

Research Article

Exploration Into Donor-Recipient Relationship After Living-Donor Liver Transplantation Using Gift-Exchange Theory

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Abstract

AIM: This qualitative study aimed to explore the donor-recipient relationships following living-donor liver transplantation.**METHOD:** A 1-time cross-sectional qualitative interview was conducted with liver transplant recipients ($n = 17$) and living liver donors ($n = 11$) post-transplant. The interviews were transcribed verbatim and analyzed manually by using thematic content analysis.**RESULTS:** The mean age of the recipients and the donors was 54.41 ± 8.0 (range 39–71) and 36.6 ± 7.69 (range 28–57) years, respectively. Following the interviews, 2 overarching themes emerged: (1) Became care providers, and (2) differentiation in relationships after transplantation. A total of 3 sub-themes were explained under “differentiation in relationships after transplantation;” feeling guilty, becoming closer and more intense owing to a feeling of indebtedness, and putting some distance owing to a feeling of indebtedness.**CONCLUSION:** The study focused on the reciprocation stage according to gift-exchange theory. During reciprocation, although recipients expressed positive feelings such as gratitude, closer relationships, and special bonds; they also reported negative feelings like guilt and indebtedness resulting in a purposeful distancing from their donors. Most donors understood what the recipients felt, but they wanted their relationship to return to normal. Married female donors had worse experiences, such as divorce or a weakened marital relationship after donation.**Keywords:** Donor-recipient relationship, gift exchange theory, liver transplantation, living donor, qualitative research

Introduction

Live organ donation involves a healthy person taking exceptional medical risks, including the risk of dying to help, in many cases, save the life of another individual. As such, living organ donors experience an internal conflict with the nonmaleficence principle of medical ethics (*Primum non nocere*) (Deurinckx et al., 2014). This is especially true when working with live liver donors where the rates of morbidity are 8.7% (major complication) (Sanchez-Cubus et al., 2018).

The rates of end-stage organ failure cases have been increasing around the world. Yet, the current total number of organ transplantations worldwide meets only 10% of the demands. The rate of donors after brain death is 20–25 donors per million in Europe-

an countries, whereas this rate is only 6.1 donors per million in Turkey (Global Observatory on Donation and Transplantation, 2016). It is reported that 1,588 liver transplants were performed in 2018. Of these, 438 (27.58%) operations were performed with the livers obtained from deceased donors, and 1,150 (72.42%) living donor operations were performed in Turkey (R.T. Ministry of Health, 2019).

Current studies have mostly focused on morbidity and mortality outcomes of living liver transplantation donors and recipients (Kim & Testa, 2016; Middleton et al., 2006; Nadalin et al., 2016). Yet, a systematic review by Deurinckx et al. (2014) strongly recommends performing further studies regarding psychosocial factors affecting live liver donors and the relationship dynamics between living liver transplant recipients (LTRs)

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and living liver donors (LLDs) experienced throughout the transplantation process. The donor-recipient relationship is a critical component of the living donation process. International guidelines and directives recommend assessment of the donor-recipient relationship, motivation sources, and realistic expectations in the living donation (British Transplantation Society, 2011; Canadian Council for Donation and Transplantation, 2006; Organ Procurement and Transplantation Network, 2014; World Health Organization, 2010; National Health and Medical Research Council, 2007).

Today, Turkey boasts the highest rate of living liver donors in Europe and the second highest number of living donors in the world following North Korea (Global Observatory on Donation and Transplantation, 2016). The authors conclude that exploring the relationships between LLDs and LTRs, using the gift-exchange theory, will contribute to the enhancement of the overall care delivery for this population and their families.

Mauss (1990) reported that though gift-giving appears voluntary, closer examination reveals diverse social, cultural, psychological, and personal obligations (Deurinckx et al., 2014). Mauss (1990) explained that in the gift-exchange process, first, a person decides to give a gift. Second, the gift is received, which may involve feelings of indebtedness. Finally, the receiver reciprocates. Mauss (1990) noted that the inability of the receiver to give back a gift of the same or greater value as the one received leads to social and moral pressure on the receiver (Mauss, 1990). This is a crucial element of the "Theory of Gift Giving" where organ donation has the potential to impact relationships between the donor and the recipient. A balance must be maintained to give and reciprocate between donors and recipients during live organ donation, which can be explained by the gift-exchange theory (Gill & Lowes, 2008; Mauss, 1990; Sque & Payne, 1994).

The stages "to give," "to receive," and "to return (to reciprocate)" can be aligned with organ donation. The stage "to give" refers to the donor's decision making for donation before transplantation. It has been noted in the literature that donors accept to become donors to help their loved ones survive (Kusakabe et al., 2008; Mauss, 2002; Mauss, 1990; McGregor et al., 2009; Weng et al., 2012). The stage "to receive" refers to the recipient's acceptance of the donor's organ donation and depends on the relationship between the donor and the recipient. Many recipients experience more emotional burden during this stage than donors (Croft & Maddy-

son, 2017; McGregor et al., 2009; Thys et al., 2015). The stage "to return (to reciprocate)" involves the process of giving back. During this stage, the relationship between the donor and the recipient may be strengthened, and a special bond between them can appear (Croft & Maddison, 2017; Nasr & Rehm, 2014; Ralph et al., 2017; Tong et al., 2012). When recipients think they are insufficient during the stage "give back," being thankful can change into distress and result in guilt (Ralph et al., 2017; McGregor et al., 2009), indebtedness (McGregor et al., 2009; Thys et al., 2015), deterioration, conflict, (Ralph et al., 2017) and feelings of neglect as reported by LLDs (Tong et al., 2012; Williams et al., 2009).

The literature exploring the theory of gift-giving in transplantation to highlight the living donor-recipient experience is limited (Gill & Lowes, 2008; Nasr & Rehm, 2014). The driving force for this study was to explore how this theory may manifest between LTRs and LLDs following transplantation. This study aimed to explore changes that occur within the LLD-LTR relationship following transplantation.

Research Questions

1. How are recipients' relationship with their donor after the liver transplantation?
2. How are donors' relationship with their recipients after the liver transplantation?

Method

Study Design

This study adopted one-time cross-sectional qualitative design.

Sample

A total of 17 LTRs and 11 LLDs were interviewed between April and December 2016. All the participants were experiencing the post-transplant stage ranging from 3 months to 11 years. Participants (recipients and donors) were recruited from 2 transplant outpatient departments, 1 large university hospital, and 1 private hospital in the west of Turkey. The participants satisfied the following eligibility criteria: 1) a minimum of 3-month post-transplantation period, 2) age of 18 years or older, 3) absence of a history of psychiatric disease, and 4) being a native Turkish speaker. Parent-child donor-recipient pairs where the child was under 18 were excluded.

Data were collected from 17 LTRs and 11 LLDs at the post-transplant interviews. The sample size of

this qualitative study was determined during the data collection process. When participants' statements and experiences were repeated, the researchers decided that the qualitative data reached the saturation point, and data collection was terminated. The mean age of the recipients and the donors was 54.41 ± 8.0 years (range: 39–71 years)

Table 1
Sociodemographic Characteristics of the Participants

Characteristics	Recipient (n = 17)	Donor (n = 11)
Age (years)	54.41 ± 8.0 (range 39–71)	36.6 ± 7.69 (range 28–57)
Time after transplantation	3.25 ± 3.06 years (range 3 months–11 years).	
Sex		
Female	7 (41.2%)	4 (36.4%)
Male	10 (58.8%)	7 (63.6%)
Marital status		
Married	13 (76.5%)	6 (54.5%)
Single	4 (23.5%)	5 (45.5%)
Change in marital status after transplantation	1 (wife died)	1 married 2 divorced (sister and daughter donors)
Etiology		
Hepatitis B	7 (41.2%)	
Hepatitis C	3 (17.6%)	
Cryptogenic cirrhosis	2 (11.8%)	
Primary biliary cirrhosis	3 (17.6%)	
Autoimmune cirrhosis	1 (5.9%)	
Alcoholic cirrhosis	1 (5.9%)	
Employment status		
Full-time	5 (29.4)	4 (36.4)
Part-time	0	1 (9.1)
Unemployed	7 (41.2)	6 (54.5)
Retired	5 (29.4)	
Education level		
Illiterate	2 (11.8%)	1 (9.1%)
Primary school	11 (64.7%)	6 (54.5%)
Secondary school	4 (23.5%)	3 (27.3%)
University		1 (9.1%)

and 36.6 ± 7.69 years (range: 28–57 years) respectively. Of the recipients and donors 10 (58.8%) and 7 (63.6%) were men, respectively (Table 1); and 9 received a transplant from their first-degree relatives (6 sons, 3 daughters), 3 received a transplant from second-degree relatives (sisters), 5 had no blood relation with their donors (2 from spouses, 1 from a daughter-in-law, 1 from a son-in-law, and 1 from a cousin) (Table 2). The average time from transplantation surgery was 3.25 months to ± 3.06 years (range: 3 months–11 years). The degree of relationship is explained below:

First, Second, and Third-Degree Relatives

- A first-degree relative is defined as a close blood relative, which includes the individual's parents, full siblings, or children.
- A second-degree relative is defined as a blood relative which includes the individual's siblings, grandparents, grandchildren, aunts, uncles, nephews, nieces, or half-siblings.
- A third-degree relative is defined as a blood relative which includes the individual's first-cousins, great-grandparents, or great-grandchildren.

Data Collection

Data were collected through in-depth face-to-face, semi-structured interviews exploring the impact of transplantation on donor-recipient relationships. The interview guide included questions that probed relationship dynamics, such as: How was your relationship with your recipients/donor before the operation? Describe how you decided to become an organ donor (for donors)? Describe how you accepted the organ from your donor (for recipients)? How did your background influence your decision to become a donor for your recipient/to receive an organ from your recipient? How is your relationship with your donor/recipient after the operation? The interviews were conducted in Turkish and recorded, and lasted on average for 30–60 minutes.

Statistical Analysis

Interviews were transcribed verbatim and analyzed manually by using thematic content analysis. The analysis involved reading and re-reading the interview transcripts to identify and develop themes and categories emerging from the data. A working list of coding categories was developed. The transcripts were then reread alongside the list of categories to search for meaning and to establish comprehensive categories across interviews (Polit & Beck, 2017).

Table 2
Sex, Age, and Relationship of Recipients-Donors

Recipients No	Sex	Age	Relationship Recipient-Donor	Donor no	Sex	Age
Recipient 1	Male	71	Father-son	Donor 1	Male	31
Recipient 2	Male	49	Father-son	-	-	-
Recipient 3	Male	54	Father-son	-	-	-
Recipient 4	Female	65	Mother-daughter	Donor 4	Female	36
Recipient 5	Male	58	Father-son	Donor 5	Male	36
Recipient 6	Female	59	Older sister-sister	Donor 6	Female	57
Recipient 7	Male	57	Father-son	-	-	-
Recipient 8	Male	56	Cousin	Donor 8	Female	34
Recipient 9	Male	39	Brother-sister	-	-	-
Recipient 10	Male	60	Unrelated donor, the son-in-law	Donor 10	Female	36
Recipient 11	Female	56	Unrelated donor, daughter-in-law	Donor 11	Male	40
Recipient 12	Male	48	Husband-Wife	Donor 12	Female	34
Recipient 13	Female	48	Mother-daughter			
Recipient 14	Female	54	Mother-son	Donor 14	Male	30
Recipient 15	Female	59	Mother-daughter	Donor 15	Female	28
Recipient 16	Female	51	Older sister-sister			
Recipient 17	Male	41	Husband-wife	Donor 17	Female	38

Ethical Considerations

Written consent was obtained from all the participants prior to data collection. Ethical approval was obtained from the Dokuz Eylul University non-invasive clinical research ethical committee (IRB# 2016/10-19, 2636-GOA), and permission was obtained from both the university hospital and private hospital.

Rigor

Criteria for transparency and systematicity per quality guidelines for qualitative research were addressed (Meyrick, 2006). Open-ended questions were used to help control potential bias. The researchers took many notes on the participants' responses during the interviews. Throughout the data collection and analysis, the first author made close collaboration with the second author, both of whom were researchers with liver transplant clinical research experience. The third and fourth authors had more than 10 years of experience in liver transplantation as clinical specialists. The authors, who had considerable clinical experience with liver transplant recipients and donors, established credibility.

Results

Following 28 interviews (17 recipients, 11 donors), 2 overarching themes emerged: (1) Became care providers, and (2) differentiation in relationships after

transplantation. The 3 sub-themes were explained under "differentiation in relationships after transplantation:" feeling guilty, becoming closer and more intense owing to a feeling of indebtedness, and putting some distance owing to a feeling of indebtedness.

Became Care Providers

Recipients

Some female recipients reported that they took the responsibility for postsurgical care of their donors and followed their health status. The male recipients commented that they supported care for their donors.

"We have had a good relationship. As in the past, she is my dear, as precious as myself now.... After the operation, I take care of her more. I don't want her to be upset and tired (his eyes filled with tears). I feel very upset when I look at her (with muffled voice)" (Recipient 9).

Donors

Female donors reported that they had a caregiving role after surgery and had difficulty in this role.

"After surgery, my mother and I were put in the same room. No one showed interest in me. This disinterest continued after our discharge. I always had the role of an attendant, but I needed care too." (Donor 4).

Differentiations in Relationship after Transplantation

Feeling guilty

Recipients

Recipients felt upset and regretted receiving a transplant, and they felt responsible for health problems experienced by the donors following the procedure. Recipients stated they were under the impression that the lives of donors would not be affected in the future.

"In the first 3 months after transplantation, my daughter had pain. She hasn't recovered completely yet. I was very upset about her, and my heart was panting when I looked at her. I will never forgive myself (started to cry). I have always felt guilty, and I still have that feeling, though a little. Initially, I wished I had died and hadn't seen my daughter's suffering" (Recipient 15).

Recipients also reported not having sufficient information about the effects of transplantation on the donors before surgery. Some recipients deeply regretted the donation when they saw the health status of the donors.

"I thought that a small piece would be taken and given to me. I didn't know surgery would have severe effects, which I learned about later. I've heard that my donor knew everything. If I had known them, I wouldn't have accepted the transplantation. I got very upset when I saw the same suture line as mine."(Recipient 16).

Donors

LLDs did not regret donating their liver, but often experienced regret about different things. One donor regretted being willing to donate before all the candidates (all siblings) were completely evaluated.

"I have never regretted being a donor, but now I wish my brothers had also been examined to determine whether they would be donors. I wish I hadn't been so willing to donate, and they had also been considered as candidates. Then they might understand what my sacrifice means." (Donor 1).

Becoming closer and more intense owing to a feeling of indebtedness

Recipients

Recipients expressed gratitude for their donors' sacrifice and noted that a special bond was formed.

"She took great care of me after the transplantation, and was worried that something bad would happen to me. We had a closer relationship. I always tell her that I am your mom, but now you act as if you were my mom. I call her 'my dear liver,' and she calls me 'my dear liver.' We have had a closer relationship." (She laughed and looked happier) (Recipient 15).

Donors

Most donors also noted that they understood what the recipients felt about them and wanted their relationships to return to normal.

"We are much closer to each other. My mother always feels grateful to me. I love my mom as much as before surgery. I want to return to our normal relationship now." (Donor 15).

Putting some distance owing to a feeling of indebtedness

Recipients

One recipient said her son's donation to her greatly affected her, caused suffering, and created tension and indebtedness in their relationship.

"In the beginning, I felt responsible for all the suffering he experienced when I saw him. I felt that he wouldn't have had to donate his liver if I hadn't been ill. First, we had some psychological problems and seemed to keep away from each other. I didn't want to see his suffering."(Recipient 14).

A couple of recipients with spousal donors felt an immense debt to their spouse and had some ambivalent feelings toward them and their relationships.

"I sometimes feel that I love her a lot, but at other times I feel I owe her a lot and feel uncomfortable. I wish I hadn't had this experience and felt dependent on anyone. Therefore, I sometimes treat her badly." (Recipient 12).

To express gratitude for their donor's sacrifice and to decrease the feeling of indebtedness, recipients wanted to help donors financially and psychologically. Of the 9 LTRs receiving a liver from children, 5 commented that they cared for the donor post-donation as the donation decreased the donor's ability to sustain a living and required assistance.

"My son, who was my donor, is more important to me because he doesn't have good health now and can't

work. I have to take care of him. Now, I don't have the feeling of indebtedness and I can pay for all the expenses of his home." (Recipient 7).

Donors

A couple of LLDs got divorced following donation. Both donors commented that their spouse had a positive attitude towards their donation at first, but later their attitude turned negative, and a donor commented that her spouse resented the donation as the LLD gave more importance to her mother (the recipient) than to their marriage. The donor also reported a need to keep away from her mother since she did not get sufficient support from her mother. Another donor stated that she lost her trust in her husband in the process.

"My spouse first agreed with me about my donation and even said he could donate if my liver did not match. My spouse accepted everything at first, but later totally rejected my donation. He was still saying 'no' on the day of surgery. After transplantation, my spouse told me not to come home and said I was disabled from then on. Then, I didn't go home. He apologized later, but it was too late, and we got divorced!" (Donor 6).

Another 2 spousal donors anticipated that the decision to donate would help strengthen their marital relationships. On the contrary, both reported that their relationships actually worsened following donation. One of the donors regretted neglecting her spouse trying to save her mother and her disrupted relationship between her husband and mother.

"Everything got worse after the transplantation. He said that I treated him badly since he owed me. However, I didn't do anything bad to him. He misunderstood me." (Donor 17).

"My husband supported me when I decided to give my liver to my mother. He treated me badly after transplantation because he thought that I loved my mother more than him. In this process, I could not receive enough support from my mother. I got divorced from my husband, and my relationship was destroyed by my mother. Now I have lost both my families." (Donor 4).

Discussion

The "reciprocation" or "give back" stage of gift-exchange theory in transplantations from living donors

involves various difficulties. The LTR-LLD relationship may be affected after transplantation because the balance in "give back" and "reciprocate" in organ donation as described in the gift-exchange theory, is impacted.

Some recipients in this study stated that they did not know about the effects of donation on donors. Education and counselling to help LTRs and LLDs adjust to potential changes in relationship dynamics may be beneficial (Ralph et al., 2017). Guiding and educating recipients and donors on the expectations, feelings and attitudes about donation should be considered prior to transplantation.

The literature reveals that some LTRs experience a range of ambivalent feelings, like gratitude and guilt about donation (Hayashi et al., 2015; Watanabe & Inoue, 2010). Likewise, in this study, all LTRs felt grateful, reported positive attitudes to LLDs for their gift, and also had some feelings of guilt (Papachristou et al., 2009; Ralph et al., 2017; Thys et al., 2015). Consistent with the results of this study, several studies showed that recipients have a special bond with their donors (Nasr & Rehm, 2014; Papachristou et al., 2009) and that their relationships with the donors become stronger (Croft & Maddison, 2017; Nasr & Rehm, 2014; Papachristou et al., 2009; Ralph et al., 2017; Tong et al., 2012).

When the recipients consider themselves insufficient during the "give back" stage, gratitude can change into distress and result in feelings of guilt and indebtedness (Croft & Maddison, 2017; Thys et al., 2015). Our LTRs, as in the literature, reported feeling responsible and guilty for the challenged health status of the donor (Croft & Maddison, 2017; Kusakabe et al., 2008; McGregor et al., 2009; Watanabe & Inou et al., 2010). In addition, recipients may be worried when they cannot understand the physical and psychological effects of donation on donors (Watanabe & Inou et al., 2010). This may result in recipients and donors keeping away from one another (Ralph et al., 2017).

The LTRs experienced many of the feelings reported by LTRs in recent studies (Papachristou et al., 2009; Ralph et al., 2017; Watanabe & Inou et al., 2010). A deterioration or conflict in the relationship (Ralph et al., 2017), overprotectiveness (Tong et al., 2012), and disappointment (Ralph et al., 2017; Tong et al., 2012) are not unexpected. Additionally, LTRs felt responsible for the recipients' health (Kisch et al., 2018; Ku-

sakabe et al., 2008) and togetherness (Kisch et al., 2018). Many of the LDRs in our research reported that they did not expect gratitude from the recipients and wanted a normal life (Papachristou et al., 2009; Ralph et al., 2017; Tong et al., 2012).

A live liver donation will affect family dynamics, especially in transplantations when 2 people from the same family are affected (Nasr & Rehm, 2014). Studies show that live donation can both strengthen familial relationships and negatively impact dynamics (Croft & Maddison, 2017; Nasr & Rehm, 2014; Ralph et al. 2017). In this study, 1 daughter and 1 sister got divorced after living liver donation negatively impacted their spousal relationship. Offering detailed information to spouses of LLDs may address some concerns about donor wellness and influence the decision-making processes. Spousal LLD and LTR pairs may anticipate that their relationships will be better (Papachristou et al., 2009; Ralph et al. 2017; Weng et al., 2012), yet recipients have reported feeling pressured because of these expectations (Weng et al., 2012), which is consistent with this study. Finally, spouses may trade their roles after transplantation (Croft & Maddison, 2017), and spouses may expect more appreciation from the recipients (Ralph et al. 2017), which may have a negative impact on their relationships (Croft & Maddison, 2017).

Study Limitations

This study had some limitations, 1 of which was that the difference in time from the transplantation surgery may influence the reporting of experiences (3 months to 11 years). Further research should focus on consistent post-transplant timeframes to establish patterns of donor/recipient recovery. In addition, all donors and recipients in this study survived and had not experienced any major complications after transplantation. This might have influenced their experiences. Finally, the study had a 1-time cross-sectional qualitative interview design, and prospective longitudinal studies are needed to expand the understanding of the relationship dynamic between LLDs and LTRs.

Conclusion and Recommendations

Assessment of the relationships between recipients and donors is a critical component of the psychosocial assessment of the transplantation process. In this study, both donors and recipients were evaluated, and their experiences were examined using

the gift exchange theory. During reciprocation, although recipients expressed positive feelings such as gratitude, closer relationships, and special bonds; they also reported negative feelings like guilt and indebtedness resulting in a purposeful distancing from their donors. Most donors understood the recipients' feelings, but they wanted their relationship to return to normal. Married female donors, in particular, had worse experiences such as divorces or weakened marital relationships after donation. Transplantation from living donors is a reality in Turkey as the number of deceased donors is low. In future studies, donor expectations about the donation and motivational sources and effects of transplantation from living donors on familial dynamics should be investigated in detail.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Dokuz Eylül University non-invasive clinical research ethical committee (IRB# 2016/10-19, 2636-GOA).

Informed Consent: Written informed consent was obtained from LTRs and LLDs who participated in this study.

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