

COMPARISON OF ORAL HEALTH AND ORAL QOL AMONG COMMUNITY RESIDENTS AND PATIENTS WITH RENAL INSUFFICIENCY

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RESULTS

ABSTRACT

Purpose: The major purpose of this study was to assess and compare the oral health status and oral health-related quality of life of the community residents, CKD patients and ESRD patients from a medical center and neighborhood community located in northern part of Taiwan.

Methods: A cross-sectional study design was conducted. A total of 79 community residents, 120 CKD patients and 101 ESRD patients agreed to participate and completed all data collection. Instruments for data collection included: questionnaires (demographic information, oral hygiene habit, attitude and knowledge related to oral health, and geriatric oral health assessment index_GOHAI) and oral inspection (done by a trained assistant).

Results:

The comparisons of demographic data showed that samples in CKD group were more male and lower educated. In regard to the performance of oral health, community residents had better performance than the other two groups in general. Specifically, the ESRD group reported lowest ratio in tooth brush at "after breakfast", "after dinner" and "after eating". Also, ESRD group reported a higher ratio in "never receive teeth examination". The comparison of knowledge related to oral health showed that CKD group was the one with lower level than the other two groups. Community residents group reported more positive attitude towards oral health than the other two groups.

The results of personal inspection showed that CKD group had less untreated dental caries whereas the ESRD group had higher ratio of untreated dental caries. ESRD group also had higher ratio of "0-5 loss teeth" in upper jaw whereas the CKD group had higher ratio of "11-15 loss teeth" in jaw. In regard to the dentures, CKD group had a higher ratio of active dentures and the ESRD group had a less ratio of full dentures. The comparison of oral health-related quality of life showed that CKD group reported less total score than the groups of community residents and CKD patients. The CKD group also had lower score in the psychosocial impact dimension than the other two groups. For the pain and discomfort dimension, the group of community residents reported higher scores than the ESRD and CKD group. In addition, subjects in ESRD group reported higher scores than patients in CKD group.

Conclusion: The oral health status in the community residents, CKD patients, and ESRD patients were no good, measured by both subjective and objective methods. And limited patients had searched for medical treatment actively. The health care professions need to pay more attention to the oral health status of these specific subjects and referred them to dentist timely. Thus a holistic care could be achieved.

INTRODUCTION

Shin (2017) found that number of teeth in the elderly Korean population was significantly associated with CKD after controlling for all potential confounders. Chen (2004) and Wu (2011) found that the oral health condition of dialysis patients in Taiwan was poor in general. Changes in the oral cavity, such as periodontitis, are common in patients with chronic kidney disease (CKD) and may contribute to increased morbidity and mortality because of systemic consequences such as: inflammation, protein-energy wasting, and atherosclerotic complications. Therefore, to identify the oral health and oral health-related quality of life become an important issue.

PURPOSE OF THIS STUDY

The purposes of this *cross-sectional study* were to assess and compare the oral health status and oral health-related quality of life of the community residents, CKD patients and ESRD patients from a medical center and neighborhood community located in northern part of Taiwan.

Samples

A total of 79 community residents (healthy control), 120 CKD patients and 101 ESRD patients agreed to participate and completed all questionnaire and oral inspection.

Table 1. Demographics and comparison among three groups

Variables	Category	Healthy		CKD		ESRD		X ²	p
		N	%	N	%	N	%		
Gender	Male	30	38.0	81	67.5	49	48.5	18.11	<.001
	Female	49	62.0	39	32.5	52	51.5		
Marriage	Unmarried	9	11.4	9	7.5	16	15.8	3.72	.16
	Married	70	88.6	110	91.7	85	84.2		
Job	None	56	70.9	88	73.3	65	64.4	2.17	.34
	Yes	23	29.1	32	26.7	36	35.6		
Education	≤ junior high	31	40.3	72	60.0	49	48.5	7.69	.021
	≥ senior high	46	59.7	48	40.0	52	51.5		
Smoking	Yes	49	62.0	11	9.2	9	8.9	96.4	<.001
	Quit now	2	2.5	28	23.3	17	16.8		
Drinking	None	28	35.4	81	67.5	75	74.3		
	Yes	3	3.8	13	10.8	4	4.0	22.63	<.001
Chewing betel nut	Quit now	3	3.8	23	19.2	6	5.9		
	No	74	94.9	105	87.5	90	89.1	3.97	.41

Demographic characters

The characters of ESRD patients were: female (51.5%), married (84.2%), unemployed (64.4%), higher educated (51.5%), non-smoker (74.3%), no drinking (90.1%) and no chewing betel nut (89.1%). The characters of CKD patients were: male (67.5%), married (91.7%), unemployed (73.3%), lower educated (60%), non-smoker (67.5%), no drinking (70%) and no chewing betel nut (87.5%). The characters of healthy control were: female (62%), married (88.6%), unemployed (70.6%), higher educated (59.7%), smoker (62%), no drinking (92.3%) and no chewing betel nut (94.9%).

The comparisons of demographic data showed that samples in CKD group were more male and lower educated. In addition, the age in ESRD group was significantly older than subjects in the CKD and healthy control groups (Table 1).

Performance of oral health

Most subjects did not use flossing and fluorine mouthwash. In addition, most of them brush their teeth when they wake-up and before sleep only. However, half subjects in CKD group brush their teeth after eating. The results of comparison showed that subjects in ESRD group reported lowest ratio in tooth brushing at "after breakfast", "after dinner" and "after eating". Meanwhile, subjects in healthy control reported better performance, except brush after eating, than the other two groups. In regard to the frequency of dental check, the ESRD reported the higher ratio in "never received dental check" whereas subjects in healthy control reported higher ratio in "received dental check every year" (Table 2).

Oral health inspection

The results of personal inspection and comparison showed that ESRD had highest ratio of untreated caries whereas the CKD had less caries. In addition, ESRD group had lower ratio of "11-15 loss teeth" in upper jaw whereas the healthy control group had lower ratio of "6-10 loss teeth" in upper jaw. Similar trends of teeth loss were found in jaw. Subject in ESRD had lower ratio in dentures and active dentures than the others. (Table 3).

Table 2. Performance of oral health and comparison among groups

Variables	Category	Healthy		CKD		ESRD		X ²	p
		N	%	N	%	N	%		
Brush teeth	No	8	10.1	12	10.0	9	8.9	.10	.95
	Yes	71	89.9	108	90.0	92	91.1		
_Wake up	Yes	45	57.0	93	77.5	86	85.1	19.47	<.001
	No	34	43.0	27	22.5	15	14.9		
_After breakfast	No	54	68.4	99	82.5	81	80.2	5.98	.05
	Yes	25	31.6	21	17.5	20	19.8		
_After lunch	No	45	57.0	87	72.5	77	76.2	8.55	.014
	Yes	34	43.0	33	27.5	24	23.8		
_After dinner	No	13	16.5	31	25.8	31	30.7	4.87	.088
	Yes	66	83.5	89	74.2	70	69.3		
_Before sleep	No	45	57.0	59	49.2	76	75.2	15.96	<.001
	Yes	34	43.0	61	50.8	25	24.8		
_After eating	No	56	70.9	80	66.7	66	65.3	.66	.72
	Yes	23	29.1	40	33.3	35	34.7		
Flossing use daily	No	57	72.2	101	84.2	84	83.2	5.02	.081
	Yes	22	27.8	19	15.8	17	16.8		
Fluorine mouthwash	No	19	24.1	23	19.2	9	8.9	142.33	<.001
	Yes	18	22.8	14	11.7	8	7.9		
Frequency of dental check	Every 6 m	26	32.9	76	63.3	9	8.9		
	≥ Every 2 year	16	20.3	7	5.8	75	74.3		
	Never								

Table 3. Results and comparison of oral health inspection

Variables	Categories	Healthy		CKD		ESRD		X ²	p
		N	%	N	%	N	%		
Untreated caries	No	38	48.1	93	77.5	14	13.9	88.94	<.001
	Yes	41	51.9	27	22.5	87	86.1		
Numbers of loss teeth in upper jaw	0-5	60	75.9	74	61.7	82	81.2	21.41	<.001
	6-10	5	6.3	20	16.7	14	13.9		
	11-15	14	17.7	26	21.7	3	3.0		
Numbers of loss teeth in jaw	0-5	58	73.4	66	55.0	79	78.2	24.25	<.001
	6-10	9	11.4	25	20.8	17	16.8		
	11-15	12	15.2	29	24.2	3	3.0		
Full-port prosthetic mode	No	16	20.3	27	22.5	48	47.5	22.63	<.001
	Yes	63	79.7	93	77.5	51	50.5		
Denture	No	38	48.1	63	52.5	57	56.4	1.24	.54
	Yes	39	49.4	57	47.5	42	41.6		
Dental bridge	No	63	79.7	108	90.0	87	86.1	2.87	.24
	Yes	14	17.7	12	10.0	12	11.9		
Active dentures	No	57	72.2	83	69.2	89	88.1	13.98	.001
	Yes	20	25.3	37	30.8	10	9.9		
Implant	No	72	91.1	115	95.8	96	95.0	1.26	.53
	Yes	5	6.3	5	4.2	3	3.0		

Table 4. Results of knowledge, attitude, and oral health-related quality of life among groups

Variables	Healthy		CKD		ESRD		F	p
	Mean	SD	Mean	SD	Mean	SD		
Knowledge of oral health	14.88	3.18	13.09	4.00	15.81	2.47	19.04	<.001
Attitude towards oral health	71.22	9.23	67.34	7.70	66.23	5.65	10.42	<.001
Oral health-related QOL								
Physical function	6.99	3.02	6.03	2.69	6.50	2.64	2.92	.092
Pain & discomfort	9.44	3.63	7.08	2.54	8.65	2.73	17.18	<.001
Psychosocial impact	5.52	2.38	4.39	1.75	5.37	1.95	9.93	<.001
Total	21.95	7.31	17.49	5.75	20.51	5.67	13.79	<.001

Knowledge and attitude toward oral health and oral health-related QIL

Subjects in healthy control and ESRD groups reported significantly higher knowledge of oral health than CKD (p<.001). In regard to attitude towards oral health, subjects in healthy control reported significantly positive than subjects in CKD and ESRD groups (p<.001).

Comparison of oral health-related QOL showed that subject in healthy control and ESRD groups reported much better in "pain and discomfort", "psychosocial impact" and "overall" oral health-related QOL than subjects in CKD group (Table 4).

CONCLUSION

The oral health status of subjects in ESRD, CKD, and the healthy control groups were poor, measured by both subjective and objective methods.

Limited patients had searched for medical treatment actively.

Subjects in CKD group reported the lowest oral health-related QOL.

Although the oral health condition of everyone need to pay much more attentions. The health care professions need to pay more attention to the oral health status of the renal patients, especially diagnosed with renal insufficiency.

Referred them to dentist timely is necessary. A holistic care could be achieved.