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Perceived Health Status and Life Orientation (Optimism) after Renal Transplantation

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A longitudinal study was carried out on renal transplant recipients with a healthy kidney functioning in Lahore, Pakistan, to find out how recipients' life orientation influences their perceptions of physical health status. Perceived Health Status (PHS) was measured by a self-developed questionnaire that reflected the symptom severity and frequency measured by the common immune-suppressant side effects. Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) was used to measure optimism. Statistical analysis involved linear regression and cross lagged correlation analysis (CLC). It was found that most recipients tend to have an optimistic attitude and a positive perception of their health status. Although both PHS and optimism were found to be significant predictors of each other, however, it was clarified that recipients' with a better PHS, that is, healthy graft functioning tend to be more optimistic because of their improved health status. Socio-demographic factors including age, education level, time since transplant, and financial condition reflected by monthly family income were also analysed for their effect. Age was found to be the only factor affecting PHS and optimism across three times. Younger recipients reported better PHS and tend to be more optimistic. Work status (working vs. nonworking recipients) was found to be significant predictor of optimism at Time 1 and of PHS at Time2 and 3 only, not showing a consistent pattern across 15 months.

Keyword. Life orientation, perceived health status, renal transplant recipients, optimism

Health outcomes evaluations are increasingly focusing on psychological aspects besides clinical factors to determine treatment

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efficacy. Transplantation is preferred over dialysis because of its superior health outcomes. Recipients' physical health status is closer to pre-kidney failure levels with good energy and ability to cope with routine chores (Fieberger, Mitterbauer, & Oberbauer, 2004). The perceived health status (PHS) of renal transplant recipients (RTRs) is reported to be better than that of those on dialysis (Rosenberger et al., 2005). Despite this marked improvement in health status, they experience adverse side effects of the mandatory immune-suppressants, for example, obesity, hair and bone loss, etc. Despite good/ normal graft functioning, recipients vary in their perceptions of health status (PHS). This may be due to socio-demographic differences in PHS (Bohlke et al., 2009). There are individual differences in the occurrence, frequency, and severity of the common side effects that may cause differences in PHS. There is variability in PHS among RTRs resulting in differing levels of satisfaction with Quality of Life (QoL). The experience of physical side effects influences their expectations about the transplant outcomes. Therefore, the present study assessed their self-reports of symptom severity reflective of their PHS.

PHS is closely associated with patient/recipients' mood that ultimately influences their subjective well-being. Recipients have been shown to develop emotional distress and affective disorders, such as anxiety and depression, associated with a compromised QoL (Pascazio et al., 2010). A study found that most recipients and donors experience anxiety after renal transplantation. They suggested that recipients have an improved social functioning and emotional well-being after renal transplantation (De Pasquale et al., 2014). Depression is associated with impaired QoL and may worsen kidney transplant outcome. Therefore, depression screening is essential to evaluate and monitor the occurrence of depression and identify high risk recipients after transplant that can be referred for psychological intervention (Dobbels et al., 2008). Although, prevalence of depression was found to be comparatively lower in transplant recipients than dialysis patients, still one-fifth of RTRs were at high risk of clinically significant depression (Szeifert et al., 2009). Novack et al. (2010) confirmed that depressive symptoms are an independent predictor of mortality in RTRs. They concluded that depression was an outcome of returning to dialysis, particularly, after a short duration of graft function. Kusleikaite, Bumblyte, and Pakalnyte (2007) found that depression was associated with a lower QoL. Older recipients tend to be more depressed due to declining health. Screening recipients for depression can improve psychological well-being and increase QoL satisfaction.

Thombs et al. (2008) found that only patients with persistent depression symptoms were at risk for poorer physical health. However, PHS can be proposed to predict depression symptoms, a coping outcome, based on the transactional model of stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984). Demographic characteristics as well as clinical characteristics may influence the relationship between PHS and depression symptoms.

Keeping in view the significant influence of depression and perceptions of physical health functioning after transplant, it is important to examine if depression affects recipients PHS or vice versa. Besides that, health theories of perceived QoL have indicated that individual's perceptions, emotions, and behavioral strategies change over time. Although, there are limited longitudinal studies on RTRs QoL, however, studies need to consider theoretical frameworks that explain the transitions in acceptance, coping, and adjustment with the altered life-styles among people living with chronic conditions such as transplant (Wenzel, Glanz, & Lerman, 2002) with the passage of time. This would clarify the extent and type of changes in adjustment and coping that recipients tend to manifest with the passage of time since transplantation. This longitudinal study has been carried out across three time assessments, considering the theoretical frame work of response shift model given by Schwartz and Sprangers (1999).

Theoretical Model of Response Shift in Quality of Life Research

This model aims to explain the changes that take place in the individual's cognitions and behaviors across different stages of life after an antecedent event such as transplant. It refers to a change in the meaning of one's self-evaluation of a target construct as a result of (a) a change in the respondent's internal standards of measurement (scale recalibration, in psychometric terms); (b) a change in the respondent's values (i.e., the importance of component domains constituting the target construct); or (c) a redefinition of the target construct (i.e., reconceptualization) (Schwartz & Sprangers, 1999). Patients confronted with a life-threatening or chronic disease are faced with the necessity to accommodate to their illness. An important mediator of this adaptation process is response shift, which involves changing internal standards, values, and the conceptualization of QoL. Integrating response shift into QoL research would allow a better understanding of how QoL is affected by changes in health status and would direct the development of reliable and valid measures for assessing changes in QoL.

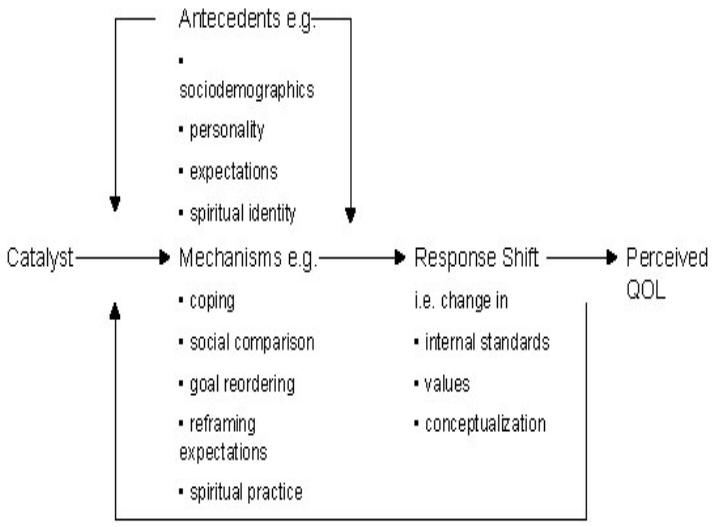

*Fig. 1.*Theoretical Model of Response Shift and QoL (Sprangers & Schwartz, 1999).

The process of response shift in the Figure 1 points to the sequential flow of appraisals. It starts off with the catalyst which can be any chronic physical condition (the transplant experience in the present study), which is influenced by the 'antecedents' that is, individual factors/socio-demographic, and recipients indulge in different 'mechanisms to cope with it. The type of coping mechanism leads to 'response shifts' overtime, for example., changes in conceptualization, internal standards for perceiving their physical condition are a result of how they make 'social comparisons and re-structure their expectations about the outcomes of transplantation. These changes in response to the transplant experience ultimately influence and modify their perceptions of QoL. The arrows from perceived QoL, moving backwards in between the catalyst and mechanisms indicate a continuation of the dynamic process of interaction among the perceived QoL and antecedent, that is individual differences in perceptions of QoL may change due to changes in the antecedents.

Research in response shifts in QoL appraisal emphasizes the need for direct measurement of the appraisal process itself as an essential part of QoL assessment. Rapkinand Schwartz (2004) suggested that direct assessment of QoL appraisal processes can facilitate and

improve interpretation of QoL scores. They proposed theoretical model based on the Sprangers and Schwartz (1999) model and included explicit measurement of QoL appraisal process parameters including 1) induction of a frame of reference; 2) recall and sampling of salient experiences; 3) standards of comparison used to appraise experiences; and 4) subjective algorithm used to prioritize and combine appraisals to arrive at a QoL rating. They introduced a QoL appraisal profile, which measures key appraisal processes, as an adjunct to existing QoL scales. According to them, the measurement of appraisal processes provides a fully testable theoretical model of overall QoL and changes over time, suggesting hypothesized causal relationships and explanatory pathways for both cross sectional and longitudinal research in QoL.

They concluded that QoL assessment involves a subjective process of appraisal. Individual differences in the appraisal process can affect observed QoL scores, and that individuals can change how they appraise QoL over time. Response shift findings suggest a broader QoL assessment paradigm that includes self-appraisal and meaning. QoL based on appraisal processes can be defined as an individual's answer to any self-evaluative question depends upon this process. Individual differences or longitudinal changes in appraisal will affect how people respond to QoL items. Similarly, factors associated with QoL, including differences in personal circumstances, stressful events, disease progression, and interventions, also depend upon the criteria individuals use to evaluate QoL. Appraisal is an inner/subjective process that influences self-reported QoL (Rapkin& Schwartz, 2004).

Rationale

Kidneys are the only organs in the human body which can be donated by a healthy person and both the donor and the recipient can lead an active and closer to normal life afterwards. Pakistan has an alarmingly increasing rate of 100 persons per million with renal failures every year, which means that every year, 18000 to 20,000 persons are in need of kidney transplants to live a normal life (Sindh Institute of Urology and Transplantation (SIUT, 2012). This alarming increase in renal failure and transplantation needs psychological focus besides medical treatment and follow-up. Transplant recipients need to address new challenges in care, coping, maintaining and improving their physical health and overall QoL with identification and management of psychological issues. Therefore, it is important to study recipients' perceptions about their health and life after transplantation. The current study attempts to investigate the impact of

optimism on recipients' PHS and to explore the socio-demographic correlates to identify risk and facilitating factors for graft longevity.

The aim of this study is to investigate how optimistic RTRs tend to be after a successful kidney transplant; to find out perceptions of their health status after their successful transplant; to clarify causal relationships between life orientation (optimism) and PHS in order to determine the direction of causality; to analyse the contribution of socio-demographic correlates (age, education level, time since transplant, work status,& financial conditions) in influencing the level of optimism and perceptions of health status in RTRs with a normal graft functioning.

The research questions for this study are: Do optimistic recipients report a better perception of their health status? Do any causal relationships exist between recipients' life-orientation (optimism) and their PHS? What is the direction of causality between PHS and QoL? What is the contribution of socio-demographic correlates in influencing PHS and life orientation?

Method

Study Design and Sample Characteristics

This study used a longitudinal research design with three assessments time points (T1, T2 and T3) over 15 months. The number of participants was not consistent across three waves due to sample attrition,(at Time 1, $N = 150$; Time 2, $N = 147$; and Time 3, $N = 144$). The mean age of recipients was 33.33 years (ranging from 18 to 54 years). The study recruited participants with a post-transplant time ranging from 6 months to 10 years ($M = 2.8$ years, $SD = 1.5$) with healthy transplant functioning from renal clinics of Lahore, Pakistan. The study got a favourable ethical opinion from University of Surrey ethics committee, U.K.

Participants and Recruitment

The participants were RTRs who were on regular follow-ups at the nephrologist clinic. Adult recipients above the age of 18, screened out for existing comorbid conditions such as liver, respiratory system or cardiac diseases, with first time renal transplant and basic formal education that enabled them to read, write, and understand Urdu as well as basic English, were included in the study. Besides physical screening, the participants were also ruled out for any existing

psychological disorder as referred and cleared by the transplant team. Recipients included had a healthy graft functioning as indicated by the lab tests of renal functions and other general health indicators including; Hb (Hemoglobin), cholesterol and sugar level, blood pressure, and complete blood picture.

Recipients found to have existing clinical/medical and psychological comorbidities and low socioeconomic conditions as indicated by their monthly family income, getting free treatment on Zakat fund, having no formal schooling; having one failed transplant or any other co-existing transplant for example; liver, heart or lung transplant along with a kidney transplant were not included.

Table 1

Demographic Characteristics of RTRs

	Wave 1		Wave 2		Wave 3	
Demographics	*n*	%	*n*	%	*n*	%
Gender						
Males	99	66.0	100	66.7	94	64.0
Females	48	32.0	49	32.7	47	32.0
Marital Status						
In a Relationship	69	46.0	80	53.3	77	51.3
Single	75	50.0	67	44.7	67	44.7
Education Level						
School level only	35	24.3	35	24.3	35	23.8
Graduate	43	29.9	43	29.9	43	29.3
Post graduate	66	45.8	68	45.8	69	46.9
Work Status						
Employed	92	64.3	94	64.3	95	64.6
Unemployed	51	35.7	52	35.7	52	35.4
Home Location						
Rural	84	58.7	86	58.7	87	59.2
Urban	59	41.3	60	41.3	60	40.8
Family System						
Joint	37	25.2	35	23.8	110	74.0
Nuclear	110	74.8	108	73.5	37	25.2
Monthly Income Rs						
<35k	8	5.6	8	5.6	8	5.4
36-50k	78	54.2	78	54.2	78	53.1
Above 50k	58	40.3	60	40.3	61	41.5

In Table 1, the recipients are into two categories for marital status to facilitate the analysis. For this purpose, recipients currently living with their spouses or engaged were categorized as ‘in a relationship’ and the recipients who were separated, widowed, divorced, or never

married were categorized as 'single' because of their low representation. Most recipients were highly educated and currently employed. Recipients' family background/referred to their native locality. Recipients belonging to villages were categorized as 'rural' while residents of cities were categorized as 'urban'. Housewives and students were included in the unemployed category.

The clinical information was also collected to measure recipients' actual physical health status to find if there is conformity between the two or any discrepancies exist in the objective vs. subjective health status.

Measures

Demographic information sheet. It was used to collect information that 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).

Medical information sheet. It was used to collect information that included basic clinical information about approximate onset and duration of disease, dialysis modality (hemodialysis, peritoneal or both) before transplant and duration of dialysis, primary and 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).

Renal Transplant Side Effects Questionnaire for Perceived Health Status. RTRs vary in experiencing disease specific physical and psychological impairments, sometimes attributed to the adverse side effects of immune-suppressants that are one of the main determinants of PHS. The questionnaire is a self-reported measure designed in the current study to measure the frequency and severity of most of the potential side effects of regular transplant medications that cause distress as perceived by RTRs. The scale measures severity of common side effects influencing physical functioning, role limitations due to physical problems, social functioning, bodily pain, vitality, and general health perceptions. RTRs and medical professionals fill the questionnaire separately so that the responses can be compared. The questionnaire includes information on adherence which may directly influence health outcomes. A high score on this questionnaire reflects a positive perception of health status.

Life Orientation Test-Revised (LOT-R). It was used 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 5 = *strongly agree*." Negatively-worded items are reversed, and a single score is obtained. Cronbach's alpha for the 10 item scale is estimated as .82 (Smith, Pope, Rhodewalt, & Poulton, 1989).

Procedure

The longitudinal study was carried out across three waves, investigating objective and subjective health status of RTRs. The recruitment of participants was done as referrals from physicians in renal out-patient units of private and government hospitals in Lahore (Pakistan). The assessments were conducted during their follow up sessions at the clinic individually. The schedule plan of assessment was as follows:

The study comprised of three time assessments in which there was an initial evaluation (Time 1) considered as baseline. After six months, the second assessment (Time 2) was carried out. Finally, after an interval of one year the third and last assessment (Time 3) was conducted.

Results

The results showed that most recipients tend to have an optimistic life orientation with positive perceptions of their physical health status after successful renal transplantation.

Table 2

Descriptive Statistics for PHS and Life Orientation in RTRs

	PHS T1	PHS T2	PHST3	LO T1	LO T2	LO T3
N	146	144	147	146	149	144
Mean	29.7	28.6	30.8	12.8	12.8	12.6
S.D	3.51	2.94	3.64	1.63	3.67	3.35

Note. PHS=Perceived Health Status; LO=Life Orientation; T=Time.

The study explored the associations among PHS and Life Orientation to determine the relationship of life orientation with perceptions of health status and vice versa.

The findings reveals a significant positive association between life orientation and PHS, indicating that recipients with an optimistic attitude towards life tend to have a better and positive perception of their health status as mentioned in Table 3.

Table 3

Correlations among Life Orientation (Optimism) and PHS

	PHS 1	PHS 2	PHS 3
LO Time 1	.37**	.21*	.20*
LO Time 2		.33**	.29**
LO Time 3			.29**

Note. LO=Life Orientation; PHS=Perceived Health Status.
** $p < .000$, * $p < .005$.

Table 4

Prediction of Life Orientation and PHS through Linear Regression

Predictors	Adj. R^2	F	β	*t*	Sig	Outcome
PHS T1	0.13	20.95	0.37	4.57	.000	LO T1
PHS T2	0.11	19.50	0.35	4.41	.000	LO T2
PHS T3	0.07	12.48	0.25	3.53	.001	LO T3
LO T1	0.13	20.95	0.37	4.57	.000	PHS T1
LO T2	0.11	19.50	0.35	4.41	.000	PHS T2
LO T3	0.07	12.48	0.25	3.53	.001	PHS T3

Note. PHS=Perceived Health Status; LO=Life Orientation.

Table 4 of regression analysis shows that PHS and life orientation both appear to be significant predictors of each other; therefore, it was important to find out the direction of causality. For this purpose, a cross lagged correlation was carried out.

In order to clarify if optimism contributes towards a positive perception of health status among transplant recipients or vice versa, the reciprocal relationships between recipients' PHS and life orientation (optimism) were explored to find which factor predicts the other in order to determine the strength and direction of these relationships.

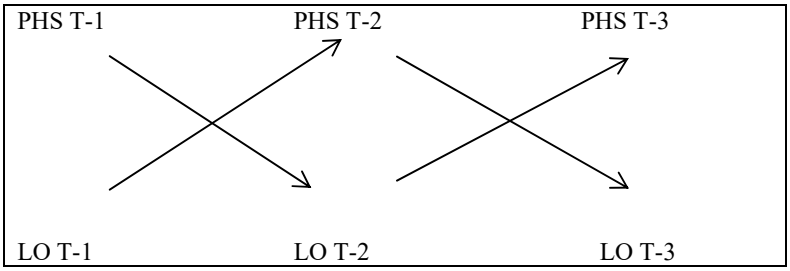

Figure 2. Reciprocal Relationships between Recipients' PHSand Life Orientation.

Table 5

Cross-Lagged Correlations to determine Direction of Causality

Predictors	*β*	*t*	*p*	Outcome
PHS 1	0.32	4.09	.000	LO 2
PHS 2	0.30	3.79	.000	LO 3
LO 1	0.21	2.48	.014	PHS 2
LO 2	0.28	3.41	.001	PHS 3

Note. PHS= Perceived Health Status; LO= Life Orientation.

Table 5 shows that although both variables appear to be significant predictors of each other, however, PHS at Time 1 and 2 appears to be a stronger predictor of recipients life orientation at Time 2 and 3, $F(1, 143) = 16.74$, $R^2 = .11$, $p = .000$ and $F(1, 142) = 14.43$, $R^2 = .09$, $p = .000$. Whereas, life orientation, reflective of their optimism, does predict PHS as strongly, $F(1, 139) = 6.17$, $R^2 = .04$, $p = .014$ and $F(1, 142) = 11.65$, $R^2 = .08$, $p = .001$. A comparison of strength of causal relationships indicate, PHS as a stronger predictor as compared to life orientation (optimism).

The findings suggest that the way recipients perceive their physical health status determines their life orientation and extent of optimism. The severity and frequency of medication side effects has a significant influence on their level of optimism. Recipients with less frequent and fewer side effects tend to be more optimistic about life in general. It can be concluded that a better perception of health status leads to a more optimistic attitude in RTRs following a successful transplant.

Despite no clear direction of causality, the recipients' age appears to be an explaining factor associated with their PHS and life orientation. There are significant negative correlations found between recipients' age and their perceptions of health status as well as their life orientations.

Table 6

Correlations among Perceived Health Status and Life Orientation with Socio-demographic Factors

Socio-demographic Factors	PHST1	PHST2	PHST3	LOT1	LOT2	LOT3
Age	-.42**	-.43**	-.71**	-.21*	-.25**	-.24**
Education Years	-.08	.23*	.01	.26**	.26**	.27**
Monthly Family Income	-.12	.14	.07	.05	.12	.12
Time since Transplant	.22*	-.13	-.19*	-.03	-.14	-.16
Recipient's age	-.57**	-.49**	-.71**	-.25*	-.25*	-.24*

Note. PHS= Perceived Health Status; LO= Life Orientation.
** $p<.001$, * $p<.05$.

Age is negatively correlated with PHS and LO, reflecting that as age and post-transplant time increases, perceptions of health and optimism deteriorate. Time since transplant is negatively related to PHS indicating that as post-transplant time increases, perceptions of health deteriorate. Education is positively associated with PHS and LO, indicating that recipients with higher education level tend to have better perceptions of their health status and optimism.The Table 6 reflects that increasing age is associated with a poorer perception of health status and older recipients tend to be less optimistic. Therefore, it can be said that recipients' age can be considered as a factor in influencing PHS and life orientation.

The result of multiple regression for socio-demographic factors as predictors of PHS and life orientation shows that age is the significant predictor of PHS and life orientation. Work status also significantly predicts PHS at time 2 and 3; and life orientation at time 1. Education acts like a predictor for life orientation at time 2. Monthly family income and time since transplant do not show significant prediction for PHS and life orientation.

Discussion

PHS is not always an actual indicator of actual health status. However, individuals' perception of physical health can be informative and clinically significant to evaluate risk factors and mortality. PHS is found to be a stronger predictor of mortality than clinical/general health indicators (McHugh & Lawlor 2013). There is still lack of clarity about the role of PHS being a predictor or outcome of other psychological factors such as depression and anxiety. PHS is a concept that has been often used interchangeably in the context of QoL and examined as an outcome of depression in clinical population (Thombs et al., 2008; Xiao & Barber, 2008).

Psychological aspects need attention in health outcomes to determine efficacy of clinical surgical procedures such as transplantation. Although, Pakistan has an alarmingly high rate of renal transplantation, but there is lack of research on the psychological issues and consequences of renal transplantation. Therefore, it is important to study how most recipients perceive their life post-transplantation and also the individual differences in their adjustment and coping with transplant despite similar physical health status. The purpose was to find individual differences in life orientation and perceptions of health status among RTRs with similar clinical picture and physical health functioning. The aim was to explore if perceptions of health make an individual optimist or vice versa, so that the causal factor could be identified and thus the development perceptions about overall QoL could be understood. Although the findings showed similar patterns of PHS and optimism, however, there was diversity in the socio-demographic background of the recipients (Cowan, 2005; Gilbar, Or-Han, & Plivazky, 2005).

Psychological issues in RTRs have become an important outcome in determining the transplant efficacy. Although the medical and clinical aspects of QoL are frequently investigated, there is still a lack of knowledge about the significant role of psychological factors affecting not only the psychological well-being, but also the functioning, survival and longevity of the transplanted kidney in Pakistan (Dukes, Seelam, Lentine, Schnitzler, & Neri, 2013).It has been found that the severity of symptoms such as pain/discomfort and, especially, anxiety/depression adversely affects general health of recipients after transplantation (Martín-Rodríguez, Fernández-Jiménez, Pérez-San-Gregorio, Pérez-Bernal, &Gómez-Bravo, 2013).

Perceptions of physical health are mainly determined by the severity and frequency of medication side effects which are found to be significant predictor of PHS for all age groups. Interestingly, PHS

of young recipients was found to be associated with their kidney functions and their social support. Education and work status were significant predictors in the middle-aged recipients whereas in older patients PHS is mostly affected by comorbidity (Rosenberger et al., 2005).

Studies have explored psychological factors such as the role of personality and actual psychological distress in predicting QoL post-transplant have investigated socio-demographic factors (gender, age, education, average income), medical/clinical factors (glomerular filtration, serum albumin, number of co-morbid diseases) and psychological data (neuroticism, extroversion, psychological distress). They found that improved perceptions of health status were associated with younger age, higher education and income, a low number of co-morbid diseases, lower neuroticism and distress. Increased psychological well-being was associated with higher education and income, longer time since transplant, higher extroversion, lower neuroticism and distress. Distress appeared to predict both physical and psychological well-being of recipients even when controlled for neuroticism. These results confirm and verify the importance of psychological factors as etiological factors for distress in RTRs (Prihodova et al., 2010).

Researchers have found annual income, age, race, and marital status, time post-transplant as significant predictors of physical health status in RTRs. This point towards the need to identify socio-demographic correlates influencing health-related QoL of RTRs (Chisholm, Spivey, & Nus, 2007).

A positive finding was, that overall, across three times of assessment, most RTRs reported an optimistic approach and a positive PHS, indicating, the efficacy of transplantation in a developing country like Pakistan where most people have limited access to quality health care and issues of cost and affordability (Rizvi, Naqvi,& Hussain, 2003). However, demographic differences were also found and a low QoL was associated with older age, female gender, single marital status, being unemployed, and lower monthly income as indicated in the findings of the present study. The impact of socio-demographic, socioeconomic and health-related factors in influencing PHS has been well established (Huguet, Kaplan, & Feeny, 2007). There are significant clinical implications of PHS, particularly, in older individuals living with chronic conditions. Since health typically declines in old age, perceptions of one's health are particularly relevant for older people. PHS, in this age group, can directly influence their treatment/medication adherence, acceptance of diagnosed condition, and physiological fitness (McHugh& Lawlor,

2013).

A consistent pattern of differences in post-transplantation QoL is being found across demographic variables. Mostly, male gender, younger age, marital status i.e., being married has been found to experience better QoL (Rebollo et al., 2000).

Interestingly, researches have also suggested that socioeconomic factors such as income and healthcare, coverage may play a more critical role in determining RTRs QoL compared to other demographic variables (e.g., age, gender, race, marital status). Several general population based studies have found associations between lower income and decreased QoL (Tavallaii, Einollahi, Farahani, & Namdari, 2009).

A study aimed to identify factors associated with health related QOL through a comprehensive analysis of socio-demographic and clinical variables among a representative sample size of RTRs in France showed that female gender, unemployment, dismissal, lower education, living alone, high Body Mass Index (BMI), health influenced their life orientation (Carver & Scheier, 2001; Ferrans & Powers, 2008; Gentile et al., 2013). The novel findings of this study were that the treatment side effects and unemployment appeared to have a negative effect on QOL of RTR, that points to the significant impact of both socio-demographic and health status on overall QoL.

The present study found a positive perception of health functioning in most RTRs confirming the efficacy of renal transplantation in a developing country like Pakistan. This finding is in consistency with previous research on successful health outcomes of renal transplant (Schulz et al., 2013). The findings suggest the need to identify variables associated with long-term perceived health.

Conclusion and Implications

The clinical relevance of this study demonstrates that, although, most RTRs commonly experience physical side effects of immunosuppressive therapy, which ultimately influence their life orientation after renal transplantation, however, other psychosocial factors such as socio-demographic factors tend to influence the level of their optimism.

Therefore, the occurrence of these side effects constituting their PHS, needs to be considered while providing counselling on follow-ups. A better perception of health status seems to make recipients more functional and optimistic (i.e., towards self, other, and life in general, that increases graft longevity. To improve transplant efficacy

and health outcomes, it is essential that socio-demographic factors, individual perceptions of health status, irrespective of actual physical health status, must be taken into account to see its impact on their life orientation. Psychological intervention to improve personal factors indirectly related to health may improve their acceptance, coping, and adjustment with personal as well as socioeconomic advantages. A better understanding of the role of psychological factors is essential in the development of psychosocial interventions to maximize life quality.

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