CROSS-CULTURAL VALIDATION OF THE PERFORMANCE FAILURE APPRAISAL INVENTORY-SHORT FORM: A MALAYSIAN ADAPTATION

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Abstract

The purpose of the present study was to examine the cross-cultural validity of the short version of the Performance Failure Appraisal Inventory (PFAI; Conroy, 2001; Conroy, Willow, & Metzler, 2002) by analyzing reliability and validity of a Malay language (official language of Malaysia) translation. Three studies were performed to translate the inventory and examine its factorial invariance and criterion validity. A total of 509 Malaysian athletes participating in various sports participated. In study 1, the hypothesized single factor model was examined performing a confirmatory factor analysis using Structural Equation Modelling (SEM). The criterion validity was examined by comparing fear of failure scores with the scores of achievement goals. Cronbach's alpha values indicating internal consistency reliability was high (α = .93). Altogether, it was concluded that the Malay adaptation of the Performance Failure Appraisal Inventory-Short form (PFAI-SM) yielded reliability and validity that evidenced support for the cross-cultural usefulness of the scale.

Cross-Cultural Validation of the Performance Failure Appraisal Inventory-Short Form: A Malaysian Adaptation

Fear of failure is an intuitively familiar personality construct to performers across achievement domains (Conroy, 2003). Early achievement motivation researchers postulated fear of failure as a motive (motive to avoid failure) while describing the dispositional tendencies to behave in ways that reduce the possibility of experiencing failure (McClelland, Atkinson, Clark & Lowell, 19 53). Maintaining this approach, contemporary researchers conceptualized fear of failure as a motive to avoid failure in evaluative achievement contexts associated with anticipatory shame (e.g., McGregor & Elliot, 2005). As a motive focusing on avoidance behaviour and negative emotions like shame, fear of failure has been examined in connection with negative psychological aspects. In school for example, students with high fear of failure are likely to adopt avoidance achievement goals (Elliot & Church, 1997) which mediate other negative effects (e.g., decreased subjective well-being, decreased intrinsic motivation, low grades). In sport contexts, fear of failure has been associated with power-enhancing drug abuse (Anshel, 1991), source of stress (Gould, Horn & Spreeman, 1983), high levels of stress and worry (Conroy, Willow, & Metzler, 2002), antisocial behaviour (Sagar, Boardley, Kavussanu, 2010), and perfectionism (Sagar & Stoeber, 2009).

Recently, Conroy and colleagues (Conroy, 2001, Conroy, et al., 2002; Conroy, 2004) proposed fear of failure as a multidimensional and hierarchical construct. This approach is based on Cognitive-Motivational-Relational Theory of Emotions (Lazarus, 1991). According to this cognitive-motivational-relational approach (Conroy 2001, 2003, 2004, Conroy & Elliot, 2004), fear of failure is a dispositional tendency to experience apprehension and anxiety in evaluative situations because individuals have learned that failure is associated with aversive consequences. Fear of failure occurs when beliefs or cognitive schemas about these aversive consequences of failing are stimulated by situations in which failure is possible. According to Conroy et al.'s model, fear of failure can be represented in a hierarchical structure with five lower-order factors representing beliefs in specific aversive consequences of failing, and a single higher-order factor representing a general fear of failure (Conroy, 2001; Conroy et al., 2002; Conroy, 2004). The five lower-order fears of failure include (a) fear of experiencing shame and embarrassment; (b) fear of devaluing one's self-estimate; (c) fear of having an uncertain future; (d) fear of important others losing interest; and (e) fear of upsetting important others.

The original Performance Failure Inventory (PFAI; Conroy 2001; Conroy et al., 2002; Conroy, Metzler, & Hoffer, 2003) measures threat appraisals associated with fear of failure. It measures the strength of individual's beliefs that failure is connected with the aversive consequences as proposed by Conroy et al.'s (2002) model. The PFAI is the first fear of failure measure developed from meta-theory of emotions. Therefore, it examines fear of failure as a function of person-environment interaction as opposed to a trait or state like construct; and proposes the individual nature of perceptions of failure, instead of assuming fear of failure to be the same for all performers (Conroy et al., 2002).

Conroy (2001) developed the original PFAI that comprised 89 items to measure ten appraisals related to fear of failure from a content analysis of in-depth interviews of performers' perceptions of the consequences of failing and not succeeding (Conroy, Poczwardowski, & Henschen, 2001). Due to some conceptual and practical issues, Conroy

and colleagues (2002) developed the revised version that comprised 25 items to measure five dimensions (as mentioned earlier) of threat appraisals related to fear of failure. Conroy and colleagues (2002) reported several statistical properties of the revised PFAI that suggested the revised PFAI as the best available measure of fear of failure. Model comparisons among different hypothesised models of the factor structure of the PFAI yielded reliable results. For example, confirmatory factor analysis showed satisfactory goodness of fit indices for the five dimensions when tested as a five correlated factor model as a higher-order factor model when the five dimensions were subsumed.

As part of developing the 25-item PFAI, Conroy et al. (2002) developed a 5-item short-form measure of the higher-order fear of failure by identifying items with the largest squared multiple correlations on each factor. A series of progressively more restrictive invariance analyses demonstrated that the 5-item short form satisfied the criteria for tight cross-validation, because parameter estimated in the calibration sample (i.e., item loadings, factor covariance and uniqueness) did not significantly reduce the model's ability to reproduce the covariance matrix for the cross-validation sample (for details see, Conroy et al., 2002). Coefficient alpha for the five-item short form was .72 (Conroy et al., 2002). This short form exhibited a similar pattern of correlations with external measures compared to the long form. General fear of failure measured by the 5-item measure was associated with high levels of cognitive disruption, somatic anxiety, worry and overall sport anxiety and low levels of optimism (Conroy et al., 2002). Their study suggested the short form as an empirically validated measure of general fear of failure with 5 items representing five important domains of fear of failure. Moreover, the short version is a good alternative for researchers who are interested in the general fear of failure score; and it requires less time to administer which is of great importance in sport settings.

The PFAI and its five-item short version measure were developed in the United States of America based on American sport- specific populations. Different versions of PFAI have been demonstrated high level psychometric properties including temporal stability and factorial validity in many other researches primarily on American populations (Conroy et al., 2002, 2003; Conroy & Elliot, 2004). Very few studies reported PFAI's psychometric properties outside USA (e.g., Sideridis and Kafetsion, 2008). Considering these circumstances, Sagar & Jowett (2010) conducted a study to generalize the psychometric properties of the PFAI to British sport participants. As they state, the reasons for such a validation is the cultural difference between the USA and the UK, in spite of the similarities in terms of individualistic orientation, language and socio-economic profiles. According to Sagar and Jowett (2010), the UK and the US differ in educational systems, family values, and work attitudes, all of which are aspects that can influence how one appraises the threat of failure in achievement or evaluative situations. Therefore, research is needed to establish the degree to which threat appraisals in sport settings as measured by the PFAI are capturing the same constructs and the same levels in the UK with a British sample of sport participants. Such notions related to the testing of cross cultural validity of the PFAI logically support a study to establish the validity of the PFAI with a sample of sport participants from a culturally, linguistically and socio-economically different country like Malaysia. A culture with collectivistic orientation implies that individuals belong to collectives as opposed to be independent and are motivated by the goals of the collectives as opposed to by their own preferences and needs (Triandis, 1995). Malaysia, a south-east Asian country holds a collectivistic orientation as opposed to the US which carries strong individualistic orientation. Western individualistic and Eastern collective cultures appear to differently promote approach and avoidance motivational processes (Elliot, Chirkov, Kim, & Sheldon, 2001). In the socialisation process in the East, the importance of not making mistakes for establishing a

positive self is emphasized whereas in the West, a positive self is developed by doing one's best or by striving to win (Heine, Lehman, Markus, & Kitayama, 1999). Therefore, fear of failure may be thought to have contextual differences. Moreover, language socio-economic profiles of these countries are different. *Bahasa Melayu* (Malay) is the national language of Malaysia whereas the US is an English speaking country where the original PFAI has been developed in English. In short, these differences presuppose a need for the cross cultural validation of the Malay version of the PFAI to be employed in research practice with Malaysian athletes. On shortening the original PFAI to a 25-item measure, Conroy et al. (2002) were concerned with the length of the measure and they mentioned that the practitioners and researchers alike might be more inclined to use this measure if a shorter version could be developed without sacrificing the psychometric quality of scores. This is the reason why they alternatively provided a 5-item short version along with the 25-item measure. This study aims to develop the Malay adaptation of the 5-item short version of the PFAI upholding the advantages of a short measure with sound psychometric properties.

In general, the present study addresses some practical issues pertaining to fear of failure research. Firstly, it tries to promote fear of failure research in non-English speaking athletic populations. Availability and applicability of valid and reliable measures is a prerequisite in any area of research. Presently, there is no instrument in Malay language measuring fear of failure based on a meta-theory of emotions which examines fear of failure as a function of person-environment interaction and appraisals of failure. Malay language is a member of the Western branch of the Austronesian language family, spoken as a native language by more than 33,000,000 persons distributed over the Malay Peninsula, Sumatra, Borneo, and the numerous smaller island of the areas and widely used in Indonesia as a second language (Malay Language; Encyclopaedia Britannica, 2010). The Malay language is the official language of Malaysia and Brunei; one of the official languages of Singapore; and spoken in Indonesia as a normative form called *Bahasa Indonesia*. We hope this study will meet the need of a Malay version of the short-form of the PFAI.

Three studies were conducted on three different samples. Study one encompassed the questionnaire translation and pilot testing. In the second study, confirmatory factor analysis was performed with structural equation modelling for testing the hypothesised single factor structure. In addition, internal consistency reliability of the measure was estimated. In the third study, the external validity of the new Malay version of the PFAI 5-item measure was examined.

Study1: Questionnaire translation and pilot testing

Following the back-translation technique (Brislin, 1986), this validation stage of the instrument proposed a preliminary Malay version of the 5-item short form of the PFAI (Conroy et al., 2003). To this end, the first translator who was a Malaysian sport scientist translated the original English anchor version into *Bahasa Melayu* (Malay language; the target language). This version was then back-translated into English (the source language) by another translator. Both English versions were examined for global similarity from a semantic point of view. The Malay version proved significant equivalence with the original version. Responses to the items were made on a scale ranging from *do not believe at all* (- 2) to *believe 100% of the time* (+ 2).

The translated questionnaire was scrutinised with a pilot testing. For pilot testing, the questionnaire was administered to 10 Malaysian athletes (5 male and 5 female; M_{age} = 21.13,

SD = 0.95) followed by individual interviews for 10 minutes about various aspects of the instrument. The interview questions were adapted from a French translation study on athletes' self-esteem (Bardel, Fontayne, & Colombel, 2008). The interview included the following questions: "Does the question seem clear to you?", "How do you interpret this item?", "What does it mean for you?" and "What do you think is assessed by the questionnaire?". Issues related to vagueness in terms of sentence structure, use of words and semantics were ruled out based on the interview. The new inventory will be called the Performance Failure Appraisal Inventory-Short form, Malay (PFAI-SM). For a complete list of translated items and its corresponding original items, see Table1.

Study 2: Confirmatory Factor analysis and internal consistency

The objective of study 2 was to examine the factorial structure and internal consistency reliability of the PFAI-SM. First, the factor structure of the PFAI-SM was tested using confirmatory factor analysis (CFA) employing structural equation modelling. Second, reliability was estimated by using the traditional coefficient alpha (Cronbach, 1984).

Method

Participants

To test the factorial structure of the PFAI-SM, a sample of 351 athletes from various parts of Malaysia were recruited (184 men and 167 women) ranged in age from 18 to 39 years (M_{age} = 23.82, SD = 5.10). The sample comprised of athletes participating in various disciplines (e.g., athletics, archery, badminton, volleyball, rugby, tennis). All participants practiced competitive sport for several years at regional or nation level. On an average, they participated in their sport for 6.21 years (*SD* = 4.22).

Procedure and measures

Some of the participants were contacted with the help of respective sport associations or their coaches while some of them were contacted directly. Participation in the study was voluntary and all participants provided consent to participate. The participants were assured the confidentiality of the information provided by them. They were also informed that the information would be used only for research purpose.

The PFAI-SM consists of 5 items scaled on a Likert 5-point scale. The PFAI-SM provided scores for general fear of failure. Sample items were: "*Bila saya kalah, saya risau kemungkinan saya kurang berbakat*" and "*Bila saya kalah, rancangan masa depan saya akan terganggu*". Participants were asked to focus on their thoughts and feelings about their sport when responding to the questions. Responses were made on a scale ranging from *do not believe at all* (- 2) to *believe 100% of the time* (+ 2). See appendix for a complete version of the PFAI-SM.

Data analysis

To conduct confirmatory factor analysis with Structural Equation Modeling, AMOS 18 software was used. The model fit comparisons were performed to estimate the best fit of the hypothesized single factor model. Internal consistency indices by Cronbach's alpha (Cronbach, 1984) of the PFAI-SM were estimated using PASW 18 (formerly called SPSS).

Results and Discussion

Two models were compared for goodness of fit using AMOS 18 software. Maximum likelihood estimates were derived from covariance matrices, and pair-wise deletion was performed for missing data. There were no missing values. All of the items had skewness and kurtosis values between +1 and -1 and the distribution of the data showed acceptable multivariate normality (Mardia's coefficient was 1.09 and the critical ratio was 1.22). Since the chi-square test being sensitive to sample size, other fit indices were considered when making comparisons to the baseline model. The Root Mean Square Error of Approximation (RMSEA) was considered as a measure of absolute fit and the Comparative Fit Index (CFI) and Tucker_Lewis Index (TLI) as indices of incremental fit. A good fitting model to be indicated by values close to or greater than .95 for the CFI and TLI, and values of or less than .06 for RMSEA (Hu & Bentler, 1995). However, Browne & Cudeck, 1989 have used a different criterion (mediocre fit, .08 -.1) as the RMSEA is sensitive to the number of parameters.

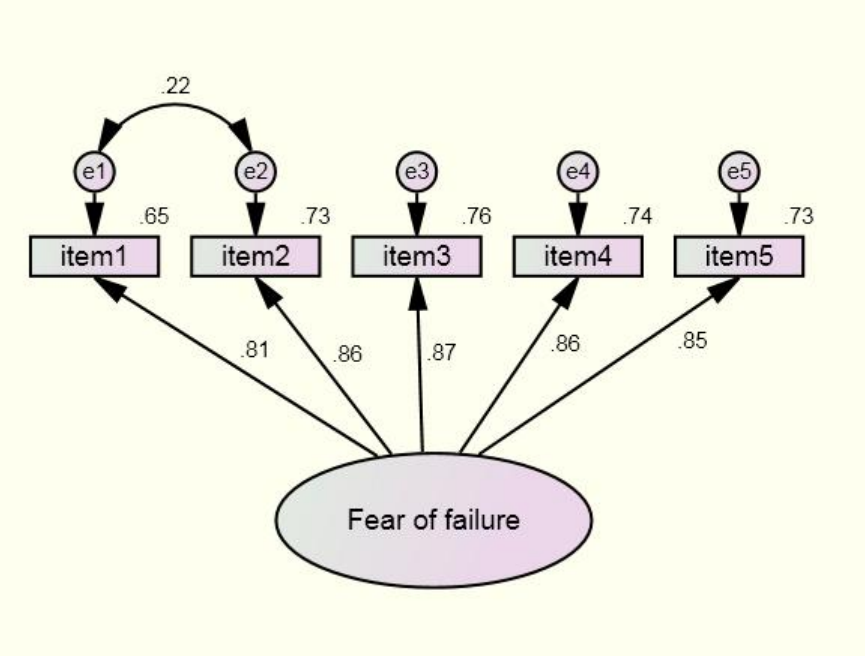

Fig.1. Confirmatory factor analysis of the PFAI-SM items (standardized coefficients)

The fit indices from the CFA indicated a very close fit of the proposed model to the data, χ^2 (df = 5, N = 351) = 17.158, p = .004; CFI = .991, TLI = .982, RMSEA = .083. Therefore, the default model was examined for further modifications suggested by the software. These modifications were tested in model A. Thus, a covariance was detected between the error variances of the first and second items. The results indicated that model A fits the data pretty well improving all the indices, χ^2 (df = 5, N = 351) = 7.323, p = .120; CFI = .998, TLI = .994, RMSEA = .049. There was a notable reduction in chi-square ($\Delta \chi^2$ = 9.835) and RMSEA (Δ = .034). An examination of Item 1, "*When I am failing, I am afraid that I might not have enough talent"* and item 2, "*When I am failing, it upsets my "plan" for the future,*" reveals that these items share common aspects. Appraisals of failure related to

lack of talent and control could be assumed to influence factors pertaining to future planning. The factor loadings and error variances of the items are presented in Fig.1. All of the items showed relatively strong loadings that ranged from .81to .87 (.85 on average), and satisfactory error variance. Cronbach's alpha coefficient (α) for the scale was = .93.

Table 1 Descriptive statistics for PFAI-SM items

Scale	Items	*M*	*SD*
1	Bila saya kalah, saya risau kemungkinan saya kurang berbakat. *(When I am failing, I am afraid that I might not have enough talent)*	-.28	1.13
2	Bila saya kalah, rancangan masa depan saya akan terganggu. *(When I am failing, it upsets my "plan" for the futur.)*	-.38	1.25
3	Bila saya tidak berjaya, orang akan kurang berminat terhadap saya *(When I am not succeeding, people are less interested in me)*	-.22	1.21
4	Bila saya kalah, pihak lain akan kecewa. *(When I am failing, important others (people) are disappointed)*	-.09	1.19
5	Bila saya kalah, saya risau pendapat pihak lain terhadap saya. *(When I am failing, I worry about what others think about me)*	-.15	1.17

Table 2 The fit indices for the CFA models

Fit index	Single-factor model	Model A (error variances of item 1 and item 2 correlated)
χ^2	17.158	7.323
CFI	.991	.998
TLI	.982	.994
RMSEA	.083	.049
Model comparison		
Single-factor model vs. Model A		$\Delta\chi^2$ (4) = 9.835, $p < .05$

Study 3: External validity

The objective of study 3 was to investigate the external validity of the PFAI-SM. To this end, a correlation analysis was performed in which fear of failure scores were correlated with achievement goal scores. Drawing from the review of literature on fear of failure, it was hypothesized that fear of failure would be positively correlated to Performance-avoidance (PAv) achievement goals and Mastery-avoidance (MAv) achievement goals.

Method

Participants

Altogether 158 athletes (83 men and 75 women; M_{age} = 24.12, *SD* = 5.23) participating in various sports (e.g., badminton, cycling, football) composed the sample. Their age ranged from 18 to 38 years. On average, they were participating in their sport for 6.36 years (*SD* = 4.31).

Procedure and Measures

With the support of coaches and sport associations the participants were contacted. Some of them were approached directly. Participation was voluntary and all participants provided consent to participate. Confidentiality of the information was assured to the participants.

The Achievement Goals Questionnaire for Sport (AGQ-S; Conroy et al., 2003) was used to assess achievement goals. This 12-item measure provides scores for Mastery-approach goals, Mastery-avoidance, Performance-approach and Performance-avoidance goals. However, for the present purpose only two subscales (Mastery-avoidance and Performance-avoidance) of the measure were considered. Sample items included "*I 'm often concerned that I may not perform as well as I can perform*" (MAv), and "*My goal is to avoid performing worse than everyone else*" (PAv). Participants were asked to focus on their thoughts and feelings about their sport when responding to the questions. Responses were made on a scale ranging from *not at all true of me* (- 3) to *very true of me* (+ 3). AGQ-S

scores have demonstrated evidence of longitudinal factorial invariance, differential stability, external validity, and latent mean stability (AGQ-S; Conroy et al., 2003).

The newly developed PFAI-SM was administered to assess the general fear of failure of the athletes. See Study2 for details of scoring and administration.

Results and Discussion

External validity of the PFAI-SM was established by correlating the fear of failure scores with MAv and PAv scores. The strongest predictor of achievement goals available in the literature is fear of failure (Conroy, 2001; Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Elliot & Sheldon, 1997; Conroy & Elliot, 2004 ; Nein & Duda, 2008). Research has shown that fear of failure positively predicts MAv, and PAv goals (Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Nein & Duda, 2008). It is logical to assume that the avoidance goals are related to fear of failure because of the negative valence (avoidance) inherent in these goals. Therefore, we examined the expected positive correlation between fear of failure scores and avoidance goals; namely, PAv and MAv. This study supported the hypothesized associations between achievement goals and fear of failure. The fear of failure scores were positively and significantly correlated with PAv ($r = .69$, $p < .01$), and MAv scores ($r = .64$, $p < .01$). These results are in direct accord with the results of an earlier study (Nein & Duda 2008).

General Discussion

The objective of the study was to examine cross-cultural usefulness of the PFAI (Conroy, 2001; Conroy et al., 2002) by analyzing the factor validity, external validity and internal consistency of its Malay translation. The short version of the original PFAI was used to assess general fear of failure of athletes.

As the first study followed the best practice, that is back-translation, in translation of the questionnaire for cross-cultural research (Brislin, 1986). Semantic equivalence between the original version and the Malay version was confirmed by following this procedure. Further concerns for the conceptual vagueness have been ruled out by conducting a preliminary administration and direct interviews with the respondents. The second study established the single factorial structure of the general fear of failure. We may conclude from this confirmatory factor and reliability analysis that the PFAI-SM shows satisfactory construct validity.

Considering the third study results, there is substantial evidence that the PFAI-SM has good external validity. The three studies presented have a common aim of establishing a Malay version of the Short form of the Performance Failure Appraisal Inventory (PFAI; Conroy, 2001; Conroy et al., 2002). The results of these studies provide strong support for the internal and external construct validity of the PFAI-SM. The PFAI-SM would be useful in researches on general fear of failure on Malaysian athletic population. Moreover this questionnaire would be suitable in practice as it takes very short time to administer which is of great significance in the field of competitive sport. Notwithstanding the sound psychometric properties of the PFAI-SM, we recommend further research to confirm the results of the present study.

Summary and conclusion

The purpose of the present study was to investigate the cross-cultural validity of the short form of the Performance Failure Appraisal Inventory (PFAI; Conroy, 2001; Conroy, et al.,

2002) by analyzing reliability and validity of a Malay translation. The expected single factor model of the general fear of failure was found to be robust. With respect to external validity, fear of failure scores were positively related to PAv and MAv goals. Based on these findings, we conclude that scores on the PFAI-SM exhibited strong psychometric properties including, factorial validity, internal consistency and external validity. The PFAI-SM would be an appropriate instrument for research on fear of failure in Malay-speaking societies and related cross-cultural studies.

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APPENDIX

Inventori Penilaian Kegalalan Prestasi – borang pendek

Arahan: Baca setiap pernyataan di bawah dan fikirkan berapa kerapkah anda percaya setiapnya benar dalam domain sukan anda (cth sukan, akademik). Gunakan skala penilaian di bawah untuk menunjukkan betapa kepercayaan setiap pernyataan berkait dengan anda.

+ 2	+1	0	-1	-2
Tidak percaya	sama sekali	50% masa percaya		100% percaya

_____1. Bila saya kalah, saya risau kemungkinan saya kurang berbakat.

_____2. Bila saya kalah, rancangan masa depan saya akan terganggu.

_____3. Bila saya tidak berjaya, orang akan kurang berminat terhadap saya

_____4. Bila saya kalah, pihak lain akan kecewa.

_____5. Bila saya kalah, saya risau pendapat pihak lain terhadap saya.