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Research Article

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The relationship between the big five personality factors with blood types in Iranian university students

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ABSTRACT

The big five model of personality has been considered by many psychologists as a popular and powerful approach for the study of personality characteristics. These include neuroticism, extraversion, openness, agreeableness, and conscientiousness. Recognition of blood types could help in the recognition personality traits. This is a descriptive and correlation study. 400 people were enrolled in the study using the convenience sampling method. The 60-item NEO-PI was used for data collection. Data entered into SPSS version 18 and analyzed using descriptive statistics including frequency distribution tables, mean, standard deviation, Kolmogorov-Smirnov test, one-way ANOVA and post hoc LSD tests. Mean of neuroticism in blood type O and blood type B had the highest (23.83) and lowest scores (22.28) respectively. Mean of extraversion in blood type A and blood type B had the highest (30.76) and the lowest score (28.67) respectively. Mean of openness in blood type A and blood type AB had the highest (25.72) and the lowest score (23.93) respectively. Means of agreeableness and conscientiousness in blood type A had the highest scores of 30.16 and 35.47 respectively. In this study, personality factors of openness and extraversion were associated with different blood types (p = 0.04). From the five-factor personality traits, the three factors of Neuroticism, Conscientiousness and Agreeableness showed no relationship with blood types; however, both Extraversion and Openness were linked with different blood types.

Keywords: Big Five personality factors; Agreeableness; Blood type; Conscientiousness; Extraversion; Neuroticism; Openness

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INTRODUCTION

Understanding human personality can be a step to maintain mental and physical health (1). The Roots of humans behavior and personality is difficult know which is due to its complex nature(1). Growth experiences play an important role in the biological foundation that a person brings to the world (2). Personality is a stable and complex combination of traits, attitudes, interests, needs, behaviors, emotions and other factors that are formed in interaction with the environment (3). In recent years, the big five model of personality has been considered by many psychologists as a popular and powerful approach for the study of personality characteristics (4). The five-factor model is based on big five factors of personality (5). These include neuroticism, extraversion, openness, agreeableness, and conscientiousness (6). Neuroticism is defined as the tendency to easily experience negative emotions and feelings of dissatisfaction and chronic unhappiness (7). Extraversion and neuroticism reflects two

different dimensions of personality in individuals (8). Extraversion is a personality dimension that prepares the individuals for experiences of positive affect, behavioral activation system, and mood tendency. Neuroticism is a personality dimension that shows the tendency for experiences of negative affect behavioral deterrent system and avoidance mood (8). Theoretically, it seems logical that a number of people choose situations that are more compatible with their character and personality. They fulfill their psychological needs with adaptability to their environment due to having personality types, such as extraversion and flexibility(9).

Blood types are the most important attributes that different populations around the world differ based on that (10). Recognition of blood types could help in the recognition of many other traits such as personality traits(11). Blood types were first discovered in 1901; however, the mode of inheritance was not explained until 1920 until understanding the Human Genome Project brought more details. Chromosome 9q34, includes the ABO gene; however, ABO blood type were examined to assess personality characteristics without any consensus(12).

Studies on ABO blood types have made significant progress in recent years. The most notable one is the relationship between ABO blood types and disease processes. Extensive studies in the field of genetics include definite relationship between the ABO blood types and pancreatic cancer, and myocardial infarction which emphasizes the role of ABO in these diseases (13-15).

The first study on the relationship between blood types and personality was published in 1930 (16). After further studies in Japan in the mid-1980s, several studies in other countries were conducted on the relationship between blood types and personality traits(17).

Other studies showed that over the past decade, human genome research projects have followed an ascending trend. Although there is no consensus, but many studies confirm the relationship between personality characteristics and genes (18). Currently, most of the studies substantiate that some characteristics in the personality are hereditary (19).

The genetic composition of ABO blood type may assess some human characteristics. For example, a significant amount of people with blood type B and AB are not smokers or smoke rarely or occasionally(20).

This study aimed at finding the relationship between blood type and personality. This hypothesis is made following evidence of involvement of genetic factors in personality differences. Studies on the role of physiology in psychological properties of human beings made us conduct this study and check the relationship between blood types and personality characteristics, which is a very crucial predictor in choosing a career or finding the perfect spouse (21).

EXPERIMENTAL SECTION

This is a descriptive and correlation study, which investigated the relationship between the Big Five personality factors and blood types. The study populations were students of Kurdistan University of Applied Science who enrolled in the study from 2012 to 2013. This helped us to control variables such as age, education, culture and social class. Age and education were also controlled because all the study population had the same level of education and age. Culture variable was controlled because all the study population was chosen from Kurdish ethnicity. Socioeconomic level was controlled because the income of the study population was comparable.

We enrolled 400 people in the study using the convenience sampling method. From 16 University of applied sciences in Sanandaj, Iran; four faculties of industrial management, judiciary, social welfare, and culture and art were chosen randomly. According to each blood type (O, A, B, and AB), 100 participants (50 females, and 50 males) were chosen in each educational center.After giving informed consent, participants indicated their blood type (A, B, AB, and O) and then completed the 60-item NEO-PI, shortened form of the NEO Personality Inventory (NEO-PI) by Costa and McCrae (1985), considered as a reliable and valid assessment tool of the five dimensions of personality. Participants responded to each item using a five-point Likert scale, from 0=‘‘Strongly Disagree’’ to 4=‘‘Strongly Agree.’’ Approximately half of the items were reversed to prevent response sets. This tool measures big five personality traits including: neuroticism, extraversion, openness, agreeableness, and conscientiousness. The questionnaire had 60 questions each consisted of 12 background questions. Each question gets a score from 0 to 4; therefore each participant receives a score from 0 to 48. In Iran, the NEO - FFI questionnaire was standardized by Garousi in1998. Thequestionnaire wasvalidatedusingtest–retest in 208 students in 3 months resulting in the

following findings: neuroticism=83%, extraversion=75%, openness=80%, agreeableness=79% and conscientiousness =79% (22).

Data entered into SPSS version 18 and analyzed using descriptive statistics including frequency distribution tables, mean, standard deviation, Kolmogorov-Smirnov test, one-way ANOVA and post hoc LSD tests.

RESULTS AND DISCUSSION

Frequency of male and female participants was equal in all of the 400 participants with a mean age of 27.5 years. Finding of the study were as follows: Mean of neuroticism in blood type O and blood type B had the highest (23.83) and lowest scores (22.28) respectively. Mean of extraversion in blood type A and blood type B had the highest (30.76) and the lowest score (28.67) respectively. Mean of openness in blood type A and blood type AB had the highest (25.72) and the lowest score (23.93) respectively. Means of agreeableness and conscientiousness in blood type A had the highest scores of 30.16 and 35.47 respectively. (Table 1)

In this study, personality factors of openness and extraversion were associated with different blood types (p = 0.04). But neuroticism, agreeableness and conscientiousness had no association with blood type. According to post hoc LSD tests, on extraversion, blood type A was different from blood type B (P= .014) and blood type AB (P = .017). According to openness, people with blood type A were different from AB blood types. Furthermore, blood types O and A were statistically different according to agreeableness.

Table 1. Comparison of five big personality factors and blood types of students

Personality Factors	BLOOD TYPE	N	Mean	Std. Deviation	Minimum	Maximum	F	P*
Neurotisism	O	100	23.83	7.64	5	40	.92	.43
	A	100	22.28	8.26	7	47		
	B	100	23.06	7.43	7	40		
	AB	100	23.76	6.73	10	45		
Extraversion	O	100	29.41	6.51	16	45	2.64	**.04**
	A	100	30.76	5.55	16	43		
	B	100	28.67	6.13	11	42		
	AB	100	28.74	5.60	10	42		
Openness	O	100	25.15	4.44	14	35	2.64	**.04**
	A	100	25.72	4.69	17	39		
	B	100	24.87	5.31	12	40		
	AB	100	23.93	3.83	14	35		
Agreeableness	O	100	28.56	5.89	7	47	1.40	.24
	A	100	30.16	5.24	17	43		
	B	100	29.14	5.90	11	44		
	AB	100	29.31	5.26	18	42		
Conscientiousness	O	100	34.99	6.84	10	48	1.62	.18
	A	100	35.47	6.56	18	48		
	B	100	33.88	7.78	13	48		
	AB	100	33.61	6.57	11	47		

** One Way ANOVA*

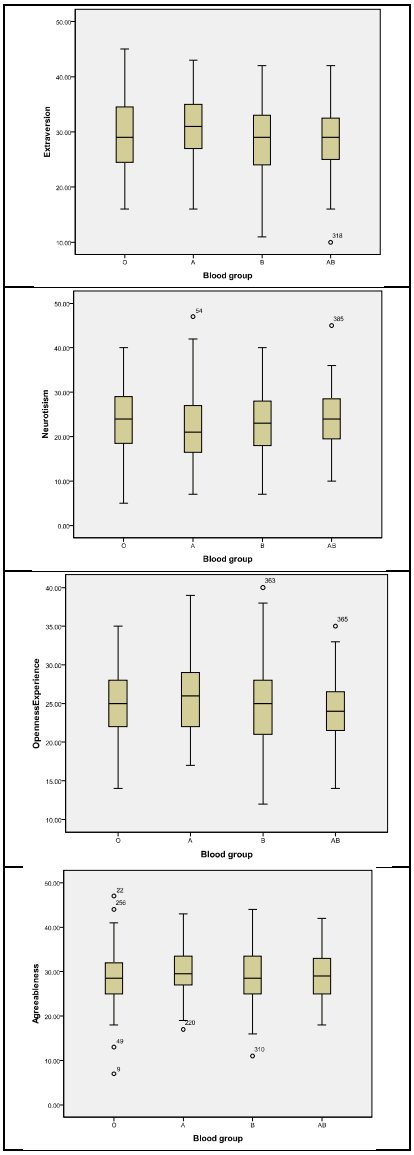
Table 2. Comparison of the mean of personality factors and blood types (post hoc test- LSD)

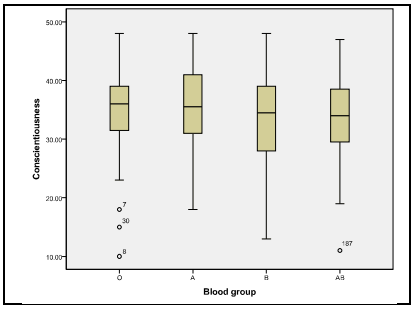
Dependent Variable	(I) BLOOD	(J) BLOOD	Mean Difference (I-J)	P
Neurotisism	O	A	1.55	.15
		B	.77	.47
		AB	.07	.95
	A	B	-.78	.46
		AB	-1.48	.17
	B	AB	-.70	.51
Extraversion	O	A	-1.35	.11
		B	.74	.38
		AB	.67	.43
	A	B	2.09*	**.014**
		AB	2.02*	**.017**
	B	AB	-.07	.93
Openness	O	A	-.57	.38
		B	.28	.67
		AB	1.22	.06

	A	B	.85	.19
		AB	1.79*	**.006**
	B	AB	.94	.15
Agreeableness		A	-1.60*	**.043**
	O	B	-.58	.46
		AB	-.75	.34
	A	B	1.02	.19
		AB	.85	.28
	B	AB	-.17	.83
Conscientiousness		A	-.48	.62
	O	B	1.11	.26
		AB	1.38	.16
	A	B	1.59	.11
		AB	1.86	.06
	B	AB	.27	.78

** The mean difference is significant at.05 level.*

Figure 1. Box plot comparing the mean scores of the big five personality factors and blood types





Concerning the relationship between blood types and neuroticism; the results of this study showed that there was no relationship between neuroticism and people with different blood types (ABO). Results support studies that found no relationship between blood type and neuroticism (23, 24). Another study found a relationship between blood type B and neuroticism which might include unequal cell sizes, and low incidences of blood type B (16). However, it is consistent with findings of other studies in this field (11), (16), (25), (26).

There are consistent studies in Iran and other countries that support the findings of our study, including: A study conducted by Rinieris (1978), found no relationship between blood types and neuroticism and suggested that, females had a higher mean neuroticism score than males [(27)]. Jogawar and Marutham and Indira (1990) found that blood type Bs were more neurotic [(16, 28).]

However, findings of these studies have a key difference with the results of our study. The results showed that there was no significant difference between neuroticism and other blood types. As a general rule, these findings have failed to make a connection, or significant differences between personality characteristics and blood types. However, results of those studies that were not consistent with the results of our study suggested some congruencies in several parts of the study between personality characteristics and blood types. These studies used different other tools instead of NEO, to prove their results; therefore, the need for a comparative study seems necessary.

In our study average age of students were 27.5 years with a range from 18 to 38 years. We can refer to Cattell's theory of stages of maturity which is the fourth phase of growth in which people experience stillness and emotional stability from 23 to 50 years. This age group has the lowest level of fluidity and generally has a productive and happy life. In this period people start a family life, choose a career and marry. After matching this theory with age types of participant in the study, many of these students already have jobs. Some of them were married and lived with peace and tranquility, and had a goal in their life. In the neuroticism scale, there was no significant difference in the mean blood types.

Given the average age of participants, extraversion was statistically significant, followed positive affectivity and behavioral activation system and showed no statistically significant difference in inhibitory avoidance, neuroticism, and mood in relation to blood types. Eysenck argued that extraverts have the least amount of provocation (29).

Concerning extraversion, the results of this study showed that there was a significant difference between people with different blood types (ABO) and extraversion. This finding contradicts Cramer and Imaike (2002), but supports Lester and Gatto findings (1987), likely reasons for these conflicting outcomes could include design of previous studies (23).

Extraversion levels in people with blood type A than in those with blood type B and people with blood type AB was more. The extraversion of blood types B and AB was less than blood type A. The results were consistent with findings of other studies in terms of extraversion.

Another study showed that people with blood type A were more sociable than people with blood type O (30). An Iranian study (31) showed that type of participation in companies affiliated to Tehran Stock Exchange, devised a new strategy based on prioritization of blood types to enhance the efficiency of production lines and building a conceptual model in which blood type A had the maximum collaboration, blood type O ranked second, and blood type AB was in the third place of collaboration. This study showed that blood type B had the lowest participation.

These findings were based on the type of participation and were largely consistent with the results of our study, especially with regard to extraversion.

In the findings another study, people with blood type A compared to blood types O, B and AB had the most emotional sensitivity and stable emotions, which is consistent with high extraversion found in this study (32). In another study, blood type AB had the most introversion and blood type A had the most extraversion which was consistent with the results of our study (17). In another study (33), students with blood types B and AB had the most tendency to tranquility, stability and introversion compared to students with different other blood types; results are consistent with findings of our study. Ando (26) argued that, people with blood type A had more tendency to stability, optimism and extraversion for and people with blood type B had a tendency to depression, anxiety, introversion and pessimism which is consistent with the results of this study.

Findings of another study **(34)**showed that individuals with blood type A had characteristics such as being calm, sociable, quiet and free of submissive character, anger and perfectionism. Meanwhile, individuals with blood type B had personality traits such as the tendency to perfectionism, submissiveness, lack of anger, busy mind, being cautious and conservative in speech. This feature matches with that of blood type A in extraversion and blood type B in introversion. The results are consistent with blood type A in having a high extraversion and for blood type B in the having a low extraversion.

Concerning openness and blood types, there is a significant difference between people with different blood types (ABO) and openness. Findings indicate that level of openness in people with blood type A are more than those withblood type AB. In the overlap of collaboration with openness scale, blood type A had the highest participation among other types which was consistent with the results of our study. There was also a low rate of openness and participation in AB blood type compared to blood types A and O.

In the study of Ahmadi (2013) (35), in addition to the ABO blood type, Rh was also examined in which blood type +A compared to +B and +B compared to +AB showed significantly different results. Angst (36), showed that high rate of openness of blood type A was in consistency with the results of our study. In another study (25), people with blood type A had the highest balance and openness compared to other blood types. This result agrees with high level of openness in our study. In another study (33), A and O blood types had the highest rate of openness and blood types B and AB had the highest tendency to inertia and stability. This is consistent with high rate of opening in blood type A and high rate of stability in Blood type AB. Another study (34), showed that people with blood type A, were sociable, quiet and peaceful which is consistent with the results of this study.

Concerning Agreeableness and different blood types, the results of this study showed that there was no relationship between people with different blood types and their level of agreeableness. The results are consistent with other related studies (23), (35), (25), (33). From the other side, Cattell et al. (1964) found blood Type As to be significantly higher on Factor I, tender-mindedness—one facet of agreeableness(37).

Agreeableness rests with alpha factors in the Dygmen theory which includes social acceptability. Some studies had a biological perspective to personality (38). They postulated that alpha characters such as agreeableness, conscientiousness and emotional stability represents the path by which humans can maintain stability of functional serotonergic status located in the caudal brain. They believed that beta factor included openness and extraversion. This indicates willingness to engage with new stimuli such as flexibility in behavior and thinking which is related to dopaminergic system in the central parts of the brain. In contrast paths and circuits of serotonergic and dopaminergic play a more effective role.

Concerning blood types and conscientiousness, the results showed that there was no significant relationship between different blood types and conscientiousness which is consistent with the results of other related studies [(23), (25), (33)]. Findings of this study support Cramer and Imaike (2002), but contradicts the views expressed about blood Type ABs in the literature[(23)]. However, these findings were not consistent with the results of some other investigations [(38), (35)]. Disregarding genotypes and phenotype can contribute significantly to the success of the research in this field. Given that scale of conscientiousness lies in the alpha factor theory of Dygmen, there was no significant difference between neuroticism, conscientiousness, and agreeableness factors and blood types which confirmed the results of our study.

In all of the studies conducted on blood types and personality traits, the focus was on four blood types. Blood type O is a precursor to other blood types. Due to multiple genotypes determining the time of the research involvement of blood type genotype in the research process could be effective.

CONCLUSION

From the five-factor personality traits, the three factors of Neuroticism, Conscientiousness and Agreeableness showed no relationship with blood types; however, both Extraversion and Openness were linked with different blood types.

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