

Living Donors' Cognitive Distortion Regarding Perioperative Anesthetic Concerns and Anesthesiologists; Rebirth or Restoration of Trust

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ABSTRACT

Background: Organ transplantation is a critical, life-saving technique for individuals suffering from end-stage organ failure. Human organs are obtained from brain dead donors following the pronouncement of cardiac death, or from living donors. Among the numerous kinds of organ transplants, living donor liver transplantation stands out.

Objective: To evaluate living donors' cognitive distortion regarding perioperative anesthetic concerns and anesthesiologists.

Patients and Methods: A cross-sectional study included 120 living donors and was carried out at the National Liver Institute Hospital, during the period of the study.

Results: There was significant relation among knowledge of donor regarding types of anesthesia with sex, operative history, job, education, marital status, the relation of the donor to recipient, the reason for donation, donor concern regarding problem in anesthesia, knowledge of donor about years or faculty of anesthetist, donor concern regarding preference of male-female anesthetist, fear of long hospital stay, fear of anesthesia and surgery, intraoperative awareness, disclosing personal matter, attendance of the anesthetist of the whole operation, fear of needles, fear of nausea and vomiting, knowledge of donor about the importance of preoperative visit, and donor concern if the liver will grow again ($p < 0.05$).

Conclusion: Although most donors made the decision to donate by themselves, and they looked strong and committed in their decision, a large proportion of donors were concerned about potential problems of organ donation and the implications on their life afterward. A specific and rigorous psychosocial evaluation methodology is required to assist and safeguard their decision before and after donation.

Keywords: Anesthetic concerns, Anesthesiologists, Cognitive distortion, Living donors, Restoration of trust.

INTRODUCTION

The field of living donation in liver transplant is a cornerstone in saving the lives of many patients; while concentrating on the journey of recipients and the success of the operation, we forget about donors' psychology ^[1].

Although it is a major operation with similar concerns, those donors voluntarily donate for many unknown reasons and are facing the unknown ^[1,2]. Some authors navigated the short moments and hours before the operation with these donors, talking and asking them, particularly about anesthesia, their decision to donate a portion of their liver, fears, and uncertainties surrounding the anesthesia process, which could potentially affect their decision-making and overall well-being ^[3].

The perioperative period in liver donation surgery, marked by the administration of anesthesia and subsequent surgical procedures, presents a critical juncture for donors. The administration of anesthesia, although a routine medical practice while preparing the patients, can raise anxiety and stress in individuals, magnified by the unique nature of organ donation. Donors may struggle with fears due to literacy about the anesthesia process, lack of intimate contact with the team, or previous bad experiences or stories ^[4].

In this study, we tried to fill the gap between analyzing the fears before the operation, the predictors of psychological problems of these patients, and the morbid outcomes of surgery by plumping the distorted concepts known to patients. We were approaching the cognitive distortion of donors about anesthetic rules in the success of the operation and how to repair these concepts so that we can alleviate their fears and get the utmost outcome medically and psychologically. By addressing the distorted apprehension of patients about anesthesia and shedding light on their concerns, we can develop educational strategies to improve the experience and enhance the overall process of donation and donors' well-being. This work aimed to evaluate living donors' cognitive distortion regarding perioperative anesthetic concerns and anesthesiologists.

PATIENTS AND METHODS

A cross-sectional study included 120 living donors who were admitted to National Liver Institute Hospital during the period study from 2021 to 2024.

Patients' criteria

The study included all both-sexes living donors to donate to adults or pediatrics, from age 20-45 years old. All patients underwent thorough investigations

before operations, including full systemic revision, complete laboratory investigations, and volumetry.

Data collection methods

All this included perioperative visits but not including programs for psychological support or regular surveys to follow their fears. The questionnaire was done by anesthesia doctors (NKG and MGS) in perioperative visits in addition to paper-based questionnaire. The items on the questionnaires were generated based on the existing literature and the authors' clinical experience over several years of evaluating living organ donor candidates.

Patients' data

Socio-demographic data included age, sex, marital status, educational level, occupational status, operative history, the relation of the donor to recipients, cause of donation (love to the recipient, financial, obligated socially), previous exposure to anesthesia and their feedback (good experience, bad, ordinary), and any problems regarding anesthesia.

Patients' perception about anesthesia and anesthetists

Living donors' were asked about anesthesia and anesthetists' information as (know that anesthesiologists graduated from medical school and then specialized like surgeons, a difference if the patient saw his team before the operation and knows them by name, preferring male or female anesthetist (male more expert-feels comfortable), know the role intra- and post-operatively, know the types of anesthesia (general–spinal regional), degree of confidence of anesthetists as compared to surgeons, hearing about the role of regional anesthesia in pain management.

Patients' concerns about perioperative events

Also living donors were asked to consider donation-related concerns about several preoperative data were recorded across 10 items as anxiety before the operation, what kind of food after the operation, awakening during the operation, being nude intraoperatively, fear of death, postoperative pain, how

long? when can they walk?, how long will the hospitalization time be? for females, the ability to get pregnant after donation, afraid of secrets disclosure during recovery, will the liver grow again and compensate? will they be able to donate again?

Sample size calculation

We analyzed the data of all patients; while doing their psychological clearance preoperatively, they answered the questionnaires we prepared. Candidates were collected from patients of the National Liver Institute between 2021 and 2023.

Ethical consideration

The local committees of the anesthesia, Intensive Care Unit, Pain Management, and Pediatric Departments of the National Liver Institute, Menoufia University, approved all study procedures, which were created following the Helsinki Declaration (NLI IRB: 00014014/FWA00034015). All living donors were made aware of the study's procedures, possible hazards, and advantages. All participants signed a written informed consent that explained the aim of the study before the study initiation.

Statistical analysis

All data were generated and analyzed with SPSS 25.0. Continuous data were provided as means (\pm SD), whereas categorical variables were shown as frequency and percentages. Categorical data were examined with the chi-square (X^2) test. Statistical significance was defined as $p < 0.05$.

RESULTS

A CONSORT flow chart of the study population is shown in Figure 1. Out of 156 living donors who attended to National Liver Institute Hospital, 36 patients were excluded from the study and 120 patients were willing to participate in the study and consented to participation.

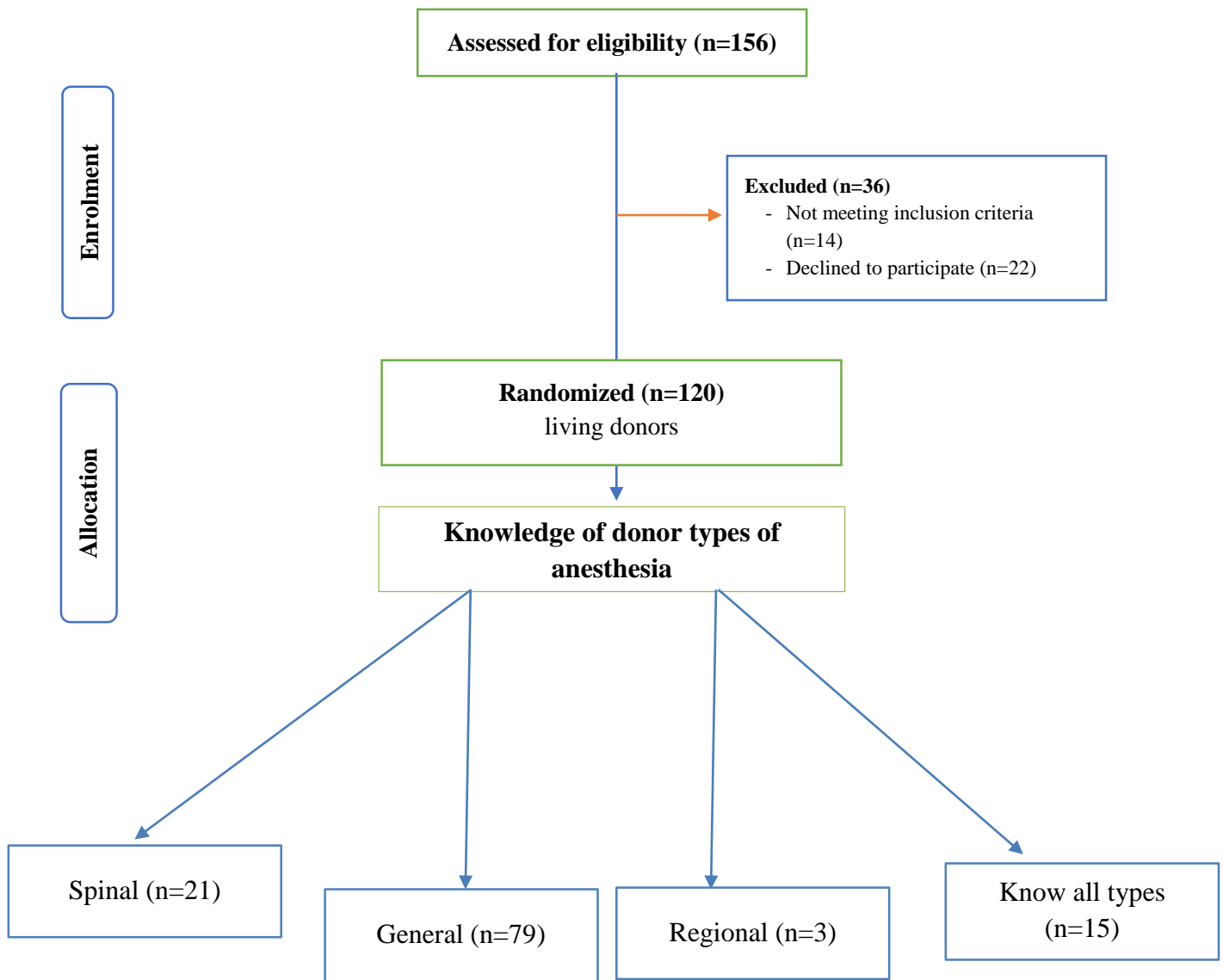


Figure (1): Flowchart of the studied living donors.

In our study, the mean age of our patients was 35.38 ± 7.04 years old, males were the most commonly frequently found in 69 (57.5%), love of recipient 49 (40.8%) was the most cause of donation, 38.3% of patients had an operative history, also, 41(34.2%) were worker, and 60 (50%) had technical education, 71 (59.2%) were married, regarding, the relation of donor to recipient, 34 (28.3%) had relative of 3rd degree, love toward recipients was the most common reason of donation, found in 81 living donors (67.5%) (Table 1).

Table (1): Socio-demographic data among studied cases.

Age (years)		
Mean ±SD	35.38±7.04	
Range	20.00 - 45.00	
Sex	N	%
Male	69	57.5
Female	51	42.5
Cause of donation		
Love of recipient	49	40.8
Financial	35	29.2
Social pressure as family expectation	30	25.0
Chance to save family	6	5.0
Operative history		
Tonsillectomy	21	17.5
None	74	61.7
Appendectomy	9	7.5
Cesarian section	16	13.3
Occupational status		
Doctor	13	10.8
Engineer	31	25.8
Worker	41	34.2
Teacher	17	14.2
Farmer	11	9.2
Housewife	7	5.8
Education level		
Highly educated	31	25.8
Technical education	60	50.0
Non-educated	29	24.2
Marital status		
Married	71	59.2
Unmarried	32	26.7
Divorced	17	14.2
Relation of donor to recipients		
No	18	15.0
Mother to son or daughter	14	11.7
Daughter to parents	12	10.0
Unrelated	22	18.3
Relative of 3 rd degree	34	28.3
Volunteer	2	1.7
Son to parents	9	7.5
Wife to husband	7	5.8
Husband to wife	2	1.7
Reason of donation		
Need of money	17	14.2
Love toward recipients	81	67.5
Family pressure to donate.	19	15.8
Volunteer	3	2.5

In our study, donor concerning problem in anesthesia was bleeding 67(55.8%), knowledge of donor regarding years or faculty of anesthetist was found in 71 (59.2%), most of the studied donors preferred male anesthetists (n=70, 58.3%), known general type of anesthesia (n=81, 67.5%), known the role of anesthesia in operation (n=96, 80%), concerned fear of long hospital stay (n=80, 66.7%), concerned postoperative pain (n=62, 51.7%), concerned fear complications of anesthesia or Ethan surgery (n=83, 69.2%), concerned fear of intraoperative awareness (n=77, 64.2%), concerned disclosing personal matter (n=79, 65.8%), sured that anesthetist attends whole operation (n=70, 58.3%), concerned afraid of needles (n=92, 76.7%), concerned afraid of nausea and vomiting (n=71, 59.2%), knows the importance of preoperative visit (n=93, 77.5%). Also, 96(80%) of living donors were not interested in the kind of food, and 54(45%) were concerned about fear of death. However, 74(61.7%) of donors asked about liver growth (Table 2).

Table (2): Living donors' questioners about anesthesia and anesthetists' information.

Previous anesthesia		
None	100	83.3
Minor operations	20	16.7
Donors concerned about problems with anesthesia		
No fears of anesthesia	12	10.0
Awareness	41	34.2
Bleeding	67	55.8
Donors know the years or faculty of anesthetists?		
Yes, they know he studied medicine.	71	59.2
No, they thought he was a technologist.	49	40.8
Donors concerned prefer male/female		
Prefer male anesthetists.	70	58.3
No difference	50	41.7
Knowledge of donor types of anesthesia		
Spinal	21	17.5
General	81	67.5
Regional	3	2.5
Know all types	15	12.5
Know the role of anesthesia in operation.	96	80.0
Concerned fear of long hospital stays	80	66.7
Concern fear of anesthesia and surgery		
Fear complications of anesthesia or Ethan surgery	83	69.2
Fear of surgical complications more than anesthesia	28	23.3
Feel no complications will happen	9	7.5
Donor concern postoperative pain	62	51.7
Donor concern interoperative awareness		
Fear of awareness	77	64.2
No fears	43	32.8
Donor concerning about disclosing personal matters	79	65.8
Donor concern anesthetist attends the whole operation		
Sure, that anesthetist attends the whole operation.	70	58.3
Think they will leave him anesthetized till the end of the operation	50	41.7
Donor concern afraid of needles	92	76.7
Donor concern afraid of nausea and vomiting	71	59.2
Knowledge of donor about importance of preoperative visit		
Very important	93	77.5
Not of benefit	12	10.0
Neutral regarding the visit	15	12.5
Donor concern what kind of food after the operation		
Yes	24	20.0
Not interested	96	80.0
Donor concerned about fear of death	54	45.0
Donor concern if the liver will grow again.		
Asked about liver growth.	74	61.7
Did not ask	46	38.3

In our study, there was a significant relation between the cause of donation with sex, operative history, job, education, marital status, the relation of the donor to recipient, previous anesthesia, donor concern regarding problem in anesthesia, knowledge of donor about years or faculty of anesthetist, donor concern regarding preference of male anesthetist, knowledge of donor types of anesthesia and its role in operation, donor concern fear of long hospital stay, donor concern regarding post-operation pain, donor concern fear of anesthesia and surgery, donor concern regarding intraoperative awareness, donor concern regarding disclosing personal matter, donor concern regarding anesthetist attendance of whole operation, donor concern fear of needles, donor concern fear of nausea and vomiting, knowledge of donor importance of preoperative visit, donor concern what kind of food, donor concern fear of death, donor concern will the liver grow again ($p < 0.05$), (Table 3).

Table (3): The relation between the cause of donation and socio-demographic data among studied cases.

	Cause of donation								X ²	P value
	Love of recipient (n=49)		Financial (n=35)		Social pressure as family expectation (n=30)		Chance to save family (n=6)			
	N	%	N	%	N	%	N	%		
Sex										
Male	26	53.1	28	80.0	15	50.0	0	0.0	16.454	<0.001*
Female	23	46.9	7	20.0	15	50.0	6	100.0		
Operative history										
Tonsillectomy	2	4.1	15	42.9	4	13.3	0	0.0	35.730	<0.001*
None	37	75.5	13	37.1	18	60.0	6	100.0		
Appendectomy	6	12.2	3	8.6	0	0.0	0	0.0		
Cesarian section	4	8.2	4	11.4	8	26.7	0	0.0		
Occupation status										
Doctor	10	20.4	3	8.6	0	0.0	0	0.0	58.901	<0.001*
Engineer	14	28.6	9	25.7	8	26.7	0	0.0		
Worker	8	16.3	20	57.1	13	43.3	0	0.0		
Teacher	8	16.3	3	8.6	3	10.0	3	50.0		
Farmer	2	4.1	0	0.0	6	20.0	3	50.0		
Housewife	7	14.3	0	0.0	0	0.0	0	0.0		
Education level										
Highly educated.	21	42.9	7	20.0	0	0.0	3	50.0	31.105	<0.001*
Technical education	15	30.6	24	68.6	21	70.0	0	0.0		
Non-educated	13	26.5	4	11.4	9	30.0	3	50.0		
Marital status										
Married	33	67.3	22	62.9	16	53.3	0	0.0	15.460	0.017*
Unmarried	8	16.3	10	28.6	11	36.7	3	50.0		
Divorced	8	16.3	3	8.6	3	10.0	3	50.0		
Previous anesthesia										
None	35	71.4	32	91.4	30	100.0	3	50.0	17.451	0.001*
Minor operations	14	28.6	3	8.6	0	0.0	3	50.0		
Concern about problems with anesthesia										
No fears of anesthesia	8	16.3	0	0.0	4	13.3	0	0.0	57.981	<0.001*
Awareness	28	57.1	0	0.0	7	23.3	6	100.0		
Bleeding	13	26.5	35	100.0	19	63.3	0	0.0		
Donors know years or faculty of anesthetists										
Yes, they know he studied medicine.	24	49.0	24	68.6	23	76.7	0	0.0	11.569	0.009*
No, they thought he is a technologist	25	51.0	11	31.4	7	23.3	3	50.0		
Prefer male/female antitheist										
Prefer male anesthetists.	20	40.8	27	77.1	23	76.7	0	0.0	23.829	<0.001*
No difference	29	59.2	8	22.9	7	23.3	6	100.0		
Knowledge about types of anesthesia										
Spinal	6	12.2	3	8.6	12	40.0	0	0.0	89.777	<0.001*
General	35	71.4	28	80.0	18	60.0	0	0.0		
Regional	0	0.0	0	0.0	0	0.0	3	50.0		
Know all types.	8	16.3	4	11.4	0	0.0	3	50.0		
Know role of anesthesia in operation.	40	81.6	29	82.9	27	90.0	0	0.0	26.135	<0.001*
Donor concern fear of long hospital stay	32	65.3	22	62.9	23	76.7	3	50.0	2.369	0.499
Donor concern fear of anesthesia and surgery	32	65.3	24	68.6	27	90.0	0	0.0	93.233	<0.001*
Fear complications of anesthesia more than surgery										

	Cause of donation								X ²	P value	
	Love of recipient (n=49)		Financial (n=35)		Social pressure as family expectation (n=30)		Chance to save family (n=6)				
	N	%	N	%	N	%	N	%			
Sex											
Male	26	53.1	28	80.0	15	50.0	0	0.0	16.454	<0.001*	
Female	23	46.9	7	20.0	15	50.0	6	100.0			
Fear of surgical complications more than anesthesia	17	34.7	11	31.4	0	0.0	0	0.0			
Feel no complications will happen	0	0.0	0	0.0	3	10.0	6	100.0			
Donor concern postoperative pain	32	65.3	22	62.9	8	26.7	0	0.0	19.328	<0.001*	
Donor concern intraoperative awareness											
Fear of awareness	32	65.3	22	62.9	23	76.7	0	0.0	7.487	0.058	
No fears	17	34.7	13	37.1	7	23.3	3	50.0			
Donors concerned with disclosing personal matters	32	65.3	24	68.6	23	76.7	0	0.0	13.249	0.004*	
Donor concern anesthetist attends the whole operation											
Sure, that anesthesia attends whole operation	32	65.3	22	62.9	16	53.3	0	0.0	9.983	0.019*	
Think they will leave him anesthetized till end of operation	17	34.7	13	37.1	14	46.7	6	100.0			
Donor concern fear of needles	41	83.7	24	68.6	27	90.0	0	0.0	25.323	<0.001*	
Donor concern fear of nausea and vomiting	38	77.6	25	71.4	8	26.7	0	0.0	30.843	<0.001*	
Knowledge of donor about importance of preoperative visit											
Very important	43	87.8	29	82.9	15	50.0	6	100.0			
Not of benefit	0	0.0	4	11.4	8	26.7	0	0.0	22.877	0.001*	
Neutral regarding the visit	6	12.2	2	5.7	7	23.3	0	0.0			
Donors are concerned about kind of food after the operation											
Yes	20	40.8	0	0.0	4	13.3	0	0.0	24.354	<0.001*	
Not interested	29	59.2	35	100.0	26	86.7	6	100.0			
Donor concern fear of death	32	65.3	18	51.4	4	13.3	0	0.0	25.812	<0.001*	
Donor concern if the liver will grow again.											
Asked about liver growth.	32	65.3	22	62.9	20	66.7	0	0.0	10.265	0.016*	
Did not ask	17	34.7	13	37.1	10	33.3	6	100.0			

*: Significant

In the present study, there was a significant relationship among knowledge of donor types of anesthesia with sex, operative history, job, education, marital status, the relation of the donor to recipient, donor concern regarding problem in anesthesia, knowledge of donor about years or faculty of anesthetist, donor concern regarding preference of male/female, knowledge of donor about types, donor concern fear of long hospital stay, donor concern fear of anesthesia and surgery, donor concern regarding intraoperative awareness, donor concern regarding disclosing personal matter, donor concern regarding anesthetist attendance of whole operation, donor concern fear of needles, donor concern fear of nausea and vomiting, knowledge of donor about importance of preoperative visit and donor concern if the liver will grow again (p<0.05). While no significant relation was found between knowledge of donor types of anesthesia with previous anesthesia, donor concern about postoperative pain, donor concern about what kind of food, and donor concern fear of death (p>0.05), (Table 4).

Table (4): The association between knowledge of donor types of anesthesia and Socio-demographic data among studied cases.

	Knowledge of donor types of anesthesia								X ²	P value
	Spinal (n=21)		General (n=79)		Regional (n=3)		Know all types (n=15)			
	N	%	N	%	N	%	N	%		
Sex										
Male	7	33.3	60	73.4	0	0.0	2	13.3	30.720	<0.001*
Female	14	66.7	21	26.6	3	100.0	13	86.7		
Operative history										
Tonsillectomy	6	28.6	15	16.5	0	0.0	0	0.0	62.614	<0.001*
None	7	33.3	57	72.2	3	100.0	7	46.7		
Appendectomy	0	0.0	9	11.4	0	0.0	0	0.0		
Cesarian section	8	38.1	0	0.0	0	0.0	8	53.3		
Occupation status										
Doctor	0	0.0	11	13.9	0	0.0	2	13.3	57.934	<0.001*
Engineer	4	19.0	23	29.1	0	0.0	4	26.7		
Worker	7	33.3	32	38.0	0	0.0	2	13.3		
Teacher	4	19.0	10	12.7	3	100.0	0	0.0		
Farmer	6	28.6	2	2.5	0	0.0	3	20.0		
Housewife	0	0.0	3	3.8	0	0.0	4	26.7		
Education level										
Highly educated.	4	19.0	18	22.8	3	100.0	6	40.0	26.863	0.001*
Technical education	11	52.4	47	59.5	0	0.0	2	13.3		
Non-educated	6	28.6	16	17.7	0	0.0	7	46.7		
Marital status										
Married	12	57.1	53	64.6	0	0.0	6	40.0	28.761	<0.001*
Unmarried	9	42.9	18	22.8	3	100.0	2	13.3		
Divorced	0	0.0	10	12.7	0	0.0	7	46.7		
Reason of donation										
Need of money	4	19.0	9	11.4	0	0.0	4	26.7	29.557	0.003*
Love toward recipient	14	66.7	56	68.4	3	100.0	8	53.3		
Family pressure to donate.	3	14.3	16	20.3	0	0.0	0	0.0		
Volunteer	0	0.0	0	0.0	0	0.0	3	20.0		
Previous anesthesia	4	19.0	13	16.5	0	0.0	3	20.0	1.208	0.877
Donor concern problems in anesthesia										
No fears of anesthesia	8	38.1	4	5.1	0	0.0	0	0.0	38.512	<0.001*
Awareness	0	0.0	29	36.7	3	100.0	9	60.0		
Bleeding	13	61.9	48	58.2	0	0.0	6	40.0		
Donors know years or faculty of anesthetists	16	76.2	51	64.6	0	0.0	4	26.7	14.093	0.007*
Donors concerned preference of male/female	10	47.6	48	60.8	0	0.0	12	80.0	11.080	0.026*
Donors know the role of anesthesia in operation	18	85.7	66	81.0	0	0.0	12	80.0	12.979	0.011*
Donor concern fear of long hospital stay.	16	76.2	53	67.1	0	0.0	11	73.3	11.163	0.025*
Donor concern fear of anesthesia and surgery										
Fear complications of anesthesia more than surgery	16	76.2	59	74.7	0	0.0	8	53.3	50.941	<0.001*
Fear of surgical complications more than anesthesia	5	23.8	19	21.5	0	0.0	4	26.7		
Feel no complications will happen	0	0.0	3	3.8	3	100.0	3	20.0		
Donor concern postoperative pain	8	38.1	46	58.2	0	0.0	8	53.3	8.272	0.082

	Knowledge of donor types of anesthesia								X ²	P value
	Spinal (n=21)		General (n=79)		Regional (n=3)		Know all types (n=15)			
Donors concerned about intraoperative awareness	16	76.2	53	67.1	0	0.0	8	53.3	10.691	0.030*
Fear of awareness										
Donor concern disclosing personal matter	16	76.2	55	69.6	0	0.0	8	53.3	12.181	0.016*
Donor concern anesthesiologist attends the whole operation.										
Sure, that anesthesia attends the whole operation	16	76.2	46	58.2	0	0.0	8	53.3	9.910	0.042*
Think they will leave him anesthetized till the end of operation	5	23.8	35	41.8	3	100.0	7	46.7		
Donor concern fear of needles	16	76.2	64	81.0	0	0.0	12	80.0	17.359	0.002*
Donor concern fear of nausea and vomiting	10	47.6	57	69.6	0	0.0	4	26.7	17.017	0.002*
Knowledge of donor about importance of preoperative visit										
Very important	13	61.9	70	86.1	3	100.0	7	46.7	38.505	<0.001*
Not of benefit	8	38.1	0	0.0	0	0.0	4	26.7		
Neutral regarding the visit	0	0.0	11	13.9	0	0.0	4	26.7		
Donor concerned about what kind of food after the operation	8	38.1	16	20.3	0	0.0	0	0.0	9.301	0.054
Donor concern fear of death	8	38.1	42	53.2	0	0.0	4	26.7	8.660	0.070
Donor concern if the liver will grow again	16	76.2	50	63.3	0	0.0	8	53.3	10.446	0.034*

*: Significant

Data presented in table 5 indicated that there was a significant relation between donor concern fear of death with sex, operative history, job, the relation of the donor to recipient, donor concern problem in anesthesia, knowledge of donor about years or faculty of anesthesiologist, donor concern postoperative pain, donor concern fear of anesthesia and surgery, donor concern intraoperative awareness, donor concern disclosing personal matter, donor concern anesthesiologist attends whole operation, donor concern fear of needles, donor concern fear of nausea and vomiting, knowledge of donor about importance of the preoperative visit, donor concern about kind of food after the operation, donor concern fear of death, donor concern if the liver will grow again and knowledge of the role of anesthesia in operation (p<0.05). While there was no significant relation between donor concern fear of death with education, marital status, previous anesthesia, and donor concern regarding preference of male anesthesiologist (p>0.05), (table 5).

Table (5): The association between donors concerned with fear of death and Socio-demographic data among studied cases.

	Donors concerned about fear of death				X ²	P value
	Yes (n= 54)		No (n= 66)			
	N	%	N	%		
Sex					6.655	0.010*
Male	38	70.4	31	47.0		
Female	16	29.6	35	53.0		
Operative history					14.331	0.002*
Tonsillectomy	14	25.9	7	10.6		
None	36	66.7	38	57.6		
Appendectomy	0	0.0	9	13.6		
Cesarian section	4	7.4	12	18.2		
Occupational status					11.641	0.040*
Doctor	8	14.8	5	7.6		
Engineer	13	24.1	18	27.3		
Worker	21	38.9	20	30.3		
Teacher	8	14.8	9	13.6		
	0	0.0	11	16.7		

	Donors concerned about fear of death				X ²	P value
	Yes (n= 54)		No (n= 66)			
	N	%	N	%		
Sex						
Male	38	70.4	31	47.0	6.655	0.010*
Female	16	29.6	35	53.0		
Farmer	4	7.4	3	4.5		
Housewife						
Educational level						
Highly educated.	16	29.6	15	22.7	4.707	0.095
Technical education	30	55.6	30	45.5		
Non-educated	8	14.8	21	31.8		
Marital status						
Married	37	68.5	34	51.5	5.162	0.076
Unmarried	9	16.7	23	34.8		
Divorced	8	14.8	9	13.6		
Relation of donor to recipient						
Mother to son or daughter	4	7.4	10	15.2		
Daughter to parents	4	7.4	8	12.1		
Unrelated	13	24.1	9	13.6	16.118	0.024*
Relative of 3 rd degree	25	46.3	9	13.6		
Volunteer	0	0.0	2	3.0		
Son to parents	4	7.4	5	7.6		
Wife to husband	4	7.4	3	4.5		
Husband to wife	0	0.0	2	3.0		
Previous anesthesia	8	14.8	12	18.2	0.242	0.622
Donor concern about problems with anesthesia						
No fears of anesthesia	12	22.2	0	0.0	26.604	<0.001*
Awareness	24	44.4	17	25.8		
Bleeding	18	33.3	49	74.2		
Donors know years or faculty of anesthetist	46	85.2	25	37.9	25.233	<0.001*
Donor concerned preference male/female	30	55.6	40	60.6	0.312	0.577
Donors know role of anesthesia in operation.	54	100.0	42	63.6	24.545	<0.001*
Donor concern fear of long hospital stay	54	100.0	26	39.4	49.091	<0.001*
Donors concerned about fear of anesthesia and surgery	54	100.0	29	43.9		
Fear complications of anesthesia more than surgery					43.768	<0.001*
Fear of surgical complications more than anesthesia	0	0.0	28	42.4		
Feel no complications will happen	0	0.0	9	13.6		
Donor concern postoperative pain	54	100.0	8	12.1	91.848	<0.001*
Donor concern intraoperative awareness	54	100.0	23	34.8	52.096	<0.001*
Donor concern disclosing personal matter	54	100.0	25	37.9	50.955	<0.001*
Donor concern anesthetist attends whole operation.						
Sure, that anesthesia attends the whole operation	54	100.0	16	24.2	70.130	<0.001*
Think they will leave him anesthetized till end of the operation	0	0.0	50	75.8		
Donor concern afraid of needles	54	100.0	38	57.6	29.881	<0.001*
Donor concern afraid of nausea vomiting	46	85.2	25	37.9	27.511	<0.001*
Knowledge of donor importance of preoperative visit						
Very important	54	100.0	39	59.1	28.504	<0.001*
Not of benefit	0	0.0	12	18.2		
Neutral regarding the visit	0	0.0	15	22.7		
Donor concern what kind of food						
Yes	24	44.4	0	0.0	36.667	<0.001*
Not interested	30	55.6	66	100.0		
Donor concern if the liver will grow again	54	100.0	20	30.3	61.032	<0.001*

*: Significant.

DISCUSSION

According to current recommendations, donors of living organs should not be subjected to "coercion". But some contend that because donation is considered to be the sole accessible therapeutic option or because it is "lifesaving," it is impractical to completely remove all forms of compulsion or obligation^[5]. Make every attempt to confirm that the possible living-liver donor's offered gift is sincere, voluntary, and uncoerced. In addition to being medically free, competent, and of a proper age, he or she should also be ready to donate and well educated about the advantages and disadvantages of any alternative therapy as well as its availability to the intended recipient^[6]. It is important to make sure the prospective donor is fully aware of the dangers associated with surgery, including the possibility of complications and death for both the donor and the recipient. It is quite challenging to guarantee that the donor made their decision to continue donating freely and without being under any kind of pressure^[7].

Our study showed a significant relation between the cause of donation with sex, operative history, job, education, marital status, the relation of the donor to recipient, previous anesthesia, donor concern problem in anesthesia, knowledge of donor about years or faculty of anesthetist, donor concern prefers male, knowledge of donor types, donor concern fear of long hospital stay, donor concern post-operation pain, donor concern fear of anesthesia and surgery, donor concern intraoperative awareness, donor concern disclosing personal matter, donor concern anesthetist attends whole operation, donor concern fear of needles, donor concern fear of nausea and vomiting, knowledge of donor about importance of preoperative visit, donor concern about kind of food after operation, donor concern fear of death, donor concern if the liver will grow again, In same line, **Papachristou et al.**^[8] found that every donor, including those who later had second thoughts, first "spontaneously" consented to make a contribution. Donors have little knowledge of the hazards involved with living donor liver transplantation (LDLT) when they made their first decision. This implies that the choice was the product of an emotional response rather than a reasoned procedure. The responses stemmed from the recipient's fatal illness, dread of dying, wanting to rescue a loved one, or moral, societal, or familial demands.

Another study by **Park et al.**^[9] reported that some would-be living-liver donors might believe they are unable to exercise their right to free will and are under pressure to give to their loved ones. Conversely, some contend that moral principles and emotions are inherent to human existence and do not impede one's ability to make their own decisions. The donor should always have adequate time to consider their choice and be given the option to back out at any moment prior to the surgery. Similar findings were made by **Simmons et al.**^[10], who discovered that a successful, conflict-free decision-making process depended on the connections

between donor-recipient pairings. A parent offering to give to a kid, even an adult child, resulted in less stressful family dynamics, improved communication, less pressure on others to donate, and an increase in the number of volunteers. Moreover, **Chisuwa et al.**^[11] found that the majority of donors indicated contentment with both the liver donation process and LDLT. Despite having to endure extensive surgery, many donors expressed their happiness knowing that they had given the recipient some chance for a full recovery. Nevertheless, it is significant that 4 (27%) of the 15 donors whose recipients passed away and 17 donors failed to return the questionnaire provided their thoughts on becoming a donor.

According to different research by **Ross et al.**^[12], family members have a moral duty to donate organs. This expectation stems from the idea that moral duties within families are created by close relationships. Intimacy also suggests that there are shared wants and interests. Thus, their thought that even if there may be a danger to the donor, there may be a moral imperative for interfamilial organ donation if it fulfills the demands of a next of kin.

Also, **O'Connor et al.**^[13] found that the fact that the majority of research participants described less "horrible" pain than anticipated may have something to do with the thorough explanation of pain and related symptoms they received as part of their preoperative education and their postoperative recovery. The amount and kinds of gadgets and tubes the research participants had in their bodies worried them, even though they felt ready and supported during the recovery phase. A spoken explanation of the tubes and devices utilized during the postoperative recovery phase is provided, along with a film of the surgical process, as part of their preoperative patient education. In spite of this, the patients' actual experience differed from the preparation. In different research, **Winsett et al.**^[14] noted that participants were unprepared for the adverse effects of the pain drugs and that the discomfort exceeded their expectations, even with preoperative information.

Likewise, **Simpson et al.**^[15] reported that male donors of right hepatic lobe (RHL) were more common; this was observed in both the ambivalent donors (AD) subgroup (73.3%) and the cohort as a whole (63.9%). A number of variables might explain the differences, including significant shifts in the family economic structure in Western nations. The commonly quoted claim that the interim recovery time associated with their gift would not significantly affect the overall stability of the family structure is refuted by the fact that wives and mothers now routinely contribute significantly to the family finances^[16].

Moreover, **Simpson et al.**^[15] revealed that the ADs often have advanced degrees. All had finished high school, and 80% were pursuing or had already obtained baccalaureate degrees; just 17% of the UAD cohort had graduated from college. It is challenging to give a

specific interpretation for this finding. The necessity of weighing several approaches to a particular issue is typically emphasized in a university setting. There might be some ambiguity if that skill set is reflexively used to RHL contribution.

In another study, **Gordon et al.** [17] found that preoperative anxiety is linked to psychological stress and uncertainty regarding organ donation, therefore patient education may help lower these kinds of fears. As a result, it's critical to look for ways to comfort donors before to surgery and enhance the favorable view of organ donation through adequate education and knowledge. Furthermore, **Lai et al.** [18] found that because of the potential problems and detrimental effects of surgery on their life, the donors exhibit complex emotions including dread and worry. Specifically, the symptoms experienced by donors—such as gastrointestinal issues, persistent exhaustion, and a compromised immune system—may be challenging to identify, disregarded, or improperly treated [19].

In present study a significant relation between donor concern fear of death with sex, operative history, job, the relation of the donor to recipient, donor concern problem in anesthesia, knowledge of donor about years or faculty of anesthetist, donor concern postoperative pain, donor concern fear of anesthesia and surgery, donor concern intraoperative awareness, donor concern disclosing personal matter, donor concern anesthetist attend whole operation, donor concern afraid of needles, donor concern afraid of nausea and vomiting, knowledge of donor importance of the preoperative visit, donor concern what kind of food after operation, donor concern fear of death, donor concern if the liver will grow again and knowledge of donor about the role of anesthesia in operation. While no significant relation between donor concern fear of death with education, marital status, previous anesthesia, and donor concern preferring males.

In the same line, **Walter et al.** [20] reported that ambivalent donors mostly express worries about the surgery, including the chances of complications and mortality. For many donors, LDLT represents their only hope to save the lives of their loved ones. They see donating as a natural response and a responsibility to do whatever it takes to actively support them. Also, **Abdeldayem** [21] reported that Some living-liver donors express concern about how the LDLT procedure may affect their own life, but aiding their loved ones is a more pressing matter. Saving the patient's life will also benefit the donor, since they will no longer have to deal with the stress of witnessing them suffer and die. The donor understands that the donation will help both the patient and the giver himself or herself. Also, **Nadalin et al.** [22] reported that certain things may cause donors to be concerned. These considerations include worry of being medically unsuitable for donation, dread of the recipient's bad outcome or death, concern of long-term

repercussions of the treatment, an unstable emotional bond with the recipient, and family opposition.

CONCLUSION

Although most donors took the choice to donate by themselves and looked firm and resolute, a considerable percentage of donors were concerned about the potential problems of organ donation and the implications on their life following donation. A specific and rigorous psychosocial evaluation methodology is required to assist and safeguard their decision before and after donation.

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