Adherence to Self-Care among Kidney Transplant Recipients in a Selected Tertiary Care Hospital

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Abstract

Self-care is a key factor in kidney transplant recipients to maintain graft function and prevent complications among them. This study was undertaken to assess adherence to self care among kidney transplant recipients in a tertiary care hospital. It was a cross sectional study involving 90 kidney transplant recipients. Adherence to self care was assessed by a structured and validated self care behaviour questionnaire of 30 items. The mean age of the participants was 39.45±8.09 years and 80 percent were male. Majority (55.6%) were married and were residing in rural area (64.6%). Majority (63.3%) of participants were unemployed and had some source of reimbursement (62.2%) for transplantation and immunosuppressive therapy. The participants scored highest (87.2%) in the domain of avoidance of infection whereas psychological care domain scored the least score (55.87%). The total mean self care behaviour percentage score was 67.26 percent. A statistically significant association for lifestyle modification self monitoring domains was found with age and education. Medication management domain was significantly associated with family income (p=0.009) and source of reimbursement (p=0.02). To conclude, there is a need to develop and integrate self care management programmes in the clinical practice so as to improve the self care behaviour among kidney transplant recipients.

Key words: CKD, kidney transplant recipients, self care, adherence, nursing, lifestyle modification

Chronic kidney disease (CKD) is one of the leading contributor to morbidity and mortality from non-communicable diseases (Bikov et al, 2020). The treatment modalities available for the patients are dialysis and kidney transplantation. Kidney transplantation is the treatment of choice for the patients as it improves the quality of life and survival rate as compared to dialysis (Wyld et al, 2012). The numbers of transplants are increasing and India is no exception. However, the cost involved in transplantation and the immunosuppressive therapy is an important concern for patients in developing countries. The kidney transplant recipients are required to strictly adhere to the immunosuppressive therapy regime for life and perform self-care activities to improve graft function and minimise the complications (Jamieson et al, 2016). The multiple self-management requirements are considered valuable for maintaining good health and minimising the risk of graft loss and complications (Akyolcu, 2020).

According to WHO (2021), self-care is "the ability of individuals, families and communities to promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider." Self-care refers to 'the range of behaviour[s] undertaken by individuals to promote or restore their health including adherence to medication, dietary and exercise recommendations; monitoring symptoms; maintaining physical function; executing medical regimens and making decisions about seeking care (Gordon et al, 2009).

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Objectives

The objective was conducted with following objectives.

1. To assess the adherence to self care among kidney transplant recipients.
2. To find association between self care and selected sociodemographic variables.

Need for the study

Kidney transplant recipients are required to practice self-care starting immediately post-transplant and continuing for the life of the kidney to ensure the proper functioning and longevity of their kidney graft (Weng et al, 2010). So, the present study was undertaken to explore adherence to self care among kidney transplant recipients in a tertiary care hospital.

Table 1: Socio-demographic and clinical profile of study participants (N=90)

Socio-demographic Variables	Frequency (%)
Age (Mean±SD)	39.45±8.09
18-35 years	35 (38.9)
36-50 years	34 (37.8)
51- 65 years	21 (23.3)
Gender	
Male	72 (80)
Female	18 (20)
Transgender	0
Educational status	
Illiterate and Primary	12 (13.3)
Secondary & Sr Secondary	47 (52.2)
Graduation and above	31 (34.4)
Marital status	
Married	50 (55.6)
Single	40 (44.4)
Occupation	
Employed	33 (36.7)
Unemployed	57 (63.3)
Type of residence	
Urban	32 (35.6)
Rural	58 (64.4)
Type of family	
Joint	28 (31.1)
Nuclear	62 (68.9)
Family income per month (in Rs)	
Low	21 (23.3)
Middle	37 (41.1)
High	32 (35.6)
Source of reimbursement	
Yes	56 (62.2)
No	34 (37.8)
Donor type	
Living	88 (97.7)
Cadaver	2 (2.3)
Duration after transplantation (mean±SD)	5.36 (2.12)
Previous medical history	
Pulmonary Koch's	10 (11.5)
Hepatitis B	2 (2.3)
Hepatitis C	1 (1.2)
Comorbidities	
Diabetes mellitus	5 (5.9)
Hypertension	35 (38.9)
Peripheral vascular disease	1 (1.2)
Post-transplant complications	
Infection	40 (44.4)
NODAT (New Onset Diabetes after Transplantation)	24 (26.6)

Review of Literature

Hedayati et al (2017) assessed adherence to immunosuppressive therapy and lifestyle recommendations along with some related factors among kidney transplant patients. The results showed that most kidney recipients were adherent to their drug prescriptions, but were partial, poor, or nonadherent regarding lifestyle recommendations.

Adhikari et al (2018)(9) assessed the compliance with lifestyle recommendations following kidney transplantation and identified the potential determinants of non-compliance. The results showed that 64.1 percent of the transplant recipients were compliant with the recommended lifestyle measures overall. Separately, compliance rates were dietary 83.66 percent, clinic attendance 88.23 percent, self-monitoring or home monitoring 89.54 percent, laboratory investigations completion 88.23 percent, infection prevention 93.46 percent, and abstinence from addiction 95.42 percent.

Been-Dahmen et al (2018)(10) conducted a study to investigate self-management challenges and support needs experienced by kidney transplant recipients. They found the challenges after transplantation included becoming an expert patient, adjusting daily life activities, dealing with medical regimen, forming relationships with nurses, dealing with social consequences, dealing with emotions related to transplantation and the donor and improving self-image.

Kenawy et al (2019) assessed the compliance of renal transplant patients to medications and lifestyle modifications. The findings showed that 60 percent of the renal transplant patients were compliant with medications and lifestyle. Compliance to preventive measures against infection was observed in 85 percent of patients but only 5 percent were avoiding direct sun exposure.

Methodology

The study was conducted to explore adherence to self care among kidney transplant recipients in a tertiary care hospital. It was a single centre descriptive cross sectional study carried out from October 2019 to December 2019. Considering the study by Adhikari et al, the non-compliance to recommended lifestyle rate taken as 35.9 percent at 95 percent confidence interval with 10 percent margin of error the sample size calculated was 80~90. The sample comprised of 90 consecutive recipients attending the kidney transplant clinic at the hospital during the time of the study. Convenience sampling was used for the study. The kidney transplant recipients aged 18-65 years, who consented to participate in the study and were able to understand Hindi or English were included in the study.

The recipients who got admitted within three months of transplantation and were on some anti anxiety or antidepressant drugs were excluded from the study. Participant information sheet was given to all the participants containing all the de-

tails regarding study. The socio-demographic and clinical profile of patients was collected using the structured self-developed questionnaire. Adherence to self care was assessed by self care behaviour questionnaire developed by the researcher after extensive review of literature and was validated by experts. It consisted of 30 items and was administered to the participants during their visit to transplant clinic. It assessed the seven domains of self care in kidney transplant recipients including nutrition and diet (ND), medication management (MM), lifestyle modification (LM), self monitoring (SM), avoidance of infection (AI), follow-up (FU) and psychological care (PC) in self care. Each item had scoring from 0 to 4 (never, rarely, sometimes, often and always) with a total score of 120. Higher the score better is the adherence to self care. The reliability of self care behaviour questionnaire was α=0.87.

Ethical considerations: The study was approved by the Institute Ethics Committee. All patients were provided with a participant information sheet explaining all the aspects of the study and written informed consent was obtained prior to data collection.

Data analysis: Categorical variables were described as frequencies and percentages and quantitative variables as means and standard deviations (SD). Inferential statistics, including t test and analysis of variance (ANOVA) were used. Independent t test was used to find association between independent and dependent variable with only two categories of independent variable and ANOVA was used with three or more than categories of independent variable.

Results

As seen in Table 1, the mean age of the participants was 39.4±8.09 years, with the majority being males (80%). Majority 55.6% were married and 34.4% had completed graduation in education. Majority 63.3% were unemployed and 68.9% stayed in nuclear family. 41.1% of participants belonged to high income group. Majority 62.2% had some sort of reimbursement and the mean duration after transplant was 5.36(2.12) years of the participants. 11.5% had history of pulmonary koch's and 38.9% had hypertension as comorbid illness. Majority 44.4% had developed some type of infection and 26.6% had developed NODAT as a complication after the transplant. All participants were taking calcineurin inhibitors (tacrolimus), antiproliferative agents (mycophenolate mofetyl) and steroids (prednisolone) as the treatment post-transplant.

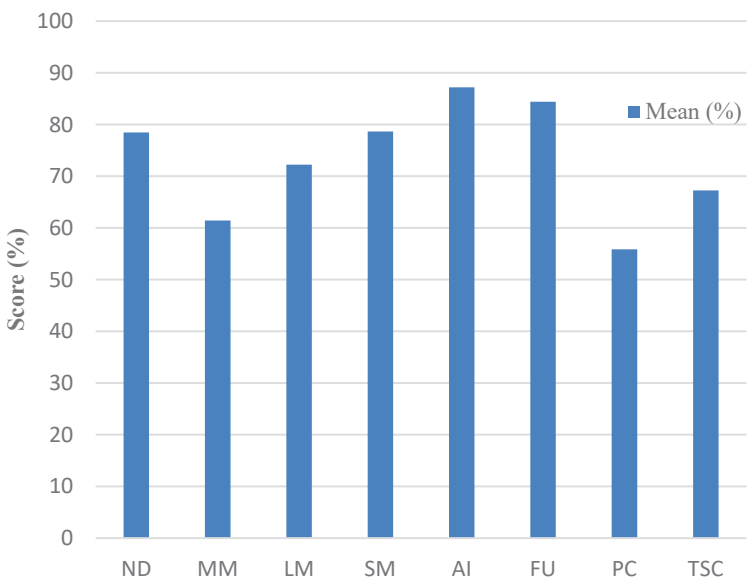

Fig 1: Adherence to Self-care behaviour in different domains.

Figure 1 shows the mean adherence to self-care behaviour percentage scores in different domains of the kidney transplant recipients. The highest mean percentage scores can be seen for the domains of avoidance of infection (87.2%) and follow-up (84.4%). Nutrition and diet (78.45%) and self-monitoring (78.65%) domains also showed high mean percentage scores. Whereas, medication management (61.4%) and psychological care (55.87%) domains had low mean percentage scores. The total means self-care percentage score was 67.26 percent.

Table 2 shows the association of self care behaviour domains with selected sociodemographic variables. Significant association was seen with age and lifestyle modification (p=0.03), self-monitoring (p=0.04), follow-up (p=0.001) and total self care behaviour (p=0.04) scores. No significant association was found with other domains of self care with age. Educational status was significantly associated with lifestyle modification (p=0.009), avoidance of infection (p=0.03), psychological care (p=0.02) and total self care practice (p=0.04) scores. Marital status was significantly associated with self monitoring domain (0.01). The type of family was significantly associated with self monitoring domain (0.003). Family income was significantly associated with nutrition and diet (p=0.006), medication management (p=0.009), follow up (p=0.01) and total self care practice (p=0.002) scores. There was significant association of source of reimbursement with Medication management domain (p=0.01) of self care.

Discussion

This was a cross sectional study designed to explore adherence to self care behaviour among kidney transplant recipients. The participants were surveyed with structured socio-demographic sheet and self-care behaviour questionnaire. The adherence to self care behaviour

Table 2: Association of self care behaviour domains with selected sociodemographic variables (N=90)

Socio-demographic variables	Adherence to self care domains							
	Nutrition and diet (Mean;(SD)	Medication management (Mean); (SD)	Lifestyle modification (Mean); (SD)	Self monitoring (Mean); (SD)	Avoidance of infection (Mean);(SD)	Follow up (Mean); (SD)	Psychological care (Mean); (SD)	Total self care behaviour (Mean); (SD)
Age								
18-35 years	15.60 (1.70)	9.80 (1.38)	11.37 (1.43)	15.71 (1.63)	17.43 (2.14)	10.03 (0.95)	8.77 (1.21)	80.31 (5.76)
36-50 years	15.82 (1.71)	9.94 (1.30)	12.0 (1.01)	16.15 (1.54)	17.50 (1.33)	10.68 (0.80)	9.24 (1.21)	82.2 (3.79)
51- 65 years	15.62 (1.74)	9.71 (1.23)	11.14 (1.42)	15.10 (1.48)	17.38 (1.85)	9.43 (1.12)	8.76 (1.48)	79.0 (4.59)
ANOVA; p value	0.16; 0.84	0.21; 0.81	3.45, 0.03*	2.98; 0.04*	0.03; 0.97	11.6; 0.001*	1.34; 0.26	3.07; 0.04*
Educational Status								
Illiterate and Primary	15.83 (2.16)	9.83 (1.46)	11.23 (1.49)	15.43 (1.61)	17.67 (1.23)	10.25 (0.45)	9.17 (1.40)	83.08 (3.26)
Secondary & Sr Sec	15.34 (1.77)	9.74 (1.20)	11.63 (0.94)	15.87 (1.70)	17.02 (2.01)	9.94 (1.09)	8.60 (1.26)	78.79 (5.36)
Graduation and Above	16.16 (1.26)	9.97 (1.42)	12.50 (1.00)	16.58 (0.79)	18.0 (1.43)	10.39 (1.11)	9.39 (1.25)	82.74 (3.43)
ANOVA ; p-value	2.29; 0.10	0.26; 0.76	4.97; 0.009*	2.78; 0.06	3.43; 0.03*	1.83(0.16)	3.78; 0.02*	8.94; 0.001*
Marital Status								
Married	15.86 (1.64)	9.90 (1.19)	11.94 (1.03)	16.26 (1.06)	17.68 (1.15)	10.16 (0.91)	9.14 (1.35)	82.18 (4.05)
Single	15.60 (1.69)	9.83 (1.37)	11.45 (1.50)	15.60 (1.31)	17.65 (1.56)	10.10 (1.21)	8.78 (1.23)	80.58 (4.82)
t test, p value	0.73; 0.46	0.27; 0.07	1.82; 0.07	2.62; 0.01**	0.10; 0.91	0.26; 0.79	1.32; 0.18	1.71; 0.09
Type of Family								
Joint	15.89 (1.22)	9.86 (1.38)	12.07 (1.01)	16.54 (0.92)	17.68 (1.09)	10.39 (1.10)	9.25 (1.26)	82.68 (3.00)
Nuclear	15.69 (1.82)	9.87 (1.23)	11.56 (1.36)	15.71 (1.26)	17.66 (1.44)	10.02 (1.01)	8.85 (1.13)	80.92 (4.90)
t test, p-value	0.56; 0.57	-0.04; 0.96	1.75; 0.08	3.11; 0.003**	0.05; 0.95	1.58; 0.11	1.33; 0.18	1.75; 0.08
Family income per month (in Rs)								
Low	15.95 (1.68)	9.38 (1.28)	11.57 (1.39)	15.71 (1.84)	17.33 (1.62)	9.67 (1.15)	8.57 (1.28)	80.19 (3.94)
Middle	14.94 (1.54)	9.56 (1.10)	11.28 (1.39)	15.59 (1.29)	17.06 (1.95)	10.06 (1.07)	8.78 (1.36)	78.69 (3.77)
High	16.19 (1.64)	10.32 (1.35)	11.78 (1.20)	15.86 (1.71)	17.84 (1.69)	10.46 (0.86)	9.30 (1.24)	82.78 (5.57)
ANOVA; p-value	5.48; 0.006*	4.94; 0.009*	1.24; 0.29	0.24; 0.78	1.69; 0.19	4.20; 0.01*	2.49; 0.08	6.87; 0.002*
Source of Reimbursement								
Yes	15.70 (1.69)	9.61 (1.20)	11.66 (1.24)	15.91 (1.26)	17.86 (1.31)	10.11 (1.00)	8.96 (1.36)	81.14 (4.41)
No	15.82 (1.62)	10.29 (1.29)	11.82 (1.35)	16.06 (1.15)	17.35 (1.34)	10.18 (1.14)	9.00 (1.23)	82.0 (4.54)
t test, p-value	0.35; 0.72	2.55; 0.01**	0.58; 0.56	0.55; 0.58	1.75; 0.08	0.30; 0.76	0.12; 0.90	0.88; 0.38

**p<0.05- ANOVA; **p<0.05- Independent t test*

and the association of different domains with selected socio-demographic variables was assessed. Low scores were seen in medication management (61.4%) domain although medication management was of utmost importance in the maintenance of graft and survival. Low score in psychological care (55.87%) domain was found. Psychological issues were also noticed among kidney transplant recipients that can adversely affect the survival and quality of life of the recipients.

The findings of the study are consistent with a study by Adhikari et al (2018) where high scores were found for self monitoring (89.54%), and avoidance of infection (93.4%). Similar results were reported by Kenawy et al (2019) where compliance to preventive measures against infection was observed in 85 percent of patients. In the present study educational status was significantly associated with lifestyle modification (p=0.009), avoidance of infection (p=0.03), psychological care (p=0.02) and total self care practice (p=0.04) scores. These findings are in line with Hedayati et al (2017) where direct relationship was found between adherence to treatment and level of education. Prihodova et al (2014) also reported that low level of education was associated with reduced medication compliance. Said et al (2017) reported that 87.5 percent of kidney transplant recipients were partially compliance to lifestyle modification whereas in the present study the score was 72.25 percent. Significant association was found for total self care behaviour with age in this study (p=0.04) as well as one by Said S et al (2017).

Recommendation

Non-adherence to medications can adversely affect the survival and graft outcome. So, it is essential to identify patients at risk for non-adherence and introduce interventions to improve adherence to therapy. Since, it is a single centre study so the study can be replicated in different setting. The factors affecting adherence in our population can also be explored.

Nursing Implications

Nurses can provide education on the importance to adherence to medication among kidney transplant recipients. Nurses can help in early identification of any psychological issues which can further affect the quality of life of the recipients. Similar study can be conducted on larger sample size. Nurses should play an active role in the transplant care team so as to improve the outcome and decrease the complications.

Conclusion

Adherence to medication management and psychological care was low among transplant recipients that can adversely affect the graft outcome and rejection of the graft may occur. The level of education and age of the recipient had significant associations with lifestyle modification, self-monitoring and avoidance of infection. So, need-based education can be given by the nurses related to self care to improve graft function and prevent complications. There is a need to develop and integrate self care management programmes in the clinical practice so as to improve the self care behaviour among kidney transplant recipients.

References

1. Bikbov B, Purcell CA, Levey AS, Smith M, Abdoli A, Abebe M, et al. Global, regional, and national burden of chronic kidney disease, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *The Lancet* 2020 Feb 29; 395(10225): 709–33
2. Wyld M, Morton RL, Hayen A, Howard K, Webster AC. A systematic review and meta-analysis of utility-based quality of life in chronic kidney disease treatments. *PLoS Med* 2012; 9 (9): e1001307
3. Jamieson NJ, Hanson CS, Josephson MA, Gordon EJ, Craig JC, Halleck F, et al. Motivations, challenges, and attitudes to self-management in kidney transplant recipients: a systematic review of qualitative studies. *Am J Kidney Dis* 2016 Mar 1; 67(3): 461–78
4. Akyolcu N. Patient education in renal transplantation. *EDTNA-ERCA J* 2002; 28 (4): 176–9
5. WHO | What do we mean by self-care? [Internet]. WHO. World Health Organization; [cited 2021 Oct 11]. Available from: http://www.who.int/reproductivehealth/self-care-interventions/definitions/en/
6. Gordon EJ, Prohaska TR, Gallant M, Siminoff LA. Self-care strategies and barriers among kidney transplant recipients: a qualitative study. *Chronic Illn* 2009 Jun; 5(2): 75–91
7. Weng L-C, Dai Y-T, Huang H-L, Chiang Y-J. Self-efficacy, self-care behaviours and quality of life of kidney transplant recipients. *J Adv Nurs* 2010 Apr 1; 66: 828–38
8. Hedayati P, Shahgholian N, Ghadami A. Nonadherence behaviors and some related factors in kidney transplant recipients. Iran J Nurs Midwifery Res 2017; 22(2): 97–101
9. Adhikari UR, Taraphder A, Hazra A, Das T. Compliance of kidney transplant recipients to the recommended lifestyle measures following transplantation. *Indian J Transplant* 2018; 12(1): 17
10. Been-Dahmen JMJ, Grijpma JW, Ista E, Dwarswaard J, Maasdam L, Weimar W, et al. Self-management challenges and support needs among kidney transplant recipients: A qualitative study. *J Adv Nurs* 2018; 74 (10): 2393-405
11. Kenawy AS, Gheith O, Al-Otaibi T, Othman N, Abo Atya H, Al-Otaibi M, et al. Medication compliance and lifestyle adherence in renal transplant recipients in Kuwait. *Patient Prefer Adherence* 2019; 13: 1477–86
12. Said S. Lifestyle modification among post renal transplant recipient. *IOSR J Nurs Health Sci* 2017; 06: 92–113

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