

THE BASIC PSYCHOLOGICAL NEED SATISFACTION AND FRUSTRATION SCALE: VALIDATION IN INDONESIAN ADOLESCENTS

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ABSTRACT

The purpose of this study was to validate the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) in Indonesian adolescent's sample. This 24-item questionnaire measures three basic psychological need satisfaction (autonomy satisfaction, relatedness satisfaction, competence satisfaction), and three basic psychological need frustration (autonomy frustration, relatedness frustration, competence frustration). Participants were 394 Junior High School students aged 11-15 years old (49.5% male, 50.5% female). The result showed that five of six factors have acceptable internal consistency. Only autonomy frustration factor has a low reliability coefficient. By comparing a series of competitive factorial models, the 6-factor model had the best fit to the data. Moreover, satisfaction of the needs is positively related to emotional well-being, while frustration is positively related to emotional ill-being. After some modification to the model, the Indonesian version of Basic Psychological Need Satisfaction and Frustration Scale can be used to measure satisfaction and frustration of the three basic psychological needs in adolescents.

Keywords: Basic Psychological Needs, Basic Psychological Need Satisfaction and Frustration Scale, Validation, Adolescent, Indonesia

INTRODUCTION

Basic Psychological Needs Theory (BPNT) is one of the six mini-theories of Self-Determination Theory (SDT), which emphasizes the importance of three basic psychological needs' fulfillment as a prerequisite for achieving well-being. The three basic, innate, and universal needs are autonomy, relatedness, and competence. The need for autonomy is the need to be the determining agent of one's behavior, the need for relatedness is the need to be connected, understood, and accepted by others; the need for competence is the need to feel effective in one's behavior (Deci & Ryan, 2000). Those three needs could be satisfied or frustrated by social context. When the need for autonomy is satisfied, people feel that their behavior is determined by themselves, not coerced by others. On the contrary, when the need for autonomy is frustrated, people experience a sense of pressure and coercion. When the need for relatedness is satisfied, people feel close with those who care for them. When frustrated, people experience loneliness and alienation. When the need of competence is satisfied, people feel productive. When frustrated, people experience inadequacy and inferiority (Ryan & Deci, 2017). The satisfaction of basic psychological needs is crucial for human psychological well-being, while the frustration of the needs will cause psychological ill-being (Vansteenkiste & Ryan, 2013).

Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) (Chen et al., 2015) is a well-known measurement to assess the satisfaction and frustration of each of the basic psychological needs. This measurement has been translated and validated into several languages; Portuguese (Cordeiro, Paixão, Lens, Lacante & Luyckx, 2016; Rodrigues et al., 2019), Japanese (Nishimura & Suzuki, 2016), Hungarian (Király, Morin, Bóthe, Orosz & Rigó, 2018), Italian (Liga et al., 2020), Spanish (Del Valle, Matos, Díaz, Pérez & Vergara, 2018), and Polish (Kuźma, Szulawski, Vansteenkiste & Cantarero, 2020). Several studies were conducted to examine the factor structures of BPNSFS, which resulted in several possible models: the two-factor model, the three-factor model, the six-factor model, and the higher-order factor model (Nishimura & Suzuki, 2016). Most of BPNSFS' studies support its original cross-cultural validation study of six-factor structure; satisfaction and frustration of those three needs are distinct constructs (Cordeiro, Paixão, Lens, Lacante & Luyckx, 2016; Del Valle, Matos, Díaz, Pérez, & Vergara, 2018; Liga et al., 2020; Nishimura & Suzuki, 2016; Rodrigues et al., 2019). Empirical studies also confirmed the relationship of needs satisfaction with well-being, and frustration needs with well-being and ill-being (Chen et al., 2015; Cordeiro et al., 2016; Nishimura & Suzuki, 2016).

Studies of BPNSFS were mostly carried out in college and involving adult participants in a wide range of ages. Studies of BPNSFS among adolescents are still limited. Referring to the universal principle of BPNT (Deci & Ryan, 2000), previous studies supported cross-cultural universality. However, there is still a lack of evidence for cross-developmental stage universality. Therefore, this study fills that gap, aimed to validate the Indonesian version of the scale in Indonesian adolescents. The validation consists of examining the internal consistency and factor structure of the Indonesian-translated version of BPNSFS (Chen et al., 2015) among adolescents. Furthermore, we also investigate associations of the scale with theoretically related constructs – emotional well-being and emotional ill-being using The Scale of Positive and Negative Experience (SPANE) (Diener et al., 2010).

METHODS

Ethical Considerations

The Universitas Padjadjaran Research Ethics Committee approved our study (No. 357/UN6.KEP/EC/2018).

Participants and Procedures

Participants of this study were 394 junior high school students (Male=49.5 % and Female=50.5%). The age range between 11-15 years old (M=12.98, SD=0.77). The majority of the students were in year 7 (N=253 [64.23%]), followed by year 8 (N=126 [31.97%]) and year 9 (N=15 [3.81%]). They were recruited from three Junior High Schools. Schools were selected by the authors through their networks. There were no formal inclusion criteria for these schools. The participants were informed about the purpose of the study, procedure, and the confidentiality of the data. They had to consent to participate in the study by signing a consent form. The data were collected during regular class periods by doing paper and pencil survey. One of the trained-research assistant carried out the data collection in each school. They completed the questionnaires in approximately 15-30 minutes.

Measures

The Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015) consist of six factors: autonomy satisfaction, relatedness satisfaction, competence satisfaction, autonomy frustration, relatedness frustration, and competence frustration. Each factor was assessed by four items, with a 5-point Likert scale ranging from 1 (not at all true) to 5 (very true). The English version was translated to Indonesian language and then translated back to English. The translations were conducted by two translators who majored in psychology and had experience in translating documents in academic contexts. When different translations were found in several words, a panel discussion was conducted between the researchers and the translators to determine which choice of words that best fit the concept. The process following the procedures proposed by Van de Vijver & Hambleton (1996).

The scale of Positive and Negative Experience (SPANE) (Diener et al., 2010) consists of two factors: positive emotional experiences (SPANE-P) and Negative Emotional Experiences (SPANE-N). Each factor was assessed by four items, with a 5-point Likert scale ranging from 1 (very rarely or never) to 5 (very often or always). The positive and negative scales were scored separately because of the partial independence of the two types of feelings. The SPANE was already available in Bahasa (Mahardhika & Halimah, 2017), with satisfactory internal consistency ($\alpha=0.837$ for SPANE-P and $\alpha=0.885$ for SPANE-N).

Analyses

In the current study, we conducted several analyses. First, we examined the missing value for the data using Little's MCAR test. Second, the reliability analysis was conducted using internal consistency, alpha Cronbach's. Since Cronbach alpha values are, however, quite sensitive to the number of items in the scale, it is common to find quite low Cronbach values (e.g., 0.50). (Pallant, 2010). So, we considered the Cronbach alpha value of 0.50 is still acceptable. Third, the analysis was followed by confirmatory factor analysis with several model estimations. We compare the two-factor (need satisfaction and frustration), three-factor (autonomy, relatedness, and competence, for both need satisfaction and frustration as a reverse concept), six-factor (need satisfaction and frustration for autonomy, relatedness, and competence) and higher-order models to examine the best model for Indonesian adolescent sample. Evaluation of the models uses several indices: the root means square error of approximation (RMSEA), the Comparative Fit Index (CFI), the goodness of fit index (GFI), the Tucker-Lewis index (TLI), and the Standardized Root Mean Square Residual (SRMR). The fitness criteria is indicated by RMSEA value, where less than 0.08 is considered reasonable fit, and less than 0.05 considered a very good fit. Then, CFI and GFI values of more than 0.90 are considered a satisfactory fit (Hooper, Coughan & Mullen, 2008). Several modifications were applied, based on the procedure explained by Hair Jr, William, Babin, & Anderson (2014). Fourth, we investigated the correlation between basic psychological need satisfaction and frustration with positive and emotional experience factors as evidence of validity. Descriptive statistical analysis, reliability, and correlation analysis were conducted by using Statistical Product and Service Solution (SPSS) 22.0 for Mac. While the confirmatory factor analysis (CFA) was conducted using the lavaan package on R programming (Rosseel, 2012).

RESULT

Missing Value Analysis

A preliminary data analysis was conducted to analyze the missing value. We found that 21 (5.32%) participants had missing values with a maximum of 5.60% missing for each

participant. A Little's MCAR test indicated that data were missing completely at random, $\chi^2 = 605.49$ (df=592; p=0.34), then the expectation-maximization method was used to impute the missing value (Spithoven et al., 2014).

Reliability Analysis

The reliability of the overall BPNSFS was relatively adequate in the current study, with values of Cronbach's coefficient ($\alpha=0.70$). Five factors with exception of autonomy frustration, obtained acceptable coefficient reliabilities, with Cronbach's coefficients $\alpha=0.59$ for autonomy satisfaction, $\alpha=0.67$ for relatedness satisfaction, $\alpha=0.62$ for relatedness frustration, $\alpha=0.70$ for competence satisfaction, $\alpha=0.61$ for competence frustration. Autonomy frustration yielded a low coefficient ($\alpha=0.30$). In the present study, both the SPANE-P ($\alpha=0.77$) and the SPANE-N ($\alpha=0.75$) demonstrated good internal consistency.

Confirmatory Factor Analyses for Basic Psychological Need Satisfaction and Frustration

Table 1 summarizes the results of the global fit for the measurement model tested. The results show that initial estimation of the six-factor model yielded the best fit to the data ($\chi^2(237)=579.33$, $p<0.001$, RMSEA=0.061, CFI=0.814, GFI=0.891, TLI=0.784 and SRMR=0.083) compared to the other models. Table 2 shows the factor loading of the six-factor model. The factor loading ranged between -0.14 to 0.76 ($M=0.51$, $SD=0.22$). We found two items on the autonomy frustration (AF) that have negative factor loading. Those items are AF1 (*Most of the things I do feel like "I have to"*) and AF4 (*My daily activities feel like a chain of obligation*). Hair Jr et al., (2014) suggested eliminating the item with negative factor loading. Therefore, the modified six-factor model has good model fit ($\chi^2(194)=579.33$, $p<0.001$, RMSEA=0.046, CFI=0.904, GFI=0.926, TLI=0.885 and SRMR=0.055). After the modification, the factor loading ranged between 0.41 to 0.75 ($M=0.57$, $SD=0.09$). In addition, the coefficient of reliability of autonomy frustration after two items excluded is 0.58.

Model	Chisq	Df	P	RMSEA	CFI	GFI	TLI	SRMR
Two Factor Model	1074.01	251	< 0.001	0.091	0.554	0.751	0.509	0.104
Three Factor Model	996.51	249	< 0.001	0.087	0.595	0.766	0.551	0.103
Six Factor Model	579.33	237	< 0.001	0.061	0.814	0.891	0.784	0.083
Six Factor Model Modified	353.46	194	< 0.001	0.046	0.904	0.926	0.885	0.055
Higher-order factor Model	Not Coverage							

Note: χ^2 =qui-square; RMSEA=Root Mean Square Error of Approximation; CFI=comparative fit index; GFI=The goodness of fit index (GFI); TLI=Tucker-Lewis index; SRMR=Standardized Root Mean residual.

	Six-factor model		Six-factor model modified	
	Estimate	Factor Loading	Estimate	Factor Loading
Autonomy Satisfaction (AS)				
(1) I feel a sense of choice and freedom in the things I undertake	0.39	0.43	0.39	0.43

(2) I feel that my decision reflects what I really want	0.52	0.55	0.52	0.55
(3) I feel my choices express who I really am	0.55	0.56	0.55	0.56
(4) I feel I have been doing what really interests me	0.53	0.53	0.53	0.53
Relatedness Satisfaction (RS)				
(1) I feel that the people I care about also care about me	0.60	0.55	0.60	0.55
(2) I feel connected with people who care for me, and for whom I care	0.64	0.67	0.64	0.67
(3) I feel close and connected with other people who are important to me	0.63	0.63	0.63	0.64
(4) I experience a warm feeling with the people I spend time with	0.53	0.51	0.53	0.51
Competence Satisfaction (CS)				
(1) I feel confident that I can do things well	0.63	0.62	0.62	0.62
(2) I feel capable at what I do	0.59	0.63	0.59	0.63
(3) I feel competent to achieve my goals	0.67	0.72	0.67	0.72
(4) I feel I can successfully complete difficult task	0.49	0.49	0.50	0.49
Autonomy Frustration (AF)				
(1) Most of the things I do feel like "I have to"	-0.14	-0.14	deleted	deleted
(2) I feel forced to do many things I wouldn't choose to do	0.60	0.53	0.62	0.55
(3) I feel pressured to do too many things	0.88	0.76	0.88	0.75
(4) My daily activities feel like a chain of obligation	-0.13	-0.12	deleted	deleted
Relatedness Frustration (RF)				
(1) I feel excluded from the group I want to belong to	0.41	0.39	0.39	0.40
(2) I feel that people who are important to me are cold and distant towards me	0.61	0.51	0.59	0.61
(3) I have the impression that people I spend time with dislike me	0.71	0.70	0.47	0.52
(4) I feel the relationship I have are just superficial	0.58	0.59	0.67	0.62
Competence Frustration (CF)				
(1) I have serious doubts about whether I can do things well	0.39	0.40	0.41	0.39
(2) I feel disappointed with many of my performances	0.58	0.61	0.61	0.51
(3) I feel insecure about my abilities	0.47	0.52	0.71	0.70
(3) I feel like a failure because of the mistakes I make	0.67	0.62	0.58	0.59

Correlations between Needs Satisfaction, Needs Frustration, Positive and Negative Emotion Experience.

Table 3 shows the correlation matrix of basic psychological needs satisfaction and frustration from BPNSFS, and positive and negative experiences from SPANE. The correlations between basic psychological needs satisfaction and frustration and the two emotional experiences are significant in the expected direction. The SPANE-Positive has a positive and significant correlation with all satisfaction factors ($r=0.18$ to 0.27) and a negative correlation with all frustration factors ($r=-0.15$ to -0.23). In contrast, SPANE-Negative has a positive and significant correlation with all frustration factors ($r=0.16$ to 0.38) and a negative correlation with all satisfaction factors ($r=-0.11$ to -0.25).

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. AS	3.36	0.64							
2. RS	3.79	0.73	0.40**						
3. CS	3.55	0.71	0.37**	0.46**					
4. AF	3.01	0.60	0.22**	0.17**	0.11*				
5. CF	2.32	0.67	-0.06	-0.21**	-0.33**	0.34**			
6. RF	2.21	0.73	0.05	-0.17**	-0.03	0.31**	0.44**		
7. SPANE-P	3.94	0.59	0.18**	0.27**	0.26**	-0.15**	-0.23**	-0.18**	
8. SPANE N	2.45	0.60	-0.11*	-0.19**	-0.25**	0.16**	0.38**	0.23**	-0.31**

Note. AS=Autonomy satisfaction; RS=Relatedness satisfaction; CS=Competence satisfaction; AF=Autonomy frustration; RF=Relatedness frustration; CF=Competence frustration; Spane-P=Positive emotion experience; Spane-N=Negative emotion experience; *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < 0.05$. ** indicates $p < 0.01$.

DISCUSSION

The present study validated the Indonesian version of the scale in Indonesian adolescents. The results revealed three important findings. Firstly, the six factors of BPNSFS (autonomy satisfaction, relatedness satisfaction, competence satisfaction, autonomy frustration, relatedness frustration, competence frustration) obtained acceptable internal consistency. Secondly, the six-factor model fits better than the two-factor model and the three-factor model. Thirdly, the positive relationship between need satisfaction and positive affect as an indicator of well-being, along with the positive relationship between need frustrations and negative affect as an indicator of ill-being, supported the validity of the scale.

The finding of internal consistency of the six factors of BPNSFS which is consistent with past research (Cordeiro et al., 2016; Valle, Matos, Díaz, Pérez & Vergara, 2018; Kuźma et al., 2020; Liga et al., 2020). While on the previous research, the items of the scale were the same with the original version; in this study, there are two items deleted from the autonomy frustration factor, to get an acceptable internal consistency on this factor. Those items related to the perception of obligation: Most of the things I do feel like "I have to" and My daily activities feel like a chain of obligation. It indicated that for our adolescent sample, which are usually still attached to their significant others, doing something mandated by significant others is not perceived as autonomy frustration. If we take a look into Indonesian culture, the hierarchical culture requires younger persons to respect their elders and to view elders as their superior (Yee, 1997). Obedience to others, especially to the authority, is an expression of respectfulness. Thus, it is not an indicator of autonomy thwarted.

In line with the past findings (Nishimura & Suzuki, 2016) in the undergraduate sample, the six-factor model fits better than the two-factor model and the three-factor model. The present findings also support the original factor structure of BPNSFS across cultures (Chen et al., 2015). Our findings proved that the six-factor model of BPNSFS not only fit across cultures but also fit across developmental stages.

Previous studies find a unique relation between needs satisfaction and well-being and between needs frustration and ill-being (Chen et al., 2015; Cordeiro et al., 2016; Nishimura & Suzuki, 2016). This is also reflected in our findings, which show a positive relationship between need satisfaction and well-being, and a positive relationship between need frustrations and ill-being. We use SPANE-P as an indicator of emotional well-being and SPANE-S as an indicator of emotional ill-being (Diener et al., 2010).

Strength and Limitation

Our study is a valuable extension of the BPNSFS validation in the non-adult sample. Furthermore, this was the first study in Indonesian context, and it has provided evidence regarding the validation of BPNSFS to be used in Indonesian adolescents. In terms of limitations, it is important to note that we based our conclusions on samples that are collected by convenience sampling method, which limits the generalization of the findings.

CONCLUSION

To conclude, the present study suggested that the Indonesian version of the Basic Psychological Need Satisfaction and Frustration Scale can be used to measure the satisfaction and frustration of the three basic psychological needs in Indonesian adolescents.

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