Predictors of Medication Adherence in Renal Transplant Patients: Self-Efficacy, Depressive Symptoms, and Cognition.

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ABSTRACT

Chronic Kidney disease (CKD) is relatively common among middle-aged and older adults. Just under 1000 people with CKD received kidney transplants in Canada in 2005, while three times that remained on waitlists. Studies report high rates of non-adherence to medications following renal transplant. The extent to which adherence is predicted by cognitive ability, depressive symptoms and self-efficacy, is an important issue in management of this illness. Research is needed to further understand how these variables are related to medication adherence in renal transplant patients. This project will examine the relationships between traditional and everyday measures of cognitive performance, general and medication adherence-related self-efficacy, depressive symptoms, and medication adherence, in persons post renal transplant. Specifically, we are interested in how each of the aforementioned factors collectively contribute to medication adherence in these patients. We plan to use structural equation modeling techniques to statistically examine data collected in each of these domains, in hopes of better understanding the relationships between them.

INTRODUCTION

• Deficits in memory and executive functioning are common in adults with Chronic Kidney Disease (CKD; Thornton, et al., 2007).
• Cognitive dysfunction post renal transplant is similar to that in CKD patients prior to renal failure (Gelb et al., 2008).
• Implications for real-world functioning in transplant patients have just begun to be explored
• One critical aspect of real-world functioning following transplant involves how adherent individuals are to their medication regimens.
• Regardless of the dangers of failing to adhere to anti-rejection medications, studies report high rates of non-adherence (Frazer et al., 1994).
• We have identified several potentially important predictors of medication adherence in renal transplant recipients, including:
  • Cognitive functioning and depressive symptoms (Gelb et al., under review; Paterson et al., submitted).
  • Medication taking self-efficacy (Tucker et al., 2001).
• The current study will examine the relative predictive utility of these and related factors, and their associations with adherence, to develop a coherent model of medication adherence in this population.

Hypotheses

Structural Equation Modeling (SEM) allows for the simultaneous examination of variance between multiple dependent and independent variables. (In Figure 1, each arrow in indicates a hypothesized association).

1. Traditional cognition and everyday problem solving (‘Cognition’ in fig. 1) will each have direct positive associations with adherence (‘Medication Adherence’ in fig. 1).
2. General and somatic depressive symptoms (‘Depressive Symptoms’ in fig. 1) will have positive direct relationships with adherence.
3. Somatic and general depressive symptoms will act as intermediary variables between traditional and everyday cognitive measures respectively, and adherence.
4. Medication taking, and general, self-efficacy (‘Self-Efficacy’ in fig. 1) will have positive direct relationships with adherence.
5. Medication taking and general self-efficacy will act as intermediary variables between cognitive and depression variables respectively.

MEASURES

Psychosocial Measures

Depressive symptoms: The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) asks respondents to rate the frequency of various depressive symptoms over the past week. This 20 item scale provides a total depression score and four sub-scores.

Self-Efficacy: Self-Efficacy questionnaires that include items related to both general and medication adherence specific self-efficacy appraisals.

Cognitive Measures


Everyday Problem Solving: The Everyday Problems Test (EPT; Willis, 1990), consists of questions examining everyday problems that people encounter, such as deciding how much medicine to take based on instructions on the label.

Participants’ scores on this measure reflect their ability to understand and navigate everyday cognitive tasks.

Adherence Measure

Medication Adherence: The Adherence subscale of The Transplant Effects Questionnaire (TxEQ; Ziegelmann et al., 2002) will assess adherence. In addition, non-adherence will be determined by Serum potassium (K) and Serum Phosphate (PO4) readings obtained from laboratory results of routine tests.

IMPLICATIONS

This research will increase:
• Insight into the causes of attitudes concerning medication adherence.
• Understanding of difficulties faced by transplant patients. These findings will have implications for:
• The training of healthcare providers to carry out interactions with patients concerning treatment and medication adherence.
• The development of interventions to improve adherence, and as a result, real-world functioning, and quality of life.
• The identification and development of sensitive and valid measures to assess real-world function in renal transplant patients, and other illness populations.

REFERENCES

Gelb SR, Thornton WL, Shapiro RJ Under review Predicting medication adherence and employment status following kidney transplant.