

Exploring the Determinations of Health Literacy and Self -Management in Patients with Chronic Kidney Disease

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- ◎ Learning objectives: To explore the factors that affect the health literacy and self-management of CKD patients, hopes that the results will serve as a guide for medical personnel to provide better health management and care planning services.
- ◎ Conflict of interest : none
- ◎ Have employer and whether any sponsorship or commercial support : none

Outlines

- *Introduction*
- *Propose*
- *Method*
- *Measurement*
- *Results & Discussion*
- *Conclusions*
- *References*

- ◎ End-stage renal disease (ESRD) in Taiwan (USRDS, 2012)
 - The **incidence** rate is 361 people per million population, this ranks **fourth in the world**.
 - The **prevalence** rate is 2584 people per million population, this ranks **first in the world**.
- ◎ It consumed huge country health care resources and would cause heavy burden in health care system.

- Self-management is an individual's **ability to manage the chronic diseases and cope with related lifestyle changes**; the health care of self-management, it should include drug management, symptom management, psychological management and social support (Barlow et al., 2004).
- Many studies have shown that self-management can effectively improve quality of life, adherence behavior, disease control and the self-perceived health status of patients (Du & Yuan, 2010; Griffiths, Foster, Ramsay, Eldridge, & Taylor, 2007; Lorig, Ritter, Villa, & Piette, 2008; Lorig et al., 2001; Nijs et al., 2009; Siu, Chan, Poon, Chui, & Chan, 2007; Yukawa et al., 2010).

Introduction

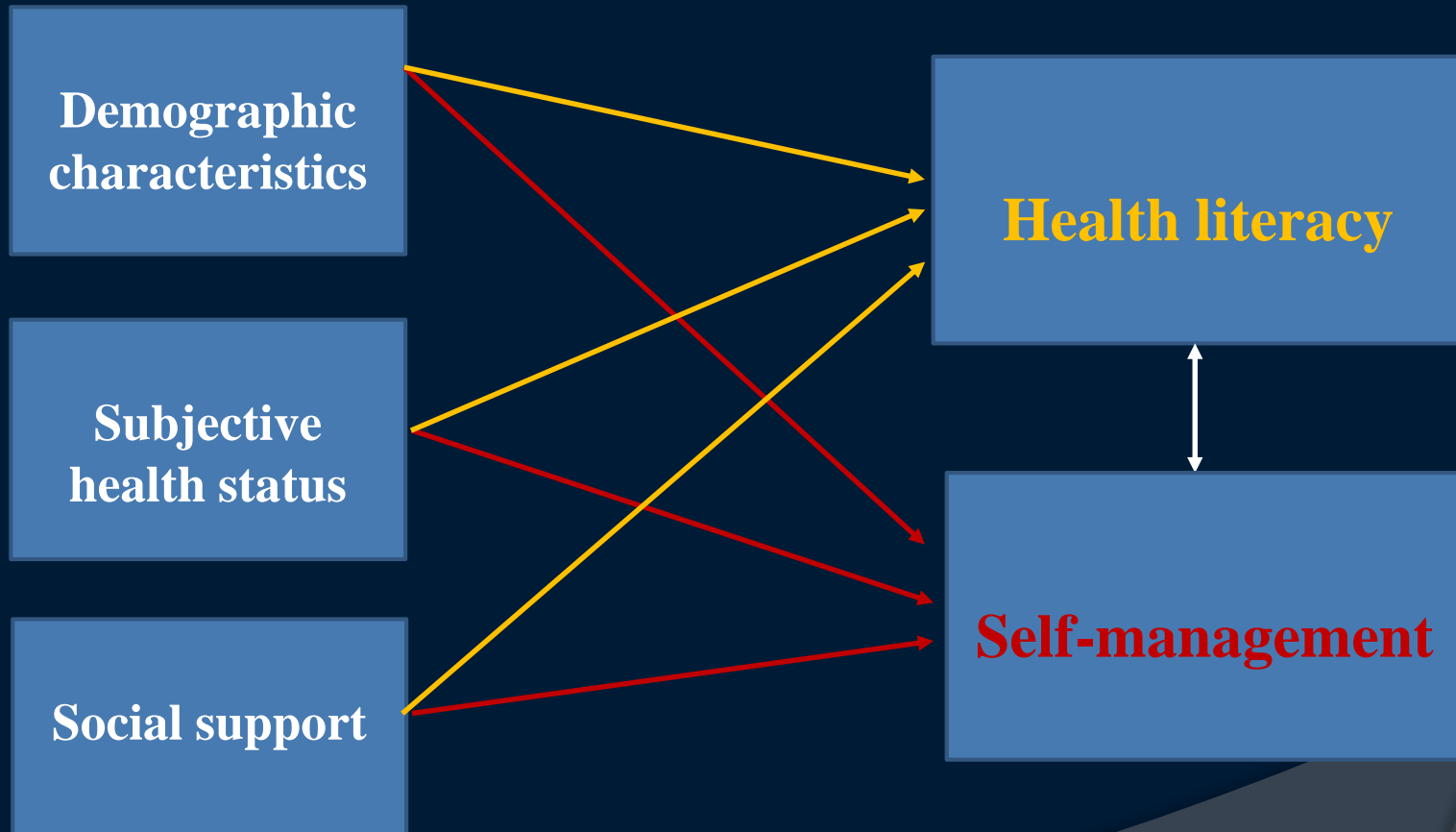
- ◎ The Institute of Medicine States defined health literacy as "the degree to which individuals can **obtain, process, and understand the basic health information and services** they need to make appropriate health decisions" (Nielsen-Bohlman, Panzer, & Kindig, 2004).
- ◎ When patients lack of health literacy, they will not be able to understand complex medical information, and will face communication barriers with professionals in the health care process (Ishikawa & Yano, 2008; Schillinger, Handley, Wang, & Hammer, 2009).

- ◎ The purpose of this study was to explore the factors that affect the **health literacy** and **self-management** of CKD patients.

Study design

- ⦿ A **cross-sectional** study design.
- ⦿ Hospitals of **four different levels** including medical centers, regional hospitals, local community hospitals and clinic.
- ⦿ Data were collected by using the **structured questionnaires** and **chart reviews**.

Study framework



Study subject and recruitment process

- ⦿ This study recruited a total of **410 patients**.
- ⦿ They all received the case management care service over **three months of CKD health promotion program**.
- ⦿ Subjects from the patients list of care management were selected **by random sampling**.
- ⦿ When the patients went back to the regular medical appointment, case managers notified them of the invitation to participate in this study.

Social support scale

- ⦿ This social support scale was self-edited by the researcher after reviewing relevant literature.
- ⦿ Four function dimensions:
 - emotional, information, substance and appraisal support
- ⦿ Two subscales:
 - family members and health care provider
- ⦿ The number of questions was 16 and the Cronbach's α was 0.93.
- ⦿ A higher score in the scale means that the social support was stronger.

Short-form mandarin health literacy scale (s-MHLS)

- Original health literacy scale was developed by the National Health Research Institute. After the study has been shown good reliability and validity (Tsai et al., 2010).
- Short scale associated with the original scale was 0.97. The number of questions was 11 and the **Cronbach's α was 0.94** (Lee et al., 2012).
- A **higher score** in the scale means that the health literacy was **better**.

Self- management scale

- Self-management scale was developed for early stage CKD patients in 2008 (Lin, 2008).
- Chen (2010) modified to use in all CKD population.
- The number of questions was 30 and the Cronbach's α was 0.95.
- A higher score in the scale means that the self-management behavior was better.

Statistical analysis

⦿ **Descriptive statistic**

- **Frequency and percentage** : distribution of demographic and subjective health status
- **Average and standard deviation** : distribution of social support, health literacy and self-management

⦿ **Inferential statistic**

- **t-test and one-way ANOVA** : relationship of demographic, subjective health status, health literacy and self-management.
- **Pearson product-moment correlation** : relationship of social support, health literacy and self-management
- **Stepwise-regression** : predictors of self-management

Participant demographic characteristics and subjective health status (n=410)

variable	n (%)
Gender	
Male	259 (63.2)
Female	151 (36.8)
Age	
1. < 44 years order	15(3.7)
2. 45-64years order	115(28)
3. 65-79 years order	159(38.8)
4. > 80 years order	121(29.5)
Education	
1. Primary school	172(42)
2. Junior high school	63(15.4)
3. High school	77(18.8)
4. College or university	98(23.9)
Occupation	
No	330(80.5)
Yes	80(19.5)
Marital status	
1. Single	33(8.0)
2. Married	322(78.5)
3. Widowed or divorced	55(13.4)
Living condition	
1. Alone	28(6.8)
2. With spouse	125(30.5)
3. With spouse and children	81(19.8)
4. With children	152(37.1)
5. With other	24(5.9)

variable	n (%)
Case management care duration	
1. < 6months	35(8.5)
2. 6-12months	47(11.5)
3. 13-18months	42(10.2)
4. 19-24months	40(9.8)
5. 25-36months	70(17.1)
6. > 36months	176(42.9)
CKD stage	
1. CKD stage 1,2,3a	106 (25.9)
2. CKD stage 3b	116 (28.3)
3. CKD stage 4	103(25.1)
4. CKD stage 5	85(20.7)
Perceived severity of renal disease	
1. No severe	130 (31.7)
2. General	218 (53.3)
3. Very severe	62(15.1)
Perceived health status	
1. Poor	118 (28.8)
2. General	191 (46.6)
3. Well	101(24.6)

Association between demographic and health literacy (n=409)

	Health literacy		
	Mean(SD)	t/F	P value/ PHT
Gender		4.142	<0.001
Male	7.7 (3.0)		
Female	6.2 (3.9)		
Age		25.524	<0.001
1. <44 years order	10.2 (0.9)		2>4
2. 45-64 years order	8.9 (2.5)		
3. 65-79 years order	6.2 (3.5)		
4. >80 years order	6.2 (3.4)		
Education		47.471	<0.001
1. Primary school	5.1 (3.5)		4>2>1
2. Junior high school	8.1 (2.5)		4>3>1
3. High school	8.1 (3.0)		
4. College or university	9.2 (2.1)		
Occupation		-6.493	<0.001
No	6.7 (3.5)		
Yes	8.9 (2.6)		
Marital status		4.561	0.014
1. Single	8.1 (3.1)		1>3
2. Married	7.2 (3.4)		
3. Widowed or divorced	5.9 (3.8)		

	Health literacy		
	Mean(SD)	t/F	P value/ PHT
Living condition		4.435	0.003
1. Alone	6.6 (3.5)		2>3
2. With spouse	7.8 (3.1)		4>3
3. With spouse and children	5.7 (3.8)		
4. With children	7.3 (3.2)		
5. With other	7.4 (3.6)		
Case management care duration		1.794	0.119
1. <6 months	7.9 (3.1)		
2. 6-12 months	7.9 (2.8)		
3. 13-18 months	6.3 (3.4)		
4. 19-24 months	7.3 (3.7)		
5. 25-36 months	6.6 (3.6)		
6. >36 months	7.1 (3.5)		
CKD stage		9.491	<0.001
1. CKD stage 1,2,3a	8.4 (2.7)		1>2
2. CKD stage 3b	6.9 (3.3)		1>3
3. CKD stage 4	6.5 (3.6)		1>4
4. CKD stage 5	6.5 (3.7)		

Association between demographic and self- management (n=410)

	Self- management				Self- management		
	Mean (SD)	t/F	P value/ PHT		Mean (SD)	t/F	P value/ PHT
Gender		0.508	0.612	Living condition		2.878	0.023
Male	89.1 (20.1)			1. Alone	83.0 (23.8)		No significant difference between the groups
Female	88.1 (21.4)			2. With spouse	91.9 (20.1)		
Age		4.59	0.004	3. With spouse and children	83.9 (20.0)		
1. <44 years order	93.3 (16.6)		1 > 2 > 3	4. With children	90.3 (19.7)		
2. 45-64 years order	92.2 (18.5)		2 > 4	5. With other	85.2 (22.3)		
3. 65-79 years order	90.0 (19.8)			Case management care duration		1.185	0.316
4. > 80 years order	83.2 (22.7)			1. <6months	89.3 (23.4)		
Education		5.665	0.001	2. 6-12months	84.2 (21.7)		
1. Primary school	84.3 (21.5)		4 > 1	3. 13-18months	85.3 (24.2)		
2. Junior high school	89.9 (19.8)			4. 19-24months	86.3 (22.6)		
3. High school	90.4 (18.6)			5. 25-36months	91.0 (18.0)		
4. College or university	94.5 (19.2)			6. >36months	90.3 (19.0)		
Occupation		-1.663	0.097	CKD stage		0.711	0.546
No	87.9 (21.0)			1. CKD stage 1,2,3a	86.9 (22.7)		
Yes	92.2 (18.1)			2. CKD stage 3b	90.1 (21.0)		
Marital status		9.045	<0.001	3. CKD stage 4	87.7 (19.9)		
1. Single	93.5 (19.4)		1 > 3	4. CKD stage 5	90.4 (17.7)		
2. Married	90.5 (18.9)		2 > 3				
3. Widowed or divorced	75.7 (25.5)						

Association between subjective health status, health literacy and self- management

	Health literacy (n=409)			Self- management (n=410)		
	Mean(SD)	F	P value/ PHT	Mean (SD)	F	P value/ PHT
Perceived severity of renal disease		3.019	0.052		7.163	0.001 2 > 1
1. No severe	7.7 (3.2)			93.9 (17.7)		
2. General	7.0 (3.4)			86.0 (22.0)		
3. Very severe	7.1 (3.4)			87.5 (19.0)		
Perceived health status		5.039	0.007		6.550	0.002 3 > 1
1. Poor	6.4 (3.7)		3 > 1	84.8 (19.8)		3 > 1
2. General	7.2 (3.3)			88.4 (21.8)		
3. Well	7.8 (3.1)			93.9 (17.7)		

PHT: post hoc tests

Association between social support and health literacy (n=409)

	Health literacy		
	Mean(SD)	Correlation coefficient	P value
Social support total	104(20.3)	0.09	0.088
Social support function			
Emotional	28.0(5.1)	0.01	0.782
Information	25.0(5.7)	0.16	0.001
Substance	24.5(5.2)	0.06	0.271
Appraisal	26.5(5.9)	0.07	0.151
Social support resource			
Family	50.0(13.0)	0.12	0.013
Health care provider	54.0(10.8)	0.01	0.838

Association between self- management and social support, health literacy (n=410)

Variable	Mean(SD)	Self- management	
		Correlation coefficient	P value
Social support total	104(20.3)	0.64	<0.001
Social support function			
Emotional	28.0(5.1)	0.58	<0.001
Information	25.0(5.7)	0.61	<0.001
Substance	24.5(5.2)	0.58	<0.001
Appraisal	26.5(5.9)	0.58	<0.001
Social support resource			
Family	50.0(13.0)	0.50	<0.001
Health care provider	54.0(10.8)	0.60	<0.001
Health literacy	7.1(3.4)	0.33	<0.001

Self- management of the stepwise regression analysis (n=410)

Variable	R ²	Adj-R ²	R ² change	F	F change	B	Beta
Constant						18.172	
Social support	0.401	0.400	0.401	272.326***	272.326***	0.599	0.593
Health literacy	0.477	0.475	0.076	184.782***	58.602***	1.467	0.245
Age							
>80 & 65-79 years order	0.491	0.487	0.014	129.828***	10.893***	-4.788	-0.106
Marital status							
Widowed or divorced & Married	0.502	0.497	0.011	101.421***	8.738**	-6.415	-0.107

* * P < .01 * * * P < .001

Conclusions

- The health literacy relevant to the age and level of education. It is alignment to other similar study, they a common argument is found that **low educational level and older people, mostly low health literacy group**. The elderly patients with kidney disease will be another main issue in future care need us to focus on.
- The common denominator of these **low health literacy groups** would be the one who have out of resources and without social support network. For this group, **social support is an important factor**, strengthening social support can reduce the impact of inadequate health literacy on health outcomes.

Conclusions

- For the group of patient who was older, low education level and divorced or widowed may have less self-management behavior. It was suggested to put high priority of providing care to this group of patient. Besides, it should be through the **construction of social support networks and enhance function**, thereby it help execute self-management.
- But more important is the basis for the health literacy of the patient and family, to **plan and design appropriate care and teaching content**; these ways can enhance patient motivation and performance to effective learning care skills.

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Thank you for your attention