

The *Mizaj* (Temperament) Patterns versus Somatotypes: Concordance or Coincidence

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Abstract

One of the well accepted classifications of human population is based on race. Race refers to a group of people who share similar and distinct physical characteristics. It is a social concept, by which human beings identify and distinguish themselves from other groups. The term race was initially confined to groups of people speaking common language. By 17th Century race referred to physical (Phenotypic) traits. In Unani System of Medicine, ancient physicians had identified ten comprehensive features of the human body and termed them as *Ajnas-e-Ashrah*. Based on these features they classified human being into four categories who have different *Mizaj* (temperament) viz, *Damwi*, *Balghami*, *Safrawi*, and *Saudawi*. American psychologist William Sheldon (1898-1977) has also classified human beings into three types of personalities and termed them somatotypes. Sheldon's somatotypes are based only on physical characteristics or physique. He has expressed them numerically and named them as ectomorphs, mesomorphs and endomorphs. Sheldon's body types can be assessed by ten anthropometric measurements.

Present study has been conducted to explore the *Mizaj types* and somatotypes of the same subjects and to find out any relationship between these two methodologies and further to point out whether this relationship is merely a coincidence or has any statistical correlation?

Key words: *Mizaj*, *Ajnas-e-Ashrah*, Somatotypes, Anthropometry, Race, Phenotype

Introduction

The present study is a statistical scrutiny of the relationship between the personality types-*Mizaj* (Temperament) of Unani System of Medicine (USM) and Sheldon's personality type (Somatotypes). The human body is a wonderful creation of God, which has always been a source of curiosity for medical science. Although the basic frame work of human body is same, the phenotypic features are different (Dutta, 2004). Different systems of medicine classify the human beings into different groups depending on these features. Ancient Unani physicians had also classified human beings into four types of personalities viz, *Damwi* (Sanguine), *Balghami* (Phlegmatic), *Safrawi* (Choleric) and *Saudawi* (Melancholic) (Ibn Sina, 1966). In USM personality it is assessed by ten comprehensive features called *Ajnas-e-Ashra* (ten determinants) (Ahmad, 1980). To assess the *Mizaj* which is based on *Ajnas-e-Ashrah*, a questionnaire has been formulated by the physicians and scholars. This questionnaire has been quantified as it is based on qualitative entities. American psychologist William Sheldon (1898-1977) (Sheldon, 1942) had

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also classified human beings into three types of personality and termed them somatotypes. Sheldon's somatotypes are based on only physical characteristics or physique. He expressed them numerically and named them endomorphy, mesomorphy and ectomorphy, which seemed to be derived from the three layers of the human embryo, the endoderm, the mesoderm and the ectoderm. Sheldon's body types can be assessed by ten anthropometric measurements (<http://www.age-of-the-sage.org/psychology/sheldon.html>). Since there appears a similarity between the two therefore an observer may arrive at very similar results in determining a person's body type or otherwise. Hence a pilot study to determine the *Mizaj* types and somatotypes of the same subjects was conducted. Relationship if any between these two methodologies was scrutinized to find whether it is merely a coincidence or there is a statistical correlation between the two. The *Mizaj* of the volunteers included in the study was assessed with the help of validated Unani questionnaire, while somatotype was assessed with the Heath Carter software. Statistical scrutiny for concordance between *Mizaj* assessed by Unani questionnaire and by Sheldon's somatotype was explored.

Materials and Methods

A cross sectional, analytical study after the approval of the Institutional Ethics Committee was carried out. Three hundred and fifty healthy students of either gender between 18 to 25 years of age from Azam Campus, Camp area of Pune city of Maharashtra, India, were included for the study by random sampling method. Under 18 years and above 25 years of age and diseased individuals were excluded. The study was carried out from 14th August 2015 to 13th April, 2016.

I: Assessment of Mizaj by Unani questionnaire

Assessment of Mizaj was done by assessing the following ten parameters known as

Ajnas-e Asharah:

1. *Malmas* (The touch)
2. *Lahm-wo-Shahm* (Muscles and Fats)
3. *Ash'ar* (Hair of the body)
4. *Laun* (Colour of the body)
5. *Hay'at al-a'za* (Stature of the body)
6. *Kayfiyat al-infi'al* (Quality of passiveness of the organs)
7. *Naum wo-yaqzah* (Sleep and wakefulness)
8. *Af'al al-a'za* (Bodily functions)
9. *Fudhlat al-badan* (Excreta of the body)
10. *Infi'alat nafsaniyah* (Psychic reaction)

Quantification and validation of Unani questionnaire

For the assessment of *Mizaj*, a questionnaire based on the *Ajnas-e-Ashrah* was constructed. As all the ten parameters mentioned in the *Ajnas-e-Ashrah* are qualitative therefore, they were quantified on a scale of 1 to 10. Quantification was done as per the method of quantification mentioned by Unani physician Balinas (Falsafi, 1972). The quantification was based on different qualities i.e. *Kaifiyat* that the subjects possessed. The assessment was done by a single observer, an experienced Unani physician which was further validated by another Unani consultant. The quantification method is as follows:

Quantification of Kaifiyat

Proportion of the *Lahm-wo-Shahm* (Muscles and Fats) was assessed by Omron's body composition analyser. Skeletal muscles, subcutaneous fat and visceral fats were expressed in percentage. Quantification of *Lahm-wo-sham* for the specific *Mizaj* types was done by NIH/WHO guideline for BMI (Gallagher, 2000) (Table 1-3)

Table 1: Quantification of Kaifiyat

Sr. No.	Kaifiyat	Assigned score
1	Har – Yabis	4
2	Har – Ratab	3
3	Barid – Ratab	2
4	Barid – Yabis	1

Table 2: Gender wise grading of skeletal muscle chart

Gender	Age	Low (-)	Normal (0)	High (+)	Very High (++)
Female	18-39	< 24.3	24.3-30.3	30.4-35.3	> 25.4
	40-59	< 24.1	24.1-30.1	30.2-35.1	> 35.2
	60-80	< 23.9	23.9-29.9	30.0-34.9	> 35.0
Male	18-39	< 33.3	33.3-39.3	39.4-44.0	> 44.1
	40-59	< 33.1	33.1-39.1	39.2-43.8	> 43.9
	60-80	< 32.9	32.9-38.9	39.0-43.6	> 43.7

Source : Omron Healthcare

Table 3: Gender wise grading of body fat chart

Gender	Age	Low (-)	Normal (0)	High (+)	Very High (++)
Female	20-39	< 21.0	21.0-32.9	33.0-38.9	> 39.0
	40-59	< 23.0	23.0-33.9	34.0-39.9	> 40.0
	60-79	< 24.0	24.0-35.9	36.0-41.9	> 42.0
Male	20-39	< 8.0	8.0-19.9	20.0-24.9	> 25.0
	40-59	< 11.0	11.0-21.9	22.0-27.9	> 28.0
	60-79	< 13.0	13.0-24.9	25.0-29.9	> 30.0

Source : NIID/WHO guidelines for BMI

Source: Gallagher *et al.*, American Journal of Clinical Nutrition, Vol. 72, Sept. 2000

II: Assessment of Sheldon's somatotypes

Somatotype was assessed by the Heath-Carter method. Barbara Honeyman Heath, a former associate of William Sheldon developed a method for assessment of somatotypes, which is known as 'The Heath-Carter Anthropometric Somatotype' (Carter, 2002).

Equipment for anthropometry: Following equipments were used for anthropometric measurements.

- I. Stadiometer or height scale and headboard.
- II. Weighing scale.
- III. Small sliding caliper
- IV. A flexible steel or fiberglass tape measure.
- V. Skin fold caliper.

Measurement techniques:

Following ten anthropometric measurements were recorded.

1. Stature (height): Height scale with head board was used to measure height. It was taken with the subject standing straight, against an upright wall, touching the wall with heels, buttocks and back keeping the head in the Frankfort plane (the upper border of the ear opening and the lower border of the eye socket on a horizontal line), and the heels together. Subject was asked to stretch upwards and take and hold a full breath. Headboard was lowered until it firmly touched the vertex.
2. Body mass (weight): Weight of the subject wearing minimal clothing was recorded. Subject was asked to stand on weighing scale. Weight was recorded to the nearest tenth of a kilogram.

Skin folds: After raising the subject's skin, subcutaneous tissue was held firmly between thumb and forefinger of the left hand away from the underlying muscle at the marked site. Edge of the skin fold calliper were applied 1 cm below the fingers of the left hand and allow them to exert their full pressure before reading at 2 sec the thickness of the fold. Skin folds of the right side of the body were used. Subject was asked to stand relaxed. The calf muscle skin fold was taken in sitting position.

3. Triceps skin fold: It was measured at the back of the arm at a level halfway on a line connecting the acromion and the olecranon processes while the subject is standing relaxed with his arm hanging in anatomical position.
4. Sub scapular skin fold: Sub scapular skin fold was measured on a line from the inferior angle of the scapula in a direction that is obliquely downwards and laterally at 45 degrees.

5. Supra spinale skin fold: Supra spinale fold was recorded by raising it to 5-7 cm (depending on the size of the subject) above the anterior superior iliac spine.
6. Medial calf skin fold: Vertical skin fold was raised on the medial side of the leg, at the level of the maximum girth of the calf.
7. Bi-epicondylar breadth of the Humerus: The width between the medial and lateral epicondyles of the humerus was recorded with the shoulder and elbow flexed to 90 degrees.
8. Bi-epicondylar breadth of the femur: Subject was asked to sit with knee bent at a right angle. Greatest distance was measured between the lateral and medial epi-condyles of the femur.
9. Upper arm girth, elbow flexed and tensed: Measurement was taken at the greatest girth of the arm.
10. Calf girth: The subject was asked to stand with feet slightly apart. The tape was placed around the calf and the maximum circumference was measured.

Stature and girths were recorded at the nearest mm, bi-epicondylar diameters at the nearest 0.5 mm, and skin-folds at the nearest 0.1 mm (Harpenden calliper).

Plotting the somato chart: All the ten anthropometric measurements were uploaded in a software. This software calculates individual somatotypes and shows the individuals somatoplot. Every individual somatoplot was then compared with Sheldon's curvilinear somatoplot having Hippocrates' four basic humors and their combinations. Thus *Mizaj* of each subject was assessed by Sheldon's somatotypes.

Statistical analysis

Data were entered in excel sheet and presented in the form of tables and graphs. It was further analyzed using IBM SPSS software system (version 20). The 'chi square test' was used to assess the significance. Probability (P) < 0.05 was considered as significant.

Results and Observations

The results calculated using Unani questionnaire method and the Sheldon's somatoplot have been presented in the following tables (4-5) and figures (1):

Table 4: Distribution of *Mizaj* of Studied Population by Unani questionnaire

<i>Mizaj of Studied Population</i>	Total	
	No.	%
<i>Sanguine Phlegmatic</i>	67	19.1
<i>Sanguine Choleric</i>	83	23.7

Mizaj of Studied Population	Total	
	No.	%
<i>Sanguine Melancholic</i>	7	2.0
<i>Phlegmatic Sanguine</i>	42	12.0
<i>Phlegmatic Choleric</i>	31	8.9
<i>Phlegmatic Melancholic</i>	10	2.9
<i>Choleric Sanguine</i>	69	19.7
<i>Choleric Phlegmatic</i>	8	2.3
<i>Choleric Melancholic</i>	4	1.1
<i>Melancholic Sanguine</i>	18	5.1
<i>Melancholic Choleric</i>	9	2.6
<i>Melancholic Phlegmatic</i>	2	0.6
TOTAL	350	100.0

Table 5: Distribution of Mizaj of Studied Population by Sheldon's somatoplot

Mizaj of Studied Population	Total	
	No.	%
<i>Sanguine Phlegmatic</i>	54	15.4
<i>Sanguine Choleric</i>	53	15.1
<i>Sanguine Melancholic</i>	7	2.0
<i>Phlegmatic Sanguine</i>	55	15.7
<i>Phlegmatic Choleric</i>	37	10.6
<i>Phlegmatic Melancholic</i>	14	4.0
<i>Choleric Sanguine</i>	73	20.9
<i>Choleric Phlegmatic</i>	4	1.1
<i>Choleric Melancholic</i>	5	1.4
<i>Melancholic Sanguine</i>	25	7.1
<i>Melancholic Choleric</i>	18	5.1
<i>Melancholic Phlegmatic</i>	5	1.4
Total	350	100.0

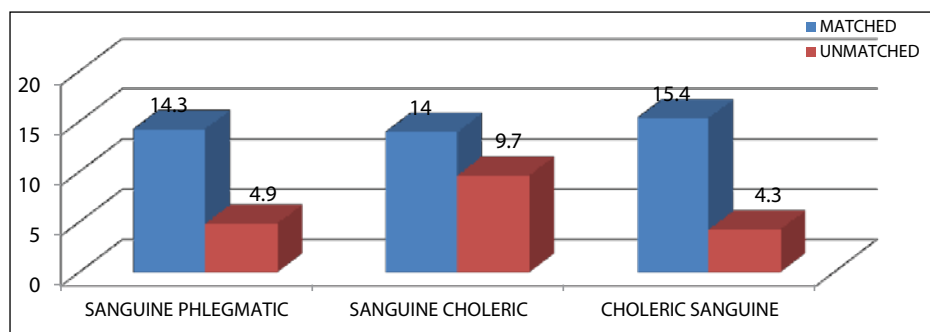


Figure 1: Mizaj wise matching proportions by Unani and Sheldon's method

Distribution of *Mizaj* viz, Sanguine Phlegmatic, Sanguine Choleric and Choleric Sanguine shows significantly higher concordance (80%) when matched by Unani questionnaire and Sheldon's somatoplot ($p = 0.001$ chi square test).

Discussion

As per the Unani system of medicine the human body depends on seven units known as *Al-Umur al-Tabi'iyah* (Kabeeruddin, 1970). These are as follows:

1. *Al-Arkan* or *Al-Anasir* (Elements)
2. *Al-Mizaj* (Temperament)
3. *Al-Akhlat* (Humours- Body fluids)
4. *Al-A'za* (Organs)
5. *Al-Arwah* (Pneuma or vital spirit)
6. *Al-Quwa* (Faculties or power)
7. *Al-Af'al* (Body functions)

1. *Al-Arkan*: According to Hippocrates (460-377 B.C.), Aristotle (384-322 B.C.) and Galen(130-200) the human body is made up of four *Arkan* viz. *Al-nar* (Fire), *Al-hawa* (Air), *Al-ma'* (Water) and *Al-ardh* (Earth) (Gallagher *et al.*, 2000). They attributed dual *Kafiyat* (qualities) to each *Unsur*. One quality is dominant where as one is recessive, these qualities express the properties of the *Arkan* (Hamdani, 1980).

The above four elements are the basic components of the human body. *Hawa* stands for gaseous, *Ma'* stands for liquid, *Ardh* for solid components of the body and *Nar* for the ATPs generation as a result of food metabolism.

2. *Al-Mizaj* (Temperament): *Ibn Sina* defines *Mizaj* as “the new state of a matter which emerge after admixture of two or more than two elements of a compound. This compound has new qualities (*Kafiyat*) different from that of the elements or from which it has emerged. This uniform state of equilibrium is called as *Mizaj* (Temperament). *Mizaj* indicates the principles of chemical combination of different elements or compounds to form a new compound. Thus, each cell, tissue, organs or the entire body is bestowed upon with a *Mizaj*, which is known as *Mizaj mu'tadil* (normal temperament).

When different *Ansir-al-Insaniyah* (Human elements) undergo various types of *imtizaj* (Chemical reaction/combinations) various compounds of specific *surat-nau'iyah* (molecular structure), having specific *Mizaj* are produced. These compounds constitute the *Akhlat-al-Badan* (Humors). The humors make the internal environment of the cells as well as of the whole body (milieu interior).

3. *Al-Akhlat* (Humors-Body fluids): The concept of *Akhlat* plays central role in Unani System of medicine. The word *Akhlat* (singular-*Khilt*) literally means admixture. All body fluids are termed as *Akhlat*, because the body fluids are not a single entity rather they are formed after metabolism and serve various functions like nutrition, growth, repair and preservation of health etc. in the body.

In 5th Century B.C. Hippocrates or *Buqarat* (460-337 BC) mentioned the theory of Humors or *Akhlat* in his book "*Tabiat al-Insan*". According to his theory the human body contains four *Akhlat* (Humors) i.e. Blood or *Dum*, Phlegm or *Balgham*, Yellow bile or *Safra* and Black bile or *Sauda*.

Dominance of one of the above *Khilt* necessarily exerts its influence on the *Mizaj* (Temperament) of a person. Thus, according to dominance of the type of *Khilt* (Humors) human beings have been broadly classified into 4 types of *Mizaj* or personality *Damwi-ul-Mizaj*, *Balghami-ul-Mizaj*, *Safrawi-ul-Mizaj*, *Saudawi-ul-Mizaj*.

4. *Al-A'za* (Organs): *Al-A'za* are on the fourth position in of *Al-Umur Al-Tabi'iyah*. They are the solid structure of the body. They have formed from normal *Akhlat* having good composition and are the result of primary or basic transformation of normal *Akhlat*. *A'za* are of two types, *A'za-e-Mufrad* (simple) and *A'za-e-Murakkab* (compound).
5. *Al-Arwah* (Pneuma): The word *Arwah* is the plural of *Ruh* which means pneuma. Without *Ruh* the existence of life is impossible. All the gases in the body are called as *Arwah*, especially two gases, *Ruh* (oxygen) and *Bukharat-e-dukhaniya* (carbon dioxide).
6. *Al-Quwa* (Faculties or Power): *Al-Quwa* is the plural of *Quwat*. It is the also one of the unique concepts of Unani System of Medicine. It is the property of the body with which the human body carried out all its functions (*Af'aal*). It provides the basis for different bodily functions. Hence *Quwa* and *Af'aal* are inseparable. Each function requires its own special *quwat*. There are three major types of *quwa* in the body i.e. *Al-quwa al-Tabiyah* (natural faculties), *Al-quwa al-Nafsaniyah* (Psychic or mental faculties) and *Al-quwa al-Haywaniyah* (vital faculties).
7. *Al-Af'al* (Functions): *Al-Af'al* means functions. Body performs several functions with the help of *Quwa*. As mentioned they are inseparable, hence the classification of *Af'al* is same as that of *Quwa*. *Arkan* transforms into *A'za*. *A'za* in turn performs various *Af'al* with the help of *Quwa* and *Arwah*. Metabolism is one of the significant functions of *A'za*. After metabolism *Akhlat* are produced. *Akhlat* determines *Mizaj* or personality of an individual. In this way all the seven principles work in a proportionate manner to maintain the milieu interior (*Moatadil halat-e-badan*) of the human body.

Mizaj (Temperament) is one of the important entities in Unani System of Medicine. Assessment of *Mizaj* is done in healthy as well as of disease persons. The questionnaire based on *Ajnas-e-Ashara* is used for assessment of *Mizaj* or personality types. It plays a very important role in determining the physical, physiological and psychological status of human being. Diagnosis of disease and principles of treatment are also based on the *Mizaj* of a person.

Sheldon's theory of Somatotypes

The somatotype is defined as the quantification of the present shape and composition of the human body. American psychologist William Sheldon (1942) has classified human being into three types and called them somatotypes. Sheldon's somatotypes are based only on physical characteristics or physique, named them endomorphy, mesomorphy and ectomorphy. Ten anthropometric measurements viz. stretch stature, body mass, four skinfolds (triceps, subscapular, supraspinale, medial calf), two bone breadths (bicipital humerus and femur), and two limb girths (arm flexed and tensed, calf) were recorded and uploaded on new comprehensive user-friendly software, which gives the individual's somatotype as well as Hippocrates' Mizaj and their combinations.

Charting somatotypes: It is an attempt to aid in the visualization of the relationship between the various somatotypes on a curvilinear triangle. The left sided numbers on the curvilinear triangle represents the degree of endomorphy, the upper numbers indicates the degree of mesomorphy, and the final or right number represents the degree of ectomorphy. The figure below is how this is typically illustrated.

Sheldon's somato plot and Hippocrates' four humors: Hippocrates' four temperaments and their different combinations have been incorporated into Sheldon's somatoplot. Below is the image of the Sheldon's curvilinear somatoplot with Hippocrates' four basic humors and their combinations (Figure 2).

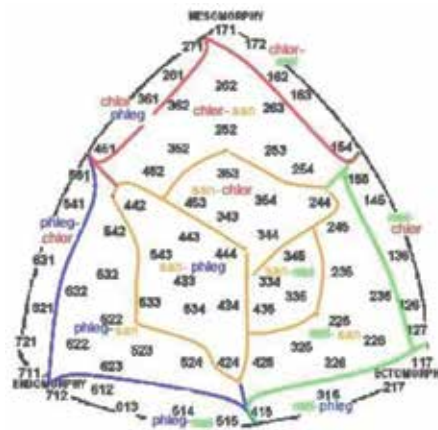


Figure 2: Sheldon's somatoplot with Hippocrates four humors

There is a great degree of similarity between *Mizaj* assessed by Unani questionnaire and that of Sheldon's somatotypes as 80% concordance was found between the two indicating least difference between two. Both appears to be complementary to each other. The study indicated that somatotypes may also be used to assess the temperament along with the Unani tools however a larger and multicentric study is required to prove the exact concordance between the two.

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References

- Ahmed, S.I., 1980. Introduction to Al-Umoor al Tabiya, Saini Printers, New Delhi, India. pp. 26, 63, 156-159, 162-208.
- Carter, J.E.L., 1972. The Heath-Carter Anthropometric Somatotype, Instruction Manual.
- Datta, A.K. 2004. Essentials of medical genetics, ARK Publication, Kolkata, (revised and reprinted), p.44.
- Falsafi, A.L., 1972. Tajdeed-e-Tib, 1972, Aala Press Delhi (compiled by Sayed Zil-ur-Rehman), pp. 16-18.
- Gallagher, D, Steven, B., Heymsfield, Moonseong Heo, Susan, A. Jebb, Peter, R. Murgatroyd, and Yoichi Sakamoto, 2000. Healthy percentage body fat ranges: an approach for developing guidelines based on body mass index^{1,2,3}, *American Journal of Clinical Nutrition*, 72:694–701.
- Hamdani, K.H., 1980. Usool-e-Tib, Litho Color Prints, Achal tal, Aligarh, p. 20 <http://www.age-of-the-sage.org/psychology/sheldon.html>
- Ibn-Sina, 1966. Al Qanoon fi Tibb (English translation by Mazher H.Shah, Naveed Clinic, Karachi, Pakistan, pp.3-29.
- Kabeerudin, M., 1970. Ifada-e-Kabeer. National Fine Printing Press, Char Kaman, Hyderabad, pp. 80, 141, 142.
- Sheldon, William H., 1942. The Varieties of Temperament. Harper & Brothers, New York.

