

PERSON-ORIENTED APPROACH IN EXAMINING CHINESE-HUNGARIAN PERSONALITY AND AFFECTIVE DISORDER PROFILES

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SUMMARY

Background: Our Chinese-Hungarian crosscultural research aimed to apply a person-oriented approach on examining patterns of cultural, personality and affective disorder variables.

Subjects and methods: Our sample consisted of 238 Chinese and 167 Hungarian university students under the age of 26 years old. 238 Chinese university students (112 males, 126 females; mean age: 19.55, SD: 1.60) and 167 Hungarian University students (65 males and 100 females; mean age: 20.47, SD: 1.83) participated in our research. All individuals were under 26 years old. No gender ($\chi^2(df=1)=2.32, p=0.127$) and no age differences between countries were observed. We analyzed in person-oriented approach the Zuckerman-Kuhlman-Aluja Personality Questionnaire, the universal values scale of Schwartz and three affective disorder questionnaires (Mood Disorder Questionnaire, Hypomania checklist, PVP Depression Scale).

Results: We applied model-based clustering that resulted in a model with five spherical, varying volume components. This meant that five clusters emerged, five typical patterns of the cultural, personality and affective variables. Significant cultural difference arose ($\chi^2(df=4)=79.489, p<0.000$) in cluster proportions. In three clusters, proportion of Chinese was significantly higher than proportion (Overcontrolled: 82.6%, Reserved: 71.1%, Ordinary: 60.5%) of Hungarian. In the two remaining clusters, majority were Hungarian (Positive Sensation Seeker: 90.0%, Aggressive-Impulsive: 80.4%). Moreover, different psychiatric vulnerability emerge in relation to different profiles. Profiles that are more typical to Hungarians, have high sensation seeking level, and show vulnerability to hypomania, mood disorder and impulsive depression. On the other hand, typical Chinese profiles are linked to vulnerability of non-impulsive depression.

Conclusions: In sum, culture and cultural values play an important role in the vulnerability of different affective disorders. These differences can be linked to different typical personality patterns.

Key words: personality - affective disorders - person-oriented approach - cluster analyses - cross-cultural

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INTRODUCTION

People develop their personalities over time through their active participation in the various social worlds in which they engage. A cultural psychological perspective implies that there is no personality without culture...

Markus & Kitayama 1998, p. 67

One of the most widely studied question in cross-cultural personality psychology is whether there are basic, culture-free dimensions on which cultures can be meaningfully compared. Cross-cultural validity means that structure (thus correlations between variables) is independent of cultural systems (John et al. 1984). Therefore a widely accepted cross-cultural personality psychology methodology has arisen: examining factorial structural equivalence and comparing mean scores of items belonging to the same factor in the different cultures. Mean profiles on the basic factors – sometimes also including lower level facets (subscales) – are then interpreted as ‘national types’.

In this article we would like to point at limitation of cross-cultural comparisons based on mean profile scores.

Examining relationships between variables (such as correlational analyses, factor analyses, regression analyses) have provided many findings about interindividual differences. However, the importance of differentiating between interindividual and intraindividual levels of analyses has already been emphasized by more researchers. Person-oriented analyses should be applied besides variable-based factor analyses in order to understand the functioning of factors in a holistic and interactionist perspective (Bergman et al. 2003). Interaction of biological and environmental factors in development of personality, personality disorders and functioning has been emphasized by more researchers (e.g. Svrakic & Cloninger 2010, Jakšić et al. 2013).

Person-oriented approach was described by Magnusson & Allen (1983): “the person oriented approach to research (in contrast to the variable centered approach) takes a holistic and dynamic view; the person is

conceptualized as an integrated totality rather than as a summation of variables” (p. 372). Jakšić et al. (2012) also emphasized that focusing on just a single dimensional perspective is not satisfactory in comprehensive understanding of disorder.

Bergman et al. (2003) suggest cluster analyses as a methodological tool for person-oriented approach, which enables the analyses of profiles of more operating factors simultaneously (Bergman et al. 2003). Individuals then can be categorized into groups based on similarities of holistic profile of the variables. Identifying typical profiles by cluster analyses can provide an intraindividual perspective of value configurations of operating factors (Bergman et al. 2003) and can also reveal different national types within a nation as well.

In cross-cultural comparisons, usually only the mean profile is interpreted as the 'national type'. A stereotypical misinterpretation is identifying profile means as types and attributing the characteristics of these centers to all members of the nation. However, there might be more than one typical personality pattern within a nation and maybe the mean profile is not typical one (just the mean of different personality profiles).

Another methodological problem can arise if measurement invariance of the studied questionnaire is not fulfilled, which is required for meaningful group comparisons. Measurement invariance can be defined as „the mathematical equality of corresponding measurement parameters for a given factorially defined construct across two or more groups” (Little 1997, p. 55). Scalar invariance allows one to interpret cross-country mean differences at the underlying construct level. However scalar invariance is usually not found in case of cross-cultural personality measures. A recent review study examined 95 cross-cultural studies and none of these studies achieved scalar or strict measurement invariance across cultural groups (Dong & Dumas 2020). Also, a cross-cultural study on Zuckerman-Kuhlman-Aluja Personality Questionnaire found lack of scalar invariance (Rossier et al. 2016).

The validity of regarding average mean profiles as national types is also questioned by the fact that variation across cultures tended to be small compared to variation within cultures. In a comparison of 36 nations, most mean levels of the five basic personality factors (84%) were in the average range (T=45 to 55) by American norms for all of the 36 cultures (McCrae 2002, In: Allik & McCrae 2002). This is usually interpreted as evidence of culture-independence of basic personality factors, although it can be possible that the average scores arise in the different cultures from summation of very different patterns.

In our study, we examined individuals from China and Hungary. Although McCrae (1996) reported that Chinese are rather introverted, distant and detached, temperamentally not very excitable and emotional,

McCrae's study (2002, In: Allik & McCrae 2002) with 36 cultures on the five basic personality factors revealed Chinese and Hungarian individuals both were in the average range (T=45 to 55 by American norms).

In the multicultural validation of the Zuckerman-Kuhlman-Aluja Personality Questionnaire Shortened Form (Aluja et al. 2020), the largest difference between Chinese and Hungarian individuals was found in extraversion (with Cohen-d of 0.79 for women and 0.71 for males). Chinese were found to be more introverted. Further differences with medium sized effect sizes were found in activity factor among females and in neuroticism factor among males. Chinese males were higher in neuroticism, whereas Hungarian females were higher in activity factor.

Our aim was to examine national personality types with classical method (comparing national mean personality profiles) and with a person-oriented approach (identifying clusters and comparing cluster distributions). We also wanted to examine how different types can be linked to cultural differences and to vulnerabilities to affective disorders (mood disorders). In sum, our Chinese-Hungarian cross-cultural research aimed to apply a person-oriented approach on examining patterns of cultural, personality and affective disorder variables.

SUBJECTS & METHODS

Subjects

Our sample consisted of 238 Chinese and 167 Hungarian university students under the age of 26. 238 Chinese university students (112 males, 126 females; mean age: 19.55, SD: 1.60) and 167 Hungarian University students (65 males and 100 females; mean age: 20.47, SD: 1.83) participated in our research. All individuals were under 26 years old. No gender ($\chi^2(df=1)=2.32, p=0.127$) and no age differences between countries were observed.

Methods

The ZKA-PQ (Aluja et al. 2010) contains five factors with four facets per factor and with 10 items per facet: a) AG: Aggressiveness; b) AC: Activity; c) EX: Extraversion; d) NE: Neuroticism; and e) SS: Sensation Seeking. Development of Hungarian and Chinese versions are described elsewhere (Surányi & Aluja 2014, Rossier et al. 2016). Both Hungarian and Chinese versions have been applied in more researches (e.g.: Hungarian: Kövi et al. 2017, Chinese: Zhu et al. 2012).

Further, Schwartz Value Scale developed by Schwartz (1992, 1994); Hypomania Checklist (HCL-32) developed by Angst et al. (2005); the Mood Disorder Questionnaire (MDQ) - a screening Instrument for Bipolar Spectrum Disorder - developed by Hirschfeld et al. (2000) and a Depression Scale (PVP) developed by Plutchik & van Praag (1986) were also administered.

Procedure

Online participation of students were asked at a Chinese and a Hungarian universities. Approval of ethical committee was received and informed consent of all respondents was obtained. Responses were collected anonymously.

Statistical Analyses

In our study we compared mean scores by independent sample t-test (where homogeneity of variances were not found, Welch d tests were run). Second, we conducted model based clustering on ZKA-PQ factors, Schwartz value dimensions and three affective disorder variables (depression, hypomania, mood disorder scores).

Model-based clustering applies finite mixture modeling to identify emerging clusters coming from different subpopulations (Fraley & Raftery 2007). The main advantage of this type of clustering is that no preassump

tion is needed for the number of clusters. The programme automatically identifies optimal cluster number. The software used were the SPSS 20 (IBM Corp. 2011), mclust package of R (R Core Team 2013, Fraley & Raftery 2002, Fraley et al. 2012).

RESULTS

Cross-cultural comparison of mean profiles

Analyzing z-scores of Chinese and Hungarian respondents, we have found that mean z-scores of the personality factors in both cultures were within the average range of z-scores (-0.5 to 0.5). However, significant differences arose (see Table 1): Chinese were found to be more neurotic, less sensation seeker and less extraverted. Moreover, Hungarians were found to be more vulnerable to hypomania and mood disorder. Regarding values, Chinese individuals reported higher importance of conservation, self-enhancement and self-transcendence as well.

Table 1. Comparison of Chinese and Hungarian mean profiles of personality factor and affective disorder variables

	Chinese		Hungarian		t	Independent samples t test		
	Mean	SD	Mean	SD		df	Sg	Cohen d
Aggression	-0.00	0.88	-0.01	1.15	0.03	294	0.976	0.01
Neuroticism	0.14	0.94	-0.19	1.06	3.22	403	0.001	0.33
Sensation Seeking	-0.29	0.85	0.41	1.05	-7.14	308	0.000	-0.75
Extraversion	-0.25	0.95	0.34	0.98	6.08	403	0.000	-0.61
Activity	-0.03	0.88	0.05	1.15	-0.74	295	0.462	-0.08
Hypomania	-0.21	1.00	0.26	0.95	-4.85	403	0.000	-0.48
Mood disorder	-0.43	0.93	0.55	0.80	-11.34	386	0.000	-1.12
Depression	-0.06	0.99	0.09	1.05	-1.39	403	0.166	-0.15
Values: conservation	0.42	0.76	-0.53	1.02	10.10	291	0.000	1.08
Values: openness	-0.08	0.93	0.09	1.09	-1.57	321	0.117	-0.17
Values: self enhancement	0.21	0.96	-0.26	1.01	4.78	403	0.000	0.48
Values: self transcendence	0.14	0.88	-0.22	1.09	3.49	309	0.001	0.37

SD: Standard Deviation; Sg: Significant (2-tailed)

Table 2. Mean cluster profiles of personality factor and affective disorder variables

	Reserved	Positive sensation seeker	Overcontrolled	Ordinary	Impulsive	η^2	F	df	Sig.
Aggression	-0.51 _a	0.18 _b	0.43 _b	0.23 _b	0.53 _b	0.17	20.80	4,400	0.000
Neuroticism	-0.26 _a	-1.34 _b	1.41 _c	0.08 _d	0.17 _d	0.39	63.28	4,400	0.000
Sensation seeking	-0.59 _a	1.42 _b	-0.73 _a	0.36 _c	0.86 _d	0.47	88.40	4,400	0.000
Extraversion	-0.20 _a	1.44 _b	-0.82 _c	0.25 _d	-0.13 _{a,d}	0.27	36.47	4,400	0.000
Activity	-0.23 _a	0.93 _b	0.06 _{a,c}	0.32 _c	-0.69 _d	0.17	20.38	4,400	0.000
Hypomania	-0.62 _a	0.78 _b	-0.08 _c	0.58 _b	0.03 _c	0.30	42.64	4,400	0.000
Mood disorder	-0.66 _a	0.78 _b	0.10 _c	0.36 _{b,c}	0.48 _{b,c}	0.28	39.58	4,400	0.000
Depression	-0.44 _a	-0.35 _{a,c}	1.10 _b	-0.02 _c	0.72 _b	0.28	38.18	4,400	0.000
Values: conservation	0.27 _a	-1.17 _b	0.86 _c	0.17 _a	-1.25 _b	0.41	68.66	4,400	0.000
Values: openness	-0.61 _a	1.28 _b	-0.39 _{a,d}	0.61 _c	-0.06 _d	0.40	65.53	4,400	0.000
Values: self enhancement	-0.40 _a	0.20 _b	0.34 _b	0.53 _b	-0.40 _a	0.18	22.51	4,400	0.000
Values: self transcendence	0.10 _a	0.01 _a	0.19 _a	0.30 _a	-1.40 _b	0.27	36.10	4,400	0.000

Note: Values in the same row and subtable not sharing the same subscript are significantly different at $p < 0.05$ in the two-sided test of equality for column means. Cells with no subscript are not included in the test. Tests assume equal variances. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction

Table 3. Cluster proportions by country

Clusters	Chinese (Column %)	Hungarian (Column %)	Chinese (Row %)	Hungarian (Row %)
Reserved	47.5% _{0a}	27.5% _{0b}	71.1%	28.9%
Positive sensation seeker	1.3% _{0a}	16.2% _{0b}	10.0%	90.0%
Overcontrolled	16.0% _{0a}	4.8% _{0b}	82.6%	17.4%
Ordinary	31.5% _{0a}	29.3% _{0a}	60.5%	39.5%
Impulsive	3.8% _{0a}	22.2% _{0b}	19.6%	80.4%

Note: Values in the same row and subtable not sharing the same subscript are significantly different at $p < 0.05$ in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction

Results with cluster analyses

We applied model-based clustering models (with spherical clusters, with varying volumes) on five personality factors, three affective disorder variables and four value dimensions on the combined samples of the two cultures. Optimal clusters turned out to be five (Table 2).

According to ANOVA, clusters turned to have significantly different profiles with large effect sizes regarding all five factors, all three mood disorder scales and all value scales. Largest differences between clusters were produced by sensation seeking and neuroticism along with conservation and openness values. Reserved cluster scored low on sensation seeking, neuroticism and openness. These individuals are rather inactive, un-aggressive, introverted ones who do not show risk for any of the studied mood disorders. Similarly to reserved ones, positive sensation seekers also scored low in neuroticism and did not show risk for depression, but they scored high in sensation seeking along with hypomania and mood disorder. Individuals in this cluster showed high openness and low conservation values.

There were two profiles that were linked to high depression: one impulsive and one overcontrolled pattern. Overcontrolled were neurotic, introverted low sensation seekers who scored high in conservation. They showed the similar value pattern as reserved ones, but were more inclined to have higher depression scores. Impulsive individuals were sensation seekers who scored above average on aggression and mood disorder as well and scored below average on conservation and self-transcendence.

Significant cultural difference arose ($\chi^2(df=4)=79.489, p < 0.000$) in cluster proportions. There were significantly higher proportions of 'reserved' and 'overcontrolled' profiles among Chinese whereas significantly higher proportions for 'positive sensation seeker' and 'impulsive' types were observed among Hungarians. Cluster proportions are presented in Table 3. We can see that 90% of positive sensation seekers and 80% of impulsive individuals were Hungarian, whereas 83% of overcontrolled and 71% of reserved were Chinese ones.

In sum, two patterns were more typical among Chinese, and two among Hungarians. In both culture, one of the pattern was a 'positive' one with low neuroticism and low depression, and other pattern with high neuroticism and depression (see Figure 1).

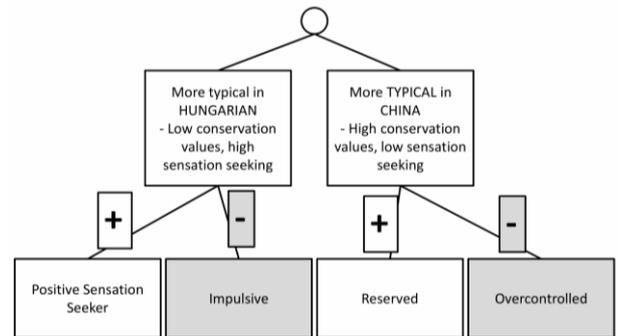


Figure 1. Summary of typical Chinese and Hungarian profiles

DISCUSSION

Our aim was to compare Chinese and Hungarian personality types, values and affective disorder variables with classical method (comparing mean scores) and with a model-based cluster analytic approach (revealing emerging types). In congruence with previous results, we could see that mean personality profiles of Chinese and Hungarians lied between -0.5 and 0.5 z-scores, however, there have been some significant differences between the cultures. It was found that Chinese are more introverted and less sensation seekers. These differences can be related to previous researches that found Chinese individuals to be less extraverted (Aluja et al. 2020) and less excitable (McCrae et al. 1996). Higher sensation seeking and excitability of Hungarian can count for the higher mood disorder and hypomania scores. On the other hand, there was no cross-cultural difference regarding depression, when applying the traditional comparison of mean profiles.

However, applying a cluster analytic approach, two different personality profiles could be linked to depression one impulsive - more typically Hungarian - and one overcontrolled - more typically Chinese - pattern). In parallel to this, Cohen (2008) also identified two similar types of depression: under-active and an over-active one. The former one is related to our over-controlled, the latter one to our impulsive pattern. Carton et al. (1992) also reported that although depressed individuals generally have low sensation seeking, there is also a subgroup of impulsive, emotionally

hyper-expressive and sensation seeking individuals of depressed people. The main novelty in our findings was that vast majority (>80%) of overcontrolled depressive individuals were Chinese, whereas vast majority (>80%) of impulsive depressive people were Hungarians. Therefore there is a cross-cultural difference in the prevalence of different types of depression, but not in the mean level of depression.

Another interesting cross-cultural finding was that there was another sensation seeking pattern typical to Hungarians that was associated with high prevalence of hypomania. The low level of hypomania, on the other hand, was linked to a fourth profile, the reserved one with low sensation seeking. The generally higher prevalence of hypomania in Hungary could be attributed to the fact that the hypomanic-sensation seeker pattern was present almost exclusively (90 %) among Hungarians, whereas the reserved, low sensation seeker, non-hypomanic pattern was found dominantly (>70%) among Chinese.

The personality – affective disorder patterns could be linked to Schwartz's values (Schwartz 1994) as well. The highest explained variance was provided by 'conservation' values. High conservation was linked to Chinese patterns (reserved and over-controlled), whereas low conservation was linked to typically Hungarian patterns (positive sensation seeker and impulsive).

Our findings on the five types can be linked to the five personality profiles found in the 23 culture based study on ZKA profiles (Kövi et al. 2019), which found resilient, reserved, ordinary, undercontrolled, overcontrolled types. These can be corresponded to positive sensation seeker, reserved, ordinary, impulsive, overcontrolled profiles of our study, respectively. Our findings have well-demonstrated that different pathologies can be linked to the different types.

CONCLUSIONS

Neurotic-introverted individuals of the overcontrolled cluster are inclined to have under-active depression; impulsive individuals are inclined to have over-active depression and positive sensation seekers are inclined to have hypomania.

In sum, examining these holistic profiles help us understand different subtypes of mood disorders and to uncover personality risk factors of the different types.

Our research on the other hand has some limitations: our sample only consisted of university students and did not include clinical samples. Moreover, methodologically it would be worth examining patterns with different types of cluster analyses and validate the different cluster solutions. The validity of the clusters should be examined longitudinally in order to predict different clinical outcomes.

Acknowledgements:

Preparation of the article was supported by 'Cross-cultural analyses of personality types' research grant (no.: 20611B800) of Károli Gáspár University of the Reformed Church, Hungary.

Conflict of interest: None to declare.

Contribution of individual authors:

Zsuzsanna Kövi: design of the study, Hungarian data collection, preparation of first draft of the article, statistical analyses.

Zsuzsanna Mirnics: Hungarian data collection, literature searches and analyses, interpretation of data.

Chanchan Shen & Chu Wang: participation in Chinese data collection, participation in statistical analyses.

Wei Wang: design of the study, head of Chinese data collection, manuscript writing.

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