



RESEARCH ARTICLE

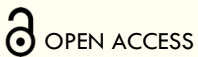
Impact of Direct Transplantation Experience on Attitudes Toward Organ Donation: A Cross-Sectional Study from Libya

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ABSTRACT

Background: Organ transplantation remains the optimal therapy for end-stage organ failure; however, organ donation rates remain low in many developing countries, including Libya. Knowledge, ethical perceptions, religious beliefs, and trust in health systems are known to influence donation attitudes. Direct exposure to transplantation may play an important role in shaping these attitudes.

Objective: To evaluate the impact of direct transplantation experience on knowledge and attitudes toward organ donation among three distinct population groups in Libya.

Methods: A cross-sectional survey was conducted among 300 participants divided equally into three groups: relatives of transplanted patients, relatives of patients awaiting transplantation, and members of the general population with no transplantation exposure. Structured questionnaires assessed sociodemographic characteristics, knowledge, and attitudes toward organ donation. Data were analyzed using SPSS version 26.

Results: Participants with direct transplantation experience demonstrated significantly higher knowledge levels and more favorable attitudes toward both living and deceased organ donation compared to the general population. Ethical acceptance and perception of religious permissibility were also significantly higher among exposed groups. Willingness to donate organs after death was highest among relatives of transplanted patients.

Conclusion: Direct exposure to transplantation positively influences attitudes toward organ donation. Public awareness strategies in Libya should incorporate patient and family narratives to enhance donation acceptance and address ethical and trust-related concerns.

Keywords: Organ donation; transplantation ethics; public attitudes; Libya; Islamic bioethics

Introduction

Organ transplantation is widely recognized as the most effective treatment for end-stage organ failure, offering significant improvements in survival and quality of life. Despite substantial advances in surgical techniques, immunosuppressive therapies, and post-transplant care, the persistent global shortage of donor organs remains a major barrier to equitable access to transplantation services¹⁻³. This imbalance is particularly evident in low- and middle-income countries, where health system limitations, legal ambiguity, and sociocultural factors further constrain organ donation rates^{4,5}.

In the Middle East and North Africa (MENA) region, attitudes toward organ donation are shaped by a complex interaction of religious beliefs, cultural norms, ethical concerns, and levels of trust in healthcare institutions⁶⁻⁹. Although Islamic jurisprudence has, for several decades, affirmed the permissibility of organ donation under specific ethical conditions, public understanding of these rulings remains inconsistent, particularly with regard to deceased donation and the concept of brain death¹⁰⁻¹³. As a result, misconceptions continue to influence individual decision-making, even in settings where formal religious approval is well established.

Libya presents a distinctive transplantation context within the region. Kidney transplantation has been practiced for many years, depending only on living related donors, while deceased organ donation doesn't started yet¹⁴⁻¹⁷. This reliance reflects not only the absence of a fully operational national deceased donation program, but also broader challenges related to healthcare governance, public confidence, and sustained awareness efforts¹⁸⁻³⁶. Previous studies from Libya and neighboring countries have shown that, while general attitudes toward organ donation may be favorable in principle, actual willingness to donate—particularly after death—remains low²¹⁻²⁴.

Ethical concerns play a central role in shaping these attitudes. Fear of bodily harm, uncertainty about organ misuse, lack of transparency, and limited trust in healthcare systems have all been identified as significant barriers to donation²⁵⁻²⁷. Importantly, several international studies suggest that direct or indirect exposure to transplantation—through personal illness, caregiving, or family experience—may positively influence knowledge, ethical reasoning, and willingness to donate²⁸⁻³⁰. Such experiential exposure may be especially relevant in contexts where formal public education campaigns have limited reach or credibility.

To date, few studies in Libya have systematically examined how direct transplantation experience

influences attitudes toward organ donation. Understanding this relationship is critical for designing culturally appropriate and ethically grounded strategies to improve donation rates. The present study therefore aimed to assess the impact of direct transplantation experience on knowledge and attitudes toward organ donation by comparing three distinct population groups: relatives of transplanted patients, relatives of patients awaiting transplantation, and members of the general population with no direct connection to transplantation.

Methods

STUDY DESIGN AND POPULATION

A cross-sectional, questionnaire-based study was conducted between March 2024 and September 2024 in Libya. Participants were equally distributed into three groups (n = 100 each):

- Relatives of patients who had undergone organ transplantation
- Relatives of patients currently awaiting transplantation
- Members of the general population with no personal or familial transplantation exposure

QUESTIONNAIRE DESIGN

Three closely matched questionnaires were developed and written in Arabic language, sharing core sections on:

- ✓ Sociodemographic characteristics
- ✓ Knowledge of organ donation and transplantation
- ✓ Attitudes toward living and deceased organ donation

Group-specific sections explored waiting-list experiences and post-transplant perceptions where applicable.

The questionnaire was reviewed by transplant specialists and piloted on a small sample before final use.

ETHICAL CONSIDERATIONS

Participation was voluntary and anonymous. The study adhered to the principles of the Declaration of Helsinki and local ethical guidelines. Religious affiliation was optional.

STATISTICAL ANALYSIS

Data were analyzed using SPSS version 26. Categorical variables were expressed as frequencies and percentages. Continuous variables were presented as mean \pm standard deviation. Group comparisons were performed using Chi-square tests and independent-sample t-tests, with $p < 0.05$ considered statistically significant.

RESULTS

PARTICIPANT CHARACTERISTICS

A total of 300 participants were included and equally distributed across three study groups: relatives of transplanted patients (Group 1, n = 100), relatives of

patients awaiting transplantation (Group 2, n = 100), and members of the general population with no direct connection to transplantation (Group 3, n = 100). Statistical analysis was performed using SPSS version 26. Results are reported in accordance with STROBE recommendations for cross-sectional studies.

SOCIODEMOGRAPHIC CHARACTERISTICS

The sociodemographic characteristics of the study population are summarized in Table 1. The distribution of age, sex, and educational level was broadly comparable across the three groups.

Table 1. Sociodemographic characteristics by study group

| Variable | Group 1 (%) | Group 2 (%) | Group 3 (%) |
|----------------------|-------------|-------------|-------------|
| Male sex | 62 | 59 | 61 |
| Age 36–60Y | 68 | 71 | 65 |
| University education | 54 | 49 | 47 |

Legend: Group 1: relatives of transplanted patients; Group 2: relatives of patients awaiting transplantation; Group 3: general population.

KNOWLEDGE OF ORGAN DONATION AND TRANSPLANTATION

Knowledge related to organ donation and transplantation differed across study groups (Table 2). Awareness of living organ donation, correct

understanding of brain death, and recognition of religious permissibility of organ donation were higher among participants with direct or familial transplantation exposure compared with the general population.

Table 2. Knowledge of organ donation and transplantation

| Knowledge item | Group 1 (%) | Group 2 (%) | Group 3 (%) |
|-----------------------------|-------------|-------------|-------------|
| Living donation | | | |
| Possible | 92 | 89 | 71 |
| Correct brain death concept | 85 | 78 | 52 |
| Religious permissibility | | | |
| Known | 90 | 86 | 64 |

Legend: Percentages represent correct or affirmative responses.

Comment: Differences between exposed groups and the general population were statistically significant (χ^2 test, $p < 0.05$).

ATTITUDES TOWARD ORGAN DONATION

Attitudes toward organ donation are presented in Table 3. Willingness to donate organs after death and to family members was higher among relatives of transplanted patients and relatives of patients awaiting

transplantation compared with the general population. Ethical acceptance of organ donation was also more favorable in groups with transplantation exposure.

Table 3. Attitudes toward organ donation

| Attitude domain | Group 1 Mean \pm SD | Group 2 Mean \pm SD | Group 3 Mean \pm SD |
|----------------------|--------------------------|--------------------------|--------------------------|
| Donation after death | 3.4 \pm 0.6 | 3.1 \pm 0.7 | 2.6 \pm 0.8 |
| Donation to family | 3.6 \pm 0.5 | 3.4 \pm 0.6 | 2.9 \pm 0.7 |
| Ethical acceptance | 1.2 \pm 0.3 | 1.3 \pm 0.4 | 1.6 \pm 0.5 |

Legend: Willingness items scored on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree). Ethical acceptance coded as 1 = acceptable, 2 = not acceptable.

Comment: Differences across groups were statistically significant (t-test, $p < 0.05$).

Participants with direct or familial transplantation exposure demonstrated consistently higher knowledge levels—including understanding of brain death and recognition of religious permissibility—and more favorable attitudes toward organ donation, with significantly greater willingness to donate organs,

particularly after death and to family members, and higher ethical acceptance compared with individuals without such exposure; these associations were statistically significant across all evaluated domains ($p < 0.05$).

Discussion

The findings of this study indicate that direct exposure to organ transplantation is strongly associated with improved knowledge and more favorable attitudes toward organ donation in Libya. Relatives of transplanted patients and families of patients awaiting transplantation consistently demonstrated greater acceptance of both living and deceased donation compared with individuals who had no personal or familial connection to transplantation.

Importantly, the observed differences extended beyond general ethical approval and were reflected in practical willingness to donate, particularly after death and within the family context. This finding supports previous reports indicating that experiential exposure to transplantation can function as an informal educational process, allowing individuals to reassess misconceptions through direct observation of clinical outcomes rather than through formal health messaging alone²⁸⁻³⁴.

In the Libyan setting, where confidence in public institutions has been affected by prolonged systemic challenges, experiential exposure appears to play a particularly influential role. Participants frequently associated their change in attitude with witnessing tangible benefits of transplantation, such as improved survival or quality of life in a family member. This observation aligns with broader ethical and policy literature emphasizing that trust, transparency, and institutional credibility are central to public acceptance of organ donation programs^{25,26,35,37}.

Religious permissibility emerged as a key determinant of attitudes, particularly among participants without transplantation exposure. Although authoritative Islamic rulings have long endorsed organ donation as ethically acceptable under specific conditions^{10-12, 14-17}, uncertainty persists at the community level. The present findings suggest that direct exposure to transplantation may reduce religious hesitation, not necessarily by increasing formal theological knowledge, but by reframing donation as a morally meaningful and socially beneficial act. Similar discrepancies between religious doctrine and public perception have been described in studies of Muslim populations in other regions^{13,34}.

Despite improved knowledge and ethical acceptance among exposed participants, willingness to donate organs to non-relatives remained limited across all study groups. This persistent reluctance highlights the continued importance of social proximity in donation decisions and underscores the challenge of expanding deceased donation programs beyond family-based altruism. Comparable patterns have been reported in regional studies, where donation is often perceived as a personal

or familial obligation rather than a broader societal responsibility²¹⁻²⁴.

From a practical perspective, these findings carry important implications for organ donation strategies in Libya. As clinicians working within the Libyan health system, we observed that direct exposure to transplantation often reshaped attitudes toward organ donation, particularly among family members of transplant recipients. Group 1 and 2 compared to Group 3. Awareness initiatives based solely on informational or policy-driven approaches may be insufficient in contexts where institutional trust is fragile. Instead, integrating the lived experiences of transplant recipients and their families into public engagement efforts may offer a more effective pathway to addressing ethical concerns and building public confidence. Narrative-based communication grounded in real experiences has been shown to be particularly influential in shaping donation attitudes³⁸⁻³⁹.

Limitations

The cross-sectional design limits causal inference. Self-reported responses may be subject to social desirability bias. Additionally, the study reflects attitudes at a single time point within a specific sociopolitical context.

Conclusion

Direct exposure to organ transplantation is strongly associated with improved knowledge, ethical acceptance, and willingness toward organ donation in Libya. Families who have lived through transplantation—either as recipients or caregivers—demonstrate more nuanced and favorable attitudes than individuals without such exposure.

These findings suggest that experiential pathways may represent a critical leverage point for improving organ donation acceptance in contexts where institutional trust and public awareness remain limited. Integrating patient and family experiences into educational strategies, alongside clear religious and legal guidance, may contribute meaningfully to the development of a sustainable and ethically grounded organ donation framework in Libya.

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