

Development of a Psychological Well-being Scale for College Students in Taiwan

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ABSTRACT

This study combined the factors influencing psychological well-being proposed by Ryff and Keyes, including autonomy, environmental mastery, self-acceptance, positive relationships with others, personal growth, and purpose in life, with college students' lifestyles to develop a psychological well-being scale for college students.

First, an initial draft of the questionnaire was made based on the main concepts from the study by Ryff and Keyes. Three college students examined the draft content and provided suggestions. The draft was revised and made into a pre-test questionnaire with a total of 20 questions. Second, a confirmatory factor analysis (CFA) was conducted (N=355) for the initial model. The results showed that the factor loadings for each question were low. Third, after a question was eliminated, the modified model was examined. The results showed that the modified model had a goodness of fit, good verification in terms of item quality, high composite reliability, and excellent discrimination between the six potential variables. The measurement equivalence was examined, and the results showed that the modified model was stable and can be used in different groups. Fourth, a proof test was conducted (N=410), and the results showed that the modified model can be used with different samples. Last, the criterion-related validity was examined and showed a significant positive correlation. Thus, the model, with a total of 19 questions regarding the six factors, was supported.

Keywords: psychological well-being scale, criterion-related validity, confirmatory factor analysis

INTRODUCTION

Psychological well-being is a perception which people develop to pursue a meaningful life and to fulfill their potential (Keyes, Shmotkin, & Ryff, 2002). Psychological well-being has a great impact not only on an individual's physical but also on psychological aspects. For instance, in terms of psychological aspects, an individual who has higher psychological well-being can face the challenges in life and is more resilient, durable and optimistic (Salsman et al., 2014). In terms of physical aspects, Gale et al. (2014) indicated that people who have higher psychological well-being have greater will power and become sick less frequently. Thus, psychological well-being is an important issue worth discussing.

Among the related studies conducted in the West, there are different terms for well-being based on different theories. For instance, the concept of subjective well-being (SWB)

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comes from hedonistic philosophy. SWB is used to measure well-being in terms of an individual's quality of life (Diener, 2000), and is related to happiness, satisfaction, and positive affect (Diener, 2009). In addition, in studies on mental health, SWB is decided by how much positive affect and negative affect a person experiences. When positive affect is stronger than negative affect, a person feels happy, and Veenhoven (1991) and Keyes (1998) defined this kind of happiness as emotional well-being.

In social psychology, Keyes (1998) stated that well-being should include public and private tasks and further defined well-being as social well-being. Social well-being is the appraisal of one's circumstances and functioning in society. Some past studies were based on self-actualization theory and proposed the concept of psychological well-being. Studies on psychological well-being combined the philosophical well-being that Ryff and Keyes (1995) proposed with the theoretical thoughts of Aristotle and suggested that well-being is necessary to acquire happiness and to fully achieve one's potential. Keyes and Magyar-Moc (2003) combined emotional, psychological and social well-being and also used SWB to describe well-being.

This study aimed to develop a psychological well-being scale for college students and adopted the concepts from the study of Ryff and Keyes (1995), because their study focused on adults over 25 years old. A six-point Likert scale was used in this study. After conducting a confirmatory factor analysis (CFA), six factors were found. Those six factors are as follows: (1) Autonomy: self-determination, independence, self-fulfillment, and achievement of self-potential. (2) Environmental mastery: the ability to discover or create an environment to satisfy one's needs. (3) Self-acceptance: the attitude held toward one's self, the ability to accept one's self, and the attitude held toward one's past (a person with a positive attitude, better ability to accept himself/herself, and a positive attitude toward his/her past will have higher scores). (4) Positive relationships with others: a person who has highly positive relationships have warm, satisfied and trustworthy relationships with others, cares about others' benefits, and has strong empathy and emotion. (5) Personal growth: the realization of one's personal growth and expansion. (6) Purpose in life: the sense of meaningfulness, purpose and goals in life. Other studies have adopted these six factors to make questionnaires and have used CFA to verify those questionnaires. For instance, Clarke et al. (2011) investigated older adults in Canada, Van Dierendonck (2004) investigated college student and adults in the community in Netherlands, Chen and Chan (2005) investigated adults between 18 and 86 years old in Hong Kong, and Abbott (2006) investigated women aged 52 years old in the United Kingdom. The results of these studies showed that the usage of the six factors is appropriate and stable for different participants in different nations. The usage of the six factors has also been proven to be effective in various studies, such as a study conducted by Liao and Cheng (2011), which developed a psychological well-being scale with a total of 36 questions to investigate adults and then verified it with exploratory factor analysis (EFA) and CFA.

According to the aforementioned studies, the six factors proposed by Ryff and Keyes (1995) are stable and can be used as a theoretical foundation to develop a scale. In addition, in Taiwan, there are few psychological well-being scales for college students; thus, it is necessary to develop a psychological well-being scale as a research tool to conduct related studies.

RESEARCH DESIGN AND IMPLEMENTATION

Draft

A draft was made according to the six factors proposed by Ryff and Keyes (1995) and according to the lifestyles of college students. Each question in the draft was examined by three college students. After discussion with the three college students, the draft was revised and made into a pre-test questionnaire with a total of 20 questions (Table 1).

Table 1. The pre-test questionnaire

<i>Subject</i>	<i>Code</i>
Even though my classmates might not like my behaviors and attitudes, I will stand for what I believe.	Autonomy 1
Even though my opinions are different from others' opinions, I am not afraid of sharing my opinions in the class.	Autonomy 2
I can determine the priorities of my life / my studies by myself without others' influence.	Autonomy 3
I can deal with every report and assignment appropriately even during finals.	Environmental mastery 1
I can live the lifestyle that I like.	Environmental mastery 2
I can manage my finances (such as life expenses and part-time income) appropriately.	Environmental mastery 3
I am satisfied with my performance in school.	Self-acceptance 1
I am confident in myself.	Self-acceptance 2
I am active and positive.	Self-acceptance 3
I can accept the imperfections in my personality.	Self-acceptance 4
In class, we trust each other.	Positive relationships with others 1
I have good classmates whom I can share inner thoughts with.	Positive relationships with others 1
My classmates think that I am an easygoing person.	Positive relationships with others 1
In terms of learning skills and strategies, I can feel that I am growing.	Personal growth 1
I know how to get along with classmates better.	Personal growth 2
As I grow older, I am more mature and experienced in my attitudes and behaviors.	Personal growth 3
I have decided my future career.	Purpose in life 1
The goals that I set have been achieved.	Purpose in life 2
College life is meaningful for me.	Purpose in life 3
I make plans for meaningful activities (such as traveling) for myself or my family.	Purpose in life 4

Participants

The draft with a total of 20 questions and three factors was made according to the aforementioned previous studies. The six factors proposed by Ryff and Keyes (1995) are stable. Thus, this study adopted the six factors along with CFA to develop a scale. Because there was an elimination of one question afterward, the researchers called the draft the "initial model", the samples "calibration samples" (N=355) and the model after the elimination the "modified model." Due to the modification, a proof test was conducted and the samples in the proof test were called "validation samples" (N=410). Data was collected respectively from one school each in northern, central, southern, and eastern Taiwan via stratified sampling. One school was chosen for each model. One class each of freshmen, sophomores, juniors, and seniors was also chosen. Table 2 shows the participants' demographic data.

Table 2. The demographic data for the pre-test

		<i>Calibration Samples (N=355)</i>		<i>Validation Samples (N=410)</i>	
		<i>No. of People</i>	<i>%</i>	<i>No. of People</i>	<i>%</i>
Gender	Male	94	26.4	121	29.5
	Female	261	73.3	289	70.5
Grade	Freshman	53	14.9	122	29.8
	Sophomore	110	30.9	128	31.2
	Junior	91	25.6	80	19.5
	Senior	101	28.4	80	19.5
Region	Northern Taiwan	85	23.94	115	28.05
	Central Taiwan	90	25.35	100	24.39
	Southern Taiwan	100	28.17	104	25.37
	Eastern Taiwan	80	22.54	91	22.19

Data Processing

In order to develop a psychological well-being scale for college students, this study adopted a CFA to examine the consistency between the factor structure model and the collected data. Structural equation modeling was adopted to examine the verification. Amos 7.0 was used for analysis. The overall model fit, internal model fit, measurement equivalence, and proof test was used for the verification. In addition, a satisfaction with life scale proposed by Diener et al. (1985) was adopted to serve as a reference for criterion-related validity. McIntosh (2001) stated that the satisfaction with life scale was the most commonly used and popular research tool. Steger et al. (2006) also indicated that the scale had great validity, reliability, discriminant validity, and convergent validity; thus, it was commonly used. The scale was scored using a seven-point Likert scale. However, a five-point Likert scale can also be used directly.

GENERAL DISCUSSION

This study developed a psychological well-being scale for college students based on the six factors proposed by Ryff and Keyes (1995). The factors included autonomy, environmental mastery, self-acceptance, positive relationships with others, personal growth, and purpose in life. After an analysis of the content of the six factors combined with an analysis of college students' work content and lifestyles, a draft with a total of 20 questions regarding the six factors was proposed. Then, three college students were hired to examine each question in the draft. They were asked to explain if the questions were consistent with college students' lifestyles. After discussion and revision of the wording, the researchers named the revised model an "initial model," with a total 20 questions regarding the six factors. Then the initial model was examined, and the results showed that the overall model fit was acceptable. However, the factor loading was the lowest for "Purpose in life 4 (I make plans for activities (such as traveling) for myself or my family)." This might be because, for some students, family activities are still planned by parents. The factor loading of "Purpose in life 4" was only 0.51, which was lower than the standard for acceptance (≥ 0.55) proposed by Tabachnicka and Fidell (2007). "Purpose in life 4" also decreased the average variance extracted (AVE) of the potential variables and made AVE less than 50% (standard). Thus, this subject was eliminated in order to maintain the internal quality and the AVE standard.

After the elimination, a re-test was conducted with an acceptable overall model fit. In addition, the basic relevance matched well with the offending estimates Hair et al. (1998) proposed. Moreover, the fit of internal structural was also found to be acceptable. Measurement equivalence was conducted between male and female students. The results found that this scale was suitable for different genders. In terms of the proof test, the overall model fit was acceptable, indicating that the proof test model can be used for different samples.

The criterion-related validity was examined according to the satisfaction with life scale proposed by Diener et al. (1985). The results showed that the scale this study developed had a significant correlation with the scale Diener et al. proposed, indicating that the scale this study developed can predict satisfaction with life.

In summary, the model with a total of 19 questions regarding the six factors influencing psychological well-being in this study was shown to be feasible. The results in this study also indicated that the six factors proposed by Ryff and Keyes (1995) were feasible in Taiwan. The validation results were also consistent with the studies conducted by Clarke et al. (2001) in Canada, by Van Dierendonck (2004) in the Netherlands, by Chen and Chan (2005) in Hong Kong, and by Abbott et al. (2006) in the United Kingdom. In addition, the results were consistent with a study investigating adults conducted by Liao and Cheng (2011).

This study developed a psychological well-being scale for college students with a total of 19 questions and three to four questions in each dimension. Currently, there are four versions of the psychological well-being scales proposed by Ryff and Keyes (1995), namely, the complete version (with 120 questions), the long version (with 84 questions), the middle version (with 54 questions), and the short version (with 18 questions). For the short version, three questions were chosen from each dimension, respectively, which was consistent with this study (three to four questions from each dimension). Bollen (1989) claimed that there should be at least three questions for each potential variable, which was also consistent with this study. Bollen (1989) also claimed that using five to seven questions for each potential variable had a better efficiency. However, because college students are asked to fill out questionnaires for a wide range of studies, some college students do not even want to fill out

questionnaires. Thus, the researchers in this study considered that in order to increase students' willingness to fill the questionnaire, the questions could be not too numerous, but should nonetheless meet the reliability and validity standards.

CONCLUSION AND SUGGESTIONS

This study developed a psychological well-being scale for college students based on the six factors proposed by Ryff and Keyes, namely, autonomy, environmental mastery, self-acceptance, positive relationships with others, personal growth, and purpose in life. The results showed that the model, with a total of 18 questions regarding the six factors, was acceptable in terms of overall model fit, item quality, and reliability. The model is also suitable for different groups and samples. A norm of percentile rank (PR) was provided for the participants to identify their relative positions.

According to past studies, psychological well-being can be used as a dependent variable in studies. For instance, McInerney et al. (2014) conducted a study to investigate the relationship between promises and psychological well-being for college students. Singleton et al. (2014) conducted an experimental study to investigate the relationship between gray matter concentration in the brain stem and psychological well-being. Zhang et al. (2014) investigated the relationship between natural beauty, connection with nature, and psychological well-being. In addition, psychological well-being also can be used as an independent variable in studies. For instance, Chen et al. (2014) conducted a study using psychological well-being as an independent variable to investigate the influences of psychological well-being, amyloid plaques in the brains, and protein on a restoration of slight cognitive impairments. Thus, future studies can adopt this scale and combine other variables to conduct related studies.

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