A Validity Study of Malay Translated Zuckerman-Kuhlman Personality Questionnaire Cross-Cultural 50 Items (ZKPQ-50-CC)

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ABSTRACT: Increased concerns about the incidence of violence and delinquency in Malaysia has prompted studies examining personality profiles in various settings. Personality seems to be very useful in predicting criminal behaviour and provides a better understanding of how an individual reacts to problems, make decisions, and communicates with the surroundings. From the Criminology literature, it is apparent that there is no local psychometric instrument available to measure personality traits based on the Alternative Five Factor Model. The aims of this study is to validate the Malay language Zuckerman-Kuhlman Personality Questionnaire Cross-Cultural 50 items (henceforth, ZKPQ-M-50-CC). A cross-sectional study was carried out in Peninsular Malaysia among 150 adult inmates incarcerated in two prisons in Peninsular Malaysia, aged nineteen and older. A forward-backward translation was performed followed by the factor analysis and reliability testing. The results show that ZKPQ-M-40-CC demonstrated good Cronbach alpha coefficient values ranging from 0.76 to 0.84 for each domain. Items are extracted into five major domains parallel to the Alternative Five Factor Model with satisfactory factor loadings. Therefore, ZKPQ-M-40-CC was found to be valid and reliable to be used in the Malaysian context. In conclusion, ZKPQ-M-40-CC provides an essential component in personality screening as further steps could be taken to ameliorate and alter the offensive personality traits among children and at-risk youths.

Keywords: Inmates, personality, psychometric, reliability, validation

Introduction

Crime is viewed as a social mirror which capable of tearing the structure of communities and eroding the well being of society. Crime-free lifestyle is a major component of a healthy lifestyle. There are many aspects were manifested as the causal factors for individuals' engagement in crime.

A common factor in in explaining criminal behaviour is the personality of an individual. Personality seems to act as an independent factor in developing and shaping the criminal behaviours. Previous studies for example Heaven (1996), Wiebe (2004), and Daderman (1999) provide some evidence for the association between specific personality traits and type of crime committed, and that some types of criminals share similar personalities. Although personality is not the only factor in shaping such offensive behaviour, there does seem to be a strong correlation between crime and personality.

In order to investigate the personality of criminals, psychologists and criminologists use a large number of models and concepts to explain personality traits or characteristics that are associated with criminality. The proposed models and theories were utilized by scholars worldwide in numerous settings such as in counselling (McCrae & Costa 1991), industries and organizations (Barrick & Mount 1996; Barry & Stewart 1997) and many more.

For instance, personality inventories such as Big Five personality taxonomy (Goldberg 1992), Five Factor Model, FFM (McCrae & Costa 1992; Digman 1990), Eynseck Three Factor Model, and PEN (Eysenck 1967) are designed to capture the personality traits of normal and healthy individuals. Such models have been largely replicated across different languages and cultural settings (Eysenck & Haapasalo 1989; McCrae & Costa 1997). Currently, PEN and FFM seem to be the most comprehensive psychometric that are most widely used for assessing personality characteristics.

Based on the literature, it is apparent that the majority of personality studies have been conducted using either "Big Five", FFM, or PEN Model. Other models of personality have remained largely unexplored in relation to criminal behaviour. Therefore, the present study focuses on the

Zuckerman personality traits which was developed to measure the dimensions that constitute Zuckerman et al.'s (Zuckerman 2002) Alternative Five Factor Model (AFFM).

AFFM is considered as a 'revised' model of "Big Five" which constitutes five domains of personality: Impulsive Sensation Seeking, Aggression-Hostility, Neuroticism-Anxiety, Activity, and Sociability. A few modifications were made to the AFFM compared to the "Big Five" in which agreeableness was replaced with aggression, and impulsive sensation seeking replaced conscientiousness (Goma-i-Freixanet & Ventura 2008).

The broad dimension of extraversion in "Big Five" was further classified into two separate domains: activity and sociability (Zuckerman 2002). This was because it was deemed that activity level merits a distinctive assessment as a major trait. Moreover, the distinction between hostility and anxiety also played vital roles in the modification because both traits are said to have different psychobiological bases (Gray 1982) and should not be placed under a single domain as originally found in the neuroticism domain of the "Big Five" (Goma-i-Freixanet & Ventura 2008).

The above rationales justify the need to address the usage of AFFM as an alternative measurement to the "Big Five", FFM, and PEN Model to predict criminality. It should be noted that those psychometrics which were developed in the English language may not be suitable to be used directly in Malaysia due to the cultural and language differences. As such, the present study aims to validate the Malay language version (henceforth, ZKPQ-M-50-CC) of Zuckerman-Kuhlman Personality Questionnaire-Cross Cultural-50 items (Aluja et al. 2006) that assesses the personality of test takers based on the AFFM.

It is anticipated that the emergence of ZKPQ-M-50-CC is vital for personality assessment and treatment or rehabilitation purposes. It can be administered in various settings within the Malaysian context such as prisons, counselling, education, social work, sports, and many more. Therefore, it is hoped that many people will benefit by using the new ZKPQ-M-50-CC.

Methodology

This section explains the methodology that involved in this validation study.

Study design and participants

Prior to the validation study, two forms of permission were obtained. Permission to use and translate ZKPQ-50-CC into the Malay language was granted by the authors at the beginning of the study. Permission was also obtained from *Jabatan Penjara Malaysia* (JPM) to conduct and access the participants of this validation study.

The present validation study is a cross-sectional study. It was conducted in June 2012. The inmate source population was set by JPM (2012) from two prisons located in Peninsular Malaysia. The selection of participants was based on predetermined inclusion and exclusion criteria.

The calculation of the sample size for factor analysis was performed in accordance to Gorsuch's formula (Gorsuch 1983) in which the total number of items in ZKPQ was multiplied by 5. However, due to the level of accessibility and dangerousness of the inmates, only 150 respondents could be recruited in this validation study. Level of dangerousness of inmates include risk of escape, violence, and being aggressive towards others. Therefore, the recruitment of the participants in the study group was based on the purposive type sampling method. The selection of the participants was not random due the level of dangerousness of this group.

Translation process

The original ZKPQ-50-CC was translated into the Malay language since the participants of this research were locals. For this purpose two types of translations were carried out: forward and backward translation by professionals and linguists. Overall, the content was good. However some amendments were required.

The amendments made were based on language levels and ambiguously worded items. After performing the necessary corrections and amendments, the final version of ZKPQ-M-50-CC was developed. This ZKPQ-M-50-CC was subjected to other validity and reliability tests.

Data Collection

For the purpose of construct validity, ZKPQ-M-50-CC was distributed to 150 inmates who were incarcerated in two prison in Peninsular Malaysia. The purpose of the this study was explained prior to administration of the questionnaire. Proper instructions were given verbally and in writing to the participants before the administration of the instrument.

Participants were also informed that they could choose not to participate in this study. They were assured with anonymity and confidentiality. Written consent was obtained from each participant. The estimated time taken by the participants to complete the questionnaires was about 25 minutes. The questionnaire was administered in a group format of 50 men each time and were collected on the same day.

Analysis

Data was analysed using the Statistical Package of Social Science (SPSS) version 20.0 software. Descriptive statistics were calculated for sociodemographic information. The construct validity of the items was tested using exploratory factor analysis (EFA) by extracting factors by principal component analysis (PCA). Reliability analysis was done to determine the internal consistency of the items in ZKPQ-M-50-CC. Internal consistency of the items was measured by using the Cronbach Alpha coefficient (α).

To ensure the adequacy of the instrument for factor analysis (Tucci, Kerr-Corrêa & Souza-Formigoni 2010), the preliminary analysis for factor analysis was assessed using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. The sample was considered adequate if KMO value was more than 0.5 (Field 2009) and Bartlett's test of sphericity was significant if p-value was less than 0.05. Components with eigenvalues of over 1 were retained as components.

With the assumption of all factors were uncorrelated with each other; Varimax variation was applied in order to optimize the loading factor of each item on the extracted component. Items with loading factor of more than plus or minus 0.3 were considered as acceptable. In such a manner, 40 from the original 50 items were retained for consideration as items in the new ZKPQ-M-40-CC.

Results

Sociodemographic information

Sociodemographic information of the participants were collected and presented in the form of descriptive data. Table 3.1 below provides a summary of respondents' demographic information. The participant's age ranged between 19 and 53 years old with a mean age of 29.18 years (SD = 8.52). With reference to marital status, the majority of respondents were single (74.7%).

As to the highest level of education, 50.0% of the participants achieved upper secondary education and a small percentage of respondents had diplomas or degrees (5.3%). Prior to their conviction, most of the respondents were self employed (41.3%) and 36% of the respondents had worked in unskilled or semiskilled professions such as general labourers, security guards, and lorry drivers. 2.7% of participants were employed as professionals or managers prior to their conviction.

In addition, information on alcohol-drug abuse history were obtained. 51.3% of the respondents had a history of drug misuse. 25.3% of participants admitted to consuming both drugs and alcohol. Four participants admitted consuming intoxicating substances such as '*Kuda*' pills and '*Ketum*' water.

Table 1: Summary of sociodemographic information of the male inmates

Demographic information	Frequency	%
Marital status		
Single	112	74.7
Married	29	19.3
Divorcee	4	2.7
Widower	5	3.3
Highest education level		
Never been to school	6	4.0
Primary	6	4.0
Lower secondary (Form 1-Form 3)	48	32.0
Upper secondary (Form 4-Form 5)	75	50.0
Pre-Univeristy/ Matriculation	7	4.7
Diploma/ Degree	8	5.3
Occupation		
Unemployed	20	13.3
Self employed	62	41.3
Semiskilled-unskilled	54	36.0
Clerical-skilled	10	6.7
Professionals/Managers	4	2.7
Alcohol-drug abuse history		
No alcohol or drug consumed	24	16
Alcohol consumption only	7	4.7
Drug consumption only	77	51.3
Both alcohol and drug consumption	38	25.3
Intoxicating substance consumption	4	2.7

Factor analysis of ZKPQ-M-50-CC

Prior to performing PCA, preliminary analysis was conducted to test the suitability of data for factor analysis. The result of preliminary analysis of ZKPQ-M-50-CC was found to be satisfactory. Inspection of the correlation matrix revealed the presence of coefficients of .3 and above.

The inspection of the Anti-image correlation matrix was above .5 for all the scales. The KMO value was .68, exceeding the recommend values of .5 (Field 2009) and .6 (Kaiser 1970,1974). The Bartlett's Test of Sphericity was found to be highly significant with p-value of less than 0.001. These results support the factorability of the correlation matrix.

Initially, the PCA revealed the presence of fifteen factors with eigenvalues exceeding one, explaining a total variance of 71.1%. After considering the grouping of items (table 2), five factors which are parallel to the five domains in AFFM were retained. In terms of eigenvalues, Factor 1 explained 15.19%, Factor 2 explained 9.61%, Factor 3 explained 7.85%, Factor 4 explained 6.05% and lastly, Factor 5 explained 4.92%.

The total variance explained by all these five factors were 43.63%. In order to aid the interpretation of the factor loadings, Varimax rotation was performed. It should be noted that, the present factor loadings did not correspond to the original version of ZKPQ-50-CC.

Based on the rotated component matrix table, Factor 1 comprises eight items with factor loadings ranging from .537 to .700. The items are N-Anx1, N-Anx2, N-Anx3, N-Anx4, N-Anx5, N-Anx7, N-Anx9, and N-Anx10. Factor 2 also comprises of eight items with factor loadings ranging from .445 to .681. The items are Act1, Act2, Act3, Act4, Act6, Act7, Act8, and Act 10.

The next factor is Factor 3. Factor 3 comprises of eight items with factor loadings ranging from .528 to .713. The items are Sy1, Sy2, Sy3, Sy5, Sy7, Sy8, Sy9, and Sy10. Factor 4 constitutes seven items (Agg-Host1, Agg-Host2, Agg-Host4, Agg-Host6, Agg-Host8, Agg-Host9, and Agg-Host10) with factor loadings ranging from .460 to .704. It was decided to include item Agg-

Host7 (factor loading: .281) in Factor 4 since Agg-Host7 measures an important aspect of the Aggressiveness-Hostility trait. As such, Factor 4 consists of eight items after inclusion of Agg-Host7.

Initially, Factor 5 comprises of seven items (ImpSS2, ImpSS4, ImpSS5, ImpS7, ImpSS9, ImpSS10, and Agg-Host3) with factor loadings ranging from .508 to .734. Although item ImpSS1 exhibited a factor loading of .236, it was suggested to retain ImpSS1 in factor 5 as it represents a trait of Impulsive behaviour. Therefore, Factor 5 comprises of eight items. Table 2 below depicts the factor loadings of ZKPQ-M-40-CC.

Table 2: Rotated Component Matrix[a]

	Component				
	Factor 1	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**
Act1		.595			
Act2		.445			
Act3		.681			
Act4		.524			
Act6		.450			
Act7		.594			
Act8		.617			
Act10		.491			
Sy1			.642		
Sy2			.713		
Sy3			.597		
Sy5		.492	.528		
Sy7			.633		
Sy8		.362	.567		
Sy9	-.314		.543		
Sy10			.542		
Agg-Host1				.696	

Agg-Host2				**.704**	
Agg-Host4				**.521**	.328
Agg-Host6				**.628**	
Agg-Host7				**.281**	
Agg-Host8				**.539**	
Agg-Host9				**.728**	
Agg-Host10				**.460**	
ImpSS1					**.236**
ImpSS2					**.508**
ImpSS4		.331			**.694**
ImpSS5		.348			**.665**
ImpSS7					**.734**
ImpSS9					**.583**
ImpSS10					**.618**
Agg-Host3					**.416**
N-Anx1	**.537**				
N-Anx2	**.648**				
N-Anx3	**.586**				
N-Anx4	**.700**				
N-Anx5	**.692**				
N-Anx7	**.617**				.388
N-Anx9	**.626**				
N-Anx10	**.668**				

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalisation

a.   Rotation converged in 8 iterations

Based on the high loadings of the majority of similar items within each factor, Factor 1 was identified as Neuroticism-Anxiety, Factor 2 as Activity, Factor 3 as Sociability, Factor 4 as Aggressiveness-Hostility, and Factor 5 as Impulsive Sensation Seeking. As such, the final

version of ZKPQ-M-50-CC consists of 40 items (henceforth, ZKPQ-M-40-CC). Each Factor now contains eight items.

3.3 Reliability testing

After several amendments, the internal consistency reliability of ZKPQ-M-40-CC was examined by computing the item total correlation and Cronbach's alpha. As shown in table 3, the cronbach alpha value for ZKPQ-M-40-CC ranged from 0.76 to 0.84. The composite reliability for all the five domains of ZKPQ-M-40-CC was 0.75.

Generally, Cronbach alpha $\geq$ 0.50 was considered as the evidence of an acceptable internal consistency for the considered scale. However, in the social science field, the widely accepted cut off alpha value is 0.70 or higher for a set of items to be considered as a scale (Peat et al. 2002). Therefore, the overall composite reliability was considered good. The reliability of individual scales were either satisfactory, good, or high. No further amendment to the new ZKPQ-M-40-CC was required.

Table 3: Reliability values for each domain in ZKPQ-M-40-CC

Domain	Number of items	Cronbach alpha (α)
Composite reliability	40	0.75
Activity	8	0.76
Sociability	8	0.80
Aggressiveness-Hostility	8	0.79
Impulsive Sensation Seeking	8	0.78
Neuroticism-Anxiety	8	0.84

Discussion

In the first part of this validation study, two translation processes were carried out. This approach is widely used in cross-cultural research (Bernard 1998). The result of the translation seems to be

promising as there were very minor corrections made. Furthermore, the translation of ZKPQ-50-CC did not show any contradictions with the original questionnaire.

Following from the translation process, face and content validity were conducted. Both face and content validity were carried out on a sample of people comprising of the general public, professionals, and experts. Overall, the Malay version ZKPQ-50-CC had good face and content validity based on the agreements and feedbacks from the reviewers.

The preliminary analyses for sampling adequacy seems to be satisfactory and fulfilled all the requirements for sampling adequacy. However, the factor loadings of the ZKPQ-M-50-CC items did not correspond to the original ZKPQ-50-CC. While the original version demonstrates five factors, the initial factor analysis in this present study yielded fifteen factors.

In other words, the items were fragmented and did not correlate to the original ZKPQ-50-CC. In order to reflect the AFFM, the items were extrapolated into five scales. The five scales suggested by AFFM are Activity, Sociability, Impulsive Sensation Seeking, Neuroticism-Anxiety, and Aggresiveness-Hostility.

As mentioned earlier, all the Factors (Factor 1- Factor 5) in the new ZKPQ-M-40-CC consists of eight items with satisfactory factor loadings. Prior to the omission and inclusion of any items, the items were carefully analysed in terms of content, factor loadings, and reliability. In short, the results of factor analysis of the items in ZKPQ-M-40-CC were satisfactory with good psychometric properties.

In terms of reliability, the Cronbach alpha value for ZKPQ-M-40-CC ranged from 0.76 to 0.84. The composite reliability for all the five domains of ZKPQ-M-40-CC was 0.75. The ZKPQ-M-40-CC shows higher reliability for each scale compared to the previous validation study in American, German, Spanish, and Swiss samples (Aluja et al. 2006) and Serbian samples (Mirovic, Colovic & Smederevac 2009).

It is worth noting that, personality models or psychometric assessment is important in order to capture the personality of test takers. With relevance to the targeted criminal and juvenile population, personality screening distinguishes and identifies the criminality among test takers. For an instance, Wiebe (2004) noted that among the "Big Five" components of trait personality, agreeableness and conscientiousness have been found to be predictive of criminal behaviour. Heaven (1996) found neuroticism in addition to agreeableness and conscientiousness to be predictive of delinquent behaviours.

It was also found that delinquents aged 12-13 years old who engage in burglary, drugs dealing, and strong arming behaviour scored lower on Aggreableness, Conscientiousness, and Openness and obtained higher scores on Extraversion than non-delinquents (John et al. 1994). Furthermore, Heaven (1996) in his study on a group of 16–19 year old students, has reported Neuroticism to be positively, and Conscientiousness and Agreeableness to be negatively related to self-reported vandalism. Sharpe and Desai (2001) reported that physical aggression in men and women is associated with low agreeableness, low conscientiousness and high neuroticism.

Other studies evidence a strong link between negative personality characteristics and criminality. Partner violence perpetration for women is highly associated with the personality type neuroticism (Heaven 1996). The antisocial undercontrollers which are described as the most delinquent subtype; was characterized by extremely low scores on Agreeableness and Conscientiousness, and moderate scores on Extraversion, Openness, and neuroticism compared to a resilient adolescents (van Aken, van Lieshout & Scholte 1998).

Based on the PEN Model, it was theorized that delinquents should score high on PEN dimensions through the working of central nervous system and the related conditioning processes (Eysenck & Gudjonsson 1989). There is some evidence for this assertion. Daderman (1999) found that delinquents obtained higher scores in PEN dimensions compared to a non-delinquent control group.

Based on the above research, personality profiles seem to be very useful in predicting criminal behaviour. It also provides a better understanding of how an individual reacts to problems, make

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decisions and communicate with his or her surroundings. This is particularly significant in healthy lifestyle decision making and response towards stimuli such as anger, stress, and frustration.

Thus, it is essential to identify the criminal personality traits as further steps could be taken to try diminish and alter such personality traits among children and youngsters at-risk of crime involvement. Screening and identifying such criminal personality traits among the children and youngsters is vital for prevention, intervention and rehabilitation efforts.

Conclusion

The results of this study contribute to the Criminology and psychology literature. This is in terms of a validated psychometric for use in the Malaysian context and correctional setting. The ZKPQ-M-40-CC has demonstrated cross-cultural validity of Zuckerman's AFFM. Also, this study suggested ZKPQ-M-40-CC as a reliable and valid tool to screen personality traits based on AFFM among the locals in order to help the risky individual to ameliorate and alter criminal personality for a better healthy lifestyle.

Acknowledgement

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