

# Assessment of Haemoglobin Percentage, RBC count and Serum Iron in Persons of *Damvi* and *Balghami* Temperaments

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## Abstract

emperament of a person is determined by the dominance of a particular *Khilt* (humour). So, it was hypothesized that variation must exist in humours of persons with different temperament. Blood was considered the most suitable *Khilt* for assessment. The present study was carried out in the Postgraduate Department of Kulliyat, AKTC, AMU Aligarh, from 2008-2010. For this purpose *Damvi* and *Balghami* volunteers were selected randomly between the age group of 18-34 years. The study was conducted on 140 healthy volunteers of either sex. The aim of the study was to compare Hb%, RBC count, serum iron in *Damvi* (sanguine) as well as *Balghami* (phlegmatic) temperament, and also analyze any variation in the blood constituents of *Damvi* and *Balghami* temperament individuals. The temperament of volunteers were determined on the basis of questionnaire prepared in the light of criteria described in classical Unani literature (*Ajnas-e-Ashra*). Cyanmethemoglobin, Neubauer's chamber and Ferrozine methods were used for assessment of the blood constituents. In our study it was observed that the blood constituents (Hb%  $t=8.5$   $p<.001$ , RBC  $t=6.4$   $p<.001$ , serum iron  $t=6.1$   $p<.001$ ) were significantly higher in *Damvi* as compared to *Balghami* individuals. Thus, it may be concluded that a relation does exist between various hematological parameters and *Mizaj* of an individual. It was also established that variation does exist in the *Akhlat* of different temperament and there was predominance of *Khilt Dam* in the persons with *Damvi* temperament. Thus, it may be said that predominance of a particular *Khilt* necessarily exerts its influence in formation of a specific and unique temperament.

**Keywords:** *Mizaj*, Humours (*Akhlat*), Blood constituents (Hb%, RBC, Serum Iron).

## Introduction

The humoural and temperamental theories are the basic and fundamental concepts of Unani medicine. Every person is supposed to have a unique humoural constitution that creates an equilibrium status which represents the *Mizaj* (Temperament) of the body. It includes his physical characteristic and physiological, psychological as well as emotional state. Thus, as no two individuals are same or alike in their temperament. So each individual due to his/her specific temperament is said to possess certain innate strength and deficiencies. (Ahmad,1980; Azmi, 1995; Ibne-e-Sina, 1993). *Damvi* and *Balghami* individuals were selected for this study because these two categories

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show different types of signs and symptoms as their physiological, physical, and psychological features are opposite to each other on the basis of their hot and cold temperament respectively. Basically these two main physical factors (hotness and coldness) play vital role in the determination of Temperament.

Damvi (Haar-Ratab) Mizaj	Balghami (Barid-Ratab) Mizaj
<p>Warm and soft skin on palpation, muscular body built, reddish or pinkish complexion, a thick lusty and blackish hair which shows rapid growth and average distribution, suitable weather is cold and dry. Strong pulse, cloudy and reddish urine. (Ahmad, 1983; Kabiruddin, 1930). The sanguine individual looks everything from bright side, optimistic and is always sure of success. They are extrovert; readily makes acquaintance with other people. (Majoosi, 1889; Nafees, 1954; Shah, 2007).</p> <p>They are very active and tense, and are moderately hypersexual, and have a slight feeling of heaviness in their body. Quick but not lasting temper. (Narain, 1996; Shah, 2007).</p>	<p>Their temperament is cold. They are flaccid and obese individuals, with white and pasty skin. They have thin and soft hairs. Their blood vessels are not prominent. Their movement and activities are sluggish. Their intelligence is dull. They do not get angry and overcome with drowsiness. They have lack of thirst; they experience excessive heaviness of the body. (Kabiruddin, 1930; Majoosi, 1889).</p> <p>These people feel comfort with the use of hot and dry things. They like hot weather. According to Narain(1996) their memory is bad and uncreative and their power of imagination and perception is slow and feeble.</p>

This study was started with following aims and objectives.

- 1) To analyze correlation between temperament and blood (*Khilt-e-Dam*) composition.
- 2) To evaluate the impact of predominance of particular humour (*Khilt*) on the blood constituents like Hb%, RBC count and Serum Iron in *Damvi* and *Balghami* temperament individuals.
- 3) To assess the blood constituent (i.e. Hb%, RBC count, Serum Iron) levels in *Damvi* and *Balghami* temperament and to find out whether there is any difference in the normal range of these blood constituents and the type of temperament of individuals are more prone for anaemia.
- 4) To establish the haematological parameters for the determination of temperament by the investigation of blood.
- 5) To analyze the data on statistical parameters to prove the observations and results.

## Methodology

The present study was carried out in the Department of Kulliyat, A.K. Tibbiya College, AMU, Aligarh, during the period extending from 2008-2010. One Hundred sixty six (166) volunteers of either sex in age group of 18-34 years were randomly selected for the study, out of which 26 volunteers could not fulfill the inclusion criteria and hence were left out of study and 140 volunteers were finally included in the study. An assessment of temperament (*Mizaj*) of the volunteers was made on the basis of a self designed Proforma (questionnaire) prepared in the light of criteria described in classical Unani literature i.e. ten determinants (*Ajnas-e-Ashra*)(Shah, 2007;Wamiq, 2003). The Proforma for temperament is given in tabulated form. Only *Damvi* (Sanguine) and *Balghami* (Phlegmatic) temperament volunteers of either sex were included in this study. Volunteers having any disease or any history of medication addiction smoking and alcoholism were excluded from the study. Volunteers having any blood disorder and pregnant women were not included in this study.

### Categorization of Individual.

The selected volunteers were divided into two groups according to their temperament.

- Group *Damvi* (Sanguine): Comprised of volunteers having *Damvi* temperament.
- Group *Balghami* (Phelgmatic): Comprised of volunteers having *Balghami* temperament.

After determination of *damvi* and *balghami* temperament, the volunteers were randomly called for venipuncture.

### Blood Sample Collection

2.5 ml blood was drawn from venipuncture by a sterile 5 ml syringe. After that 0.5 ml blood was kept in EDTA vacuum vial and 2 ml blood was collected in plain vial and allowed to clot at room temperature and then centrifuged within an hour of venipuncture. Approximately 1ml serum was obtained from 2 ml of blood.

The following haematological parameters of blood (*khilt-e-Dam*) were assessed by using the modern laboratory tests. (Mukharjee, 1989; Sood, 2006; Wamiq, 1989).

- (1) Haemoglobin percentage—Cyanmethaemoglobin method
- (2) Red blood cell count—Neubauer's chamber method
- (3) Serum iron—Ferrozine method

#### Estimation of Haemoglobin

Various methods are available for hemoglobin estimation but for this study, Cyanmethaemoglobin method was selected because of its more advantages as compared to Sahli's method and other methods.

Normal Reference Values (Harsh Mohan, 2000; Sood, 2006; Robbins et al., 2005).

Male — 13-18 g/dl

Female — 12-15g/dl

#### Estimation of Red Blood Cell Count

The red blood cell count was done to find out the total number of red cells present per cu.mm of blood. In certain physiological conditions there is change in normal count as in age, sex environmental conditions and pregnancy.

Normal Reference Values (Harsh Mohan, 2000; Sood, 2006; Robbins et al., 2005).

Male — 4.5-5.5 million/cu.mm of blood

Female — 3.5-5.0 million/cu.mm of blood

#### Estimation of Serum Iron

Serum iron was estimated by Ferrozine method (Crest Biosystems)

Normal Reference Values (Harsh Mohan, 2000; Sood, 2006; Robbins et al., 2005).

Male — 60-160 µg/dl

Female — 35-145 µg/dl

## Observations

**Table 1:** Showing distribution of volunteers according to hemoglobin percentage

Hb% gm/dl	Damvi		Balghami		Total
	Male	Female	Male	Female	
11–12	0	0	0	19	19
12–13	4	11	12	18	45
13–14	9	10	11	3	33
14–15	18	1	2	0	21
15–16	14	0	0	0	14
16–17	8	0	0	0	8
Total	53	22	25	40	140
Mean ± S.D	14.7 ± 1.1	13.0 ± 0.6	13.1 ± 0.6	12.1 ± .06	
Significance	t = 6.9 p < .001 (male)		t = 5.7 p < .001 (female)		

**Table 2:** Showing distribution of volunteers according to RBC count

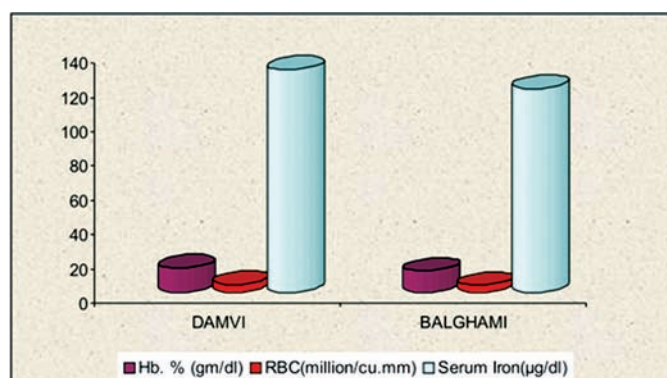
RBC billion/cu.mm	Damvi		Balghami		Total
	Male	Female	Male	Female	
3–4	3	7	2	29	41
4–5	18	15	19	11	63
5–6	32	0	4	0	36
TOTAL	53	22	25	40	140
Mean±S.D	5.0±0.6	4.2±0.5	4.6±0.5	3.8±0.4	
Significance	t = 3.1 p<.001 (male)		t = 7.3 p<.001 (female)		

**Table 3:** Showing distribution of volunteers according to Serum Iron

Serum Iron (µg/dl)	Damvi		Balghami		Total
	Male	Female	Male	Female	
91–100	0	2	0	5	7
100–110	0	0	0	7	7
111–120	1	2	2	7	12
121–130	3	11	10	16	40
131–140	12	6	6	5	29
141–150	23	1	5	0	29
151–160	14	0	2	0	16
TOTAL	53	22	25	40	140
Mean±S.D	144.2± 9.3	125.5±11.7	133.5±10.9	117.7±12.3	
Significance	t = 4.4 p<.001 (male)		t = 4.7 p<.001 (female)		

**Table 4:** Showing blood constituents of volunteers expressed as Mean  $\pm$ S.D.

	Damvi	Balghami	Significance
No. of volunteers	75	65	
Hb.% (gm/dl)	14.2 $\pm$ 1.4	12.5 $\pm$ 0.9	t = 8.5 p<.001
RBC(million/cu.mm)	4.8 $\pm$ 0.7	4.1 $\pm$ 0.6	t = 6.4 p<.001
Serum Iron( $\mu$ g/dl)	130 $\pm$ 11.0	118.9 $\pm$ 10.7	t = 6.1 p<.001



## Results and Discussion

Keeping in mind the importance of humours in the creation of specific and unique temperament of an individual and a variation among the characteristics of the Sanguine and Phlegmatic individuals, it was hypothesized that the analysis of blood humour (*khilt-e-dam*) can reveal some important information and results, which may be helpful in the determination of *Damvi* and *Balghami* temperament. Being opposite to each other in temperament and features, the individuals of sanguineous and phlegmatic features can be better evaluated in context of their blood chemistry. Hence, in this study, it was tried to understand the impact of predominance of a particular *khilt* on the blood constituents. Therefore, evaluation of blood constituents (Hb%, RBC count, Serum Iron) in relation with temperament was done and it was analyzed that in which temperament the levels of these laboratory parameters were increased and the relationship between temperament and blood humour (*khilt-e-Dam*) was also established. The temperament of individuals more prone for anaemia was also assessed.

The results were recorded, interpreted and analyzed statistically by student's 't' test. The results are discussed below.

In our study of 140 volunteers, 75(53.6%) were *Damvi* and 65(46.4%) were *Balghami*. It was also observed that the number of male volunteers having

*Damvi* and *Balghami* temperament were 53 (37.86%) and 25 (17.86%) where as female were 22 (15.71%) and 40 (28.57%) respectively.

The haematological parameters like Hb%, RBC, and Serum Iron of Blood humour (Red portion of *akhlat*) were evaluated for the assessment of their normal range in *Damvi* and *Balghami*. In this regard our analysis showed that mean and standard deviation of these blood constituents i.e. Hb%, RBC, and Serum Iron were higher in *Damvi* than the *Balghami* volunteers and the difference was statistically significant (Table 4).

Now it may be concluded that *Damvi* and *Balghami* individuals are different from each other in their physiological, physical and psychological features because of significant difference in their blood constituents (i.e. Hb%, RBC count. Serum iron). In modern medicine, it is assumed that these humoral constituents give red colour to the humours (*Akhlat*) of the body and we evaluated this modern concept of blood in relation with temperament. In Unani medicine, it was considered that dominance of *Khilt-e-Dam* (*Galba-e-Dam*) produced *Damvi* (Sanguineous) temperament and shows its unique features such as reddish/pinkish complexion, warmer on touch, their routine activities are fast, hair growth is rapid and appetite and thirst is increased while *Balghami* individuals have pale/whitish complexion, colder on touch which indicate low blood constituents (*Khilt-e-Dam*) but more phlegm (*Galba-e-Balgham*) due to which their routine activities and movements are sluggish, and they are dull, have less appetite and thirst and hair growth is slow. (Aziz, 1973; Majoosi, 1889; Masihi, 1963). All these features indicate that there may be less blood humour as compared to *Damvi* individuals. So our study is in total conformity to this Unani concept of *Damvi* individuals having *Galba-e-Dam* or more blood constituents as compared to *Balghami* individuals.

## Conclusion

In our study, it is clearly evident that temperament of an individual is influenced by his blood composition and its constituents. Thus, every individual has a unique temperament, which includes his physical characteristics, physiological profile and psychological as well as emotional state, which attribute to the *Mizaj*. Therefore, the blood composition and its constituents play an important role in creation of temperament of an individual. During this study it was observed that blood constituents like Hb%, RBC count, Serum Iron were significantly higher in *Damvi* as compared to *Balghami* individuals. Thus, it may be concluded that a relation does exist between various haematological parameters and *Mizaj* of an individual. It was also established that variation

does exist in the *Akhlat* of different temperament and there was predominance of *Khilt-e- Dam* in the persons with *Damvi* temperament. Thus, it may be said that predominance of a particular *Khilt* necessarily exerts its influence in formation of specific temperament and this hypothesis has been found correct up to mark.

Our study is a preliminary study and just an effort to set a milestone for further research. If the study is performed with multidisciplinary approach with the help of Genetics, Haematological and physicist, only then, it could be validated and may be acceptable before medical fraternity. Today it is the period of evidence based medicine so that we must have to project the data in favour of this temperament and hematological relations to prove the things more confidently. Moreover, if the study is relevant it must be incorporated in our curriculum.

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