CHAPTER II
REVIEW OF RELATED LITERATURE

The present chapter consists of review of related literature being presented in two sections. The first section consists of studies related to the verification of Alternative Five Factor Model and psychometric properties of ZKPQ across the cultures. The second section consists studies depicting the application of Alternative Five Factor Model in various areas such as clinical, organizational behaviour, mental health etc.

SECTION-I
Studies Related with Psychometric Properties of ZKPQ indexing AFFM

Aluja et al. (2003) studied the relationship among extraversion, openness to experience and sensation seeking on a sample of 1006 undergraduate non-psychology students (367 males and 639 females) who were enrolled in different degrees: Law, Medicine, Pedagogy, and Physical Education. The age range was 17 to 52 with a mean age of 22.25 and SD 4.98. For this, the Spanish version of the Sensation Seeking Scale-Form-V and the NEO-PI-R were administered. Obtained data was analyzed using by descriptive statistics, Pearson’s correlation, factor analysis, linear regression and discriminant analysis. SSS-V scales were obtained similar means to those of the Spanish validation study. Alpha coefficient was 0.82, oscillating between 0.53 and 0.82 for the scales. The average scores on NEO-E and NEO-O were similar to those in American and Spanish standardizations. Alpha reliabilities were 0.87 and 0.84, for NEO-E and NEO-O, respectively. Correlations range were -0.06 to 0.38 between Extraversion and Openness to Experience and -0.08 to 0.58 between Extraversion and Openness with SSS-V. Principal component analysis with varimax rotation extracted three factors namely Extraversion; Openness to Experience and Sensation Seeking. Taking the subscales of SSS, as a dependent variables, the E5, O4, and O1 explained 30% of the variance of TAS; O4,E5,O6, and O1 explained 31% of ES; E5, O1, E1, O6, O5, and O3 explained 26% of the variance of Dis; E5, E1, E4, O3,O6, and O4 explained 10% of the variance of BS and finally, E5, O4, O1, E1 and O3 explained 40% of the total variance of SSS-V. Discriminant analysis suggested that O1, O4 and E5 permit a correct classified of 85% of the subjects.
Aluja et al. (2007) studied the equivalence of the ZKPQ-50-CC (Spanish and French Versions) through internet online and paper and pencil answer format on a sample of 5972 subjects (185 males and 4116 females). The sample comprised subjects from Spain and Switzerland which were further divided in two groups by residency of country according to answer format i.e. Spanish subjects 3827 (1886 for online and 1941 for paper and pencil) and Swiss 2145 (742 for online and 1403 for paper and pencil format). Obtained data were analyzed by applying Descriptive statistics (means, deviations, kurtosis, skewness and alpha coefficients) and t-test for comparison by country wise. For the Spanish version, the mean differences for OL-PP formats were statistically significant for all scales (except for Aggression-Hostility) whereas deviation differences were for Sociability and Activity. In the Swiss sample significant mean differences were found for Impulsive-Sensation Seeking and Sociability but no significant differences were found regarding deviation. Regarding the alphas, there were no significant differences for both the formats. Statistically significant gender differences were found in Neuroticism-Anxiety, Impulsive-Sensation Seeking, Aggression-Hostility, Sociability and Activity factors. All country by form, country by sex, form by sex and country by form and by sex interactions were non significant or associated with a negligible effect size ($n^2<.01$). Exploratory factor analysis for four factor solution with varimax rotation for each sample i.e. Spanish-PP, Spanish-OL, French-PP and French-OL was carried out and the Kaiser-Meyer-Olkin technique suggested that measures of sampling adequacy were .83, .83, .82 and .84 respectively. Total Tucker’s congruency coefficients between the Spanish and Swiss ZKPQ-50-CC format were: a Spanish-OL v/s Spanish-PP (0.98), and b French-OL v/s French-PP (0.98). Confirmatory factor analysis also carried out and supported the findings reported in other analyses.

Aluja et al. (2010) developed a 200 items ZKA-PQ based on the theoretical constructs of the Alternative Five Factor Model of personality. Five samples were included in the study. The first sample consisted of 1,042 subjects (559 women and 483 men) with a mean age of 38.6 years. The second sample had 529 subjects (271 women and 258 men) with a mean age of 44.2. The third sample consisted of 480 American undergraduate students (360 women and 119 men) from an introductory psychology course with a mean age of 18.48 years. The fourth and fifth samples were
used to test the convergent and discriminant validity of the ZKA-PQ with the Revised NEO Five Factor Inventory and the TCI-R-140. Both the samples consisted on 293 subjects (153 women and 140 men) with the mean age of 45.23 years and 248 subjects (135 women and 113 men) with the mean age of 33.06 years respectively. From an initial pool of 537 items, 5 factors with 4 facets per factor and 10 items per facet were included. Obtained data were analyzed with multivariate statistics including Principal Axis Factor Analysis, Coefficients of factorial congruency, Structural Equation Modeling (SEM), Multigroup Analysis, Descriptive Statistics, Mean Comparisons and Cronbach’s alpha. The results showed the adequate internal consistencies of the ZKA-PQ for the factors. Confirmatory Factor Analysis showed satisfactory goodness-of-fit indexes, but not for the 5 factor simple structure. Regarding the secondary loadings and the correlated error terms, the model fit improved. Multigroup analysis depicted gender differences for the factors of Sensation Seeking, Neuroticism, Aggressiveness, and Activity for the Spanish speaking sample, but only for Aggressiveness in the English speaking sample. The ZKA-PQ also showed good convergent and discriminant validity.

Angleitner et al. (1994) examined the relationship among NEO Personality Inventory, Zuckerman-Kuhlman Personality Questionnaire, Professional Personality Questionnaire and Bipolar Adjective Rating Scales. All these instruments measure the five factors of personality in different perspectives. The sample consisted of 108 male and 214 female subjects with age range from 16 to 68 years with the mean age of 25.1 years and standard deviation of 8.0 years. These subjects were business managers or students of Economics or Business Management, because they were best suited for the Professional Personality Questionnaire. Obtained data were analyzed using by Pearson’s correlations, Cronbach’s alpha reliability and Principal Component Factor Analysis. Results revealed that mean item correlations and Cronbach’s alpha for all the four instruments to be satisfactory. Regarding the factor analysis, firstly, 179 BARS were rotated by the varimax method and the resulting factors were clearly interpretable as the Big Five. Then, common analysis of all the scales was carried out and first seven eigenvalues were 4.38, 3.15, 2.70, 1.95, 1.65, 0.99, and 0.83, and the first five principal components explained 69.2% of the total variance. These five factors were named Neuroticism, Extraversion, Openness to Experience,
Agreeableness and Conscientiousness; and all the instruments have significant loadings on target factors.

Delignieres and Sabas (1995) in a study investigated the factorial structure of Sensation Seeking Scale on an intermediate sample consisting of 115 subjects (61 males and 54 females) aged from 16 to 18 years. For obtaining the data, the French Version of the Sensation Seeking Scale was administered on the subjects. Obtained data was analyzed using by Pearson’s correlation and Principal Component Factor Analysis with varimax orthogonal rotation. A four factor solution was carried out to confirm the nature of factors identified by previous studies. The total 31.33% of the variance was explained and the first four eigenvalues were 3.84, 3.24, 3.06 and 2.39. The first factor named as Thrill and Adventure Seeking was marked by 9 items (Danger, Parachute, Scuba diving, Mountain climber, Experiences, New foods, Airplane, High board and Skiing) with loadings higher than 0.4. The second factor was defined by 5 items (Stimulants, Marijuana, Couple of drinks, Drugs and Drinking) with loadings higher than 0.4, all of appeared on the original Disinhibition factor. The third factor was made up of a new combination of items, two from Boredom Susceptibility, three from Experience Seeking, and one from the Disinhibition factor, and all these items having loadings higher than 0.4. The fourth factor was constituted by 6 items, four of them were related with original Disinhibition factor and remaining two were associated with Thrill and Adventure Seeking and Experience Seeking. However, most of the items were significantly associated with target factors. Few were loaded on unexpected factors and six items did not obtain significant loading on these factors.

Garcia et al. (2005) investigated whether Openness to Experience is an independent trait?. For this, a total sample of 1006 undergraduate non-psychology students (367 males and 639 females) with a mean age of 22.25 years was selected to participate in study. For obtaining the data, Spanish version of the NEO Personality Inventory Revised, Form-S, short version of the Eysenck Personality Questionnaire-Revised, the Zuckerman-Kuhlman Personality Questionnaire-3rd-R and the Sensation Seeking Scale Form-5 were administered on the participants. Obtained data was analyzed by applying Linear Regression Analysis, ANOVA, and Tuker’s post-hoc
statistical test. Results revealed that NEO-E was the scale the most clearly related with Openness to Experience and its facets, except for O4 Actions and O6-Values. Similarly, Sensation Seeking Scale was also significant predictor of Openness to Experience especially for O4-Actions while, other scales of personality did not explain the significant variance. Then, sample was categorized in three groups for further analysis on the basis of obtained scores on personality scales. Divisions were made taking half a standard deviation below and above the mean as cut off scores. ANOVA depicted that Extraversion and Sensation Seeking were consistently related with Openness to Experience and its facets as earlier described. Neuroticism showed a trend toward being positively related to O6-Values. A1, A3 and A6 facets were significant related to Openness to Experience groups, but subjects in group 3 scored lower on A2, A4, and A5. Conscientiousness facets were also related to Openness to Experience. Group 3 had a larger EPQ-P mean than the other two groups and indicating that Psychoticism could be linked to high scores on Openness. However, there was some significant convergence of Openness with other traits of personality yet it is an independent dimension from other personality concepts.

Goma-i-Freixanet et al. (2004) studied the psychometric properties of the Catalanian Version of Zuckerman-Kuhlman Personality Questionnaire on a sample of 933 Spanish subjects (330 males and 603 females) with age ranging from 17 to 25 years. Subjects completed the Catalanian Version of ZKPQ complying the ethical rules of APA. Obtained data were analyzed by using descriptive statistics, alpha coefficients, t-test, Pearson’s Correlations and Exploratory Factor Analysis. Descriptive statistics (means, standard deviations, skewness and kurtoses) showed data to be normally distributed. The magnitude of the alpha coefficients was adequate and very similar to those found in the original American version. The mean alpha for the ZKPQ scales for the total sample was .76, with the values ranging from .67 to .84. N-Anx scale had the highest reliability (.84) and Agg-Host had the lowest (.67); Act, Sy, and ImpSS were intermediate (.74-.79). Test-retest reliabilities with two-weeks for N-Anx (.87), Act (.89), Sy (.90), Imp-SS (.91) and Agg-Host (.77) indicating that the scales were reliable. Results inquiring the gender differences showed that women scored significantly higher on the N-Anx and Sy scales; and men scored high on Imp-SS and Infrequency scales. There were no significant gender differences on Act and
Agg-Host scales. Pearson’s correlations were computed for men and women separately. In the total sample, correlations among scales ranged from -0.19 to 0.22. Exploratory Factor Analyses was carried out following normalized varimax rotation. The first five factors of the total sample explained 25.09% of the variance. In the male sample five factors were N-Anx, Imp-SS, Sy, Agg-Host and Act, which accounted for 5.6%, 5.4%, 4.7%, 4.4% and 3.8% of variance respectively. In the female sample the five factors were N-Anx, Imp-SS, Act, Sy and Agg-Host, which accounted for 6.4%, 5.9%, 4.9%, 4.41%, and 3.8% of variance respectively. Tucker’s Congruence Coefficients were also computed between American and Catalonian samples which were found ranging from .84 to .96.

Goma-i-Freixanet et al. (2008) in a study examined the discriminant validity of the Zuckerman-Kuhlman Personality Questionnaire by comparing a sample of diagnosed with Borderline Personality Disorder patients with normal range controls. For this purpose, two samples were selected and matched by demographic variables. The first clinical sample consisted of 74 outpatients (65 women and 9 men) with a mean age of 27.32 years and standard deviations of 5.32 years. The second sample comprised of 148 subjects (130 women and 18 men) with a mean age of 27.32 years and standard deviation of 5.32 years. This second control group was extracted from a comprehensive general population sample pool of 1,169 subjects which matched the IDESCAT Census Projects for the year 2000 in the distribution of age and sex groups. All respondents participated voluntarily in the study and were assessed using by Structured Clinical Interview for DSM-IV Axis-II Personality Disorders, and Spanish Version of the Zuckerman-Kuhlman Personality Questionnaire. Obtained data were analysed by using Descriptive Statistics, Pearson’s Correlations, and Logistic Regression Analysis. Both groups differed significantly on all the personality dimensions except the Infrequency Scale. The BDP group scored higher on Neuroticism-Anxiety, Impulsive-Sensation Seeking and Aggression-Hostility; and significantly lower on Activity and Sociability scales. Cronbach’s alphas ranged between 0.73 to 0.79 for BPD sample; and between 0.66 and 0.87 for control group sample. Correlation coefficients among Zuckerman-Kuhlman Personality Questionnaire scales for clinical group depicted that Neuroticism-Anxiety borne out significant positive correlations with both Impulsive-Sensation Seeking and
Aggression-Hostility dimensions, while there were no such correlations in the general population sample. The correlation coefficients in the general population sample were very low in magnitude, although they were statistically significant due to the sample size. Logistic Regression Analysis with stepwise method suggested that Neuroticism-Anxiety, Impulsive-Sensation Seeking and Activity are robust predictive dimensions for the categorical diagnosis of BPD. It means that having high scores on Neuroticism-Anxiety and Impulsive-Sensation Seeking and low scores on Activity is a prognostic factor with high probability of being endorsed with a BPD diagnosis. The accuracy of the model at the dimensions and facets level also exemplified by concordance and predictive indexes. Results suggested that the accuracy of the Zuckerman-Kuhlman Personality Questionnaire was not only significant statistically but was also high in magnitude. The obtained area under the ROC curve with a cut-off point of 0.4 was 0.94 (CI 95% 0.90-0.97) indicating almost perfect diagnostic accuracy.

Goma-i-Freixanet and Venture (2008) translated and adapted Zuckerman-Kuhlman Personality Questionnaire in the Spanish language on a sample of 1,678 participants, (741 males and 973 females) ranging in age from 18 to 93 years with a mean age of 40.26 years and standard deviation of 18.84 years. For this, the Spanish Version of Zuckerman-Kuhlman Personality Questionnaire was administered on the participants after complying the ethical rules of APA. Obtained data were analyzed by applying Descriptive Statistics, ANOVA, Partial Correlation, and ANCOVA. Firstly, 5 age ranges i.e. 18-25, 26-40, 41-55, 56-70, 71-93 in the context of genders, a total 10 conditions were generated with a sufficient number of subjects in each condition. The distribution of scores of each age group and gender was normal for all the scales and subscales (except Infrequency). ANOVA implied that both age and gender except and only for both the variables gender in the Activity, General Activity, Parties and Friends and Impulsivity were significant in almost all conditions. Effect of Education was also studied and ANOVA revealed statistical significant differences among scales and subscales. Among the scales, Correlation Coefficients were carried out by using partial correlation controlling for age, gender and level of education in order to obtain better adjusted estimations. Results revealed that there exists a low level of co-variation among the dimensions with correlation ranging from -.01 to .25, with an
absolute mean inter-scale correlation of .14. ANCOVA was performed for each scale and subscale taking as principal effects age and gender, and level of education as a covariant and estimated the normative means and standard deviations. In the last it depicted that almost all the scales and subscales were independent to each other.

Goma-i-Freixanet and Wismeijer (2005) studied the consensual validity of the Zuckerman-Kuhlman Personality Questionnaire with multitrait-multimethod matrix of self-reported and spouse reported responses. The total sample was made up of 171 subjects (86 men and 85 women) ranging in age from 19 to 75 years with a mean age of 38.21 years. These participants were friends, parents, and relatives. Data was obtained by using Catalonian translated version of ZKPQ. Obtained findings depicted that men and women did not differ significantly on age, although the former were on average 3.20 years older. Means of scales of the ZKPQ were very similar to the Original U.S.-Version and Catalonian-Version; and found the general trend that women tend to score high on Neuroticism-Anxiety and Sociability; and low on Impulsive-Sensation Seeking and Infrequency Scale. Regarding the difference between self and spouse, data did not find any significant difference. To examine the internal consistency of self and spouse reports Cronbach’s alpha were calculated. The alpha mean of self reported and for the ZKPQ scales was .78 with values ranging from .69 to .87. Neuroticism-Anxiety had the highest internal consistency and Aggression-Hostility the lowest, and these coefficients were adequate and very similar to those found in the original U.S. version. The mean spouse reported alphas for the same scales was .81 with values ranging from .77 to .86. In terms of convergent validity, all scales showed a significant level of self-peer agreement ranged from .47 to.63. It was also found that all the scales displayed a good level of discriminant validity. In the last, factor analysis applied on the combined self and spouse-reported scales. Five factors were extracted namely- Impulsive-Sensation Seeking; Neuroticism-Anxiety; Aggression-Hostility; Sociability; and Activity.

Kumar (2011) studied the integration of Alternative Five Factor Model, Big Five Factor Model, and Cattellian Model of personality. A total sample of 202 students (112 males and 90 females) of various PG departments from the Kurukshetra University, Kurukshetra (Haryana) was selected to participate in the study. The age of
subjects ranged between 19 to 28 years with the mean age of approximately 23.5 years. For this, Sixteen Personality Factor Questionnaire (Form-B), NEO-Five Factor Inventory, and Zuckerman-Kuhlman Personality Questionnaire were administered strictly following the instructions specified in the respective test manuals. Obtained data were analyzed by applying Descriptive Statistics (frequency distributions, means, standard deviation, skewnesses and kurtoses), Pearson Product Method of Correlation, and Principal Component Factor Analysis. Results revealed that the distributions of scores on all scales were almost normal. 27x27 intercorrelations matrix was subjected to Principal Component Factor Analysis. Eight factors were extracted after varimax rotation with eigenvalues greater than 1.00 which explained 66.82% of the total variance. The eight eigenvalues were 5.26, 2.76, 2.47, 1.67, 1.65, 1.53, 1.44 and 1.28. Varimaxely rotated factors have been labeled as: Neuroticism-Anxiety, Extraversion, Openness, High Superego strength, Self-Concept Control, Carelessness, Independence and Cool-Realism v/s Prodigal Subjectivity. Findings depict some overlap among these models of personality.

Mitrovic et al. (2009a) conducted a study for the validation of the ZKPQ-50-CC in the Serbian culture on the 1155 subjects consisting of 511 men and 644 women ranging from 18 to 76 years with the mean age of 32.11 years. Obtained data were analyzed by using Descriptive Statistics, Sampling Adequacy, Alpha coefficients, t-tests, Correlations and Confirmatory Factor Analyses. Descriptive Statistics depicted the normalcy of data. MSA and alpha coefficients ranged from .79 to .86 and .65 to .78 respectively. All dimensions, except the N-Anx were correlated significantly with age. Regarding the gender differences, t-test suggested significant differences on Act and N-Anx. Men scored higher than women on Act, and women scored significantly higher on N-Anx. Confirmatory Factor Analysis demonstrated all the items (except 6, 11, 19 and 43) having significant loadings on the target factors.

Mitrovic et al. (2009b) studied the process of construct validation of ZKPQ-50-CC in relation to EPQ-R on a sample of 200 Serbian subjects consisting of 90 men and 110 women with the age range from 19 to 63 years with the mean age of 37.11 years. EPQ-R was translated in Serbian language and found alpha coefficients reliabilities .85 for Neuroticism, .83 for Extraversion and .66 for Psychoticism.
Relationship between ZKPQ-50-CC and EPQ-R dimensions were evaluated using structural equation models. From these models, model fit was assessed using model Chi-square, Goodness of Fit Index, Comparative Fit Index, Root Mean Square Error of Approximation and RMS standardized residual. The first model included Neuroticism and Neuroticism-Anxiety on the first latent dimension while Activity, Sociability and Extraversion were on the second latent dimension, and Psychoticism, Aggression-Hostility and Impulsive-Sensation Seeking were loaded on the third latent dimension. These third dimensions were uncorrelated to each other. The second model was also somewhat better fit, as the first one, except the latent dimensions were correlated. The third model was slightly better fit, but the loading of Activity on the first latent dimension was non-significant. The fourth model had the best fit indices but Activity also resulted in extremely low and statistically non-significant on any of the dimension.

Mohammad et al. (2013) in a study validated the Malay Language Zuckerman-Kuhlman Personality Questionnaire Cross-Cultural 50 items (ZKPQ-M-50-CC). The sample consisted of 150 prison inmates who were incarcerated in two prisons in Peninsular Malaysia. Firstly, the instrument was translated in Malay language following the ethical issues of APA. Obtained data were analyzed using Descriptive Statistics for socio demographic information, Exploratory Factor Analysis for construct validity, and Cronbach alpha coefficients for internal consistency. Socio demographic information suggested that the participants age range was between 19 to 53 years old with a mean age of 29.18 years (SD=8.52). With reference to marital status, the majority of respondents were single (74.7%). Regarding the level of education, 50% of the participants achieved upper secondary education and a small percentage of respondents had diplomas or degrees (5.3%). Prior to the conviction, these respondents were self employed (41.3%) and 36% of the respondents had worked in unskilled or semiskilled professions such as general laborers, security guards, and lorry drivers. 2.7% of participants were employed as professionals or managers prior to their conviction. The Principal Component Analysis revealed that the presence of fifteen factors with eigenvalues exceeding 1.00, explaining a total variance of 71.1%. After considering the grouping of items, five factors which are parallel to the five domains in Alternative Five Factor Model were retained and these
factors explained a total variance of 43.63% which of them factor 1 explained 15.19%, factor 2 explained 9.61% variance, factor 3 accounted for 7.85% variance, factor 4 explained 6.05% variance and factor 5 accounted for 4.92% variance. The first factor was Neuroticism-Anxiety, on which eight items i.e. N-Anx 1, N-Anx 2, N-Anx 3, N-Anx 4, N-Anx 5, N-Anx 6, N-Anx 7, N-Anx 9; and N-Anx 10 have significant loadings. Factor 2 was Activity, on which eight items i.e. Act 1, Act 2, Act 3, Act 4, Act 6, Act 7, Act 8, and Act 10 have significant loadings. The factor 3 which was Sociability, comprises of eight items with significant loadings and these items were Sy 1, Sy 2, Sy 3, Sy 5, Sy 7, Sy 8, Sy 9 and Sy 10. Factor 4 was Aggression-Hostility, on which seven items i.e. Agg-Host 1, Agg-Host 2, Agg-Host 4, Agg-Host 6, Agg-Host 8, Agg-Host 9, and Agg-Host 10. Factor 5 which was Impulsive-Sensation Seeking, comprises of seven items with significant loadings and these items were ImpSS 2, ImpSS 4, ImpSS 5, ImpSS 7, ImpSS 9, ImpSS 10, and Agg-Host 3. The alpha coefficient range for ZKPQ–M–40–CC was 0.76 to 0.84 and the composite reliability for all the five domains was 0.75. These all factors i.e. Activity, Sociability, Aggression-Hostility, Impulsive-Sensation Seeking and Neuroticism-Anxiety had satisfactory reliabilities i.e. .76, .80, .79, .78 and .84 respectively.

Rossier et al. (2007) studied the cross cultural replicability of Alternative Five Factor Model of personality on a sample of 9.152 subjects from 6 countries consisting of 5,956 females and 3,196 males. For this, internal consistencies, correlations with age; and gender differences were carried out. It was found that the internal consistencies across countries were similar to those found in the American sample. Gender differences were congruent with those found in American sample. Women scored high on Neuroticism-Anxiety and men high on Sensation-Seeking, Work Effort and Infrequency Scales. Principal Component Factor Analysis was carried out for factor and facet structure across the countries. Targeted factor analysis and congruence coefficients showed high cross-language replicability at the factor as well as facet level. However, the results supported the validity of the Alternative Five Factor Model of personality.

Rossier et al. (2008) conducted a study to investigate the psychometric properties of the French Version and the cross-language replicability of the
The sample was selected from social sciences students, their friends and relatives and consisted of 843 Swiss French speaking young adults (514 males and 329 females) with the mean age of 23.06 years for women, and 25.01 years for men. All the 99 items of Zuckerman-Kuhlman Personality Questionnaire were translated into French language and blindly back translated into English by a professional translator and checked by the authors of the questionnaire. Analyses were done by using Descriptive Statistics, alpha coefficients, t-test, Exploratory and Confirmatory Factor Analysis. Results revealed that data was normally distributed and similar to those found in the American sample. Alpha coefficients range was .73 to .87 (.71 to .86 for women and .74 to .83 for men) for global scales and .59 to .76 (.59 to .77 for women and .57 to .74 for men) for facet scales. Gender differences suggested women scoring significantly high on Neuroticism-Anxiety and significantly low on Impulsive-Sensation Seeking, Activity, and Infrequency scale than men. Principal Component Exploratory Factor Analysis with varimax rotation allowed extracting five factors using Cattell’s criterion. The first six eigenvalues were 7.49, 5.97, 4.19, 3.46, 2.97, and 2.21. Factor 1 was associated with Neuroticism-Anxiety; factor 2 with Impulsive-Sensation Seeking; factor 3 with Activity; factor 4 with Aggression-Hostility; and factor 5 with Sociability. Intercorrelations between five factors of the Zuckerman-Kuhlman Personality Questionnaire were very low ranging from -.14 to .22. The loading matrices of French speaking sample were analyzed to an orthogonal procurstes rotation using the American loading matrices as the target. For the global loading matrix the total congruence coefficient was .96 and the per factors the congruence coefficients were .96, .97, .93, .96, and .94 for Impulsive-Sensation Seeking, Neuroticism-Anxiety, Aggression-Hostility, Activity, and Sociability respectively. To evaluate the validities, the confirmatory factor analysis was carried out and results suggested the construct validity at both factor and facet levels up to acceptable level.

Rossier et al. (2012) investigated the cross-cultural replicability of Zuckerman’s Revised Alternative Five Factor Model in 4 French-speaking countries in the context of validating the Zuckerman-Kuhlman-Aluja Personality Questionnaire (ZKA-PQ). The total sample consisted of 1,497 subjects from Belgium, Canada,
France, and Switzerland and from this, each country having 531, 345, 244, and 377 subjects respectively. Translated questionnaire was used after following the ethical rules of the APA. Obtained data was analyzed using by Descriptive Statistics, Internal Consistencies, Pearson’s Correlations, and Principal Axis (PA) Factor Analysis with varimax rotation. Descriptive statistics depicted the data to be almost normally distributed. Internal consistencies were .92, .89, .91, .93, and .89 for Aggressiveness, Activity, Extraversion, Neuroticism, and Sensation Seeking respectively. Regarding the gender differences for the factors, men had slightly higher scores on Aggressiveness and Sensation Seeking, and women had higher scores on Neuroticism (.dz.20). The influence of age was also studied, and found it to be negatively associated with Aggressiveness, Extraversion, and Sensation Seeking, and positively with Activity. Country wise, the participants of Belgium had slightly higher scores on Aggressiveness and slightly lower scores on Extraversion than the participants from the other countries. Participants from Belgium and France had slightly higher scores on Neuroticism as compared to the Canadian and Swiss participants. Principal axis factor analysis with varimax rotation on the 20 facets allowed extracting five factors using Cattell’s criterion, Kaiser’s criterion, and Velicer’s minimum average partial test. These factors explained 67.16% of the total variance. Factor-I correlated with Neuroticism (r=.98), factor-II with Aggressiveness (r=.95), factor-III with Extraversion (r=.94), factor-IV with Sensation Seeking (r=.97), and factor-V with Activity (r=.98). The loading matrix of the French version was also compared with loading matrices of the original Spanish and English versions and congruence coefficients were found ranging from .98 to .99 for factors and from .94 to 1.00 for facets.

Zuckerman et al. (1988) conducted a study to investigate the dimensions of personality underlying some of the personality traits measured by questionnaires that have been used in research on the biological bases of personality. The sample was drawn from two classes with an initial total of 312 (91 men and 221 women). Eliminating the incomplete protocols, the sample was reduced to 271, with 73 men and 198 women. For the data collection, forty six scales from eight tests were selected and administered on the subjects. Obtained data were analyzed using by Factor Analysis with orthogonal and oblique rotations for three, five and seven factor solutions. Mean differences were also seen between sexes on the individual scales and the factors. A preliminary Principal Component Analysis revealed 10 eigenvalues of
the correlation matrix in excess of unity and these 10 factors accounted 67% of the total variance. A scree test suggested a maximum of five factors and the slope from factors 6 to 10 was virtually flat. The cumulative percentages of variance accounted for by the first seven factors extracted, 22% for factor-I, 35% for II; 44% for III; 49% for IV; 54% for V; 57% for VI; and 60% for VII. Regarding the seven factor solution, factor-I had primary loadings from activity, energy level, flexibility, and work efficiency scales and therefore can be labeled as Activity. Factor-II described as Aggressive Sensation Seeking v/s Responsibility which was marked by one of aggression and two of sensation seeking subscales at the positive pole and responsibility and two social desirability scales at the opposite pole. Factor-III loaded on E scale and all the subscales of sociability, hence, called Sociability. Factor-IV was best described as Impulsivity it was having primary loadings of impulsivity, monotony avoidance and P scales. Factor-V, VI and VII were labeled as Neuroticism-Anxiety, Autonomy v/s Conformity and Anger v/s Restraint respectively. In Five Factor solution, Neuroticism-Anxiety, Sociability, Impulsive-Unsocialized Sensation Seeking (ImpUSS) and Aggressive Sensation-Seeking were extracted. Three factor solution suggested Extraversion, Impulsive-Unsocialized-Sensation-Seeking and Neuroticism-Emotionality. Mean differences were computed regarding the sexes on the factor scales for the three major factors derived from the factor analysis of total group. A multivariate test of significance yielded on overall F of 10.66 (df=3, p<.001) and Univariate F tests showed no significant difference on the E-Sociability factor; men were significantly higher (p<.001) on the Impulsive-Unsocialized- Sensation-Seeking factor, and the women were significantly higher (p=.004) on the Neuroticism-Emotionality factor.

Zuckerman (1971) in a study written the forced-choice items for the Sensation Seeking Scale (SSS) to develop new scales representative of hypothesized dimensions of sensation seeking. Data was obtained using by Form-III which was an experimental form consisting of the original 50 items in Form-I plus 63 new items, for a total of 113 forced-choice items. This new form was given to 160 male and 172 female undergraduates at Temple University and later to 41 male and 51 female undergraduates at university of North Carolina. The obtained data from the Temple University was analyzed for initial development of the scales and data of the second sample was used to check the reliabilities of scales. Principal Component solution was carried out with both orthogonal (varimax) and oblique (oblimin) rotations. Initially, a
15 factor solution was done and of them, the first four factors accounted for 23% of the total variance in males and females. Few items loaded on subsequent factors, and their content significance second obscure. However, besides the general factor running through diverse items, four factors were extracted from the rotated factor loadings; these were labeled: Thrill and Adventure Seeking, Experience Seeking, Disinhibition and Boredom Susceptibility. Boredom Susceptibility was the fourth factor in males but emerged as the sixth factor in the females. The correlations between the factor loadings in the males and females were as follows: Thrill and Adventure Seeking (.75); Experience Seeking (.83); Disinhibition (.81) and Boredom Susceptibility (.37). Odd-even reliabilities with Spearman-Brown formula were calculated both in the Temple university sample, used in the derivation of scales, and in the additional sample obtained at university of North Carolina, as described earlier. The reliabilities of the General SSS and Thrill and Adventure Seeking, Experience Seeking, and Disinhibition subscales were satisfactory in males and females in both samples.

SECTION-II

Studies Related the Application of Alternative Five Factor Model of Personality in different areas of Psychology

Aluja et al. (2007) studied the relationship between the basic dimensions of the Zuckerman’s model of personality and the 14 personality disorder scales of the Millon Clinical Multiaxial Inventory-III. For this, 673 subjects (255 males and 417 females; in one case the sex was not informed) with the mean age of 33.19 years for males, and 31.10 years for females participated in the study. Obtained data was analyzed by using descriptive statistics, alpha reliabilities, factor analyses, regression (linear and logistic) and graphical analyses. Obtained skewness and kurtoses depicted normal distribution of scores for all the five dimensions (values between -.84 to .09) and alpha reliabilities oscilated between .71 and .85 for the Zuckerman-Kuhlman Personality Questionnaire. Five varimaxely rotated factors extracted from the scores of five scales of the ZKPQ and 14 of the Millon’s scales. Results showed every dimension of ZKPQ to be loaded on a separate factor. Neuroticism-Anxiety along with 10 of the 14 MCMI-III scales (excluding Histrionic, Narcissistic, Antisocial and Obsessive-Compulsive disorder) appeared on the first factor of solution. Impulsive-Sensation Seeking had significant positive loading on second factor of the solution with scales of Antisocial, Narcissistic, Sadistic, Borderline and negative with
Obsessive-Compulsive disorder of personality. Sociability loaded on the third factor with Histrionic and Avoidant (the latter in negative), personality disorder scales. Aggression-Hostility and Sadistic personality disorder scale loaded positively on fourth factor; and finally, Activity, Narcissistic, Borderline, Obsessive-Compulsion and Histrionic scales loaded on the fifth factor. Linear and logistic regression analyses suggested all the dimensions of ZKPQ (except Activity) to be significant predictors of disorders of clusters A, B and C. The graphical analyses suggested nonlinear relationship between ZKPQ scales and the three DSM personality disorder clusters.

Avsec and Kavcic (2011) studied the importance of personality traits and emotional intelligence for agentic and communal domains of satisfaction. A sample of 442 students and young adults, using by snow ball sampling technique was selected from the different domains of the Slovenia. The age range was 17 to 40 years with a mean age of 29.9 years and standard deviation of 5.7 years. Participants completed the Short Version of Zuckerman-Kuhlman Personality Questionnaire (ZKPQ-50-CC) and Short Version of the Emotion Skills and Competence Questionnaire (ESCQ-45). Obtained data were analyzed by using Pearson’s Product Moment Method of Correlation and Hierarchical Regression Analysis. Results revealed that correlations among all the variables included in the study ranged from low to moderate. Satisfaction in all three domains was positively associated with Emotional Perception, Expression and Regulation; and negatively with Neuroticism-Anxiety whereas the correlations with other personality variables were low. Multiple Regression Analysis depicted Zuckerman’s personality traits and emotional intelligence as best predictors of all the three domains of satisfaction, after controlling participants’ gender, age and status. These predictors jointly accounted for 38%, 27% and 22% of total variance in the communal, agentic, and physical domain of satisfaction respectively. With regard to satisfaction in communal aspects of life, gender, low Neuroticism-Anxiety and Impulsive-Sensation Seeking, and high Activity, Aggression-Hostility and emotional intelligence were best predictors. Regarding the agentic domain of satisfaction, gender, low Neuroticism-Anxiety, low Impulsive-Sensation Seeking, high Activity, Emotional Expression and Regulation were significant predictors. Satisfaction with physical condition was significantly predicted by low Neuroticism-Anxiety, high Activity, and Emotional Expression. Hence, Zuckerman’s personality traits and emotional intelligence emerged to be the significant predictors of different domains of satisfaction.
CAI et al. (2009) studied the relationship between love-pursuing pattern and personality traits on a 164 Chinese undergraduates students who were in a current heterosexual-love relationship. For this, adjective-based LPP questionnaire, Zuckerman-Kuhlman Personality Questionnaire, Zuckerman Sensation Seeking Scales, and the Plutchik-Van Praag Depression Inventory were administered. Obtained data were analyzed with ANOVA, Multiple Regression, and Principal Component Factor Analysis. When the four groups were compared together, there were no statistically significant between-group differences when the mean scores of ZKPQ, SSS, PVP, SUIT, HAPPP, and PROB scales were considered. Results revealed that Aggression-Hostility was negatively correlated with HAPP (adjusted $R^2=.06$, beta=-.27, p<.05); Activity was positively correlated with SUIT (adjusted $R^2=.06$, beta=.24, p<.05); and the SSS Experience Seeking score was negatively correlated with PROB (adjusted $R^2=.05$, beta=-.25, p<.05). For Love-Pursuing Pattern items, the principal component analysis extracted five factors with eigenvalues of 4.65, 2.85, 2.03, 1.81, 1.13 respectively. These five factors were Impulsive, Persiant, Frank, Threatening, and Shy; and internal alphas of these factors were .81, .86, .43, .72, and .66 respectively. Regarding the initiator and receiver groups, the LPP scale scores were not statistical-significantly different from each other. When the 98 initiators joined together, SSS Experience Seeking was negatively correlated with the LPP Impulsive scale (adjusted $R^2=.08$, beta=-.25, p<.05), Disinhibition was positively correlated with Threatening scale (adjusted $R^2=.09$, beta=.29, p<.05) and PVP score was negatively correlated with Persistent scale (adjusted $R^2=.09$, beta=-.29, p<.05).

Campbell et al. (2010) studied the relationship between androgen exposure, dopaminergic reward and sensation-seeking and compared the variation in salivary testosterone (T), 2D:4D digit ratio, facial masculinity, sensation-seeking scale and the 4D dopamine receptor (DRD4) on a sample of 98 young men, between the ages of 18 and 23 years. In univariate analysis, both salivary T and facial masculinity were significantly correlated with the SSS boredom susceptibility subscale, while the presence of the 7- repeat allele (7R+) in the dopamine receptor D4 gene was associated with the SSS thrill and adventure-seeking and overall sensation-seeking. Neither left nor right 2D:4D digit ratio was associated with any sensation-seeking scale. In multivariate models, salivary T and facial masculinity were significant predictors of SSS boredom susceptibility, while 7R+ was a significant predictor of SSS thrill and adventure-seeking. For overall SSS, both 7R+ and salivary T were
significant predictors. There was no significant association of 7R+ and androgen exposure for SSS or any of the SSS subscales. Results also suggested that genetic variation in DRD4 is independently associated with SSS sensation-seeking.

Haung et al. (2011) investigated the predictability of Alternative Five Factor Model for personality disorders in both healthy people and patients with personality disorders. A total 402 matched subjects (268 healthy and 134 patients with personality disorders) with similar age, gender, and education level were selected. For this, the Chinese Version of the Zuckerman-Kuhlman Personality Questionnaire and Parker Personality Measure which describes the functioning styles of personality disorder were administered on the participants. Obtained data was analyzed by applying alpha coefficients, ANOVA and Simple and Multiple Regression Analysis. Results revealed that the alpha coefficient ranged between .66 and .77 for personality disorder patients on Zuckerman-Kuhlman Personality Questionnaire; and between .34 and .78 for healthy participants; and between .36 and .79 for personality disorder patients on Parker Personality Measure scales. Regarding the ANOVA Post-hoc analysis showed that the groups of clusters A and B scored significantly higher than the control group on Impulsive-Sensation Seeking, Neuroticism-Anxiety, Aggression-Hostility scales, cluster A group lower on Sociability scale, cluster C1 group higher on Neuroticism-Anxiety and cluster C2 higher on Activity. Three-way ANOVA was also carried out and Duncan’s test showed that clusters A, B and C1 scored higher on almost all the 11 PERM scales than the controls did. Impulsive-Sensation Seeking predicted the Antisocial, Borderline, Histrionic and Passive-Aggressive styles; Neuroticism-Anxiety predicted the Paranoid, Schizotypal, Borderline, Histrionic, Avoidant and Dependent styles; Aggression-Hostility predicted the Paranoid, Antisocial, Histrionic, Passive-Aggressive and Schizoid (-) styles; Activity predicted the Obsessive-Compulsive, Antisocial (-), Avoidant (-), Dependent (-) styles; and Sociability predicted the Schizoid (-) and Obsessive-Compulsive (-) styles. However, personality dimensions of the AFFM were best predictors of the personality disorders.

Kumar and Singh (2013) in a study investigated the relationship between personality dimensions of Alternative Five Factor Model and Subjective Well-being. For this, 100 Post Graduate students were selected from the Kurukshetra University, Kurukshetra ranging in age from 18 to 26 years with the mean age of 22 years consisting of 62 males and 38 females. Friedman Well-Being Scale and Zuckerman-
Kuhlman Personality Questionnaire were administered on the subjects after establishing the rapport and making them acquainted with the purpose of the study. Obtained data were analyzed by applying Descriptive Statistics and Pearson’s Product Method of Correlation. Descriptive Statistics revealed the data to be almost normal. All the dimensions of Alternative Five Factor Model except Activity were found significantly correlated with Subjective Well-being. Subjective Well-being Composite score correlated negatively with Neuroticism-Anxiety ($r = -0.79 p < 0.01$), Impulsive-Sensation Seeking ($r = -0.37 p < 0.01$) and Aggression-Hostility ($r = -0.35 p < 0.01$); and positively with Sociability ($r = 0.52 p < 0.01$). It implies that persons characterized as emotionally upset, fearful, worried, lacking confidence, sensitive to criticism, impulsive, willing to take risk for excitement, having need and preference for novelty, aggressive, spiteful, and impatient tend to have low level of subjective well-being. Individuals being sociable, extraverted and participating tend to have high level of subjective well-being.

Kumar and Singh (2014) studied the relationship between internet addiction and personality factors of Zuckerman’s Alternative Five Factor Model. 60 students of various Post Graduate Departments of Kurukshetra University, Kurukshetra were selected consisting of 30 males and 30 females with mean age of approximately 21 years. For obtaining the data, Internet Addiction Test and Zuckerman-Kuhlman Personality Questionnaire were administered on the subjects after establishing the rapport with them. Obtained data were analyzed by using Descriptive Statistics, t-test and Pearson’s Correlations. Descriptive Statistics depicted the data to be almost normal. t-test was applied to examine gender differences and no significant differences were obtained so the data were clubbed for further analysis. All the five factors of Zuckerman’s model were found significantly correlated with Internet Addiction. Internet addiction correlated positively with Neuroticism-Anxiety ($r = 0.40 p < 0.01$), Impulsive-Sensation Seeking ($r = 0.28 p < 0.05$), and Aggression-Hostility ($r = 0.48 p < 0.01$); and negatively with Activity ($r = -0.43 p < 0.01$) and Sociability ($r = -0.53 p < 0.01$). Hence, it depicted that persons characterized as emotionally upset, fearful, worried, obsessive, lacking confidence, sensitive to criticism, lacking planning, acting on impulse, willing to take risk for excitement, having need and preference for novelty, aggressive, spiteful, tempered, and impatient tend to have high level of
internet addiction. Individuals being hard worker, energetic, sociable, extraverted, intolerance of social isolation and participating tend to have low level of internet addiction.

Muro et al. (2011) investigated the differences between circadian typologies in the context of Zuckerman’s Alternative Five Factor Model of personality on adult sample of 412 women of 18 to 55 years with a mean age of 30.71 years and standard deviation of 11.27 years. This sample was divided into three age groups: 18-25 years (mean=19.83; SD=1.79); 26-40 years (mean=31.96; SD=4.05); and 41-55 years (mean=47.72; SD=3.92). Participants completed both the Spanish Version of the Reduced Morningness-Eveningness Questionnaire and Zuckerman-Kuhlman Personality Questionnaire after following the ethical rules of APA. Obtained data were analyzed by using Descriptive Statistics, Pearson’s Correlations, Cronbach alphas, MANOVA and Multiple Regression Analysis. Descriptive statistics depicted the circadian typology groups differing significantly on age (F, 2, 409=29.43; p<.01; \( n^2=.126 \)). The internal consistency of personality scales was 0.85 for Neuroticism-Anxiety, 0.71 for Activity, 0.80 for Impulsive-Sensation Seeking, 0.67 for Aggression-Hostility, and 0.74 for Sociability. Regarding the correlation coefficients, age showed significant positive association with RMEQ; and negative with Neuroticism-Anxiety, Sociability, Impulsive-Sensation Seeking and Aggression-Hostility. Significant negative correlations were also found between RMEQ scores and Neuroticism-Anxiety, Sociability, Impulsive-Sensation Seeking and Aggression-Hostility whereas positive between RMEQ and Activity. MANOVA also depicted that the younger group (18-25 years) has significantly higher scores than the older group on Neuroticism-Anxiety, Sociability, Isolation Intolerance, Impulsive-Sensation Seeking, Sensation Seeking and Aggression-Hostility. Regarding the circadian types on the scales of Zuckerman-Kuhlman Personality Questionnaire, the chronotypes significantly differed on Activity, General Activity, Work Activity and Aggression-Hostility. Multiple regression analysis (when considering the RMEQ scores and age as continuous variables) suggested that there was statistically significant only for the Parties and Friends subscale (F(2,403)=6.62;p=.010). It depicted that individuals being older and scoring high on morningness showed the lowest scores on Parties and Friends whereas individuals being younger and scoring high on morningness obtained the highest scores on this scale.
O’Sullivan et al. (1996) investigated the personality traits of the female prostitutes. 32 female prostitutes (20 white and 12 black) age ranged 19 to 45 years with a mean age of 29 years, and 32 controls (19 white and 13 black) age ranged 20 to 48 years with a mean age of 34 years participated in the study, and were compared on five scales of the Zuckerman-Kuhlman Personality Questionnaire. Differences between the groups on age and education were controlled by analysis of covariance. For data collection, the ZKPQ and semi-structured interview with questions about prostitution were used after following the ethical issues. Obtained data was analyzed applying by appropriate statistical analysis and results revealed that differences in frequencies between the two groups on race and marital status were not significant. Regarding the age and level of education, control group was significantly older and higher. Concerning the combined group, age correlated only with the Aggression-Hostility scale (r=-.34) significantly and years of education correlated significantly with Neuroticism-Anxiety (r=-.27) and Activity (r=-.31). Without correction for age and education, prostitutes scored higher than controls on Impulsive-Sensation Seeking (p<.0001), Neuroticism-Anxiety (p<.05), and Aggression-Hostility (p<.007). Analysis of covariance implied that only the difference on Impulsive-Sensation Seeking remained significant (p<.001) after removing the effects of age and education. Analysis was also done regarding the interview variables such as drug use; and major results found that poly drug users scored significantly higher only on Impulsive-Sensation Seeking than non-drug or only one drug users, F (1,30)=4.22, P=.049.

O’Sullivan and his colleagues (1997) studied the personality characteristics of male and female participants in team sports and compared with the general college population. Participants were recruited from four undergraduate sports team: football (n=90); baseball (n=22); field hockey/lacrosse (n=27); and equestrians (n=37). The normative group consisted of 1144 male and 1825 female undergraduates enrolled in psychology courses at university of Delaware. All the participants were administered on the Zuckerman-Kuhlman Personality Questionnaire. Obtained data was analyzed by applying Descriptive Statistics, t-test and ANOVA. Results revealed no overall differences between the team sports groups and the normative male sample on Sociability and Aggression-Hostility. Both baseball and football players scored significantly higher than the general male college group on Activity and lower than
the college group on Neuroticism-Anxiety and Impulsive-Sensation Seeking scales. Regarding the differences between baseball and football players, these differed significantly only on the Activity scale; the baseball players were higher than the football players on this scale. Regarding the female groups, there were no significant differences on Sociability, Aggression-Hostility, or Impulsive-Sensation Seeking. Both female athletic groups scored significantly higher that the female normative group on Activity; and lower than the general college females on Neuroticism-Anxiety. The field hockey and lacrosse teams were significantly higher than the equestrians on Activity. However, major differences were found on the two dimensions of Zuckerman-Kuhlman Personality Questionnaire with all four athletic teams scoring higher on Activity and lower on Neuroticism-Anxiety than the general college population.

Pritchard (2013) studied the relationship between global trait emotional intelligence and factors of Alternative Five Factor Model of Personality. For this 127 participants (53 males and 74 females) with a mean age of 35.21 years were selected via the social networking website Facebook and via email. For obtaining the data, Zuckerman-Kuhlman Personality Questionnaire Cross-Cultural Shortened Form (ZKPQ-50-CC) and Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) were administered applying the ethical guidelines laid down by the British Psychological Society. Obtained data were analyzed by using Descriptive and Inferential Statistics. Results revealed that the TEI Que-SF scores were normally distributed (D(127)=.06 P>.20) Whereas data from the ZKPQ-50-CC variables significantly differed from normal distribution. Due to this lack of parametric assumption, Spearman’s correlations as opposed to zero order correlations were carried out on the data. Pearson’s correlations demonstrated liner relationships between global trait emotional intelligence and most personality factors. Neuroticism-Anxiety and Aggression-Hostility correlated negatively; and Sociability and Activity correlated positively with global trait emotional intelligence at or above p<.01 level of significance. No significant correlation was found between global emotional intelligence and Impulsive Sensation Seeking. Multiple regression analysis suggested that Alternative Five traits accounted for 49% of variance in the global emotional intelligence scores (F(4,127)=31.12; P<.001, R²adj=.49). Neuroticism-Anxiety (B=
452, P<.001), Aggression-Hostility (B=-.264, p<.001), Sociability (B=.225, p<.001) and Activity (B=.125, p<.059) predicted linear relationship with emotional intelligence. Regarding the gender differences, Mann-Whitney analysis reported a significant interaction for Impulsive Sensation Seeking (U (127)=155.5, Z>.048, p<.05). Hence, no significant differences were found between sexes on any of the other test variables.

Rossier and his colleagues (2012) examined the psychometric properties of the Career Adapt-Abilities Scale in a French speaking Swiss sample and its relationship with personality dimensions and work engagement on a total sample of 391 participants (220 women and 171 men). For this, CAAS and a short version of the Utrecht Work Engagement Scale were administered on the participants. To assess personality dimensions, participants completed either the Zuckerman-Kuhlman-Aluja Personality Questionnaire (n=283) or the NEO-FFI-R (n=108). Obtained data were analyzed by applying Alpha Coefficients, Descriptive Statistics, Pearson’s Correlations, Confirmatory Factor Analysis, and Hierarchical Regression Analysis. Results revealed that the internal consistencies of the French version of the CASS, Zuckerman- Kuhlman Personality Questionnaire, NEO-FFI-R, and Utrecht Work Engagement Scale-9 were satisfactory ranging from .76 to .94, from .87 to .93, from .66 to .87 and from .80 to .93 respectively. Descriptive Statistics depicted the data to be normally distributed for all the scales. Confirmatory Factor Analysis was performed using maximum likelihood estimation which suggested that the French version of CASS is reliable and valid instrument. In order to assess the relationship with personality dimensions, results indicated that several correlations were associated with a large (r>.50) or medium effect size (r>.30). Hence, Career Adaptability correlated positively with Activity, Extraversion, and Conscientiousness; and negatively with Neuroticism; Concern correlated positively with Extraversion and Conscientiousness, and negatively with Neuroticism; Control correlated positively with Extraversion and Conscientiousness, and negatively with Neuroticism; no correlation with Curiosity was associated with a medium or large effect size; Confidence correlated positively with Activity, Extraversion and Conscientiousness, and negatively with Neuroticism. Several personality dimensions such as Activity, Extraversion, Neuroticism, Agreeableness and Conscientiousness correlated
significantly with work engagement. Hierarchical regression revealed that personality dimensions are best predictors of the career adaptability and work engagement.

Thornquist and Zuckerman (1995) studied the relationship between basic dimensions of personality and passive-avoidance learning deficit in psychopathic and nonpsychopathic criminals. A total 79 inmates ranging in age from 21 to 52 years with a mean age of 33.3 years recruited from the drug-treatment unit of an all-male, medium-security federal correctional institution. Thirty two of participants were Black, twenty six were White, and twenty one were Hispanic and all of these were free of psychiatric disorders other than Drug Abuse, Drug Dependence, and Antisocial Personality Disorder. All the participants completed the Eysenck Personality Questionnaire-Revised, Zuckerman-Kuhlman Personality Questionnaire, and Revised Psychopathy Checklist. For the measurement of passive-avoidance learning, a learning task designed by Newman and Kosson (1986) was used. Obtained data were analyzed by using Pearson Product Method of Correlation, F-ratio and Multiple Regression Analysis. Results revealed Eysenck’s Extraversion, Neuroticism, and Psychoticism to be uncorrelated; Psychoticism and Lie scale were significantly negatively correlated with each other. Among the scales of Zuckerman-Kuhlman Personality Questionnaire, some correlations were higher than those obtained by Zuckerman and his colleagues (1993) in a normal college population. Regarding the correlations between EPQ-R and ZKPQ, Extraversion was positively correlated with Impulsive-Sensation Seeking (r=.39 p<.01), Activity (r=.39 p<.01) and Sociability (r=.69 p<.01). Neuroticism was positively correlated with Neuroticism-Anxiety (r=.74 p<.01) and Impulsive-Sensation Seeking (r=.27 p<.01); Psychoticism was with Impulsive-Sensation Seeking (r=.47 p<.01) and Aggression-Hostility (r=.51 p<.01). Lie scale was negatively correlated with Impulsive-Sensation Seeking (r=-.24 p<.05) and Aggression-Hostility (r=-.27 p<.05); and positively with Activity (r=.32 p<.01). Regarding the differences of the three ethnic groups on the personality scales and the PCL-R total ratings, whites scored significantly higher than Hispanics on the Psychoticism; Blacks were intermediate and not significantly different from either of the other two groups. Hispanics had the highest score on Sociability whereas Blacks scored lowest. Blacks were also found significantly higher on the PCI-R total than Whites and Hispanics. When the correlations between psychopathy and personality
measures were obtained for the entire sample, PCL-R total score was correlated positively with Impulsive-Sensation Seeking ($r=.21$ p<.10) and Aggression-Hostility ($r=.21$ p<.10). For the Whites, the PCL-R total score correlated positively with Aggression-Hostility ($r=.34$ p<.10), Impulsive-Sensation Seeking ($r=.41$ p<.05) and Psychoticism ($r=.33$ p<.10). No significant correlations were found for Blacks and Hispanics. Correlations between psychopathy and computer task implied that none of the correlations was significant for the entire sample. In case of relationship between personality variables and computer task, only Impulsive-Sensation Seeking significantly correlated with Error of Commission ($r=.23$ p<.05). Multiple Regression Analysis also depicted that only Impulsive-Sensation Seeking was significant predictor of error of commission.

Valero et al. (2012) studied the personality profile of adults with Attention-Deficit Hyperactivity Disorder under the perspective of Alternative Five Factor Model, and also tested the discriminant validity of the Zuckerman-Kuhlman Personality Questionnaire in differentiating ADHD subjects from normal controls. The age range for both samples was from 18 to 61 years. The ADHD group consisted of a sample of 217 comprising of 139 men and 78 women. The control sample comprised of 434 subjects (278 men and 156 women) and extracted from a more comprehensive general population sample pool, stratified by sex and age consisting of 570 males and 599 females ranging from 18 to 93 years. Obtained data was analyzed by using Descriptive Statistics, t-test, Pearson’s Correlations and Logistic Regression Analysis. Results suggested that both the groups differed significantly on all the dimensions (except Sociability) of the Zuckerman-Kuhlman Personality Questionnaire. The ADHD group scored significantly higher on Neuroticism-Anxiety, Activity, Impulsive-Sensation Seeking, Aggression-Hostility, and lower on Infrequency scale. Regarding the correlations coefficients for both groups as a basis of comparison, in ADHD patients the higher correlations were found i.e. Activity with Impulsive Sensation Seeking and Neuroticism-Anxiety with Aggression-Hostility. In the control group the highest observed correlation was between Impulsive-Sensation Seeking and Aggression-Hostility. Logistic Regression Analysis suggested that Neuroticism-Anxiety, Impulsive-Sensation Seeking, and Aggression-Hostility are the best predictors of ADHD.
Wang et al. (2000) studied the exteroceptive suppression periods of the temporalis muscle electromyography elicited by trigeminal territory electrical stimuli by using Zuckerman-Kuhlman Personality Questionnaire, and Plutchik-van Praag’s Depression Inventory in 12 patients suffering from generalized anxiety disorder and 16 from major depression as well as in 17 healthy volunteers. Mean ages of all the three separate samples were 28.8 years, 27.7 years and 27.8 years respectively. Patients were diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders-4th edition and then neurophysiological test, ZKPQ and PVP were administered after proper rapport. Obtained data was analyzed by applying the Kolmogorov-Smirnov and the Lillifars tests for normality-fitting analysis; ANOVA for normality of all the three groups, and Post-hoc analysis to evaluate between-groups differences. The abnormally distributed data in three groups were analyzed by Kruskal-Wallis test with Post-hoc analysis by \( \chi^2 \) test plus Yate’s correction. Spearman’s rank order correlation was used to search for possible relations between ESI and ES2 latencies and durations, ZKPQ and PVP scores, and subject’s ages. Results revealed that the pre-stimulus EMG levels, latencies and durations of ESI and ES2 of all the subjects were normally distributed and there were no statistically significant differences found among all the three groups. Data of the inventories scores was not normally distributed. Regarding these inventories GAD and MD sufferers scored significantly higher on the Neuroticism-Anxiety, and lower on the Sociability than the healthy subjects. Depression scores were higher in MD patients when compared to the healthy controls and GAD group.

Xu et al. (2012) examined the personality correlates of reporting Chinese words from the Deutsch “high-low” word illusion by Chinese-speaking people. A total of 308 right-handed, healthy volunteers (177 women and 131 men) were selected with the different educational qualifications to participate in the study. For this, the “high-low” illusion experiment, Zuckerman-Kuhlman Personality Questionnaire, and Plutchik-van Prag Depression Inventory were administered on the participants. Obtained data was analyzed by applying Two-way ANOVA, Independent Student’s t-test, and Spearman Rank Order Correlation. Results revealed that gender differences existed when five ZKPQ scores were considered. Post-hoc student’s t-test showed that women scored significantly higher on Neuroticism-Anxiety than men but the mean
scores on PVP were not significantly different regarding the gender differences. There was no statistical difference between meaningful Chinese words reported by women and men. These meaningful Chinese words positively correlated with Impulsive-Sensation Seeking (r=.16p<.01), Aggression-Hostility (r=.14p<.04) and Activity (r=.5p<.02). No other significant correlations were found between meaningful Chinese words and age, educational level, handedness, hunger, and PVP scores. However, those meaningful Chinese words related with personality dimensions were scrutinized, the results of which suggested that participants who scored higher on Impulsive-Sensation Seeking reported hearing words such as very happy, feeling, hurry up, at once, decisive, look far, really dangerous. Participants who scored higher on Aggression-Hostility reported hearing words such as get out, scram, look coldly, break off an suffering. In the last, Activity was related with once more, transform and, go away. Hence, these meaningful words are to be related with personality traits.

Zhu et al. (2012) studied the personality correlates and decision making styles of traditional and online consumers. In the first, 440 healthy participants were taken and then some of data was removed either because of participants age was out of three standard deviations of the mean or because of the participants had scored more than three on a ZKPQ lie scale. Hence, a total of 392 traditional and online consumers (in equal number) matched participants with a mean age of 22.32 years and standard deviations of 3.91 years were selected. Data was collected by using Consumer Style Inventory and Zuckerman-Kuhlman Personality Questionnaire; and analyzed by required statistical analysis. Results revealed that when all the 44 items of Consumer Style Inventory were analyzed with Principal Axis Factor analysis, only 24 items were most interpretable; and these items were then chosen for further Analysis. Five factors i.e. Consumed by Over choice, Novelty-Fashion Consciousness, Perfectionism, and High Quality Consciousness, Brand Consciousness, and Time Consciousness were found from these 24 items. When both the consumer groups were compared in the context of Consumer Style Inventory, online group scored higher than traditional group did on Novelty-Fashion Consciousness (F=10.76 p<.01), Brand Consciousness (F=12.65 p<.01) but lower on Time Consciousness (F=6.78p<.05). Women scored higher than men on Confused by Over Choice (F=7.88p<.01), Novelty-Fashion Consciousness (F=20.23 p<.01) but lower on Time Consciousness
In case of Zuckerman-Kuhlman Personality Questionnaire scales, the online group scored lower than the traditional group did on Neuroticism-Anxiety (F=4.18 p<.05) and higher on Aggression-Hostility (F=4.09 p<.05) and women scored higher than men did on Neuroticism-Anxiety (F=9.47 p<.01). When analysis was done taking by both the questionnaires then Neuroticism-Anxiety yielded significant negative relationship with Confused by Over Choice (r= -.44), Sociability correlated positively with Novelty-Fashion Consciousness (r=.25), and negatively with Time Consciousness (r=-.23). In online group, Impulsive-Sensation Seeking was correlated positively with Novelty-Fashion Consciousness (r=.28) and Brand Consciousness (r=.21); and Neuroticism-Anxiety correlated positively with Confused by Over Choice (r=.36).

Ignjatovic and Todorovski (2010) studied the structural relationship between Gray’s Revised Reinforcement Sensitivity Theory, Zuckerman’s Alternative Five Factor Model of Personality and risky behaviors. The sample consisted of 200 adult subjects (103 males and 97 females) with an average age of approximately 29 years and most of them completed secondary education. Data was obtained administering the Reinforcement Sensitivity Questionnaire (RSQ), Zuckerman-Kuhlman Personality Questionnaire (ZKPQ-III), and the Risky Behaviors Questionnaire (RBQ) mainly in the Vojvodina area, Serbia in the period of May-September 2009. A transversal study design was applied where subjects were compared with regard to the prominence of individual differences in the RRST and AFFM Dimensions and their tendency towards risky behaviors. Obtained data was analyzed using by Principal Components Factor Analysis to reduce the original sets of variables that comprised subjects responses to 41 items of the RSQ, 99 items of the ZKPQ, and 69 items of the RBQ and nonlinear Canonical Correlation Analysis (OVERALS) for structural relationship. Hence, the OVERALS procedure was applied on the factor scores of the first principal components of the RSQ, ZKPQ and RBQ subscales. The first OVERALS dimension correlated positively with Gray’s Impulsivity, Zuckerman’s Sensation Seeking, Impulsivity, Parties and Friends and Extreme Sports, Drug and Alcohol Abuse and Risky Financial Investments forms of risky behaviors, and negatively with Gray’s Flight and Zuckerman’s Isolation Intolerance. Second dimension was correlated negatively with Gray’s Anxiety (BIS) and Flight and Freeze, Zuckerman’s
Neuroticism-Anxiety, and Risky Financial Investments and positively with 
Zuckerman’s Work Activity. In last, third dimension correlated significantly 
positively with Gray’s Flight, Zuckerman’s Aggression-Hostility, Delinquent 
Behaviors, Reckless Driving and Health Risks.

Cigic and Bugarski (2010) studied the differences between personality traits 
and the clusters of the examined subjects formed on the Color preference basis. The 
sample consisted of a total 104 subjects of both sexes, of whom 53 were males and 51 
females with an average age of approximately 17 years. The subjects were matched 
with regard to the basic socio demographic variables i.e. gender ($\chi^2=0.636; p>0.05$) 
and age ($\chi^2=0.955; p>0.05$). For the data collection, the short version of Zuckerman-
Kuhlman Personality Questionnaire and Color Preference Questionnaire were 
administered. Obtained data was analyzed using by Cluster Analysis and Canonical 
Discriminant Analysis. Firstly, to define the taxonomy of subjects within the scope of 
the Color Preference Questionnaire and the short version of Zuckerman-Kuhlman 
Personality Questionnaire; the cluster analysis was performed and two-cluster 
solution was found to the most suitable for interpretation. These two clusters were the 
dark-color-preferring type and bright-color-preferring type. As a set of predictors, the 
subjects’ factor scores on the first principal component of the short version of 
Zuckerman-Kuhlman Personality Questionnaire subscales were used. The 
discriminant function had the statistical significance at the level of $p<0.05$ ($\chi^2=12.413$; 
Wilkstamba=0.883) and the Canonical Correlation Coefficient was 0.342; it means 
differences between clusters were moderate. Regarding the personality traits, the 
discriminant function was determined by high Neuroticism but low Sociability, 
Aggression and Activity may be termed passivity v/s activity. This analysis revealed 
that subjects of group first preferred dark colors (brown, gray, black) and had more 
prominent traits of social introversion and neuroticism-anxiety and less prominent 
traits of aggression and activity. Subjects of group second preferred bright colors (red 
and yellow) had more prominent traits of social introversion and neuroticism-anxiety.

Zuckerman and Kuhlman (2000) in an article have explained the relationship 
between personality and risk-taking in six areas: smoking, drinking, drugs, sex, 
driving, and gambling as well as association of biological traits with both risk-taking
and personality particularly sensation seeking, such as the D₄ dopamine receptor gene, the enzyme monoamine oxidase and augmenting or reducing of the cortical evoked potential. This explanation is based on a study conducted on 260 subjects (101 males and 159 females). Zuckerman-Kuhlman Personality Questionnaire and Life Experience Questionnaire were administered to collect data. Obtained data was analyzed using by Pearson’s correlations, t-test, and Multiple Regression Analysis. Results revealed that correlations among Risk scales were all significant; and substantially intercorrelated for both genders ranging from .31 to .51 for males and .23 to .44 for females. Regarding the correlations between personality and risk taking, generalized risk-taking (across all six areas) was related to scales for Impulsive Sensation Seeking, Aggression-Hostility and Sociability, but not to scales for Neuroticism-Anxiety and Activity. Gender differences suggested that males scores were higher than females on drug use (3.39, p<.001), risky driving (2.24, p<.05), gambling (8.39, p<.0001), composite risk measure (2.24, p<.05), Impulsive Sensation Seeking (4.78, p<.0001) whereas women scored significantly higher than men on the Neuroticism-Anxiety (4.20, p<.0001) and Sociability (2.42, p<.05). Multiple Regression Analysis showed that Impulsive-Sensation Seeking, Aggression-Hostility and Independence to be predictors of risk whereas Neuroticism-Anxiety and Activity had no predictive value for the measures of risk. Impulsive-Sensation Seeking and Sociability each accounted for about 6% of the variance, and Aggression-Hostility accounted for another 5%. All variables taken together (R²) accounted for 26% of the variance of the general risk-taking measure. Regarding the association of biological factors with risk-taking and personality, review of literature suggests that MAO which is an enzyme that is low in high sensation seekers, various disinhibitory types of disorders and persons who engage in many types of risky behaviors such as smoking, drinking, drug use, and criminal activity. Dopamine and serotonin were related with impulsive tendencies in humans and other species and primary inhibitory effects on behavior respectively. The interaction of these two neurotransmitters and enzymes like MAO, affected the balance between approach to reward and avoidance of punishment.
CHAPTER - III
METHOD

The main objective of the present study was the verification of Zuckerman’s Alternative Five Factor Model on Indian subjects. To realize this objective, the Zuckerman-Kuhlman Personality Questionnaire (English Version) was first translated in Hindi by a qualified Hindi translator under the supervision of a Professor of Psychology, Hindi, and English. Then, Hindi translated questionnaire was retranslated in English in consultation with a professor of English and Psychology. So, all the three versions of ZKPQ i.e. Original Version, Hindi Version, and Retranslated English Version were administered on a sample of 500 subjects (250 males and 250 females). Obtained data were analysed with appropriate statistical techniques. Secondly, the study also intended to examine the convergence/compatibility of Alternative Five Factor Model with Cattellian, Eysenckian, and Big Five Models of personality. For it, the data from 300 subjects (146 males and 154 females) were analysed with data fit statistical techniques. Thirdly, cross-cultural replicability of Alternative Five Factor Model was intended to be ascertained by comparing the findings of the present study with the earlier findings based on data of samples from various cultures. The present chapter is organized in two sections. First section reports information about sample, measures, administration, scoring, and statistical analyses for the verification of Alternative Five Factor Model of personality on Indian subjects. Second section consists of information about the procedure used for the examination of convergence of Alternative Five Factor Model with Cattellian, Eysenckian, and Big Five Factor models of personality.

SECTION-I
Verification of Alternative Five Factor Model

For the realization of this objective, the Original ZKPQ (English Version) was translated in Hindi under the supervision of a team of Professor of Psychology, Hindi, and English. For the adaptation of English items to Indian culture, appropriate words of Hindi were used. Then, Hindi translated items were retranslated in English again under the supervision team of experts without consulting the Original English items.