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Research Paper

Quality of life of kidney transplant donor at shahid dharmabhakta national transplant centre, nepal

Archana Bagale[1*], Dr. Swostik Pradhananga[2], Saru Koju[3]
[1*]Transplant Coordinator, SDNTC, M.Sc Nursing (BPKIHS), MA Child Development, Mphil PhD Scholar, Child Development, TU, Nepal.
[2]Medical Officer, Shahid Dharmabhakta National Transplant Centre, Kathmandu, Nepal.
[3]Transplant Co-coordinator, Shahid Dharmabhakta National Transplant Centre, Kathmandu, Nepal.

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ABSTRACT

End-stage renal disease has a high rate of mortality and morbidity globally. Kidney transplantation remains the best treatment option in comparison to other forms of renal replacement. This study was carried out to compare QOL before and after donor nephrectomy. The aim of study was to assess the quality of life of the living donor. Methods: A prospective cross-sectional study was conducted among 80 renal transplant donors of Shahid Dharmbhakta National Transplant Centre from February 2021 to February 2022. A consecutive sampling technique was done for data collection. Short Form 36 version 2 (SF36v2) was used to assess the quality of life of kidney donors. The interview was conducted by researcher just before and twelve months after the donor nephrectomy who came for follow up in that center. Score of eight domains of quality of life before and after transplant were compared with paired t-tests through SPSS software 20. Results: Out of eight domains of quality of life, physical functioning, fatigue, emotional well-being, pain and general health were decreased 12 months after donation. Domains of QOL; physical functioning, limitation due to physical health, Role limitation due to emotional problems, Energy Role, fatigue, Emotional wellbeing, social functioning, pain and general health, were compared using paired T-test. The result showed (M= 70.60 SD=18.67) before transplant and M= 66.92 SD= 17.30 one year post transplant. Mean decrease is M= 3.68, SD= 3.56, df= 7, (95% Cl 0.7, 6.6), p=0.02. Domain of Quality of life like Physical functioning (p=0.001), limitation due to physical health (p=0.01), energy role fatigue (p=0.001), pain and general health (p=0.001) were significantly associated with kidney donation in donors. Conclusion: The quality of life of renal transplant donors was affected by donor nephrectomy.

Corresponding Author:
Archana Bagale
Transplant Coordinator, SDNTC, M.Sc Nursing (BPKIHS), MA Child Development, Mphil PhD Scholar, Child Development, TU, Nepal.
Email: archanamachhindra2045@gmail.com

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1. INTRODUCTION

Organ donation can save others life. It is one of the major advances in medical science which provide new life to other fellow human being [1].

Chronic Kidney Disease like many other chronic illnesses is associated with high rates of mortality and morbidity. It has economic impact on patient, patient's family and on the healthcare system [2]. The first successful living kidney donor transplantation was done in 1954 in Boston Massachusetts, between identical twin brothers. Kidney transplantation is now prioritized treatment options for many patient that increases the quality of life of CKD patients [3].

2. RELATED WORK

Donor with nephrectomy can live a normal life after kidney donation. They can be discharged from hospital in few days of nephrectomy. They can perform activities of daily living within few days. Heavy work is restricted for few weeks [4].

The study can be of great value to prospective donors and transplant teams to know about the quality of life of donors after unilateral nephrectomy. It will help the transplant team to counsel the prospective donor and recipient regarding their donor's life after transplant surgery.

- It creates awareness among family members who want to donate their kidney but fear quality of life after OT.
- The findings can be utilized by other agencies and organizations for improving the awareness of the Quality of life of Kidney Donor
- The findings of the study can provide a basis for investigations for further research
- Not much such research has been carried out in Nepal till date.

General Objective: To assess the quality of life of the living donor

Specific Objectives

- To assess the quality of life of the donor before and after 12 months of unilateral nephrectomy
- To find out the association of QOL with selected sociodemographic variables, relation to recipient and systemic factors

Study Variables

Dependent/Outcome Variable: Quality of Life

Independent Variable: Socio-demographic, cultural, and economic factors (Age, Sex, Education, Occupation Family income, Religion, Family income, Ethnicity, type of family)

- Relation to the recipient

3. METHODOLOGY

A prospective cross-sectional study was conducted among 80 renal transplant donors of Shahid Dharmbhakta National Transplant Centre (SDNTC) from February 2021 to February 2022. A consecutive sampling technique was done for data collection. A face-to-face interview was taken by the same investigator. Ethical approval was taken from Nepal Health Research Council. Data were taken with the help of a structured questionnaire. The questionnaire consists of two parts. The first part consists of some basic donor information and demographic details. The second part of the questionnaire consists of the SF-

36 questionnaire. SF-36 is a standardized questionnaire to measure the QOL. It assesses eight health phenomena: (a) limitations on physical functioning because of health problems; (b) limitations in usual activities because of physical health problems (role-physical); (c) bodily pain; (d) general health perception; (e) vitality (energy and fatigue); (f) limitations on social functioning because of physical or emotional problems; (g) limitations on usual activities because of emotional problems (role-emotional); (h) general mental health (psychological distress and well-being) [5]. After taking informed consent, subjects were asked to respond to the questionnaire and SF-36 survey. Interviews were individually conducted by the same investigator at two different time points: i) before nephrectomy. ii) 12 months after transplantation.

Analysis was done using Statistical Package for Social Sciences (SPSS) version 17.0 (SPSS Inc., Chicago, IL, USA). Kolmogorov–Smirnov test was used to verify any departures from normality. In the case of normal distribution, data were summarized in terms of means and standard deviation. Where data is found to be skewed, results were summarized as median and ranges. The change of QOL across time in study participants was determined using paired sample t-test depending on the normality of the distribution of SF-36 scores. Attempts have also been made to assess the proportion of donors who have reduced QOL and have been compared with donors without reduced QOL scores on pre-donation variables. The association was assessed using a t-test (in case of continuous variables) or chi-square (in case of categorical variables). Variables have been entered in multiple linear regression analyses to determine independent predictors of poorer QOL. The level of significance has been chosen as < 0.05.

4. RESULTS AND DISCUSSION

Table 1. Socio Demographic Variables of Renal Transplant Donor

N=80

Variables	Frequency(Percentage)
Ethnicity	
Brahmin/ Chhetri	31(38.8%)
Janajati	33(41.3%)
Madeshi	12(15%)
Address	
Rural	35(43.8)%
Urban	45956.25%)
Relation	
Parents to Children	30(37.5%)
Wife to Husband	30(37.5%)
Siblings	6(7.5%)
Husband to wife	2(2.5%)
Education	
Literate	34(42.5%)
Illiterate	46(57.5%)
Sex	
Male	23((28.75%)
Female	57(71.25%)
Age Group	
20-29	5(6.3%)
30-39	17(21.3%)
40-49	19 (23.8%)
50-59	25(31.3%)
60-69	12 (15%)
above 70	2(2.5%)

Table 1 depicts that more than one-third of patients i.e. 41.3% of donors were from the Janajati ethnic group. Only 12% of donors were from other ethnic group. More than half of the respondents i.e. 56.3% were from urban areas. More than one-third of donors were parents and wives of the recipients. Whereas only 2.5% of the donor were husbands who donated their kidneys to their wives. More than half of respondents i.e. 57.5% were illiterate. More than three fourth of donors i.e. 71.25% were female. About one-third of donors were of age group.50-59 years. Only 2.5% of donors were of age 70 years and older.

Table 2. SF 36 Score of Quality of Life of Renal Transplant Donor before Renal Transplant

N=80

Domain of QOL	Before Transplant			After Transplant	
	Minimum Score	Maximum Score	Mean Score	Minimum Score	Mean Score
Physical functioning	20.00	100.00	87.75	15.00	79.56
limitation due to physical health	.00	100.00	43.43	.00	38.12
Role limitation due to emotional problems	.00	100.00	42.29	.00	41.45
Energy Role fatigue	25.00	100.00	71.68	20.00	71.00
Emotional wellbeing	32.00	100.00	73.71	32.00	73.56
Social functioning	12.50	100.00	72.65	12.50	72.18
Pain	32.50	100.00	84.34	10.00	92.81
General Health	35.00	100.00	80.50	25.00	75.18
SD:18.76(Before), SD:17.31(After donation)					

Table 2 depicts that the mean score after the donation of physical functioning, role limitation to physical health, limitation to emotional health, fatigue, emotional wellbeing, social functioning, pain and general health are 79.56, 38.12, 41.45, 71, 73.56, 72.18, 84.34 and 75.18 respectively.

Table 3. Comparison of QOL Scores across Several Categories of SF 36 Using Paired T-Test, before and after Donor Nephrectomy

N=80

Domain of QOL	Before	After	P value
Physical Functioning	87.75	79.56	0.001
limitation due to physical health	43.43	38.12	0.01
Role limitation due to emotional problems	42.29	41.45	0.76
Energy Role fatigue	71.68	71	0.001
Emotional wellbeing	73.7125	73.56	0.95
Social functioning	72.6563	72.18	4.47
Pain	84.34	92.81	0.003
General Health	80.5000	75.18	0.01

Table 3 depicts that domains like physical functioning, energy role; fatigue, pain and general health were affected significantly after organ donation. Domain of Quality of life like Physical functioning (p=0.001), limitation due to physical health (p=0.01), energy role fatigue (p=0.001), pain (p=0.003) and general health (p=0.0.01) were significantly associated with kidney donation in donors.

Discussion

The youngest patient who underwent donor nephrectomy was 23 years and the oldest was 73 years. Mean age at donation was 53.6 years with a standard deviation of 64.12 years. Majority of donors were female (71.25%) compared to males (28.75%). The finding is consistent with a similar study done in Nepal where the youngest patient who underwent donor nephrectomy was 18 years and the oldest 62 years. Most of the patients were in the 20 to 50 years age group (51.1%), followed by those more than 50 years (28.9%).

The finding is consistent with a similar study done in Japan where among 69 donors, 48 were women and 21 were men [6].

Donors in this study have an overall change in their quality of life before and after donation. They complained of bodily pain persisting at 12 months after donor nephrectomy. They also had limitations in their physical functioning and role. These limitations have consequences on the overall quality of life. As this study was done on short-term follow-up at 12 months, the bodily pain and physical role and function limitation experienced might be attributed to the post-operative pain. The finding is consistent with a similar study conducted in Nepal [7].

The finding is consistent with a similar study done in the Botucatu Medical School Hospital, Sao Paulo State University-UNESP observed worsening in physical and general health scores from pre-transplantation to four months post-transplantation [8].

In this study, domains like physical functioning, energy role; fatigue, pain and general health were affected significantly after organ donation. Domain of Quality of life like Physical functioning (p=0.001), limitation due to physical health (p=0.01), energy role fatigue (p=0.001), pain (p=0.003) and general health (p=0.0.01) were significantly associated with kidney donation in donors.

The finding is consistent with a similar study where preoperative, physical function (SF-36 Physical Component Score [PCS]) and Postoperative PCS fell significantly. Seven donors (16%) developed adjustment disorder or anxiety disorder [9].

The finding is inconsistent with the similar study done in Brazil, there is improved self-esteem and better quality of life after donation were reported in 52% of the cases [10].

The finding was inconsistent with similar study done in Bangladesh where donors' QOL is not compromised [11]. The finding is consistent with a similar study done in Nepal [2].

5. CONCLUSION

The result showed (M= 70.60 SD=18.67) before transplant and M= 66.92 SD= 17.30 one year post transplant. Mean decrease is M= 3.68, SD= 3.56, df= 7, (95% Cl 0.7, 6.6), p=0.02. This means we can conclude that QOL was decreased in post-transplant donor after one year. Organ donation has an impact on the overall quality of life of the donors. Increasing age was found to be an independent predictor of poorer quality of life. Domain of Quality of life like Physical functioning (p=0.001), limitation due to physical health (p=0.01), energy role fatigue (p=0.001), pain (p=0.003) and general health (p=0.0.01) were significantly associated with kidney donation in donors.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Archana Bagale	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	
Dr. Swostik Pradhananga		✓		✓		✓		✓	✓			✓		✓
Saru Koju	✓	✓		✓	✓		✓			✓		✓	✓	

C: **C**onceptualization
M: **M**ethodology
So: **So**ftware
Va: **Va**lidation
I: **I**nvestigation
R: **R**esources
D: **D**ata Curation
O: Writing- **O**riginal Draft
Vi: **Vi**sualization
Su: **Su**pervision
P: **P**roject Administration
Fu: **Fu**nding Acquisition

Fo: **Fo**rmal Analysis E: Writing- Review& **E**diting

Conflict of Interest

None.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

The study was conducted in compliance with the ethical principles outlined in the Declaration of Helsinki and approved by the relevant institutional authorities.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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BIOGRAPHIES OF AUTHORS

	**Archana Bagale,** is a Transplant Coordinator at Shahid Dharmabhakta National Transplant Centre, Kathmandu, Nepal. She holds a M.Sc. in Nursing from BPKIHS, an MA in Child Development, and is currently an MPhil/PhD Scholar in Child Development at Tribhuvan University. Her professional interests include transplant coordination, donor care, quality of life research, and patient counseling. She has been actively involved in clinical research focusing on renal transplant donors and improving transplant outcomes through evidence-based practice and multidisciplinary collaboration. Email: archanamachhindra2045@gmail.com
	**Dr. Swostik Pradhananga,** is a Medical Officer at Shahid Dharmabhakta National Transplant Centre, Kathmandu, Nepal. He is involved in the clinical management of renal transplant patients and living donors. His professional focus includes transplant medicine, perioperative care, and long-term follow-up of kidney transplant recipients and donors. Dr. Pradhananga actively contributes to clinical research and aims to enhance patient outcomes through evidence-based medical practice and collaborative healthcare approaches.
	**Saru Koju,** serves as a Transplant Co-coordinator at Shahid Dharmabhakta National Transplant Centre, Kathmandu, Nepal. She plays a key role in coordinating transplant procedures, donor evaluation, and follow-up care. Her work focuses on patient education, transplant logistics, and supporting multidisciplinary teams in delivering quality transplant services. She is also engaged in research activities related to transplant outcomes and quality of life among renal transplant donors.