Assessing Relationship Commitment in Urdu-Speaking Population: Validation of Urdu Translated and Adapted Version of Investment Model Scale (IMS)

Dr. Amna Hassan
Lecturer, Department of Psychology, International Islamic University, Islamabad

Dr. Nazia Iqbal
Assistant Professor, Department of Psychology, International Islamic University, Islamabad

Dr. Bushra Hassan
Assistant Professor, Department of Psychology, International Islamic University, Islamabad

Abstract

The study involved translating and adapting the Investment Model Scale, used to measure relationship commitment among married individuals, into Urdu for use in Pakistan. It comprised two phases: cross-language validation and establishing psychometric properties. In the first phase, 40 bilingual married individuals were sampled for validation, while the second phase involved 316 married individuals aged 18 to 64 to establish psychometric properties using snowball sampling. The study found highly significant correlations across language versions ($p<.01$), and Confirmatory Factor Analysis showed good model fit indices (CFI = .94; $\chi2 = 459.90$). The translated scale demonstrated conceptual equivalence to the original, proving to be a reliable and valid tool for measuring relationship commitment in Pakistan's married population.

Keywords: Relationship Commitment, Investment Model Scale, cross language validation, confirmatory factor analysis, Urdu language scale, Pakistani married population

Introduction

Scope of adaptation, translation and cross language validation is determined by the cross-cultural research studies. To measure a certain social or psychological phenomenon in a particular culture a standardized tool is required so that the target population could comprehend the scales' items more comfortably and could respond appropriately.Establishing the psychometric properties and completion of validation process is an essential part of translational studies as content and tool indigenization needs to be supported by psychometric properties (Khan &Batool, 2013).Current study aimed to obtain standardized Urdu versions of available English instruments of psychological construct of gaslighting that would be conceptually equivalent for the targeted language culture and comprehendible for the targeted population. Brislin (1986) method for forward and backward translation was used to obtain a cross- cultural and conceptual equivalent version of the instruments. This method is more reliable and highly recommended for obtaining a standardized translated version of instruments, converging on the theoretical equivalence rather than the literal equivalence (Voracek, Fisher, Loibl, Tan & Sonneck, 2008).

Before translation of theInvestment Model Scale into Urdu language, the instrument wasadapted according to Pakistani culture. Brislin (1976) method of cross-language adaptation produces content as well as conceptual equivalency between source and target language.

Many romantic relationship researchers focused on the traditions and mores in which people identify, describe, comprehend and elaborate commitment in marital relationships. Sometimes, loving relations begun with great hopes and standards and culminated in dissatisfaction. What can be the possible reasons and factors that lead to such drastic end of a loving relationship? Investment model developed by Rusbult in 1980, is built up on interdependence theory in order to determine relationship commitment and stability in loving relationships (Kelley &Thibaut, 1978). Commitment can be considered as the extent to which an individual experiences and desires an enduring orientation toward maintaining a relationship for better or worst. Hence, three factors i.e. satisfaction, investments and quality of alternatives predict the level of commitment.

The extent of gratifying relationship is considered as the level of satisfaction. High rewards such as social support or sexual gratification provided by the partner and low costs such as mutual agreements, similar likings, sharing and caring in a relationship predict the level of satisfaction(Rodrigues & Lopes, 2013).

Research indicated that the level of commitment highly depends upon the feelings of satisfaction (Bui, Peplau& Hill, 1996; Rusbult, 1980). Although satisfied people tend to be committed to their relationships, unhappy people sometimes want their relationships to continue. For example, a person may feel trapped in a compromised marital relationship just for the sake of his/her children's better future or to avoid financial hardships. It showed that satisfaction is not the only predictor of relationship commitment.

Alternatives is a subjective perception of costs and rewards and it could be found outside the current loving relationship. These alternatives can be spending time alone or with friends, finding out some other partner or having extra marital relationships. According to the investment model, the quality of alternatives is a second important predictor of commitment.

Another factor affecting commitment can be investment of tangible and non-tangible resources such as financial, quality time, efforts in building up a relationship. If the relationship comes to an end then a person would lose all these investments.

According to the investment model, individuals who are highly satisfied, have invested a great deal, and perceive few or no appealing alternatives will be highly committed to their romantic relationships. Hence, led up to satisfied relationships.

Research conducted by Kurdek in 1995 shows that persons who were strongly committed to their relationships perceived many rewards from their relationship, perceived few costs to being in the relationship, appraised their relationship as meeting an internalized standard of an ideal relationship, viewed alternatives to the relationship as unattractive, regarded themselves as having invested much in the relationship, and perceived strong emotional barriers to leaving the relationship (Kurdek, 1995). Study reflects that persons in "empty shell" relationships who remain in their relationships despite being dissatisfied with them (Levinger, 1980) living together with low rewards, low match to ideal comparison level, high costs, few alternatives, high investments, and high barriers.

Objectives

The main objectives of the study were;

1. To adapt the Investment Model Scale culturallyand translate it into Urdu language
2. To determine the cross language validity of the Urdu translated version
3. To determine the psychometric properties of the translated instrument and confirm the factor structure of the Urdu translated scale.

Method

Participants

Two sets of sample was collected from the population.

Sample I

The sample for cross language validation was consisted of 40 married individuals (male= 05, female = 35), age ranged from 25 to 46 years (M=34.2, SD=5.66), from Islamabad, Rawalpindi, Taxila, WahCantt, Attock, Quetta, Karachi and Lahore through Purposive sampling technique. The educational level of all participants was varying from graduation to post graduation level, studied English and Urdu languages as an essential part of their degree programs. The sample was taken from the families of no separation or divorce. After signing the consent form, Investment Model Scale was completed by each participant.

Sample II

A confirmatory factor analysis (CFA) was carried out on a new sample, in order to establish the model fit indices as well as to identify the factor loadings of each item of translated versions of the scales. Sample of 316 married individuals, including males=104 and females=212, with age range of 18 to 64 years (M= 32.47, SD=8.74) was drawn through purposive snowball sampling technique.

Instruments

The Investment Model Scale (IMS)

The Investment Model Scale (Agnew, Van Lange, Rusbult & Langston, 1997) comprised of four sub scales, measuring Satisfaction Level, Quality of Alternatives, Investment Size and Commitment level respectively. The scale consists of 37 items diversely measure all aspects of relationship commitment. Three sub scales i.e. satisfaction level, quality of alternatives and investment size, each consists of 5 Facets and 5 Global items, however, Commitment level consists of 7 Global items. The scale is 9-point likert type self-report inventory ranged from 0 – 8, where 0= Do Not Agree At All, 1= Disagree, 2= Slightly Disagree, 3= Disagree Somewhat, 4= Agree Somewhat, 5= Slightly Agree, 6= Agree Upto more extent, 7= Agree, 8= Completely Agree. The items belongs to Investment size Global Aspect are reverse scored along with item no 3 and 4 of Commitment level scale. Maximum score is 176 on 22 Global items scale and minimum score is 0.Alphas ranged from 0.91 to 0.95 for commitment level, .92 to .95 for satisfaction level, .82 to .88 for quality of alternatives and 0.82 to 0.84 for investment size.

Procedure

Phase I: Adaptation and Translation of Questionnaire into Urdu Language

Permission for translation was sought from the authors and the scale was adapted and translated by using the method given by Brislin (1986).

*Step I: Adaptation and Forward Translation.Bilingual Experts.*Six bilinguals from different universities were approached. Four of them were Lecturers with M.Phil in Psychology and one was Lecturer in English with M.Phil in English Linguistics and one

was Lecturer in Urdu with M.Phil in Urdu language, having good expertise in English as well. All of the bilingual experts were having proficiency in English and Urdu language as well as having command on item writing and subject matter.

Procedure. All of the bilingual experts were given the scales for translation, independently. A standard guideline was provided to each of them for translation. All of them adapted and translated the items independently. These translators fit in the criteria as described by Brislin (1986).

For adaptation and translation of the scales into Urdu language, following guideline was given;

1. Maximizing the content and conceptual similarity between the original and Urdu language versions
2. Maintaining the simple language items in order to make the scales more readily understandable to the target population without making the confuse
3. Adapting and translating the scale items according to Pakistani culture, without eliminating any item.

If any inappropriate word, that they think is not relevant to our culture, is used in the scale, then modify it according to Pakistani Cultural demand. Bilingual experts were instructed to identify such items, words etc. and suggest the best conceptual equivalent alternatives. Experts were instructed to not use any proverb, jargon, slang words, technical terms and idioms that would be difficult for common people to understand. They were also instructed to avoid using any gender discriminated words, slogans and any such terms that can make targeted population offensive.

After translation, the experts did not give any other alteration in the translated version and all the items were kept same in number as in the original scale.

Step II: Expert Panel Approach. The researcher gathered all translations on one page and wrote all six translations of a particular item (that was translated) below it. A bilingual expert panel consisted of two lecturers of Psychology, one PhD scholar in Psychology, the supervisor of the study and the researcher herself was set for the committee approach. The Urdu translation of every item was examined and evaluated by the committee members by keeping in view the goal of identifying and resolving the inadequate or inappropriate translation of the items. The committee members critically reviewed each translation of every item and then selected the translation conveying the best meaning by mutual consensus. Translation was also analyzed in terms of grammar, wording and context.

Step III: Backward Translation. In order to ensure the quality of the translated version and to keep a check on primary translation, the scale was back translated into English language. The purpose of this step was to ensure the equivalence between the two versions and to get higher reliability. Same procedure was applied as it was used in the step I, emphasizing the cultural and conceptual meanings of the items instead of literal equivalence. Items were reconsidered and discussed in the same committee in case of any discrepancy.

Bilingual Experts. Six bilingual translators were selected and requested to translate the scales into English language while keeping in view the conceptual equivalency of the item. These bilingual experts were different than the experts selected in the step I, to avoid the familiarity and practice effect. Among the selected experts, one Assistant Professor and three Lecturers of English language and two Lecturers from Psychology department had contributed.

Step IV: Expert Panel Approach. The same committee members evaluated the back translation and observed matching of large content/ items on the basis of theoretical and linguistic equivalence with the original tools. The translated items were arranged in the sequence and order as described in the original scales.

Phase II: Cross Language Validation

Validation of the translated Urdu version and original English version of the Investment Model Scale was carried out to assess the quality, empirical and conceptual equivalence. For this purpose, a comparison of both versions was carried out effectively by following certain steps.

Procedure. The scales were administered to the sample into two equal groups of 20 participants. The group A (n=20) was administered with translated Urdu version first while the group B (n=20) was administered with the original English version first. After the interval of fifteen days, the conditions were reversed i.e. the group A (who was administered Urdu version first), now given the English version to determine the Urdu test - English retest reliability and the group B (who was administered the English version first), now given the translated Urdu version to determine the English test – Urdu retest reliability. The whole sample was again divided randomly into four equal groups i.e. n=10. In order to determine the test-retest reliability of the translated version, half of the sample(n=20) was administered with the Translated Urdu version again with the interval of two weeks, however, the remaining half of the sample (n=20) was administered with the original English version and the responses were recorded. The cross language validation is an effective technique to identify the discrepancy or equivalence betweenEnglish and translated Urdu versions.
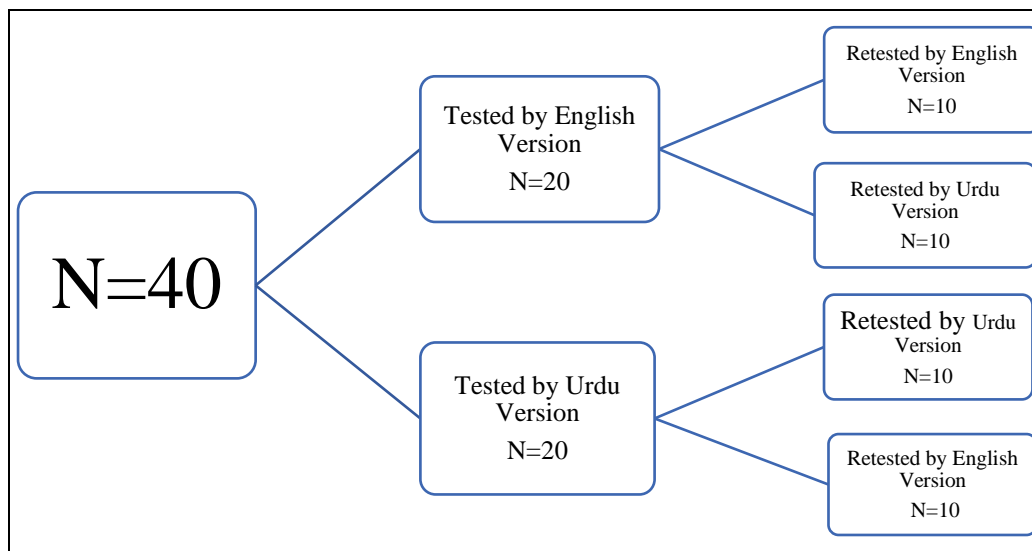
Figure 1. Diagrammatic representation of sample distribution into two groups for testing first trial and into four groups for retesting after fifteen days interval

Phase III: Establishing Psychometric Properties and Confirmatory Factor Analysis of Translated Scale

Reliability of the translated version was determined through SPSS-21. Factors of the scale was confirmed through confirmatory factor analysis (CFA) by using AMOS-20.0.

Results

Correlation coefficient was determined between the scores of two trials to ensure the test retest reliability and cross language validity.

Table 1: *Test-Retest Reliabilities of Urdu and English version of the total and Sub-scales for Investment Model Scale (IMS) (N=40)*

IMS	U-E (n=10)	E-U (n=10)	U-U (n=10)	E-E (n=10)
Satisfaction Level	.98**	.89**	.84*	.75*
Alternative Facet	.71*	.97**	.88*	.84**
Investment Size	.99**	.97**	.85*	.95**
Commitment Level	.97**	.94**	.96**	.84**
Full Scale IMS	.98**	.97**	.80**	.86**

*Note. U-E= Urdu – English, E-U= English – Urdu, U-U=Urdu – Urdu, E-E= English – English, IMS= Investment Model Scale, **p<.01, *p<.05*

Table 1 indicates significant positive correlation for four groups of sample i.e. Urdu – English, English – Urdu, Urdu – Urdu and English – English. The correlation coefficient for total score of the Investment Model Scale was 0.98, 0.97, 0.80 and 0.86 respectively. However, the four factors of Investment Model Scale reflect significant correlations among four groups of sample. It represents the original English and translated Urdu versions of the Investment Model Scale have significant high conceptual equivalence and cross language validity.

Table 2. Alpha Coefficients of the translated versions of the Investment Model Scale (N=40)

Scale	K	M(SD)	α	Range Potential	Actual	Skew
IMS-S	5	30.47(6.67)	.66	0-40	10-40	-.89
IMS-A	5	18.75(14.01)	.92	0-40	0-39	.22
IMS-I	5	29.25(7.62)	.70	0-40	6-40	-.96
IMS-C	7	50.27(6.85)	.60	0-56	25-56	-1.63

| IMS (Urdu) | 22 | 128.75(18.23) | .67 | 0-176 | 91-160 | -.22 |

Note: k= No. of items, M(SD)= Mean (Standard Deviation), α = Chronbach's Alpha

Table 2 indicates that the translated scale has acceptable range of skewness and reliability. Cronbach's alpha reliability coefficients values suggest that the translated scale is reliable, ranging from .60 to .92.

Measurement Model of IMS

In confirmatory factor analysis different statistical tests were used to measure how well proposed model fits to the data. In current study Maximum Likelihood Method was used as extraction method and the magnitude of factor loading on which items were retained was .3.

Table 3. Model fit indices for the Investment Model Scale (N=316)

Fit Indices	$\chi 2$	Df	CMIN/DF	RMSEA	NFI	CFI	TLI
Model I	816.72	203	4.02	.098	.83	.87	.85
Model II	459.90	176	2.61	.072	.90	.94	.92

Note. CMIN/DF = Minimum Discrepancy/ Degree of Freedom; RMSEA = Root Mean Square Error of Approximation; NFI= Normed Fit Index; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; *p=RMSEA = 0.05 to 0.08, *p= CMIN<3.0.

The model was re-specified after allowing the error variances of some indicators to covary. While going through the modification indices, error variances of only those items were allowed to covary, which were suggested by modification indices. These covariances of item errors shared similar conceptual contents and wording similarity, since it presents a unique variance origin (Brown, 2015). Correlating theoretically justified error variances aids appropriate interpretation of the proposed latent factors, obtaining appropriate factor loadings for the items, as well as appropriate model fit estimation (Cole, Ciesla & Steiger, 2007). Correlates were added in the model as suggested by modification indices in order to fit the model. E6 – e7, e7 – e10, e8 – e10, e7 – e9, e13 –e15, e14 – e15, e16 – e17, e16 – e20, e16 – e21 and e21 – e22 were the error covriances. Model II comprising of 21 indicators loaded on their respective subscales of the Investment Model Scale (IMS). Results indicated that the chi square to df ratio was 2.61 and the other model fit indices also showed an outstanding model fit between the data and model. The values of RMSEA, NFI, TLI and CFI became significant statistically. The value of RMSEA was 0.07 that lies within the acceptable range i.e. .05-.08. The values of NFI, CFI and TLI were all above .90. These values indicated that Model II proved better fit as compared to Model I. Factor structure can be seen in the following figure.
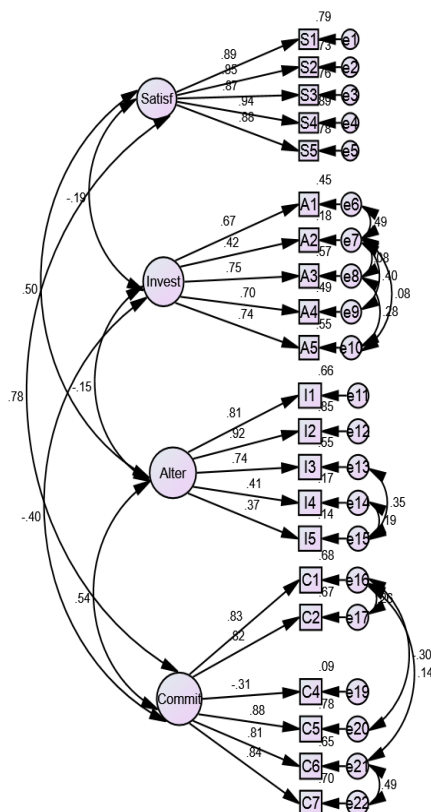

Figure 2. Four-factors structure solution of the translated Investment Model Scale

Table 4. CFA Sample Maximum Likelihood solution of the Investment Model Scale: Factor Correlation

Factor		1	2	3	4	5
1.	Satisfaction Level	-	-.10	.35**	.59**	.73**
2.	Quality of Alternatives		-	-.03	-.17**	.37**
3.	Investment size			-	.30**	.65**
4.	Commitment Level				-	.65**
5.	Investment Model Scale					-

Note. **p<.01, *p<.05

Table 3 of confirmatory Factor analysis show the standardized model fit indices (maximum likelihood) of Urdu translated version of the Investment Model Scale on the sample of 316 married individuals. The results indicate that model is reasonably fit for the following parameters of $\chi 2/df$, RMSEA, normed fit index, comparative fit index and Tucker-Lewis index. Overall, results describe that the values of Chi-square are significant as the degree of freedom is greater. The values obtained by dividing the $\chi 2/df$, are acceptable for the parameters of model fit indices i.e. Investment Model scale 2.61, (Hu, Bentler & Kano, 1992).

Table 5. Standardized Factor Loadings of CFA Models for the Investment Model Scale (N=316)

Item Sr. No	Factor loadings (N=316) Investment Model Scale
Item No 1	.88
Item No 2	.85
Item No 3	.87
Item No 4	.94
Item No 5	.89
Item No 6	.71
Item No 7	.64
Item No 8	.64
Item No 9	.79
Item No 10	.66
Item No 11	.82
Item No 12	.92
Item No 13	.72
Item No 14	.42
Item No 15	.39
Item No 16	.84
Item No 17	.87
Item No 18	**-.23**
Item No 19	-.30
Item No 20	.82
Item No 21	.84
Item No 22	.85
K	22

Note. K= Number of items of the Scales, Bold number is showing the deleted items from Model

Table 5 shows the standardized factor loadings of the translated scale and the findings are supported by the reliability analysis. It is indicated that all the factors are loaded satisfactorily and consistent internally as well as with the construct. However, item no 18 from Investment Model Scale was removed because of lower factor loading i.e. -.23 (highlighted in the table). After removing the items, models for both scales were fit accurately.

Table 6. Convergent, Discriminant Validity and Composite Reliability of the translated version of Investment Model Scale (N=316)

	CR	AVE	IMS	IMS-S	IMS-A	IMS-I	IMS-C
IMS	.96	0.57	**.75**	.53	.13	.40	.40
IMS-S	0.94	0.80		**.89**	.01	.12	.29
IMS-A	0.81	0.46			**.68**	.0009	.02

IMS-I	0.80	0.47		**.69**	.09
IMS-C	0.86	0.60			**.77**

Note. Values of squared root estimate of AVE are boldfaced. AVE = Average Variance Extracted; CR= Composite Reliability; IMS= Investment Model Scale; IMS-S = Investment Model Scale- Satisfcation level; IMS-A= Investment Model Scale- Quality of Alternatives; IMS-I = Investment Model Scale – Size of Investment; IMS-C = Investment Model Scale – Commitment level.

Convergent and discriminant validity was analyzed through the factor loadings of items attained by the process of CFA. Validity evaluation criteria given by Fornell and Larcker (1981) was followed to achieve this purpose. CR and AVE are used for the evaluation of convergent validity, whereas, squared root estimate of AVE are used to determine the discriminant validity of the construct. According to this criteria, composite reliability (CR) > .70 (Lee, Cheung & Chen, 2005), and average variance extracted (AVE) > .50 (Fornell & Bookstein, 1982; Fornell & Larcker, 1981). Values of the composite reliability of all constructs that is Investment Model Scale (IMS) (.96) along with its sub scales i.e. Satisfaction level (IMS-S) (.78), quality of alternatives (IMS- A) (.81), size of investment (IMS-I) (.80) and commitment level (IMS-C) (.86) are more than .70. Additionally, the values of AVE for the IMS (.57), IMS-S (.80) and IMS-C (.60) are greater than 0.50 whereas, the AVE values of IMS-A (.46) and IMS- I (.47) are less than 0.50. According to Fornell and Larcker (1981) if the value of AVE of a construct is < .50 but its CR is > .70 then we can accept the .4 AVE value (Fornell & Larcker, 1981). So according to this criteria, the constructs of IMS-A and IMS-I are not combined into another construct and these are determining the designated constructs, as their respective composite reliabilities are more than .70, thus fulfilling the concept of convergent validity.

Discriminant validity of all measured constructs was also supported as the squared root estimates of AVE of all constructs i.e. IMS (.75), IMS-S (.89), IMS-A (.68), IMS-I (.69) and IMS-C (.77) are greater than their matching squared correlation (Fornell & Larcker, 1981). Hence, the criteria for both convergent and discriminant validities for all measured constructs are maintained.

Discussion

Translation of the Investment Model Scale (Rusbult, Martz, & Agnew, 1998) in Urdu language was conducted with the purpose of making the instruments understandable for the target population. The instrument was highly reliable and valid measure of the constructs for English population. This scale had also been translated in Portuguese language and its translated version indicated acceptable reliability and validity (Rodrigues & Lopes, 2013).We need to administer these instrument on Pakistani population. Most of the target population understand Urdu language more easily and feel comfortable in responding the items in Urdu language, so it was a dire need to develop these instruments in Urdu language.

The instrument was being translated by following all the steps of translation, described by Brislin (1986). Scale translation involved the forward translation by bilingual experts and committee approach, backward translation by different bilingual experts (not those who translated the forward Part) and the committee approach by same experts. Parallel versions of translation involved several bilingual experts who translated the same questionnaire independently. A consensus meeting was held as the final step of the study, to select the best reconciled version of the translated scales in order to obtain the purpose of the current study.

The important step of translation phase is to determine the cross language validity of the translated scale by analyzing a comparison or translated Urdu version with the original English language version of the scales. In order to validate the scales, both versions of the scales were administered to a small sample of 40 married individuals. Two groups of Pakistani married adults were administered twice with Urdu-English and Urdu-Urdu sequence and then these two groups were further divided into four subgroups of 10 married individuals each. Test-retest reliabilities and correlation of these groups; Urdu-English, Urdu-Urdu, English-English and English-Urdu, indicate significant positive relationship between the two versions of scales. Urdu-Urdu correlation is highly positive that shows the Urdu version is more comprehendible to Pakistani population. Participants who administered Investment Model Scale Urdu version first and then English version had slightly higher mean values than rest of the three groupsi.e. Urdu to Urdu, English to Urdu and English to English versions (see Table 1). There are no significant discrepancies found across the administration.

Factor structure of the Urdu translated versions was confirmed by the confirmatory factor analysis (CFA) on the new sample. Four factors of were The Investment Model Scale were confirmed i.e. Satisfaction, Alternatives, Investment and Commitment level (See Figure 1). After applying correlates to the model, it was fit and the values of CFI, NFI, RMSEA and χ2/df were in the Acceptable range (See Figure 2 & Table 3). However, the item no 18 of Investment Model Scale was loaded at low level (See Table 5), so it was removed from the Model (See Figure 3). After removing the item from the scale, model was adequately fit with all model fit indices (See Table 3). All the four factors of Investment Model Scale were significantly correlated with the main construct. Factors of satisfaction, investment and commitment were significantly positive correlated with each other, however, the factor of Alternatives was not significantly correlated with satisfaction and Investment. Factor of alternatives is significantly negatively correlated with the commitment level (See Table 4).

Items from the scale having low factor loadings were removed from the translated version of the scale and are highlighted in the Table 5. The reason of poor factor loadings might be the cultural irrelevancy of the items and low comprehension level by the target population. **Discriminant validity of all measured constructs was supported as the squared root estimates of AVE of all**

constructs i.e. IMS (.75), IMS-S (.89), IMS-A (.68), IMS-I (.69) and IMS-C (.77) are greater than their matching squared correlation (Fornell & Larcker, 1981). Convergent validity was analyzed through the factor loadings of items attained by the process of CFA. Validity evaluation criteria given by Fornell and Larcker (1981) was followed to achieve this purpose. According to this criteria, composite reliability (CR) > .70 (Lee, Cheung & Chen, 2005), and average variance extracted (AVE) > .50 (Fornell & Bookstein, 1982; Fornell & Larcker, 1981). Values of the composite reliability of all constructs that is Investment Model Scale along with its sub scales i.e. Satisfaction level, quality of alternatives, size of investment and commitment level are more than .70. Additionally, the values of AVE for the IMS, IMS-S and IMS-C are greater than 0.50 whereas, the AVE values of IMS-A and IMS- I are less than 0.50 (see table 9). According to Fornell and Larcker (1981) if the value of AVE of a construct is < .50 but its CR is > .70 then we can accept the .4 AVE value (Fornell & Larcker, 1981). So according to this criteria, the constructs of IMS-A and IMS-I are not combined into another construct and these are determining the designated constructs, as their respective composite reliabilities are more than .70, thus fulfilling the concept of convergent validity. Hence, the criteria for both convergent and discriminant validities for all measured constructs are maintained (See Table 6).

Conclusion

It is concluded that both versions have equivalence in conceptual meaning of the construct. It also shows that the Urdu vocabulary words used in the scale are simple, easy to understand, words combined appropriately in a meaningful way, conveying the concept and the items are clearly written. Cross language validity and Confirmatory Factor analysis reflect that Urdu versions of the Investment Model Scale could appear to be valid, reliable and cultural free measuring instruments for the research purpose on the target population in Pakistan. The results give us more confidence in administering this scale to the Pakistani population without having difference in meaning and concept.

Ethical Consideration

None to declare as the research design was survey so it does not require Ethical Approval from Ethical board. However, the informed consent was signed from all the participants before participation in the study.

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Disclosure Statement

The current study is a partial requirement of the PhD degree program.

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