



Series: *Advances in Social Science, Education and Humanities Research*

## Proceedings of the 2nd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2020)

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# Development of Factor Structure for Passion Scale

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## ABSTRACT

The Covid-19 pandemic is changing global human attitudes and behaviour. This condition can certainly have an impact on psychological measurement tools that have been widely used. One measuring tool that might be affected and needs attention is the passion scale. Passion scale is developed from the dualistic concept of the passion model that are formed from harmony of passion and obsessive passion. The condition of the Covid-19 pandemic might cause a change in the passion construct so that it needed to add a new factor on the passion scale called laidback passion. Laidback passion is defined as a form of ignorance towards conditions. Someone with a relaxed passion will have a less caring attitude and not even be moved to undertake change activities. The aim of this research is to prove that laidback passion as a valid factor that construct passion together with harmony and obsessive passion. Participants involved in this study were 233 people, consisting of 82% women and 18% men. Analysis utilize Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Result show that laidback passion is a valid new factor on the passion scale.

**Keywords:** *Passion, factor structure, development measurement*

## 1. INTRODUCTION

The Covid-19 pandemic caused the need for many adjustments in various fields of life [12]. This is of course also requiring adjustments in various psychological measurement tools that have been widely used. The selection of a measuring instrument to be used in research requires a match between the measuring instrument and the phenomenon to be studied. One of the measuring tools affected is the passion scale [9].

The Passion scale that has been used so far is considered not enough to be able to explain the construct of passion since the Covid-19 pandemic. Passion scale cannot accommodate current changes in attitudes and behaviour. This causes the need for further research related to passion constructs that are adapted to the conditions of the Covid-19 pandemic.

In line with self-determination theory, [9] developed a dualistic model of passion. In this model, passion is defined as a strong tendency towards an object, activity, concept, or individual that is loved or well-liked by someone and has a high value that is part of his identity so that makes a person willing to invest time and energy.

The process of internalizing an object or activity that occurs in a person can determine the formation of passion in the individual [2]. If the internalization process occurs autonomously, harmony passion will be formed. Harmony passion is shown by a strong desire to be involved in an activity. In other words, the source of passion is when it is integrated with him, becomes part of his identity but remains in harmony with other parts of his life. A person with a harmony passion will have an open and not defensive

attitude towards an activity and also experience positive results during the activity. Conversely, if the internalization process occurs under controlled (controlled internalization), an obsessive passion will be formed so that a person cannot control the urgency of an activity. The process of internalization is not only about an activity, but also some things that accompany it such as personal egoism and defensive attitude towards what happens in an activity. Thus, individuals will not experience positive results during the activity, even negative results such as negative emotions.

During the Covid-19 pandemic, the internalization process did not only occur autonomously or controlled. During this pandemic, a forced internalization process can be occurred. This internalization process can certainly produce a different form of passion compared to the two types of passion that have been stated previously. This internalization process can produce a laidback passion in which a person is show ignorance to the conditions at hand. Someone with this passion will have an attitude that doesn't care enough or isn't even motivated to carry out change in activities. This individual is less sensitive to his emotions, does not even know what he wants to do. Based on the explanation, the researcher needs to prove the adjustment in the passion construct. Passion scale which consists of two factors, namely harmony passion and obsessive passion, needs to be added by a factor called laidback passion. Researchers define laidback passion as a condition of a person who is less motivated or less eager to respond to the conditions that occur. Attitudes and behaviours that are manifested in the form of a helpless person and assessing a pandemic are a difficult life for him.



This study aims to prove that laidback passion is a factor that together with harmony passion and obsessive passion in forming passion constructs. The research hypotheses are as follows (1) harmony passion, obsessive passion and laidback passion are the factors that form the passion construct. (2) harmony passion, obsessive passion and laidback passion are each composed by valid items, (3) harmony passion, obsessive passion and laidback passion are significantly related to passion constructs. (4) Passion Scale with 3 factors show good construct reliability and validity.

## 2. RESEARCH METHOD

The research method uses quantitative methods with survey techniques. Participants are asked to fill out the questionnaire that has been provided via google form. Questionnaire links are distributed to students who are still actively attending lectures during the Covid-19 pandemic. Analysis includes (1) Exploratory Factor Analysis (EFA), (2) First order - Confirmatory Factor Analysis (first order-CFA), and (3) Second order - Confirmatory Factor Analysis (second order-CFA).

EFA is carried out with the IBM SPSS-Statistic22 program. Analysis was performed using dimension reduction, factor, extraction using maximum likelihood, and rotation VARIMAX. Factor extraction is a method used to reduce data from several indicators or items. This factor rotation is needed if the factor extraction method has not yet produced a clear main factor component. The purpose of this factor rotation is to obtain a simpler factor structure so that it is easy to interpret.

CFA, both for first order and second order is done using the LISREL 8.80 program by analysing the measurement model. The theoretical model's hypothesis test uses the correlation matrix of the sample variable X, which is explained as S and is used to estimate. Each element  $\Sigma$  is represented by each element S. The null hypothesis of the hypothesis is  $S = \Sigma$  or  $S - \Sigma = 0$ .

If it is not rejected or insignificant, it means that the theoretical model is supported by empirical data or it is said to be a fit model. This test is also called the goodness of fit test. If a model fit has been found, the next process to do is to analyse the loading factor. If the loading factor shows a negative value, it means the thing measured is the opposite of what has been conceptualized. by using t-test, the significance value can be known. t value is significant if it is greater than 1.96 ( $t > 1.96$ ). It can be interpreted that X is a valid indicator measured using  $\xi$  or validity measured by a factor.  $\xi$  is a construct or latent variable measured using X. Most psychological variables cannot be measured directly, it requires Structural Equation Modelling (SEM) testing. Structural equation model [5] for structural model equations:  $\eta = B\eta + \Gamma\xi + \zeta$ , the measurement model equation for y is  $y = \Lambda y\eta + \varepsilon$ , and the measurement model equation for x is  $x = \Lambda x\xi + \delta$ .

### 2.1. Participants

Characteristics of participants who were involved in this study were students who actively participated in lectures during the Covid-19 pandemic with an age range of 19-24 years. Participants were male as much as 18% and women as much as 82%. The total number of participants involved was 233 people.

### 2.2. Measure

The Passion scale consists of 7 items for each factor both harmony passion and obsessive passion. In pandemic conditions, researchers selected items that were in accordance with the conditions and obtained 4 items each for each factor. Researchers added 4 items to measure laidback passion. The items for each dimension can be seen in Table 1.

**Table 1 Passion scale item with 3 factors**

<i>Factor</i>	<i>Item Statements</i>
<i>Harmony Passion</i>	<i>1. New things that I find, make me more worthy of need for change.</i>
	<i>2. The activities carried out reflect the qualities that I like about myself.</i>
	<i>3. Activities carried out in harmony with the activities of my life.</i>
	<i>4. I am really interested in activities related to change.</i>
<i>Obsessive Passion</i>	<i>5. I cannot abandon the activities that I have done</i>
	<i>6. It's hard to imagine if I didn't do this activity</i>
	<i>7. I am very emotionally dependent on this activity</i>
	<i>8. I almost have an obsessive/dependent feeling for this activities.</i>
<i>Laidback Passion</i>	<i>9. I lack of the enthusiasm to do new activities.</i>
	<i>10. For me, the activities carried out make me confused.</i>
	<i>11. Changes that occur because of Covid-19 makes me doubtful about my actions.</i>
	<i>12. Lately, my mood has been chaotic due to unclear circumstances</i>

## 3. RESULT

### 3.1. Exploratory Factor Analysis

To find out whether the measuring instrument developed by researchers measures one attribute / factor or many attributes / factors, Exploratory Factor Analysis is used. The results of EFA data processing can be seen in Table 2.

Based on the results of the Kaiser-Meyer-Olkin and Barlett test, it was found that the sampling adequacy was 0.842 (exceeding the general recommendation of  $> 0.6$ ),  $\chi^2 = 936,321$ ,  $df = 66$ ,  $p = 0,000 < 0.01$ . Items HP1, HP2, HP3 and HP4 are items from harmony passion being a factor 3. OP5, OP6, OP7, and OP8 items are items from obsessive passion being factor 1.

**Table 2 Total variance explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,299	35,823	35,823	3,742	31,186	31,186	2,151	17,924	17,924
2	1,854	15,451	51,274	1,388	11,569	42,755	1,864	15,530	33,455
3	1,119	9,329	60,603	,619	5,156	47,911	1,735	14,456	47,911
4	,847	7,059	67,661						
5	,730	6,087	73,749						
6	,606	5,049	78,798						
7	,554	4,619	83,417						
8	,501	4,175	87,592						
9	,492	4,098	91,691						
10	,390	3,246	94,937						
11	,338	2,817	97,754						
12	,270	2,246	100,000						

The items NP9, NP10, NP11, and NP 12 are items from laidback passion into factor 2. Thus hypothesis 1 is proven that harmony passion, obsessive passion, and laidback passion are the factors that compose the construct of passion.

Total Variance Explained is useful to determine what factors might be formed. In Table 2, it can be seen that the grains can form 3 factors with the ability to measure passion by 47.91% (rounded up to 48%).

Determination of variables is a certain factor determined by looking at the largest correlation value. Table 3 below results from the analysis of factors into three factors.

**Table 3 Passion scale items with 3 factors**

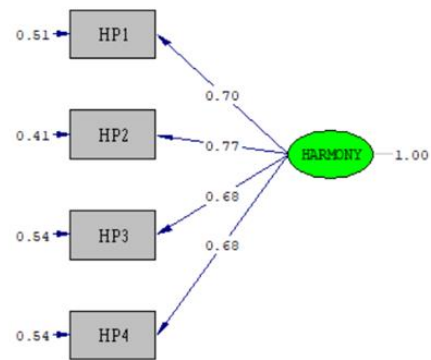
Rotated Factor Matrix			
	Factor		
	1	2	3
HP1			.570
HP2			.582
HP3			.724
HP4			.536
OP5	.552		
OP6	.545		
OP7	.768		
OP8	.820		
NP9		.611	
NP10		.741	
NP11		.589	
NP12		.484	

Extraction Method: Maximum Likelihood.  
 Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>  
 Rotation converged in 5 iterations<sup>a</sup>

has been declared fit (goodness of fit P-value > 0.05). This means that empirical data obtained from the field is in accordance with the conceptualized model.

Harmony passion measurement model shows a fit model with a goodness of fit value P-value = 0.796 (> 0.05) at  $\chi^2 = 0.07$ ,  $df = 1$ , and RMSEA 0.0.

Items HP1, HP2, HP3, and HP4 are items of harmony passion with a loading factor of 0.70, 0.77, 0.68, 0.68 and t-values 10.90, 11.09, 10.51, 9.42. Thus it can be said that all items that build the harmony passion factor are valid (positive factor > 0.5) and significant (t-value > 1.96).

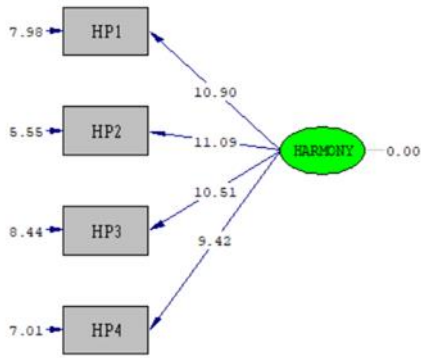


Chi-Square=0.07, df=1, P-value=0.79558, RMSEA=0.000

**Figure 1a** Standardized solutions of harmony passion

**3.2. First Order Confirmatory Factor Analysis**

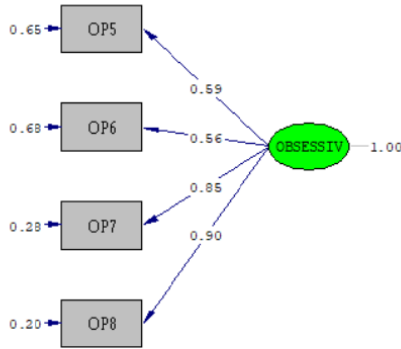
First Order CFA is useful for testing valid items that build psychological constructs. An item is said to be valid if the item has a positive and significant value (t-value > 1.96). This condition can be achieved if the measurement model



Chi-Square=0.07, df=1, P-value=0.79558, RMSEA=0.000

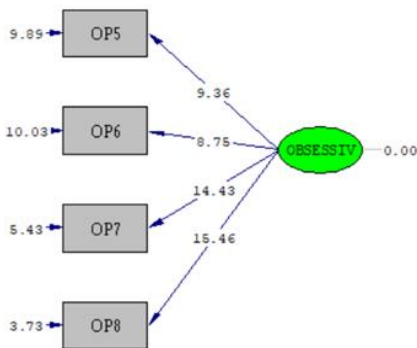
Figure 1b T-value of harmony passion

The obsessive passion measurement model shows a fit model with a goodness of fit P-value = 0.4457 (> 0.05) at  $\chi^2 = 0.58$ , df = 1, and RMSEA 0.0. Points OP5, OP6, OP7, and OP8 are items of obsessive passion with factor loading of 0.59, 0.56, 0.85, 0.98 and t-values 9.36, 8.75, 14.43, 15.46. Thus it can be said that all items that build valid obsessive passion factor (positive factor > 0.5) and significant (t-value > 1.96).



Chi-Square=0.58, df=1, P-value=0.44565, RMSEA=0.000

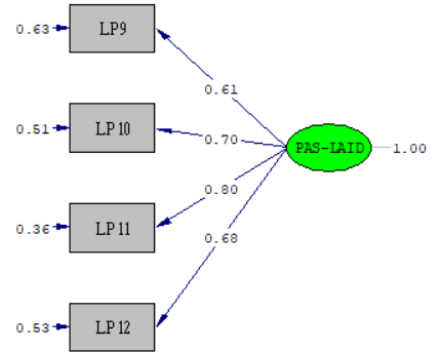
Figure 2a Standardized solution of obsessive passion



Chi-Square=0.58, df=1, P-value=0.44565, RMSEA=0.000

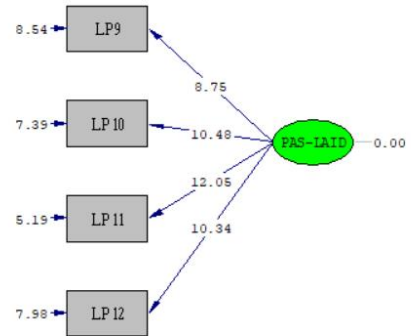
Figure 2b T-value of obsessive passion

The laidback passion measurement model shows a fit model with a goodness of fit value P-value = 0.1797 (> 0.05) at  $\chi^2 = 1.8$ , df = 1, and RMSEA 0.059. Items LP9, LP10, LP11, and LP12 are items from laidback passion with factor loading of 0.61, 0.70, 0.80, 0.68 and t-values 8.75, 10.48, 12.05, 10.34. Thus it can be said that all items that construct the laidback passion factor are valid (positive factor > 0.5) and significant (t-value > 1.96).



Chi-Square=1.80, df=1, P-value=0.17970, RMSEA=0.059

Figure 3a Standardized solution of laidback passion



Chi-Square=1.80, df=1, P-value=0.17970, RMSEA=0.059

Figure 3b T-value of laidback passion

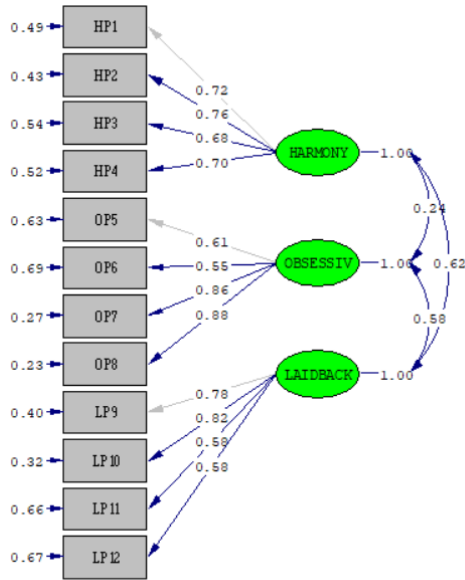
Hypothesis 2 is proven that harmony passion, obsessive passion and laidback passion are each composed by valid items.

### 3.3. Second Order Confirmatory Factor Analysis

Second Order CFA is useful for testing that the factors that build psychological constructs are valid factors that are positively and significantly interrelated (t-value > 1.96). This condition can be achieved if the measurement model has been declared fit (goodness of fit P-value > 0.05). This means that empirical data obtained from the field is in accordance with the conceptualized model. The passion measurement model shows a fit model with a goodness of

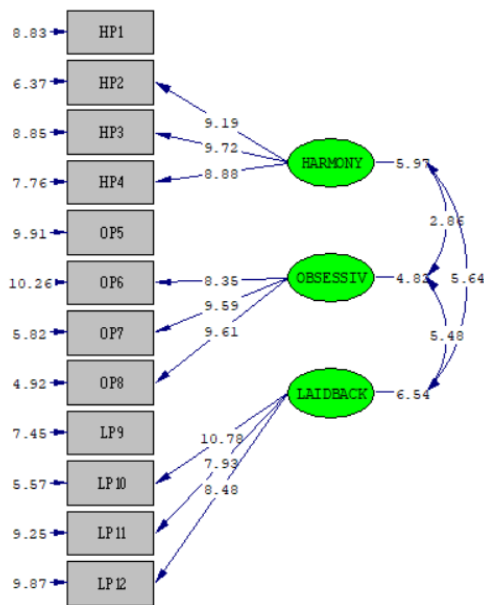
fit P-value = 0.06738 ( $> 0.05$ ) at  $\chi^2 = 50.60$ ,  $df = 37$ , RMSEA 0.040.

Harmony passion factor is positively and significantly related to obsessive passion with a loading factor of 0.24 and t-value 2.86 ( $> 1.96$ ). The obsessive passion factor is positively related to laidback passion with a loading factor of 0.58 and a t-value of 5.48 ( $> 1.96$ ). Likewise, the harmony passion factor is related to laidback passion with a loading factor of 0.62 and a t-value of 5.64 ( $> 1.96$ ).



Chi-Square=50.60, df=37, P-value=0.06738, RMSEA=0.040

Figure 4a Standardized solution of passion



Chi-Square=50.60, df=37, P-value=0.06738, RMSEA=0.040

Figure 4a T-value of passion

Hypotheses 3 is proven, harmony passion, obsessive passion, and laidback passion show significant positive relationship.

#### 4. DISCUSSION

The main purpose of this research is to prove that there are other factors besides harmony passion and obsessive passion in forming the construct of passion. Based on current conditions, the process of internalization in a person does not only occur autonomously and controlled. The forced internalization process was very likely to occur during the Covid-19 pandemic. The results of this internalization can form a different passion that is a form of ignorance and not caring even not motivated to carry out change activities. Researchers define this as a laidback passion.

Researchers compose a passion scale with three factors involving four items for each dimension. The results of this study indicate that the items of each factor have good evidence of validity from the results of first-order confirmatory factor analysis. In addition, Second-order confirmatory factor analysis also shows a relationship between factors. The results of this study indicate that laidback passion is considered to be considered one of the factors that build the construct of passion.

In addition to the factor that has been proven, the validity and reliability of the test measures is also very important. In this study related to the factor structure, the discussion on the construct reliability and construct validity.

The construct of reliability determines the internal consistency of the collected variables representing latent constructs [4]. The Passion Scale Instrument has a reliability construct of 0.87, classified as having good reliability, which reflects the level of internal confidence of all variables that meet the latent construct requirements of the Passion Scale.

Validity is determined as evidence from a measurement tool that measures what it intended to be measured. With CFA factor analysis using a composite score will reduce the error variance in the specified construct because it has used the same scale. CFA analysis while evaluating construct validity that is beyond items evaluated as reflecting its latent construct [4]. In this study item show high factor loading (valid items with factor loading  $> 0.7$ ). This describe that the harmony construct, the obsessive construct and the laidback construct have a high validity construct. Thus the passion scale with 3 factors can stated has convergent validity of the specific construct.

The construct of validity can also be explained by the context of the item communality. The square of the standard loading factor shows the variation of many items from the latent construct (extracted variant). In this study the variance extracted on the Passion Scale instrument was 0.52, quite convergent because the construct or factor was able to explain 52% of the item variance, while 48% of the error variance.

Discriminant validity regarding the size of the construct is completely different from the other constructs agreed with

the phi ( $\Phi$ ) matrix. The discriminant value of the construct validity of desire harmony toward the construct of obsessive desire is 0.24; the value of discriminant validity between obsessive passion and laidback passion is 0.58 and discriminatory validity between harmony passion and relaxed passion is 0.62. Thus, each construct is a factor that is different from one another.

## 5. CONCLUSIONS

The conclusion of the study is passion of desire as a new factor on the scale of desire. Laidback passion together with passion for harmony and obsessive passion are the three factors that form the passion construct.

Conclusion: (1) harmony of passion, obsessive passion and relaxed passion are the factors that make up the construct of passion. (2) passion of harmony, obsessive passion and relaxed passion are each composed by valid points. (3) the desires of harmony, obsessive desires and desires are willing to be interrelated positively and build the construct of desire. (4) the construct reliability of the Passion Scale with 3 factors classified as good and the construct validity also is quite good. The three constructs are 3 different factors.

## 6. SUGGESTION

Comprehensive testing in the development of a test tool needs to be done. Research that involves factor structure needs to be examined in terms of nomological validity and face validity. Nomological validity is a validity that tests whether the correlation between constructs in measurement theory makes sense, meaning that the correlation between constructs is useful. Likewise, face validity testing which must be done before theoretical testing using CFA. With face validity, we can understand the meaning of the content or meaning of each item derived from the concept of theory. Therefore, face validity or readability test is an important validity test.

This study only involved a sample of students. Previous studies on harmony passion and obsessive passion have been conducted on various sample groups such as children, adolescents, students, sportsmen, musicians, and employees from various fields [1]; [3]; [6]; [8]. Future studies need to be conducted in different sample groups to prove that the three factors are harmony passion, obsessive passion, and laidback passion together to form the construct of passion. Several previous studies have shown the relationship between passion constructs and other constructs [9]. Harmony passion in general has a positive relationship with other positive constructs such as positive affect, life satisfaction, meaning in life, and vitality and has a negative relationship with negative constructs such as depression and anxiety. The opposite passion shows that it has a negative relationship with the positive construct and instead shows a positive relationship with depression and anxiety [7]. Future

studies need to construct validity (convergent and discriminant evidence) by looking at the relationship between laidback passion and these constructs. Based on the definition of laidback passion, researchers suspect that there is a negative relationship between laidback passion and positive constructs such as positive affect, life satisfaction, and vitality and have a positive relationship with depression and anxiety.

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