

Optimism and Quality of Life after Renal Transplantation

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Abstract Optimism is considered to influence Quality of Life (QoL) in a positive way. The longitudinal study was carried out to find the impact of optimism (life orientation) on perceived Quality of life among renal transplant recipients (RTRs) to see if optimism increases subjective QoL. The findings revealed a significant positive correlation between optimism and perceived QoL, suggesting that optimist recipients tend to be more satisfied with their overall life post-transplant. Recipients did not differ in levels of optimism on the basis of gender, marital status, education, financial conditions and time since transplantation. Age was the only demographic factor found to be negatively associated with optimism, suggesting that optimism decreases with increasing age. In order to clarify the cause & effect relationship, a linear regression was carried out that showed that optimism does not predict QoL; however, an increased QoL does predict optimism which is an interesting and unexpected finding. Optimism was studied as a personality trait; however, it appeared to be more as an outcome of life experiences. A Cross lagged Correlation analysis was carried out to clarify the causal direction of this relationship between optimism and QoL. However, no clear causal direction was found indicative of an overlap among these constructs which seem to lack distinctiveness as separate constructs.

Keywords: renal transplantation, life orientation, optimism, quality of life, renal transplant recipients, psychosocial factors

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1. Introduction

Organ transplantation is a surgical procedure that influences an individual's physical health status and psychological well-being. Kidney transplants are the most commonly performed organ transplant with a high success rate and newer developments that have increased the survival rates (Fieberger, Mitterbauer, & Oberbauer 2004). The loss and re-gain of a kidney implicates psychological, clinical and environmental factors. How this surgical procedure is experienced and perceived by each recipient varies depending on the different socio-demographic, clinical and psychological factors (Fisher, Gould, Wainwright, & Fallon, 1998). This highlights the significance of personal factors such as attitudes and health beliefs in influencing Quality of life (QoL) after transplant.

Research attempting to investigate the impact of an individual's life orientation on perception and satisfaction of QoL has found that an optimistic approach to life may reduce the risk of health problems and may actually help people recover more quickly after experiencing a serious life-changing event (Kivimaki, Vahtera, Elovainio, Helenius, & Singh et al., 2005). People identified as optimistic have a tendency to expect good or acceptable outcomes in the future, while those at the other end of the spectrum, pessimistic, and expect bad or unacceptable

outcomes or experiences (Carver & Scheier, 2001; Scheier & Carver, 1985). Lin et al (2010) explored the relationship between optimism and life satisfaction among patients with end stage renal disease, with groups that were waiting and non-waiting for transplantation. It was found that both groups reported moderate levels of life satisfaction, whereas, those in the non-waiting group had a greater life satisfaction in general. However, all patients were optimistic and optimism was positively associated with life satisfaction. Besides that, other factors of optimism, age, work ability, waiting transplantation or not and marital status were significantly associated with life satisfaction (Lin, Chiang Li, & Liu 2010). Therefore, it was considered to analyze the impact of optimism on perceptions of QoL after a major surgical experience of a renal transplantation to find if recipients' optimism increases their satisfaction with QoL or vice versa.

Aims and objectives of the research

The main aim of the present study was to find out if optimism influences recipients' perceptions and satisfaction with quality of life.

1.1. Research Questions

- Do Optimist renal transplant recipients (RTRs) report a better Quality of Life?
- Do demographic differences in optimism influence perceived Quality of Life?

2. Methodology

2.1. Study Design

A longitudinal prospective cohort study was carried out investigating demographic differences in optimism and how it affects perceptions of QoL among RTRs recruited from renal clinics in Lahore, Pakistan. A descriptive design was used to examine QoL over a period of 15 months.

2.2. Participants & Recruitment

The sample size varied in all three points of assessment due to sample attrition. At Wave 1, $N = (150)$, Wave 2, $N = (147)$ and Wave 3, $N = (144)$. These recipients had a post-transplant time ranging from 6 months to 10 years (Mean = 2.8 years, S.D = 1.5) and with normal graft functioning.

2.2.1. Inclusion Criteria

Renal transplant recipients currently on a schedule of regular follow-up appointments; age 18 years onwards without any co-morbidity (existing physical or mental disorders); not more than one previous transplant, minimum basic formal schooling to equivalent of primary school level, and healthy graft functioning as indicated by follow up monitoring of renal function tests.

2.2.2. Exclusion Criteria

Renal transplant recipients with medical co-morbidities or complications and/or psychological disorders; below the age of 18 years, illiterate recipients with no formal schooling; more than two kidney transplants in total, or any other co-existing transplant e.g., liver, heart or lung transplant along with a kidney transplant.

2.2.3. Measures

Demographic information collected included age, gender, marital status, years of formal education, employment status, household income and number of dependents, familial background (rural/urban), and family systems i.e. joint or nuclear. Housewives and students were included in the unemployed category. Medical information collected included basic clinical information about approximate onset and duration of ESRD, dialysis modality (hemodialysis, peritoneal or both) before transplant and duration of dialysis, primary & secondary nephrologic diagnosis to reveal the etiology of renal failure, time since transplant, current medication (immunosuppressant group and dosage), complete blood profile with renal functions (including, serum creatinine, blood urea, uric acid).

2.3. Quality of Life Index Kidney Transplant Version 111 (1998)

The QoL Index developed by Ferrans & Powers (1984) consists of 35 items and measures both satisfaction and importance of various aspects of life. Importance ratings are used to weight the satisfaction responses, so that scores reflect the respondents' satisfaction with the aspects of life they value. The instrument consists of two parts: the first measures satisfaction with various aspects of life

and the second measures their importance. Scores are calculated for overall QoL and four domains: health and functioning, psychological/ spiritual, social and economic, and family. Items that are rated as more important have a greater impact on scores than those of lesser importance. Satisfaction is rated from 1 = "very dissatisfied" to 6 = "very satisfied", and importance is rated from 1 = "very unimportant" to 6 = "very important." Scores are calculated by weighting each satisfaction response with its paired importance response (Ferrans, 1990; Ferrans, 1996; Ferrans & Powers, 1985, 1992; Warnecke, Ferrans, Johnson, & et al., 1996). In previous studies, internal consistency for the QoLI (total scale) was supported by Cronbach's alphas ranging from .73 to .99 (Ferrans & Powers, 1985).

2.4. Life Orientation Test (Revised) (L.O.T-R;1994)

The LOT-R was developed to assess individual differences in dispositional optimism versus pessimism (Scheier, Carver, & Bridges, 1994). This measure has been widely used in health research. The LOT-R is a 10-item measure with four filler items, three positively-worded items, and three reverse-coded items. Respondents indicate their degree of agreement with statements using a five-point response scale ranging from 1 = "strongly disagree" to 2 = "strongly agree." Negatively-worded items are reversed, and a single score is obtained. Cronbach's alpha for the total score on a 10 item scale is estimated at .82 (Smith, Pope, Rhodewalt, & Poulton, 1989).

2.5. Data Collection

This three-wave longitudinal study investigating optimism and perceived QoL among RTRs was conducted over a period of 15 months, with a mean age of 33.33 years (ranging from 18 to 54 years). Three assessments comprised of an initial baseline evaluation (Wave 1) followed by Wave 2 assessment with an interval of 6 months. Finally, Wave 3 assessments were conducted with a gap of one year following wave 2 assessment. The mean age of recipients was 33.33 years (ranging from 18 to 54 years). The recipients were recruited as referrals from physicians in renal out-patient units of private & government hospitals in Lahore (Pakistan). The assessments were conducted during their follow up sessions at the clinic individually.

2.6. Statistical Analysis Using Cross Lagged Correlations

Path analysis was used to investigate causal relationships between psychosocial factors influencing recipients' overall satisfaction with their QoL after a renal transplant. Longitudinal data from participants over a period of 15 months used to model lagged and cross-lagged paths over three wave points of assessment after transplant, with a baseline, followed by an interval of six months (wave 1) and one year (wave 2). Causal relationships might be inferred using cross lagged designs in which variables are measured at least twice over time (Kenny, 1975 Rogosa, 1980); Locascio, 1982). When we need to compare the correlations between one set of

variables with that between a second overlapping set of variables in a longitudinal data comprising the same set of participants, a cross lagged panel correlation analysis is used. This design involves analysis of reciprocal relationships between two or more variables that are measured at each of the points in time. Applying it to the present study, the comparison is made by analyzing the correlation between, QoL at wave 1 and optimism measured at wave 2, verses optimism measured at wave 1 and QoL at wave 2 controlling for the autocorrelations between variables and the correlations between QoL and optimism at each wave point. There are three points of assessment, so it will also involve correlations between QoL wave 2 and optimism wave 3 and vice versa as well. The aim is to estimate and test the strength of the relationship between the two sets of variables and determine causal priority using Steiger’s (1980) formula, to compare non overlapping variables.

3. Results

3.1. Life Orientation (Optimism) & QoL

The findings revealed that most recipients reflected an optimist approach towards life in general. The scores across three waves indicated a consistent pattern of optimism over time (Table 1).

Table 1. Descriptive Scores on Optimism Wave 1, 2 & 3

Optimism	N	Means	S.D	Minimum	Maximum
Wave 1	146	14.13	3.84	7.00	20.00
Wave 2	146	14.69	4.44	2.00	22.00
Wave 3	144	14.51	2.65	7.00	19.00

Significant positive correlations were found among optimism wave 1 and 2 ($r = .304, p < .001$) and a very high correlation between wave 2 and 3 ($r = .853, p < .001$). Besides inter-correlations, it was also significantly associated with their satisfaction with overall QoL (Table 2).

Table 2. Correlations among Optimism & QoL

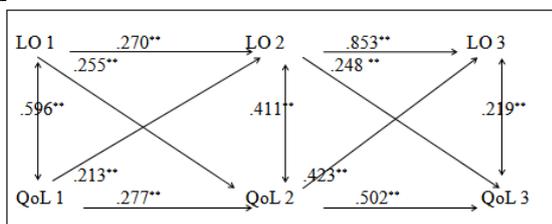
QoL Scores	Optimism-1	Optimism-2	Optimism-3
QoL Wave 1	.596**	.304**	.365**
QoL Wave 2		.411*	.423**
QoL Wave 3			.219**

**p < .001, *p < .005.

It seems that recipients with a positive life orientation tend to report more satisfaction with their QoL or vice versa. It could also be that QoL and life orientations are aspects of the same thing because optimism is also a perception of life as QoL.

Optimism and QoL were tested for causal priority. (See Table 3).

Table 3. Cross Lagged Correlations among Life Orientation (LO) & QoL



**p < .001, *p < .005 List wise N = 144

The above Cross lagged Correlations do not show any significant difference in correlations among QoL and life orientation at wave 1 and 2 ($z = 0.65, p = 0.51$) making it unclear whether it’s the attitude towards life and level of optimism that makes them less or more satisfied with their overall life or those who are currently more satisfied with their QoL tend to be more optimistic about their future too. However at wave 2 and 3, the causal flow is from QoL to optimism. ($z = 2.12, p = 0.03$), indicating that a more satisfied QoL makes them more optimistic.

3.2. Demographic Factors & Optimism

The recipients’ level of optimism was analysed considering their demographic background and the results found that except age, no other demographic factor influenced recipients’ level of optimism.

a) Age & Optimism: Significant negative associations were found among recipients’ age and optimism across three waves, (wave 1, $r = -.201, p = .014$, wave 2, $r = -.238, p = .004$, and wave 3, $r = -.204, p = .015$) suggesting that older recipients tend to be less optimistic.

b) Gender differences in Optimism: No significant gender differences were found in optimism.

Table 4. Gender differences in Optimism at Wave 1, 2 & 3

Optimism	Gender	N	Means	S.D	t	df	Sig	d	r
Wave 1	Male	98	14.38	3.70	1.159	144	.248	0.20	0.09
	Female	48	13.60	4.09					
Wave 2	Male	96	15.10	4.52	1.517	142	.131	0.27	0.13
	Female	48	13.91	4.23					
Wave 3	Male	94	14.70	2.61	1.482	139	.141	0.26	0.13
	Female	47	14.00	2.72					

Dependent variable: Optimism.

c) Marital status & Optimism: To find if differences in optimism exist among RTRs due to their marital status, they were grouped into those ‘In a relationship’ vs. ‘single’ due to low representation of other marital categories.

Table 5. Marital Status and Optimism

Optimism	Marital Status	N	Means	S.D	t	df	Sig	d	r
Wave 1	In a relationship	69	14.47	3.58	1.160	142	.248	0.19	0.09
	Single	75	13.73	4.09					
Wave 2	In a relationship	68	14.73	4.30	.031	139	.975	0.00	0.00
	Single	73	14.71	4.53					
Wave 3	In a relationship	68	14.57	2.49	.322	136	.748	0.05	0.02
	Single	70	14.42	2.76					

Dependent variable: Optimism.

It was found that recipients in a relationship did not differ in optimism as compared to singles, at any time, suggesting no influence of marital status on recipients’ optimism.

d) Education & Optimism: The impact of education level on recipients’ attitude towards life was analyzed to find if recipients with higher educational backgrounds appeared to be more optimistic. The recipients were categorized into three groups according to their formal education. The groups included school-level, graduate and post graduate recipients.

Table 6. Education & Optimism at Wave 1, 2 & 3

Optimism	Education	N	Mean	S.D	F	Sig	η^2
Wave 1	School level	35	13.75	4.03	F(2, 143) = 1.820	.166	.025
	Graduate	43	13.44	3.76			
	Post graduate	68	14.76	3.75			
	Total	146	14.13	3.84			
Wave 2	School level	32	13.53	5.40	F(2, 141) = 4.158	.018	.056
	Graduate	45	13.88	4.36			
	Post graduate	67	15.82	3.74			
	Total	144	14.70	4.44			
Wave 3	School level	31	13.61	3.00	F(2, 138) = 4.986	.008	.067
	Graduate	43	13.97	2.60			
	Post graduate	67	15.17	2.36			
	Total	141	14.46	2.66			

Dependent variable: optimism

The ANOVA showed that recipients with different education levels did not differ in their optimism at wave 1, but significant differences were found among these groups at wave 2 and 3. Keeping in view the small effect size of the observed differences in optimism cannot reliably be attributed to their education level.

e) Employment Status & Optimism: The role of employment on recipients' life orientation was analyzed to find if work status enhances optimism among recipients by giving them a sense of being functional and constructive. It was found that at wave 1, currently employed RTRs ($M = 14.61$, $S.D = 3.71$) appeared to be more optimistic than those who were not working ($M = 13.25$, $S.D = 3.95$) ($t(144) = 2.082$, $p = .039$, $d = 0.35$, $r = 0.17$). No significant difference in optimism were found among these groups at wave 2 ($t(142) = .788$, $p = .432$, $d = 0.13$, $r = 0.06$) and wave 3 ($t(139) = .092$, $p = .926$, $d = 0.01$, $r = 0.00$), suggesting no impact of work status on their life orientation.

f) Financial Conditions & Optimism: It was assumed that recipients with stable financial conditions would be more optimistic compared to those with less financial sources and issues in affording the expensive lifelong transplant medication. However, the findings showed on the contrary that RTRs having different monthly incomes did not differ in their life orientations (wave 1, $F(2, 143) = .403$, $p = .669$, $\eta^2 = .006$, wave 2, $F(2, 143) = 1.486$, $p = .230$, $\eta^2 = .021$ and wave 3, $F(2, 138) = 1.535$, $p = .219$, $\eta^2 = .022$). RTRs with high monthly incomes and stable financial conditions did not report a more optimistic approach towards life at any time.

g) Time since transplantation & Optimism: No correlations were found among life orientation and time since transplantation at any time, reflecting that their attitude and approach towards life did not change with time.

4. Discussion

Life orientation (optimism) was measured as a trait-like predisposition, but the findings showed that rather than being a consistent personality trait, it appeared to be more as an outcome of recipients' life experiences that determined their attitude towards self, others and life in general instead of being a personality trait. The past experiences tend to affect their present evaluations and future aspirations. 'Optimism' is considered a measure of their attitude and approach towards life, to find how

recipients perceive their life after transplant. Seligman (1990) describes it as the way individuals 'perceive and attend to obstacles within the context of their lives' (Cowan 2005). Optimistic people have a tendency to expect positive and good future outcomes and events in contrast to pessimists, who expect bad or unacceptable outcomes or experiences (Carver & Scheier, 2001; Scheier & Carver 1985).

QoL in health outcomes is assessed considering the satisfaction of patients with their physical functioning and coping reflecting the efficacy of a specific intervention. However, personal characteristics of the recipients determine the variability in QoL satisfaction despite similar physical health status. Calman (1984) defines QoL as a gap between patient's expectations and successes or between present and preferred QoL and suggested that this gap varies in the course of the sickness; and distinguishes the potentiality from the current ability and underlines the importance of having realistic goals (WHOQOLGroup, 1995; Testa & Simonson 1996). Therapeutic interventions can be designed to work and reduce the gap between a person's present QoL, their present aspirations and realistic expectations for the future. This could be achieved, by making recipients' focus on what they have in their present and not necessarily by changing the level of expected future QoL. A transplant represents a decisive event for patients and their caregivers. The attitudes of recipients towards transplantation and life after transplantation may influence their life satisfaction. Analysis of optimism provides insights as to how individuals perceive and attend to obstacles within the context of their lives (Seligman, 1990), especially in case of transplantation that involves, accepting, adapting and coping with a transplanted kidney and its consequences.

Previous research examining the relationship between optimism and life satisfaction among patients with end-stage renal disease who decide to wait or not to wait for kidney transplantation, found that all participants had good optimism that was positively related to their life satisfaction (Lin, Chiang and Liu 2010), suggesting that having a positive life orientation can affect QoL satisfaction. The present study explored whether a positive approach and optimistic attitude towards life makes the recipients more satisfied with their QoL or a satisfied QoL makes them more optimistic. The study found that life orientation and QoL were correlated and the predominant causal effect is from QoL to Life orientation, i.e. having a good QoL makes them more optimistic. Considering the findings, it can be suggested that a more satisfied QoL experience can lead to a positive attitude towards life in general.

5. Conclusion

The present study contributed towards an understanding of psychological issues affecting perceived QoL among Pakistani RTRs. Most RTRs with a good graft functioning and normal general health reported a satisfied QoL reflecting transplant efficacy in a developing country where people live with issues of affordability and availability of quality health care without any support by the government. Interestingly, optimism is found more of an attitude developed as a consequence of varying life

experiences rather than an enduring personality trait. Recipients with a satisfied QoL tend to be more optimistic instead of optimism improving perceptions of QoL. This suggests that improvement in environmental and social conditions determine their attitude and orientations about present and future life.

6. Future Implications & Recommendations

The findings of this longitudinal study provide the ground work for future research on psychological aspects, particularly recipients' personal characteristics influencing QoL after transplantation. Most research focuses on health outcomes of kidney transplantation without linking the role of environmental, demographic and psychological/personality factors in modifying these outcomes.

The present study has identified the contribution of demographic factors and the need to clarify the conceptual status of some overlapping constructs such as attitudes, life orientation and QoL. Future studies can investigate if there are changes in the level of optimism after the transplant as compared to pre-transplant stage. This would also facilitate if optimism can qualify as an attitude that changes with life circumstances or remains stable as a personality trait.

Personality and attitudes of the recipients need to be a focus of the transplant team to cater for their psychological well-being. It may facilitate tailoring psychological management plans that could be a part of the transplant follow-up program to enhance an optimistic approach towards self, others and life in general.

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