

AN INTEGRATING OF MULTI-GROUP ANALYSIS IN QUALITY OF LIFE USING STRUCTURAL EQUATION MODELING

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ABSTRACT: Stress is an unavoidable part of life everybody meet with stress in his/ her life. It can take a toll on students' physical health, mental health, and academic success and even on every part of life unless they discover to cope with it appropriately. This research is aimed to explore the quality of life related the level of prevalence stress among students in public university. The main objectives of this study is to investigate whether the components of quality life which are emotional intelligence, personal meaning profile, satisfaction with life and psychological well-being significantly influence the level of prevalence stress among Mathematics students in public university. This study was conducted in University Malaysia Terengganu and University Technology MARA Kelantan. The data for this study is analyzed by using Structural Equation Modeling (SEM) to achieve the main hypotheses of this study.

KEYWORDS: Multi-Group Analysis; Quality Of Life; Structural Equation Modeling.

1 INTRODUCTION

Structural equation modeling or also well-known as SEM has gained popularity across many disciplines in the past two decades due perhaps to its generality and flexibility. SEM is widely applied in behavioral, social, and educational as well as economy, marketing, and medical researchers [11]. SEM is a statistical technique for estimating and examining the inter-relationships among variable simultaneously in a model. The inter-relationships among variables could either be correlational or causal relationships. There are two significant components in SEM which is measurement model and structural model [5]; [6]; [8]; [14]. The measurement model describes the relationship among the latent construct and their indicators or response items, while structural model describes the inter-relationships among the latent constructs in the study [3]; [14].

Stress and tension form a part of human life. Adolescents are more exposed to stress than adults and younger children. Stress can be particularly acute for university students because of their stage of development. It can take a charge on students' physical health, mental health, and academic success and even on every part of life unless they discover to cope with it appropriately. University students who have experienced stressful life events also reported worse health outcomes and reduced quality of life most of the time. Success and quality in life are predicted upon the individual's performance. This research is aimed to explore the quality of life related the level of prevalence stress among students in public university using structural equation modeling.

1.1 PROBLEM STATEMENT

Based on Mapping of [13] found that youth experienced emotional stress, aggressiveness, depression and stress that are quite serious. University students often live with an inordinate quantity of tenseness, which can have negative academic, emotional and health-related outcomes [2]. In fact, stress can affect both students' health and academic performance when it is perceived negatively or becomes excessive [4]; [9]. Previous research mostly focus on external factors of stress likes

financial, environment, and so on. For this research interested to examine the internal factors of stress or conflict within individual itself. In addition, from the previous literature there are lack of research investigate about stress on mathematics students in university. Moreover, there are no literature analyze the problem of stress using Structural Equation Modeling. Therefore, Structural Equation Modeling (SEM) is employed to assess the factors of quality of life towards the level of prevalence stress among youths by examining the inter-relationship among latent constructs which are personal meaning profile, emotional intelligence, satisfaction with life, and well-being towards stress faced by youths.

2 LITERATURE REVIEW

Structural Equation Modeling (SEM) is used to test the hypotheses in a research [10]; [12]. It is able to examine the inter-relationship among the constructs in a model. There are four types of construct in SEM which are exogenous construct is the independent variable, endogenous construct is the dependent variable, mediating variable is the variable mediates the relationship between an independent variable and a dependent variable, and moderating variable is the variable that moderates the effects of independent variable on its dependent variable [14]. There are two steps employed in SEM: (i) a Confirmatory Factor Analysis (CFA) is performed first to examine whether the indicators or items used in measuring the constructs are consistent and reliable, (ii) modeling the causal relationship among the constructs are tested and fit [1]. CFA is performed for each latent construct in a measurement model in order to evaluate the unidimensionality, validity, and reliability. It is important to assess measurement model's goodness-of-fit [7].

3 METHODOLOGY

The target populations for this study were mathematics students of two different public universities that is University Malaysia Terengganu (UMT) and University Technology MARA (UiTM) Kelantan. This study employed descriptive research design to describe the characteristics of relevant groups which is mathematics students in two different public universities. The sampling design used in this research is the probability sampling technique. This study applied simple random sampling technique because had sampling frame from both universities. The population of mathematics students in UMT is 614 students and 538 students from UiTM Kelantan. By followed the requirement of Krejcie and Morgan Table, the suggested sample size from UMT is 237 students and 224 students from UiTM Kelantan. The structural equation modeling (SEM) is developed for analyzing the inter-relationships among multiple variables in a model.

4 RESULT AND FINDINGS

4.1 ASSESSMENT OF NORMALITY

Table 1 illustrates the descriptive statistics of all variables. Since all items measure for the skewness are within the range between -1.5 to 1.5, the data is normally distributed [14].

Table 1. Descriptive Statistics

Emotional Intelligence	Skewness	Emotional Intelligence	Skewness
ei1	1.007	ei8	1.051
ei2	1.037	ei9	.931
ei3	1.060	ei10	.730
ei4	1.549	ei11	.893
ei5	.889	ei12	.718
ei6	1.540	ei13	.479
ei7	.852	ei14	.558
Personal Meaning Profile	Skewness	Personal Meaning Profile	Skewness
pmp1	.319	pmp7	.932
pmp2	.382	pmp8	.518
pmp3	.380	pmp9	.749
pmp4	1.135	pmp10	.271
pmp5	1.427	pmp11	.625
pmp6	.853		
Psychological Well Being	Skewness	Psychological Well Being	Skewness
pwb1	.662	pwb8	.740
pwb2	.562	pwb9	.520
pwb3	.532	pwb10	.493
pwb4	1.008	pwb11	.312
pwb5	.610	pwb12	.425
pwb6	.957	pwb13	.382
pwb7	.638		
Satisfaction of Life	Skewness	Satisfaction of Life	Skewness
sl1	.590	sl5	.563
sl2	.472	sl6	.512
sl3	.561	sl7	.652
sl4	.700	sl8	.570
Stress	Skewness	Stress	Skewness
sc1	.108	sc6	.369
sc2	.418	sc7	.786
sc3	.108	sc8	1.305
sc4	.772	sc9	.451
sc5	.496		

4.2 MEASUREMENT MODEL: CONFIRMATORY FACTOR ANALYSIS

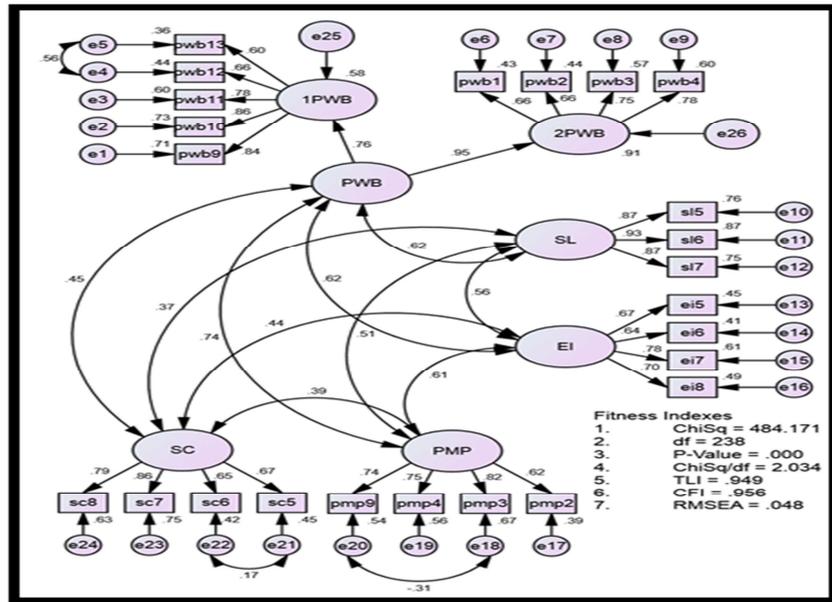


Fig. 1. The Measurement Model for Pooled Construct

With Confirmatory Factor Analysis (CFA), any item that does not fit into its measurement model should be removed from the model. Refer Fig. 1, the requirement of unidimensionality has been achieved either through the item-deletion process or through setting the “free parameter estimate”. All the factor loading in this study above 0.6. The requirement of validity was achieved through two following processes which are (1) construct validity, refer Table 2 shows that all fitness indexes for the models meet the required level; and (2) discriminant validity as shown in Fig. 1 shows that the redundant items are either deleted or constrained as “free parameter”. Refer Table 3, the requirement of reliability was achieved through all following processes which are (1) internal reliability shows that cronbach’s alpha; (2) the construct reliability; and (3) average variance extracted.

Table 2. The Assessment of Validity

Name of category	Name of index	Index value	Comments
Absolute fit	RMSEA	0.048	Accepted
Incremental fit	CFI	0.956	Achieved
Parsimonious fit	Chisq/df	2.034	Achieved

Table 3. The Assessment of Reliability

Item	Factor Loading	Cronbach Alpha (Above 0.7)	Construct Reliability (Above 0.6)	Average Variance Extracted (Above 0.5)
ei5	0.67	0.791	0.794	0.500
ei6	0.64			
ei7	0.78			
ei8	0.70			
pmp2	0.62	0.804	0.820	0.534
pmp3	0.82			
pmp4	0.75			
pmp9	0.74			
pwb1	0.66	0.802	0.806	0.511
pwb2	0.66			
pwb3	0.75			
pwb4	0.78			
pwb9	0.84	0.878	0.867	0.570
pwb10	0.86			
pwb11	0.78			
pwb12	0.66			
pwb13	0.60			
sl5	0.87	0.918	0.920	0.793
sl6	0.93			
sl7	0.87			
sc5	0.67	0.836	0.833	0.559
sc6	0.65			
sc7	0.86			
sc8	0.79			

4.3 STRUCTURAL MODEL: PATH ANALYSIS IN SEM

After achieved the issue of unidimensionality, validity, and reliability of the latent constructs, modeling these latent constructs into structural model for analysis using SEM.

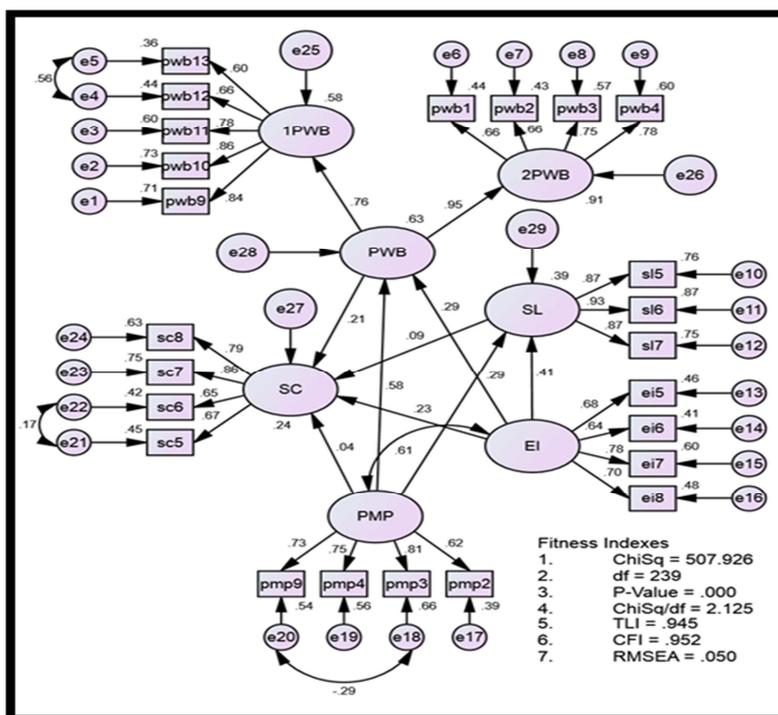


Fig. 2. The Structural Model for Path Analysis

Table 4. Regression Weight of Path Analysis

Variable	Path	Variable	Estimate	P-value	Result
SC	<---	EI	.217	.008	Significant
SC	<---	PMP	.033	.695	Not Significant
SC	<---	PWB	.180	.044	Significant
SC	<---	SL	.065	.152	Not Significant

Since the P-value of Emotional intelligence toward prevalence stress is 0.008 and Psychological well-being toward prevalence stress is 0.044 which is lower than 0.05, therefore these path analysis are significant.

Table 5. Result of Hypothesis Testing

No	The Main Hypothesis Statement in the Study	Result
1.	Emotional intelligence significantly influences level of prevalence stress.	Supported
2.	Personal meaning profile significantly influences level of prevalence stress.	Not Supported
3.	Psychological well-being significantly influences level of prevalence stress.	Supported
4.	Satisfaction with life significantly influences level of prevalence stress.	Not Supported

5 CONCLUSION

The main purpose of this study is to examine the internal factors involved in quality of life towards the prevalence stress. There are four factors of quality of life covered in this study which are personality meaning profile, emotional intelligence, satisfaction with life, and psychological well-being. There are four main hypotheses being proposed in this study. The hypothesis of emotional intelligence significantly influences level of prevalence stress and psychological well-being significantly influences level of prevalence stress are supported. However, the hypothesis of personal meaning profile significantly influences level of prevalence stress and satisfaction with life significantly influences level of prevalence stress are not supported. Therefore, research should more focus on emotional intelligence and psychological well-being as an important factors affected the level of prevalence stress among youths.

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