Exploring the Relationships Between Health Status, Illness Perceptions, Coping Strategies and Psychological Morbidity in a Chronic Kidney Disease Cohort

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Abstract: *Background:* Using the common sense model of illness adjustment, this study aimed to explore the impact of chronic kidney disease (CKD) on individual illness perceptions, coping styles and psychological well-being. *Methods:* Eighty individuals (50 men and 30 women) with an average age of 62.66 years (standard deviation, 11.98) were included in the study. All participants were under the care of the Renal Unit of a metropolitan tertiary referral hospital. Twenty-nine patients (36%) had CKD stage 3b-4, and 51 (64%) had CKD stage 5 (or end stage kidney disease [ESKD]). Disease severity was evaluated using the health perceptions questionnaire, coping styles assessed with the Carver brief COPE scale, illness perceptions explored with the brief illness perceptions questionnaire and anxiety and depression measured using the hospital anxiety and depression scale. *Results:* The hospital anxiety and depression scale assessment revealed 13 patients (16.3%) with moderate or severe anxiety and 6 (7.5%) with moderate depression. Consistent with the common sense model, disease activity had a significant direct influence on illness perceptions, while, in turn, illness perceptions had a significant direct influence on depression and anxiety. Adaptive and maladaptive coping were found to mediate the relationship between illness perceptions, and anxiety and depression. *Conclusions:* The results provide evidence that it is the perception of an illness rather than the actual symptoms themselves that best account for adaption to CKD. These findings suggest that intervention strategies aimed at increasing psychological well-being need to focus on changing illness perceptions rather than improving symptoms of CKD or coping mechanisms.

Key Indexing Terms: Adjustment; Chronic Kidney Disease; Illness perceptions; Coping; Anxiety and depression. **[Am J Med Sci 2014;348(4):271–276.]**

In Australia, approximately 11% of the adult population has at least 1 clinical sign of underlying chronic kidney disease (CKD).[1] Although the prevalence rate has recently been measured at 2% per annum,[1,2] with progressive aging of the adult population and the increase in the prevalence of diabetes, the overall incidence of CKD is projected to increase.[3] Despite the increasing prevalence of CKD and the well-documented high incidence of anxiety and depression in this patient cohort,[2–5] the mechanisms underpinning the psychological associations remain poorly understood.[6] The aim of this study was to explore the impact of CKD on individual illness perceptions, coping styles and psychological well-being.

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Patients diagnosed with CKD report increased anxiety and depression associated with their clinical diagnosis. Furthermore, as the severity of CKD worsens, so to does the level of distress.[7–15] Subsequent heightened risk of other morbidities, and even mortality, is of particular concern. In other chronic diseases, several mediating factors have been found to influence psychological distress, including individual-coping patterns and illness beliefs.[16,17] Illness beliefs refers to the way in which individuals perceive their illness across 5 dimensions: identity (illness label and attributed symptoms), consequences (perceived effect of illness on psychological, physical and social well-being), causes (factors that may have caused or influenced the illness), timelines (expected illness duration: chronic, acute or cyclical), and cure or control (perceptions of how much the illness can be controlled or cured).[18] Research involving chronic illness population showed that poorer illness perceptions are associated with worse anxiety and depression and more severe disease status.[17–26] Several studies have explored the impact of illness perceptions in a CKD population, all focused on those with dialysis-requiring CKD5, or ESKD.[27–35] These studies provide evidence that poorer illness perceptions are associated with increased emotional concerns, lower quality of life, and reduced medication adherence. Thus, these findings suggest that illness perceptions play an important role in individuals' cognitive and behavioral adjustment to managing their medical illness.

Coping styles have also been found to significantly impact an individual's ability to adjust to having an illness. According to Lazarus and Folkman,[36] coping refers to the way in which an individual engages, both behaviorally and cognitively, to attenuate the impact of a stressor. Coping is most commonly divided into 2 behavioral and cognitive patterns, adaptive and maladaptive. Adaptive (or problem-focused) coping describes a process of actively doing something to alter the source of the stress (eg, planning, problem solving), whereas maladaptive (or emotion-focused) coping centers on reducing the associated emotional distress (eg, praying, avoiding). Studies of other participants with CKD suggests that maladaptive coping and defensive coping (eg, repression and denial) is associated with an increased anxiety and depression and lowered quality of life, whereas engagement in adaptive coping is associated with an attenuation of these symptoms.[37–39]

The common sense model (CSM), developed by Leventhal and Meyer[40] provides a theoretical framework to explain the interrelationships between health status, illness perceptions, coping styles and illness outcomes (eg, depression). Underpinning the CSM is the premise that individuals have a mental representation of their illness to (1) make sense of the illness and (2) identify strategies, both cognitive and behavioral to manage it.[16] Mental representations (or illness perceptions) come from multiple sources including lay information attained via social/cultural sources, authoritative sources (eg, treating

specialist/s) and current experiences associated with their symptoms.[16] Given this, therefore, understanding and accounting for illness perceptions is important as it impacts upon how individuals choose to manage their illness.

According to the CSM, illness status has a direct influence on illness perceptions. Illness perceptions in turn have a direct and also mediating impact on individual coping styles and outcomes. That is, individuals have their own cognitive and emotional perceptions of the illness, for example, how CKD affects their sense of control or the ability to manage their symptoms. Based on these perceptions of illness, individuals then engage in particular patterns of coping, either avoiding thinking about the illness or seeking help from others. Illness perceptions and engagement in coping patterns in turn influence illness outcomes.

The validity of the CSM has been demonstrated in a number of chronic disease populations, including arthritis, diabetes, human immunodeficiency virus and hypertension, and it was recently reviewed in a meta-analysis of 45 studies using CSM.[16] The authors concluded that there was strong evidence for efficacy of the CSM and its ability to predict the interrelationships between health status, illness perceptions, coping styles and psychological morbidity in chronic disease states.

Using structural equation modeling (SEM), the aim of the current study was to explore the use of the CSM in patients with CKD. We hypothesized that poorer health status would have an adverse correlation with illness perceptions and psychological distress, specifically anxiety and depression. It was also hypothesized that consistent with the CSM and past chronic illness investigations, mediating relationships would exist between health status, coping style, illness perceptions and psychological distress.

METHOD

Questionnaires (used in their original and unaltered form) were distributed by hand to 71 eligible CKD patients at the St. Vincent's Renal Clinics and mailed to a further 250 eligible outpatients, with participants to return questionnaires by mail. Eligibility criteria for this study were as follows: (1) Patients attending the nephrology outpatient clinic with CKD defined as estimated glomerular filtration rate (eGFR) of less than 45 mL/min, from any underlying cause, including individuals with ESKD undertaking dialysis; (2) those aged 18 years or above; (3) those able to converse in English without an interpreter; and/or (4) those who are currently under the management of the nephrology team at the St. Vincent's Hospital. By the end of the data collection phase, 82 of the 321 questionnaires had been completed (25.5%), and of these, 2 questionnaires contained inadequate date for inclusion into the study. Inclusion criteria were older than 18 years, and with a diagnosis of CKD, determined as eGFR by modification of diet in renal disease (MDRD) formula of less than 45 $mL \cdot min^{-1} \cdot 1.73\ m^{-2}$. Ethical approval to conduct this research was obtained from the St. Vincent's Hospital Human Ethics Research Committees.

PARTICIPANTS

Eighty individuals (50 men and 30 women) with a mean age of 62.66 (±11.98) years participated in the study by completing and returning the questionnaires; all were regular attenders of the St. Vincent's Hospital Renal Clinics. Twenty-nine participants (36%) had CKD stage 3b-4, and 51 (64%) had CKD stage 5 on dialysis (ESKD). Of the ESKD patients, 39 (76.5%) were undergoing hemodialysis, and 12 (23.5%) were undergoing peritoneal dialysis. The majority of the study participants (73.8%) were married; 58 were born within Australasia (with 54 in Australia), 18 in Europe and 4 in the Middle East. From an epidemiological perspective, the makeup of the participants mirrored that of the whole clinic cohort that was invited to partake. Specifically, the clinic cohort comprised 195 men and 126 women, with a mean age of 63.15 (±9.89) years. Of the 321 invited, 159 (49%) were undergoing dialysis and 161 (51%) had CKD stage 3b-4.

DISEASE ASSESSMENT AND QUESTIONNAIRES

The Health Perceptions Questionnaire

The health perceptions questionnaire[41] assessed overall health status, whether a person viewed himself/herself as well or unwell. It has 10 items, which assess a person's tendency to rate oneself as being fit and in good physical shape.

Confirmatory factor analyses (CFA) and Cronbach's alpha with item-if-deleted analyses for health status identified a 5-item solution. Items included were "According to the doctors I've seen, my health is now excellent," "I am somewhat ill," "I'm not as healthy now as I used to be," and "My health is excellent," "Doctors say that I am now in poor health." The scale was rated on a 5-point Likert scale from 0 (definitely true) to 4 (definitely false) with the total score being the average of the 10 items. Higher scores on the health perceptions questionnaire indicate beliefs that one's physical health is poor.

Brief Illness Perceptions Questionnaire

The brief illness perceptions questionnaire measures illness perceptions,[38] with 8 items that encapsulate cognitive and emotional elements of illness representation, specifically, identity (ie, labels used by the person to describe the illness and the symptoms experienced), consequences (ie, the expected effects and outcome of the illness), cause (ie, personal ideas about the cause of the illness), time lines (ie, how long the patient believes the illness will last), cure or control (ie, the patients beliefs that they can recover from or control the illness), and emotional representations.[18]

Confirmatory factor analyses and Cronbach's alpha with item-if-deleted analyses for illness perceptions identified a 2-item solution: "How much does your illness affect your life?" and "How much do you experience symptoms from your illness?" Illness perceptions scores were attained by averaging the items, subscale ranges 0 to 10 with higher scores indicating a poorer representation of illness.

Carver Brief Coping Questionnaire

The brief COPE[42] questionnaire measures alternate forms of coping.[39] Consisting of 28 items, it measures how an individual typically copes with stress. There are 14 subscales represented by 2 items each on a 4-point Likert scale from 0 (I haven't been doing this at all) to 3 (I've been doing this a lot). Based on CFA and Cronbach's alpha with item-if-deleted analyses, 2 coping styles were found to have a good fit and strong internal consistency; these were identified as adaptive coping and maladaptive coping.

Adaptive coping has 5 items: "I've been concentrating my efforts on doing something about the situation I'm in," "I've been trying to see it in a different light, to make it seem more positive," "I've been looking for something good in what is happening," "I've been trying to get advice or help from other people about what to do," and "I've been thinking hard about what steps to take." Maladaptive coping has 6 items: "I've been giving up trying to deal with it," "I've been refusing to believe that it has happened," "I've been saying things to let my