

# SELF-CARE AND WELL-BEING MODEL FOR ELDERLY WOMEN: A COMPARISON OF RURAL AND URBAN AREAS

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The purposes of this study were to examine the relationships among age, social class, perceived health, self-care, and well-being in urban and rural elderly women and to validate and compare two models using these two groups. A causal model of self-care and well-being was proposed for this study based on Orem's self-care model and empirical data. Data were collected using a survey-interview method. Of the 351 elderly women recruited, 159 were in the urban group and 192 in the rural group. Two models of self-care and well-being were tested using path analysis with the LISREL 8 program. The resultant models yielded a Chi-squared of 1.98 with two degrees of freedom ( $p = 0.37$ ) in the urban group and a Chi-squared of 4.20 with three degrees of freedom ( $p = 0.24$ ) in the rural group, indicating good fit between the data and the two models. These two models provide guidelines for community nurses to design appropriate self-care programs for elderly women.

**Key Words:** elderly women, well-being, self-care, path analysis, causal model  
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Between 1951 and 2001, the life expectancy in Taiwan has risen from 53.38 years to 72.80 years for men and 56.33 years to 78.48 years for women [1]. Although women in Taiwan live longer than men, they tend to have poorer health and less education; they also have a greater likelihood of being widowed than men. A recent national survey showed that among all elderly people older than 65, more women than men were illiterate (55.5% vs 18.9%) or had lost their spouse (56.5% vs 22.1%) [2]. The survey also found that 11% of elderly women, but only 8% of elderly men, were unable to care for themselves or manage their daily lives.

With the rapid industrialization and modernization of society, family structures and value systems have been changing in Taiwan. These changes include more elderly people living alone, reduced family size with fewer children, and increased numbers of women working outside the home [2,3]. These changes have a great impact on elderly

women who have lived through the transition from a traditional, extended-family system to a modern, isolated society. Many elderly women are facing physical decline, yet, resources and help are not available immediately around them, so interventions to effectively meet the needs of elderly women are critical.

In Taiwan, health policies are sometimes developed with little input from local residents. As a result, the universal health programs do not take into account the uniqueness and diversity of geographic differences. Programs for urban-dwelling elderly women may not meet the needs of elderly women living in rural areas. Due to the isolation and unavailability and inaccessibility of health care resources in rural communities, self-care has become a critical issue for elderly women living in rural areas.

Understanding elderly women living in different geographic locations could help community nurses design specific and effective self-care interventions. Orem suggests that well-being is an important goal of self-care [4]. Enhancing self-care could increase the sense of well-being. Therefore, this study examined the relationships among age, social class, perceived health, self-care, and well-being in two groups of elderly women residing in urban and rural

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areas and tested a proposed causal model involving these variables. The proposed causal model (Figure 1) was modified from Orem’s work [4] and empirical studies. In this model, well-being is the outcome variable; age, social class, perceived health, and self-care are independent variables; perceived health and self-care are considered mediating variables. All variables in the proposed model were assumed to be observed variables. Four hypotheses were tested in these two groups of elderly women: age is negatively associated with perceived health, self-care, and well-being; social class is positively associated with perceived health, self-care, and well-being; perceived health is positively associated with self-care and well-being; and self-care is positively associated with well-being.

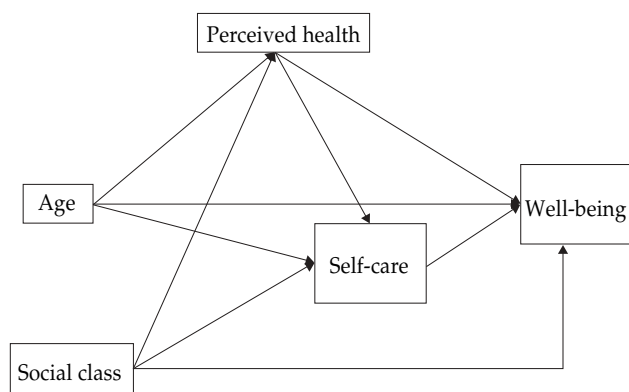


Figure 1. Hypothesized causal model.

## LITERATURE REVIEW

Well-being has been widely identified as a subjective perception/internal state of life quality or life experiences [5,6]. O’Rourke considers that well-being is a bipolar dimension ranging from a negative through neutral to a positive sense of mood state [7]. Therefore, well-being could be defined as an individual’s cognitive and/or affective subjective perception of everyday life experiences with a dynamic and multidimensional nature [8]. The many studies that measure well-being suggest that it might be an important outcome measure in understanding the life experiences of elderly people [9–12]. Well-being is also regarded as an important indicator of the quality of life and health care [13,14].

Self-care has been described as a strategy for coping with life events and stressors [15,16], and for enhancing quality of life during the aging process [17], thereby promoting independence and healthy aging. According to

Orem [4], self-care is conceptualized as the “action of mature and maturing persons who have developed the capabilities to take care of themselves in their environmental situations”. She also stated that “self-care is the practice of activities that individuals initiate and perform on their behalf in maintaining life, health, and well-being” Alternatively, if needs exist that cannot be met by the individual, varying levels of assistance can be provided, ranging from simple guidance and teaching to complete care.

There is evidence that well-being is influenced by self-care in both ill and healthy individuals [18–20]. For example, Anderson showed that self-care was significantly correlated with well-being in homeless adults [18]. Likewise, Zauszniewski found that self-care and well-being were significantly related in 120 healthy older men and women [20], and Dungan et al showed that the well-being of older adults could be improved with an intervention consisting of health maintenance self-care behaviors [13].

As Orem stated, “factors internal or external to individuals that affect their abilities to engage in self-care, or affect the kind and amount of self-care required, are named basic conditioning factors” [4]. These factors might influence an individual’s self-care and well-being. The basic conditioning factors selected in this study were based on empirical studies: age, social class, and perceived health status. Perceived health may influence the relationship between self-care and well-being in older adults. Perceived health is significantly and positively related to well-being [21,22] and health promotion self-care behavior [11]. It has a relationship to self-care [21,23–25] and is a significant predictor of self-care in older adults [21,24]. These findings suggest that individuals who report higher levels of perceived health engage in more activities of self-care.

Heidrich found a negative relationship between age and well-being from demographic data for 188 women aged at least 60 years [10]. Social class has a positive relationship to well-being [14,22], while age has an inverse correlation to self-care [26,27], which suggests that the engagement in self-care activities decreases with increased age. Social class is a significant predictor of self-care [9,12,13,23]. These findings indicate that individuals who report higher levels of social class engage in more activities of self-care.

## PATIENTS AND METHODS

Elderly women in rural areas of Pintung County and in urban areas of Kaohsiung City in southern Taiwan were eligible to participate in this study. Subjects were recruited

if they were a non-institutionalized community female aged at least 65 years, able to communicate verbally, and who verbally agreed to participate in the study. Using  $r = 0.20$  to estimate the sample size based on criteria proposed by Polit and Hungler [28], a sample size of 200 was necessary for each group to achieve a power of 0.80 with an alpha level of 0.05. Two hundred subjects were randomly selected from census data for rural areas of Pintung County and urban areas of Kaohsiung City. In total, 159 of 200 subjects from urban areas and 192 of 200 subjects from rural areas completed the interview. The subjects in urban areas were aged 65 to 90 years (mean  $\pm$  standard deviation, SD, 70.94  $\pm$  5.50 yr), while those in rural areas were aged 65 to 88 years (mean  $\pm$  SD, 72.19  $\pm$  5.56 yr).

Four instruments, the Social Class Scale, Perceived Health Scale (PHS), and the Chinese versions of the Exercise of Self-Care Agency Scale (ESCAS) and the Positive Affect Scale (PAS), were used to measure subjects' social class, perceived health, self-care, and well-being, respectively. Permission was obtained to use each of the instruments. Social class was measured using a composite scale of social class, which measures the highest level of education and occupation of the subject or spouse, depending on who had the highest level, based on five predefined categories of education by occupation [29]. Social class has five levels: the higher the level, the higher the social class.

Perceived health was measured using a three-item self-rated questionnaire about present general health, general health compared with the past year, and general health compared to others of the same age. Each question was scored from 1 (poor) to 3 (good). The PHS ranges from 3 to 9: the higher the score, the better the perceived health. The PHS has documented content validity and reliability [29], with Spearman-Brown reliability coefficients of 0.77 in the previous study [29] and 0.82 in the present study.

The original ESCAS consists of 43 items measuring appraisal of the ability to engage in self-care behaviors [30]. Four dimensions are included in this measure: active versus passive response to situations, motivation, knowledge base, and sense of self-worth. Each item of the instrument is scored on a five-point Likert scale, ranging from 0 (very uncharacteristic of me) to 4 (very characteristic of me). The total ESCAS score ranges from 0 to 172: the higher the total score, the greater the exercise of self-care. The Chinese ESCAS has been developed and used in elderly women in Taiwan [31]. The index of content validity was 1.0 for the Chinese ESCAS. The alpha reliability coefficients of the Chinese ESCAS were 0.87 in a previous study [29] and 0.85 in the present study.

The PAS, developed by Watson et al [6], is used to measure the positive affective component of well-being during the past few weeks. The 10-item scale comprises 10 mood adjectives: interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. Respondents were asked to rate their feelings during the past few weeks for each adjective. Each item was scored on a five-point scale, ranging from 1 (not at all) to 5 (extremely). The total PAS score ranges from 10 to 50. The Chinese PAS has been developed and used in elderly women in Taiwan [29]. The index of content validity was 0.90 for the Chinese PAS. The alpha reliability coefficients of the Chinese PAS were 0.83 in a previous study [29] and 0.92 in the present study.

Data were collected in face-to-face interviews. Interviewers explained the purpose of the study to all the elderly women. They were informed that they had the right to refuse participation in the study and to stop their participation at any time. All subjects were informed that information obtained in connection with the study that could be identified with them would remain confidential. The interviews were conducted in the elderly women's homes. Data were collected by two trained interviewers. The interviewers received an orientation and were given instructions by the researchers. In interviews with five elderly women prior to data collection, each interviewer achieved at least 90% agreement with the other interviewer for the questionnaires. During the period of data collection, researchers met with the interviewers regularly to review the data collection process.

SPSS version 10.0 (SPSS Inc, Chicago, IL, USA) for Windows and LISREL 8 (Scientific Software International Inc, Lincolnwood, IL, USA) were used for data analysis [32]. Data screening was first performed by examining the frequencies, means, SDs, ranges, and graphic representations of scores for each research variable. Frequency, percentage, mean, and SD were used to describe demographic characteristics and key research variables. With regard to the hypothesized relationships in the paths (Figure 1), a preliminary correlation matrix was developed to examine the bivariate relationships among pairs of variables. The hypothesized bivariate relationships between the study variables were tested using Pearson correlation coefficients. LISREL is designed to estimate and test causal relationships among variables in non-experimental methods. Path analysis was used to estimate and test the parameters of the hypothesized model using maximum likelihood estimation. The standardized coefficient ( $\beta$ ) was used to estimate causal effects. In addition to the Chi-squared test, a goodness-

of-fit index, an adjusted goodness-of-fit index (both of which are less dependent on sample size), a normed fit index, and a comparative fit index were used to assess the model fit. Each of these indices can range from 0 to 1, with 1.0 indicating a perfect fit of the model to the data.

## RESULTS

The first hypothesis – that age would be negatively associated with perceived health, self-care, and well-being – was not supported for urban elderly women, but there was an association between age and self-care in rural elderly women (Tables 1 and 2). The second hypothesis – that social class would be positively associated with perceived health, self-care, and well-being – was partly supported for both groups (Tables 1 and 2). The results indicated that social class was positively associated with perceived health and self-care in the urban group and with self-care and well-being in the rural group. Both the third hypothesis – that perceived health would be positively associated with self-care and well-being, and the fourth hypothesis – that self-care would be positively associated with well-being – were supported for both groups (Tables 1 and 2).

According to the correlation matrices, the proposed

model was tested using path analysis. Figures 2 and 3 present the path diagrams of the models with their respective path coefficients ( $\beta$ ) and squared multiple correlations ( $R^2$ ) for both urban and rural elderly women. The resultant models yielded a Chi-squared of 1.98 with two degrees of freedom ( $p = 0.37$ ) in the urban group, and a Chi-squared of 4.20 with three degrees of freedom ( $p = 0.24$ ) in the rural group. The larger the  $p$  value associated with the Chi-squared test computed for a model, the better the model fits the data. The goodness-of-fit index was 0.98 in the urban group and 0.96 in the rural group, the adjusted goodness-of-fit indices were 0.96 and 0.95, respectively, the normed fit indices were 0.99 and 0.98, respectively, and the comparative fit indices were 1.0 and 0.99, respectively, suggesting that the two models fitted the data well.

## DISCUSSION

Generally, the hypothesized causal models of self-care and well-being fitted the empirical data well in the two groups of elderly women. However, there were some similarities and differences between the two models. Both models supported the hypothesized direct effect of self-care on well-being and, thus, supported the notion that a fun-

**Table 1.** Correlation matrix of study variables in the urban group ( $n = 159$ )

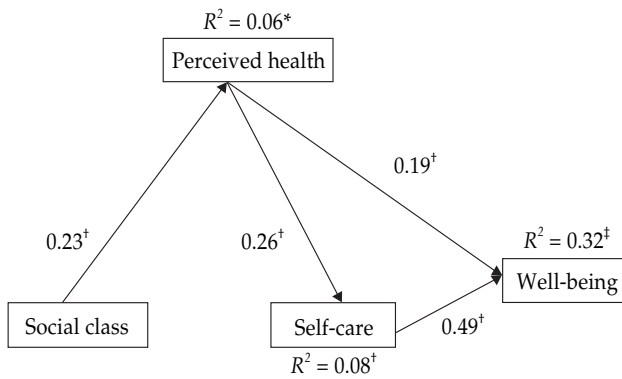
	Age	Social class	Perceived health	Self-care	Well-being
Age	1.000				
Social class	-0.043	1.000			
Perceived health	0.089	0.223*	1.000		
Self-care	-0.050	0.157 <sup>†</sup>	0.256*	1.000	
Well-being	-0.047	0.090	0.308*	0.540*	1.000

\* $p < 0.01$ ; <sup>†</sup> $p < 0.05$ .

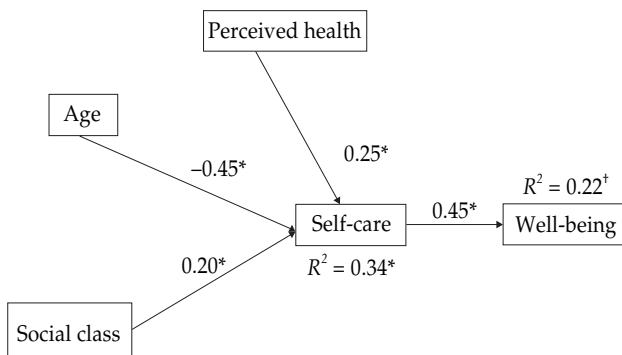
**Table 2.** Correlation matrix of study variables in the rural group ( $n = 192$ )

	Age	Social class	Perceived health	Self-care	Well-being
Age	1.000				
Social class	-0.134	1.000			
Perceived health	-0.042	0.091	1.000		
Self-care	-0.484*	0.285*	0.283*	1.000	
Well-being	-0.112	0.155 <sup>†</sup>	0.188*	0.445*	1.000

\* $p < 0.01$ ; <sup>†</sup> $p < 0.05$ .



**Figure 2.** Resultant model of self-care and well-being in the urban group. \* $p < 0.05$ ; † $p < 0.01$ ; ‡ $p < 0.001$ .



**Figure 3.** Resultant model of self-care and well-being in the rural group. \* $p < 0.01$ ; † $p < 0.001$ .

damental goal of self-care may be to promote elderly women's well-being [4,13,33]. Perceived health had a significant relationship with self-care and a direct effect on self-care in both groups of elderly women. These results are supported by a previous study [21]. Thus, elderly women who have higher levels of perceived health may engage in more activities of self-care. Also, perceived health had an indirect effect on well-being through self-care, indicating that self-care had an important additive influence on the relationships between social class and well-being, and perceived health and well-being in elderly women.

Age had an inverse direct effect on self-care and an inverse indirect effect on well-being through self-care in rural but not urban elderly women. Compared to urban women, aging rural women lack appropriate support systems and health care resources because of geographic limitations. In addition, migration of children greatly reduces the family support provided to rural elderly women. These circumstances imply that as rural women age, their

self-care decreases because of the limitations of family and environmental resources [34].

As indicated in the resultant models, self-care has either a direct effect or mediating effects on other predictive variables (i.e. social class and perceived health) and well-being. A mediator may produce either an additive or a suppressive influence on the relationship between a predictive variable and an outcome variable [35]. In this study, the mediating functions of self-care had an additive influence on the relationships between social class and well-being, and between perceived health and well-being. This indicated that self-care was important to well-being and intervention should focus on initiating and facilitating self-care in elderly women to enhance their well-being. Elderly women make up a large segment of the elderly population, so health care professionals should guide elderly women to develop their self-care knowledge and skills to help them stay healthy and enhance their well-being.

Koseki and Reid developed an education program to enhance the elderly's ability to take an active role in the management of their health [36]. This program was aimed at "assisting older persons to achieve further gains in longevity, independence, productivity, and a rewarding life without being hampered by many health problems that are within their capability to control". Therefore, self-care should be emphasized in elderly women because of the low cost, low technology required, and relatively less complicated means of providing primary health care.

In Taiwan, as chronic diseases continue to affect elderly women's health status, self-care becomes significant in this age group. This study could provide a guideline for maintaining elderly women's well-being. The models tested in the present study indicate how health care professionals could design appropriate self-care interventions for elderly women residing in both urban and rural Taiwan. To achieve the goal of social relevancy of nursing research, future studies should include an intervention that focuses on outcome evaluation. Outcome evaluation can examine and compare the benefits and effectiveness of self-care programs in rural and urban areas.

Although path analysis is a useful method for testing hypothesized causal models for non-experimental data [37], we should be cautious about using the term confirmation when referring to data analysis [38]. The causal statements reached through data analysis can never be proven but can only be associational in nature [38]. Longitudinal or experimental designs are legitimate methods of elucidating causal relationships among the variables and would be important for future study.

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