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Personality Traits and Their Relationship with Blood Groups among of Palestinian University Students

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Abstract The study aimed to uncover the relationship between personality traits and blood groups among a sample of (337) university students, who are physically healthy and whose ages range between (20-22) years. The sample was chosen by a purposeful method from different university specializations. They were distributed among four groups based on the blood groups (A, B, AB, O) by nearly similar numbers except the blood group (AB) because of its scarcity among the population in general. The researcher used the Isaac List for Personality which consists of (90) items. The study concluded that there is no correlational relationship between personality traits and blood groups. The results also revealed that there are no differences in the personality traits (extraversion- introversion, psychosis, neurosis) which are due to the different blood groups among the students.

Keywords Personality Traits, Blood Groups, Extroversion, Neurosis, Psychosis

1. Introduction

Interest in blood groups has increased since the end of the last century and the beginning of this present century not only in terms of scientific research but also due to the increase of popular curiosity (Pisk et al., 2019).

Blood groups are considered as some of the most important traits which differ with the difference of peoples around the world (Sharifi, Ahmadian & Jalali, 2015). It is believed that there is a hereditary connection between blood groups and the mental state of the individuals (Liumbruno & Franchini, 2013). There is a widespread belief in Japan about the influence of the blood group on the personality, mental state, temperament and harmony with the others (Pisk et al., 2019).

The (A, B, O) blood groups were discovered by (Landsteiner) in (1901) (Nahida & Chatterjee, 2016; Sharifi, Ahmadian & Jalali, 2015).

Many researchers have noticed the inclinations of the personality traits in the blood group (Hobgood, 2011). The first study was conducted by (Ludwik Hirzfeld) and his wife on a large number of soldiers during the First World War on the Macedonian front. It was indicated that the blood group of the kind (A) was prevalent among the soldiers from North and Central Europe, whereas the blood group of the kind (B) was prevalent among soldiers from Eastern Europe (Amjadi et al., 2015).

Human blood was classified into four groups (A, B, AB, O). There is a belief that each blood group has its specific characteristics:

- Persons of the (A) blood group: They have a deep commitment to tranquility at time of crises. However, they are inclined to avoid confrontation. They feel uncomfortable towards the others. They seek amicability. They enjoy responsibility and commitment, and they yearn for success and they are refined.
- Persons of the (B) blood group: They are more practical than other groups. They have aims and power of thinking. They are more interested in their thoughts and they are more relaxed.
- Persons of the (O) blood group: they are the most flexible people and they take the initiative. They begin their projects but easily succumb when confronting difficulties. They appreciate the opinion of others and desire to be in the center of interest. They have a high confidence in themselves and a creative ability (Masahiko, 2012).
- Persons of the (A, B) blood group: they are social personalities and they have social contacts. They are able to adapt. They trust people most of the time only after making sure that they are worthy of trust (Narkhede, 2015).

The revision of some previous studies pointed out that the individuals of the (B) blood group have a high degree of nervousness. Individuals of the (O) blood group are the highest in ease and optimism. Individuals of the (A) blood group are higher in the degree of acceptability. Individuals of

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the (AB) blood group are the highest in conscience (Nahida & Chatterjee, 2016).

It was indicated that the (A, B, O) blood groups can be easily known because they are previously specified in heredity. This led to using them as a biological sign to evaluate the effect of heredity factors on the personality in the different ethnic groups (Rogers & Glendon, 2003). The personality of the individual is affected by several factors, whereby it is believed that the behavioral characteristic is connected with heredity. The individual's blood group does not depend on age or ethnicity (Patil et al., 2016).

The Japanese since (1930) have adopted the idea of coincidence between personality traits and the blood group of the person, whereby this phenomenon is common in Japan like the idea of the coincidence of the horoscopes with the personality in the United States (Narkhede, 2015). There has been an increasing interest in examining the whether blood group has scientific evidence on the development of neuropsychiatric patterns, or it is only a part of popular curiosity (Pisk et al., 2019).

Several studies have been conducted to find the connection between blood group and personality characteristics despite of no existence of scientific consensus on this (Ekpenyong & Inamete, 2018; Tsuchimine, Saruwatari, Kaneda & Yasui-Furukori, 2015). However, there has been a question which preoccupied the minds of many scientists and it is: Do biological factors have an important role in behavior or not (Dehghani, 2017).

The revision of the basics of individual differences and the biological characteristics of the human personality goes back to ancient Greece, whereby the Greeks believed that the personality characteristics are inherited under the strong influence of the biological factors. They attempted to connect the physical factors with the personality traits (Dehghani, 2017).

However, with the passage of time several theories and concepts of the personality have been formulated, because all the individuals have different personality traits, but with varying degrees, and one trait is used to define the personality of man (Panchu, Bahuleyan & Vijayan 2017; Gestel & Broechhoven, 2003). They are also interpreted and can predict a group of individual differences in the domain of mental health, job satisfaction and job performance (Linden, Nijenhuis & Bakker 2010).

The human soul is considered the main question of Psychology. Thus it is important to understand the causes and the roots of human behavior, personality and mental health despite this (Dehghani, 2015; Sharifi, Ahmadian & Jalali 2017; Beheshtian, Hashemi & Rashidi, 2015; Kanten, Gümüştekin & Kanten 2017).

The personality is the organizing force of the human behavior. It has an important status in Psychology. It is a group of characteristics and traits. It has dimensions or factors which affect the way in which the individual behaves in different situations. The physical and bodily health of the individuals can be studied through their personality traits (Beheshtian, Hashemi & Rashidi, 2015; Dant, Weaven & Baker 2013). The personality traits have been used since a long period to interpret the different factors in various environments and to predict them (Shropshire, Merrill, Allen & Mark 2006), for they are affected by society, culture and ethnicity (Khaledian et al., 2013).

The personality is a stable mixture of traits, positions, interests, behaviors, emotions and other factors which are formed by interaction with the environment, whereby the personality traits affect several features of the natural and sick behaviors, whereby they are connected with the temperament, and they are the most basic part of the personality (Tsuchimine, Saruwatari, Kaneda & Yasui-Furukori, 2015); Nahida & Chatterjee, 2016; Kanten, Gümüştekin & Kanten, 2017). They work on interaction between the individuals in their behaviors and conducts. Subsequently, they become some of the principal factors which affect human behavior (Fayez & Labib, 2016; Wayne, Musisca & Fleeson, 2004; Uffen, Kaemmerer & Breitner, 2013).

Eysenck in his theory relied on the science of physiology and the science of hereditary, whereby he considered that the personality differences grow from our hereditary inheritance, although the acquired habits form a big importance. Thus, he showed a high interst in what he called temperament (Nahida & Chatterjee, 2016; Vorkapic, 2012). Scientists concluded that some psychological traits and human ethics are transferred vi the blood and heredity.

It was indicated that many persons who have the same blood group are similar in ethics and behavior. Thus the nature of the individual, his personality and his ability to be creative and his temperament depend on the blood group of each person (Dehghani, 2017). It is important that the individuals choose the positions which agree with their personalities and fulfill their psychological needs with the ability to adapt with the environment due to the existence of different kinds of personality such as optimism and flexibility (Sharifi, Ahmadian & Jalali, 2015).

The results of some studies pointed out that weakness in building the personality is related to a large extent with psychological and mental problems (Alsadi, 2019).

Eysenck hypothesized the existence of three traits for the personality: psychosis, extraversion, and neurosis, and which they can be revealed through the Eysenck Personality Questionnaire (Gestel & Broeckhovem 2003; Moeller et al., 2015).

Neuroticism (N) is considered one of the most important personality traits. It indicates its connection to psychological problems and the negative experiences, and which reflect the individual's response to cases of exhaustion, distress, anxiety, depression, inability to interact with the daily activities, inability to adapt and temperamental state, and its lack of external incentive (Saadullah & Bailey, 2014; Beheshtian, Hashemi & Rashidi, 2015; Bui, 2017; Montag & Panksepp, 2017), and personality fluctuations, emotional instability, low self respect, lack of self confidence and shame (Hassan, Asad & Hoshino 2016; Manandhar et al., 2015; Moeller et al., 2015), and high sensitivity for social

threats (Atari, Barbaro, Sela & Shackelford, 2017). They tend to suffer repeatedly, and they are more exposed to nervous disturnbances (Boeree, 2006).

Extroversion (E), it points out to the social interaction (Wolff & kim, 2012; Rothmann & Coetzer, 2003; Moeller et al., 2015; Fayez & Labib, 2016; Uffen, Kaemmerer & Breitner, 2013; Nahida & Chatterjee, 2o16). They have a tendency to try positive feelings and inclination to partnership with the others (Zaidi et al., 2013; Judge & Buno, 2000), and achievement, openness and encouraging values (Haslam, Whelan & Bastian 2009).

As for the introvert personality, it inclines for tranquility and it is inactive and negative in many positions (Vorkapic, 2012), and it tends to withdraw upon confronting emotional conflicts and tension. Thus it is a shy personality and it enjoys loneliness (Nahida & Chatterjee, 2016).

However, psychoticism (P), is characterized by aggression, cruelty, and selfishness. It is against the society, more rash and difficult in thinking (Vorkapic, 2012; Nahida & Chatterjee, 2016), and wrong emotional expression. The environment plays a big role in man's becoming a psychotic (Boeree, 2006).

These three dimensions (extroversion, neurosis and psychosis) are based on a biological basis. They seek a causal interpretation on the level of the brain physiology and bio-chemsitry. These will be a universal measure which will fit all the societies and cultures (Barrett, Petrides, Eysenck & Eysenck, 1998).

The current study aimed to verify the main question: Is there a statistically significant relationship between the personality traits and the blood groups among the students of Al-Istiqlal University:

From the main question, the following sub-questions follow:

- Are there statistically significant differences among the degrees of the students on the extroversion-introversion factor which are due to the variable of the difference of their blood groups?
- Are there statistically significant differences among the degrees of the students on the psychosis factor which are due to the variable of their different blood groups?
- Are there statistically significant differences among the degrees of the students on the neurosis factor which are due to their different blood groups?

2. Method

2.1. Participants and Procedure

The current study followed the correlational descriptive methodology because it suits the purpose of the study. This study was conducted at Al-Istiqlal University which includes (1200) male and female students from different geographic areas. The sample of the study consisted of (337) students who are physically healthy, that is a proportion of (28%) of the population of the study. They were chosen by the purposeful sample method. The questionnaires were distributed according to their blood groups which are found in the file of every student, and they all agreed to fill out the questionnaire.

All the questionnaires were retrieved and they all were valid for statistical analysis. Table 1 clarifies the characteristics of the demographic sample.

Table 1. Distribution of the individuals of the sample according to blood group

Variable	Levels of Variable	Number	Percentage
Gender	Male	239	70. 9%
	Female	98	29. 1%
Blood Group	A	122	36. 2%
	B	99	29. 4%
	AB	16	4. 7%
	O	100	29. 7%

2.2. Instrument of the Study

An Arabic translated version of the Eysneck Personality Inventory consisting of three dimensions: (Extroversion-Introversion E, Psychoticism (P) and Neuroticim (N) was used. The measure was presented to a group of specialists in Psychology to verify the content validty and its comprehensibility. The percentage of agreement among them was 80%. After that, the internal validity of the measure was verified, whereby the correlation coefficient was calculated between the mean of each item of the measure and its total mean., and the level of its significance was tested at the significance level of ($\alpha \leq 0.05$), on the individuals of the sample of the pilot study. It was indicated that the correlation coefficients for all the items of the measure with its total degree are statistically significant at ($\alpha \leq 0.05$), and they ranged between (0. 219 -0. 688).

The test was applied on a pilot sample consisting of (50) male and female students outside the study sample in order to calculate the Cronbach Alpha coefficient, whereby the results indicated that the measure enjoys a degree of consistency of (0. 801).

2.3. Statistical Treatments of the Data

After collecting the questionnaire from the sample of the study, the researcher listed the responses of the individuals of the sample and entered them in the computer, and they were treated by using the (SPSS) program. The One way ANOVA test was conducted, and the Pearson Correlation Coefficient was calculated by the Correlation Matrix method in order to test the hypotheses of the study, whereas the consistency coefficient of the instrument of the study was calculated by means of the Cronbach-Alpha equation.

3. Results

Answering the Main Question of the Study:

Is there a statistically significant relationship between

the personality traits (Extroversion-Introversion, Psychosis, Neurosis) and the blood groups of the university students?.

In order to test the existence of a correlation relationship between the level of personality traits and the variance of blood groups among Al-Istiqlal University students through the Pearson Correlation test, the following clarifies this:

Table 2. Results of the Pearson Correlational test between each of the personality traits and the blood groups

		Correlation With Blood Groups
Extroversion-Introversion	Correlation Coefficient	-. 011-
	Significance level	. 843
	Number	316
Psychosis	Correlation Coefficient	-. 020-
	Significance level	0. 723
	Number	308
Neurosis	Correlation Coefficient	. 043
	Significance level	0. 450
	Number	312
Personality Traits as a Whole	Correlation Coefficient	0. 018
	Significance level	0. 743
	Number	337

** Value of the Pearson Correlation Coefficient, significant at the significance level of (0. 01> a).

It is clear from Table 2 that there is a linear relationship between each of the dimensions of the personality traits and the variance of the blood types among Al-Istiqlal University students, and between the personality traits measure as a whole and the variance of the blood groups among Al-Istiqlal University students. The significance level for these dimensions successively was (0. 843 ، 0. 723 ، 0. 450 ،0. 743). These values are greater than (0. 05). This result agrees with the result of the study of (Nawata, 2014; Patil et al., 2016; Rogers & Glendon, 2003; Nahida & Chatterjee, 2016; Gupta & Shah, 2019; Sundarakumar, Maheswari & Somasundaram, 2012;Cramer & Imaik, 2002).

However, this result differs from the study of (Tsuchimine, Saruwatari, Kaneda & Yasui-Furukori, 2015) which showed the existence of a big correlation between the hereditary structure of the blood groups (A, B, O) and the personality traits. However, the present study emphasized the non-existence of a correlation relationship between personality traits and the blood groups.

From the main question of the study, the following sub-questions emanated:

The First Question: Are there statistically significant differences among the degrees of the students on the Extroversion-Introversion factor which are due to the variable of the difference of their blood groups?

To answer this question, this hypothesis was tested through conducting the One Way ANOVA test. The results are indicated in the following table:

Table 3. Results of the One Way ANOVA test for testing the significance level of the differences according to the variable of the variance of the blood groups

Dimensin	Source of Variance	Sum of Squares	Degrees of Freedom	Mean of Squares	"F" Value	Significance Level
Extroversion-Introversion	Among Groups	2. 910	3	. 970	. 111	0. 954
	Inside Groups	2732. 040	312	8. 757		

It is clear from Table 3 there are no statistically significant differences at the significance level of (α≤0. 05) in the level of Extroversion-Introversion among the students of Al-Istiqlal University which are due to the variable of blood groups. The significance level was (0. 954), and this value is bigger than (0. 05), that is, the level of Extroversion-Introversion with the difference of their blood groups. This result agrees with the study of (Beheshtian, Hashemi & Rashidi, 2015; Rogers & Glendon, 2003; Cramer & Imaike, 2002).

However, this result differ from the study of (Nahida & Chatterjee, 2016) which found that the (B) blood group has an Extroversion nature, whereas the study of (Sharifi, Ahmadian & Jalali, 2015) and the study of (Barakat, 2007) found that the (A) blood group has an Extroversion nature, and the study of (Abdel- Khalek & ElNayal, 2004) found that the (A) blood group has an Extroversion nature. However, the study of (Ando, 1995) emphasized that the (A) blood group tends to Extroversion and optimism, while those having the (B) blood group tend to introversion, pessimism and psychosis. Also those having the (A, B) blood group were less extroverts than the rest of the blood types according to the study of (Gupta, 1990).

The study of (Mary & Ian, 2003) uncovered that those having the (O) blood group tend more to Extroversion than the other blood tgroups. Also the study of (Lester & Gatto, 1987) emphasized that those having the blood groups (AB, O) tend more to extroversion than the other blood groups. Blood groups (A) and (B) have much higher introversion. The results of the study of (Sah & Dandannavar, 2018) that there are statistically significant differences in the degree of extroversion in favor of the blood groups (A, AB).

The Second Question: Are there statistically significant differences among the degrees of the students on the psychosis factor which are due to the difference of their blood groups?

To answer this question, this hypothesis was tested through conducting the One Way ANOVA test. The results came as clarified in the following table:

Table 4. Results of the One Way ANOVA test for testing the significance level of the differences according to the variance in blood groups

Dimension	Source of Variance	Sum of Squares	Degrees of Freedom	Mean of Squares	"F" Value	Significance Level
Psychosis	Among Groups	15. 438	3	5. 146	. 749	0. 523
	Inside Groups	2087. 585	304	6. 867		

It is clear from Table 4 that there are no statistically significant differences at the significance level of ($\alpha \leq 0.05$) in the psychosis level among the students of Al-Istiqlal University which are due to the variable of the blood groups. The significance level is (0. 523), and this value is bigger than (0. 05), that is, the psychosis level does not differ among the students of Al-Istiqlal University with the difference of their blood groups. This result agrees with the study of (Lester & Gatto, 1987). The result of the present study differs from the result of the study of (Nahida & Chatterjee, 2016) which found that the persons having the (A, AB, O) blood groups tend to psychosis. Also, the study of (Pisk et al. 2019) concluded that the persons having the (A, B) blood group have a capability for developing the psychosis symptoms more than the other blood groups.

The Third Question: Are there statistically significant differences among the degrees of the students on the neurosis factor which are due to the variable of their different blood groups?

To answer this question, this hypothesis was tested through conducting the One Way ANOVA test. The results came as clarified in the following table:

Table 5. Results of the One Way ANOVA test for testing the significance level of the differences according to the variable of the variance in blood groups

Dimension	Source of Variance	Sum of Squares	Degrees of Freedom	Mean of Squares	"F" Value	Significance Level
Neurosis	Among Groups	52. 749	3	17. 583	1. 190	0. 314
	Inside Groups	4549. 324	308	14. 771		

It is clear from Table 5 that there are no statistically significant differences at the significance level of ($\alpha \leq 0.05$) in the neurosis level among the students of Al-Istiqlal University which are due to the variable of the blood groups. The significance level reached (0. 314), and this value is bigger than (0. 05), that is, the neurosis level does not differ among the students of Al-Istiqlal University with the difference of their blood groups. The result of the present study agrees with the result of the study of (Al-Zu'bi, 2018), and the studies of (Behshtian, Hashemi & Rashidi, 2015; Cramer & Imaik, 2002; Rogers & Glendon, 2003; Sharifi, Ahmadian &Jalali, 2015; Sundarakumar, Maheswari & Somasundaram, 2012; Lester & Gatto, 1987). However, the studies of (Jogawar, 1983; Marutham & Indira, 1990; Mary & Ian, 2003; Glendon & Rogers, 2003; Martham & Prakash, 1990; Cramer & Imaik, 2002) emphasized that the persons having the (B) blood group are more inclined to neurosis. The study of (Abdel Khalek & ElNayal, 2004) indicated that the persons having the (O) blood group have a connection with the neurosis trait.

4. Discussion

From the previous results of this study, it was indicated that there is no relationship between the personality traits and blood groups. However, there is a variance with the results of the other studies which found that there is a relationship between some blood groups and personality traits. These results can be interpreted through the theory of Eysenck in the personality, whereby he mentioned that it is based on three dimensions which are related with the biological system (Garcia_Torres & Castillo-Mayen, 2019), whereby he considered that despite the difference in the personality, it grows through our hereditary characteristics. However, he showed big interest in what is called the temperament. Nevertheless, he showed interest in the behavioral side through considering the acquired habits as having a big importance in forming the personality (Beheshtian, Hashemi & Rashidi, 2015; Boeree, 2006). The hereditary pattern which is concealed behind the outside appearance of man, plays a basic role in forming behavior and the personality characteristics by which every person is distinguished from the other (Hashim, 2013).

Some considered that this difference is due to the fact that the personality is a complicated and fixed mixture of traits, positions, conflicts and feelings which form an interaction with the environment. Nevertheless, it is clear that the biological traits which the individual carries will develop because of his experiences during his growth (Beheshtian, Hashemi & Rashidi, 2015).

Through knowing the personality traits which are connected with the blood groups, the build-up of the society can be deduced in order to analyze the social build-up in the society and its relationship with the other societies (Hobgood, 2011).

Also, the physical and psychological traits have hereditary causes. The circumstances which can influence one of them can influence the other (Ket & Trefil, 2002).

From here the difference in the results of this study with the other studies emphasizes that the inherited characteristics of the individual might be influenced to a large extent by the

surrounding environment, so that even the growth which seems to depend to a big degree on the innate biological nature, might be influenced by the environmental and cultural events.

This agrees with the complementary view of Social Psychology for human behavior and which interprets behavior as consisting of physiological factors and social stimuli (Al-Zu'bi, 2018). This is what is emphasized by some studies which indicated that there is no correlation between the blood groups and the response of the individual to the different stimulating pressures and positions. For the psychological state of the individual and how he responds to these pressures and his confronting them are not connected with the blood group which he carries (Yadav, Sankhla, Gaur & Gupta, 2016).

This is what the researcher emphasized that the nature of the Palestinian society might have environmental and cultural circumstances which differ from the rest of societies and cultures. For the Palestinian society always lives in stressful social and political circumstances, and changing and unstable environmental events which might affect the personality patterns of its individuals in terms of how to confront the pressures and the extent of the influence of their personality traits by these stressful experiences and experiences. Therefore there was no effect for the blood groups on the personality traits.

The researcher also views that the measure which was employed in this study differs from some measures in other studies. The Eysneck Personality Inventory, while the Cattel Personality measure was used in other studies or the Inventory of the Big Factors of the Personality. Although all these measures were designed to measure the personality traits, they differ in the way they were built and their psychometric characteristics. Also they differ in the population of the study in terms of the difference of social, environmental, cultural and ethnic factors of the population of the study. These factors differ from time to time and from one society to another.

The researcher also views that the size of the sample of the study and the number of males and females in it can affect the results of the study, because there are some traits and characteristics which differ between males and females, in addition the age of the individuals of the sample plays an important role in defining the personality traits, without an influence for the blood group on these traits, because the experiences and positions which the individual faces and how to face them differ according to the difference of age.

5. Conclusions

The present study attempted to answer the relationship of the personality traits with the blood groups. It was indicated that there is no positive relationship between the two of them, despite the agreement and the difference with the results of similar studies. However, similar studies can be conducted in the future on the relationship of the blood groups with some psychological, ethnic, cultural and orientation towards religiosity factors in order to reinforce understanding human behavior. However, there is a need for more scrutiny and study. Also we can uncover the effect of social factors and behaviors connected with health problems on personality traits which have a relationship with the blood groups.

6. Recommendations

- Conducting in-depth studies on the same category with other variables such as specifying the social and cultural factors and the economic income, and that the size of the sample can be large in order to emphasize the results of this study.
- Conducting studies with different age stages which include males and females.
- Conducting studies to uncover the connection of the blood groups with psychological variables such as psychological solidity, emotional balance, positive and negative sentiment, feeling of hope and despair, patterns of thinking, intelligence and other variables.

Limitations of the Study

The files of the individuals of the sample of the study for testing the different blood types for choosing the representative sample were reviewed. It was indicated that the (A B) blood group has a fewer students than other blood groups. Approximate numbers of the (A, B, O) blood groups were obtained. Also the size of the sample was somehow small. It is preferred that the size of the sample can be more representative for all the blood groups. Also there was no equality between the number of the males and the females in the representative sample, whereby the number of the males was more than the number of the females.

This might affect the results of the study due to the difference in the personality traits between the males and the females.

However, the characteristics of the individuals of the sample are similar in terms of the social, economic, academic environment and the geographical area in Palestine aspects. This is considered a point of strength in the study.

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Ethical Approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of University's Research Ethics Board and with the 1975 Helsinki Declaration.

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