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THE ANALYSIS OF THE PERCEPTIONS OF HEALTH PROFESSIONALS TOWARD ORGAN DONATION AND TRANSPLANTATION IN BANGLADESH

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SUMMARY

Aim. The aim of the study was to assess the perceptions of health professionals toward ethical issues of organ donation and transplantation in Bangladesh

Methods. The cross-sectional study was conducted and we have undertaken (n=145) health professionals as a sample to our study. Among the participant male and female were 53.1% and 46.9% respectively. In addition, their profession in healthcare section Medical Doctor, Nurse, Head of Clinics, Medical Resident, Administrator of Health Services, Intern. Other are 26.9%, 17.2%, 7.6%, 14.5%, 7.6%, 18.6%,7.6% respectively. Professional’s specialization in Cardiology, Surgery, Pediatrics, others are 9.0%, 24.8%, 11.7%, 6.9% respectively. We have collected data from two top hospital from Bangladesh, Dhaka Medical College and Hospital (DMCH) and Bangabandhu Sheikh Mujib Medical University (BSSMU).

Results. The study revealed the tendency in common practice in Blood donation and Kidney transplantation. Among all organ donation blood and kidney donation are 77.2% and 15.9 % respectively. Our study also reveals that there is strong relation with kidney donation and money. In cross relation with kidney and money 67% health professionals have opined that kidney donation is occurred in exchange of money. Health professional’s also shows risk factor in organ donation. Here 69% professionals said there involved risk in organ donation and transplantation where 27.6% shows on risk and 3.4% shows “Do Not Know”. In case of donation risk, remain that donated organs could be misused, abused or misappropriated to donors health professional’s result shows that risk remain sometimes, often, most of the time are 50.3% , 14.5%, 35.2% respectively. It also shows that risk are more related specifically to mistreatment in case of emergency, organ trafficking, public hostility and abuse of the system (29%, 40%, 15.2% and15.9% respectively).

Conclusions. Health Professionals had a positive notion towards organ donation and transplantation although they had mixed knowledge of transplantation rules and ethical issues; therefore, strictly imposing existing laws, setting up institution and organization, additional awareness and education need to Health Professionals in all areas of the organ transplant process in Bangladesh to make organ donation and transplantation successful.

Keywords: organ donation, health professionals, attitudes, Bangladesh, ethical issues.
Abbreviations

BSMMU------------------ Bangabandhu Sheikh Mujib Medical University
DMCH------------------- Dhaka Medical College and Hospital
IPD--------------------- Intermittent Peritoneal Dialysis
CAPD--------------------- Continuous Ambulatory Peritoneal Dialysis
WHO---------------------- World Health Organization
USAID------------------- United States Agency for International Development
WHO/HQ------------------ World Health Organization/Head Quarter
SPSS--------------------- Statistical Package for Social Sciences
LAKH--------------------- One Hundred Thousand (Currency)
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INTRODUCTION

Organ transplantation is one of the greatest achievements and miracles of medical science in the 21st century. Organ transplant, defined as the transfer of a living tissue or organ to an injured or ill person to restore health or reduce disability first started in the 1930s [1]. This concept gave new chance and life to thousands of people all over the world. Based on the reports the first transplanted organ was kidney, later on doctors discovered how to transplant other organs successfully. Thus, they were successful in improving quality of life, and reducing morbidity and mortality. Nowadays, most transplant surgeries are relatively safe procedures, no longer considered as experiments [2].

On other hand, organ donation related to the principle of respect for patient autonomy, where competent patients have the right to make informed choices regarding their bodies and their lives. Lack of awareness, social, mental and religious barriers and superstitions reported to be the main barriers for organ donation. To overcome acute shortage of living organ donor from close relatives, deceased donor transplant should be replaced [3]. These are important issues, as no one would want to take organs from someone who is still alive. However, waiting for whole brain death could leave many organs unusable [4].

The controversies related to the approaches to organ donation among health professionals and public has observed in developing countries, especially in Asian countries. For example, organ transplantation in Bangladesh is emerging steadily, but still in its budding stage of development. Cornea transplantation began as early as 1974 [5]. The first successful kidney transplantation was done at the then Institute of Postgraduate Medicine & Research (now Bangladesh Sheikh Mujib Medical University) in October 1982 and thereafter regular kidney transplantation from ‘living donor’ donations of close relatives only has been continuing since 1988 [6]. Meanwhile, Bangladesh Organ Transplant & Donation Act, 1999 passed in parliament, allowing two types of organ donation – ‘living donor’ donation from close relatives and ‘deceased or cadaveric’ donation. However, ‘deceased donation’ transplants where organs removed surgically from consented donors’ shortly after death or during brain death while in ICUs could not started yet in
Bangladesh. In addition, based on the law, it is not allowed to sell organs or taking organs from living strangers.

As indicated by the most recent WHO information distributed in May 2014: Liver Disease Deaths in Bangladesh reported 20,561 or 2.82% of aggregate death. The age balanced Death Rate is 19.26 for every 100,000 of populace positions Bangladesh #69 on the world. Lung Disease Deaths in Bangladesh reported 67,735 or 9.30% of aggregate death. The age balanced Death Rate is 74.27 for each 100,000 of populace positions Bangladesh #5 on the world. Kidney Disease Deaths in Bangladesh reported 25,385 or 3.48% of aggregate death. The age balanced Death Rate is 24.21 for every 100,000 of populace positions Bangladesh #18 on the world [7-8].

As a developing country with huge population very, few number of population are getting health facilities like organ donation and transplantation. Where health professionals also have limitation getting skilled and proper knowledge on this issues. Here we try to focus on health professional’s perception.

Relevance of the study. There is a huge demand for donor organs in the developed world. This problem is compounded by the general reluctance of Asians in cadaveric organ donation despite legal sanction for cadaveric donations and support from the major religious groups. Therefore, it is not surprising that living donor organs contributes 85-100% of transplantation in the developing countries as opposed to 1-25% in the developed countries [9].

In spite of the fact that in Bangladesh there are numerous individuals are suffering over their organ however, they have no information about organ transplantation. Since up to this point there is no organ donation office in Bangladesh. There is no better gear for organ transplant of any administration healing facility in the nation and they do not have any limit with respect to organ stockpiling. Besides, there is no different transport in the highly sensitive situation to achieve the organ from place to put. To reveal the actual situation in Bangladesh was one of the major motivations to conduct the study on the perceptions of health professionals in Bangladesh.

Novelty of the study. The exchange interior organs is a big business In Bangladesh, Every year, hundreds put their body parts available to be purchased in the underground organ bazaar planning to get away from the grasp of destitution, just to be bamboozled by dealers or troubled with incessant medical issues, as indicated by police authorities and occupants. Nevertheless,
tragically, beyond any doubt a portion of the presumed healing facilities and specialists are related with this. Accordingly, very little data was available regarding to report and explain the reasons of such phenomena. This study is aimed to contribute to some previous studies done in India or other neighborhood countries and to discussion, the potential opportunities to control and manage organ donation process in ethical and civilized way in Bangladesh.

1. AIM AND OBJECTIVES

Aim of the study was to disclose the perceptions of health professionals toward ethical issues of organ donation and transplantation in Bangladesh.

Objectives:

1. To analyze the perceptions of Bangladesh health professionals towards organ donation and transplantation.
2. To reveal the differences of attitudes to ethical issues among Bangladesh health professionals toward in organ donation practices.
3. To determine the significant relations between Bangladesh health professionals’ views on organ donation and transplantation and their socio-demographic characteristics.
2. REVIEW OF THE LITERATURE

2.1 THE GLOBAL BACKGROUND OF ORGAN DONATION

At the beginning of 20th century with the rapid development of healthcare facilities organ transplantations added a new dimension & one of most important achievement in medical science in last century for the individuals whom are suffering with damaged organ critical condition at the end stage of their life. It reflects the hope people with damaged body organ and reflects the human religion of humanity. From the review of history in ancient time, there are many myths about organ transplantations. We found in research on successful work on skin transplantation. The experiments of organ transplantation began at early 20th century and we see first successful work in 1930s [1].

How is current condition of organ donation and transplantation? The number of people waiting for a donor or receive transplantation? The organ most needed saving people life at end stage. According to organdonar.gov, statistics the number of people, waiting for receiving transplantation in USA more than 110900 and in 2015 the number of transplant was performed 30,970 [10]. In everyday around 22 people die are for transplantation and in every 10 minutes one people is being included in the waiting list of transplantation. Desperate needed of organs are kidney, liver, heart, lung, Pancreas, intestine and other organs. The waiting list of number people for transplantation are increasing very rapidly, in 1993 the number of patients waiting for transplantation was around thirty thousand while it has reached more than 120000[11]. Though waiting list increased so rapidly, number of donor and transplantation grows slowly, as a result number of people dies more than 6500 every year and around 20 a day due to unavailable of organs [12].

Increasing demand among people with damaged organ, unavailable of donor creates haphazard situations on organ transplantations treatment. To ensure the purpose of organ donation and fair organ collection and donation every state imposed laws to make fair environment. These laws are sometime changes as a purpose of more effective way to control the situations fairly and to increase to number of organ fairly. In USA National Organ Transplant Act of 1984 was passed
in congress in 1984 [12]. The goal of the National Organ Transplant Act (NOTA) was to detect the issues of organ unavailability and fair the collection and distribution of organs nationwide [13]. United Network for Organ Sharing (UNOS) to keep record a nationwide computer registry of all people who need organs. Organ Procurement and Transplant Network (OPTN) – OPTN that keeps a record of national registry of patients and organs and matches organs with patients. Task Force on Organ Transplantation. The National Organ Transplant Act (NOTA) banned the purchase or sale of organs or tissues [14].

Organ transplantation in developing countries shows very oscillating scenarios. There is currently shortage of donor organs worldwide; the ageing population and increase in incidence of diabetes will worsen this shortage [15-16]. The world’s 7.5 billion-population four-fifth is from the developing countries. Unfortunately, the transplant rates in the developing world is much to be desired, at less than 10 per million population comparing to 45-50 in the developed countries. However, in Asia, there are marked variations in socio-economic status in member states and this reflected in the transplant. For example, the renal transplant rates ranges from 0.16 per million populations in Bangladesh to 21.4 per million populations in Singapore [17]. Therefore, there is a demand for donor organs in the developed world. This problem compounded by the general reluctance of Asians in cadaveric organ donation despite legal sanction for cadaveric donations and support from the major religious groups. Therefore, it is not surprising that living donor organs contributes 85-100% of transplantation in the developing countries as opposed to 1-25% in the developed countries. These differences are mainly due to racial and cultural attitudes towards death and the sanctity of the human body, thereby affecting consent for cadaveric donation. Therefore, a large market for the purchase for living unrelated organs (particularly kidneys) flourished [18]. This compounded by a low suitable donor pool of 1.6 donors available per recipient in the developing countries [19]. The increasing ease of communication in the 21st century has made organ trafficking and transplant tourism / commercialism into global issues, accounting for about 10% of organ transplants performed yearly in the world. Human trafficking in South Asia, particularly in India, Bangladesh and Nepal. It argues that the focus on trafficking either as an issue of illegal migration or prostitution still dominates the discourse of trafficking in these countries.
Bangladesh as a developing country having 170 million of population passing crucial time with balancing its economy to entering a lower middle class income country. In last decade like its economy all other important indicator factor also being developed. Health care faculties also been flourished. Although treatment like organ translations are practicing in almost all-national and private hospital and clinics, but the overall process of healthcare passing thorough a very vulnerable situations [20]. Huge population in small land, scarcity of physician, and weak implementation of legal Laws create these situations. In recent time, medical health care is a big challenge for government. In Bangladesh, organ transplantation treatment ethical issues are in very poor conditions. Increasing Demand among people for organ transplantations where organ scarcity is very acute, various reasons are responsible for such situations like lack of education, poor economic status, lack of initiative to create awareness to increase donor, unavailable regular structure to transplantations [21-22]. In Bangladesh, cadavers or living donors are very few in numbers. Lack of education, lack of social awareness and religious very few people is interested to donate organ [23]. The number of transplantations are performed very few hospital or clinic Centre maintain the criteria of ethical issues. At the same time, being a developing country organ transplantations now become a big trade. Unauthorized huge black market trading human organ, which shows very poor and miserable conditions to the donor. Human trafficking especially for remove organ frequently shows very inhuman scenarios. A strong syndicate are internationally managing this human organ trade in under develop and developing countries. Financially insolvent people are being strapped and they are being forced to sell their organ in very poor rate like 50 to 100 dollars [24].

Overall, the regular organ transplantation the Unavailability or shortage of organs for transplantation makes it important to find out the reasons why some oppose organ donation\(^{23}\). There are many reasons why certain general populations are reluctant to consent to organ donations [25]. Among these reasons, both social and religious issues play an important role, especially in a multiethnic, multicultural and multi-religious community like Bangladesh. It had reported that the formal position of a religion to organ donation and transplant play an important factor in persuading the community regarding organ transplant [33].
In medical treatment of transplantation organ donors classified as two ways, one is living donor or deceased donor [3]. Examples of organs transplanted from living donors kidneys and livers has taken as part of transplantation organ as liver can regenerate and from two kidneys, one can easily donate [24]. Another type of living donor but generally rare is lung translation for which it is difficult to found a suitable donor in right time without any delay.

On the other hand, a patient who needs a heart transplant, a double lung transplant, a pancreatic transplant or a cornea transplant would need to get the organ from a decease donor or from people who are brain dead but on mechanical/organ-perfusion life support [25]. Even though people who are brain dead are technically dead, their body and organs would still be functioning, hence suitable for organ donation. However, some organs deteriorate quickly after the body expires, thus making them inappropriate for transplant.

In healthcare service, this organ transplantation is now most desired treatment for individual with organ failure. From the begging of the development of this treatment process, there always remain a misuse or unethical practice. This is due to scarcity of organ in treatment and experiment purpose. Aftermath every county have created their own LAW regarding organ donation and transplantations.

2.2 ETHICAL ISSUES IN ORGAN DONATION AND TRANSPLANTATION

Ethical question in organ donation
Organ transplant one of effective invention in modern surgery from both perspectives in life saving and money aspects. The popularity of this transplantation procedure increased across the world. However, many questions have created on ethical dilemmas and controversies related with this procedure. Among the questions raised were; who gets priority? Will priority be based on the severity of a person’s illness or his age or other factors? Will money, social status or political connections influence this decision? Continuous successes in transplantation and demand among the individuals who are at the end stage have created questions on ethical issues on transplantation treatment. Ethical issues are conflicting from two side, selecting donor and transpiration process [15].
With respect to demand, transplantable organs are scarce. Unavailable donor and increased number of individuals who is needed organs? How to distribute this among patients with damaged organ? Lots of have different opinions on such situations. Few have suggested for equal access and few have for maximum benefit distribution. From different transplant center across different region issues have been questioned, should an individual who received one organ transplant be given a second transplant? On the other hand, priority should be given who have not had transplant over those who have already one? Should people give chance whom apparently responsible for damaging their own body by drinking alcohol, smoking, using drug, obesity, committing suicide attempt etc. Who will be preferred a person who have young children or an elderly person? Should a poor person have chance, who cannot afford expensive drug after transplantation or a person has no health insurance policy? Should a prisoner having lifetime imprisonment sentence without parole receive organ transplantations [16-20].

The distribution of organs

In distribution of available organs, the basic idea of distributive justice is to uniformly divide the available resources – arises associated with organ transplantation because patients in waiting for organ transplantation there are not enough organs available for everyone. There is no suitable or exact way to distribute the organ to right person as the preferences could make in various way to choose a particular individual. This distribution process always creates many controversies and arises many questions about ethical issues on organ transplantations. Suggested criteria bring out that equal access to everyone who needed transplantations, which will follow the length of time waiting like first come first serve and age i.e. youngest to oldest. With the development of organ transplantation process equal access supporter admit that this vital medical should be make accessible to everyone those who need it and everyone have right to treated equally [22].

Another type of distributive criteria is maximum benefit. The goal is to maximize the number of successful transplants, which is more helpful for medical need. In these criteria, most critical condition people have given priority for transplantation organ and focusing the probability of success to the person who will have better chance to have longer life after transplantations. Considering the medical value of scare organ, the expensive procedure and waste of unavailable organ this process of selecting patients also has accepted by transplantation center [23].
Considering the life span after transplantation success are measured. A could not have longer life unless a successful transplantation. Maximization of outcomes on these view procurement organizations does not allow second organ transplantation [24-27]. This view conflict with ideology of medical healthcare system and opposes with the arguments. In beforehand measurement of medical success can vary. Questions will remain on level of successful transplantation and rehabilitation and patients experience after treatment on these criteria [29]. These criteria also have better chance to lead the distribution bias, favors and unfair practice. The ethical issues conflict with the devalues with different category like an older person waiting for transplant, how old a person could be but might be miss losing rest of his or her life which is valuable to everyone.

The shortage of organ donor

In order to reduce the ethical problem associated with the shortage of required organs is to increase the Donor of organ. In this situation with long queue of waiting for transplantation to increase the organ donations make stands big fear. This leads organ farming or premature death to having organ. Considering on ethical issues, transplantations center justifies certain ethical boundaries with the organ donors [35]. However, in practices it becomes hard to define the ethical boundaries to deal organ donors. The boundary lines became vague in emergency as everyone try to show their own opinions. In medical Centre from three types of sources for transplantable organ: cadaveric donors, living donor and alternatives.

Cadaveric organ donation, a person with his or her consent donates organ. Organ will be harvested when he or will die. This donation made with full consent while the person is still alive. For this consent to donate organs have to wait until the person die. Some confusion arises with the condition of death. When heart stops beating or brain function being stop (brain death) a person is being considered dead. From deceased body organs are collected. If the donates organ are unknown medical Centre should take permission from deceased person’s family member. This member could be spouse, adult child, sibling, legal guardian [36].

One cadaveric donor can provide organs for several different people. Which organs and tissues can recover may depend on the cause of death or damage to an organ, but typically, several
organs can recover from a single cadaver. In 2002, more than 22,000 organs had recovered from 6,182 cadaveric donors [32].

Organ transplantation practice not only in developed country but also in developing country have increased significantly. Therefore, there is a very big queue demanding organ transplantation. Throughout the world, there is a big scarcity of organ. Different country tries in different approaches to increase the organ donor.

2.3 STRATEGIES TO INCREASE CADAVERIC ORGAN DONATIONS

From an individual cadaveric donor can provide multiple organs that is why to minimize to scarcity of organ this cadaveric donor are very important to organ transplantation Centre. Organ transplantation Centre take various strategies to increase the number of cadaveric donation and this strategy creates much controversy and debate. To increase the number of donor education method, consent method, presumed method, incentive and prisoners methods strategies are following. All of this considering ethical issues there are too much controversies and debate with incentive and prisoners strategy.

To increase donor strategy incentives can be various forms. This form could be monitory assistance or other assistance as bear funeral cost to deceased person, offer memorial name or charity to the deceased person’s name or provide financial (cash payment) incentives. Good numbers of members from the American Society of Transplant Surgeons support funeral incentive or charitable organization donation as a strategy to increase donation [33]. Many people favor charitable donation or recognizing donors as an incentive for organ donation.

A final anti-incentives argument offered by some ethicists discourages the practice of incentivizing organ donation. They believe that society should instead re-culture its thinking to embrace a communitarian spirit of giving and altruism where people actively want to donate their organs [40]. To increase cadaveric organs Organ donator as a prisoners who putted to death. Number of people found this ethically unsound and few have support this considering full consents off prisoner and their relatives. For organ donation is not supposed to kill a prisoner, which conflicts with the criteria of a cadaver donator [31].
Living organ donation

A living donor can also donate a person with organ damage or organ failure instead of keeping him or her in the waiting list for cadaver donor. According to UNOS organ donation from living donor, there are a number of advantages to patients and donor as well. There are greater chances to better matches between donors and patients with living donation. Better preparation for treatment could be possible. This is psychologically better for both the donors and recipients [47]. There are also possible drawback to living donor this may include infection, bleeding, pain, future health care complications. So, not everyone interested to be a living donor. An entangled environment creates through family pressure48. A few medical and ethical professionals argue that living donation is inappropriate under any circumstances and should not only be discouraged but abandoned all together because of the risk and dangers associated with donating organs [42]. The primary aim to practice living donor is to reduce the shortage of organs. Various strategies have taken to increase living donor. Increasing the number of living donors could occur through a variety of strategies from education and civic duty promotion to the sale and purchase of organs. Financial aid or incentives to increase living donation have already accepted from bioethicists. However, most of them expressed that buying and selling organ is an unethical and disrespectful practice. They argue that people with poor social condition will be much more interested to donate their organ without considering the drawback. Wealthier people have more access due to their financial condition. One of the most contentious ethical issues are living kidney donor in terms of financial aid. This term makes human body moneymaking machine without focusing donor physical security and wealthier people are taking this advantage. In developing countries research found that, most of the people sold their kidneys to pay off debt. Most of them have deteriorated health condition after remove organ. It is also shown that overall improvement remains vague as after selling organ most of them in debt too.

The current United States policy does not allow for the sale of human organs. The National Organ Transplant Act of 1984 banned such a practice [52]. Arguments that favor the buying and selling of human organs are scarce, but a few do exist. Robert Veatch’s book, Transplant Ethics, argues that the United States has the money and resources to eliminate socioeconomic disparities, and if this were done, people could then sell their organs, because it is poverty that requires people to act out in desperation for money and not with an objective and informed mind. Another argument that does not object to the purchase of
organs suggests that payments are not necessarily a bad idea if they work to increase the number of donated organs. The position contends that donating an organ is a relatively small burden compared to the enormous benefit repeated by recipients [41].

In June of 2003, the American Medical Association (AMA) testified before the United States Congress that the shortage of organs is so critical in America, that studies need to conduct on the effectiveness and outcomes associated with incentivized donations, including possible financial incentives. The AMA does not endorse incentives; they stress, but want to encourage research in the field. This testimony is likely to influence on organ donation at policy research in the near future.

**Alternative organ sources**

With the increasing demand of organ and unavailable condition of donors researcher are always trying to find out an alternative way to mitigate the scarcity. For transplantation researcher are trying to consider non-traditional way. Some alternative sources of organs are artificial organs, stem cells, aborted fetuses, animal organs. There are many controversies with alternative sources of organs [31].

**ACT and LAWs considering Organ Transplantations**

Increasing demand among people with damaged organ, unavailable of donor creates haphazard situations on organ transplantations treatment. To ensure the purpose of organ donation and fair organ collection and donation every state imposed laws to make fair environment. These laws are sometime changes as a purpose of more effective way to control the situations fairly and to increase to number of organ fairly. In USA National Organ Transplant Act of 1984 passed in congress in 1984. The goal of the National Organ Transplant Act (NOTA) was to detect the issues of organ unavailability and fair the collection and distribution of organs nationwide. United Network for Organ Sharing (UNOS) to keep record a nationwide computer registry of all people who need organs. Organ Procurement and Transplant Network (OPTN) – OPTN that keeps a record of national registry of patients and organs and matches organs with patients. Task Force on Organ Transplantation. The National Organ Transplant Act (NOTA) banned the purchase or sale of organs or tissues [52]. Consolidated Omnibus Reconciliation Act of 1986 The Consolidated Omnibus Reconciliation Act (COBRA), primarily addressed health benefits and health insurance coverage. Regulations concerning organ transplantation and allocation were written into the COBRA reforms: Requires hospitals to establish a relationship with a federally
mandated Organ Procurement Organization. The Act also includes the instruction that Organ Procurement Organizations must work with hospitals to coordinate transplants at the local level [52].

This act forced all hospitals receiving Medicare or Medicaid funding to enact a “required request” policy. A required request policy ensures that all families of potential donors had told about organ donation and their right to decline donation.

**Uniform Anatomical Gift Act**

The Uniform Anatomical Gift Act is a set of model regulations and laws concerning organ donation that all states have passed in some measure. There have been many revisions to the Act.

1968 – The passage of the Uniform Anatomical Gift Act in the United States Congress allows people to donate their organs. 1972 – The Uniform Donor Card passed as a legal document in all 50 states, allowing anyone over to donate their organs [52]

First Person Consent Laws, in the 1990’s, states began to pass first person consent laws. These laws require hospitals and organ procurement organizations to follow a patient’s organ donation wishes as indicated on their driver’s license or in a health care directive. Where the laws are enacted, the hospital and the organ procurement organization has a legal right to follow a deceased person’s written organ donation wishes and does not require them to approach the deceased person’s family for permission to remove the organs.

Some advocacy organizations suggest that as many as 2/3 of people who sign organ donation consent forms do not have their wishes honored when they die. This is because when families have approached for consent to remove the organs, they do not give it. The first person consent laws attempt to eliminate the discrepancies between a person’s organ donation wishes and family consent by putting the patient’s decisions above the decisions of their family. This practice supports and acknowledges autonomy. Autonomy is the right to make decisions for oneself and to practice self-determination and self-governance. Many Americans value autonomy very highly and consider self-determination a fundamental right.

Uniform Anatomical Gift Act, introduced to reduce the created haphazardness among different sections of LAWs towards organ donation and transplantations. This Act tried creating uniformity among in ethical issues among the health professionals who practice organ donation and transplantations.
2.4 REVIEW OF ORGAN TRANSPLANTATION ISSUES IN DEVELOPING COUNTRIES

Organ transplantation in developing countries shows very oscillating scenarios. There is currently shortage of donor organs worldwide; the ageing population and increase in incidence of diabetes will worsen this shortage. The world’s 7.5 billion-population four-fifth is from the developing countries. Unfortunately the transplant rates in the developing world is much to be desired, at less than 10 per million population comparing to 45-50 in the developed countries [20-22]. However, in Asia, there are marked variations in socio-economic status in member states and this reflected in the transplant. For example, the renal transplant rates ranges from 0.16 per million populations in Bangladesh to 21.4 per million population in Singapore [22]. Therefore, there is a demand for donor organs in the developed world. This problem is compounded the general reluctance of Asians in cadaveric organ donation despite legal sanction for cadaveric donations and support from the major religious groups. Therefore, it is not surprising that living donor organs contributes 85-100% of transplantation in the developing countries as opposed to 1-25% in the developed countries 23. These differences are mainly due to racial and cultural attitudes towards death and the sanctity of the human body, thereby affecting consent for cadaveric donation18. Therefore a large market for the purchase for living unrelated organs (particularly kidneys) flourished. This compounded by a low suitable donor pool of 1.6 donors available per recipient in the developing countries. The increasing ease of communication in the 21st century has made organ trafficking and transplant tourism / commercialism into global issues, accounting for about 10% of organ transplants performed yearly in the world 21. In recent years, it reported that many patients sought transplant in China, but most recently it was reported that that there is a shift of transplant tourist to Egypt 19. The usual destinations for transplant tourist are China, Philippines, India and Pakistan. However, following the Istanbul Declaration on organ trafficking and transplant tourism last year, many countries have adopted its recommendation to curtail transplant tourism; for example China, Philippines and Pakistan has taken major steps in the last 2 years and India is monitoring closely the illegal activities following the Gurgaon Scandal.
Organ Donation and Transplantation in Asia

In Asian nations, it is harder to manage kidneys for transplantation due to certain social convictions and traditions [27]. The issues influencing living related kidney donation are more social than ethical. This is because of the web of family weights and individual clashes for both donor and beneficiary encompassing the donation. Vital misinterpretations and fears are risk of death, the conviction that evacuation of organ damages sacredness of diminished, worry about being cut up after death, want to be covered entire, aversion of thought of kidneys inside someone else, wrong idea of mind passing, and the possibility of donation being against religious conviction. In Singapore, with the presentation of the Human Organ Transplant Act (HOTA) in 1988, the quantity of cadaveric transplants have expanded, including those from the Medical Therapy Act (MTA) [28]. HOTA and instruction have assumed significant parts in realizing an expanded yield of cadaveric kidneys. With the accessibility of living unrelated donor (LUD) transplants in India, our living related donor (LRD) transplant program has endured, on the grounds that patients would preferably purchase a kidney from abroad than get an in respect to give one away. Patients are additionally going to China for abroad cadaveric transplants where the kidneys originate from executed convicts [32]. Individuals in nations like Hong Kong, Japan and the Philippines share a similar Asian convention of not separating with their organs after death. Muslim nations like Malaysia require the expired to have before swore his kidneys for donation preceding passing before they can gather for transplantation at death [33].

The emotional accomplishment of restorative innovation in organ transplantation has empowered numerous patients with organ failure to continue healthy lives and live more [9]. Without this restorative innovation, these individuals would have passed on. This moderately innovation can be followed back to the principal effective transplantation that occurred in Boston in 1954 that included two indistinguishable twins. The activity was a win largely in light of the fact that their hereditary cosmetics was indistinguishable [34]. In any case, the genuine achievement in organ transplantation came three decades later after the disclosure of cyclosporine an, a medication that tackled the issue of dismissal. Today, it is conceivable to transplant various organs, including kidney, heart, liver, pancreas, lungs, skin and an assortment of tissues, for example, bone marrow and corneas. At the point when a heart transplant was first successfully conducted in 1967 in South Africa, a voice of significant concern was raised asking how something that spoke to a
man's identity could be changed voluntarily [35]. Should human organs dealt with as car parts to supplant with new ones when they failed? These inquiries soon lessened because of the advantages that this innovation conveyed to patients contrasted with their miserable result without the innovation. Day by day, transplants have turned out to acknowledge as a normal strategy for the individuals who can manage the cost of such expensive tasks. Uncertainty and concern, nevertheless, can in any case got notification everyone in a while. For example, Dr. Chase Kimball of the University of Chicago stated, "You can encourage a great deal of hungry kids on what it expenses to complete one heart transplant… " [36]. Another creator addressed, "Is it fitting for a moderately modest number of individuals to profit by open financing of a costly innovation when a bigger number could profit by consumptions on a more extensive scope of more affordable medical issues?" [37]. In Asia, transplant activities are increasing day by day. In a few nations, there are gossipy tidbits that individuals offer their organs for cash. It has likewise been over and again revealed that a few hoodlums, incorporating political detainees in some Asian nations, are utilizing as a wellspring of organs for transplantation. The contention over organ transplantation keeps on waiting regardless of the way that this innovation has turned into a typical piece of therapeutic treatment. Asian nations are rich in their religious and good lessons. How might Asian sages and conventional esteems see this innovation? On the off chance that transplant tasks have turned into a noteworthy endeavor in Asia, are the customary good estimations of Asia for this undertaking?

**Organ donation and transplantation system in Bangladesh**

Bangladesh as a developing county having 170 millions of population passing crucial time with balancing its economy to entering a lower middle class income country. In last decade like its economy all other important indicator factor also being developed. Health care faculties also been flourished. Although treatment like organ translations are practicing in almost all-national and private hospital and clinics, but the overall process of healthcare passing thorough a very vulnerable situations. Huge population in small land, scarcity of physician, and weak implementation of legal Laws create these situations. In recent time, medical health care is a big challenge for government. In Bangladesh, organ transplantation treatment ethical issues are in very poor conditions. Increasing Demand among people for organ transplantations where organ scarcity is very acute, various reasons are responsible for such situations like lack of education,
poor economic status, lack of initiative to create awareness to increase donor, unavailable regular structure to transplantations. In Bangladesh, cadavers or living donors are very few in numbers. Lack of education, lack of social awareness and religious very few people is interested to donate organ. The number of transplantations are performed very few hospital or clinic Centre maintain the criteria of ethical issues. At the same time, being a developing country organ transplantations now become a big trade. Unauthorized huge black market trading human organ, which shows very poor and miserable conditions to the donor. Human trafficking especially for remove organ frequently shows very inhuman scenarios. A strong syndicate are internationally managing this human organ trade in under develop and developing countries. Financially insolvent people are being trapped and they are being forced to sell their organ in very poor rate like 50 to 100 dollars [19-21].

Overall, the regular organ transplantation the Unavailability or shortage of organs for transplantation makes it important to find out the reasons why some oppose organ donation. There are many reasons why certain general populations are reluctant to consent to organ donations. Among these reasons, both social and religious issues play an important role, especially in a multiethnic, multicultural and multi-religious community like Bangladesh. It had reported that the formal position of a religion to organ donation and transplant play an important factor in persuading the community regarding organ transplant [24-27].

**Ethical challenges of organ transplantation in Bangladesh**

In Bangladesh there are numerous individuals are suffering due to organs insufficiency. Over a large portion of a 170 million people in Bangladesh are suffering various organ related disease. Among these people, large number of people are tense to die with their organ failure [51]. Organ donation and transplantation facilities still now scare in Bangladesh due to cost of this treatment, availability of organ, overall there is no group or authorized health care service related to organ transplant treatment. There is no such government monitoring. In Bangladesh first Organ transplant occurred 1982, in Bangabandhu Sheik Mujib Medical University (BSMMU) Kidney transplant was successfully conduct. After 1982, no such light of hope spread in organ related services. Bangladesh Government have created law to save and protect general people to save
their life and organ as day by day their have built up a huge market for buying and selling human organ. Segment 9 of the Bangladesh Organ Transplantation Act 1999 (BOTA) disallows organ trade, pick up by the donor as a byproduct of organ donation, and any commercial for the reason [8].

Bangladeshis are experiencing heart attack when still in their young to mid age. As indicated by the most recent WHO information distributed in May 2014 Coronary Heart Disease Deaths in Bangladesh reported 50,708 or 6.96% of aggregate death. The age balanced Death Rate is 53.53 for each 100,000 of populace positions Bangladesh #150 on the world [41].

There are 13 to 15 lakh disease patients in Bangladesh, with around two lakh patients recently determined to have malignancy every year. As a diagram, lung tumor and mouth-or pharynx growth rank as the main two predominant malignancies in people. Different sorts of growths are throat malignancy and stomach disease. Here visually impaired from untreated cataract and the nation has one of the most noteworthy revealed rates of untreated cataract blindness on the world. Because of extreme poverty and an absence of mindfulness, that waterfall visual deficiency is preventable and treatable, numerous individuals pointlessly progress toward becoming and stay dazzle [40].

Present and previous kidney transplant specialists met at Bangabandhu Sheik Mujib Medical University on Monday in a discourse denoting the 500th kidney transplant in the University, which initially began the strategy in 1982 [38]. The yearly interest for the kidney transplant is evaluated 5,000, however on a normal; just around 120 individuals can oversee kidneys from their relatives to experience a transplant. "Perhaps because of a larger amount of training or riches, individuals are ending up less intrigued by giving a kidney to their relatives," Prof SA Khan, a previous transplant specialist of the University, said. "We ought to energize dead body donation now like different nations," he stated, indicating the troubles patients find in overseeing donors from the living relations. "A significant number of the patients are taken away to India by the agents because of the troubles," said Pro-Vice-Chancellor of the University Prof Sharfuddin Ahmed [59].

Bangladesh does not have any investigation to state the genuine pervasiveness of kidney illness and the requirement for organ failure. In any case, a few appraisals recommend no less than 20
million individuals experience the ill effects of some type of kidney illnesses in Bangladesh and 35,000 of them die of kidney disappointment consistently [39].

2.5 LEGAL ASPECTS OF ORGAN DONATION AND TRANSPLANTATION IN BANGLADESH

Bangladesh Organ Donation Law 1999 permits after death or kidney donation separated from living close relatives, yet steps have never taken to present such donation.

Among the relatives, just siblings, sisters, father, mother, maternal and fatherly uncles and close relatives can give kidneys under the 1999 law [56]. "We require more noteworthy social mindfulness," Prof MA Salam, an urologist, said proposing to embrace "the models of some European nations like Spain and the Netherlands." "The legislature can take organs from the dead body in Spain and Netherlands. They don't have to take consent from the relatives," he said. Chancellor Prof Kamrul Hassan Khan likewise worried on "coordinated social development" to increase dead body donation.

Generally, there have given an account of human organ trade in each daily paper. A few agents had captured specialists and healing centers blamed for contribution and courts have mediated. Segment nine of the Bangladesh Organ Transplantation Act 1999 (BOTA) disallows organ trade, pick up by the donor as a byproduct of organ donation, and any commercial for the reason. It is obvious that the law had damaged. It is additionally obvious that Bangladesh has an organ transplantation industry that necessitates such huge numbers of organs that it may utilize unlawful agents for securing them [57].

BOTA 1999 has established a fundamental framework for organ transplantation in Bangladesh. On the off chance that executed and upheld appropriately, the law would ensure organ donors, healing facilities, specialists and beneficiaries. Absence of a sufficient foundation to guarantee straightforwardness in executing the Act has made some perplexity [58].

Organ transplantation has turned into a normal strategy for treating organ failure largely in light of the effectively work exercises in the United States and Europe. In the United Sates, the National Organ Transplant Act (NOTA) 1984 constituted the legitimate structure for organ transplantation. NOTA made the Organ Procurement and Transplantation Network (OPTN) as a private, non-benefit organization under government supervision, which keeps up an automated rundown of potential organ donors and beneficiaries. The United Network for Organ Sharing
(UNOS), another non-benefit private organization under contract with the central government, oversees qualification and need of beneficiaries [40].

A vast system of organ banks acquires organs and supplies them to the transplantation focuses. Just uniquely prepared groups of doctors and guaranteed doctor's facilities permitted to perform organ transplantation. Layer after layer of such private and open managerial exercises keep organ transplantation exercises in the US very straightforward to people in general [41]. Absence of such supporting organizations may have added to the present perplexity in Bangladesh.

BOTA and NOTA have numerous basic traits. The most essential of them is that the two Acts have permitted philanthropy as the main inspiration of organ donation and made any sort of material increase through the procedure by the organ donor a wrongdoing. In any case, the Acts do not forbid organ obtainment organizations, doctor's facilities and doctors from making benefits through their administrations [42].

Transplantation of a normal organ (say a kidney) creates about $200,000 worth of monetary exercises and the beneficiary gets the organ for nothing. A request supply hole is unavoidable in such a circumstance. Starting today, more than 112,000 individuals are sitting tight for an organ in the United States alone however just around 14,000 organs have been transplanted in the previous a half year[42].

The majority of the organs transplanted in the creating nations originate from cerebrum dead mishap casualties. From a solid mischance casualty, around twelve organs can be extricated. Few kidneys and livers originate from live donors. A mind greater part (around 80%) of patients as of now sitting tight for a donor organ is sitting tight for kidneys [43]. A solid individual may give one of the two kidneys with satisfactory level of peril to his wellbeing. The extreme lack of kidney donors has made a worldwide wrongdoing ring including doctor's facilities, doctors and numerous layers of brokers. The kidney and liver burglary revealed in Bangladesh is not one of a kind as will be apparent from the accompanying:

The request supply hole is severe to the point that capturing a couple of mediators will not stop the waves. The healing facilities and specialists for the most part make a monetary profit by organ transplantation and they can stop the wrongdoing by declining to take unlawful organs. In any case, poor donors and the brokers may organize the donation procedure to look legitimately worthy. The donor tempts the specialists and clinics into criminal exercises, just to go about as a
vulnerable casualty later. Nevertheless, the genuine issue is the extreme organ deficiency [44]. On the off chance that there were sufficient organs, no deceptive and illicit movement would be required.

Since around 80% of the organs required are kidneys and since live kidney donation is sensibly sheltered, this option merits thought. A substantial number of transplant doctors, market analysts, social researchers and ethicists have upheld for this choice [45]. It, nevertheless, requires revision of BOTA 1999 or NOTA 1984. The motivating force could be money donation or budgetary help of different structures to a live donor or the relatives of perished donor. The motivations could incorporate instructive stipends, commitments to a beneficent organization of the donor's decision, making of a never-ending altruistic store perceiving the donor, and arrangement of social insurance protection to the donor or relatives of the donor.

The cabinet have endorsed a draft law extending the rundown of relatives who could give organs to a man. The draft likewise says stricter guidelines to check organ trafficking and exchange [60]. Once the law upheld, grandparents, grandchildren, and first cousins would have the capacity to give organs. The current law permits just guardians, life partners, kids, kin and blood-related aunties and uncles to give. According to the "Transplantation of Human Organs Act-2017", organ expulsion for transplant and transplant is impossible without the administration's assent in any healing facility, Additional Cabinet Secretary Ashraf Shameem told journalists after the week-by-week bureau meeting at the Secretariat. Nevertheless, open doctor's facilities with specific units could transplant without government endorsement, he said. The transplantable organs incorporate kidney, liver, bone, eye, heart, lung and tissue [56]. The organs must have taken from bodies with a pulsating heart, the extra bureau secretary said. Because of eye and bone marrow transplant, the donors require not be blood relatives, he said. According to the current law, sanctioned in 1999, one could look between seven years and least three years thorough detainment or Tk 3 lakh fine or both for infringement of the law. The proposed law recommended most extreme prison term of three years and Tk 10 lakh fine or both. Shameem said the law means to check trafficking of organs and their unlawful exchange and enhance social insurance administrations. According to the proposed law, there would be a restorative board in each doctor's facility for settling on transplant matters and a national cadaveric panel to direct organ transplants, he said. Additionally, there would likewise be a four-part doctor's facility accreditation board, to be going by an executive of the wellbeing directorate [57]. No organ
transplant would be permitted in any doctor's facility without the board's accreditation, he proceeded.

Shameem said the private doctor's facilities would need to apply for confirmation from the board inside 60 days of the sanctioning of the law. He said under the proposed law, on the off chance that anyone gives false data about the connections between an organ donor and the beneficiary or energizes, incites or undermines anyone to give such data, the individual could look up to two years detainment or Tk 5 lakh fine or both. Shameem said if any specialist was sentenced under the law, his or her enlistment from the Bangladesh Medical and Dental Council would be rejected and if any healing center or facility damaged the law, their organ transplant allow would be denied and they would be fined. Prof Zulfiqar Rahman Khan, director of surgery branch of Bangabandhu Sheik Mujib Medical University (BSMMU) hailed the law saying it would be teach organ transplants. With the requirement of the law, specialists would not be pointed the finger at any longer for unlawful transplant of organs and it would convey straightforwardness to the procedure. Prof Zulfiqar, the leader of BSMMU Teachers Association, praised the expanded rundown of relatives who could give organs [58].

Kidney transplantation is exceptionally basic in Bangladesh and had done from living-contributor donation. Despite the fact that law does not allow offering organs or taking organ from a living more interesting, media reports propose a considerable lot of the transplants are occurring along these lines, making the transplant a sketchy way out [38,45]. We have to distinguish the viable procedure to upgrade the organ gift mindfulness and dispense with obstructions behind it.

Bangladesh does not have any study to estimate the actual prevalence of kidney disease and the need for organ grafting. However, some approximate estimates suggest at least 20 million people are suffering from kidney diseases in Bangladesh and 35,000 of them die of kidney failure every year. The annual demand for the kidney transplant is estimated to be 5,000 [61]. However, on average only around 100 people can manage kidneys from their relatives to undergo a transplant. Bangladesh Organ Donation Law 1999 allows posthumous or brain-death kidney donation apart from living close relatives, but steps had never taken to introduce such donation. Among the relatives, only brothers, sisters, father, mother, maternal and paternal uncles and aunts can donate kidneys under the 1999 law. Since 1982 around 1400 kidneys [47, 48].
The liver transplant in Bangladesh successfully started on 3 June 2010; his first liver Transplant successfully performed in the operation theatre of Ibrahim cardiac hospital and research institute BIRDEM [36]. Still now, we have found four successful liver transplant conducted.

National Liver Foundation of Bangladesh is a not-profitable organization set up in April 1999 at Dhaka, Bangladesh. This Organization is the first of its kind in Bangladesh, which is committed to Prevention, Treatment, Education and Research on liver diseases with unique accentuation on viral hepatitis. The establishment is the individual from World Hepatitis Alliance since its initiation [62].

In Bangladesh, the field of respiratory prescription has blossomed throughout the years into a particular element and a flourishing segment, prompting the approach of numerous pulmonologists. These pulmonologists are working perseveringly for the improvement of sufferings of patients with respiratory illnesses in Bangladesh [46].

In Bangladesh, we need to work in asset-constrained settings, in a creating nation. Overall, we have the learning and aptitudes to guarantee agreeable watch over the millions. We should try to tackle our restricted assets to enhance nature of care [51]. In this unique situation, we have shaped "Bangladesh Lung Foundation" as an umbrella association to advance lung wellbeing in Bangladesh and the neighboring districts. It formally propelled on February 15, 2007 in Dhaka, Bangladesh. Bangladesh Lung Foundation is an organization restricted by ensure and not having share capital enlisted under segment 29 of the organizations demonstration, 1994 [63]

In summary, it is conceivable to end up fruitful in after death eye, gift development when everyone will approach to make post mortem eye donation. Eye donation must be expanded a few times to satisfy the prerequisites and this is conceivable when the subject turns into a convention in each group of Bangladesh and a piece of our way of life, independent of religion standing or doctrine. For find out about eye donation and for giving your eyes [51]
3. METHODOLOGY

3.1 ORGANIZATION AND SAMPLING OF THE STUDY

Study Design

A cross sectional survey was conducted at two major hospitals in Bangladesh. A sample size of 170 was calculated within 95% confidence interval and a sample error of 5%. Overall, 145 respondents were interviewed and response rate is 85.3%.

Convenience sampling [31] used to draw the sample for this survey. All health professionals as respondents will be included upon informed consent. Respondents, who will not comply to participate in the study, were excluded. All consenting individuals falling in the age between 18 to 65 years were interviewed. Socio-demographic data from the respondents including their gender, age and education, occupation, specialization, religion was collected.

3.2 ORGANIZATION OF THE STUDY

Method of Data Collection

Information was collected using face-to-face interviews based on a structured, pre-tested standardized questionnaire. Pre testing was done on adults falling in the same age brackets, in a similar setting, to screen for potential problems in the questionnaire. The interviewers discussed the questionnaire thoroughly among themselves before data collection to decrease interviewer bias.

We have collected data from Dhaka Medical College and Hospital (DMCH) and Bangabandhu Sheikh Mujib Medical University (BSSMU), two prominent hospital of Bangladesh. After taking local authority consent, we have collected information from the respondent. Here as a respondent, we have chosen health professionals like Medical doctor, Administrative officer, Medical resident, Nurse, Internee. We have collected data from N=145 individuals. After
collecting the data, we have input information in SPSS and performed further statistical analysis. As our questioner mainly focused on qualitative data, we performed descriptive Statistics.

3.3 RESEARCH INSTRUMENTS AND DATA SOURCES

A questionnaire as a research instrument consisting of a series of questions and other prompts for gathering information from respondents was employed. Although they are often designed for statistical analysis of the responses, this is not always the case.

The construction of questionnaire was based on previous studies (29), however it was modified and accordingly some original questions, regarding ethical issues of organ donation and transplantation were added by author. The questionnaire was divided into three sections with the first two sections comprising the socio demographic information while section three will assess perception of the individuals’ towards organ donation and transplantation, their knowledge about existing laws regarding organ donation, organ trafficking and the flaws in them. The individuals were divided into high, middle and low socio-economic classes based on few variables because a single variable cannot adequately reflect the socio-economic status of an individual. Socio-demographic variables include age, gender, education, religion, marital status, income, occupation. Organ donation was defined as "the removal of the tissues or organs of the human body from a cadaver or from a living donor, for the purpose of transplanting or grafting them into other persons".

Knowledge of the respondents was assessed through questions regarding meanings of the terms "organ donation", awareness of donation by living people as well as cadavers, risks involved in organ donation, and the sources of information for their knowledge. Attitudes of the respondents regarding organ donation was determined through questions regarding opinions on issues such as the willingness to donate organs in the future, influence of religion on attitude towards organ donation, allowance for incentive based organ donation, and factors influencing choice of recipient for future donation.
3.4 STATISTICAL ANALYSIS

To analyze our data we performed Descriptive Statistics data analysis tools as our questionnaire contains qualitative data. To discover the above questions we have designed our questionnaire in four categories Descriptive statistics, frequency, means, Standard deviation etc. were estimated as appropriate. Crude associations Pearson Chi -square test and t-test. All P values were considered significant level alpha at 5% i.e. $P < 0.05$. Further evaluated we performed Cronbach's Alpha statistics for checking the reliability of our ethical statements to organ donation, and motivation to donate. We have use bar plot to show the graphical presentation of our data. Tables and figures were used for an all-inclusive viewing of results.

Risk factors. As we have used cross sectional study, method and convenience sampling to collect the data for which possible risk factors are:

1. Convenience sampling, limits the external validity of the study
2. Chances to introduced bias
3. Suitable only for specific time
4. Chances to have manipulated data on this issues
5. Data could be biased or incomplete
6. Sampling follows no specific rules

Inclusion /exclusion criteria
All health professionals as respondents will be included upon informed consent; Exclusion criteria if respondents will not comply to participate in the study.

3.5 LIMITATIONS AND MERITS OF THE STUDY

Cross-sectional [29] studies are carried out at one time point or over a short period. They are usually conducted to estimate the prevalence of the outcome of interest for a given population, commonly for the purposes of public health planning. Data can also be collected on individual characteristics, including exposure to risk factors, alongside information about the outcome. In this way cross-sectional studies provide a ‘snapshot’ of the outcome and the characteristics associated with it, at a specific point in time [30].

Cross-sectional research studies all have the following characteristics:
- carried out at a single point in time
- Variables are not manipulated by researchers
- Sample is usually taken from the whole population

**Advantage of Cross Sectional Studies**
- Relatively inexpensive and takes up little time to conduct
- Can estimate prevalence of outcome of interest
- Many outcomes and risk factors can be assessed
- Useful for public health planning, understanding disease etiology and for the generation of hypotheses
- There is no loss to follow-up [30]

**Disadvantages of cross-sectional studies**
- Difficult to make causal inference
- Only a snapshot: the situation may provide differing results if another time-frame had been chosen [16]

The purpose of the study is to find the prevalence of the outcome of interest, for the population or subgroups within the population at a given time point [29]

**Merits**
1. Data can also be collected on individual characteristics
2. Studies provide a 'snapshot' of the outcome
3. Inexpensive
4. Can be completed quickly

**Limitation**
1. Tendency to have complete questionnaire rather than optimal data
2. Only a snapshot: the situation may provide differing results if another time-frame had been chosen.
3.6 RESEARCH ETHICS

The purpose of this questionnaire was to discover the health professional’s motivation towards organ donation and transplantation in Bangladesh. The survey aims to reveal the perceptions of health care professionals on ethical issues in organ donation and transplantation in Bangladesh. All respondents of this study were under informed consent and received written information about the purpose of the study as well as the confidentiality taken by the researchers. Ethical Committee has approved the research plan and the setting of the questionnaire used. As we have collected data from Bangladesh, we have taken permission from local authority. We ensured that patients participation was voluntary and they were informed about the possibility of not to answer some of the questions or the whole questionnaire. Moreover, no names were used during coding, analysis, and in the reports. All gathered information was confidential and no individual information was given to any authorities.

The study project was presented to The Bioethics Centre of Lithuanian University o Health Sciences and the approval was received in 2017 June 9. The copy of approval is attached at the Appendix no. 1.
4. RESULTS

4.1 Social and demographic characteristics of respondents

To analyze our data we performed Descriptive Statistics data analysis tools as our questionnaire contains qualitative data. To discover the above questions we have designed our questionnaire in four categories. We have collected socio-demographic information, Perceptions on Organ Donation, Ethical issues in organ donation and transplantation, Knowledge over organ donation and transplantation in our four respective sections.

Table 1. Socio-demographic characteristics of respondents.

<table>
<thead>
<tr>
<th></th>
<th>Type</th>
<th>Medical Doctor</th>
<th>Medical officer Administration</th>
<th>Frequency</th>
</tr>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45 (58%)</td>
<td>32 (41%)</td>
<td></td>
<td>77</td>
</tr>
<tr>
<td>Female</td>
<td>42 (61%)</td>
<td>26 (38%)</td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>37 (80.4%)</td>
<td>9 (19.6%)</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>26-30</td>
<td>25 (61%)</td>
<td>16 (39%)</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>31-35</td>
<td>12 (57.1%)</td>
<td>9 (42.9%)</td>
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<td>21</td>
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<tr>
<td>36-40</td>
<td>9 (64.3%)</td>
<td>5 (35.7%)</td>
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<td>41-45</td>
<td>0 (0%)</td>
<td>2 (100%)</td>
<td></td>
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<tr>
<td>46-55</td>
<td>4 (19%)</td>
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<tr>
<td>Specialization</td>
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<td></td>
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<tr>
<td>Cardiology</td>
<td>13 (100%)</td>
<td>0 (0%)</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Surgery</td>
<td>22 (61%)</td>
<td>14 (38%)</td>
<td></td>
<td>36</td>
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<tr>
<td>Pediatrics</td>
<td>12 (7%)</td>
<td>5 (29%)</td>
<td></td>
<td>17</td>
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<tr>
<td>others</td>
<td>0 (0%)</td>
<td>10 (0%)</td>
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<tr>
<td>Marital Status</td>
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<tr>
<td>Single (Never Married)</td>
<td>46 (68%)</td>
<td>21 (31%)</td>
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<tr>
<td>Married</td>
<td>36 (49%)</td>
<td>37 (50%)</td>
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<tr>
<td>Engaged to Married</td>
<td>5 (100%)</td>
<td>0 (0%)</td>
<td></td>
<td>5</td>
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<td>Religion</td>
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<td></td>
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<tr>
<td>Islam</td>
<td>76 (64%)</td>
<td>42 (35%)</td>
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<tr>
<td>Christianity</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
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<tr>
<td>Hinduism</td>
<td>11 (42%)</td>
<td>15 (57%)</td>
<td></td>
<td>26</td>
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</table>
Cumulative monthly household income

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;5000-20000</td>
<td>22(67%)</td>
<td>11(33%)</td>
<td>33</td>
</tr>
<tr>
<td>&gt;20000-50000</td>
<td>27(41%)</td>
<td>37(57%)</td>
<td>64</td>
</tr>
<tr>
<td>&gt;50000-80000</td>
<td>22(100%)</td>
<td>0(0%)</td>
<td>22</td>
</tr>
<tr>
<td>&gt;80000-100000</td>
<td>2(28)</td>
<td>5(71)</td>
<td>7</td>
</tr>
<tr>
<td>&gt;=100000</td>
<td>14(73)</td>
<td>5(26)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>58</td>
<td>145</td>
</tr>
</tbody>
</table>

*** Medical doctors, Medical Residents and Internes are included in Medical doctor group whereas Heal of clinics, Head of medical Administration, Nurse, others are included in Medical Administration group.

In table 1 we have shown the cross tabulation with occupation and Gender, Age Group, Specialization, Marital Status, Religion, Cumulative Monthly Income. We presented both percentage and relative frequency in the table. In Variable Occupation, we merge our variables and convert it into two groups’ Medical doctor and Medical Administration. Doctor, Medical Resident and Interne are included in Medical doctor group whereas Heal of clinics, Head of medical Administration, Nurse, others are included in Medical Administration group.

We use this occupation group to see the cross relationship with gender, age group, specialization, marital status, religion, cumulative monthly household income. We have presented cross relationship in both actual value and percentage. Associate frequency also showed in the table. From table 1. We see that, 77 respondent are male and 68 respondent are female among these respondent 45(58%) male are medical doctor and 32(41%) male are medical officer administration. Where 42(0.61%) female are medical doctor and 26(0.38%) female are in medical officer administration.
4.2 Health Professional Perceptions on Organ Donation

To get the perception on organ donation of health professionals were asked their motivational opinion to donate their own organ, four options had provided, and we level there the question in four points. Where 1 represents lowest level and 4 represents highest level of motivation. Options and their respective points shown

a. Would never consider donating an donate (1)
b. Will think about it (2)
c. Would only like to donate under other special circumstances (3)
d. Would definitely want to donate irrespective of circumstances (4)

Among the health professional male (53.1%) and female (46.9%) where 31.2% male and 48.5 % have showed their opinion in case of organ donation that “Will think about it”. 64.9% male and 36.8 % have showed their opinion in case of organ donation that “Would only like to donate under other special circumstances”. Both male and female health professionals did not choose the option d. that is “Would definitely want to donate irrespective of circumstances (4)” (Figure: 1)

![Health Professionals Personal Motivation Towards Organ Donation](image)

Figure 1. Health Professionals Personal (Gender) Motivation towards Organ Donation ($\chi^2 = 13.015; p =0.001$)
From the above plot, we can see the Male health professionals are more motivational towards organ donation than female. Female professionals are more in moderate positon. Furthermore, (Figure 2) from the point of religion towards organ donation 44.2%, 38.2% Male and Female professionals show affirmation that religion allows organ donation whereas 29.9%, 29.4 Male and Female respectively show that religion do not allow organ donation and Transplantation. In addition, 20% Male, 32.4% Female show that they have no idea to religion do support organ donation and transplantation.

We also have shown the data in cross tabulation and performed Chi-Square ($\chi^2$) Test to assess the differences with the groups.

**Figure 2.** Health Professionals Religion View to Organ Donation ($\chi^2 = 0.816; p = 0.665$)
Table 2. Cross tabulation between Gender and Health Professionals Motivation towards organ Donation and religion view (n=145)

<table>
<thead>
<tr>
<th>Motivation towards organ Donation</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would never consider donating an donate</td>
<td>3.9</td>
<td>14.7</td>
<td>$\chi^2 = 13.015$; $p = 0.001$</td>
</tr>
<tr>
<td>Will think about it</td>
<td>31.2</td>
<td>48.5</td>
<td></td>
</tr>
<tr>
<td>Would only like to donate under other special circumstances</td>
<td>64.9</td>
<td>36.8</td>
<td></td>
</tr>
<tr>
<td>Would definitely want to donate irrespective of circumstances</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion View to Organ Donation</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>44.2</td>
<td>38.2</td>
<td>$\chi^2 = 0.816$; $p = 0.665$</td>
</tr>
<tr>
<td>No</td>
<td>29.9</td>
<td>29.4</td>
<td></td>
</tr>
<tr>
<td>Don’t Know</td>
<td>20.0</td>
<td>32.4</td>
<td></td>
</tr>
</tbody>
</table>

From (Table 2.) we seen that there is significant similarities between male and female group in opinion towards motivation on self-organ donation. Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 13.015$ and $p = 0.001$. Which indicates that there is significant similarities within Male and female group on motivation to Organ Donation. And on the point of view to religion result shows there is no such similarities between the group p-value is greater than 0.05.

Among the health professional in male (53.1%) and female (46.9%), believe that there is a danger that donated organs being misused, abused or misappropriated to donors in Bangladesh. According to the options sometimes, often, Most of the time, never their opinions are 58.4%, 19.5%, 22.1%, 0% and 41.2 %, 8.8%, 50%, 0% for Male and Female respectively. In addition, both Male and Female group shows Zero percentage to “Never” option. (Figure: 3)
Figure 3. Health Professionals believe that there is a danger that donated organs could be misused, abused or misappropriated to donors in Bangladesh ($\chi^2 = 12.97; p = 0.002$). Furthermore, in more specification to the danger related to Organ Donation, as Mistreatment in case of emergency, Organ trafficking, public hostility, Abuse of the system 33.3%, 44.2%, 6.5%, 15.6% and 23.5 %, 35.3%, 25%, 16.2% for Male and Female respectively. In this case both male and female shows higher danger lay on organ trafficking. (Figure 4).

Figure 4. Bar Plot of Health Professionals believe kind of danger could be imposed by organ donation ($\chi^2 = 10.175; p = 0.017$)
We also have shown the data in cross tabulation and performed Chi-Square ($\chi^2$) Test to assess the differences with the groups.

**Table 3.** Cross tabulation between Gender and Health Professionals view on danger to organ donation and specific type of danger (n=145)

<table>
<thead>
<tr>
<th>View on danger</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>58.4</td>
<td>41.2</td>
<td>$\chi^2 = 12.97$; $p = 0.002$</td>
</tr>
<tr>
<td>Often</td>
<td>19.5</td>
<td>8.8</td>
<td></td>
</tr>
<tr>
<td>Most of the time</td>
<td>22.1</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of danger</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mistreatment in case of emergency</td>
<td>33.3</td>
<td>23.5</td>
<td>$\chi^2 = 10.175$; $p = 0.017$</td>
</tr>
<tr>
<td>Organ trafficking</td>
<td>44.2</td>
<td>35.3</td>
<td></td>
</tr>
<tr>
<td>Public hostility</td>
<td>6.5</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>Abuse of the system</td>
<td>15.6</td>
<td>16.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor holds the greatest importance to you when donating an organ</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation to the person</td>
<td>13.0</td>
<td>16.2</td>
<td>$\chi^2 = 4.32$; $p = 0.503$</td>
</tr>
<tr>
<td>Age of recipient</td>
<td>9.1</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>Health status of recipient</td>
<td>46.8</td>
<td>44.1</td>
<td></td>
</tr>
<tr>
<td>Substance abuse of the body</td>
<td>5.2</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>Assurance of the respectful treatment of the organ</td>
<td>22.1</td>
<td>22.1</td>
<td></td>
</tr>
<tr>
<td>None of the above</td>
<td>3.9</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

From **Table 3.** we see that there is significant difference between male and female group Health Professionals view danger to organ donation. Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 12.97$ and $p =0.002$. Which indicates that there is significant difference within Male and female group on Health Professionals view danger to organ donation. And on the point of view to specification of danger result shows there is also difference between where result shows the Chi-Square ($\chi^2$) value $\chi^2 = 10.175$ and $p =0.017$. In the case of factor holds the greatest
importance to you when donating an organ, it shows that there is no such significant difference between male and female where p-value less than 0.05. In addition, 46.8% Male, 44.1% health professionals showed their opinion on health status of recipient for organ donation and transplantation.

On the perception of decision-making on giving organ donation and transplantation (Table 4.) who will give consent, 70.1% male and 91.2 % female health professional gave their opinion that Donor should take decision. Where 23.4% male and 4.4% female health professional give their opinion that family member should take decision. Where in the case of organ donation from Dead body 54.5% male and 50.0 % female health professional gave their opinion that Family member should take decision. 26.8% male and 33.8% female health professional gave their opinion that spouse should take decision. Furthermore, organ donation in case of unclaimed dead bodies’ health professionals 3.9% male and 11.8 % female health professional gave their opinion that charitable organization should take decision. 48.1% male and 44.1% female health professional gave their opinion that Medical colleges / doctors should take decision. They also suggest for police and judge to take decision. Whereas, substitute decision making for mentally disabled persons in the regard of organ donation, 70.1% male and 70.6 % female health professional gave affirmative opinion that alternative close relative should take decision.

**Table 4.** Cross tabulation between Gender and Health Professionals view on taking decision or consent to organ donation and specific type of danger (n=145)

<table>
<thead>
<tr>
<th>For living donation, who should give consent</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donor</td>
<td>70.1</td>
<td>91.2</td>
<td>χ² = 11.25; p = 0.004</td>
</tr>
<tr>
<td>His Family</td>
<td>23.4</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>His spouse</td>
<td>6.5</td>
<td>4.4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For donation after death, who should give consent</th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No One</td>
<td>7.8</td>
<td>0.0</td>
<td>χ² = 15.96; p = 0.007</td>
</tr>
<tr>
<td>Family</td>
<td>54.5</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>28.6</td>
<td>33.8</td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>9.1</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Test</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Friend</td>
<td>0.0</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0.0</td>
<td>5.9</td>
<td></td>
</tr>
</tbody>
</table>

decisions about organ donation in case of unclaimed dead bodies

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charitable organization</td>
<td>3.9</td>
<td>11.8</td>
<td>$\chi^2 = 6.22; p = 0.183$</td>
</tr>
<tr>
<td>Medical colleges / doctors</td>
<td>48.1</td>
<td>44.1</td>
<td></td>
</tr>
<tr>
<td>Police</td>
<td>20.8</td>
<td>27.9</td>
<td></td>
</tr>
<tr>
<td>A judge</td>
<td>19.5</td>
<td>13.2</td>
<td></td>
</tr>
<tr>
<td>No one</td>
<td>7.8</td>
<td>2.9</td>
<td></td>
</tr>
</tbody>
</table>

substitute decision making for mentally disabled persons in the regard of organ donation

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>71.4</td>
<td>70.6</td>
<td>$\chi^2 = 9.559; p = 0.008$</td>
</tr>
<tr>
<td>No</td>
<td>23.4</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>Don’t Know</td>
<td>5.2</td>
<td>19.1</td>
<td></td>
</tr>
</tbody>
</table>

From Table 4. Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 11.25$ and $p = 0.004$. Which indicates that there is significance difference within Male and female group on Health Professionals view decision-making on giving organ donation and transplantation Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 15.96$ and $p =0.007$. Which indicates that there is significance difference within Male and female group on Health Professionals view decision-making on giving organ donation and transplantation in case of dead body. Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 6.22$ and $p =0.183$. Which indicates that there is no significance difference within Male and female group on Health Professionals view unclaimed dead bodies. Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 9.559$ and $p =0.008$. Which indicates that there is significance difference within Male and female group on Health Professionals view substitute decision making for mentally disabled persons in the regard of organ donation

To get the perception on organ donation health professionals were asked their motivational opinion to donate their own organ and four options were provided and we level there the question in 4 four points. Where 1 represents lowest level and 4 represents highest level of motivation. Options and their respective points shown
**Figure 5.** Bar Plot of Specialization Health Professionals Personal Motivation towards Organ Donation ($\chi^2 = 25.9; P < 0.05$)

**Figure 6.** Bar Plot of Specialization Health Professionals Religion view to organ donation and transplantation (n=145) ($\chi^2 = 6.944; P =0.326$)
From the above bar plot (Figure 5), we can see the Cardiologist are more motivational towards organ donation than surgeon or pediatrics. Here 92.3% Cardiologist shows opinion to “Would definitely want to donate irrespective of circumstances”.

Furthermore, (Figure 6) from the point of religion towards organ donation 53.8% Cardiologist, 41.7% surgeon, 52.9 pediatrics have shown affirmation that religion allows organ donation where 15.4% Cardiologist, 30.4% surgeon, 29.4 pediatrics show that religion do not allow organ donation and Transplantation. In addition, 30.8% Cardiologist, 27.8% surgeon, 17.6 pediatrics show that they have no idea to religion do support organ donation and transplantation.

We also have shown the data in cross tabulation and performed Chi-Square ($\chi^2$) Test to assess the differences with the groups.

**Table 5.** Cross tabulation between Specialization Health Professionals Motivation towards organ Donation and religion view (n=145)

<table>
<thead>
<tr>
<th>Motivation towards organ Donation</th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would never consider donating an donate</td>
<td>7.7</td>
<td>5.6</td>
<td>0.0</td>
<td>10.0</td>
<td>$\chi^2 = 25.9$; $P &lt; 0.05$</td>
</tr>
<tr>
<td>Will think about it</td>
<td>0.0</td>
<td>25.0</td>
<td>82.4</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>Would only like to donate under other special circumstances</td>
<td>92.3</td>
<td>69.4</td>
<td>17.6</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religious View</th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>53.8</td>
<td>41.7</td>
<td>52.9</td>
<td>10.0</td>
<td>$\chi^2 = 6.944$; $p = 0.326$</td>
</tr>
<tr>
<td>No</td>
<td>15.4</td>
<td>30.6</td>
<td>29.4</td>
<td>40.0</td>
<td></td>
</tr>
<tr>
<td>Don’t Know</td>
<td>30.8</td>
<td>27.8</td>
<td>17.6</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

From (Table 5.) we seen that there is significant difference among Specialization Health Professionals group in opinion towards motivation on self-organ donation. Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 25.9$ and $P < 0.05$. Which indicates that there is significant difference
within among Specialization Health Professionals group on motivation to Organ Donation. And on the point of view to religion result shows there is no such difference among the group p-value is greater than 0.05.

Among the health professional in male (53.1%) and female (46.9%), believe that there is a danger that donated organs being misused, abused or misappropriated to donors in Bangladesh. According to the options “Sometimes”, “often”, “Most of the time” “Never” their opinions on “Sometimes” are 38.5% Cardiologist, 63.9% surgeon and 52.9% Pediatrics specialist health professional. In addition, all specialist health professional shows Zero percentage to “Never” option. (Figure: 7)

![Danger to Donate Organ](image)

**Figure 7.** Bar Plot of Health Professionals believe that there is a danger that donated organs could be misused, abused or misappropriated to donors in Bangladesh (n=145) ($\chi^2 = 9.93; P =0.128$)

Furthermore, in more specification to the danger related to Organ Donation, as Mistreatment in case of emergency, Organ trafficking, public hostility, Abuse of the system. Here 30.8% Cardiologist, 38.9% surgeon and 5.9% Pediatrics specialist health professional show danger to Mistreatment in case of emergency. Important thing is that, 69.2% Cardiologist, 22.2% surgeon
and 70.6% Pediatrics specialist health professional show danger to Organ trafficking. In this case here all specialist have shown higher danger lay on organ trafficking. (Figure 8).

![Bar Plot of Kind of danger could be imposed by organ donation](image)

**Figure 8.** Bar Plot of Health Professionals believe kind of danger could be imposed by organ donation (n=145) ($\chi^2 = 31.01; P < 0.05$).

We also have shown the data in cross tabulation and performed Chi-Square ($\chi^2$) Test to assess the differences with the groups

From (Table 6.) we see that there is significant difference among specialist group on Health Professionals view danger to organ donation. Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 9.93$ and $P=0.128$. Which indicates that there is significant difference within Male and female group on Health Professionals view danger to organ donation. And on the point of view to specification of danger result shows there is also difference between where result shows the Chi-Square ($\chi^2$) value $\chi^2 = 31.01$ and $P < 0.05$. 
Table 6. Cross tabulation between **Specialization** Health Professionals Motivation towards organ Donation and religion view (n=145)

<table>
<thead>
<tr>
<th></th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>38.5</td>
<td>63.9</td>
<td>52.9</td>
<td>40.0</td>
</tr>
<tr>
<td>Often</td>
<td>7.7</td>
<td>11.1</td>
<td>23.5</td>
<td>40.0</td>
</tr>
<tr>
<td>Most of the time</td>
<td>53.8</td>
<td>25.0</td>
<td>23.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Cardiology | Surgery | Pediatrics | Others
---|---------|------------|--------|
Mistreatment in case of emergency | 30.8 | 38.9 | 5.9 | 50.0 |
Organ trafficking | 69.2 | 22.2 | 70.6 | 0.0 |
Public hostility | 0.0 | 13.9 | 0.0 | 0.0 |
Abuse of the system | 0.0 | 25.0 | 23.5 | 50.0 |

Relation to the person | 23.1 | 30.6 | 5.9 | 10.0 |
Age of recipient | 0.0 | 11.1 | 5.9 | 0.0 |
Health status of recipient | 53.8 | 36.1 | 29.4 | 90.0 |
Substance abuse of the body | 7.7 | 8.3 | 0.0 | 0.0 |
Assurance of the respectful treatment of the organ | 15.4 | 13.9 | 58.8 | 0.0 |
None of the above | 0 | 0 | 0 | 0 |

\[ \chi^2 = 9.93; \ P = 0.128 \]

\[ \chi^2 = 31.01; \ P < 0.05 \]

\[ \chi^2 = 28.95; \ P = 0.04 \]

In the case of factor holds the greatest importance to you when donating an organ, it shows that there is significant difference among specialist where Chi-Square \((\chi^2)\) value \(\chi^2 = 28.95\) p-value \(P = 0.04\). In addition, 46.8% Male, 44.1% health professionals showed their opinion on health status of recipient for organ donation and transplantation.

On the perception of decision-making on giving organ donation and transplantation (Table 7.) who will give consent, 100% Cardiologist, 86.1% surgeon and 82.4% Pediatrics specialist health professional give their opinion that Donor should take decision. In addition, 13.9%
surgeon and 11.8% Pediatrics specialist health professional give their opinion that family member should take decision. Where in the case of organ donation from Dead 53.8% Cardiologist, 47.2% surgeon and 47.1% Pediatrics specialist health professional give their opinion that family member should take decision. In addition, 30.8% Cardiologist, 41.7% surgeon and 41.2% Pediatrics specialist health professional give their opinion that spouse should take decision. Furthermore, organ donation in case of unclaimed dead bodies’ 46.2% Cardiologist, 63.9% surgeon and 23.5% Pediatrics specialist health professional give their opinion that Medical colleges / doctors should take decision. In addition, 38.5% Cardiologist specialist health professional give their opinion that charitable organization should take decision. They also suggest for police and judge to take decision. Whereas, substitute decision making for mentally disabled persons in the regard of organ donation, 61.5% Cardiologist, 58.3% surgeon and 76.5% Pediatrics specialist health professional give affirmative opinion that alternative close relative should take decision.

**Table 7.** Cross tabulation between Gender and Health Professionals view on taking decision or Consent to organ donation and specific type of danger (n=145)

<table>
<thead>
<tr>
<th></th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donor</td>
<td>100</td>
<td>86.1</td>
<td>82.4</td>
<td>0</td>
</tr>
<tr>
<td>His Family</td>
<td>0</td>
<td>13.9</td>
<td>11.8</td>
<td>50</td>
</tr>
<tr>
<td>His spouse</td>
<td>0</td>
<td>0</td>
<td>5.9</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Cardiology</td>
<td>Surgery</td>
<td>Pediatrics</td>
<td>Others</td>
</tr>
<tr>
<td>No One</td>
<td>0</td>
<td>2.8</td>
<td>5.9</td>
<td>0</td>
</tr>
<tr>
<td>Family</td>
<td>53.8</td>
<td>47.2</td>
<td>47.1</td>
<td>50</td>
</tr>
<tr>
<td>Spouse</td>
<td>30.8</td>
<td>41.7</td>
<td>41.2</td>
<td>50</td>
</tr>
<tr>
<td>Doctor</td>
<td>7.7</td>
<td>5.6</td>
<td>5.9</td>
<td>0</td>
</tr>
<tr>
<td>Friend</td>
<td>7.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>others</td>
<td>0</td>
<td>2.8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Cardiology</td>
<td>Surgery</td>
<td>Pediatrics</td>
<td>Others</td>
</tr>
<tr>
<td>Charitable</td>
<td>38.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>organization</td>
<td>Cardiology</td>
<td>Surgery</td>
<td>Pediatrics</td>
<td>Others</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>---------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>Medical colleges / doctors</td>
<td>46.2</td>
<td>63.9</td>
<td>23.5</td>
<td>60</td>
</tr>
<tr>
<td>Police</td>
<td>0</td>
<td>27.8</td>
<td>58.8</td>
<td>0</td>
</tr>
<tr>
<td>A judge</td>
<td>15.4</td>
<td>8.3</td>
<td>17.6</td>
<td>30</td>
</tr>
<tr>
<td>No one</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>61.5</td>
<td>58.3</td>
<td>76.5</td>
<td>90.0</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>27.8</td>
<td>23.5</td>
<td>10.0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>38.5</td>
<td>13.9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

From (Table 7.) Results shows the Chi-Square ($\chi^2$) value $\chi^2 = 45.253$ and p <0.05. Which indicates that there is significant difference within specialist group on Health Professionals view decision-making on giving organ donation and transplantation. Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 8.57$ and p =0.889. Which indicates that there is no significant difference within specialist group on Health Professionals view decision-making on giving organ donation and transplantation in case of dead body. Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 50.35$ and p <0.05. Which indicates that there is significant difference within specialist group on Health Professionals view unclaimed dead bodies. Results also shows the Chi-Square ($\chi^2$) value $\chi^2 = 15.71$ and p =0.015. Which indicates that there is significant difference within specialist group on Health Professionals view substitute decision making for mentally disabled persons in the regard of organ donation.
4.3. Results of Ethical issues in organ donation and transplantation

Here we have asked to the health professional seven statement related to ethical issues on organ donation and transplantation. Each question have five options to choose. “Absolutely agree”, “Agree”, “Nor agree nor disagree”, “Disagree”, “Absolutely disagree”. This also known as Likert Scale for qualitative data. Here we have seven statement so highest score would be thirty-five and lowest score would be five for each individual respondent. Higher score indicates better strong position on ethical issues and lower score indicates lack of ethical practice.

From (Table 8.) we performed Cronbach’s Alpha statistics for checking the reliability of our ethical statements. Here Cronbach's Alpha score is 0.546 for N=7 items, which indicates that our statement is moderate with the respondent. Here scale statistics, Mean score for all respondent is 24.94 (35) and standard deviation is 3.44 for ethical statement.

Table 8. Reliability Statistics on Ethical Questions

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.546</td>
<td>7</td>
</tr>
</tbody>
</table>

Scale Statistics

<table>
<thead>
<tr>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.94</td>
<td>3.440</td>
</tr>
</tbody>
</table>

From (Table 9.) result have shown all individual statement mean and SD score. Here for ethical statement “Organ Should not be available for selling or buying” mean score is 4.12 (5) and SD is 0.92. For statement “The selection of recipient should be chosen by using only medical criteria” mean score is 4.31 (5) and SD is 0.804. For statement “All patients should have an equal access to organ transplantation disregarding to their social status” mean score is 4.03 (5) and SD is 1.111.
Table 9. Item statistics

<table>
<thead>
<tr>
<th>Ethical Questions</th>
<th>Mean</th>
<th>Std. Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Public Is properly informed about organ donation</td>
<td>2.88</td>
<td>1.111</td>
</tr>
<tr>
<td>Organ Should not be available for selling or buying</td>
<td>4.12</td>
<td>.920</td>
</tr>
<tr>
<td>Organ transplantation Should be conducted only if a person has a donor cards</td>
<td>3.30</td>
<td>1.126</td>
</tr>
<tr>
<td>Physicians should encourage their patients to sign organ donation card</td>
<td>3.80</td>
<td>.703</td>
</tr>
<tr>
<td>Organ donation after transplantation does not improve the quality of human life</td>
<td>2.50</td>
<td>.756</td>
</tr>
<tr>
<td>The selection of recipient should be chosen by using only medical criteria</td>
<td>4.31</td>
<td>.804</td>
</tr>
<tr>
<td>All patients should have an equal access to organ transplantation disregarding to their social status</td>
<td>4.03</td>
<td>1.111</td>
</tr>
</tbody>
</table>
To analyze the ethical statement to individual respondent within different group, we have performed one-way ANOVA. In which we try to check the significant difference within group and Homogeneity of Variance among the group. From (table 10.) results have shown that aggregate mean score of ethical statement to male is 25.40 and female is 24.41, where ANOVA F-value is 3.037 with P=0.02 which indicates that there is significant difference between male and female respondent on ethical statement. In addition to group, compare to different Occupation with ethical statement; mean score of Medical Doctor, Nurse, Head of Clinics, Medical Resident, Administrator of Health Services, Others, Intern are 25.43, 23.88, 24.36, 22.38, 28.45, 25.45, 25.77 respectively where ANOVA F-value is 5.66 with P=0.004 which indicates that there is significant difference among respondent occupation on ethical statement.

In specialization, mean score of Cardiology, Surgery, Pediatrics, others are 25.46, 24.22, 25.29, and 28.80 are respectively where ANOVA F-value is 5.77 with P=0.142 which indicates that there is no significant difference among respondent Specialization on ethical statement.

Figure 9. Respondent response sources to ethical statement
Table 10. One-Way ANOVA (compression in Likert Scale with Gender Occupation Specialization)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Test of Homogeneity of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>25.4026</td>
<td>3.00552</td>
<td>F-3.037, P=0.020</td>
</tr>
<tr>
<td>female</td>
<td>24.4118</td>
<td>3.82933</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Test of Homogeneity of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Doctor</td>
<td>25.4359</td>
<td>3.37011</td>
<td>F-5.66, P=0.004</td>
</tr>
<tr>
<td>Nurse</td>
<td>23.8800</td>
<td>3.81139</td>
<td></td>
</tr>
<tr>
<td>Head of Clinics</td>
<td>24.3636</td>
<td>2.29228</td>
<td></td>
</tr>
<tr>
<td>Medical Resident</td>
<td>22.3810</td>
<td>3.82722</td>
<td></td>
</tr>
<tr>
<td>Administrator of Health Services</td>
<td>28.4545</td>
<td>1.91644</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>25.4545</td>
<td>3.14209</td>
<td></td>
</tr>
<tr>
<td>Intern</td>
<td>25.7778</td>
<td>2.02548</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Test of Homogeneity of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>25.4615</td>
<td>3.43063</td>
<td>F-5.77, P=0.142</td>
</tr>
<tr>
<td>Surgery</td>
<td>24.2222</td>
<td>3.37310</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>25.2941</td>
<td>2.75601</td>
<td></td>
</tr>
<tr>
<td>others</td>
<td>28.8000</td>
<td>1.61933</td>
<td></td>
</tr>
</tbody>
</table>

4.4 Analysis of Knowledge over organ donation and transplantation

Form Figure 10. We have seen that respondent learnt about organ donation and transplantation from various sources. However, there is no such organization, NGO, Government initiative to make people informed about organ donation. Following figure shows that 34.5% have heard from a doctor, 38.6 % shows from Internet/online resources, 19.3% have learnt from TV, 2.1% from friends or colleague and 5.5 % have from newspapers.
Figure 10. Respondent response sources provide most objective and right information on organ donation (n=145)

In Bangladesh, patients with serious organ failure have to count days to their last breathe. Blood donation seems common here; rarely people donate their organ like kidney or any other organ. From the Figure 11. We see that 15.9% Kidney, 77.2% Blood are being donated.

Figure 11. Respondent response Type of organ donated and transplanted in your clinics (n=145)
If we also see the cross relation (Figure 12), Organ donation and gender, 19.50% male 11.8% female have response to kidney donation where 67.50% male, 88.20% female have shown responses to Blood donation.

**Figure 12.** Respondent response (Gender) Type of organ donated and transplanted in your clinics ($\chi^2 = 12.19; \ p = 0.02$)

In addition to, from (Figure 13.) if we see the cross relation to type of organ and specialization health professional, 15.4% Cardiologist, 33.3% surgeon and 84.6% Cardiologist, 63.9% surgeon, 100% Pediatrics have shown response to Kidney and blood donation respectively.
In addition to, from (Figure 13.) if we see the cross relation to type of organ and specialization health professional, 15.4% Cardiologist, 33.3% surgeon and 84.6% Cardiologist, 63.9% surgeon, 100% Pediatrics have shown response to Kidney and blood donation respectively.

4.4 Main motivation of organ donation in Bangladesh

Here if we see the all-respondent motivation to organ donation in Bangladesh, from Table 11. We found that among 145 respondent opinion to the options “To save someone’s life”, “Out of compassion/sympathy”, “For money”, “As a ‘responsibility’” are 51.7%, 6.2%, 16.6%, and 25.5% respectively.
Table 11. Main motivation of organ donation in Bangladesh

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To save someone’s life</td>
<td>75</td>
<td>51.7</td>
</tr>
<tr>
<td>Out of compassion/sympathy</td>
<td>9</td>
<td>6.2</td>
</tr>
<tr>
<td>For money</td>
<td>24</td>
<td>16.6</td>
</tr>
<tr>
<td>As a ‘responsibility’</td>
<td>37</td>
<td>25.5</td>
</tr>
<tr>
<td>Total</td>
<td>145</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This quite important issue are the motivation to organ donation in Bangladesh. As a developing country with very poor structure to organ donation, which factor influence to donate people. From the figure 14. We see that 47.80% kidney are related with money issue where 17.40 for to save someone’s life and 34.80% for as a responsibility. In addition to, 10.70% blood related with money and 55.50 to save someone life, 8% for sympathy and 25.9% as for responsibility.

![Motivation of organ donation in Bangladesh](image)

**Figure 14.** Cross relation to organ and donor motivation in Bangladesh ($\chi^2 = 30.5; p<0.05$)

In the following table (Table 12.), we have shown the cross relationship main motivation of organ donation and Age Group, Gender, Occupation, Specialization, Marital status, Religion. Chi-square test results also associate P-value showed in the table.
Table 12. Cross Tabulation of Main motivation of organ donation in Bangladesh

<table>
<thead>
<tr>
<th>Age Group</th>
<th>To save someone’s life</th>
<th>Out of compassion/sympathy</th>
<th>For money</th>
<th>As a ‘responsibility’</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 25</td>
<td>70%</td>
<td>2%</td>
<td>7%</td>
<td>22%</td>
<td>( \chi^2 = 36.41; p &lt; 0.05 )</td>
</tr>
<tr>
<td>26-30</td>
<td>46%</td>
<td>2%</td>
<td>22%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>31-35</td>
<td>48%</td>
<td>6%</td>
<td>33%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>36-45</td>
<td>31%</td>
<td>6%</td>
<td>25%</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td>43%</td>
<td>29%</td>
<td>5%</td>
<td>24%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>( \chi^2 = 8.35; p = 0.04 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55%</td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Medical Doctor</th>
<th>Medical Administration</th>
<th>( \chi^2 = 1.38; p = 0.71 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>56%</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>56%</td>
<td>44%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>38%</td>
<td>36%</td>
<td>29%</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Single (Never Married)</th>
<th>Married</th>
<th>Engaged to Married</th>
<th>( \chi^2 = 32.25; p &lt; 0.05 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>72%</td>
<td>37%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3%</td>
<td>10%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12%</td>
<td>22%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13%</td>
<td>32%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion</th>
<th>Islam</th>
<th>Christianity</th>
<th>Hinduism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54%</td>
<td>100%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>14%</td>
<td>0%</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>25%</td>
<td>0%</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>( \chi^2 = 4.5; p = 0.59 )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If we also see the cross relation (Figure 15) Motivation of organ donation in Bangladesh and Gender, 54.50% male 48.50% female have response **to save someone’s life**, 10.40% male 1.50% female have response **Out of compassion/sympathy**, 16.90% male 16.20% female have response **for money**, and 18.20% male 33.80% female have response **as a ‘responsibility’**.

![Motivation of organ donation in Bangladesh and Gender](image)

**Figure 15.** Respondent response (Gender) Motivation of organ donation in Bangladesh (n=145) ($\chi^2 = 8.35; P = 0.04$)

If we also see the cross relation (Figure 16) Motivation of organ donation in Bangladesh and occupation To save someone’s life 56% Medical Doctor, 44% Administrative officer have shown their opinion. Where 56% Medical Doctor, 44% Administrative officer have shown response to Out of compassion/sympathy. For money 67% Medical Doctor, 33% Administrative officer have shown their response. In addition, as a ‘responsibility’ 65% Medical Doctor, 35% Administrative officer have shown their response.
**Figure 16.** Respondent response (Occupation) Motivation of organ donation in Bangladesh (n=145) ($\chi^2 = 1.38; P = 0.71$)

In addition to, from (Figure 17.) if we see the cross relation to Motivation to organ donation in Bangladesh and specialization health professional, 38.50 % Cardiologist, 36.10% surgeon, 29.40 Pediatrics have shown their opinion to save someone’s life. Whereas specialist have shown very poor response to out of compassion/sympathy, here only 5.6% surgeons have response. In addition to in the cross, relation with money figure shows that 23.10 % Cardiologist, 33.3% surgeon, 5.9% Pediatrics have shown their opinion. Also as for responsibility 38.5 % Cardiologist, 25.0% surgeon, 64.7% Pediatrics have shown their opinion. Here the test results also shows that there is significant similarities within the group.
Figure 17. Respondent response (specialization) Motivation of organ donation in Bangladesh (n=145) ($\chi^2 = 37.36; p <0.05$)

In addition to, from (Figure 18.) if we see the cross relation to Motivation to organ donation in Bangladesh and specialization health professional, 38.50% Cardiologist, 36.10% surgeon, 29.40 Pediatrics have shown their opinion to save someone’s life. Whereas specialist have shown very poor response to out of compassion/sympathy, here only 5.6% surgeons have response. In addition to in the cross, relation with money figure shows that 23.10% Cardiologist, 33.3% surgeon, 5.9% Pediatrics have shown their opinion. Also as for responsibility 38.5% Cardiologist, 25.0% surgeon, 64.7% Pediatrics have shown their opinion
Figure 18. Respondent responses (Age-Group) Motivation of organ donation in Bangladesh (n=145) ($\chi^2 = 36.41; p < 0.05$)

From figure 18. The cross relationship between motivation and age group show that, age under 25 group had more responses to save someone life. Where age group 36-45 shows more interested to organ donation in exchange with money. The test rest results also show that there is significant similarities with the group.
**Figure 19.** Respondent responses (Marital Status) Motivation of organ donation in Bangladesh (n=145) ($\chi^2 = 32.25; p <0.05$)

In the Figure 19. The cross relationship between motivation and marital status shows single respondent have response seventy two percentage to save someone life where twelve percentage shows their opinion for money.

![Bar chart showing motivation of organ donation in Bangladesh based on marital status.]

**Figure 20.** Respondent response (specialization) Risk Involved in Organ Donation (n=145) ($\chi^2 = 8.9; p =0.03$)

In the Figure 20. The cross relationship between risk involvement and specializations, all of them opined involvement of risk. Eighty-four percent cardiologist, seventy-two percent surgeon, hundred percent pediatrics response to involvement of risk. Test result also shows significant association i.e. $\chi^2 = 8.9; p =0.03$. 
**Figure 21.** Risk Involved with type of Organ Donation (n=145) ($\chi^2 = 15.79$; $p = 0.03$)

From figure 21. We see that health professional indicates in case of kidney donation 95% risk involve with kidney.

**Figure 22.** Bodily Effect on Organ Donation (n=145) ($\chi^2 = 26.35$; $p = 0.02$)
In the Figure 22. The cross relationship between Bodily Effect on Organ Donation and specializations, Infection and bodily weakness are most responses option. Test result also shows significant association i.e. $\chi^2 = 8.9; p = 0.03$.

Figure 23. Bodily Effect to the type of organ (n=145) ($\chi^2 = 14.25; p = 0.029$)

In the Figure 23. The cross relationship between Bodily Effect and to the type of Organ, Infections are more prone to occur in kidney transplantation rather than blood donation. Test results also show there is significant association within the group $\chi^2 = 14.25; p = 0.029$. 
Figure 24. Awareness of any local or international legislation with regards to organ donation (n=145) ($\chi^2 = 33.31; P<0.05$)

In the question of legislation, 46% cardiologist opined to local legislation where 52.9% pediatrics opined for both local and international legislation. Test results shows also strong association with the group $\chi^2 = 33.31; P<0.05$

Table 13. Need for having effective laws to govern the process of organ donation

<table>
<thead>
<tr>
<th>Need for having effective laws</th>
<th>Cardiology</th>
<th>Surgery</th>
<th>Pediatrics</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100.00%</td>
<td>94.40%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
<td>5.60%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

From table 13 we see that almost all of the health professional want effective laws to govern the process of organ donation and transplantation.
5. DISCUSSION

Bangladesh, Health professional mainly practice kidney related disease and blood donation. Kidney foundation [65] try to work their level best to support the people. As Bangladesh is a developing county, people with lower income face big challenge to bear the organ transplant related cost and we still have not heard any subsidy provided by government or any other organization to reduce the cost. Therefore, we most of the time seen that people with organ failure just taking general treatment and after certain time their condition being worse to get die. Very few have such opportunities to take treatment like transplantation [61]. If someone have such ability to bear treatment cost, it is hard to found donor. Often patient with organ failure have solvency to bear the cost on transplant treatment just due to scarcity of organ or donor. Patient with emergency hard to found any organ or donor. In Bangladesh, there is no such organize organ donation Bank, institution, or organization to keep the record of waiting list and interested peoples list who wanted to donate [37]. As very, few have proper knowledge to overall process. In collection of organ from cadaver shows quite mismanagement and often-in unethical manner. It is true that, we have seen advertisement in newspaper to buy organ and donor should be benefited by money; ironically we also seen that people put advertisement in newspaper to sell his or her own organ in return of money [27].

Blood donation have quite better condition in Bangladesh compared to other organ donation. Good numbers of people here voluntarily their donate blood though which is sufficient not sufficient to the requirement. Young generation are more likely to donate their blood. Blood donation in Bangladesh is an activity conducted by several different organizations Badhan, Shondhani, Quantum Lab, Bangladesh Red Crescent Blood Bank popular blood bank working in affiliate manner with hospital. Now social media base groups also active to assist in blood collection. Almost every public and private university in Bangladesh have blood donation group that works to create list of donor with their blood group and distribute them in necessities. Awareness to donate blood in Bangladesh quite good compared to other major organ. Blood bank groups often found to campaign, arrange seminar focusing the importance to donate blood in common people. In common, festival and fare where lot of people are gathered, blood banks often seen to encourage people to donate blood and try to collect blood instantly. In 2011, voluntary donation contribute about 25% of the nation's blood supply and 50–55% blood supply
from one-time donation for a specific patient and 20–25% blood supply from paid donors [62-65].

The aim of the study is to disclose the perceptions of health professionals toward ethical issues of organ donation and transplantation in Bangladesh and To analyze the significance of socio-demographic difference among respondent`s view to organ donation and transplantation. To analyze the legal background of organ donation and translation in national and international level.

To discover the above questions we have designed our questionnaire in four categories. We have collected socio-demographic information, Perceptions on Organ Donation, Ethical issues in organ donation and transplantation, Knowledge over organ donation and transplantation in our four respective sections.

From Previous study on organ donation in Bangladesh we have seen, population over 160 million out of them about 20 million are suffering from kidney diseases and another half a million are suffering from corneal diseases [61]. From our study, we have used n=145 individuals health professional respondent to seek their opinion towards organ donation and transplantation. Among the health professional in male (53.1%) and female (46.9%). We have collected data from medical doctor, head of clinics, head of medical administrative office, medical resident, nurse and interne doctor. From our study, we have seen a clear picture of our health professional towards organ donation and transplantation. From the results, what we see that big lacking of proper knowledge.

From our result, we see that, in the question of Health Professionals Personal Motivation towards Organ Donation, 64.5% male respondent shows their opinion that they would only like to donate under other special circumstances where 48.5% female respondent shows their opinion that they will think about it. Where test results chi-square ($\chi^2$) = 13.015; p =0.001 also indicates strong similarities within the group. In comparison with specialization health professionals 92.3% Cardiologist, 69.4% Surgeon, 17.6% Pediatrics shows their opinion that they would only like to donate under other special circumstances where test results chi-square ($\chi^2$) = 25.9; P < 0.05 also indicates strong similarities within the group. Here in the question of danger related with organ donation both male and female 22.1%, 50% respectively shows opinion most of the time
involved with danger where test results chi-square ($\chi^2$) = 12.97; $p = 0.002$ also indicates strong similarities within the group.

In comparison with specialization health professionals 53.8% Cardiologist, 25.0% Surgeon, 23.5% Pediatrics shows their opinion most of the time involved with danger though test results shows not such significant differences within the group.

From previous study Moniruzzaman [25] we have seen review of organ donation market in Bangladesh. This environment is also similar to other south Asian countries [27]. Our results also reveals the issues that health professionals are fear of like Mistreatment in case of emergency, Organ trafficking, Public hostility, Abuse of the system. Where 44.2% male and 35.3% female have shown their fair on organ trafficking and test results chi-square ($\chi^2$) = 10.175; $p = 0.017$ also shows similarities within the group. From others study we also seen organ trafficking is a burning issues for developing countries. Unauthorized buying and selling human organ syndicate getting labyrinth under black market. Also in case of specialization health professionals, 69.2% Cardiologist, 22.2% Surgeon, 70.6% Pediatrics have shown their fair on organ trafficking and test results chi-square ($\chi^2$) = 31.01; $P < 0.05$ also show similarities within the group.

From the results, Cronbach's Alpha statistics for checking the reliability of our statements. Here Cronbach's Alpha score is 0.546 for N=7 items, Higher Cronbach's Alpha score (close to 1) indicates strong practice environment with ethical issues. Therefore, from our result we can say that health professional are moderate with ethical issues in practice. Here scale statistics, Mean score for all respondent is 24.94 (35) and standard deviation is 3.44 for ethical statement.

From Mostarshid Billah [5] work, we see that health professional’s average knowledge towards organ donation. From our results, we have seen health professionals are confused with the overall organ donation and transplant treatment. In the case of knowledge, how the health professionals have learned about organ donation and transplantation. Quite good portion of respondent shows their opinion to Online/internet and from their seniors. Almost 38.6% and 34.5% respondent’s opined on internet and seniors respectively. Which truly indicate that there is very few program or campaign arranged to create awareness. In Bangladesh, most common type of organ donation is kidney and blood. Results shows that among all donation 15.8% Kidney and
77.2% Blood are being donated. Here in question of Main motivation of organ donation in Bangladesh 51.7% response to save someone life, 16.6% response to money. Which also truly shows a crude relation in organ donation and exchange of money.

Among specialization health professionals, 23.10% Cardiologist, 33.30% Surgeon, 5.6% Pediatrics have shown their opinion that organ donation involved with money and test results chi-square \( (\chi^2) = 37.362; P < 0.05 \) also shows similarities within the group.

From the results we seen in the cross tabulation among type of organ donated in Bangladesh and motivation towards organ donation, in the case of blood donation 55.40% opined to save someone life and 10.70% for money. On other hand, in the case of Kidney donation 17.40% opined to save someone life and 47.80% for money and test results chi-square \( (\chi^2) = 30.50; P < 0.05 \) also shows similarities within the group. In case of Kidney donation relation with money percentage quite high.

In organ donation, purpose specialized also shows involvement of risk. Almost 95% specialized health professional opined that involved risk with Kidney donation where in blood donation is 60. They also mentioned risk like bodily weakness, infection is involved with kidney donation. Where in the question of aware to legislation local or international all professional provide mixed answer. Test results chi-square \( (\chi^2) = 39.69; P < 0.05 \) also shows similarities within the group.
CONCLUSIONS

1. According to the analysis of the findings, the majority of medical doctors (respectively, 92.3% of cardiologist, 64.9% of surgeons, and 84.2% of pediatrics) evaluated positively the idea to donate living organs “irrespective of circumstances”. Nearly half of them exposed their concern regarding the obvious danger that donated organs could be misused, abused or misappropriated. Significantly, the issues of mistreatment in case of emergency, organ trafficking, and abuse of the system in organ donation were more frequently mentioned by more cardiologists and pediatricians have indicated comparing to surgeons ($\chi^2 = 31.01; p < 0.05$) and comparing to other respondents (administrators).

2. The analysis of study results revealed that the major ethical issues according to health professionals were organ trafficking. The dominant beliefs among respondents were associated with ethical considerations that “organ should not be available for selling or buying” and “Physicians should encourage their patients to sign an organ donation card”. The majority of medical doctors also preferred the rule that “selection of recipient should be chosen only by using medical criteria”. The physicians’ consultation and internet or online sources for information about organ donation and transplantation were indicated as the more prevalent in Bangladesh. Overall, no adequate legal monitoring in organ donation was emphasized by most of medical doctors and administrators.

3. The prevalence of motivation and attitudes towards organ donation was associated with respondents’ specialization, gender and religion. Respectively, specialization among all kidney donation 48% was related to exchange of money and test results also shows very significant association as $p<0.05$. It was also revealed that health medical doctors comparing to medical administrators have more fear on miss management of organ and organ trafficking. In different age group young health professionals was more devote to organ donation. Religious beliefs were indicated as a major factor deterring many people from expressing a motivation to donate
RECOMMENDATIONS

According to the conclusions of the study, the following recommendations for further improvement of organization and management of the issues of organ donation and transplantation in Bangladesh health care system, I would recommend:

1. Bangladesh Medical Association and Health Ministry should initiate set up Organ Donation Bank to organize collection of organ and distribute among the patients. Also, have to make publicity among people to create mass awareness to donate organ and overall perspective on health issues.

2. It is high time Bangladesh government should focus more on organ donation and transplantation. Government should impose laws focusing the right distribution and management of organ. Also, need amendment to existing laws. Moreover, authority should have to ensure the implication of laws in right situations thus people with organ failure have equal rights in getting service related with organ donation and transplantations.

3. Medical colleges and universities should focus more on organ donation and transplantation. Every institute related with health service should set up a part, which will overlook and organize the case with organ donation. Medical authorities should take more initiative to acknowledge the new students and stuffs.

4. Governmental and Non-Governmental organizations should work on to look the real scenario on organ donation and transplantation over the country. Based on the work robust step should take to control the overall country for providing organ donation and transplantation service.

5. Laws enforcement focusing on organ trade should be imposed and certain instruments of its’ monitoring should have formed to observe the illegal organ trade in local and international boundaries.
REFERENCES


APPENDIX 1. APPROVAL OF BIOETHICS CENTER at LUHS

LIETUVOS SVEIKATOS MOKSLŲ UNIVERSITETAS
BIOETIKOS CENTRAS

Kodas 302536989, Tilžės g. 18, VI8-471 81 Kaunas, tele: (8 37) 327233, www.lsmuni.lt, el,p.: sochumkatedrafolsmuni.lt

Medicinos akademijos (MA) 2017-06-09 Nr. BEC-VS(M)-139
Antrosios pakopos studijų programa_
VISUOMENĖS SVEIKATA (užsieniečiams)

I k. magistr. Nargis Negar Sarclar

DEL PRITARIMO TYRIMUI


Bioetikos centro vadovo pavaduotoja prof. Z. Liubarskienė
Appendix 2. Study questionnaire (English)

ETHICAL ISSUES IN ORGAN DONATION AND TRANSPLANTATION IN BANGLADESH: SURVEY OF HEALTH PROFESSIONAL VIEWS

This is an anonymous questionnaire based interview, and will take approximately 10 minutes to complete. The survey aims to reveal the perceptions of health care professionals on ethical issues in organ donation and transplantation in Bangladesh. You should choose the option they deem most appropriate for each question. Some questions may require them to choose more than one option. All data will be used only for scientific purposes, so your confidentiality will be guaranteed. If having any questions regarding the survey, you can contact the researcher Nargis Negar Sardar by email nnargis2015@gmail.com

1. Socio-demographic characteristics

1. Age (in years): ____________
2. Gender: 
   a. Male
   b. Female
3. Occupation: 
   a. Medical doctor
   b. Nurse
   c. Head of the clinics
   d. Medical resident
   e. Administrator of health services
   f. Other (please indicate) ____________
4. Specialization: 
   a. Cardiology
   b. Surgery
   c. Pediatrics
   d. Intensive care……………………….etc.
   e. 
5. Marital Status: 
   a. Single (never married)
   b. Married
   c. Engaged to be married
   d. Divorced
   e. Widowed
   f. Separated
6. Religion: 
   a. Islam
   b. Christianity
   c. Hinduism
   d. Others (specify) ____________
7. Cumulative monthly household income:–
   a. ≤ Rs. 5, 000
   b. > Rs. 5, 000 – 20,000
   c. > Rs. 20,000- 50,000 
   d. > Rs. 50,000 – 80,000
   e. > Rs. 80,000 – 100,000
   f. ≥ Rs. 100,000

2. Perceptions on Organ Donation
8. Your attitude towards the possibility of your own organs being used for donation? (Please rate on a scale of 1-4 where 1 represents lowest level and 4 represents highest level of motivation)
   a. Would never consider donating an organ (1)
   b. Will think about it (2)
   c. Would only like to donate under other special circumstances (3)
   d. Would definitely want to donate irrespective of circumstances (4)
9. If you picked option d to Q 12, then please specify the special circumstances?

______________________________________________________________________________

10. Does your religion allow organ donation?
    a. Yes                                    b. No                                    c. Don’t know

11. Do you believe that there is a danger that donated organs could be misused, abused or misappropriated to donors in Bangladesh?
    a. Never                                  b. Sometimes                              c. Often
    d. Most of the time                       e. All the time

12. Please specify what kind of danger could be imposed by organ donation?
    a. Mistreatment in case of emergency     b. Organ trafficking
    c. Public hostility                      d. Abuse of the system
    e. other…
    f. Others (please specify)               

13. Which of the following factor holds the greatest importance to you when donating an organ? (Choose any options)
    a. Relation to the person               b. Age of recipient
    c. Religion of recipient                d. Health status of recipient
    e. Substance abuse of the body          f. Assurance of the respectful treatment of the organ
    g. None of the above

14. For living donation, who should give consent?
    a. Donor                                 b. His family
    c. His spouse                            d. His friends
    e. His doctor                            f. Others (specify)
15. For donation after death, who should give consent?
   a. No one  b. Family
   c. Spouse  d. Doctor
   e. Friend  f. Others (specify) ________________

16. Who should make such decisions about organ donation in case of unclaimed dead bodies?
   a. Charitable organization
   b. Medical colleges / doctors
   c. Police
   d. A judge
   e. No one

17. What do you think, can parents / guardians make substitute decision making for mentally disabled persons in the regard of organ donation?
   a. Yes  b. No  c. Don’t know

17. Should organ donation be promoted by health professionals?
   a. Yes  b. No  c. Don’t know

19. If you answered No to Q 22, then why not?
   a. Fear that organs could be wasted / mistreated
   b. Would not want to be cut open or mutilated
   c. Religious beliefs
   d. Family/parent refusal
   e. Harmful for the donor
   f. Fear of postoperative pain
   g. Can lead to organ trade / violation of rights
   h. Other reason (please specify) __________________________________________

3. Ethical issues in organ donation and transplantation

<table>
<thead>
<tr>
<th>STATEMENTS</th>
<th>Absolutely agree</th>
<th>Agree</th>
<th>Nor agree, nor disagree</th>
<th>Disagree</th>
<th>Absolutely disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. The public is properly informed about organ donation?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
</tbody>
</table>
21. Organs should not be available for selling or buying
22. Organ transplantation should be conducted only if a person has a donor card
23. Physicians should encourage their patients to sign organ donation card
24. Organ donation after transplantation does not improve the quality of human life
25. The selection of recipient should be chosen by using only medical criteria
26. All patients should have an equal access to organ transplantation disregarding to their social status

4. Knowledge over organ donation and transplantation
30. The term ‘Organ Donation’ means?
   a. the removal of the tissues of the human body from a cadaver
   b. the removal of the tissues of the human body from a living donor.
   c. the removal of the tissues of the human body for the purpose of transplantation to another person
   d. Can include transfer of cell/ova/fetus/sperm
   e. All of the above
   f. Others (specify) __________________________________________________________
31. What sources provide most objective and right information on organ donation? (You can choose more than one option)
   a. Heard from a doctor
   b. Internet /online resources
   c. TV
   d. Radio
   e. Newspaper or magazines
   f. Friend or colleague
   g. Other (specify) ____________________________

32. What do you think what is the main motivation of organ donation in Bangladesh?
   a. To save someone’s life
   b. Out of compassion/sympathy
   c. For money
   d. As a ‘responsibility’
   e. Others (specify) ____________________________

33. What organs can be donated and transplanted in your clinics? (You can choose more than one option)
   a. Kidney
   b. Blood
   c. Heart
   d. Eyes
   e. Liver
   f. Skin
   g. Bone marrow
   h. Lungs
   j. All of above
   i. Others (Please specify) _______________________

34. Does organ donation involve any risks?
   a. Yes
   b. No
   c. Don’t know

35. If you answered Yes to Q 34, then which risk, in your opinion, is the most important in organ donation?
   a. Infection
   b. Bodily weakness
   c. Anxiety and depression
   d. Pain
   e. Bleeding
   f. All of the above
   g. None of the above
   h. Others (specify) ____________________________

36. Are you aware of any local or international legislation with regards to organ donation?
   a. Local legislation
   b. International legislation
c. Both of the above  d. None of the above

37. Is there any need for having effective laws to govern the process of organ donation?
   a. Yes  b. No  c. Don’t know

*THANKYOU FOR YOUR VALUABLE TIME & EFFORT
*ANY SUGGESTIONS/OPINIONS REGARDING THE QUESTIONNAIRE & ITS IMPROVEMENT ARE MOST WELCOME