



Original Contribution

**ASSOCIATION BETWEEN LOCUS OF CONTROL AND SELF-CONCEPT
IN PATIENTS WITH END-STAGE RENAL DISEASE**

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ABSTRACT

PURPOSE: This study was designed to determine association between locus of control and self concept in ESRD patients. **METHODS:** Fifty patients with ESRD under hemodialysis regimen compared with 50 matched-controls for locus of controls by the Iranian version of the Health Locus of Control Scale and self concept by Roger's Self-Concept questionnaire. Data were analyzed by Chi-square and Fisher's exact tests. **RESULTS:** Distribution of positive self-concept was 58% in controls whereas 32% in patients ($P<0.05$). Another significant difference was observed in subjects according to their locus of control. While distribution of internal locus of control in controls was 68%, it was 54% in patients ($P<0.05$). There was not any significant association between self-concept and locus of control in patients ($P>0.05$). **CONCLUSIONS:** We suggested lower positivity of self-concept and locus of control in ESRD patients.

Key words: Self-concept, Locus of controls, ESRD

INTRODUCTION

End stage renal disease (ESRD) represents a clinical state or condition in which there has been irreversible loss of endogenous renal function. According to the published statistics in the United States the projected number of ESRD patients by the year 2010 has been estimated to be 651,330 and the total Medicare ESRD program cost in excess of \$28 billion dollars (1). It is clear that this chronic disease has adverse effects and results in increased risk for neurological abnormalities, and neuropsychological deficits. However, advances in medical care, including improvements in dialysis and transplantation, have increased the survival rates for patients with ESRD (2). In Australia there are 7,952 people on dialysis, with the number of dialysis patients increasing, with a 3% increase between of 2003 - 2004. In 2004 renal dialysis accounted for 539,303

separations (3). The hemodialysis regimen required to treat ESRD can be extremely rigid, requiring individuals to adapt to and cope with multiple acute and chronic stressors. Stressors for individuals on hemodialysis can be treatment-related such as dietary and fluid restrictions and ingesting handfuls of medications, or psychosocial in nature such as alterations in sexual function, changes in self-perception, and fear of death (4). Individuals on center hemodialysis are typically connected to a machine three days a week for four or five hours at a time. They must adhere to the center's rigid schedule for use of the machine, and must adjust their lives around the dialysis schedule (5). It can be said that patients with ESRD lead sedentary lives. They spend an average of 15 hours per week on haemodialysis therapy and it is well documented that immobilization has systemic consequences and effects all bodily systems including psychological effects (3). Successful treatment of end stage renal disease (ESRD) depends on the patient compliance (6). Curtin *et al.* showed that higher perceived self-efficacy scores in patient with ESRD are associated with increased communication,

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partnership, self-care, and medication-adherence behaviors (7). Takaki and Yano found relationship of locus of control and self-efficacy with compliance in hemodialysis patients (8). Delineation of the relationship between health locus of control and psychological adjustment in chronic disease has been hampered by the failure to consider the moderating effect of contextual factors (9). Many people with ESRD may have a disability which will influence their perception of quality of life (QoL). QoL is conceived of many factors but "includes the [patient's] perception of [their] own health, including emotional well being, energy and vitality, sleep and rest, behavioural competence and general life satisfaction" (3). The concept of health is unique for everyone and each individual considers it with respect to his/her own criteria. This concept is influenced by different physical, mental and social factors and is termed self-concept (10). Finding of Bremer *et al.* suggest that interventions designed to increase patients' perception of control are likely to have a positive impact on the qualitative aspect of treatment (11). Task specificity of self-efficacy and domain specificity of locus of control are crucial for unraveling their effects on behavior. However, research on locus of control and other predictive factors has been less conclusive (12). Therefore we decided to determine association between locus of control and self concept in ESRD patients.

MATERIALS AND METHODS

This study was performed at Ardabil province in Iran during 2007-2008. This was a causative-comparative study of 50 individuals being treated for ESRD by hemodialysis with at least one year's experience of hemodialysis, three times a week and 50 healthy control subjects who were matched according to age, gender, marital status, economic state, education level and occupation with the former group. Data were gathered using the Roger's Self-Concept questionnaire, and the Iranian version of the Health Locus of Control Scale (IHLCS). IHLCS forms were developed to measure beliefs about control over treatment outcomes along two dimensions: Internal and external. People who score high on the internal scale believe that their behavior affects their health status. Those who score high on the Powerful Others scale believe that their health status is affected by the action of other people (e.g.

doctors, nurses, family members and friends) and exogenous factors. Questionnaires were validated by content validity index and their reliability was identified by internal consistency and test-retest methods. For those individuals on hemodialysis, assessments were not carried out on the day they received dialysis treatment. Statistical analyses were carried out using the SPSS for Windows statistical package. Data were analyzed by Chi-square and Fisher's exact tests. The level of significance in all cases was set at a two-tailed $p < 0.05$.

RESULTS

There was no significant difference in age and sex between control and patient groups. A significant difference was found in mean of self-concept score between two groups (7.2 ± 6.8 and 14.3 ± 11.0 for control and patient groups, respectively). Distribution of positive self-concept was 58% in controls whereas 32% in patients ($\chi^2 = 12.2$, $P < 0.05$). Another significant difference was observed in subjects according to their locus of control. While distribution of internal locus of control in controls was 68%, it was 54% in patients ($\chi^2 = 8.2$, $P < 0.05$). Mean score of locus of control in control group was 10.6 ± 3.4 versus 8.6 ± 2.5 for patient group ($P < 0.05$). In spite of some differences in results it was not found any significant association between self-concept and locus of control in patients (**Table 1**, $P > 0.05$).

DISCUSSION

In our study patients with ESRD had significantly lower self-concept positivity than their sibling controls. Reported benefits include better aerobic tolerance, maintenance and improvement in physical function and capacity, and improvement in self-concept and well being. These same improvements occur in the ESRD population, granted that some improvements might be of less magnitude (3). There are many researches which discuss the low level of physical functioning in those with ESRD. Physical function and emotional wellbeing are essential components of quality of life (13). Subjective physical complaints are associated with psychological distress in chronic hemodialysis patients (14). ESRD influences patients' psychosocial environments in which ESRD sufferers live impact the course of the disease and physical well-being (15). In patients with ESRD and

Table 1: Distribution of subjects according to status of Self-Concept and Locus of control

Self-Concept		Locus of control		Total
		Internal	External	
Negative	Frequency	16	18	34
	Percent	47.1	52.9	100
Positive	Frequency	7	9	16
	Percent	43.8	56.2	100
Total	Frequency	23	27	50
	Percent	46.0	54.0	100

hemodialysis a "new sense of self" is an emotional/psychological state that fluctuates with the evolving meanings of illness and treatment and perceived quality of supports. The findings indicate that when confronted with this new way of being in the world, the individual becomes cognizant of an uncertain future, continued dependence on life-sustaining technology and the expertise of health care providers, and the demands on and sacrifices incurred by significant others (16). Morton et al. reported lower self-esteem in ESRD patients (17). According to the results of a study on patients with ESRD, although self-definition moderates the psychosocial impact of chronic disease, this varies across the life span and across affect states (18). Some studies of quality-of-life in end-stage renal disease have painted a fairly optimistic picture of the outcome of treatment in terms of psychosocial adjustment (5). Findings of Takaki and Yano on ESRD patients showed that in men, self-efficacy and the internal health locus of control were negatively correlated with all compliance measures whereas in women, all the correlations were positive, the authors found that female patients who had higher self-efficacy or internal health locus of control were less compliant (8). ESRD patients traditionally have a high non-adherence level to their self-care and medical regimens (19). However some results indicated self reported self-esteem of ESRD patients was within normal limits, and comparable to that of their siblings (2).

Our results also showed lower score of health locus of control positivity in ESRD patients. ESRD is marked by extreme loss of personal control and the challenge of lifelong behavioral change (4). The results indicated that control over life dimensions, which includes control over illness, is a significant factor in psychological adjustment (11). Findings of Bremer indicated that locus of control was significantly related to indicators of emotional adjustment. These data suggest that perceived locus of control over treatment outcome acts as a moderator variable in predicting psychological adjustment to ESRD (5). Our results showed lower level of internal locus of control in ESRD patients than healthy controls. Other results indicated that an internal locus of control was positively related to exercising and participation in leisure activities (20). If locus of control is the key to adjustment, then it is reasonable to assume that a negative effect of hemodialysis would be more pronounced for individuals who have an internal locus, because of the incongruity between the individual's disposition and the reality of their level of control (5). Devins et al. reported that internal locus of control has a positive impact on quality-of-life, and that the conviction that one could not execute a behavior to produce a given outcome could lead to the onset of depression (18). However, according to results of a study there was no evidence that ESRD patients were exhibiting internalizing or externalizing behavior problems (2).

There was not found any association between locus of control and self-concept in ESRD patients in our results. Research on the association between health locus of control and other aspects in chronic illness has produced contradictory findings, perhaps because of a failure to consider contextual variables. Health locus of control was unrelated to some psychological status among ESRD patients. Results underscore the adaptive value of congruence between control beliefs and objective circumstances in chronic illness (21). It was concluded that there is no relationship between locus of control beliefs and self-concept in patients with ESRD. We suggested lower positivity of self-concept and locus of control in ESRD patients. All aspects of patients' experiences with ESRD and hemodialysis treatment must be considered if health care providers are to facilitate positive health outcomes. Future research needs to address this shortcoming and increase sample sizes to allow for statistical controls.

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