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## The relation between *mizaj* and basal metabolic index- an open observational study

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### Abstract

**Background & Objectives:** Mizaj is an intrinsic state which enables an individual to survive and to procreate comfortability and is responsible for distinctive morpho-bio-physio-immuno-psychological identity of the individual. Physiological functions of the body depend upon temperament and temperament is influenced by several factors like quality of humours, diet, climate, body proportion etc. Temperament allows the identification of the diet which is proper for maintaining the healthy temperament of a human being. Pathological shift in the temperament causes disease and reversing the abnormal temperament to the normal, by using drugs/diets of opposite temperament cures the disease. So the purpose of the study was to find out the *Mizaj* (temperamental) variation among different ranges of Basal Metabolic Index.

**Material and Methods:** This study was conducted as an open observational study, on hundreds healthy volunteers were selected as per specific inclusion and exclusion criteria and assigned into four groups as per ten categories of signs which is described by Avicenna. All subjects are analysis for temperamental variation with respect to BMI with reference to Unani literature survey.

**Results:** Finding of this open observational study is directly associated with temperamental variations. Most of the subjects fall under category of *Damvi* and followed by *Balghami* and *Safravi* whereas no any subjects under *Saudavi* Mizaj, but obesity, hypothyroidism or higher BMI is more common among *Balghami Mizaj*.

**Conclusion:** The Study showed that, *Mizaj* is directly affect the BMI, especially *Balghami Mizaj*. The findings of this study show that obese people are cold and muddy, or have a phlegmatic temperament, while lean people are drier in contrast.

**Keywords:** Mizaj; temperament; height; weight; BMI; unani system of medicine

### 1. Introduction

The history of medicine is as old as History of Humankind itself with the passage of times, medicine also progressed and it gave birth to different system of medicine with their own principles and philosophies of diagnosis and treatment<sup>[1]</sup>. As we go into the past and evaluate the history of Medicine, one system of medicine that comes into mind the Unani system of medicine, which is one of the oldest system of medicine with the changing trends in this world, Unani system of medicine still stick to their basic principle and philosophies<sup>[2]</sup>. During recent years, a spirit of research and development regarding the use of diet as medicine in maintaining the health and prevention and treatment of various diseases has evolved<sup>[3]</sup>. People are also attracted towards this system of medicine, as the medicines are more suited to their habits. Unani system of medicine is the knowledge of achieving perfect physical, mental, social and spiritual health<sup>[4]</sup>. The goals of Unani medicine are the maintenance of good health and healing of diseases<sup>[5]</sup>. Mizaj is one of the unique concepts of Unani system of medicine by which the Unani physician explain the properties of different types of individuals, properties of drugs and pathophysiology of different diseases. Mizaj has an important role in diagnosis and treatment in Unani system<sup>[6]</sup>. Mizaj is a quality, which produced by the action and reaction of different qualities of property which is equally found in particles of elements. This new quality said as *Mizaj*<sup>[7]</sup>. Initial description of *Mizaj* found in the writings of Hippocrates under such headings as constitution.

Diathesis, catastasis, etc. Galen also mentioned it at length giving new dimension to it<sup>[8]</sup>. The Aras physician also worked on the theory of temperament and established it as principle of diagnosis and treatment with this foresight they succeeded in locating the relationship between diseases, and disturbance of *Mizaj*<sup>[9]</sup>.

The great Unani physician have described several parameters to diagnose the *Mizaj* of Individual, Jalinoos, Ali Ibn Abbas Majoosi, Zakariya Razi and Ismail jarjani etc. have described only five parameters, which are called "Ajnas-e-Khamsa" while Ibn Sina has described ten parameters known as "Ajnas-e-Ashra"<sup>[10]</sup>.

*Laham-wo-shaham* (muscle & fat) is one of the important parameters amongst the ten determination of *Mizaj*. It is the second criteria to determine the *Mizaj* at Individuals<sup>[11]</sup>.

When red flesh (i.e. muscle) is plentiful. It shows moisture and heat, and in such cases, there firmness. If the muscle is scanty and that is not in plenty<sup>[12]</sup>. It indicates dryness fat always denote coldness and in such cases, there is flabbiness. If at the same time, there is narrowness of the veins and lack of blood and the person concerned feel the weakness by starvation owing to the lack of innate blood, which is there to provide nutrition to organ.<sup>13</sup> It shows there that this temperament is innate and natural however. If other signs are absent it shows that the temperament is acquired one. Deficiency of Liquid and solid fat denotes heat because the substance of fat is greasiness (of blood) and their active cause it cold. If the body is fleshy without excessive fat, it is hot moist body<sup>[14]</sup>. If it has excessive red flesh with little fat, it indicates excess of moisture. If fat is in excess, it denotes that the excess is in cold and moisture and that the body is cold and moist. The most emaciated body is that one which is cold and dry then the body which is hot and dry, then the body which is dry but equable in heat and cold then the body which is hot and equable in moisture and dryness<sup>[15]</sup>. "Excess of flesh and fat in the body is due to moistness and their content is reduced in dryness. Excess of flesh content is due to hotness and moistness. Excess of flesh content is due to coldness and moistness"<sup>[16]</sup>.

Although the Unani system of medicine is the oldest system of medicine and the concept of *Mizaj* is backbone of Unani system of medicine, but the need of hour is to provide scientific interpretations and explanations as "The relation between *Mizaj* and Basal Metabolic Index-An Open Observational Study". In this study an attempt is made to provide scientific correlation to the Unani concepts, bridging the generation gap and trying to explore the easy way of determining the *Mizaj* of individuals.

- a. To assess the *Mizaj* of young healthy adults.
- b. To study the range of body weight in different *Mizaj* in person on mixed diet.
- c. To provide some knowledge/ instruction for prevention of disease.

## 2. Material and Methods

This study was conducted as an open observational study, on 100 healthy volunteers were selected as per specific inclusion and exclusion criteria and assigned into four groups as per ten categories of signs which is described by Avicenna. All subjects are analysis for temperamental variation under specific inclusion (Phlegmatic, Bilious, Sanguine and Melancholic Temperament, Individuals of 20-30 years of age, both sex, Mixed Diet) and exclusion criteria (Individuals having any disease, Individuals below the age

of 20 years, Individuals above the age of 30 years) with respect to BMI on the basis of literature survey which are described in Unani Medicine as a philosophical way.

### 2.1. The Literature Meaning of Temperament (Mizaj)

The Literal meaning of *Mizaj* according to Nafis is "Intermixture" as he says, "The word *Mizaj* originated from Arabic word *Imtizaj* meaning intermixture"

Quoting the word of Rudolf E. SIEGRI. Azmi says; The Greek used to call the mixture of humours as "krisis" which is derived from "kerannyni" meaning to mix the word *kerasis* is usually translated as temperament".

The literal meaning of the word temperament as given in few authentic dictionaries are as follows; Temperament-People or animals character or nature. (Oxford dictionary and thesaurus). Temperament-combination or predominance of humours (chamber dictionary). Temperament is constitutionally based individual differences in emotion, attention activity level and self-regulation (New concise Medical Dictionary). Temperament-the combination of intellectual, emotional, ethical and physical characteristics of an individual (Tabors encyclopaedia medical dictionary 19<sup>th</sup> edition). Temperament-the peculiar physical character and mental cast of an individual (New man). Temperament as noun means the part of our character that effects our moods and the way we behave (Cambridge Advance Learner Dictionary). Temperament-the physical organization peculiar to the individual, which influence one's metabolic process, manner of thought and action and the general view of life (Illustrated Stedman's Medical dictionary, 24<sup>th</sup> Edition). The Arab physician described the concept of *Mizaj* in a universal manner as compare to the modern concept of temperament that is limited to the psycho-somatic behaviour only. Therefore, the word temperament does not hold the same meaning as *Mizaj* meant in Greeco Arab medicine rather *Mizaj* has broader meaning. In this regard, Granner SAYS "The word temperament is not satisfactory for the Arabic word *Mizaj* which contains the idea of mixture so the medical translator used the word "Commixtio" which carry the idea of mixing or blending and weaving. However, neither word fit in with modern usage. The word constitution is more meaningful to nonprofessional as referring to the makeup of physical body temperament as applies to the mental makeup. The word constitution carries the idea of something stationary and unchanging. One has therefore to use the word temperament in a psychological sense and in the medical sense; it should imply a blend of humours, since all four are present in every individual.

### 2.2. The Concept of Mizaj

*Mizaj* is one of the basic and fundamental concepts of Unani system of Medicine and it is the most important part of Unani system of Medicine. Our ancient Unani physicians were very much devoted towards the concept of *Mizaj*. The Arab era applied the concept of *Mizaj* on universal scale, but in the modern era, the temperament is limited only for the psychosomatic dimensions. *Mizaj* is one of the basic and distinguishing features of Unani Medicine. It is one among the seven basic physiological principles of (*Umoor-e-Tabiyah*). It forms the basis of pathology, diagnosis and treatment. Unani medicine's chief advantage over western medicine lies in its ability to provide a holistic treatment. Unani system of medicine provides this holism by mean of

Mizaj. The concept of Mizaj is a major Pillar of Tibb philosophy, is the amalgam of a person's physical characteristics and his/her psychological and emotional attributes.

### 2.3. Definition of Mizaj with Reference to Eminent Scholars

Several Unani physicians explained the definition of Mizaj according to their conceptual views. It is presented here in chronological order to evaluate the relation between Mizaj and BMI.

Majoosi defined the Mizaj as "All sorts of bodies (light or heavy), which are found in this ever-changing world, are formed by four elements (*statquest*) after mixing in different or uniform quantities in accordance with the needs (of the body), As a result of this mixing, one or two qualities become dominant over the body, and this is called Mizaj. It is derived from Arabic word *imtizaj* meaning to mix with each other" [7, 9].

MASIHI defined the Mizaj as "Because there are so many primary components (*statquest*) of the body which are mixed together not in close proximity, it is necessary that the qualities of primary components must be mixed as a whole. New qualities arise from intermixing of primary components which will be in between the previous qualities, called Mizaj" [10].

**Ibn Sina defined the Mizaj:** "The temperament is a quality resulting from the interaction of opposite qualities present in elements consisting of minute particles so that most of the particles of each of the elements may touch most of the other. Thus, when these particles act and react on one another with their properties, there emerges from their properties, a uniform quality which is present in all of them, this is the temperament" [1, 11] Ibn Sina further writes that "Since the primary properties in the aforesaid elements are four namely hotness, coldness, moistness, and dryness, it is obvious that the temperament of the integrating bodies are the product of these very properties" [4].

Ismail Jurjani defined the Mizaj as "When different qualities of elements act and reacts by their power then previous qualities become diminished and a new moderate quality is developed which is known as Mizaj" [11, 12].

Ali Ibn Habal Baghdadi defined the Mizaj as "when small elements get admixed, most of the elements mix with each other and their various qualities act and react so heat breaks the cold and cold breaks the heat, similarly dryness tries to break wetness and wetness tries to break dryness. Low grade qualities mix with high grade qualities light weight particles mix with heavy weight particles until a new quality is developed which is equally found in all the components of elements, this new and moderate quality is known as Mizaj" [13].

Allama Nafis defined the Mizaj as "when elements mix with each other, they act and reacts which result in developing a new moderate quality in between the all four previous qualities, this new moderate quality is known as Mizaj" [14].

Daood Antaqi defined as "Mizaj is a uniform quality which originates by the action and reaction of four elements, which divided in smaller particles so that the maximum particles of each can mix with each other" [15].

Hakim Mohd Iliyas Khan defined the Mizaj as "Mizaj is such type of moderate quality which is produced by the action and reaction and chemical changes in the small

particles of different elements, which occur due to the effects of their specific powers, this moderate quality may be differing in different persons and in different species also" [16].

Gruner defined as "Temperament is that quality which result from the mutual interaction and interspersion of the four contrary primary qualities residing within the (imponderable) elements" [17].

Abdul Latif Falsafi defined the Mizaj as "when smaller particles of different elements join each other in such a way that the particles of each elements mix with the particles of other elements, it results in breakdown of qualities of all elements, due to which the qualities of the total particles get converted into a moderate quality. This moderate quality is known as Mizaj which dissociates in all the particles" [18].

Ayyub Israeli defined Mizaj as "Mizaj is such type of moderate quality which is originated by the action and reaction of different opposite qualities, when four elements mix with each other and one element effects the other then they break to small particles due to action and reaction process. This process should be of such type that the biochemical structure of each element breaks the strength of quality of other elements, resulting in generation of a moderate secondary quality. This moderate secondary quality is known as mizaj" [19].

Allama Sadiqi described as "Mizaj is such type of malmoosa (touching) quality such is produced by effect of different qualities of smaller particles of elements and the character to adopt the effects of these different qualities" [20].

Hkm. Latif writes as the word "temperament is metaphorically applied to the admixed state of such a compound, because it is due to this admixture that such an admixed state is produced. Therefore, temperament is the one name given both to the cause and effect" [21].

Shah writes that "temperament is the pattern of qualities as a whole which emerges from the action and reaction of the mass and energy and thus in the human organism of the structure and functions. As the basic qualities of the energy are heat and cold and the mass, dryness and moisture their natural interactions lead to the emergence of a new balance of qualities which varies with the quantitative proportion of the primary qualities" [22].

Mehdi Hasan describes the temperament along with the four elements. He says that "the four elements are the resultant of four qualities moisture, cold, dryness, and heat.

Two qualities go to constitute an element thus; Heat +Moisture =Air; Cold +moisture =Water

The ultimate units are pure qualities. These has been identified as follows: Heat=Oxidation; Cold=Reduction; Moisture =Hydration Dryness=Dehydration. In this aspect temperament can be understood by the following examples as Saudavi or melancholic temperament should be interpreted not as cold & dry but in which reduction and dehydration are preponderating [23].

Hkm Sayed Ishtiyayq Ahmad described the Mizaj as "Mizaj is defined as the new state of matter, having quality, different form the present in the elements or compounds before coming into imtizaj (intermixture of chemical combination), which results from the action and reaction of the contrary qualities and powers, present in the minute particles (atoms) of different elements (or molecule of different compounds) when they are combined together, the resultant new quality, a uniform state on the state of

equilibrium emerging after the combination of more than one elements is called mizaj” [24]

Altaf Ahmad Azmi defined the temperament as “temperament defined combination or form of elements. In the other words, formation of temperament is as compound depends on the, no, ratio and atomic sequence of elements is the compound the properties created in the compound differ from the properties of the constituents. A compound retains its properties so long as its elemental form is held together” [25]

### 3. Result & Discussion

Zaidi and Zulkifile described the temperament as “Temperament is an intrinsic state which enables an individual to survive and to procreate comfortability and is responsible for distinctive morpho-bio-physio-immuno-psychological identity of the individual” [28]. By above described views of eminent Unani scholars it is evident that Mizaj is a new state, which is the resultant of all the actions and reactions between the contrary qualities, present in different elements. on the other hand, we can say that the resultant uniform state which emerges after the combination of the properties of more than one element is called Mizaj, which makes every compounds differ in nature, for the formation of temperament, it is necessary that different elements should combined and form a new compound. [29] In Unani tibb, the process of formation of new compound by intermixing of different elements is termed as imtizaj. [7, 10] For the present study, 100 healthy volunteers of either sex on mixed diet were randomly selected, out of total hundred Volunteers selected for the study, 42(42%) were Damvi, 36 (36%) were Balghami, 22 (22%) were Safravi, no one of saudavi Mizaj. In this study we observed that: Maximum numbers of volunteers fell in the category of Damvi Mizaj (42%) followed by Balghami, Safravi and the least number were of Safravi Mizaj (Fig.1). It may be due to Sinne Shabab, which is considered as Har Yabis, age, so in this age (20-30 years), Prevalence and susceptibility to Har Mizaj of the individuals should be higher as was found in this study. Out of 100 volunteers. 76% were male and 24% were Female (Fig. 2). The Data revealed relatively higher number of individuals in male group, whereas lower number in female group. The observe number may be because of higher number of male individuals in said group of college. The difference may be due to easy access and higher health

consciousness in male as compared to female as Females are less health conscious. Among 100 volunteers 78 (78.00%) were unmarried, 22% were married individuals. amongst total hundred subjects who participated in the study, most of them were Muslims (92%) and rest were non-Muslims, in which 8 were Hindu. The participation of more numbers of Muslim volunteers was because of Muslim dominated area so the participation of Muslim volunteers was inevitable. Out of total 100 subjects 68 (68%) were belongs to 20-25 years of age, 32 (32%) were 25-30 years of age. Out of total hundred subjects, majority of the participant belongs to rural habitat (53%), rest of them belongs to urban (38%) and semi urban (9%). Higher prevalence of rural individuals was found in the study as compared to urban and semi urban individual prevalence out of total 100 subjects 42 were Damvi, in which 4 were under weight, 26 were normal, 10 were pre-obese and one belonged to obese class I Category and 1 belongs to obese class II category. Of the total 36 Balghami volunteers, 7 were underweight, 19 were normal, 9 belongs to pre-obese, 1 were belongs to obese class I. There were total 22 Safravi volunteers, in which 20 were normal weight, 2 were Pre Obese and none belongs to underweight, obese class I, Obese Class II and Obese Class III category. Majority of the volunteers were belonged to the Normal body weight Category according to their BMI, irrespective of their Mizaj (Fig.3). Out of total Damvi, Balghami and Safravi Mizaj, Obese Individuals are rare in the selected (Fig.4). Volunteers as most of them belongs to students' class and 21 of them are in border line category which is pre obese due to intake of junk food which is also supported by the finding of Moghaddam AG *et al* (2018) [30]. The BMI mean of Damvi subjects were 23.74 while the Balghami subject were 20.91 which means that variation among BMI of Damvi Mizaj is highest while variation amongst Balghami Mizaj is lowest [31]. On the other hand the standard deviation of Balghami subjects (3.59) is the highest amongst the three category while safravi has the lowest standard deviation (1.86), and this study coincides with the finding of Parvizi MM *et al* (2016) (Fig.4). Antioxidant and immunomodulator drugs will be effective for the management of obesity, hypothyroidism, diabetes and other metabolic disorders, because most of them are Hot and Dry Mizaj and which are contrast to phlegmatic temperament [32].

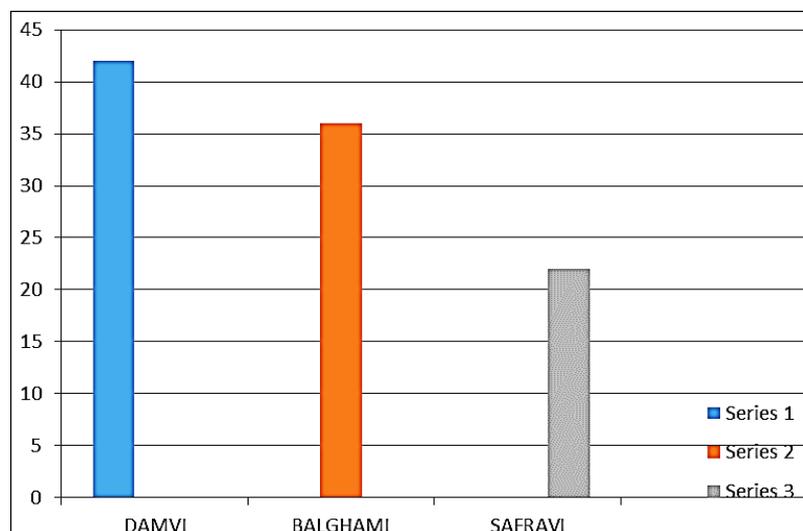
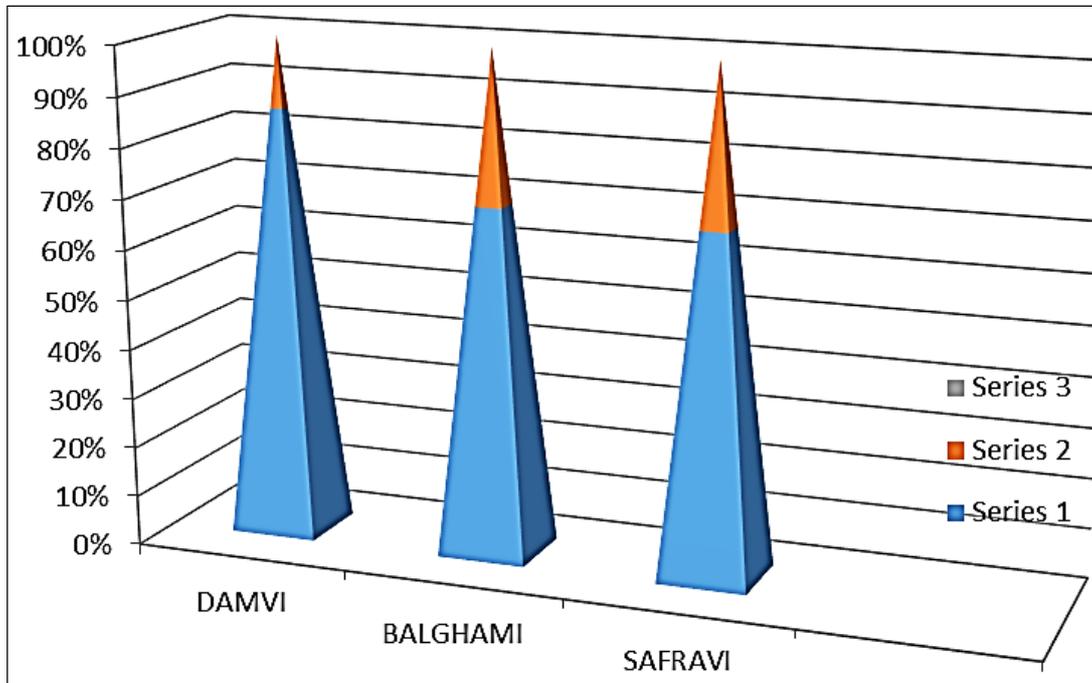
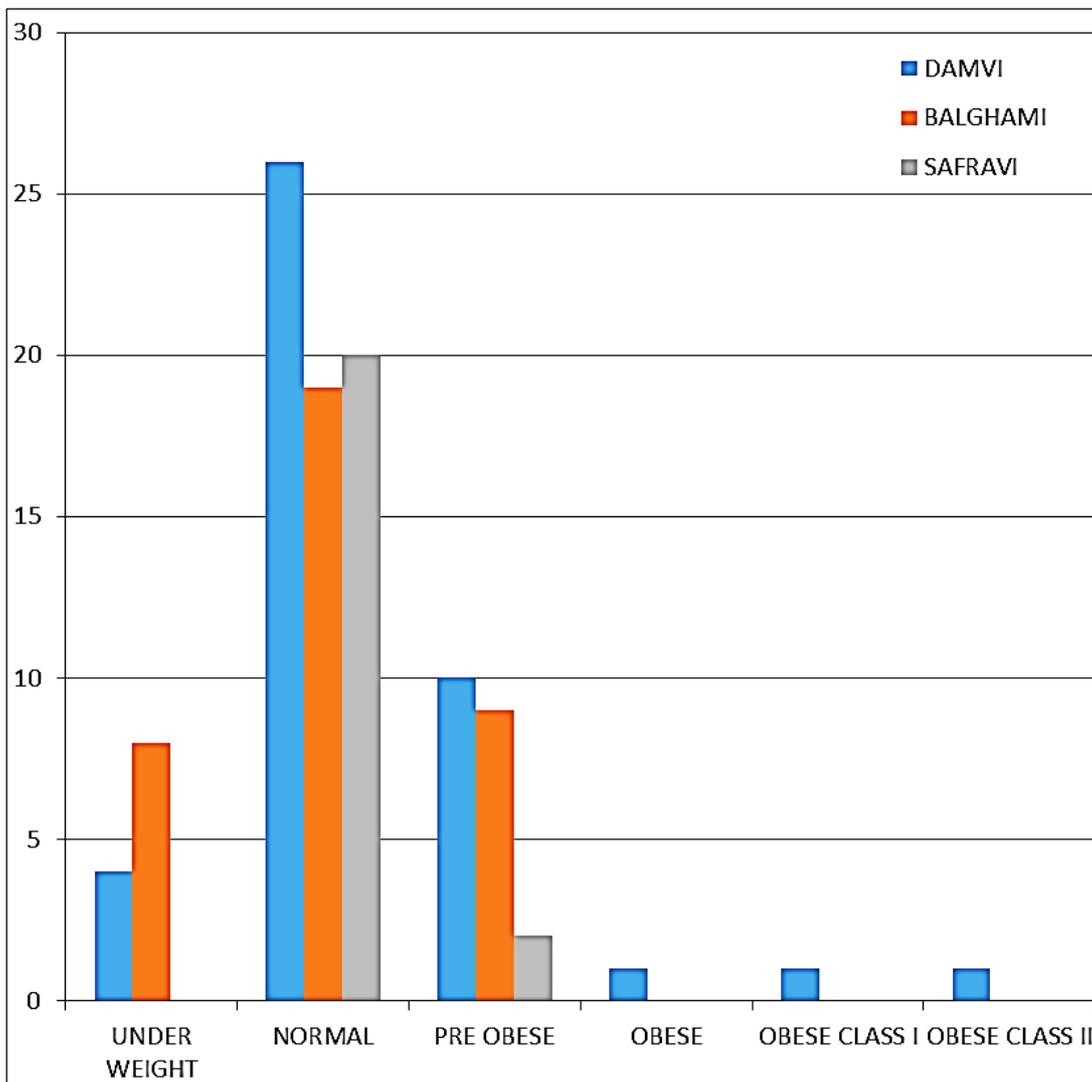


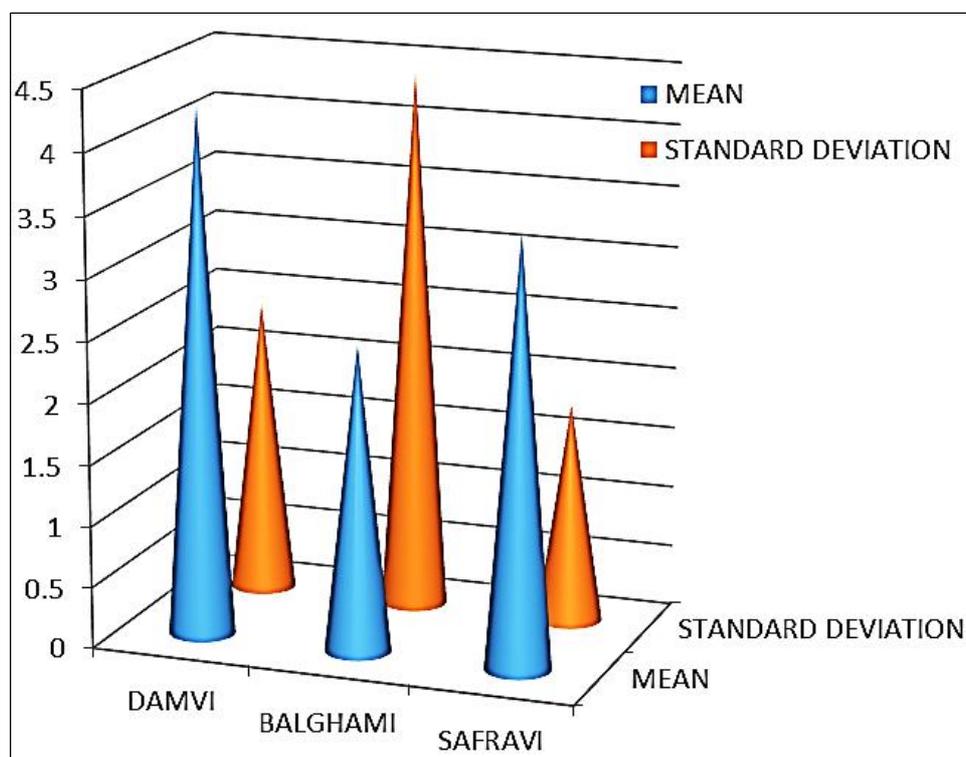
Fig 1: Showing the distribution of humoral (temperament) incidence observed in 100 volunteers



**Fig 2:** Showing the incidence of sex group observed on 100 volunteers



**Fig 3:** Showing the mizaj according to body weight/bmi observed on 100 volunteers



**Fig 4:** Showing the distribution of mean and standard deviation of bmi amongst mizaj

### Conclusion

People with *Balghami Mizaj* (wet temperament) are generally more obese based on Unani Medicine, and people with dry temperament are thinner. The findings of this study show that obese people are cold and muddy, or have a phlegmatic temperament, while lean people are drier in contrast. In conclusion, temperament is a combination of genetic-environmental interactions and one of the important factors determining an individual's range of BMIs. Our finding provides support for temperament role in weight gain. Temperament knowledge can be used to motivate weight loss and weight management interventions with the development.

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