproceed.2004.12.255.
- [8] Ali NF, Qureshi A, Jilani BN and Zehra N. Knowledge and ethical perception regarding organ donation among medical students. *BMC Med Ethics*. 2013;14(1):38. doi.org/10.1186/1472-6939-14-38.
- [9] Sharaan R, Alsulami S, Arab R, Alzeair G, Elamin N and Alsaywid B et al. Knowledge, Attitude, and Willingness Toward Kidney Donation Among Health Sciences Students at King Saud Bin Abdulaziz University. *Front Public Health*. 2021;9:667582. doi.org/10.3389/fpubh.2021.667582.
- [10] Edwards TM, Essman C and Thornton JD. Assessing Racial and Ethnic Differences in Medical Student Knowledge, Attitudes and Behaviors Regarding Organ Donation. *J Natl Med Assoc*. 2007;99(2):7.
- [11] Bedi KK, Hakeem AR, Dave R, Lewington A, Sanfey H and Ahmad N. Survey of the Knowledge, Perception, and Attitude of Medical Students at the University of Leeds Toward Organ Donation and Transplantation. *Transplant Proc*. 2015;47(2):247–60. doi.org/10.1016/j.transproceed.2014.11.033.
- [12] Sayedalamin Z, Imran M, Almutairi O, Lamfon M, Alnawwar M and Baig M. Awareness and attitudes towards organ donation among medical students at King Abdulaziz University, Jeddah, Saudi Arabia. *J Pak Med Assoc*. 2017;67(4):534–537.
- [13] Hasan H, Zehra A, Riaz L and Riaz R. Insight into the knowledge, attitude, practices, and barriers concerning organ donation amongst undergraduate students of Pakistan. *Cureus*. 2019;11(8)e5517. doi:10.7759/cureus.5517.
- [14] Darlington D, Anitha FS and Joseph C. Study of Knowledge, Attitude, and Practice of Organ Donation Among Medical Students in a Tertiary Care Centre in South India. *Cureus*. 2019;11(6):e4896. doi:10.7759/cureus.4896.
- [15] Bharambe VK, Rathod H and Angadi K. Knowledge and attitude regarding organ donation among medical students. *BANTAO J*. 2016;14(1):34–40. doi.org/10.1515/bj-2016-0008.
- [16] Schaeffner ES, Windisch W, Freidel K, Breitenfeldt K and Winkelmayr WC. Knowledge and attitude regarding organ donation among medical students and physicians. *Transplantation*. 2004;77(11):1714–8. doi:10.1097/00007890-200406150-00015.
- [17] Terbonssen T, Settmacher U, Wurst C, Dirsch O and Dahmen U. Attitude towards organ donation in German medical students. *Langenbecks Arch Surg*. 2016;401(8):1231–1239. doi:10.1007/s00423-016-1482-4.
- [18] Bardell T, Hunter DJ, Kent WD and Jain MK. Do medical students have the knowledge needed to maximize organ donation rates?. *Can J Surg*. 2003;46(6):453–457.
- [19] Mekahli D, Liutkus A, Fargue S, Ranchin B and Cochat P. Survey of First-Year Medical Students to Assess Their Knowledge and Attitudes Toward Organ Transplantation and Donation. *Transplant Proc*. 2009;41(2):634–8. doi.org/10.1016/j.transproceed.2008.12.011.
- [20] Piccoli GB, Soragna G, Putaggio S, Burdese M, Longo P and Rinaldi D et al. Efficacy of an educational program on dialysis, renal transplantation, and organ

donation on the opinions of high school students: a randomized controlled trial. *Transplant Proc.* 2004; 36(3): 431-2. doi: 10.1016/j.transproceed.2004.02.058.

- [21] Murakami M, Fukuma S, Ikezoe M, Nakamura M, Yamamoto Y and Yamazaki S et al. Effect of an educational program on attitudes towards deceased organ donation. *Ann Transplant.* 2015;20:269-78. doi: 10.12659/AOT.893325.