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## Assessment of Quwat -e- Sami,ah (Hearing threshold level) in different temperaments

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### Abstract

Hearing loss has become number one disability in the world with loud music, mobile, recreational equipment and noisy world Places causing one third of all such Cases according to new study. The youth in India, especially those working with tele calling Agencies are becoming more prone to hearing related problem. It is real matter of concern especially at a time when young Students are hooked to their mobile phone and music players for long hours.

Temperament plays an important role in diagnosis and treatment. Different Individuals have different temperament and different power of action- In this research we have observed the hearing power of different temperaments.

**Keywords:** Quwat -e- Sami,ah, temperaments, music, mobile

### Introduction

Temperament theory has its roots in ancients four humors theory of the Greek physician Hippocrates (460-370 BC), who believed certain human behaviors were caused by body fluid (called humors); blood, yellowish bile, black bile and phlegm. Next, Galen (131-200 AD) developed the first typology of temperament in his dissertation De tempera mentis, and searched for physiological reason for different behavior in humans <sup>[1]</sup>. The concept was further developed by Ibn-e-Sina.

The Arab medical authors worked on the theory of temperament most assiduously and finally established it as a principle or norm of treatment. With their penetration they succeeded in locating the relationship between disease, various humors and disturbance of temperament <sup>[2]</sup>. Ahmad <sup>[3]</sup> in the view of Ibn-e-Sina he quotes “Allah most beneficent has furnished every one and each of its member with a temperament which is entirely the most appropriate and best adopted for the performance of its functions and passive states”

The temperament of an individual is not an incidental phenomenon. One attains temperament while in the womb by hereditary from parents and intrauterine environment and after birth by extra uterine environment. Once a temperament is established during fetal life it will be modified by ambient environmental factor alone <sup>[4]</sup>.

According to Bhika <sup>[5]</sup> Hippocrates observed that difference in the proportion of four humors in the body were responsible for the variation observed between individuals and various diseases that afflict them.

Temperament plays an important role in diagnosis and treatment. Bhika and Haq <sup>[6]</sup> observed that central to practice of Unani medicine is the diagnosis of temperament, rather than individual disease. It is the art of identifying an individual’s authentic temperament and then serving their physic, in the process of preserving their peculiar ideal state of health.

The youth in India, especially those working with tele-calling agencies, are becoming prone to hearing related problem. It is a real matter of concern especially at a time when young students are hooked to their mobile phones and music players for long hours <sup>[7]</sup>.

Each temperament has its own power equilibrium through which one can see or listen, act and reflex according to the Mizaj and a *viz a viz* power. It seems that power has relationship with Mizaj and vice versa. It is indeed interesting as well as maxim exercise to judge general power of different temperament. But exceptional is there like power of hearing which can scientifically and digitally measured in the lab *in vitro* and *in vivo*. Therefore, when I was assigned to do work on Mizaj, I promptly proposed to quantify power of hearing of individuals belong to different temperament. I do accept the criticism of researchers and masters of the art that in Unani system of medicine, the relation between hearing power and temperament had not emphasized much but sooner or later we have to work on different

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dimensional aspect of great art of healing. With open mind and broad visional spectrum I hope this work will contribute and useful for further researches in this regard.

**Material and Method**

This study was carried out in outdoor patient of ENT department at Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh during the period from Feb 2006 to Feb 2007. The objective of study was to asses the hearing threshold level in different temperaments.

One Hundred (100) healthy individuals of either sex having, Bilious (Safravi), Phlegmatic (Balghami), and Sanguine (Damvi) temperament were randomly selected for the study. Melancholic (saudavi) individuals were not included in the study, because of their lower number.

**Determination of Temperament:** The assessment of temperament (mizaj) of individuals were made on the basis of Performa (questionnaire) based on classical Unani literature Ajnas-e-Ashra.

**Categorization of Individuals:** The selected individuals were divided into three groups according to there temperament.

**Group A:** Bilious temperament (*Safravi*)

**Group B:** Phlegmatic temperament (*Balghami*)

**Group C:** Sanguine (*Damvi*)

**Group D:** Melancholic temperament (*Saudavi*) Zero group  
After determination of the temperament of healthy individual they were tested for hearing assessment. The audiometry was carried out on the entire individual.

**Method for Hearing Assessment**

**Exclusion Criteria:** Individuals having any diseases of ear, nose, throat or any part of the body or having history of medication, addiction, smoking and alcoholism etc were excluded from the study. Individuals having psychiatric disorders and pregnancy were not included in the study.

**Inclusion Criteria:** Bilious, phlegmatic and sanguine temperament healthy individuals in age group of 15-50 years and without any apparent morbidity and of disease were included in this study. A detailed history and full clinical examination were done to rule out any pathological conditions. Age, height and weight were recorded at the time of examination and body mass index (BMI) was calculated with the help of following formula

$$\text{Body mass index} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

All history of individuals including clinical, social, past illness and family history has been taken. All examination like clinical general and local examination has been done. Voice test, Rinne’s test, weber test and absolute bone conduction<sup>9</sup> test has been done.

Then Audiogram of every individual has been done by competent audiometrist<sup>[10]</sup>. After that pure tone audiometry has been done. This procedure is applied to both healthy individual and patient for assessing hearing threshold level. Whenever the masking is used in air conduction audiometry the exact noise level of masking sound should be entered the audiogram form<sup>[11]</sup>. After that bone conduction audiometry has been done. The essential requirement of bone

conduction testing is the exclusion of the none test ear by an efficient sound, so that threshold level may reliably attributed to test ear<sup>[12]</sup>. In last tympanometry has been done to measure the stiffness of eardrum and thus used to evaluate the middle ear function.

**Normal Hearing Power**

- a) in adults 10 dB to 25 dBHL<sup>[13]</sup>.
- b) in children 15 dB to 15 dBHL

**Mild Hearing Loss:** 26 to 40 dBHL

**Moderate Hearing Loss:** 41 to 65 dBHL

**Severe Hearing Loss:** 66 to 90 dBHL

**Profound Hearing Loss:** 90+ dBHL<sup>[14]</sup>.

**Observations and Results**

This study was carried out in outdoor patient of ENT department at Jawaharlal Nehru Medical College Aligarh Muslim University Aligarh during the period from Feb 2006 to Feb 2007. One Hundred healthy individuals of either sex having bilious (Safravi), phlegmatic (Balghami) and sanguine (Damvi) temperament were randomly selected for the study. Melancholic (saudavi) individuals were not included in the study, because of their lower number. The assessment of temperament (mizaj) of individuals was made on the basis of Ajnash-e-Ashra mention in classical Unani literature. Individuals having any disease of ear, nose, throat or any part of the body or having history of medication, addiction, smoking and alcoholism were excluded from the study. Individuals having psychiatric disorders and pregnancy were not included in the study. Bilious, phlegmatic and sanguine temperament individuals in age group of 15-50 years were included in the study. The objective of this study was to find out that whether any correlation exist in between Quwat-e-Sami’ah (Hearing threshold level) and temperament or not. Data obtained in this study were statistically evaluated.

**Table 1:** Showing distribution of individuals according to Temperaments.

Temperament	Frequency	Percentage
Balghami	30	30%
Damvi	32	32%
Safravi	38	38%
Total	100	100%

Out one of Hundred (100) individuals 30 Balghami, 32 Damvi and 38 were Safravi and their percentage are shown in the Table: 1.

**Table 2:** Distribution of individuals according to Sex

Sex	Balghami	Damvi	Safravi	Total
Male	20	26	23	69
Female	10	6	15	31
Total	30	32	38	100

Out of one Hundred (100) individuals 69 males and 31 were females. Amongst 69 male individuals 20 were Balghami, 26 were Damvi and 23 were Safravi. Out of 31 female 10 Balghami, 6 Damvi and 15 were Safravi. Their percentage was also in the same figure (Table: 2).

**Table 3:** Distribution of individuals according to their Religion

Religion	Balghami	Damvi	Safravi	Total
Muslim	26	29	32	87
NonMuslim	4	3	6	13
Total	30	32	38	100

Out of 87 Muslim individuals 26 Balghami, 29 Damvi, and 32 were Safravi. Amongst 13 Non Muslim 4 Balghami, 3 Damvi and 6 were Safravi.

**Table 4:** Distribution of individuals according their age.

Age	Balghami	Damvi	Safravi	Total
15-20	6	4	4	14
20-25	5	6	5	16
25-30	6	7	4	17
30-35	3	3	2	8
35-40	4	5	8	17
40-45	3	4	7	14
45-50	3	3	8	14
Total	30	32	38	100

In this study, individuals were in age group of 15-50 years. In age group of 15-20 years six (6) individuals were Balghami, four (4) were Damvi and four were Safravi. In age group of 20-25 years five (5) individuals were Balghami, six (6) were Damvi and five (5) were Safravi. In age group of 25-30 years six (6) individuals were Balghami, seven (7) were Damvi and four (4) were Safravi. In age group of 30-35 years three (3) individuals were Balghami, three (3) were Damvi and two (2) were Safravi. In age group of 35-40 years four (4) individuals were Balghami, five (5) were Damvi and eight (8) were Safravi.

In age group of 40-45 years three (3) individuals were Balghami, four (4) were Damvi and seven (7) were Safravi. In age group of 45-50 years three (3) individuals were Balghami, three (3) were Damvi and eight (8) were Safravi.

In Balghami maximum individuals found in 15-20 years age group and 25-30 age groups. In Damvi, maximum individuals found in 25-30 age group. In Safravi maximum individuals found in 35-40 years age group and 45-50 age groups. If we see in overall in all the three temperament then maximum individuals found in 25-30 years age group and 35-40 age group and minimum individuals found in 30-35 years age group.

**Table 5:** Distribution of individuals according to their BMI

BMI	Balghami	Damvi	Safravi	Total
15-19	0	5	15	20
20-24	13	25	23	61
25-29	17	2	0	19
Total	30	32	38	100

Body mass index (BMI) of individuals was calculated. The numbers of individuals having their BMI 15-19 were 20, out of which 15 were Safravi, 5 belongs to Damvi and Balghami were zero individuals. Among the 61 individuals having BMI 20-24, 23 were Safravi, 25 were Damvi and 13 belong to Balghami individuals. The number of individual having their BMI 25-29, in which 17 individuals belongs to Balghami, 2 from Damvi and Safravi have zero individuals. The maximum numbers of Safravi individuals having their BMI 15-19, Damvi were 20-24 and Balghami have their BMI 25-29.

**Table 6:** Showing BMI of individuals expressed in Mean  $\pm$  S.D

Temperament	Mean $\pm$ S.D
Balghami	23.8 $\pm$ 1.8
Damvi	21.2 $\pm$ 1.9
Safravi	19.3 $\pm$ 1.4

BMI of individuals were also calculated in mean and standard deviation. Balghami individuals have 23.8 mean and 1.8 S.D, while Damvi have 21.21 mean and 1.9 S.D and Safravi individuals have 19.33 and 1.4 S.D.

**Table 7:** Showing Quwat-e-Sami'ah (Hearing Threshold Level) of individuals expressed in mean  $\pm$  S.D. in Air conduction

Temperament	No. of individuals	Mean $\pm$ S.D.
Balghami	30	22.50 $\pm$ 1.67
Damvi	32	14.91 $\pm$ 2.21
Safravi	38	6.81 $\pm$ 2.04

Quwat-e-Sami'ah of individuals was evaluated in air conduction. Mean value of Balghami individuals is less as compared to Damvi individuals. Mean value of Damvi individuals is also less as compared to Safravi individuals. So in the present study we have observed that Safravi individuals have highest level of Quwat-e-Sami'ah, Balghami individuals have lowest level of Quwat-e-Sami'ah and level of Quwat-e-Sami'ah of Damvi individuals is in between Safravi and Balghami individuals.

(Quwat-e-Sami'ah (Hearing threshold level) has expressed in decibels. Lower the value of decibels higher the level of Quwat-e-Sami'ah and vice-versa.)

**Table 8:** Showing Significance of Quwat-e-Sami'ah (Hearing Threshold Level) in between temperament in Air conduction.

Temperament	Significance
Balghami + Damvi	t=15.2, p< 0.001
Balghami + Safravi	t=52.3, p< 0.001
Damvi + Safravi	t=22.5, p< 0.001

The present study reveals that between Balghami and Damvi temperament (t=15.2, p< 0.001) results are significant. In Balghami and Safravi temperament (t=52.3, p< 0.001) values are also significant and in between Damvi and Safravi temperament (t=22.5, p< 0.001) results are also significant. So we found that in between these three temperaments results are hundred percent significant.

**Table 9:** Showing Quwat-e-Sami'ah (Hearing Threshold level) of individuals expressed in mean  $\pm$  S.D in Bone conduction

Temperament	No. of individuals	Mean $\pm$ S.D.
Balghami	30	22.50 $\pm$ 1.67
Damvi	32	14.91 $\pm$ 2.21
Safravi	38	6.81 $\pm$ 2.04

Quwat-e-Sami'ah of individuals was also evaluated in bone conduction. Mean value of Balghami individuals is less as compared to Damvi individuals. Mean value of Damvi individuals is also less as compared to Safravi individuals. So in the present study we have observed that Safravi individuals have highest level of Quwat-e-Sami'ah, Balghami individuals have lowest level of Quwat-e-Sami'ah and level of Quwat-e-Sami'ah of Damvi individuals is in between Safravi and Balghami individuals.

(Quwat-e-Sami'ah (Hearing threshold level) has expressed in decibels. Lower the value of decibels higher the level of Quwat-e-Sami'ah and vice-versa.)

**Table 10:** Showing Significance of Quwat-e-Sami'ah (Hearing Threshold level) in between temperament in Bone conduction.

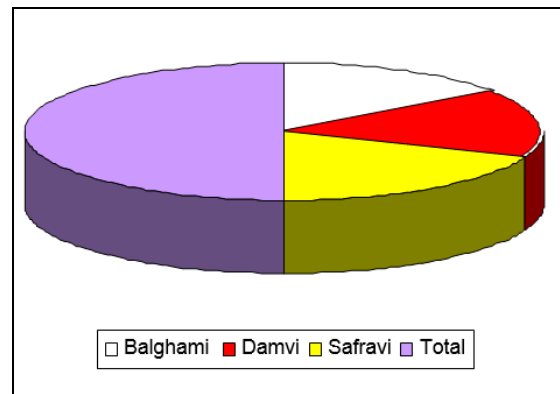
Temperament	Significance
Balghami + Damvi	t=15.2, p< 0.001
Balghami + Safravi	t=52.3, p< 0.001
Damvi + Safravi	t=22.5, p< 0.001

The present study also reveals that between Balghami and Damvi temperament (t=15.2, p< 0.001) results are significant. In Balghami and Safravi temperament (t=52.3, p< 0.001) values are also significant and in between Damvi and Safravi temperament (t=22.5, p< 0.001) results are also significant. So we found that in between these three temperaments results are hundred percent significant. The present study of hundred (100) individuals we observed that a relation can be established in between Quwat-e-Sami'ah (Hearing threshold level) and temperament. The level of Quwat-e-Sami'ah (Hearing threshold level) is higher in Safravi, low in Damvi as compared to Safravi and lowest in Balghami in comparison to all three. So this result has proven earlier hypothesis correct regarding the hyperactivity (fa'aliyat) of Safraviul-almizaj.

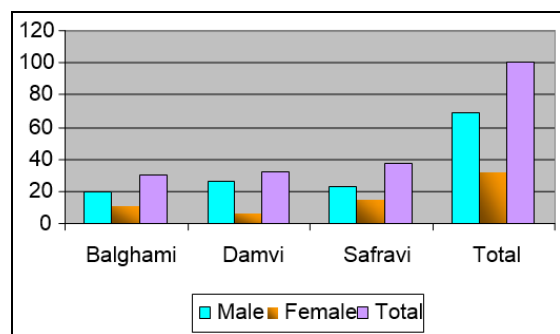
**Discussion**

One hundred (100) healthy individuals of either sex having phlegmatic (Balghami), Sanguine (Damvi) and bilious (Safravi) where randomly selected for the study. Melancholic (Saudavi) individuals were not included because of their rarity. Prior to the assessment of temperament, the health status of the individuals were assured. It was insured that individuals were not having history of medications, addiction, smoking, alcoholism, tobacco-chewing, pregnancy and strenuous exercise [15]. The temperaments of the individuals were determined on the basis of *Ajnas-e-Ashra* described in classical Unani literature. Bilious, phlegmatic and sanguine temperaments individuals having age group of 15-50 years were included in the study. The assessment of *Quwat-e-Sami'ah* (Hearing Threshold Level) is done by voice test, audiometry and tempenometry. In our study out of one Hundred (100) individuals 30 Balghami, 32 Damvi and 38 were Safravi (Table-1, Graph-1). The maximum numbers of individuals were in Safravi group, which is in accordance with the study of Narain.<sup>16</sup>According to him the commonest temperament in the Indian sub-continent is bilious. It has observed in our study that number of male individuals having Balghami, Damvi and Safravi were 20, 26 and 23, whereas female were 10, 6 and 15 (Table-2, Graph-2). Individuals were also divided according their religion. Amongst Muslim, 26 Balghami 29 Damvi and 32 were Safravi (Table-3, Graph-3). In non-Muslim 4 Balghami 3 Damvi and 6 were Safravi. After distribution of individuals according their age the youngest individuals had 15 years of age and eldest individuals have 50 years of age. When the age of individuals arranged in class interval as shown in the Table-4, the lowest numbers of subject were in 30-35 years of age group and highest numbers belongs to age group of 25-30 and 35-40 years. Individuals were also observed according to body mass index (BMI). Individuals were divided into three groups according to BMI as 15-19, 20-24 and 25-29

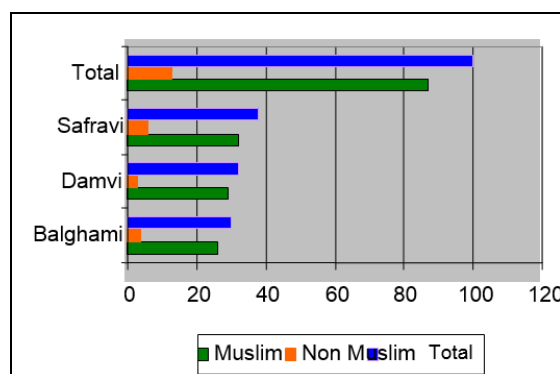
(Table-5, Graph-5) Majority of the Safravi individuals were found to possess low body mass index ranging between 15-19 and 20-24 where as mostly Damvi individuals possess BMI in 20-24 and mostly Balghami individuals possess comparatively higher BMI of 25-29. Mean and standard deviation of BMI of individuals were also calculated as shown in Table-6. This data shows that our study is in concordance with Unani concept, according to which Balghami individuals are fatty and obese than Safravi individuals and Damvi are moderate. *Quwat-e-Sami'ah* (Hearing Threshold Level) of bilious, phlegmatic and sanguine individuals was evaluated. In this regard our analysis shows that mean and standard deviation of *Quwat-e-Sami'ah* (Hearing Threshold Level) is highest in bilious (Safravi), lowest in phlegmatic (Balghami) and moderate in sanguine (Damvi) individuals. The results are significant amongst all the three temperament. So our study is in total conformity to Unani concept in which Safravi individuals are hyperactive, Balghami are sluggish and Damvi are moderate in comparison to function of organs.



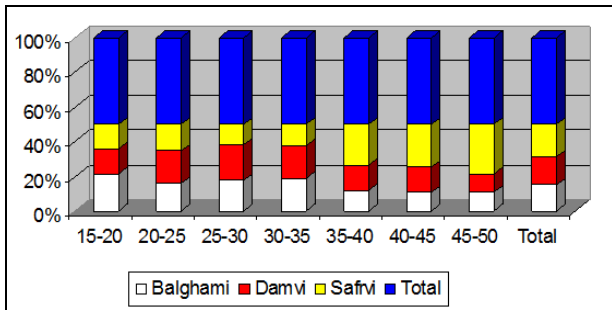
**Graph 1:** Showing distribution of individuals According to temperament



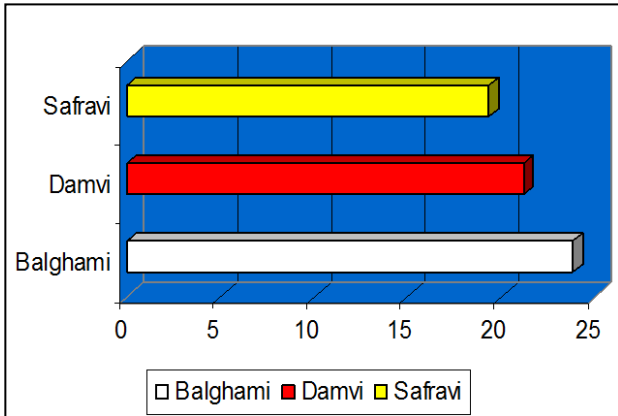
**Graph 2:** Showing distribution of individuals according to sex



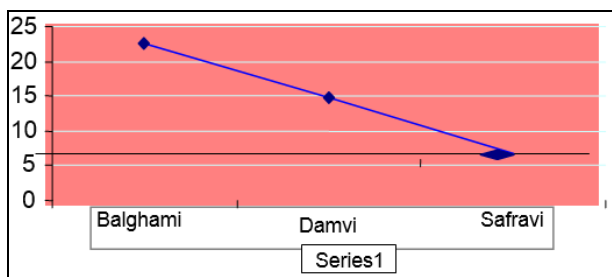
**Graph 3:** Showing distribution of individuals according to religion



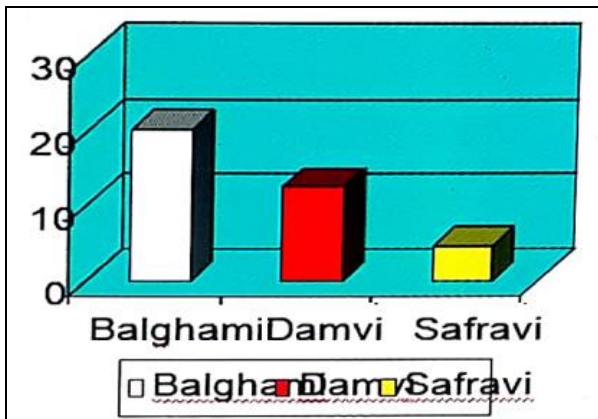
**Graph 4:** Showing distribution of individuals according to age



**Graph 5:** Showing distribution of individuals according to BMI



**Graph 6:** Showing Quwat-e-Sami'ah (Hearing Threshold Level) in different Temperaments (in Air conduction)



**Graph 6:** Showing Quwat-e-Sami'ah (Hearing Threshold Level) in different Temperaments (in Bone conduction)

**Conclusion**

From the finding of this study, it may be concluded that individuals having bilious (Safra) temperament have higher level of *Quwat-e-Sami'ah* (Hearing Threshold Level) Balghami temperament individuals have lowest level of *Quwat-e-Sami'ah* (Hearing Threshold Level) and Damvi temperament individuals have moderate level of *Quwat-e-Sami'ah* (Hearing Threshold Level). Thus relationship can

be established between temperament (mizaj) and function of ear which validates the Unani claim that *Safra* people have hyperactive, *Damvi* have moderate level of activity and *Balghami* individuals have sluggish activity. The data obtained so far is provisional and it does encourage, more extensive studies in this field.

The theory of temperament is the basic pillar of Unani medicine. Recent studies have not contraindicated in any way the concept of four temperaments. Various branch of medicine notably Genetics, Immunology and psychosomatic medicine etc, have also begun to support this theory, still more and scientific validation of this theory is obligatory for its rational and universal application. The need of hour is to study the concept of temperament at genetic level. Further studies are also required to assess variability of different physiological, pathological and biochemical parameter in healthy subject of different temperament.

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