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DEVELOPMENT OF ICP SUBJECTIVE WELL-BEING SCALE (SWBS)

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ABSTRACT

Objective: *The objective of the study is to develop and validate a self-report measure in Urdu language on subjective well-being (SWB) called The Institute of Clinical Psychology Subjective Well-being Scale (ICP SWBS).*
Research Design: *Cross-sectional study*
Place and Duration of Study: *Karachi, Pakistan; Jan to July 2012*
Background: *The development of the scale was based on Diener's (1984) theory that posits that SWB has three components that are positive affect (PA), negative affect (NA) and life satisfaction (LS).*
Sample and Method: *Item pool for the development of SWB scale was generated through survey and through selection of items from established measures of SWB. Psychologists reviewed generated pool of items; pilot testing was done on a sample of 73 participants. Final scale containing twelve positive affect items, twelve negative affect items and five life satisfaction items was factor analyzed. Psychometric properties of newly established scale including test re-test reliability and internal consistency analysis was done.*
Results: *Varimax Rotation Method revealed two factors for positive affect subscale, three factors for negative affect subscale and one factor for life satisfaction subscale.*
Conclusion: *Results overall reflected that ICP SWBS has sound psychometric properties.*

Keywords**:** *Subjective well-being, scale development, positive affect, negative affect, life satisfaction, factor analysis*

INTRODUCTION

There are multiple methods of measuring subjective well-being. The most frequently used method of measuring subjective well-being is through self reports. Many single items and multiple items measures have been developed to

measure SWB.

Despite existing scales which are mostly in English language. Development of new scales and translations and adaptations of existing scales are becoming increasingly popular**.** Growth of scale development and adaptation industry is because of the rising awareness of importance of having testing instruments in local language to assess individuals as effectively and accurately as possible. Importance of development of scale in local language can be illustrated by the fact that marked differences are usually found on same scale among different cultures. Subjective well-being is among these many constructs that distinctly vary from culture to culture. Employing scales developed in western countries or scale available in foreign language to measure SWB would not be wise. Therefore, there is need for a Subjective Well-being scale that suits local cultural and social context. Besides, expression of feelings and cognitions would be easier for respondents in local language. Urdu language has vast and specific vocabulary of its own; the present study purports to make use of it in the development of the ICP Subjective Well-Being measure.

An analytical approach was employed in the development of the ICP Subjective Well-Being Scale (SWBS) i.e. the item selection and the method of assessing the individual's level of SWB was based on a theory. In the case of present scale, the theory was that of Diener's (1984). The theory holds that SWB has two major components that are affective and cognitive. Affective component is further divided into two sub components that are positive affect (PA) and negative affect (NA). Cognitive component comprises of satisfaction with life. Development of ICP SWBS took into account characteristics of study of SWB outlined by Diener (1984). According to him study of SWB does not solely focus on hedonism which is more closely related to bodily pleasure but it also deals with pursuit of goals, values and meaningfulness. Both the affective and cognitive component of ICP SWBS has items that deal with a person's need for personal growth e.g. affective component taps engagement, interest, feelings of being successful etc. item 1 "my present life is close to my idealized life" and 5 "things in my life are going as I want them to be" of cognitive component measures satisfaction of attaining one's chosen goals. Thus ICP SWBS emphasizes on more than just hedonism. ICP SWBS as indicated by Diener (1984) focus on both the pleasant and unpleasant mood states. Moreover it focuses on subjective account of a person (internal framework) and not rated by practitioner for patient (external frame of reference). Furthermore it covers stable mood states and not just the current mood state. ICP SWBS' four week period for

reporting affects experienced during this duration is neither long enough to cause memory biases or nor it is shorter enough that it measure transient mood state and fail to capture the stability of affective experience.

ICP SWBS' multiple choice format prevents acquiescence bias. As suggested by Robinson, Shaver and Wrightsman (1991) it made use of five point scale which successfully captures all the variation that can possibly be present in affective and cognitive well-being. It does not measure only simple occurrences of PA and NA but it is a frequency format scale i.e. it asks respondents how frequently they experienced given affects. This type of format is least likely to be prone to response bias.

METHOD

The study consisted of two phases first phase dealt with the development of ICP SWB scale and the second phase involved reliability analysis of the newly established scale

Phase I: Development of ICP Subjective Well-Being Scale

The development of scale involved following steps

Step 1: Survey with students and people from various community settings

A sample of 25 participants (10 males and 15 females) were included in the survey, who were students of Institute of Clinical Psychology, University of Karachi and people from community.

Participants were requested to provide their view of happiness and satisfaction with life. Survey form was given with following instructions in Urdu. "Happiness generally refers to the degree to which a person experiences more positive feelings and less negative feelings and degree to which the person is satisfied with one's life. You are required to please write down your point of view of happiness on the space provided below. It is requested that you give your view of 1) positive feelings i.e. what exactly are various positive feelings 2) negative feelings i.e. what according to you are negative feelings and 3) satisfaction with life i.e. what factors according to you leads to the experience of satisfaction with one's life."

Content analysis of the definitions provided by participants was done. Common content that occurred in more than 50% of the forms was retained. More than 50% of the participants agreed on success, enjoyment and interaction with others as major constituents of positive feelings. More than 50% of the participants identified loneliness as a most pressing negative feeling and religion and getting what one wants as the major contributor of life satisfaction.

Step 2: Item writing and selection

Initial pool of the items was generated using the definitions provided by the students and people from the community (step 1)

Few items from established measures of well-being such as Affect Balance Scale (Bradburn, 1969) and Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) were also selected for the affective component of the scale (positive and negative affect). For the cognitive component of the scale that is life satisfaction items were selected from Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Culturally relevant items selected from these scales were translated in Urdu and included in the item pool.

The items formulated were 34 for Positive Affect, 38 for Negative Affect subscale and 42 for Life Satisfaction subscale. These items were given to 20 psychologists in order to identify vague, difficult to understand and irrelevant items. Their suggestions were used in discarding the irrelevant, incomprehensible and vague items. Rephrasing of some of the items was also done.

10 professors of University of Karachi were given detailed written material on Diener's model of SWB along with items written within each of the respective three components. They were asked to rate each item on a 1 to 5 likert scale according to its relevance in each of the three components (positive affect, negative affect and satisfaction with life). They were asked to rate an item a score of 1 if it is not at all related to the component/concept in question and give a rating of 5 if the item seems to be highly related to the component/concept in question. Items that had average rating of 3 and above were selected and the items that had rating below 3 were discarded.

Finally selected items that were reduced to 18 for Positive Affect subscale, 19 for Negative Affect subscale and 29 for Life Satisfaction were discussed

within a panel of 10 judges / psychologists. They were asked to scrutinize items of the scale keeping in focus the Diener's model of SWB. Judges were given presentation and also given material on Diener's theory. Overlapping, vague and difficult to comprehend items were removed from the scale. Judges also suggested reformulation of the affective component of the scale; pure affects were retained irrespective of the situation in which it is felt. For example from these previously written items "I felt proud because someone complimented me on something I had done" and "I felt sad because someone criticized me" affects of "pride and sadness" were retained and these items were reformulated as "I felt proud" and "I felt sad" respectively. Final scale contained 12 items for each Positive and Negative subscales and 5 items for Life Satisfaction subscale. Positive and Negative Affect subscales ask respondents to indicate how frequently they experience given affects during past four weeks by rating affect items on a 5 point scale ranging from never to always where; never= 1, very little = 2, sometimes= 3, most of the times= 4 and always= 5. Life Satisfaction subscale is agree disagree format, 5 point likert scale ranging from completely disagree to completely agree where; completely disagree= 1, disagree= 2, do not know= 3, agree= 4 and completely agree= 5.

Step 3: Pilot testing

A pilot testing of the scale was done to assess the adequacy of scale and to make needed alterations accordingly. A sample of 73 participants (10 males and 63 females) age ranging from 18 to 35 years with mean age of 23.2 was recruited randomly from various departments of University of Karachi and Federal Urdu University.

A short demographic form asking respondents to write their names, age and gender was given along ICP Subjective Well-Being Scale. During this preliminary administration of the finalized scale, participants were asked to identify difficult to understand, vague or ambiguous items of the scale.

Majority of the participants found item number 11 and 12 of positive affect and item number 11 of negative affect, vague and difficult to respond on with accuracy. Item number 11 and 12 which measured affect of "love" and "pride" respectively for positive affect and item number 11 which measured affect of "sulkiness / being annoyed with someone" for negative affect were thus, modified.

Step 4: Factor analysis

Sample

Final ICP Subjective Well-Being Scale was administered on 377 participants (243 females and 134 males) selected from various departments of University of Karachi, other educational and commercial institutions, and various community settings. Participant's age ranged between 18 to 50 years

Procedure

A short demographic form and note on brief introduction of the study was given along ICP Subjective Well-Being Scale for participants to complete. Demographic form included information regarding name, age, gender, education, occupation, marital status and heritage. Demographic form was followed by brief introduction of the study and consent form.

Affective component of ICP SWBS was subjected to principal component analysis (PCA) separately for Positive Affect items, Negative Affect items and Life Satisfaction items.

RESULTS

Table 1
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity for Positive Affect, Negative Affect and Life Satisfaction Subscales

	KMO	Bartlett's Test		
		Chi-Square	*Df*	*Sig.*
Positive Affect	.883	1184.293	66	.000
Negative Affect	.878	1296.028	66	.000
Life Satisfaction	.821	591.236	10	.000

Table 1 shows KMO value of .8 for positive affect, negative affect and life satisfaction subscales; Bartlett test is also highly significant (p<.001) for each of the three subscales indicating that data is suitable for factor analysis.

Table 2
Communalities for Items of Positive Affect, Negative Affect and Life Satisfaction Subscales Obtained through PCA (*N*=377)

	Affective component				Cognitive	
	Positive Affect		Negative Affect		Life Satisfaction	
	Initial	Extraction	Initial	Extraction	Initial	Extraction
Item 1	1.000	**.477**	1.000	**.639**	1.000	**.661**
Item 2	1.000	**.479**	1.000	**.669**	1.000	**.581**
Item 3	1.000	.437	1.000	**.641**	1.000	.406
Item 4	1.000	**.548**	1.000	**.577**	1.000	**.655**
Item 5	1.000	.437	1.000	**.592**	1.000	**.567**
Item 6	1.000	**.505**	1.000	**.516**		
Item 7	1.000	**.664**	1.000	**.591**		
Item 8	1.000	.360	1.000	**.599**		
Item 9	1.000	.445	1.000	**.532**		
Item 10	1.000	.286	1.000	**.539**		
Item 11	1.000	.326	1.000	**.477**		
Item 12	1.000	**.575**	1.000	.365		

Note. Communalities $\geq$ .5 are in boldface.

Table 2 shows communalities for most of the items after extraction are greater than .5 which indicates that data is suitable for factor analysis.

Table 3
Eigen Values and Percentages of Variances Explained By 12 Positive Affect Items in the Factor Solution Obtained through PCA (*N*=377)

Component	Eigen	% of Variance	Cumulative Percentages
1	4.415	36.792	36.792
2	1.123	9.358	46.150
3	.979	8.162	54.312
4	.870	7.251	61.563
5	.770	6.413	67.976
6	.720	5.997	73.973

Contd....

Component	Eigen	% of Variance	Cumulative Percentages
7	.708	5.900	79.873
8	.580	4.835	84.708
9	.547	4.560	89.268
10	.469	3.911	93.179
11	.438	3.650	96.829
12	.380	3.171	100.000

Table 3 shows two distinct factors of positive affect subscale with Eigen value greater than 1 explaining 36% and 9%of variance in items respectively

Table 4
Component Matrix for Positive Affect Items

	Component	
	1	2
Item 7	.753	
Item 6	.688	
Item 2	.687	
Item 4	.662	
Item 1	.656	
Item 9	.624	
Item 8	.593	
Item 5	.547	
Item 3	.532	
Item 10	.478	
Item 11	.477	
Item 12	.505	.566

Note. Values < .4 are suppressed
Table 4 shows all items are highly loaded on factor one.

Table 5
Rotated Component Matrix for Positive Affect Items Using Varimax Rotation Method

	Component	
	1	**2**
Item 3	.769	
Item 8	.658	
Item 7	.655	
Item 4	.632	
Item 6	.632	
Item 11	.569	
Item 9		.758
Item 10		.688
Item 5		.592
Item 12		.552
Item 1		.497
Item 2		.462

Note. Values < .4 are suppressed

Table 5 shows two factors after rotation of factor structure; items 3, 8, 7, 4, 6 and 11 are loaded on factor 1, while item 9, 10, 5, 12, 1 and 2 are loaded on factor 2.

Table 6
Eigen Values and Percentages of Variances Explained By Twelve Negative Affect Items in the Factor Solution Obtained Through PCA (*N*=377)

Component	Eigen Values	% of Variance	Cumulative
1	4.577	38.139	38.139
2	1.142	9.518	47.657
3	1.018	8.486	56.143
4	.914	7.613	63.756
5	.785	6.539	70.295
6	.630	5.251	75.546
7	.592	4.932	80.478

Contd....

Component	Eigen Values	% of Variance	Cumulative
8	.542	4.516	4.994
9	.521	4.342	89.337
10	.498	4.146	93.482
11	.416	3.468	96.951
12	.366	3.049	100.000

Table 6 shows three factors of negative affect subscale with Eigen value greater than 1 explaining 38%, 9% and 8% of variance in items respectively

Table 7
Component Matrix for Negative Affect Items

	Component		
	1	**2**	**3**
Item 4	.715		
Item 6	.700		
Item 5	.669		
Item 8	.668		
Item 10	.658		
Item 3	.652		
Item 2	.609		-.462
Item 9	.595		
Item 12	.549		
Item 1	.535	.444	
Item 7	.531	-.507	
Item 11	.478		.470

Note. Values < .4 are suppressed

Table 7 shows all items are highly loaded on factor one

Table 8
Rotated Component Matrix for Negative Affect Items Using Varimax Rotation Method

	Component		
	1	**2**	**3**
Item 3	.759		
Item 8	.732		
Item 7	.678		
Item 4	.620		
Item 6	.583		
Item 11		.682	
Item 9		.662	
Item 10		.632	
Item 5		.625	.421
Item 12		.530	
Item 1			.767
Item 2			.759

Note. Values < .4 are suppressed

Table 8 shows three factors after rotation of factor structure; items 3, 8, 7, 4 and 6 are loaded on factor one while items 11, 9, 10, 5, 12 are loaded on factor two while item 1 and 2 are loaded on factor three.

Table 9
Eigen Values and Percentages of variances explained by five Life Satisfaction Items in the Factor Solution Obtained through PCA (*N*=377)

Components	**Eigen Values**	**% of Variance**	**Cumulative**
1	2.869	57.390	57.390
2	.719	14.379	71.769
3	.579	11.584	83.353
4	.453	9.055	92.408
5	.380	7.592	100.000

Table 9 shows one strong factor of life satisfaction subscale with Eigen value

greater than 1 explaining 57% of variance in items

Table 10
Component Matrix for Life Satisfaction Items

	Component
	1
Item 1	.813
Item 2	.762
Item 3	.637
Item 4	.809
Item 5	.753

Table 10 shows all items are loaded on factor one.

Phase II: Reliability analysis of ICP Subjective Well-Being Scale

Sample

Sample consisted of 130 participants (100 females and 30 males) of ages between 18 to 29 years selected from various departments of University of Karachi for test re-test reliability estimate. A sample consisted of 377 participants (243 females and 134 males) of ages between 18 to 50 years**,** was selected from various departments of University of Karachi, Federal Urdu University, commercial institutions and from various community settings for internal consistency analysis.

Procedure

The ICP Subjective Well-Being Scale was administered twice on participants at an interval of 1 week. Pearson *r* was calculated to find out the test re-test reliability of the scale. Scores on subscales of ICP Subjective Well-Being Scale were subjected to internal consistency test (item-total and inter-items correlations). To measure the test internal consistency or an estimate of whether items of ICP Subjective Well-Being Scale measure a same construct Split-Half and Cronbach's Coefficient Alpha were calculated.

Results:

Table 11
Mean, Standard Deviation, Item-Total Correlations of Twelve Items on Positive Affect Subscale (*N*=377)

Item No.	Mean	Std. Deviation	Item-total
1	3.602	1.036	.633**
2	3.644	1.104	.665**
3	3.591	1.165	.550**
4	3.443	1.119	.663**
5	3.702	1.165	.562**
6	3.464	1.079	.673**
7	3.565	1.111	.734**
8	4.257	.928	.575**
9	4.286	.971	.610**
10	3.408	1.080	.504**
11	4.286	.938	.482**
12	3.697	1.254	.541**

** Correlation is significant at the .01 level (2-tailed).

Table 11 shows mean, standard deviation and item-total correlations of 12 items of positive affect; all items showed moderate positive correlation with the total.

Table 12
Inter-Item Correlations of Twelve Positive Affect Items (*N*= 377)

Item No.	1	2	3	4	5	6	7	8	9	10	11	12
1	1	**.529**	.301	**.375**	.269	**.394**	**.495**	.283	.306	.200	.265	.194
2		1	.263	**.431**	.288	**.409**	**.487**	.326	.353	.233	.201	.289
3			1	.251	.312	**.375**	**.398**	.284	.179	.236	.149	.163
4				1	.266	.338	**.375**	.305	**.367**	.336	.264	**.452**
5					1	.311	**.473**	.275	.287	.152	.195	.149
6						1	**.519**	.334	**.413**	.302	.191	.265
7							1	**.369**	.342	.310	.288	.232
8								1	**.375**	.155	.321	.284
9									1	.250	**.356**	.274
10										1	.173	.272
11											1	.223
12												1

Note. Correlation values > 3 are boldface. Item 1= joy**;** 2= serenity; 3= enthusiasm; 4= feeling of being successful; 5= energy; 6= enjoyment; 7= alertness, 8= interest; 9= hopefulness; 10= feelings of being appreciated; 11= love; 12= pride.

All Correlations are significant at the .01 level (2-tailed).

Table 12 shows that item 1 correlated highly with item 2, 7, 6 and 4; item 2 correlated highly with item 7, 4 and 6; item 3 correlated highly with item 7 and 6; item 4 correlated highly with item 12, 7 and 9; item 5 correlated highly with item 7; item 6 correlated highly with item 7 and 9; item 7 correlated highly with item 8; item 8 correlated highly with item 9 and item 9 correlated highly with item 11.

Table 13
Mean, Standard Deviation, Item-Total Correlations of Twelve Items on Negative Affect Subscale (*N*=377)

Item No.	Mean	Std. Deviation	Item-total
1	2.106	1.108	.554**
2	2.273	1.109	.612**
3	2.427	1.160	.644**
4	2.604	1.108	.695**
5	1.962	1.147	.663**
6	2.321	1.113	.687**
7	2.634	.991	.529**
8	2.594	.971	.644**
9	1.923	1.052	.594**
10	1.867	.996	.648**
11	2.135	1.120	.511**
12	2.236	1.352	.583**

** Correlation is significant at the .01 level (2-tailed).

Table 13 shows mean, standard deviation and item-total correlations of twelve items of negative affect; all items showed moderate positive correlation with the total.

Table 14
Inter-Item Correlations of Twelve Negative Affect Items (*N*= 377)

Item No.	1	2	3	4	5	6	7	8	9	10	11	12
1.	1	**.478**	.271	.331	**.352**	.304	.132*	.215	.240	.227	.273	.228
2.		1	**.370**	**.406**	.344	.349	.152	.313	.294	.314	.203	.271
3			1	**.427**	.307	**.470**	**.416**	**.489**	.225	.304	.211	.254
4				1	**.398**	**.446**	**.357**	**.525**	**.352**	**.407**	.182	.312
5					1	**.380**	.208	.335	**.570**	**.435**	.254	.293
6						1	**.352**	**.440**	**.352**	**.376**	.285	.315
7							1	.337	.241	.330	.265	.203
8								1	.268	**.381**	.185	.330
s9									1	.335	.241	.280
10										1	**.357**	**.361**
11											1	.288
12												1

Note. Correlation values > 3 are boldface. Item 1= fear; 2= nervousness; 3= irritability, 4= worry; 5= regret; 6= boredom; 7= anger; 8 = sadness; 9 = guilt; 10 = hopelessness; 11= sulkiness; 12= loneliness.

All Correlations are significant at the .01 level (2-tailed). *Correlation is significant at the .05 level (2-tailed).

Table 14 shows that item 1 correlated highly with item 2 and 5; item 2 correlated highly with item 3 and 4; item 3 correlated highly with item 8, 6, 4 and 7; item 4 correlated highly with item 8, 6, 4 and 7; item 5 correlated highly with item 9, 10 and 6; item 6 correlated highly with item 8, 10, 7, and 9; item 8 correlated highly with item 10 and item 10 correlated highly with item 12 and 11.

Table 15
Mean, Standard Deviation, Item-Total Correlations of Five Items on Life Satisfaction Subscale (*N*=377)

Item No.	Mean	Std. Deviation	Item-total
1	3.2149	1.18231	.795**
2	3.7905	1.12094	.744**
3	2.8170	1.38607	.686**
4	3.0265	1.25025	.802**
5	3.1194	1.25650	.748**

* Correlation is significant at the .01 level (2-tailed).

Table 15 shows mean, standard deviation and item-total correlations of five items of life satisfaction; all items showed moderately high positive correlation with the total.

Table 16
Inter-Item Correlations of Five Life Satisfaction Items (*N*= 377)

Item	1	2	3	4	5
1	1	.560**	.396**	.532**	.545**
2		1	.381**	.509**	.418**
3			1	.429**	.307**
4				1	.557**
5					1

* * Correlation is significant at the .01 level (2-tailed).

Table 16 shows all five items of life satisfaction subscale are highly positively correlated with each other.

Table 17
Reliability Analysis of ICP Subjective Well-Being Scale

SWB Subscales	Cronbach's Alpha *n* = 377	Split-Half *n* = 377	Test re-test *r* *n* = 130
Positive affect	.838	.821	.767**
Negative affect	.848	.812	.731**
Life satisfaction	.807	.767	.824**

* Correlation is significant at the .01 level (2-tailed).

Table 17 shows moderately high Cronbach's Alpha (.8) for positive affect, negative affect and life satisfaction, moderately high split half i.e. .8 for positive affect and negative affect while .7 for life satisfaction subscales. Life satisfaction subscale showed better temporal stability (.8) than positive and negative affect subscale (.7)

DISCUSSION

The ICP subjective well-being is developed as consisting of 3 subscales namely Positive Affect (PA), Negative Affect (NA) and Life Satisfaction. PA and NA subscales contain 12 items each. On the other hand Life Satisfaction subscale consisted of 5 items. It is a five point likert scale. Results establish ICP Subjective Well-being Scale as a reliable instrument having high test re-test reliability and adequate internal consistency.

The positive affect and negative affect subscales require respondents to report affects that they experienced during past four weeks. Item stem "I felt" is preceded by adjectives comprising of 12 PA items and 12 NA items. PA items include joy, serenity, enthusiasm, success, energy, enjoyment, activity/alertness, interest, hope, feelings of being appreciated, love and pride. NA items include fear, nervousness, irritability, worry, regret, boredom, anger, hopelessness, guilt, sadness, sulkiness and loneliness. Life satisfaction subscale consists of 5 items out of which item number 1, 2 and 3 are Urdu adaptation of Satisfaction with Life Scale's (Diener et al., 1985) item numbers 1, 3 and 5 respectively.

The three sub-scales of ICP SWBS were separately subjected to principal axis factor analysis. According to Diener et al. (2010) factor analysis is an important part of scale development because sometimes high alpha corresponds with presence of more than one factor in a scale. Trustworthiness of factor analysis is dependent on the characteristics of data; sample size is among these characteristics that need to be checked for its suitability before factor analysis of the data. According to Field (2005), a sample of more than 300 cases is usually adequate for factor analysis. Another criterion is communalities after extraction greater than .5 indicates that data is suitable for analysis. Present study data meets both the conditions. Table 2 indicates that considerable number of communalities for each item exceeds .5 for positive affect, negative affect and life satisfaction. KMO and Bartlett's test of Sphericity was also conducted to empirically test the adequacy of the data (see table 1). Kaiser (1974) vouched for KMO values greater than .5 as acceptable. For this data KMO value is .8 which falls within the range of being great (Field, 2005), thus we could be assured that analysis would produce distinct and consistent factors. Bartlett's Test of Sphericity is also highly significant ($p < .001$) indicating that factor analysis is appropriate for this data.

Kaiser (1974) recommended selecting factors with eigenvalue greater than 1. Table 3 and 4 indicates that Positive Affect subscale yielded one robust factor with an eigenvalue of 4.4 that is explaining 36 % of the variance in the items. All items showed high loading ranging from .48 to .75 onto factor 1. However, rotation of factor structure using Varimax Rotation Method extracted 2 factors. Most of the items comprising factor 1 including Item 7 (alertness), item 3 (enthusiasm), item 5 (energy), item 1 (joy) and item 2 (serenity/feeling of calmness) appear to fall within the category of "general positive mood". Where as, item 12 (pride), item 4 (feeling of being successful), item 9 (hope), item 11 (love), item 10 (feelings of being appreciated) and item 8 (interest) that are loaded on factor 2 reflected experience of positive emotions that are related to other people and activities thus they are labeled as "pleasant emotional reactions."

Table 6 and 7 indicate that among Negative Affect items almost all loaded highly onto factor 1; factor 1 with an eigenvalue of 4.6 accounts for 38 % of variance in the items. Loadings varied from .48 to .71. Rotation of factor structure however, yielded 3 factors. Items 3 (irritability), 8 (sadness), 7 (anger), 4 (worry) and 6 (boredom) were loaded on factor 1. These items fall within the category of "general negative mood." Items 11 (sulkiness), 9 (guilt), 10

(hopelessness), 5 (regret) and 12 (loneliness) had higher loadings on factor 2. These items reflected experience and manifestation of depressive symptoms and therefore this factor is named as "depression". Two Items that are item number 1 and 2 were loaded on factor 3. Fear and nervousness are manifestation of anxiety thus the factor is labeled as "anxiety."

Table 9 and 10 are showing that life satisfaction items produced one strong and consistent factor with an eigenvalue of 2.9 which is explaining 57 % of the variance in the life satisfaction items. All 5 items were loaded onto only one factor; loadings are markedly high and varied from .63 to .81.

Item total correlations for positive affect items revealed that almost all items correlated positively with total scores. Item number 7 (activity/alertness) followed by item number 2 (serenity), 6 (enjoyment), 4 (success) and 1 (joy) showed strong positive correlations with the total scores and turned out to be superior items for measuring positive affect. Item number 11 (love) showed the lowest correlation with the total score. Item total correlations for NA items also indicated positive correlations of all items with total score. Except for item number 11 (sulky with someone) all negative affect items showed correlation value ranging from .5 to .7 with total score. PA and NA item numbers 11 are the same items that were modified after pilot study. Love is a basic and important human emotion therefore it was essential to retain it in a final scale. Similarly being annoyed or sulky with someone is a commonly experienced negative emotion. Moreover deleting these two items were not making any major difference in the test's overall reliability. In comparison with other affect adjectives used in positive and negative affect subscale that are well-defined, love and sulky appears to be vague. Emotions of love and sulk are related to other people, because of which respondents have to draw information from multiple sources to respond on these items. Some people are likely to relate the emotion of love with romantic love, while others with love for family and friends, thus there is scope of diverse and random responding on this item.

Inter-item correlation of PA subscale indicated that affect of happiness is highly correlated with affect of serenity or calmness. While enthusiasm found to be linked with feeling energetic and alert. Feelings of being successful and appreciated were significantly related to feelings of pride and to serenity. Interest in activities was significantly related to enjoyment. Inter-item correlation of NA subscale revealed that fear is more closely related to nervousness and worry. Boredom is related to irritable mood. This suggests that an irritable person can

simultaneously experience boredom more so than any other type of affect or boredom can lead to increased irritability. Regret as could be anticipated is associated more with feelings of guilt and sadness than any other type of affect. Moreover anger as expected is more diligently related to irritability. Sulkiness or feeling of being annoyed with someone is associated more with sadness. A feeling of loneliness is more closely linked with hopelessness. The relationship can be explained both ways that is a lonely person can develop feelings of hopelessness or hopelessness can lead to social withdrawal and feelings of being lonely.

Item-total correlation of life satisfaction subscale indicates strong positive correlation of all but item number 3, with the total score. Item number 3 ask respondent to record their agreement or disagreement with the statement that "If I could live my life over, I would change almost nothing." This item showed relatively low correlation value with the total score. One of the respondent during administration left this item blank by saying that he can not imagine given life again, or living his life over again, because there is no such thing in Islam. Sample of the present study mostly consisted of Muslim population. For Muslims there is no life other than the one after Day of Judgment. Probably some of the respondents have equated this item with concept of reincarnation which is non existent in Islam. Nevertheless, the item with Pearson value of .686 still appears to be promising in determining test's overall reliability. Item 4 and 1 are revealed as superior items for the overall reliability of Life Satisfaction subscale. Inter-item correlations indicated that item number 1 is highly correlated with item number 2 and then with 5. This indicates that if a person perceives that his/her present life is close to their idealized life they are more likely to be satisfied with their lives as a whole (item 2) and are most likely to consider that things in their lives are going as they want them to be (item 5). Moreover, if a person is generally satisfied with life (item 2) he/she would not prefer to change anything, if he/she could live life over again (item3). This is indicated through high positive correlation between item number 2 and 3. On the other hand, Item number 3 showed relatively high correlation with item number 4 and 5. This indicate that if a person perceives that things in their lives are going as they want them to be they are least likely to change anything in their lives, if they could live it over again. In addition they would more likely to be satisfied that they have attained goals they deemed important in their lives (item 5). Furthermore, as indicated through high positive correlation between item number 5 and 1; satisfaction that the person has attained important goals and aspirations further leads to the feeling that one's actual life is close to one's ideal life.

Test re-test reliability was estimated by administering the scale twice with 1 week time interval between the two administrations. Table 17 shows that the newly established scale of subjective well-being has high temporal stability for positive affect (.767) and negative affect (.731). It exhibited highest temporal stability for life satisfaction subscales i.e. strong Pearson Product Moment Correlation Coefficient of .824. This suggests that any replication of the newly established SWB measurement instrument tend to produce near similar scores for life satisfaction subscale. However measurement of mood is less likely to yield exact scores and show strong correlation amid two administrations of mood subscales because people's moods are more likely to change on daily basis. Very high test re-test reliability would be incorrect, as it would indicate that the instrument is not sensitive to these changes.

Alpha coefficient of .838 for PA, .848 for NA and .807 for life satisfaction subscale and split half reliability of .821, .812 and .767 for PA, NA and life satisfaction subscales respectively indicate that the corresponding subscales are internally consistent. The values fall in the acceptable ranges and indicate that each item of the respective subscales are measuring the same construct and adding adequately to the overall test reliability.

Conclusion

Experience of emotions and satisfaction with life differ markedly across cultures; hence there was a dire necessity for an instrument in a local language that can quantify level of subjective well-being in a Pakistani population. ICP Subjective Well-Being Scale is a positive step in this direction. ICP Subjective Well-Being Scale is established as a reliable and valid tool to measure affective and cognitive well-being of adults. The scale can be used with people who can read Urdu. To examine subjective well-being through this scale, higher education is not required. Minimum qualification is comprehension of Urdu language. Each item is proven as self explanatory and easy to understand. The scale can be conveniently applied and scored in less than 15 minutes. Thus, to gain insight into the subjective feelings of affective and cognitive well-being of adults, ICP Subjective Well-Being Scale is a promising instrument.

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