The Construction and Evaluation of the Reliability and Validity of a Life Attitude Scale for Elderly With Chronic Disease

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ABSTRACT: The elderly with chronic diseases face numerous impacts which influence their life attitudes. The purpose of this study was to construct, and evaluate the reliability and validity of a life attitude scale for elderly with chronic disease. Initially, the 27 items of the Life Attitude Scale were constructed by in depth interview of 48 elderly with chronic diseases. Then, the construct validity was established by factor analysis with 663 samples. Six factors: Congeniality of Family Life, Life Meaning, Dignity of Life, Struggle with Adversities, Hollow Existence, and Destiny to Life, which included 20 items, explained 59.7% of total variances. Content validity was found to be well established by 6 experts. Correlation of inter-rater reliability among 6 data collectors was 0.96. Cronbach's alpha of internal consistency was above 0.89 for 148 samples. Correlation of test-retest reliability was above 0.87 for 37 samples with 2-week interval. This study presents what the Taiwan elderly with chronic diseases are undergoing and their views on life and its value. There are highly culture-based and philosophy-based knowing about life attitude of elderly with chronic disease in Taiwan, and it is imperative to inspire nurses to promote the quality of spiritual care for elderly with chronic disease.

Key words: life attitude, elderly, chronic disease.

Introduction

In 1993, people 65 years of age or older, first exceeded 7% of Taiwan's general population, making Taiwan an "aging society" according to the World Health Organization (WHO) definition. The Council for Economic Planning and Development (1993) has estimated that Taiwan's elderly people will be double that figure by the year 2021. With advancements in medical care, life spans are increasing, and disease patterns are changing. Since 1985, all of the ten leading causes of death in Taiwan were due to chronic disease, except accident. Of those 65 and older, 70% have more than one chronic disease (Department of Health, the Executive Yuan, 1998).

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Elderly people with chronic diseases are gradually weakened, sometimes they are disabled and need constant medical treatment and care. Therefore, many elderly feel that there are no alternatives and begin to lose interest and a sense of meaning in their lives. They hold negative attitudes toward life (Burchardt, 1987; Larkin, 1987; Miller, 1983). The crisis of psychosocial development in the elderly is whether they are of integrity or despair (Erikson, 1963). If elderly people feel that there is still meaningful in their life, and that they still can control and decide important matters by themselves, then they will be more likely to accept their circumstances and integrate their psychosocial development. This will increase their feelings of satisfaction. Without this, they will subside into a sense of helplessness and hollowness in their hearts. This state of aimlessness and unwillingness to survive produces an anxiety of death. Thus it is evident that the attitude toward life affects many aspects of psychosocial development and life satisfaction among the elderly (Liu, 1999).

The strength of a person's outlook and attitude on life are reflected by the surrounding culture. There are numerous studies and surveys concerning the attitudes of life in western countries, yet they are not necessarily appropriate in Taiwan (Olson & Dulaney, 1993; Shek, 1986). No one has yet delved deeply into this matter, thus this research attempts to develop a scale to measure the life attitude of elderly with chronic diseases. It will help us understand the life attitude of the elderly with chronic disease in Taiwan, and then related studies can proceed in the future in this area.

Chronic disease is designated by the WHO as disease suffered for at least two years. The definition of life attitude is general values and views about life, birth and death (Liu, 1999). Frankl (1963) points out that human existence includes the three aspects of body, mind and spirit, and the spirit is the greatest priority. Within the realm of spirit, people have the freedom to decide whether they want to accept limitations or surmount barriers. Frankl believes a person's most basic motivational drive is the will to find the meaning of life. Therefore they constantly search for life's meanings and values, and seek their own transcendence (Frankl, 1959). When this search for the meaning of one's life fails, a person will feel hollowness at heart and begin to doubt his own significance (Hu, 1991).

Life values stem from one's personal experiences of affection, one's professional accomplishments and the trials or tribulations in one's life (Frankl, 1967). Of these, the trials are note worthy for the individual. Serious illness, confronting death and other crises have serious meaning in life and are unavoidable trials. Frankl points out that individuals must be able to discover and accept these tribulations of life, as well as the meaning behind the final outcome, death. In this way, they will truly grasp life's meaning and objective. The elderly who are afflicted with chronic disease will comprehend their inner insight when they are undergoing such experiences (Cohen & Lazarus, 1979; Rolland, 1987).

Numerous pieces of research in western countries have explored attitudes related to the meaning of life (Connors, 1980; Jones, 1993; Olson & Dulaney, 1993; Shek, 1986; Spero,1981). However, Taiwan still lacks studies exploring the attitudes of its elderly. Huang and Chung (1986) once used a survey devised by Crumbaugh and Maholick (1964) to study the values of life among the healthy elderly population of Taiwan and its related factors. They discovered a strong sense of value in life is reflected by a strong sense of satisfaction towards life. It is of utmost importance to actively explore these types of issue in Taiwan.

Methods

The current research is designed to understand life attitudes of the elderly with chronic disease and consists of two parts: qualitative research and descriptive quantitative research design.

Qualitative Research: Initial Development of the Life Attitude Scale

The life attitude scale is a self-report instrument developed to measure the life attitudes associated with elderly who had chronic diseases. The main emphasis of item development was on the explanation of life, living, and death of elderly who had had chronic diseases for more than 2 years. The process of qualitative research included tape-recorded interviews, content analysis, literature review, and constructed items.

Participant selection

In this qualitative research design, the researcher intends to develop the items of life attitude from elderly with chronic disease. Forty-eight elderly with chronic disease composed the study participant group.

The criteria for the selection of participants were as follows: (1) Each participant was a patient of 65 or older, from outpatients of two municipal general hospitals in Taipei and with a medical history of chronic disease. (2) These chronic diseases included cancer, hypertension, heart disease, diabetes, stroke, accident and its related effects, chronic liver disease and cirrhosis, nephritis and nephrosis, chronic obstructive pulmonary disease, joint inflammation and other chronic diseases that had lasted more than two years. (3) Each participant was able to verbally communicate and interact, evidencing clear consciousness and no deficit in thinking. (4) Each participant had enough energy that the interview did not compromise her condition. (5) Each participant signed a written consent form to participate in the study.

The 48 participants were all within the ages of 66-91, with an average age of 74. There were 21 males and 27 females. A total of 33 had some religious belief, and 67% had completed some primary school course work. 31 were married and 8 lived alone.

Tape-recorded interviews

Interviews were conducted at either the conference room or the head nurse's personal offices in the hospital. The interview place was quiet and private enough to encourage the elderly to feel comfortable to talk openly. The researcher chose an interview time during which the elderly would not feel rushed or interrupted, usually after their outpatients appointments.

The interview began with, "What are your views concerning human life?" The researcher often said things like, "Please tell me a little more," "Please explain," "What you just said was...". The interviewers constantly encouraged the elderly to express themselves more deeply and clearly while doing their best not to influence or affect the opinions of the interviewee. During the interviews, the interviewers paid special attention to the interviewees' behavior, allowing them to end the interview at any time if necessary. The interviews lasted approximately 40 to 60 minutes when the researcher felt the interview was becoming repetitive or there was no new information coming forth. Each interview was recorded on audio tape and transcribed.

Content analysis

After listening numerous times to the recorded interviews, the contents were transcribed. Next, single phrases were used to categorize the content of each participant's descriptions. These phrases completely preserved the participant's phraseology and content. Each research team then met four times, three hours each, to discuss and clarify the phrases to be used ensuring their appropriateness and accuracy.

Declaratives included, "Life's Goals", "Sense of Worth". "Hope", "Death", "Hardship", and other classifications for a total of 175 phrases. The research teams then met again five times, three hours each, to repeat the discussions and review the theoretical literature, then to reorganize and clarify the contents getting rid of any repetitive phrases.

In conclusion, 31 items were eventually drawn into a flowing and easy-to-understand language. All the scale items were set up on the 4-point Likert scale using "Extremely Unacceptable", "Unaccept-

able", "Acceptable", "Extremely Acceptable", with a value of 1-4 respectively.

Refining the life attitude scale

After the draft was completed, the researchers asked three experts, each with a PhD in gerontology, to evaluate the clarity and extent to which the items reflected the dimensions of life attitude. Based on results of the expert review, 4 items were deleted and word changes were made to increase the clarity of other items.

The researcher also asked 20 elderly with chronic diseases who were outpatients at one municipal general hospital in Taipei to fill out the scale. The phraseology and wording of the scale were then revised. Their attitudes to life, derived from the 27 items, are listed in Table 1.

Table 1. Factor Loading of Elder's Life Attitudes (N = 663)

Items	Descriptions	Loading
Factor I	Congeniality of Family Life	
A9	Filial children and grandchildren are important	0.82
A10	Concern for children having family and career or accomplishments	0.78
A13	Importance of family happiness	0.66
A12	Importance of having a partner during later years	0.52
A11	Children and grandchildren should care for me	0.34
Factor II	Life Meaning	
A2	Passing the days without any worries	0.79
A1	This whole life has passed well	0.67
A3	Having no regrets over one's lifetime	0.62
A5	Enjoying or accepting one's present life	0.51
A6	Fulfillment of life	0.26
Factor III	Dignity of Life	
A16	Hope to receive people's respect; won't be frowned upon	0.73
A15	Hope not to be dependent on others; able to care for self	0.65
A17	Hope someone will attend to and take care of me	0.56
A19	Hope the days pass peacefully	0.36
Factor IV	Struggle with Adversity	
A4	Illness makes me want to give up completely	0.67
A24	Living until death comes	0.53
A18	Life is unbearable	0.50
A21	Unable to accept life's numerous limitations	0.21
A23	Illness makes me suffer and want to die	0.17
Factor V	Hollowness of Existence	
A22	Afraid to be home alone	0.60
A25	Feel bad when thinking about things too much	0.51
A26	Feeling friendless and helpless	0.44
A27	Some things cause me to feel dissatisfied with life	0.15
Factor VI	Destiny of Life	
A14	Birth, aging, sickness, death, destitution and wealth are decided by heaven; they're uncontrollable factors	0.53
A7	This life is to pay back the misdeeds of my previous life	0.50
A8	I hope in my next lifetime, my reincarnation will be everything I desire	0.42
A20	After people die, they will be reincarnated	0.31

Quantitative Research: Validity and Reliability of the Life Attitude Scale

Evidence for validity of this life attitude scale included content and construct validity. The reliability of the life attitude scale included inter-rater reliability, internal consistency, and test-retest reliability.

Validity: To test for content validity, the researchers invited six experts (two were clinical supervisors, two were professors in gerontology, two were graduate students) to critique the domain specificity of the life attitude scale. The experts were asked to independently rate the suitability, importance and clarity of each item of life attitude using a 5-point Likert scale. The scores of 27 items ranged from 4.93 to 5.00, showing extreme satisfaction with the overall items.

Construct validity of the life attitude scale was tested through a principal components analysis (PCA), followed by varimax rotation and Kaiser normalization. Criteria for extraction included: (a) use of the scree plot; (b) eigenvalues greater than 1.0; (c) a minimum of 5% explained variance per factor; (d) unique loading of 0.40 and at least 0.10 difference from other loadings; and (e) the presence of theoretical rationale to support the assignment of high crossloadings to one scale (Kessler, 1998).

663 elderly outpatients with chronic diseases from one of the six municipal general hospitals in Taipei were invited to fill out the scale. 27 items of this life attitude scale were sufficient samples to be included in the analysis (Kim & Mueller, 1978). The research subjects' demographic data can be seen in Table 2.

Reliability: Six senior clinical nursing staff were invited to be the investigators and received detailed explanations of research and interview training from the researcher. For inter-rater reliability, six elderly with chronic diseases were selected to form a convenience subsample and were assessed by these six

Table 2. Demographic Data of Elderly With Chronic Diseases (N = 663)

Variables	*n*	%
Age (years)		
65-69	190	28.7
70-74	175	26.4
75-79	166	25.0
80-84	91	13.4
85-89	30	4.5
90 and over	13	2.0
Religion		
No	212	32.0
Yes	451	68.0
Education		
≤ Primary	456	68.8
≥ Secondary	207	31.2
Marital Status		
Married	411	62.0
Others	252	38.0
Gender		
Male	364	54.9
Female	299	45.1
Health Status		
Good	406	61.2
Bad	257	38.8
Living Status		
Alone	105	15.8
With family	558	84.2
Economic Status		
Good	557	84.0
Poor	106	16.0
Chronic Diseases		
Heart disease	187	28.2
Stroke	71	10.7
Cancer	24	3.6
Diabetes	158	23.8
Hypertension	242	36.5
COPD	113	17.0
Hemopathy	33	5.0
GI disease	162	24.4
Urinary disease	87	13.1
Muscle, skeletal, joint disease	162	24.4
Eye disease	152	22.9
Ear disease	63	9.5
Others	45	6.8

investigators using the life attitude scale at the same time. The total scores, subscale scores, and item scores for the six ratings were then correlated and obtained within a consistency range of 96%.

Internal consistency was assessed by analyzing the life attitude scores of 148 elderly with chronic diseases using Cronbach's alpha correlation coefficient. The Cronbach's alpha of the total scores and the subscale scores ranged from 0.89 to 0.93.

For test-retest reliability, 37 elderly with chronic diseases were retested within 2 weeks after the first test. Pearson's correlation coefficient was used to examine the correlation between the life attitude scales of the two test administration times. The reliability coefficient of total scores and the subscale scores ranged from 0.87 to 0.96.

Results

Through factor analysis, the profile of life attitudes for the elderly with chronic disease was uncovered. Firstly, the demographic data of this research group is described as follows.

The ages of research subjects ranged from 65 to 95 years with an average age of 74. Slightly more males were surveyed than females. Those with religious beliefs totaled 68%. Those with a primary education or less totaled 68.8%. Those married and those living alone totaled 62% and 15.8% respectively, while 16% of the elderly felt their own economic status was insufficient. In proportional order, the most common chronic diseases were hypertension (36.5%), heart disease (28.2%), muscle and skeletal disease (24.4%), gastric and intestinal disease (24.4%), diabetes (23.8%) and eye disease (22.9%). On average each of the elderly had two chronic diseases. Of those surveyed, 38.8% felt their health was failing.

The Life Attitudes of the Elderly With Chronic Diseases

Six factors were structured according to the criteria of principal components analysis (Table 1). In Factor I, the items with a factor loading above 0.4 show the principal expectations of the elderly regarding a joyful family life, therefore this factor was named "Congeniality of Family Life". In Factor II, the items with a factor loading above 0.4 are the principal explanations the elderly feel for their purpose in life, therefore this factor was named "Life Meaning". In Factor III, the items with a factor loading above 0.4 in principle explanation show how the elderly hope to be given respect and courtesy, thus this factor was titled "Dignity of Life". In Factor IV, the items with a factor loading above 0.4 probe the elder's condition of internal torment and struggle when they agonize through sickness and ill health; hence this factor was given the name "Struggle with Adversity". In Factor V, the items with a factor loading above 0.4 present the principal conditions of distress in the hollow lives of the elderly; thus this factor was called "Hollowness of Existence". In Factor VI, the items with a factor loading above 0.4 offer a look into the attitudes of the elderly towards their own life, birth and death, hence this factor was termed "Destiny of Life". The explanations of the total variances for each factor were 19.6, 12.8, 8.9, 6.9, 6.1 and 5.4 respectively; for the whole scale, explanation of total variance was 59.7%. The Pearson's correlation among these factors ranged from 0.005 to 0.191, which showed that overlapping among the factors was minimal (Table 3). The score distributions for each factor are shown in Table 4.

Discussions

Through factor analysis, with a total of 20 items, the entire scale presented six sub-concepts to describe the life attitudes of the elderly with chronic disease. Four items loaded on Factor 1, "Congeniality of Family Life", accounted for 19.6% of the total variance. This item's result is nearly identical to the findings of Huang and Chung (1986), who used Crumbaugh's instrument (Crumbaugh & Maholick, 1964) to devise a survey

Table 3. Correlative Matrix of Factors of Elderly's Life Attitudes (N = 663)

Items	Congeniality of family life	Life meaning	Dignity of life	Struggle with adversity	Hollow existence	Destiny of life
Congeniality of Family Life	1.000					
Life Meaning	0.181	1.000				
Dignity of Life	0.112	0.073	1.000			
Struggle with Adversity	0.005	0.189	0.112	1.000		
Hollow Existence	0.172	0.013	0.079	0.109	1.000	
Destiny of Life	0.086	0.191	0.046	0.034	0.158	1.000

Table 4. Score Distribution of Life Attitudes for Elderly With Chronic Disease (N = 663)

Items	*M*	*SD*	Range
Congeniality of Family Life	12.951	1.958	4.000-16.000
Life Meaning	11.118	2.131	4.000-16.000
Dignity of Life	9.915	1.273	6.000-12.000
Struggle with Adversity	7.127	1.522	3.000-12.000
Hollow Existence	7.278	1.431	3.000-12.000
Destiny of Life	6.296	1.222	3.000-12.000

of life attitudes. The survey devised by Huang et al. contained nine items, of which three concerned children, grandchildren and the family. This showed that people in their late years lay much emphasis on their children's filial piety and achievements. This point is quite culturally reflective. Although facing the impact of multiple cultures from the western world, traditional Chinese still hold deeply ingrained concepts, such as, "Raise the young to ward off age," and "Bestow honor upon ancestors".

"Life Meaning", four items loaded on Factor II, accounted for 12.8% of the total variance, while "Dignity of Life" which was Factor III and included three items, accounted for 8.9% of the total variance. The items of these two factors showed the importance of meaning, values and attitudes for elderly life, thus presenting a better understanding. From the standpoint of human development, during the late years, critical points are times when one adapts or loses hope. When the character adapts, it shows the elderly feel their life has meaning and value. In addition, they are able to accept their own past misfortunes, and think of their own life with dignity (Erikson, 1963; Hu, 1991).

"Struggle with Adversity", three items loaded on Factor IV, accounted for 6.9% of the total variance. Frankl (1959) pointed out that one important source for people in discovering their life's values, is to face serious illness, hardship and death. Struggling through these, people are able to look at life with a more enthusiastic attitude. A person who has yet to confront this, must someday meet these tormenting hardships. All of the elderly in this study can attest that this struggle of hardships is a must. Otherwise, it's possible some elderly who near the end may not be able to come to terms with their misfortunes.

"Hollowness of Existence", three items loaded on Factor V, accounted for 6.1% of the total variance. Frankl (1967) points out as well that when facing frustration, one will feel baffled, bored, and exasperated. Accordingly, this is what produces a sense of emptiness in one's own existence. This was also an important factor in the elderly in this study.

"Destiny of life", three items loaded on Factor VI, accounted for 5.4% of the total variance. Heidegger observed that human existence is moving towards death. Individuals' attitudes towards life are reflected in their attitudes towards death (Shrut, 1958). This factor certainly does show up in the elderly's view of 'birth, aging, sickness and death' and its correlation to life and death. In addition, some attitudes bring up some traditional Chinese notions of predestination. Traditional Chinese believe everything happens because of predestination. Decisions are made in heaven (Yang, 1989).

Conclusion

The elderly with chronic disease face numerous impacts which influence their life attitudes. The interview of 48 elderly with chronic disease initially developed the items of the Life Attitude Scale. The construct validity was established by factor analysis with 663 samples. Six factors of Congeniality of Family Life, Life Meaning, Dignity of Life, Struggle with Adversity, Hollow Existence, and Destiny of Life comprising 20 items, explained 59.7% of total variance. Content validity was well established by 6 experts. Correlation of inter-rater reliability between 6 investigators was 0.96. Cronbach's alpha of internal consistency was above 0.89. Correlation of test-retest reliability was above 0.87 for 37 samples with 2-week interval.

Nursing Implication

This study sought to understand life attitudes among the elderly with chronic disease. Life attitudes, our environment and turns of events, are interrelated and provide the status of culture along with the connotations of philosophical thinking. This study provides a representation of what Taiwan elderly people go through with chronic diseases and their life's perspectives and values. We believe this will provide an effective and usable instrument for those who have a similar interest in researching related issues.

Within the research, the development of this scale is still quite rough and needs more scrutiny to make this instrument more complete and in tune with local characteristics. The level of spiritual care in Taiwan's nursing has yet to receive needed interest (Chao, 1992). In their late years, the elderly accept the affliction of chronic diseases, and related deterioration, and seeking spiritual peace is of utmost importance. This research is just the beginning, and it is hoped it will stimulate the world of nursing in Taiwan to give special attention to spiritual nursing.

The research showed that family life is of great concern for Taiwan's elderly. The function of the family has been assailed with the fast-paced transitions and developments of Taiwan society. To assist the elderly in obtaining a sense of vital existence and strength from their family is very meaningful. Making proper arrangements, taking care of elderly and caring for their spiritual-level needs, assisting the elderly overcome physical and practical adversities, plus obtaining dignity, meaning and value to their existence are necessary for the elderly. The aspiration of this research is to allow future nursing research to progress by making use of the direction of these instruments of deliberation.

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慢性病老人生命態度量表之建構及信效度考驗

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摘　要： 老人罹患慢性病將面臨許多衝擊，影響其生命態度，本研究目的即在建構與評值慢性病老人生命態度量表。透過深度訪談 48 位慢性病老人，建構老人生命態度量表為 27 題。之後，以 663 份樣本進行因素分析建立量表之建構效度。老人生命態度的六個次概念是:和諧家庭生活、生活意義、生命尊嚴、苦難掙扎、存在空虛、生死命定；全量表共 20 題，解釋總變異量為 59.7%。由六位專家建立的內容效度很理想。六位收集資料者之測試者間信度為 0.96。以 148 份量表求得內在一致性之 Cronbach's alpha 為 0.89，37 份量表求得隔週再測信度為 0.87。本量表代表在台灣的老人經歷慢性病過程對生命的看法與價值，引發對台灣老人靈性護理的重視。

關鍵詞： 生命態度、老人、慢性病。

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