

挑戰與回應

## Health-Related Quality of Life of Senior Veterans Living in Veterans Homes

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### Abstract

#### *Background*

Health-related quality of life (HRQOL) is an important issue in caring the elderly nowadays. This study is aimed to explore the HRQOL of senior veterans living in veterans homes (VHs) in southern Taiwan and the predicted factors of their HRQOL.

#### *Methods*

A total of 260 male senior subjects were recruited. We evaluated their HRQOL by the Short-Form 36 (SF-36), which can group into physical component summary (PCS) and mental component summary (MCS); mental health by the

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Geriatric Depression Scale-short form (GDS-15); functional status of activities of daily (ADLs) by the Barthel Index, instrumental activities of daily (IADLs), and we also recorded the number of chronic conditions and socio-demographic characteristics of them.

***Results:***

The mean SF-36 PCS score was lower and MCS was higher than community-dwelling elderly in Taiwan, and both were higher than older veterans who receiving ambulatory care in United States. Multiple stepwise linear regression analysis revealed that ability of IADLs, ADLs, and education level were positive predictors for SF-36 PCS scores while depressive symptoms was a negative one. The depressive symptoms and the ability of IADLs were negative predictors for SF-36 MCS scores.

***Conclusions:***

Further researches are needed to examine the differences of HRQOL between institutionalized and community-dwelling elderly and the association between ability of IADLs and HRQOL.

**Key words: health-related quality of life, instrumental activities of daily living, senior veterans, SF-36,**

## **Introduction**

Taiwan has been a WHO defined aging society since 1984 with more than 2.3 million people and 10.6% of elderly inhabitants as of December, 2009 [1].

There is a special group of senior people called diaspora veterans occupied about 11% of this aged population and some of them are living in the government-expense long term care (LTC) facilities-veterans' homes (VHs) [2]. In these VHs, personal or nursing care was provided according to senior veterans' activities of daily living (ADLs)- the scores of Barthel Index [3]. Elderly veterans have a ADLs score over 90 will be arranged into the independent domiciliary care unit while those who have a ADLs score lower than 90 will be arranged into the nursing care unit .

Health-related quality of life (HRQOL) is an important issue in caring the elderly [4-5], but very little attention was paid to those who are institutionalized [6-8], especially these senior veterans living in VHs in Taiwan [6, 8-10]. Thus, the aims of this study were to exam the HRQOL of these institutionalized senior veterans receiving domiciliary care in southern Taiwan, and trying to find out the factors associated with their HRQOL.

## **Materials and Methods**

### ***Ethical Issues***

This study was approved by Human Experiment and Ethics Committee of National Cheng Kung University Hospital and we interviewed subjects after their agreements.

### ***Settings and Participants***

This study involved 4 veterans homes in Southern Taiwan. Cluster sampling method was performed with a sampling proportion of 50% in every veterans homes. We excluded those had poor cognitive function, severe hearing impairment and who admitted in a VH less than 3 months. Totally, among 352 eligible subjects, 260 male residents aged  $\geq 65$  years were recruited.

### ***Research Instruments***

#### ***Demographic Data***

We recoded participants' age, gender, birthday, education level, retired military rank, marital status, and parenthood status.

#### ***Health-Related Quality of Life: The Short-Form 36 (SF-36)***

We evaluated participants' health-related quality of life by SF-36 Taiwan version. This 36-item questionnaire measured eight health concepts: Physical Functioning (10 items), Role Physical (4 items), Bodily Pain ( 2 items ), General Health (5 items), Vitality (4 items), Social Functioning (2 items), Role Emotional (3 items), Mental Health (5 items) and 1 item of Reported Health Transition [11]. The 8 concepts could be grouped into Physical Component Summary (PCS) and Mental Component Summary (MCS) measures which represented quality of life of physical related health and quality of life of mental related health respectively. We rated PCS and MCS according to the SF-36 users' manual [12]. The higher the scores the better the HRQOL.

#### ***Chronic Conditions, Mental Health and Functional Status***

We evaluated participants' objective health by recording their chronic conditions, symptoms of depression, and functional status by ADLs and instrumental activities of daily living (IADLs). The chronic conditions included hypertension, diabetes, heart disease, pulmonary disease, stroke, osteoarthritis,

hyperlipidemia, renal disease, benign prostate hypertrophy, and cancer. Depressive symptoms, represented mental health, were evaluated by short form of Geriatric Depression Scale (GDS-15). GDS-15 included 15 items with score range 0 to 15, a score over 5 represents possible clinical depression and a high score indicated severity of depression [14]. The ADLs was evaluated by the Barthel index with score ranges between 0 to 100 [3]. Due to the help of serving meals and laundry by these institutions, the items we used to evaluate participants' IADLs function included 6 abilities: to use telephone, shopping, housekeeping, transportation, responsibility for own medications and ability to handle finances with score range between 0 to 6, the higher the score the better the ability of IADLs [15].

### ***Procedures***

The investigator conducted personal interviews with structured questionnaires at participants' residencies to collect related data. Due to old age of these participants and time consuming of complete the questionnaires, if they felt tired or discomfort, we took a break till they say okay to continue the interview.

### ***Data Analysis***

Data analysis included descriptive statistics and inferential statistics. In descriptive statistics, categorical variables were presented as frequency and percentage, and continuous variable were presented as mean  $\pm$  standard deviation. Then we used multiple linear regression analysis to assess the predictors for the PCS and MCS scores in SF-36. All analyses were performed by SPSS, version 17.0 (SPSS, Inc. Chicago, IL).

## Results

### *Subjects' Characteristics*

The ages of these 260 residents ranged from 67 to 97 years with an average of 82.91 (SD=4.74). Furthermore, all of them were male, 148 (56.9%) retired as noncommissioned officer, 95 (36.5%) are literate, 125(48.1%) never married and 88 (33.9%) had a child (Table 1).

### *Health-Related Quality of Life*

The descriptive data of concepts and summary scores of SF-36 are presented in Table 2. Physical functioning scored lowest among 8 concepts of the SF-36 and vitality scored the highest. The mean scores of SF-36 PCS and MCS were 44.73 (SD=10.61) and 56.12 (SD= 9.32), respectively.

### *Chronic Conditions, Mental Health and Functional Status*

Table 3 presents the chronic conditions, mental health and functional status of the participants. The mean number of chronic conditions was  $3.43 \pm 1.91$  and the most common disease was osteoarthritis (OA, 64.4%), the second was hypertension (HTN, 54%), the third was benign prostate hypertrophy (BPH, 35.6%) and the fourth was heart disease (33.6%). The mean score of GDS-15 was  $2.87 \pm 2.64$ . There was 53 participants (20%) scored over 5 points and needed further evaluation by psychiatric specialists. The mean score of ADLs was  $97.73 \pm 5.03$  indicated mild dependency, and the mean score of IADLs was  $4.44 \pm 1.46$ , represented that except for preparing meals and laundry, these senior veterans still need some help on IADLs to live in the VHs.

***Predictors of HRQOL******Predictors of SF-36 PCS Scores***

IADLs, ADLs, and education level were positive predictors, while GDS-15 was a negative predictor for PCS scores, with standardized beta coefficients of 0.174, 0.185, 0.179, and -0.250, respectively. This model explains 34% variance of the PCS scores (Table 4).

***Predictors of SF-36 MCS Scores***

GDS-15 and IADLs both were negative predictors of MCS scores, with standardized beta coefficients of -0.583, and -0.208, respectively. This model explains 29% variance of the MCS scores (Table 5).

**Discussion*****Institutionalized Senior Veterans' HRQOL***

In this study, the mean score of SF-36 PCS was 44.73 (SD=10.61), which was a little higher than the male norm aged 65 and older in the United States (U.S.) (43.84) [12]. Another study, the U.S. Veterans Health Study (VHS) conducted during 1993~1995, evaluated HRQOL of veterans aged 60 to 90 years old taking ambulatory care in hospitals by SF-36 showed that the mean PCS score was 36.3. [16]. Our participants had higher SF-36 PCS scores than the VHS older veterans, might be due to our participants' chronic condition was lower than the VHS ones ( 3.43 vs. 5.96). Another community study in Taiwan, evaluated HRQOL of 4,424 elderly people living in urban, rural and remote island by SF-36 showed that mean SF-36 PCS scores were 52.6(SD=8.6), 48.4(SD=10.6), and 49.4 (SD=10.0), respectively. The rural elderly scored lowest, and the scores all were higher than that in our study [17]. Three-fourth of our study settings were located in rural area

might one of the possible causes. The mean SF-36 MCS score in our study was 56.12 (SD=9.32), higher than the norm for male aged 65 and over in the U.S. (54.83) [12], the VHS study (52) [16], and also the scores of urban, rural, and remote island elderly in the community study in Taiwan [17]. However, the differences of SF-36 PCS and MCS scores between those studies need further evaluation to clarify.

### ***IADLs Score Negatively Predicts SF-36 MCS***

A previous study of nursing home residents showed that the ability of IADLs was a positive predictor for HRQOL, in other words, the better the IADLs the higher the scores of HRQOL[18]. However, in our study, the IADLs score was found to be a negative predictor for SF-36 MCS score. Due to different instruments were used for HROQL measurement in these two studies, further research to evaluated the correlation between the ability of IADLs and HRQOL may be necessary to clarify the answer.

## **Conclusion**

Our study shows that senior male veterans living in veterans' homes in southern Taiwan have lower levels of SF-36 PCS scores, but higher SF-36 MCS scores than the community -dwelling elderly. And the ability of IADLs is a negative predictor for SF-36 MCS. Further researches are needed to examine the differences of HRQOL between institutionalized and community-dwelling elderly and the association between ability of IADLs and HRQOL.

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## 附錄

(一)Table 1. Demographic characteristics of participants

	N	Mean $\pm$ SD or %
<b>Age</b>	260	82.91 $\pm$ 4.74
<b>Retired military rank</b>		
<i>Enlisted man</i>	48	18.50
<i>Noncommissioned officer</i>	148	56.90
<i>Company officer</i>	42	16.20
<i>Field officer</i>	11	4.20
<i>Others</i>	7	2.70
<b>Education level</b>		
<i>Illiteracy</i>	49	18.80
<i>Literacy</i>	95	36.50
<i>Elementary school</i>	54	20.80
<i>Junior high school</i>	34	13.10
<i>Senior high school</i>	20	7.70
<i>University</i>	7	2.70
<b>Marital status</b>		
<i>Never married</i>	125	48.10
<i>Married</i>	49	18.80
<i>Divorced</i>	29	11.20
<i>Widower</i>	49	18.80
<i>Others</i>	8	3.10
<b>Children</b>		
<i>No</i>	172	66.15
<i>Yes</i>	88	33.85

(二)Table 2. Scores of SF-36

<b>Concepts/Summary scores of SF-36</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>
Physical functioning (PF)	260	42.34	11.71
Role physical (RP)	260	48.25	12.10
Bodily pain (BP)	260	53.15	10.09
General health (GH)	260	43.11	9.19
Vitality (VT)	260	56.97	9.03
Social functioning (SF)	260	52.85	8.61
Role emotional (RE)	260	51.69	9.73
Mental health (MH)	260	52.46	9.07
PCS <sup>a</sup>	260	44.73	10.61
MCS <sup>b</sup>	260	56.12	9.32

<sup>a</sup> Physical Component Summary

<sup>b</sup> Mental Component Summary

(三)Table 3. Chronic Conditions, Mental Health and Functional Status Measures

<b>Measure</b>	<b>N</b>	<b>%</b>	<b>mean±SD</b>
<b>Chronic conditions</b>	260		3.43±1.91
<i>Hypertension</i>	135	54.0	
<i>Heart disease</i>	84	33.6	
<i>Osteoarthritis</i>	161	64.4	
<i>Hyperlipidemia</i>	69	27.6	
<i>Benign prostate hypertrophy</i>	89	35.6	
<b>Mental Health</b>			
<i>GDS-15</i>	260		2.87 ± 2.64
<b>Functional Status</b>			
<i>ADLs</i>	260		97.73 ± 5.03
<i>IADLs</i>	260		4.44 ± 1.46

(四) Table 4 Multiple linear regression model for PCS score of SF-36

Predictors	Unstandardized	Standardized	t	P value
	coefficients	coefficients		
	B	Beta		
IADLs	0.886	0.174	2.027	0.045
ADLs	0.623	0.185	3.647	0.000
GDS-15	-0.940	-0.250	-3.192	0.002
Education level	1.433	0.179	2.393	0.018

Adjusted  $R^2 = 0.336$ , constant = -32.02

(五) Table 5 Multiple linear regression model for MCS score of SF-36

Predictors	Unstandardized	Standardized	t	P value
	coefficients	coefficients		
	B	Beta		
GDS-15	-2.033	-0.583	-7.330	0.000
IADLs	-0.980	-0.208	-2.615	0.010

Adjusted  $R^2 = 0.289$ , constant = 77.829