

# Health-Related Quality of Life among Youth: Evaluating Measurement Model Fit

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**Abstract**—Quality of life is a broad and multidimensional concept. A related concept of health-related quality of life is well-being, which involves living a meaningful, life satisfaction, stability and happiness in life [1; 2]. The concept of well-being is closely related to the concept of the quality of life. Both concern the satisfaction of psychological, social, physical needs, life satisfaction, stability, happiness and demands of an individual, which are necessary for his satisfaction with life [3]. The purpose of this study was to validate three-factor measurement model of well-being using structural equation modeling (SEM). The youth conceptions of well-being measured such dimensions as physical, psychological and social well-being. This study was done based on a total sample of 600 youths from east-coast of peninsular Malaysia. The Well-Being Scales which was adapted from [4] was used in this study. The items were hypothesized a priori to have non-zero loadings on all dimensions in the model. The findings of the SEM demonstrated that it is a good fitting model which the proposed model fits the driving theory; ( $\chi^2/df = 1.295$ ;  $GFI = .995$ ;  $CFI = .998$ ;  $TLI = .995$ ;  $p = .248$ ;  $RMSEA = .022$ ). Composite reliability (CR) was .92 and variance extracted (VE) was 56%. Health-related quality of life is important to bring sustainable development to the mainstream.

**Index Terms**— Structural Equation modeling, quality of life, well-being, youth.

## I. INTRODUCTION

Well-being is related to happiness and considered to be an emotional construct involving an individual's cognitions regarding satisfaction with life overall, as well as positive and negative affects [5]. Well-being is a positive and sustainable condition that allows individuals to survive or flourish in their life [6]. Well-being is not just the lack of disease or the absence of depression. Well-being is a state of complete mental, physical and social health.

Well-being was found to mediate the relationship between satisfaction with support and parenting satisfaction (Stevenson, 2006). Psychological well-being promotes optimal parenting. Poor mental health and low perception of well-being may lead to burdensome physiological symptoms [7]. This means, positive perception of psychological well-being contributes to fewer physical problems.

Social relationship promotes psychological well-being in youths and reduces malaise [8]. The social well-being is one of the indicators of well-being in this study. Previous studies found that there is a relationship between psychological problems and physical and social well-being [7]. Mothers with low level of well-being were less satisfied with their parenting role and were rated low on personal mood and

sensitivity when interact with their child [9].

Transpersonal psychology has been referred to as the fourth force following psychoanalysis, behaviorism and humanistic psychology [10]. The major difference between transpersonal psychology and other theorist is that the transpersonal psychologists are concerned with the study of optimum psychological health including well-being, healing, self-actualization and they emphasize human consciousness [10]. This study also continues a line of research to further establish a base for Positive Psychology". Accordingly, this study will bridge a gap between the bodies of literature concerning Positive Psychology and quality of life.

Well-being is a predictor of academic success [5]. Health-related quality of life also involves psychosocial and cognitive elements. Generating a quality of life among adolescents need to be addressed as they are a pillar of a nation and a generation that will shape society

Youth population is known to experience high levels of depression. They encounter transitions that can place them at risk. Accordingly, the 9th Malaysia Plan has established the Education Development Master Plan (PIPP) 2006-2010 designed to achieve a holistic education system, progressive and moral. Among them is developing individual potential so that the overall balance of physical, emotional, spiritual and intellectual exist in youth. Human capital development based on the strength of faith and well-being will produce a new generation with strong physical and mental, as well as applying a positive attitude and build discipline among youth [11]. Adverse effects of stress and emotional instability can be restored with the strategy to build inner strength as a spiritual, religious and resilience in youth, as well as cognitive processes and attention from parents so that teens can obtain quality of life.

The SEM is a multivariate statistical method and by using it, a researcher can construct theoretical concepts, test their measurement reliability, hypothesize and evaluate a network of relationships between variables.

SEM is the combination of factor analysis and multiple regression analysis and it is used to analyze the structural relationship between measured variables and latent. Analyses of the measurement model and the path model are included in the SEM analysis. The measurement model is a conventional factor model and represents the observed variables that are some indicators of a set of latent variable [12].

The main purpose of this study is to evaluate reliability, validity and dimensionality of Well-Being Scales (WBS). Specifically, this study would like to determine whether the WBS is a well-fitted model in Malaysian context and addressed the following questions:

- 1) Is WBS an internally consistent measure of well-being?
- 2) Is WBS a valid measure of well-being?

- 3) Does all item load significantly to the three factors?
- 4) Is WBS is a well-fitted model in Malaysian context?

## II. METHODOLOGY

### A. Sample

The total participants in this study were 600 representing 45% male and 55% female participants. All of them were 16 years old and randomly selected from secondary schools from form four in the east coast of peninsular Malaysia. Approved letter from Ministry of Education and State Department of Education was attached with the questionnaire. The questionnaire was group administered to the students during their regular class hours with permission from their school principals and teachers. The participants were given brief description of the research project and the process of informed consent was done.

### B. Instrument

Well-Being Scale is a self-assessment instrument, adapted from [4]. Conceptualization of Well-Being Scale (WBS) is based on three factors; physical well-being, psychological well-being and social well-being. Back to back translation was done and was referred to two experts in English and Malay languages. The students were required to indicate their beliefs and conceptions of the well-being assessment of WBS on a five-point response scale (Strongly Agree, Moderately Agree, Agree, Disagree, Moderately Disagree and Strongly Disagree). Each statement was worded in a manner to capture the meaning attached to one of the three dimensions.

To assess the reliability of the instrument in this study, the researcher made use of estimate of composite reliability and variance extracted, which are commonly used measure to test the extent to which multiple indicators for a latent variable belong together. Further confirmation of the overall fit of the measurement model using CFA was obtained from the Maximum Likelihood estimation, Chi-Square ( $\chi^2$ ) statistics produced by AMOS, and various other goodness-of-fit criteria.

## III. RESULTS

The measurement model described in this study was tested to find out whether or not the observed variables adequately represent their corresponding latent variable. Standardized regression weights indicate the relative contribution of each predictor variable to the dependent variable.

SEM model consists of two submodel, the measurement model and structural model. Measurement model involves the relationship between the observed and unobserved variables, which reflects the CFA model. Structural model involves the relationship between the unobserved variables, ranging from latent to latent.

Confirmatory factor analysis (CFA) is suitable to be used when researchers have the knowledge or representation structures for latent variables, either on theoretical or empirical studies. Models were then evaluated through the statistical approach to determine the 'goodness of fit' for the

sample data. As the CFA model focuses on the correlation between factors and variables (indicators) that measure, within the framework of SEM, it is called the measurement model [15].

Figure 1 present the estimated three-factor model for youths' well-being of WBS, using the data from 600 samples. Items from each scale are assumed to load only on their respective latent variables. The overall fit of the 16-item measurement model is summarized in Figure 1.

The goodness-of-fit results indicate the hypothesized model is consistent with the data. Root Mean Square Error of Approximation (RMSEA) has been recognized as one of the most informative criteria in covariance structure modeling. The RMSEA takes into account the error of approximation in the population [14].

Values less than .05 indicate good fit and values as high as .08 represent reasonable errors of approximation in the population. For CFI (Comparative Fit Index) and GFI (Goodness of Fit Index), values close to 1.00 being indicative of good fit. Although a value of  $>.90$  was originally considered representative of a well-fitting model, a revised cutoff value close to .95 has recently been accepted [15]. Because the CFA model focuses on the link between factors and their measured variables, within the framework of Structural Equation Modeling (SEM), it represents what has been termed a measurement model.

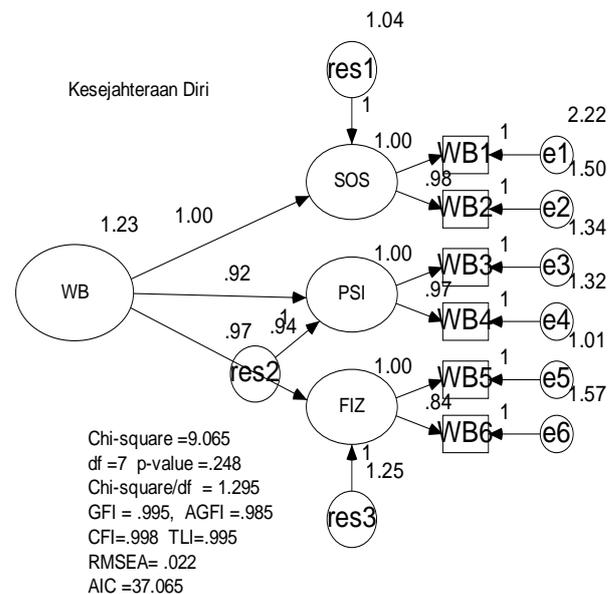


Fig. 1. Measurement model of well-being scale.

WB represents well-being; SOS represents social well-being; PSI represents psychological well-being; FIZ represents physical well-being; e1-e6 represents error variances; res1-res3 represents residual variances.

All items have non-zero loadings to the three factors. This means, all the items loaded significantly to the three factors. The direction and magnitude of the factor loadings were substantial and statistically significant. Analysis of the items resulted in a well-fitting model;  $n = 600$  ( $\chi^2/df = 1.295$ ;  $GFI = .995$ ;  $CFI = .998$ ;  $TLI = .995$ ;  $p = .248$ ;  $RMSEA = .022$ ).

The model is free from offending estimates and the internal consistency estimates satisfied the standard deemed necessary in scale construction. Both the fit indicators, the

GFI and CFI exceeded the threshold of .90, the standard deemed important for model fit [15]. Furthermore, the root mean square error of approximation (RMSEA = .02) indicated a well fitted hypothesized model.

Further confirmation of the overall fit of the measurement model using CFA is obtained from the Maximum Likelihood estimation Chi-Square ( $\chi^2$ ) statistics produced by AMOS and various other goodness-of-fit criteria. Chi-square is the most common method of evaluating goodness-of-fit.

To reduce the sensitivity of the chi-square statistics to sample size, CMIN is obtained by dividing the discrepancy by the degrees of freedom. The suggested guideline for the value of  $\chi^2/df$  is less than 3 for large sample sizes [13].

Composite Reliability resulted in high values of .92 and Variance Extracted of 56% which indicate that the indicators are really measure the latent. Therefore, the above results show that Well-Being Scale is :

- 1) internally consistent measure of well-being
- 2) a valid measure of well-being
- 3) all items loaded significantly to the three factors
- 4) a well-fitted model of youth in Malaysian context.

With regard to dimensionality of the WBS, the current findings indicate that the scale is multidimensional and second-order factor. All items loaded significantly to the three factors (psychological well-being, social well-being and physical well-being).

#### IV. DISCUSSION

This study can contribute to a better understanding of determining constructs of health-related quality of life and sustainable development. This study was set out with the aim of assessing the importance of well-being as the health-related quality of life among youths.

The potential of applying positive psychology to enhance well-being has opened up new career opportunities for psychologists in coaching, counseling and consultation. Accordingly, the negative attributes will go away if people focus on enhancing the positives [16].

*“The promotion of well-being in teens can help mitigate the onset of negative effects of mental illness”*[17, p.5].

This study is related to complete state model. Ryff and Keyes have combined some of the principles in explaining mental health. Among them are [18];

- 1) Emotional Wellbeing. Keyes used the term 'emotional well-being' to describe the 'subjective well-being'. It involves feeling positive, life satisfaction and the absence of negative elements in emotion. Subjective well-being is similar to the concept of well-being in this study.
- 2) Social Welfare. This term involves aspects such as contributions to the community, coherence, social integration and the 'actualization'.
- 3) Psychological Well-Being. This term reflects the acceptance of self, personal growth, which aims to live, adjusting to the environment, independent and positive relationship with others.

The results of the present study forward evidence for

construct validity for well-being. Furthermore, the instrument demonstrated evidence of internal consistency reliability. The findings also show that the WBS is reliable and valid measures to be employed in assessing well-being among Malaysian youths. Evidently, the current study which made use of WBS in Malay version yields consistent findings with previous studies which used the English version of the measures.

#### V. CONCLUSION

In sum, the indices indicated that the main observed variables measured the corresponding latent variable very well. Well-being was found to be negatively correlated with physical complaints and health reports or having had physical pain [7]. This study has implications for educational and psychological practices, especially in assessing quality of life. Since the items structure yields a valid and reliable structural model, the conception scale is therefore, useful in conducting diagnostic assessment of well-being among youths in Malaysia. This research contributes to a greater understanding of health-related quality of life, the promotion of mental and spiritual health of Malaysian youth which are crucial for sustainable development of youth. Future research should examine whether the present findings generalize to other samples and settings.

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