Effectiveness of a trans-theoretical model-based stage-matched intervention to promote lifestyle modification among chronic kidney disease in Taiwan

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Background

In the global, increasing numbers of patients are affected by chronic kidney disease (CKD). Lifestyle modification education program for people with CKD may provide effective disease-specific knowledge and self-care information to retard renal function deterioration. The transtheoretical model stage of change model has been considered a useful interventional approach in lifestyle modification programs.

Objectives

The study applied the transtheoretical model (TTM) to assess the effectiveness of a lifestyle modification consultation program on subjects with stage 1 to 3 CKD at baseline, 6, 12, 18, 24, 30 and 36 months later by examining the changes in health promotion lifestyle factors, and overall knowledge of renal protection and quality of life through a longitudinal follow-up survey.

Design

An experimental repeated-measures study design evaluated the effectiveness of lifestyle modification intervention using random controlled trail.

Participants

CKD patients diagnosed by nephrologists as CKD Stage 1, 2 or 3 using the National Kidney Foundation (NKF) criteria (KDOQI Work Group, 2002) were eligible to participate in the study. From July 2010 to June 2013, CKD patients who attended a routine visit to the nephrology clinic and who met the study criteria were invited to participate. After providing informed consent, the subjects were randomly assigned to a control or experimental group.

Outcome Measures

Study outcomes were measured at baseline, 6 , 12, 18, 24, 30, and 36 months after subjects were assigned.

Outcomes Measurement included

(1) The Health Promoting Lifestyle Profile II (HPLP-II) questionnaire

(2) The Renal Protection Knowledge checklist and World Health

Results

1. Demographic Characteristics:

There were no significant differences between the control and intervention groups on baseline demographic characteristics, except age. The major differences between the groups were that the control group included more elderly CKD patients.

2. Health Promotion Lifestyle:

The 30 (p = 0.027) and 36 month (p = 0.012) total health promoting lifestyle scores were higher than that at 12 months. Between the two groups, there was a significant difference in the follow-up visits for the health responsibility (p = 0.04). (Table 1). The intervention group had a linear trend of increasing total HPLP- scores mean scores with time (p = .001; Figure 1).

3. Renal Protection Knowledge:

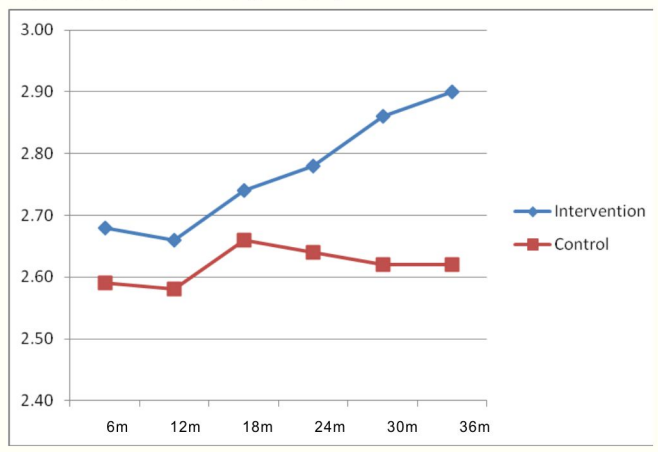
Over the 36-month intervention period, there were significant differences for both groups in the follow-up visits for the renal protection knowledge variable. The post hoc analysis showed the 18 months (p = 0.016), 24 months (p = 0.007) and 30 months (p = 0.045) renal function protection knowledge scores were higher than those at 6 months.

Table 1. GEE analysis adjusted using overall knowledge of renal protection as outcome variables over time and between intervention (I) (n=52) and control (C) (n=51) groups

Variables	Source	Wald Chi-Square	df	p-value	Post-hoc
Health Responsibility	Group	4.05	1	0.04*	I<C
	Time	3.40	4	0.49	
	Group× Time	4.65	4	0.33	
Physical Activity	Group	0.37	1	0.54	
	Time	6.55	4	0.16	
	Group× Time	6.85	4	0.14	
Nutrition	Group	3.36	1	0.07	
	Time	2.79	4	0.59	
	Group× Time	8.79	4	0.07	
Spiritual Growth	Group	0.52	1	0.47	
	Time	6.78	4	0.15	
	Group× Time	5.09	4	0.28	
Interpersonal Relation	Group	1.88	1	0.17	
	Time	3.64	4	0.46	
	Group× Time	4.62	4	0.33	
Stress Management	Group	0.38	1	0.54	
	Time	6.26	4	0.18	
	Group× Time	8.51	4	0.07	
Total HPLP II	Group	2.80	1	0.09	
	Time	13.40	4	0.01*	36m>6m; 30m>6m;
Renal protection knowledge	Group	0.45	1	0.50	
	Time	19.29	4	0.001	36m>6m; 24m>6m; 18m>6m
	Group Time	0.51	4	0.97	

** p < .01 ; * p < .05 I: Intervention ; C: Control

Figure 1. The intervention group had a linear trend of increasing total HPLP-II scores mean scores with time (p = .001)



Conclusion

An experimental study design using a stage-matched intervention was based on the TTM stages of change to promote healthy lifestyle and renal protection knowledge among early CKD patients. The results indicated that stage-matched interventions are an effective strategy to improvements for healthy promotion behavior.

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