Concept of Akhlat Arba (four humors) with relation to health and disease

Azizur Rahman, S. Javed Ali, Mohd Zulkifle, Imtiyaz Ahmad

Abstract
The concept of Akhlat Arba (four humors) had originated in Egyptian system of Medicine or Mesopotamia, although it was not systemized till ancient Greek System came around 400 BC. Especially Hippocrates (BC 460-370) is credited for its application in medicine and he also elaborated comprehensively. He finally proposed Arkan based theory of the Four Akhlat (Humors) these are Dam (blood), Balgham (phlegm), Safra and Sauda. Since then this theory is the key of Unani system of medicine.

Basically, the human body is filled up with four basic essences i.e. Akhlat. These are the dietary sources for the organs to perform their functions properly. Almost all diseases and anomalies resulted because of quantitative or qualitative disharmony of these Akhlat. An adequate balance blending of these Akhlat (humors) yields good health.

Keywords: Akhlat Arba; Humors; Akhlat Ghair Saleha; Unani Medicine.

1. Introduction
Before Hippocrates (BC 460-370), the Unani system of medicine (USM) had adopted different knowledge and concepts from the preceding ancient civilizations [1]. USM is based on the concept of Akhlat Arba; firstly introduced by Hippocrates [2], in context of human physiology. It is said that harmony and sympathy i.e. digestion and metabolism (Hazm wa Istehala) of Akhlat is necessary to retain wellness [3]; and harmony of these humors is necessary for health [4]. Disharmony in these Akhlat (humors) leads to different types of abnormalities that will be in characteristic patterns [1, 5, 6].

Jalinoos (Galen) said that all the animal and plants that are subjected to genesis and degradation and those bodies that are formed inside earth i.e. mineral all are made from Arkan Arba; Nar (fire), Maa (water), Hawa (air) and Arz (earth) and these are primary remote Arkan and secondary proximate Arkan from which human body and all other blood containing are made, are Akhlat Arba i.e. Dam (blood), Safra (yellow bile), Sauda (black bile) and Balgham (phlegm) [7]. From above discussion Galen validated and made more comprehensive the concept of the Akhlat [8]. After that renowned Unani philosophers and physicians like Abu Sahal Masih, Ibn Sina (Avicenna), Ahmad Bin Tabri, Ibn Hubel Baghdadhi, Ibn Rushd (Averroes) and Razi (Razes) etc followed this concept.

2. Akhlat Arba (The Four Humors)
Khilt means the substance which is in mixture form [2] Khilt is a liquid substance and made up of Istehal Avwal (first metabolism) of food in Kabid (liver) [9,11] Human body is buildup of Akhlat Arba [12]. Khilt is a liquid body which is enclosed in the vessels and cavity of the body [13] to provide Badal Ma Tahallul through conversion into Jauhar Aza [14, 15]. They provides nutrition to the Aza which have same Mizaj as of Akhlat [12, 15]. Dam carries the Hararat Gharizia (innate energy) from Qalb (heart) to Aza (organs) [16]. Harmony of Khilt may be altered by specific Mizaj, in different phase age and seasons, residences and different diets etc. For instances according to age, more production of Safra in young, Dam in children, Sauda in elder people and Balgham in elderly persons [13].

2.1 Mechanism of Formation of Akhlat
These are formed in the Jigar (liver) through long processes that is, first of all digestion starts from mouth and passes to the stomach where Hararat Gharizia acts upon food stuff and converts into Kailus (liquid substance, Hazm Awwal) after that Ajzae Latifa (diluted substances).
absorbs from stomach and intestine through Uroq Masarika (mesenteric vein) \(^{[17]}\) and enters into the porta hepatis. In liver complete Nazj occurs (hazm sani) and Akhlat as a blood are formed properly \(^{[13]}\). After formation precipitated substance that is Sauda and at surface is Safra \(^{[13]}\) instead of Dam and Balgham are blending properly and reach to right atrium in the form of Dam and provides nutrition to the Aza (organs) \(^{19, 10, 14, 15}\). The waste products of primary digestion in stomach are eliminated through intestines. Waste of second digestion which occurs in liver eliminated mostly through urine but small quantity is disposed towards gall bladder and spleen and which occurs in liver eliminated mostly through urine but small quantity is disposed towards gall bladder and spleen and waste of third and fourth Hazam are eliminated through small pores of body in the form of sweating, secretion of ear and nose \(^{[18, 19]}\).

2.2 Types and Characteristics of Akhlat
There are four types of Akhlat present in human body, and each Khilt has its own characteristics according to its Mizaj (temperament).

<table>
<thead>
<tr>
<th>Name of Khilt</th>
<th>Characteristics</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabai Dam</td>
<td>Red in color, without any unpleasant odor.</td>
<td>(^{[10, 15, 18, 20]})</td>
</tr>
<tr>
<td>(Sanguineous humor)</td>
<td>Sweet in taste. Brightness is Homogenous</td>
<td></td>
</tr>
<tr>
<td>Tabai Balgham</td>
<td>White transparent, moderate viscosity tasteless.</td>
<td>(^{[13, 15]})</td>
</tr>
<tr>
<td>(Phlegm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tabai Safra</td>
<td>Reddish yellow, bitter taste.</td>
<td>(^{[13, 15]})</td>
</tr>
<tr>
<td>(Yellow Bile)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tabai Sauda</td>
<td>Reddish black, sour and astringent in taste.</td>
<td>(^{[13, 15]})</td>
</tr>
<tr>
<td>(Black Bile)</td>
<td></td>
<td></td>
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</tbody>
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**Mizaj of Khilt**

<table>
<thead>
<tr>
<th>Name of Khilt</th>
<th>Mizaj</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam</td>
<td>Har Ratab</td>
<td>(^{[10, 15, 17, 20, 21]})</td>
</tr>
<tr>
<td>Balgham</td>
<td>Barid Ratab</td>
<td>(^{[10, 15, 17, 20, 21]})</td>
</tr>
<tr>
<td>Safra</td>
<td>Har Yabis</td>
<td>(^{[10, 13, 15, 20, 21]})</td>
</tr>
<tr>
<td>Sauda</td>
<td>Barid Yabis</td>
<td>(^{[10, 14, 17, 19, 20]})</td>
</tr>
</tbody>
</table>

3. Utilities of Akhlat
Akhlat are used for nutrition of Aza, Aza-e-Harrah (organs with hot temperament) like Qalb (Heart), Kabid (Liver), Riya (Lungs) receives their nutrition from Dam wa Sauda, while Barid Aza (organs with cold temperament) like Dimagh (Brain) and Tihal (Spleen) from Balgham wa Sauda \(^{[2]}\). Especially Safra wa Dam promotes nutrition to the lungs, \(^{10, 13, 20}\) as well as Sauda to the bones and Balgham to the brain etc \(^{15, 20}\). Other utilities of each khilt are discussed below:

3.1 Utilities of Khilte Dam
Dam is the most abundant khilt of body it performs various functions like
- Provide nutrition to the body \(^{[20]}\).
- Replenishes the tears \(^{[20]}\).
- Keep the body warm \(^{[20]}\).
- Distributes the Hararat-e-Gharizia\(^{[16]}\).
- Prevent the hazard of coldness \(^{[20]}\).
- Maintain the viscera warm \(^{[20]}\).
- Provide the beauty and luster to the skin \(^{[20]}\).
- Generates pneumonia from its diluted part \(^{[20]}\).
- Its Mizaj is suitable for life \(^{[20]}\).

3.2 Utilities of Khilte Balgham
White fluid of body which comes under heading of Khilt Balgham performs following functions
- Maintenance of moisture in the organs and joints \(^{[4, 10, 13, 16, 20]}\).
- It nourishes the brain \(^{[4]}\).
- When required it can be used as a Khilt Dam after processing by Hararat Gharizia (Innate Energy) \(^{[10, 13, 14, 16, 20]}\).

3.3 Utilities of Khilte Safra
Safra is Reddish yellow and bitter taste part of Akhlat, used in following manner by body
- Helps the blood to flow through the small vessels and capillaries easily \(^{[10, 13, 20]}\).
- Some part of Safra goes to the gall bladder and other into the blood \(^{[14]}\).
- Marara (gall bladder) receives Taghzia (nutrition) from Safra \(^{[10, 13, 20]}\).
- It is helpful in digestion of food \(^{10, 13, 20}\).
- Safra acts as a detersive into the intestine \(^{10, 13, 20}\). It washes the viscous secretion from small intestine \(^{22}\).
- It provides stimulation for defecation \(^{13, 20}\).

3.4 Utilities of Khilte Sauda
The black colored portion of Akhlat i.e. Sauda have following utilities:
- After complete formation it goes to the blood stream and spleen \(^{[14]}\).
- It provides strength to the bone \(^{10, 20}\).
- It makes the blood viscous \(^{10, 20}\).
- Provides nutrition to Tehal (spleen) \(^{[13]}\).
- Acts as appetizer \(^{[10, 13, 16, 20]}\).

4. Disharmony and correction
Health and disease depend upon harmony of these Akhlat Arba \(^{[2]}\). Unani philosophers describe the meaning of disharmony that, it is any change in quality and quantity of Akhlat \(^{[12]}\). Disharmony in quantity is called as Imtala Ba Hasbul Auhia while disharmony of quality is known as Imtala Ba Hasbul Quwa \(^{[9]}\).

a. Imtala Ba Hasbul Auhia
It is due to increase in Kammiyat (quantity) of Akhlat \(^{[9]}\). Presentation is reddish skin, laziness, hyperemic vessels, sleepiness, yawning, fatigue, headache and hyper pulsation etc \(^{[21]}\). Ibn Sina says that if there is excess accumulation of Akhlat Ghair Saleha in Uroq Damwiah wa Tajawif (blood vessels and cavity) it may result in obstruction \(^{[23]}\). This condition in general is managed by Fasd (Venesection) \(^{[13]}\) and Taqleel Ghiza (diet restriction) \(^{[24]}\).

b. Imtala Ba Hasbul Quwa
The disharmony in Kaifiyat (quality) of Akhlat is called as Imtala Ba Hasbul Quwa \(^{[9]}\). This presentation is susceptible for infectious diseases \(^{[20]}\), decreased appetite, there are changes in pulse and urine \(^{[21]}\). The Management of above said condition is to reduce use of Makul wa Mashrub (food and drinks), and observing bloodletting at regular intervals \(^{[17]}\). It is written in classical text that a person with Imtala Ba Hasbul Quwa should eliminate Akhlat Fuzuliah (morbid humor) before starting of Musam- e- Rabi (spring season) \(^{[24]}\).
This disharmony of Akhlat either in quantity or quality or both represents in different manner, each Khilt had its particular symptoms, related diseases, and different management as discussed below:

4.1 Disharmony of Khilt-e-Dam
a. Symptoms
Patients of disharmony of Khilt-e-Dam complain of fatigueness, excess yawning, and feeling of sweetness in mouth along with heaviness in eyes, and at mastoid region [10].

b. Diseases
Nafsuddam (Hemoptyisis), Qaiuddam (Hematemisis), Nakseer (Epistaxis), Hummae Tifidua (Typhoid fever), Khuraj (Abscesses), Waram Har, Damamil (Rashes), Dubalilah (Large Abscess) and reddish urine etc. [21], Tap-e-Matbaqah (Type of fever), Shaqiqah (Migraine) and Dawali (Varicose vein) [19].

c. Management
Regarding management of disease related to disharmony of Khilt-e-Dam blood-letting in small amount is recommended, patient are also advised not to take sweet diet in excess [10, 17, 21].

4.2 Disharmony of Khilt-e-Balgham
a. Symptoms
Whitish colored skin, soft pulsation, cold tactile, decreased thirst, sleepiness and laziness, excessive salivation [10], delayed digestion [21], Nisyah (Forgetfulness) [23], Drowsiness [2].

b. Diseases
Excess of Balgham develops Barid Amraz Amraz [13] i.e. Faltuj (paralysis), Saktaah (apoplexy), Lqawah (Facial palsy), Nisyah (Forgetfulness) and Hummae Balghami (phlegmatic fever) [21]. Lisarghus (type of meningitis) [25], Rasha (tremor), Tahshamuj (Convulsions) [20], Dawar (vertigo), Sadar (Giddiness), Kaps (night mare), Sara (epilepsy), Khidr (paresthesia), Warm-e-Sulb wa Layyan (Type of Inflammation), Tahhabuj (Edema) [19].

c. Management
Istifragh Balgham (elimination of Balgham), Tadbeer Mosakhanah (Hot Contrivances), use of hot temperament food, and low intake of water and food is advised, Riyazat (Exercise), Dalk (Massage) and Sun bath are also indicated [25].

4.3 Disharmony of Khilt-e-Safra
a. Symptoms
Pale color skin, dryness and bitterness in mouth, nausea [10, 21], decreased appetite [2] bilious vomiting, loose motions, burning micturation, tachycardia, [10, 21], increased thirst, fiery dreams and feeling of nibbling and laziness [2].

b. Diseases
Safra is cause for Har Amraz i.e. Hummae Safrawia (bilious fever), Hummiyat Haddah (acute fever) [19],Barsam Har, Gangrenous pustules, Yaqan (Jaundice), Warme Kabid (hepatitis), Qarha (ulcer) of urinary bladder and intestine, Faranutus (type of meningitis) [21].

c. Management
Disease related to Khilt-e-Safra are managed by use of Mushilat Safra Advia (purgative), Tadabeer Mubarridah (cold regimen) and Morattibah (hot regimen), along with a restriction in salt intake [13].

4.4 Disharmony of Khilt-e-Sauda
a. Symptoms
Yellowish brown to black colored skin, dryness, increase appetite, anxiousness, sadness, reddish black urine, excess growth of hair on body [10, 21] along with pain at spleen [10, 17, 21] sleeplessness and dreams of black objects [2].

b. Diseases
Melancholia [25], Juzam (leprosy) [19], Sartan (cancer) [11], Dawali (varicose vein), Da ul Fil (elephantiasis), Hummiyat Raba (Type of fevers) [10, 17, 21] are common disease condition related to Khilt Sauda despite of above said disease Sae Hazm (indigestion) [27] and Sahr (insomnia) are also noticed in disharmony of Sauda [19].

c. Management
In the management of disease related to Khilt-e-Sauda ancient unani scholars had advised Istifragh (elimination) Sauda as key to manage its disharmony, vomiting before meat [23], along with avoidance of Ghiza-e-Barid is recommended, the patients of this disease condition also advised to take Hamman before Ghiza and to observe an abstinence from Jima (coitus). Ancient unani scholars had also recommended Muqawwieyat-e-Qalb wa Dimagh Advia (Cardiac and brain tonic) to be used along with other drugs for better results [19].

5. Conclusion
With above discussion it may be concluded that Akhlat are the liquid part of human body, and a balance between all of four Akhlat is necessary for health and wellbeing of humans, if any disproportion in quantity or quality of Akhlat disease is inevitable, ancient Unani philosophers had elaborately discussed the cause of this disharmony, sign and symptoms of disease and management through various tadabeer (Regimen) and drugs. This concept of Unani philosophers, with a great success had been practiced by followers of unani medicine, throughout the globe for the betterment of humanity; this again revalidates Hippocrates humoral theory. Future research for the better understanding and scientific validation of Humors and humoral theory are needed.

6. Conflict of Interest
Authors claim no conflict of interest.

7. References
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