

# Concerns Regarding Organ Donation among Adult Patients with Different Health Problems in Egypt

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## Abstract:

Organ donation is the charitable act or gift of an organ to help someone who needs a transplant. Some people have religious or cultural objections to donate organs. The study aimed to describe basic knowledge and attitude (concerns) regarding organ donation among adult patients with different medical surgical health problems in Cairo-Egypt. Sample: A Convenient sample of 1000 adult patients with different health problems from different urban and rural areas was recruited for this study. Design: A descriptive comparative research design was utilized to fulfill the aim of the study and answer the stated research questions. Setting: The study was conducted at ten medical surgical wards at one educational hospital, affiliated to Cairo University. Tools: Two tools were utilized to collect data pertinent to the study which are: Personal Structured Questionnaire, and Structured Questionnaire about Basic Knowledge, and Attitudes regarding Organ Donation. Results: The study findings revealed that both urban and rural inhabitants' patients were nearly equal regarding their knowledge and attitude toward organ donation. Current study findings showed no statistical significant difference in familiarity about the term of organ donation among study sample. Regarding attitude toward organ donation, no statistical significant differences were found among study sample in their willingness about organ donation regardless the physical condition as well as religion. Conclusion: The study concluded that being an urban or rural inhabitant didn't affect the willingness to donate an organ but it significantly affected the level of knowledge regarding organ donation. Recommendations: Replication of the study regarding organ donation on larger probability sample as the ensuing improved understanding of this process can be used to inform and develop clinical practice and future research in this area.

**Keywords:** Concerns, knowledge, attitude, organ donation, health problems.

## 1. Introduction

Thousands of lives in the world can be saved by organ transplantation. In the Holy Quran it has been mentioned that *"and whoever saves the life of a person is as if he has saved the life of the whole of humankind"* - The Holy Quran Surah Al-Maeda, Verse 32.

Organ donation is the donation of biological tissue or an organ of the human body, from a living or dead person to a living recipient in need of a transplantation (Wikipedia, 2013). Organ transplantation has become an accepted medical treatment for end-stage organ failure. Organ and tissue donation and transplantation provide a second chance at life for thousands of people each year (organdonor.gov, 2013). Many patients die or experience prolonged dependency because of lack of organs (Howard, 2007). Live organ donation offers a valuable opportunity for transplantation, but cadaveric organ donation extends the possibility for reducing the gap between patients' needs and the organ supply (United Network for Organ Sharing, 2008). Living organ donation is often described as related "to be connected by blood or marriage" or non-related "genetically related donors and recipients", that is, between family members. In the early days of transplantation, all donors were genetically related (Saleem, et al., 2009). In many countries, this type of living donation is still the only form that is legally permitted. Over the years, it has become medically possible to donate an organ to a recipient with whom the donor has no genetic relationship (Ratner, et al., 2010).

Efforts to initiate a national organ transplant program have consistently failed in the Egyptian Parliament since the late 1970s. There has been legal opposition to the recognition of "brain-death" as "legal death" and organs are not legally or routinely procured from heart-beating brain-dead patients as they are elsewhere. However, routine transplants are limited to corneas taken from systemically dead corpses, and to kidneys and liver lobes taken from living donors (Seymour, 2010).

Organ donation has been taken up in the mass media – in print, television, radio, films, and religious places – reaching a level of public. Organ donation was introduced into Egypt as kidney transplantation had been carried out since the 1970s and cornea transplants since the 1950s (Danovitch, Shapiro, & Lavee 2011). Although these operations are carried out in a number of Egyptian public and private hospitals, there is still a considerable amount of debate about the ethical nature of the practice of organ transplantation in its present forms. Patients, family members, physicians, and others in Egypt differ in opinions about whether it is permissible to take a body part from the dead, whether it is a safe or beneficial practice to cut into a healthy

living donor, whether organ transplantation actually “saves lives”, and about the vulnerability of poor Egyptian bodies to a black market in organs and to organ theft (Arabella & Simpkin, 2010).

Roman Catholic Church support organ donation on the grounds that it constitutes an act of charity and provides a means of saving a life, although certain bodies, such as the pope's are not to be used (Associated Press, 2011). Islamic scholars in Saudi Arabia have been influential in actually promoting organ donation. Donation is sanctioned by religious and national law in Iran, but there is some religious dissent from the ‘official’ Iranian Islamic position. A study in Pakistan was done by Khan, et al., at (2011) to determine the knowledge, attitudes, awareness, and determinants of organ donation and transplantation in sample population found that some religious scholars think that organ transplantation is prohibited in Islam, while other think that only living persons can donate the body parts as mutilation and disfigurement of dead bodies is prohibited. Also, it was found that 45% of the Arab Bedouin in Israel believed that Islam prohibits organ donation and a dispute between religious authorities has almost completely inhibited cadaveric donation in Egypt (Saadia, Rusdi, Alsheha, Saeed, & Rajab, 2010). The practice of the commercial sale of organs has been widely reported in Muslim countries such as Pakistan, Iran, Iraq and even Egypt. Where transplantation does take place in Islamic countries, living donation remains much commoner than cadaveric transplantation. This variability between different Muslim communities throughout the world is in part due to the loosely structured organization of Islam which gives considerable autonomy to individual religious leaders (Ballala, Shetty, & Malpe, 2011).

Organ donation problems are not unique to one country; the lack of available organs for transplants has been a serious health problem worldwide (Fung, 2010). As reported by Danovitch, Shapiro, & Lavee, (2011) people all over the world are not donating their organs after they die, and hence there are a lot of men, women, and children waiting for organ transplants. Worldwide, some people have religious or cultural objections to donate organs. Living donors-those who volunteer a kidney or parts of their liver or lungs are understandably reluctant. They must undergo potentially life-threatening surgery and put their own future health at risk. More and more people with HIV and/or hepatitis B and/or hepatitis C are going to need organ transplants, particularly liver transplants. Khan, et al., at (2011) viewed that determination of the knowledge, attitudes, awareness, and determinants of organ donation is the initial strategy to promote organ donation. A recent review of the literature done by Wakefield, Watts, Homewood, Meiser, and Siminoff, (2011) showed that individuals who are younger, are female, have higher educational levels and/or socioeconomic status, have fewer religious beliefs, have higher knowledge about organ donation, and have fewer concerns about manipulation of a deceased donor’s body are more likely to have positive attitudes toward donation and are more willing to donate.

Nurses play several roles in the field of organ donation (Robin, 2013); nurses are often the first clinicians to broach the difficult subject of organ donation with families. When patient becomes critically ill, it is often the nurses who make the assessment to establish their suitability; they act as advocate for patients who are potential donors to ensure their end of life wishes are upheld (RCN Policy Briefing, 2009). Some nurses known as procurement nurses coordinate the harvesting and collection of organs. Others work with patients waiting for transplant or with individuals who have already had organ transplants. Hospital nurses who work on regular medical or surgical floors are also sometimes asked about organ donation by patients or their families (Robin, 2013). The organ donation nurses provide information and support to the family of a potential organ donor in collaboration with the critical care team. In addition they support and advise the clinical team caring for a patient and manage the donation process (NHS Blood and Transplantation, 2013).

### **1.1. Significance of the Study:**

For many years, Spain has had a donor rate over 30 per million populations (pmp), and in 2009, it was 34.4 pmp. Portugal is the only other country with a rate >30 pmp, achieved for the first time in 2009. A number of other major countries have donation rates of 20–30 pmp (including France, Italy, and the USA), whereas in the UK, the rate is now 16.4 pmp (Rudge, Matesanz, Delmonico, & Chapman, 2012). More than 29 countries have membership of the Middle East Society for Organ Transplantation (MESOT), and collectively these countries have a population > 600 million. The number of patients on waiting lists for organ transplantation increases with time, and the gap is growing between supply and demand of organs in the MESOT countries, so, a number of people all over the world die waiting for an organ. Living organ donation is the most widely practiced type of donation in the Middle East and includes kidney and partial liver. Cadaveric organ donation has great potential in the Middle East; nevertheless, this source is still not used properly because of the continued debate in the medical community about the concept of brain death and inadequate awareness of the public of the importance of organ donation and transplantation in many countries in this region (Shaheen, 2009).

Organ donation remains an extremely sensitive and emotive issue where many factors need to be carefully taken into account. Nurses play a major role in supporting patients and families who are going through the donation process. Nurses not only provide emotional support to families and staff; organ donation nurse specialist also provide hands on expert care to potential donors to ensure that donation is possible (RCN Policy Briefing, 2009). Organ donation nurses' specialist has the detailed knowledge and expertise to lead the donation

process in collaboration with the clinical team; therefore it is important that they are involved in both the planning and family approach for donation as early as possible. This ensures that families are provided with the information and support they require to make an informed decision about organ donation (NHS Blood and Transplantation, 2013).

In Egypt there is a high prevalence of chronic liver diseases and chronic renal failure, transplantation being the best solution for both. Through observation in the clinical setting, it was observed that many patients were waiting for a donor and many times they died waiting for a donor. Organ donation and transplantation has been the subject of extensive international interest in the past 10 years at both governmental and professional levels. This study comes at a point in time when organ donation is an actively debated bioethical and medical issue in Egypt, so, this research is relevant and timely. An assessment of concerns of individuals' towards organ donation in the current study would contribute to better understanding of concerns (knowledge and attitude) toward organ donation and would help in increasing awareness levels and to propagate knowledge toward this matter. Therefore, the aim of the study was to describe basic knowledge and attitude (concerns) regarding organ donation among adult patients with different medical surgical health problems in Cairo-Egypt.

### **1.2. Operational definition:**

Concerns reflect knowledge and attitude in this study.

### **1.3. Aim of the Study:**

The aim of the study was to describe basic knowledge and attitude (concerns) regarding organ donation among adult patients with different medical surgical health problems in Cairo-Egypt.

## **2. Subjects & Methods**

To fulfill the aim of this study, the following research questions were formulated:

- a-What are the basic knowledge and attitude regarding organ donation among urban patients with different medical and surgical health problems?
- b- What are the basic knowledge and attitude regarding organ donation among rural patients with different medical and surgical health problems?
- c- What is the difference in basic knowledge and attitude regarding organ donation between urban and rural patients with different medical and surgical health problems?

### **2.1. Design**

A descriptive comparative research design was utilized to fulfill the aim of the study and answer the stated research questions.

### **2.2. Setting:**

The study was conducted at ten different medical-surgical wards at one educational hospital, affiliated to Cairo University.

### **2.3. Subjects**

A Convenient sample of 1000 adult patients from different urban and rural areas was recruited for this study, they are divided into two groups based on their residence. All consenting significant adult individuals, with the following criteria: adult male and female patients, having either chronic or acute illness, aged above 20 years who agree to participate in the study constituted the study sample.

### **2.4. Tools:**

Data of this study was collected using the following questionnaire: This questionnaire included questions related to knowledge, and attitudes toward organ donation. Age, sex, education, occupation, place of residence, religion and only one item about disease history were also recorded.

**1. Personal Structured Questionnaire**, it consisted of 9 items including the socio demographic data (8 items), and only one item asking about disease history.

**2. Structured Questionnaire about Basic Knowledge, and Attitudes toward Organ Donation.** The tool was designed by the researchers based on extensive literature review; it consisted of 16 items: 6 items related to basic knowledge and 10 items related to attitude; it assessed basic knowledge and attitudes toward organ donation. Knowledge of the respondents was assessed through questions regarding meanings of the term "organ donation", awareness of donation from living people as well as cadavers, and the sources of information for their knowledge. Attitudes of the respondents was determined through questions regarding their opinions regarding organ donation such as the willingness to donate organs in the future, influence of religion on attitude towards organ donation, and factors influencing choice of recipient for future donation. In addition, enquiring about actual donation of any

organ and any untoward effects observed by individuals in the process that they attribute to organ donation. The questionnaire was objective in that there were definite options for all questions from which the interviewees had to pick one or more than one.

### **Tool Validity and Reliability**

The designed tools were submitted to a panel of five experts in the field of medical surgical nursing to test the content validity. Modification was carried out according to the panel judgment on clarity of sentences and appropriateness of content. Cronbach's Alpha test was utilized to establish tool reliability with a value of 0.805.

### **2.5. Ethical Consideration**

Permission to conduct the proposed study was obtained from the hospital authorities of hospital affiliated to Cairo University. Prior to the initial interview, the researchers introduced themselves to participants who met the inclusion criteria; each potential participant was fully informed with the purpose and nature of the study, and then an informed consent was taken from participants who accept to participate in the study. Following their acceptance to take part, each question was addressed one by one, with the interviewer explaining any difficulties along the way. The patients were assured about the confidentiality and ethical principles that would be followed. The researchers emphasized that participation in the study is entirely voluntary and withdrawal from the study doesn't affect care provided; anonymity and confidentiality were assured through coding the data.

### **2.6. Pilot Study**

Once permission was granted to proceed with the proposed study, a total of 10% of the sample were selected for pilot (100 adult patients) to test the usability, time taken to respond, feasibility and clarity of the used tools/instructions and finally modifications were done based on the results. The initial time requirement was 15-20 minutes, after suitable modification of the tools, the questionnaire was distributed. The sample included in the pilot study was excluded from the final study sample.

### **2.7. Procedure**

Once permission was granted to proceed with the proposed study, the inpatients meeting the inclusion criteria were interviewed and divided into two equal groups according to their place of residence. Data were collected by the researchers through face to face interview based on a structured, pre-tested (piloted) questionnaire. During interview, the purpose, nature of the study, and tools were explained and written consent was taken from educated patients and oral consent was taken from uneducated patients who accept to participate in the study. The tool read, explained and the choices of answers from respondents were recorded by the researchers. Each respondent was interviewed individually throughout data collection; total time consumed by each respondent was 10-15 minutes. Data was collected along 6 months over the academic year 2011-2012.

Knowledge of the study subjects was assessed through questions regarding familiarity with the term "organ donation", the sources of information for their knowledge, reasons for organ donation, organs donated, taking donated organs from whom (dead as well as alive people), and presence of threats with organ donation. Attitudes of the study subjects regarding organ donation was determined through questions regarding willingness to donate organs in the future, reasons for refusing organ donation, and factors influencing choice of recipient for future donation.

### **3. Results:**

Study findings will be presented in relation to personal characteristics of the study subjects, basic knowledge about organ donation, attitude of the study subjects toward organ donation, and finally the comparison of organ donation related basic knowledge and attitude among the study subjects.

Table (1) showed that 32.8% & 41.4% respectively of both urban and rural inhabitants' patients were aged from 20-30 years represented. 55.2% & 51.2% respectively of them were females, and married (51.2%, & 64.2% respectively). 38% & 54.2% respectively of patients had governmental jobs, 36.8% of urban inhabitants' patients had university level of education while 36.6% of rural patients had primary level of education. Regarding religion, equal percentages in both groups were Moslems represented 78% in each group. 54.8% & 39% respectively of study sample having income up to 500 Egyptian pounds; urban and rural inhabitants' patients were caring for 0-2 persons (59% & 46.6% respectively), however most of them had chronic illness represented 95.4% & 82.8% respectively.

*Table (1): Distribution of socio-demographic and personal characteristics among urban and rural inhabitants patients (n=1000).*

| Variables                         | Urban Inhabitants Pts<br>(500) |      | Rural Inhabitants Pts<br>(500) |      |
|-----------------------------------|--------------------------------|------|--------------------------------|------|
|                                   | No                             | %    | No                             | %    |
| <u>Age:</u>                       |                                |      |                                |      |
| 20-30                             | 164                            | 32.8 | 207                            | 41.4 |
| 31-40                             | 96                             | 19.2 | 118                            | 23.6 |
| 41-50                             | 145                            | 29.0 | 97                             | 19.4 |
| 51-60                             | 74                             | 14.8 | 59                             | 11.8 |
| 61-above                          | 21                             | 4.2  | 19                             | 3.8  |
| <u>Sex:</u>                       |                                |      |                                |      |
| Male                              | 224                            | 44.8 | 244                            | 48.8 |
| Female                            | 276                            | 55.2 | 256                            | 51.2 |
| <u>Religion:</u>                  |                                |      |                                |      |
| Moslem                            | 390                            | 78.0 | 390                            | 78.0 |
| Christian                         | 110                            | 22.0 | 110                            | 22.0 |
| <u>Education:</u>                 |                                |      |                                |      |
| Uneducated                        | ---                            | ---- | 69                             | 13.8 |
| Read & write                      | 7                              | 1.4  | 52                             | 10.4 |
| Primary                           | 62                             | 12.4 | 183                            | 36.6 |
| Secondary                         | 88                             | 17.6 | 39                             | 7.8  |
| University                        | 184                            | 36.8 | 118                            | 23.6 |
| Technical diploma                 | 103                            | 20.6 | 21                             | 4.2  |
| High education                    | 56                             | 11.2 | 18                             | 3.6  |
| <u>Employment:</u>                |                                |      |                                |      |
| Student                           | 93                             | 18.6 | 56                             | 11.2 |
| Governmental                      | 190                            | 38.0 | 271                            | 54.2 |
| Non-governmental                  | 80                             | 16.0 | 67                             | 13.4 |
| Not employed                      | 24                             | 4.8  | 26                             | 5.2  |
| House-wives                       | 97                             | 19.4 | 73                             | 14.6 |
| Retired                           | 16                             | 3.2  | 7                              | 1.4  |
| <u>Marital status:</u>            |                                |      |                                |      |
| Single                            | 192                            | 38.4 | 136                            | 27.2 |
| Engaged                           | 28                             | 5.6  | 20                             | 4.0  |
| Married                           | 256                            | 51.2 | 321                            | 64.2 |
| Divorced                          | 11                             | 2.2  | 12                             | 2.4  |
| Widow                             | 10                             | 2.0  | 11                             | 2.2  |
| Separated                         | 3                              | 0.6  | ---                            | ---- |
| <u>Income:</u>                    |                                |      |                                |      |
| 0-500                             | 274                            | 54.8 | 195                            | 39.0 |
| 501-1000                          | 138                            | 27.6 | 122                            | 24.4 |
| 1001-2000                         | 72                             | 14.4 | 117                            | 23.4 |
| 2001- above                       | 16                             | 3.2  | 66                             | 13.2 |
| <u>Caring for:</u>                |                                |      |                                |      |
| 0-2 persons                       | 295                            | 59.0 | 233                            | 46.6 |
| 3-4 persons                       | 87                             | 17.4 | 168                            | 33.6 |
| 5&above                           | 118                            | 23.6 | 99                             | 19.8 |
| <u>Type of Disease (illness):</u> |                                |      |                                |      |
| Chronic illness                   | 477                            | 95.4 | 414                            | 82.8 |
| Acute illness                     | 23                             | 4.6  | 86                             | 17.2 |

As shown in Table (2), regarding organ donation related knowledge 96.8 & 97.6% respectively of urban and rural inhabitants' patients were familiar with organ donation term. Television and radio represented the main source of information for both groups (52.4% & 49.4% respectively). An equal percentage (57.4%) in both groups reported that the main reason for organ donation was to save lives for individuals; moreover, 36.2% & 43.2% respectively of urban and rural inhabitants' patients choose kidney to be the donated organ represented. 72.4% & 75.4 % respectively of urban and rural inhabitants' patients reported that there was threat from organ donation. 44.2% & 53.4% respectively of urban and rural inhabitants' patients agreed that organ donation could

be taken from either lived or dead persons represented.

*Table (2): Distribution of organ donation related knowledge among urban and rural inhabitants patients (n=1000).*

| Variables   | Urban Inhabitants Pts |      | Rural Inhabitants Pts |      |
|---|-----------------------|------|-----------------------|------|
|   | No                    | %    | No                    | %    |
| <u>Familiarity with the organ donation term :</u> |                       |      |                       |      |
| No  | 16                    | 3.2  | 12                    | 2.4  |
| Yes   | 484                   | 96.8 | 488                   | 97.6 |
| <u>Source of information:</u>                     |                       |      |                       |      |
| Doctors   | 22                    | 4.4  | 71                    | 14.2 |
| Internet  | 101                   | 20.2 | 88                    | 17.6 |
| Television/radio                                  | 262                   | 52.4 | 247                   | 49.4 |
| Magazines/news papers                             | 82                    | 16.4 | 63                    | 12.6 |
| Friends   | 33                    | 6.6  | 31                    | 6.2  |
| <u>Reasons for organ donation:</u>                |                       |      |                       |      |
| Save life   | 287                   | 57.4 | 287                   | 57.4 |
| As a mercy  | 76                    | 15.2 | 71                    | 14.2 |
| For money   | 104                   | 20.8 | 114                   | 22.8 |
| As a responsibility                               | 33                    | 6.6  | 28                    | 5.6  |
| <u>Organs donated:</u>                            |                       |      |                       |      |
| Kidney  | 118                   | 36.2 | 216                   | 43.2 |
| Blood   | 132                   | 26.4 | 179                   | 35.8 |
| Heart   | 26                    | 5.2  | 13                    | 2.6  |
| Eye   | 43                    | 8.6  | 24                    | 4.8  |
| Liver   | 53                    | 10.6 | 28                    | 5.6  |
| All of them                                       | 65                    | 13.0 | 40                    | 8.0  |
| <u>Taking donated organs from:</u>                |                       |      |                       |      |
| Dead person                                       | 136                   | 27.2 | 62                    | 12.4 |
| Alive person                                      | 100                   | 20.0 | 128                   | 25.6 |
| Either dead or alive person                       | 221                   | 44.2 | 267                   | 53.4 |
| I don't know                                      | 43                    | 8.6  | 42                    | 8.6  |
| <u>Presence of threat with organ donation:</u>    |                       |      |                       |      |
| No  | 48                    | 9.6  | 45                    | 9.0  |
| Yes   | 362                   | 72.4 | 377                   | 75.4 |
| I don't know                                      | 90                    | 18.0 | 78                    | 15.6 |

Regarding attitude toward organ donation, table (3) showed that 66.2% & 54% respectively of both urban and rural inhabitants' patients had no willingness to donate their organs. 22.8% & 31.4% respectively of urban and rural inhabitants' patients did not give their reasons for refusing donation represented. More than half of both urban and rural inhabitants' patients did not want to donate their organs to any one regardless his/her social relation to the recipient, smoking condition, alcohol addiction (intake), physical condition, mental status, as well as his/her religion. 64.6% & 65.4% respectively of urban and rural inhabitants' patients reported that the most important thing they could consider when they decided to donate their organs was when the recipient is a close relative to them specially being a parent represented. This could reflect the study subjects' negative attitude toward organ donation.

Table (3): Distribution of attitude toward organ donation among urban and rural inhabitants patients (n=1000).

| Variables   | Urban Inhabitants Pts |      | Rural Inhabitants Pts |      |
|---|-----------------------|------|-----------------------|------|
|   | No                    | %    | No                    | %    |
| <u>Willingness to donate organs in the future:</u>                |                       |      |                       |      |
| No  | 331                   | 66.2 | 270                   | 54.0 |
| Yes   | 69                    | 13.8 | 112                   | 22.4 |
| I don't know  | 100                   | 20.0 | 118                   | 23.6 |
| <u>Reasons for refusing organ donation:</u>                       |                       |      |                       |      |
| No reason   | 114                   | 22.8 | 157                   | 31.4 |
| Fear from abuse   | 32                    | 6.4  | 90                    | 18.0 |
| Presence of wounds  | 70                    | 14.0 | 44                    | 8.8  |
| Religious beliefs   | 74                    | 14.8 | 44                    | 8.8  |
| Family refusal  | 2                     | 0.4  | 9                     | 1.8  |
| Fear from harm  | 32                    | 6.4  | 27                    | 5.4  |
| Post-operative pain   | 8                     | 1.6  | 7                     | 1.4  |
| Intimidate patient's rights                                       | 27                    | 5.4  | 23                    | 4.6  |
| Keeping the body one part   | 51                    | 10.2 | 23                    | 4.6  |
| Unethical to take organs from dead                                | 39                    | 7.8  | 12                    | 2.4  |
| Trade donated organ   | 41                    | 8.2  | 35                    | 7.0  |
| Never think about donation  | 10                    | 2.0  | 29                    | 5.8  |
| <u>Organ donation choice (To whom):</u>                           |                       |      |                       |      |
| To no one   | 277                   | 55.4 | 271                   | 54.2 |
| To a family member  | 223                   | 44.6 | 229                   | 45.8 |
| <u>Organ donation choice and smoking history of recipient:</u>    |                       |      |                       |      |
| Neither smoker nor non-smoker                                     | 293                   | 58.6 | 282                   | 56.4 |
| Non-smoker  | 207                   | 41.4 | 218                   | 43.6 |
| <u>Organ donation choice and alcohol intake of recipient:</u>     |                       |      |                       |      |
| Neither alcoholic nor non- alcoholic                              | 300                   | 60.0 | 285                   | 57.0 |
| Non- alcoholic  | 200                   | 40.0 | 215                   | 43.0 |
| <u>Organ donation choice and age of recipient:</u>                |                       |      |                       |      |
| No one  | 303                   | 60.6 | 303                   | 56.6 |
| Less than 30 years  | 168                   | 33.6 | 181                   | 36.2 |
| From 30-50 years  | 29                    | 5.8  | 36                    | 7.2  |
| <u>Organ donation choice and physical condition of recipient:</u> |                       |      |                       |      |
| No one  | 310                   | 62.0 | 286                   | 57.2 |
| Handicapped   | 119                   | 23.8 | 154                   | 30.8 |
| Normal (not handicapped)  | 71                    | 14.2 | 60                    | 12.0 |
| <u>Organ donation choice and mental condition of recipient:</u>   |                       |      |                       |      |
| No one  | 280                   | 56.0 | 282                   | 56.4 |
| Handicapped   | 183                   | 36.6 | 203                   | 40.6 |
| Normal (not handicapped)  | 37                    | 7.4  | 15                    | 3.0  |
| <u>Organ donation choice and religion of recipient:</u>           |                       |      |                       |      |
| No one  | 276                   | 55.2 | 289                   | 57.8 |
| Person with the same religion                                     | 86                    | 17.2 | 147                   | 29.4 |
| Person with different religion                                    | 138                   | 27.6 | 64                    | 12.8 |
| <u>The most important factors when deciding to donate organ :</u> |                       |      |                       |      |
| Being a relative  | 323                   | 64.6 | 327                   | 65.4 |
| Age of the recipient  | 13                    | 2.6  | 6                     | 1.2  |
| Religion of the recipient   | 7                     | 1.4  | 15                    | 3.0  |
| Physical condition of the recipient                               | 71                    | 14.2 | 87                    | 17.4 |
| Appropriate manipulation of the organ                             | 86                    | 17.2 | 60                    | 12.0 |

Table (4) showed high statistical significant differences between personal characteristics and attitude

toward organ donation among urban inhabitants' patients. While no statistical significant differences were found in sex, income, and type of disease in rural inhabitants' patients, with p values of 0.263, 0.167 & 0.065 respectively. However, in table (5), statistical significant differences were found in regard to knowledge about organ donation among both urban and rural inhabitants' patients regarding all studied variables except in familiarity with the term with a p value of 0.053.

*Table (4): Personal characteristics and willingness toward organ donation among urban and rural inhabitants patients (n=1000).*

| Variables<br>(Personal characteristics & willingness toward organ donation) | Urban Inhabitants Pts |        | Rural Inhabitants Pts |        |
|---|-----------------------|--------|-----------------------|--------|
|   | X <sup>2</sup>        | P      | X <sup>2</sup>        | P      |
| Sex   | 6.224                 | 0.045* | 2.675                 | 0.263  |
| Religion  | 118.879               | 0.000* | 6.530                 | 0.035* |
| Education   | 42.180                | 0.000* | 52.981                | 0.000* |
| Employment  | 95.247                | 0.000* | 22.272                | 0.014* |
| Marital status  | 94.827                | 0.000* | 26.938                | 0.003* |
| Income  | 12.703                | 0.048* | 5.191                 | 0.167  |
| Number of persons caring  | 64.104                | 0.000* | 22.791                | 0.001* |
| Type of Disease   | 17.477                | 0.000* | 5.473                 | 0.065  |

**\*Statistically Significant**

*Table (5): Comparison of organ donation related to knowledge among urban and rural inhabitants patients (n=1000).*

| Variables                                | X <sup>2</sup> | P      |
|--|----------------|--------|
| Familiarity with the organ donation term | 5.898          | 0.053  |
| Source of information                    | 49.280         | 0.000* |
| Reason for organ donation                | 174.181        | 0.000* |
| Organs donated                           | 101.251        | 0.000* |
| Taking donated organs from which persons | 17.394         | 0.043* |
| Presence of threat with organ donation   | 223.455        | 0.000* |

**\*Statistically Significant**

Comparing attitude toward organ donation among urban and rural inhabitants, it was observed that no statistically significant differences were found among both groups in their willingness about organ donation, regardless the physical condition, as well as religion of recipient, with p values of 0.164, 0.055 & 0.330 respectively. In regard to knowledge and willingness toward organ donation among urban and rural inhabitants' patients, it was observed that there were no statistically significant differences in familiarity with the term and the source of information among rural inhabitants' patients with p values of 0.164 & 0.215 respectively (Tables 6 & 7).

*Table (6): Comparison of organ donation related attitude among Urban and Rural Inhabitants Patients (n=1000).*

| Variables   | X <sup>2</sup> | P      |
|---|----------------|--------|
| Willingness toward organ donation in the future         | 6.516          | 0.164  |
| Reasons for refusing organ donation                     | 210.636        | 0.000* |
| Organ donation choice: To whom                          | 7.398          | 0.013* |
| Organ donation choice: Smoking history of recipient     | 8.314          | 0.003* |
| Organ donation choice: Alcohol intake of recipient      | 7.650          | 0.004* |
| Organ donation choice: Age of recipient                 | 18.707         | 0.001* |
| Organ donation choice: Physical condition of recipient  | 9.266          | 0.055  |
| Organ donation choice: Mental condition of recipient    | 15.285         | 0.002* |
| Organ donation choice: Religion of recipient            | 4.604          | 0.330  |
| The most important factor when deciding to donate organ | 66.602         | 0.000* |

**\*Statistically Significant**



*Table (7): Knowledge and willingness toward organ donation among urban and rural inhabitants patients (n=1000).*

| (Knowledge items & willingness toward organ donation ) | Urban Inhabitants Pts |        | Rural Inhabitants Pts |        |
|--|-----------------------|--------|-----------------------|--------|
|  | X <sup>2</sup>        | P      | X <sup>2</sup>        | P      |
| Familiarity with the organ donation term               | 24.972                | 0.000* | 3.613                 | 0.164  |
| Source of information                                  | 119.065               | 0.000* | 10.771                | 0.215  |
| Reason for organ donation                              | 104.236               | 0.000* | 13.425                | 0.037* |
| Organs donated   | 146.417               | 0.000* | 35.155                | 0.000* |
| Presence of threat with organ donation                 | 19.581                | 0.001* | 10.814                | 0.029* |
| Taking donated organs from which persons               | 36.549                | 0.000* | 30.575                | 0.000* |

#### 4. Discussion

The marketing of organ donation is least common in Egypt where transplantation is either unavailable or organs are extremely scarce. Results of the study revealed that around one third of the study subjects in both groups (urban and rural inhabitants' patients) were aged from 20-30 years. More than half of them were females, married, and more than one third up to more than half of them had governmental jobs. In relation to education, more than one third of urban inhabitants' patients had university level of education while the same percentage of rural patients had primary level of education. Regarding religion, more than three quarters in both groups were Moslems. Most of the study subjects in both groups (urban and rural inhabitants' patients) had chronic illness.

In the same line, Alam (2007) who explored public opinion on organ donation in Saudi Arabia found that 54.7% of respondents in the age group 20 to 30 years old, and in contrast to the current study findings, the researcher reported that 61.1% were university graduates. Also, in a study done by Symvoulakis, et al., (2009) investigating attitudes to kidney donation among primary care patients in rural Crete, Greece, 61.6% of respondents were less than 60 years and the male to female ratio were 0.86 to 1. Moreover, Broumand, Parsapoor, and Asghari (2012) who assessed public opinion of organ donation in Iran reported that the mean age of the study participants was 36.2 (range, 18–92) year; 61.2% of them were women and 74.9% were married.

In relation to organ donation related knowledge, most of both urban and rural inhabitants' patients were familiar with organ donation term and about half of them reported that television and radio represent the main source of information. On contrary, Siddiqi, (2011) reported that 31.6% of surveyed individuals in Qatar had no idea about organ donation, while, Alghanim (2010) in his study reported similarities in knowledge and attitudes of respondents in both areas, but rural respondents were less likely to have information about organ donation than their counterparts in urban areas. Also, Saleem, et al., (2009) reported that (60%) of the study sample achieved an adequate knowledge score for organ donation while 163 (40%) had inadequate knowledge. Similarly, Rios, et al, (2010), Alghanim (2010), and Saleem, et al., (2009), found that television is emerged as the major source of information. The main reason for organ donation mentioned by the study subjects was to save lives for individuals; and more than one third of them choose kidney to be the commonest donated organ. The highest percentage in both groups agreed that organ donation could be taken from either lived or dead persons. Contrary to these results was Saleem, et al., (2009), who found that only a minority of the respondents were aware that organs for donation can come from both living persons as well as cadavers.

Study results denoted that two thirds of the urban and more than half of the rural inhabitants' patients unwilling to donate their organs and a highest percentage of them did not give their reasons about their donation' decision. More than half of both urban and rural inhabitants' patients unwilling to donate their organs to any one regardless his/her social relation to the recipient, smoking habit, alcohol addiction (intake), physical condition, mental status, as well as his/her religion. About two thirds of them reported that the most important thing they could consider when they decided to donate their organs was when the recipient is a close relative to them specially being a parent. Similarly, in Khan et al., study at (2011), found that people who can donate seem to be reluctant to donate their organs to those in need (recipient) due to the lack of knowledge and fear of organ being misused. Further people who can donate organ assume that organ donation generally comes from addicts and poor people.

Alashek, Ehtuish, Elhabashi, Emberish, Mishra (2008), illustrates the reasons given by the respondents for refusing organ donation. Many respondents selected more than one reason. Lack of adequate knowledge about the importance of deceased organ donation and uncertainty about its religious standing were the most predominant responses (43.8% and 39.5%, respectively). Other reasons included ethical concerns about retrieving organs from dead body (37.9%), preferring to be buried intact (28%), and uneasiness about the idea of cadaver manipulation (33%). Noteworthy, more than one quarter of the respondents had never thought about organ donation, and 16.8% of those who refused to donate gave no reason. Other researchers related the causes of refusing to donate organs after death to religious uncertainties/doubts about transplanting organs from dead people [Alam, (2007), Lauri, (2006), and Cheng, Chung Ping, Ho, & Wong, (2005)].

In agreement with study findings, Alashek, Ehtuish, Elhabashi, Emberish, Mishra (2008) reported that out of the 1652 Libyans, only 29.7% of them agreed to donate their organs after death, while 60.1% expressed refusal, and 10.2% were undecided. While a study by Ashraf, et al., (2005) was conducted to gain insight into knowledge, attitude, and practice (KAP) regarding organ donation among the patients coming to the outpatient units of a tertiary care hospital in Karachi reported that 59.9% of the people surveyed were willing to donate their organs. A study done by Al-Jumah, & Abolfotouh, (2011) reported that 64.7% of all participants having a positive attitude toward organ donation. Also, in a study at Greece, Symvoulakis, et al., (2009) reported that more than half of the respondents (54.3%, 121/223) were unwilling to register as a kidney donor and donate kidneys for transplant after death; when the study subjects donated organs or tissues, they donated to a close relative while they are still alive especially in the case of a young child or an adult requiring a kidney. A study from Qatar by Siddiqi (2011), reported that the majority of people preferred donating organs to their close relatives and friends. This may be attributed to trust of donor that his/her organ would be really life saving for known recipient compared to unknown.

High statistical significant difference was observed between personal characteristics and willingness toward organ donation among urban inhabitants' patients, while no statistical significant differences were found in sex, income, and type of disease in rural inhabitants' patients. Similarly Zhang et al., (2007), in their study found that the willingness to donate an organ was not significantly associated with gender ( $p=0.47$ ), while, Alashek, Ehtuish, Elhabashi, Emberish, Mishra (2008) found that willingness was significantly associated with being male, younger age, having a college or graduate degree, and being single ( $P<0.05$  for all). With respect to level of education, Mostafa, (2011), reported that university students are more undecided about living donation to an unknown person. In a study done in Pakistan by Saleem, et al., (2009), knowledge about organ donation was significantly associated with education ( $p=0.000$ ) and socioeconomic status ( $p=0.038$ ). Allowance of organ donation in religion was significantly associated with the motivation to donate ( $p = 0.000$ ). In addition various intervening factors have been identified by Bracellos, Aranjó, & Costa, (2005), Gallop Organization (2005), & Morgan (2006) why people refusing to donate organs after death, including age, gender, level of education, knowledge regarding organ donation, and awareness of organ shortage. Reports from Turkey, Mexico, Brazil, USA, and Spain determined some criteria in favor of deceased organ donation. It included younger age, female gender, and higher level of education [Bracellos, Aranjó, & Costa, (2005), Gallop Organization (2005), & Morgan (2006) Bilgel, Sadikoglu, Goktas, & Bilgel, (2004) Conesa, et al. (2003), Zepeda- Romero, Garcia, Jauregui, (2003)].

In contrast, a study done by Symvoulakis, et al., (2009) investigating attitudes to kidney donation among primary care patients in rural Crete, Greece, they found that people with a higher level of education were more likely to be willing to register as kidney donors than those having a lower level of education; also, Conesa et al., (2004) suggest that teenagers with a higher education have more favorable attitudes towards organ donation and that those who have left school early have a more negative approach. Symvoulakis, et al., (2009) reported that people in paid employment were more likely to be willing to register as kidney donors and donate kidneys for transplant when compared with those not having a paid activity. It appears that people, through their occupational activity, are probably prone to interactions towards more positive personal views on specific areas of organ donation but are also concerned about the integrity of consent and donation procedures; also, most respondents (94.2%) do not consider organ donation unacceptable because of religious beliefs was not unexpected.

In regard to knowledge about organ donation among urban and rural inhabitants' patients, it was observed that there were no statistically significant differences in familiarity with the term and the source of information. Comparing attitude toward organ donation among urban and rural inhabitants, it was observed that no statistically significant difference was found among both groups in their willingness to donate organs regardless the physical condition, as well as religion of recipient. Regarding reasons for refusing organ donation it was observed that there was a high statistical significant difference among urban and rural inhabitants' patients,

A study was conducted in Spain by Rios, et al, (2010) revealed that receiving negative information was associated with more unfavorable attitudes, and attitudes were more favorable among patients who have received positive information through the mass media. Another study conducted in Malaysia by Sayed (2012) on 105 recipients concluded that, although the majority had favorable attitudes toward organ donation and transplantation, a diversity of myths and misinformation were unearthed from the discussions across the ethnic groups. These include perceived religious prohibition, cultural myths and misperceptions, fear of disfigurement, fear of surgery, distrust of the medical system, and family disapproval. Culture and religious beliefs played important prohibitive roles among those opposed to organ donations. The Lancet, Editorial in 2011, reported that Islamic countries generally have a low rate of carriage of organ donor cards reflecting a negative attitude toward organ donation, and the reason behind refusal to organ was an unawareness of population, regarding religious proclamations about organ donation.

### **Conclusion and recommendation**

Study findings revealed that even though approximately 97% of the patients interviewed in this study were familiar with organ donation, more than three fourth of them either unwilling or undecided to donate organ, so they had negative attitude toward organ donation. The low level of willingness of the study subjects toward organ donation seen in the current study should serve as an important revelation that despite the increasing prevalence of end-organ diseases in the country, not many organ donations are being carried out in a legitimate manner. Despite similarities in knowledge and attitudes of respondents in both areas, there was a significant difference between them in relation to basic knowledge with an exception of familiarity with the term of organ donation.

Comparing attitude toward organ donation between urban and rural inhabitants' patients, no significant differences were found between them in relation to willingness toward organ donation, regardless the physical condition and religion of the recipients. Moreover, statistical significant difference was found between knowledge and willingness toward organ donation in urban and rural inhabitants' patients except in familiarity with the term as well as source of information among rural inhabitants.

A multi disciplinary action should be taken to improve the awareness of the people about organ donation. Adequate knowledge may change the attitude of people towards organ donation. Multi-sectoral approach (e.g, electronic and print media, religious leaders, doctors, nurses and teachers) should be used to promote awareness of organ donation. Education campaigns may be designed through the media to familiarize people with the concept of deceased organ donation. Awareness programs should be formulated and implemented at young age (from school age).

Evaluation of attitudes using standardized assessment procedures is essential in order to ensure unbiased measurements, but may not detect more subtle variations in personal beliefs that may affect the willingness to donate

Further studies are needed to explore the concept of organ donation among the general population.

Efforts should be focused on groups with lower level of education by introducing and discussing issues including organ donation and end of life aspects in the community.

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