

ORIGINAL ARTICLE

Dyslipidaemia: Etiopathogenesis and its Management from the Viewpoint of the Ancient Persian and Unani System of Medicine

Abstract

Dyslipidaemia is a serious health issue nowadays because of the inappropriate style of living. Many disorders, including cardiovascular disease, metabolic syndrome, etc. have been related to dyslipidaemia. It can cause a variety of life-threatening consequences if left untreated. It is an independently controllable risk factor for cardiovascular disease. This study was conducted using the ancient Persian and Unani classical books, and recent research on the management of dyslipidaemia from sources like Scopus, PubMed, and AYUSH portal.

The pathogenesis of dyslipidaemia, when examined through the lens of Persian and Unani Medicine, is delineated as a complex metabolic disorder, which arises from a diminishment in *hararate ghariziyah* (innate heat) and *fasad hazam-e kabidi* (irregular hepatic digestion). Through this critical analysis, we have observed that Persian and Unani physicians insist on some of the following recommendations regarding the management of dyslipidaemia.

(i) Augmentation of the *hararate ghariziyah* (Innate heat) in the body; (ii) rectification of *Su-i-Mizaj* (mal-temperament) of the liver, and (iii) Elimination of the morbid humour through the *Munzij* (concoctive) and *Mushil* (purgatives) therapy.

This paper is an attempt to understand the Persian and Unani etiopathogenesis of dyslipidaemia. This review establishes the foundational framework for subsequent evidence-based research. It has been well-evidenced that Persian and Unani drugs like *Muqil* (Commiphora mukul), *Safufe Muhazzil*, are effective, multi-targeted, and extremely safe.

Key words: Dyslipidaemia, *Ilaj bi'l Ghiza*, Dieto-therapy, Unani/Persian Medicine, Commiphora, Metabolic Syndrome

Received: 9 Apr 2024; Accepted: 21 Dec 2024

Research on History of Medicine

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Citation:

Ahmer, S.M., and Fahad, A., 2026. Dyslipidaemia: Etiopathogenesis and its Management from the Viewpoint of the Ancient Persian and Unani System of Medicine. *Res Hist Med*

Introduction

Dyslipidaemia is a heterogeneous metabolic disorder of lipoprotein metabolism. It is biochemically characterized by elevated levels of total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), and triglycerides (TG), often accompanied by a concomitant reduction in high-density lipoprotein cholesterol (HDL-C) (Mooradian, 2009, pp. 150-159). Worldwide, about 4.5 % of deaths are due to elevated levels of total cholesterol (De Groot, et al., 2019, pp. 1-18). In India, dyslipidaemia is highly frequent, requiring quick lifestyle modifications to prevent and control this significant cardiovascular risk factor. In India, the prevailing dyslipidaemic phenotype is characterized by a triad of borderline-elevated low-density lipoprotein cholesterol (LDL-C), low high-density lipoprotein cholesterol (HDL-C), and hypertriglyceridemia. Epidemiological data from the past two decades indicate a significant trend within metropolitan populations, marked by a progressive increase in mean serum concentrations of triglycerides, LDL-C, and total cholesterol (TC) (Gupta, et al., 2017, pp. 382-392). Dyslipidaemia affects about 25-30% of urban Indians and 15-20% of rural Indians. It affects both men and women, albeit it is more prevalent in men. The age group of 30 to 40 years has a significant incidence, but the prevalence rises dramatically beyond 60 years (Joshi, et al., 2014, p. 96808). It can cause a variety of life-threatening consequences if left untreated. Many disorders, including atherosclerosis, cardiovascular disease, metabolic syndrome, and hypertension, have been linked to it (Narayanaswamy, Chickballapur Rayappa and Ramesh, 2020, pp. 2992-2996).

Despite the significant advancements in treating diseases, such as cardiovascular disease, metabolic syndrome, they have remained a significant health burden and the world's most prominent cause of mortality throughout the past few decades. There is an urgent need to discover novel, secure, and multi-targeted therapies for the goal of preventing and treating these diseases. It has been well-evidenced that Unani and Persian drugs are effective and highly safe (Shishodia, et al., 2008, pp. 3647-3664). In this review study, we annotated dyslipidaemia to better understand etiopathogenesis in order to provide better management. Through this work, we analyze the etiopathogenesis of dyslipidaemia by comparing it with *dasumat-e-dam* (a fatty substance in the blood) and *balgham mutaghayyir* (abnormal phlegm) (Ibne Rushed, 1980, pp. 156-160; Standard Unani Medical Terminology, 2012, pp. 24, 374).

Methodology

To evaluate the etiopathogenesis and therapeutic management of dyslipidaemia, a comprehensive review of both classical Unani medical literature and modern electronic databases was conducted. Historical insights and classical frameworks were extracted from foundational Persian and Unani texts, including *Firdaus al-Hikmat*, *Kitab al-Hawi*, *Zakhira-i Khwarazmshahi*, *Kamil al-Sina'a al-Tibbiyya*, and *Al-Qanun fi al-Tibb*. Because classical Unani literature lacks contemporary biomedical nomenclature, modern equivalent concepts were established using the Standard Unani Medical Terminology published by the Central Council for Research in Unani Medicine (CCRUM).

Concurrently, a systematic search for recent literature on the management of dyslipidaemia specifically focusing on dietotherapy (*Ilaj bil-Ghidha*), pharmacotherapy (*Ilaj bid-Dawa*), and regimenal therapy (*Ilaj bit-Tadbeer*) was executed across multiple databases, including PubMed, Scopus, Web of Science, Google Scholar, the AYUSH Research Portal, and ResearchGate.

All retrieved materials were critically analyzed. Data regarding the underlying mechanisms, clinical manifestations, and multi-targeted therapeutic interventions were synthesized, the results of which are structured and evaluated in the subsequent sections of this paper.

Ancient Persian and Unani Etiopathogenesis of Dyslipidaemia

In the medical paradigms of Ancient Persia and Unani medicine, lifestyle-related disorders are conceptualized as manifestations of dissonance between the *Akhlat* (humours), which is influenced by diet, environment, habits, and emotions. The etiopathogenesis of such disorders involves a complex interaction between external and internal factors. Lifestyle disorders in the Unani framework, such as obesity, diabetes, and hypertension, arise from disruptions in the equilibrium of *Akhlat* (humours), due to inappropriate lifestyle choices, including poor diet, lack of exercise, and stress.

1- Etiopathogenesis of dyslipidaemia

A. Asbab (Etiology)

The ancient physicians systemically explained causes like external and Internal causes (see Figure 1).

B. External causes

Dietary Factors; Excessive dietary intake of moisture-inducing solids and fluids surpasses physiological requirements, leading to the accumulation of morbid matter that compromises hepatic metabolism.

According to Raban Tabri and Zakariya Razi, dietary factors including excessive and repeated eating, especially *murattab* or *martoob ghiza* (fatty diet like meat, halwa, etc) (Tabri, 2010, p. 457) and drinking-like intake of excessive alcohol, and excessive reduction in food (Jeelani, 2009, pp. 130-132), can lead to humoral imbalances. For example, an overconsumption of cold and moist foods can increase the production of phlegm, leading to conditions like obesity and sluggishness (Ahmer, et al., 2015, pp. 10-16).

Behavioral Factors: According to Raban Tabri, behavioral factors include *Raahat wa Farhat* (Pleasant life, unnecessary rest, and lack of exercise), *Sarwat* (Luxurious lifestyle), Taking baths, especially after meals, and prolonged stay in the washroom (Al Razi, 1999, p. 210). Behavioral factors, responsible to decrease the *hararate ghariziyah* (innate heat) of the body, lead to an accumulation of immature phlegm in the blood, which are associated with diseases like metabolic syndrome.



C. Internal cause

Balghami mizaj (Phlegmatic Temperament) (Jurjani, 1902, pp.17, 23, 102), refers to the lack of digestive power, Hepatic *Su-i-Mizaj* (mal-temperament) impairs the complete utilization of nutrients. Concurrently, a weakened *Quwwat-e-Dafia* (expulsive faculty) combined with an overly vigorous *Quwwat-e-Masika* (retentive faculty) causes morbid humors to linger and accumulate within the body.

2- Pathogenesis of Dyslipidaemia

As depicted in Figure 1, excessive food intake, lack of exercise are among the factors that can lead to the accumulation of *fuzlat* (undigested molecules) in the body. The presence of these abnormal accumulations disrupts the normal function of the body by diminishing the *hararate ghariziyah* (innate heat). A reduction in *hararate ghariziyah* (innate heat) may produce *barudat-e-badan* (coldness in the body), which can subsequently contribute to the emergence of diverse metabolic dysfunctions. The phenomenon of *barudat-e-badan* (coldness in the body) engenders an impairment in the body's capacity to adequately assimilate *fuzlat* (undigested molecules), culminating in the progressive accumulation of unutilized constituents within the blood vessels and interstitial compartments various organs (Nasir, 2013, pp. 1–8).

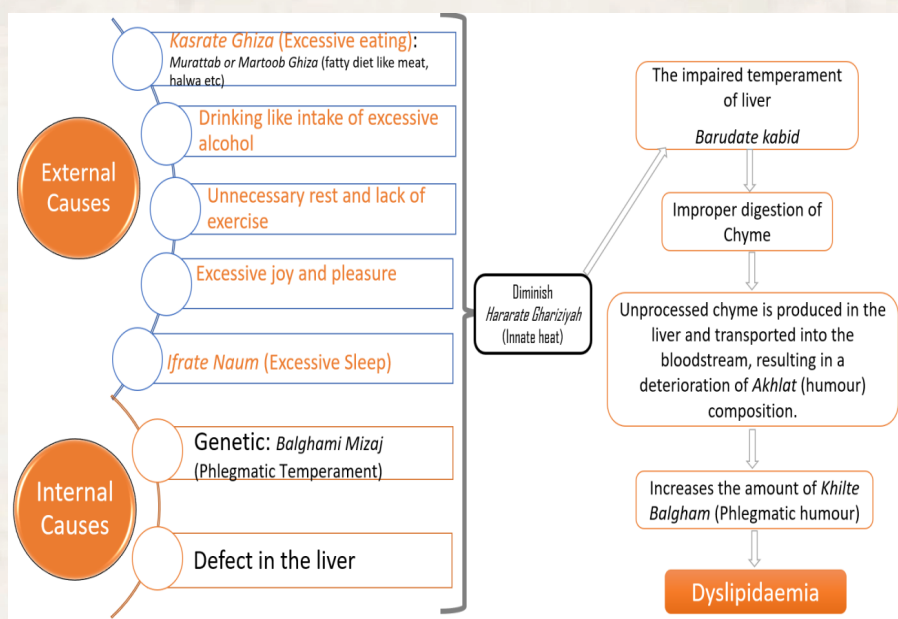


Figure 1. Unani Etiopathogenesis of Dyslipidemia

The *quwat ghazia* (nutritive faculty) attempts to metabolize these *fuzlat* (undigested molecules); however, impaired liver function due to diminishing the *hararate ghariziyah* (innate heat) compromises the further processing, leading to immature humours production, especially *balgham mutaghayyir* (abnormal phlegm) in the bloodstream. Initially, immature humours alter both the quality and quantity of blood, resulting in an imbalance in temperament and subsequent damage to tissues and organs

(Majusi, 2010, pp. 104–106).

According to Avicenna, *fasad hazam-e kabidi* (Irregular hepatic digestion) is responsible for the disequilibrium of *Akhlat-e-arba* (Abnormal blood composition) (Avicenna, 1993, pp. 264–282, 299, 306).

The pathogenesis of dyslipidaemia, when examined through the lens of Persian and Unani Medicine, is delineated as a complex metabolic disorder, which arises from a diminishment in *hararate ghariziyah* (innate heat) and *fasad hazam-e kabidi* (irregular hepatic digestion).

Usoole Illaj (Mode of Management)

Persian and Unani medicine deals with the disease through several therapeutic regimens, which depend on the disease's etiology and nature (see in Figure 2). The National Cholesterol Education Program recommends lifestyle modifications, like dietary changes, exercise, and weight control to treat dyslipidaemia (Cleeman, and Grundy, 1997, pp. 1646–1650).

1- Ilaj bi'l Ghiza (Dieto-therapy)

Ilaj bi'l ghiza represents a fundamental principle of therapeutic strategy within the Indian systems of medicine (AYUSH). Historically, practitioners of ancient Persian and Unani medicine frequently advocate for *Ilaj bi'l ghiza* as the primary approach to managing various diseases. According to the American Heart Association, a low-fat diet can lower total cholesterol by 5 to 7%, while a high-fiber diet can lower total cholesterol by 11 to 32% and improve LDL and HDL cholesterol levels (Haffner, 2002, p. 25).

The following guidelines are outlined by Zakaria Razi (Al Razi, 2000, pp. 43, 48–52) and Avicenna, for preventing and treating dyslipidaemia.

Taqleel-e-Ghiza (reduce food consumption) (Parvizi, et al., 2018, pp.1-8).

Rectification of the *Su-i-Mizaj* (mal-temperament) (Qamri, 2008, pp. 384–390).

Use of *Munzij wa Mushille balgham* (concoctive & purgative phlegm).

Avicenna (980–1037 AD) emphasizes *taqleel ghiza* (dietary restriction) as a key technique in treating obesity (Nozad, et al., 2016, pp. 1-7). Foods with the lowest nutritional value should be offered in larger quantities so that the mesenteric arteries will get the least time to absorb it and the patient also feels fullness in the stomach. Nutritious foodstuffs like meat, sweets, and oily street food or Chinese food should be restricted (Masihi, 2008, pp. 180–190). Food should be given only after being hungry. Vegetables and pulses are recommended due to their low calorific value (Perwej Ahmed, 2015, pp. 2–7).

A case study of diet restriction revealed that *Ilaj bil ghiza* (dieto-therapy) plays a significant role in reducing 28.08% in total cholesterol, 54.83% in triglycerides, 29.33% in LDL, and 55.12% in VLDL, enhancement of 21.14% in HDL (Azhar, et al., 2020, pp. 17-19).

2- Ilaj bi'l Tadbir (Regimenal therapy)

Persian and Unani physicians described certain regimens along with the diet and

drugs, such as *Kasrat Riyazat* (excessive exercise), *Ta'ri'q* (perspiration), *Taqleel-e-nawm* (reduce sleeping), *Hammam-e-yabis* (dry bath) on empty stomach, *Ishaal* (purgation), and *Dalake khashn* (rough massage) for reducing the fat in the body (Ministry of AYUSH, 2016, pp. 31–48, 63).

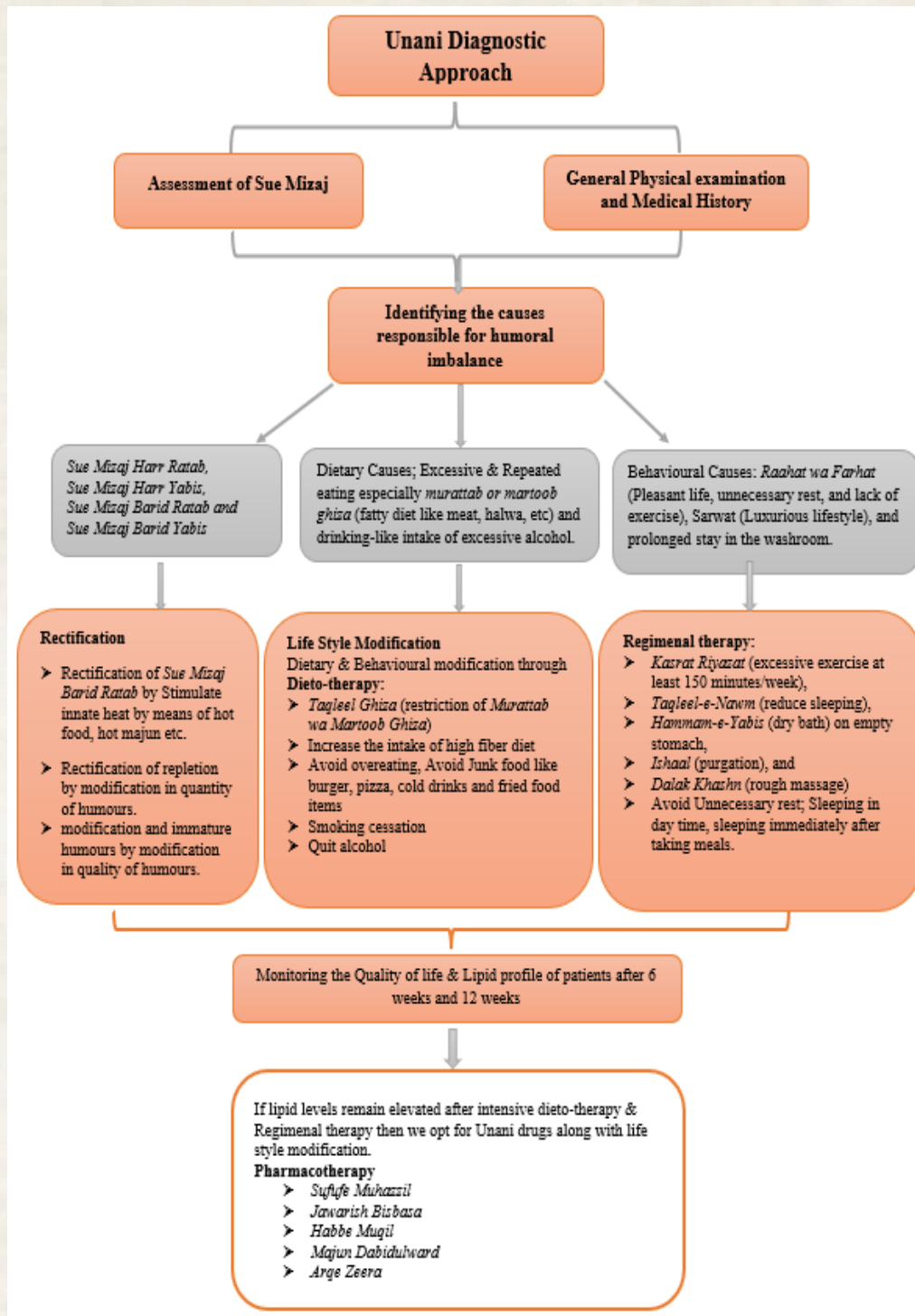


Figure 2. Summary of the Management of Dyslipidemia.

Riyazat (physical exercise) is a highly effective regimenal therapy for managing dyslipidemia; it accelerates energy expenditure, thereby stimulating lipid catabolism and lowering systemic cholesterol levels (Wang and Xu, 2017, pp. 1-8; Ahmad, et al., 2019, pp. 239–247). Bahram et al. (2018) reported that low-density lipoprotein levels were reduced by high-intensity aerobic exercise (Bahram, et al., 2018, pp. 2330–2340). With the help of meta-analysis, Kelley et al. (2006) investigated the effect of aerobic exercise on adult HDL2-C. They examined data from 19 randomized controlled studies and discovered that participants who engaged in aerobic exercise saw an increase in HDL2-C of approximately 11%. The outcomes were statistically significant (Kelley, and Kelly, 2006, pp. 207–215).

The findings of this study imply that the amount of time spent exercising, and the intensity of exercise, all have an impact on the changes in blood lipids. Exercise most strongly affects HDL-C. The intensity of aerobic activity needs to be increased in order to reduce LDL-C and TG levels more.

Hijama (cupping therapy) is one of the oldest documented therapeutic modalities, traditionally utilized to manage a broad spectrum of *Imtila* (plethora-related) disorders. Clinical and historical data support its application in mitigating metabolic, cardiovascular, and hematological conditions, including hyperlipidemia, hypertension, polycythemia, hemochromatosis, and hepatic diseases, while concurrently promoting mental and physical relaxation. Cupping therapy, a successful and efficient treatment that does not require the use of medicines, is simple, inexpensive and safe to use, with no serious side effects (Niasari, Kosari and Ahmadi, 2007, pp. 79–82; Mustafa, Dawood, and Al-Sabaawy, 2012, pp. 128–136). Wet cupping significantly lowered LDL and LDL/HDL levels while having no effect on HDL levels (Kenari, Kordafshari, and Moghimi, 2022, pp. 135–149).

3- *Ilaj bi'l Dawa* (Pharmacotherapy)

According to the National Cholesterol Education Program (Adult Treatment Panel III) recommendations, high-risk patients with coronary heart disease should aim for a target LDL cholesterol level of 100 mg/dL (Havas, 2001, pp. 2-10). If lipid levels remain elevated after 3-6 months of intensive diet therapy and regimenal therapy then we opt for Unani lipid-lowering drugs along with lifestyle modification. Avicenna (980–1037 AD) prescribed the *Advia Mulattifa* (Demulcent drugs) and described the detailed pharmacological action of these drugs in his book *Al Qanun Fil Tib* (Urooj, et al., 2021, pp. 100-103).

A. *Advia Mufrada* (Single drugs)

In the corpus of classical literature, pharmacological agents designed to lower lipid levels that are both effective and safe for managing dyslipidaemia have been presented in Table 1.

B. *Murakkabat* (Compound drugs)

Safufe Muhazzil (Urooj, et al., 2021, pp.100-103), *Jawarish Bisbasa* (Azhar, et al.,



2023, pp. 20–23), *Habbe Muqil*, See Table 2, *Habbe Sundurus* (Ahad Rizwan K., 1935, pp.322–329; Tarique, et al., 2017, pp. 12883–12890), *Dawa ul Kurkum* (Itrat, Nigar, and Siddiqui, 2014, pp. 45–51), *Majun Dabeedulward*, *Dawa ul Luk*.

Table 1: lipid-lowering *Advia Mufrada* (Single drugs)

Advia Mufrada (Single drugs)	Botanical Name	Reference
<i>Luk Magsool</i>	<i>Coccus lacca</i> Kerr.	(Hakim, et al., 2013, pp. 37–48)
<i>Zeera</i>	<i>Carum carvi</i> Linn.	(Johri, 2011, pp. 63–71; Alam, et al., 2019, p. 63)
<i>Muqil</i>	<i>Commiphora mukul</i>	(Kabir, 2002, p. 152; Bhat, and Rather, 2021, pp. 170–172)
<i>Kalonjee</i>	<i>Nigella sativa</i> Linn.	(Ahmad, et al., 2021, pp. 1–11)
<i>Asaarun</i>	<i>Asarum europium</i>	(Rahbar, et al., 2020, pp. 221–229)
<i>Aneesun</i>	<i>Pimpinella anisum</i>	(Rahbar, et al., 2020, pp. 221–229)
<i>Filfil siyah</i>	<i>Piper nigrum</i> Linn.	(Narendra Babu, et al., 2018, pp. 42–51)
<i>Khutmi</i>	<i>Althaea officinalis</i>	(Chan, et al., 2020, p. 100292)
<i>Lehesun</i>	<i>Allium sativum</i>	(Chan, et al., 2020, p. 100292)
<i>Merzanjosh</i>	<i>Origanum vulgare</i>	(Bairwa, Sodha and Rajawat, 2012, p. 56)
<i>Naankhwah</i>	<i>Trachyspermum ammi</i> Linn.	(Bairwa, Sodha and Rajawat, 2012, p. 56)
<i>Suddab</i>	<i>Ruta graveolens</i> Linn.	(Kabeeruddin, 2007, pp. 80–131,135–80)

Safufe Muhazzil is an Unani compound preparation famous for its anti-obesity property seen in Table 3. The dose: Patients are administered 5 g of *Safufe Muhazzil* orally twice daily, co-administered with 20 mL of *Arq-e-Zeera* (*Carum carvi* distillate) (Hifzul Kabir, 2003, p. 157).

Table 2: Action of the formulation of the Unani compound drugs

Murakkab Advia	Form	Doses	Action	Reference
<i>Safufe Muhazzil</i>	Powder	5gm with <i>Arqe Zeera</i> or water	It acts as Anti- hyperlipidaemia	(Jahangir, et al., 2014, pp. 167–79).
<i>Jawarish Bisbasa</i>	Type of Confection	5–10 gm	<i>Buroodate Meda</i> (coldness of stomach), <i>Su-i-Hadm</i> (Dyspepsia).	(Rahman, 1991, p. 35)
<i>Majun Dabeedulward</i>	Confection	5–7 gm	<i>Amraze Kabid</i> (Liver disease), <i>Zofe kabid</i> (Hepatositis), <i>Zofe Meda</i> (Weakness of Stomach), <i>Waram kabid</i> (Hepatitis)	(Samarqandi, 1983, pp. 540–545).
<i>Habbe Muqil</i>	Tablet	2–4 pills at bed time with water	It helps to remove the morbid humours from the body and beneficial in a variety of phlegmatic conditions such as obesity, and hyperlipidemia, <i>Qabz</i> (Constipation).	(Rahman, 1991, p. 63)

Discussion

Dyslipidaemia is established as a critical, independent risk factor for the pathogenesis of several systemic conditions, most notably cardiovascular disease (CVD),

metabolic syndrome, and hypertension (Kala, and Singhai, 2021, pp. 4–7). The potential of dyslipidaemia to interact with the pathology of atherosclerotic diseases, such as coronary heart disease, which dominates the morbidity and death-causing diseases landscape in this field, has attracted the attention of researchers worldwide. There is no precise term for dyslipidaemia in the ancient Unani literature. But the description of *Siman Mufrit* (Obesity) and *Dasumat-e-Dam* (a fatty substance in the blood) does exist since ancient times. The pathogenesis of *Simane mufrit* (obesity) mentioned in the Unani is the same as the pathogenesis of dyslipidaemia.

Table 3: Ingredients of *Safufe Muhazzil*

Unani Name	Botanical name	Part used	Action	Weight	Reference
<i>Tukhme badi-yaan</i>	<i>Foeniculum vulgare</i> Mill.	Seed	<i>Kasir Riyah</i> (Carminative), <i>Mudir boul</i> (Diuretic), <i>Muqavvi Meda wa Ama</i> (Gastric tonic), <i>Hazim</i> (Digestive), <i>Munziji Balgham</i> (Phlegm concoctive), <i>Munaffis</i> (Expectorant)	1 g	(Shahat, et al., 2012, pp. 622–632)
<i>Ajwain desi</i>	<i>Carum capticum</i> seed	Seed	<i>Mufatteh</i> (Deobstruent), <i>Hazim</i> (Digestive)	1 g	(Javed, et al., 2009, pp. 229–36)
<i>Zeera Siyah</i>	<i>Carum carvi</i> L	Seed	<i>Hazim</i> (Digestive), <i>Muqawie Jigar</i> (Hepatoprotective), <i>Mujaffife Rutubat</i> (Desiccant)	1 g	(Najmul Ghani, 2011, pp. 401, 775)
<i>Suddab</i>	<i>Ruta graveolens</i> L	leaf	<i>Mufatteh</i> (Deobstruent), <i>Hazim</i> (Digestive), <i>Kasire Riyah</i> (Carminative)	1 g	(Ministry of AYUSH, 2016, pp. 31–48, 63)
<i>Luk-e-Maghsul</i>	<i>Coccus lacca</i> purified	Resin	<i>Mujaffife Rutubat</i> (Desiccant), <i>Muhazzil</i> (Antiobesity), <i>Munafis e Balgam</i> (Expectorant)	0.5 g	(Jahangir, et al., 2014, pp. 167–79)
<i>Marzanjosh</i>	<i>Origanum vulgare</i> L	Herb	<i>Muhallile Warm</i> (Anti-inflammatory)	0.25 g	(Yusuf bin Mohammad Yusufi, no date, p. 190)
<i>Bura Armani</i>	Boric acid		<i>Kasire Riyah</i> (Carminative), <i>Qate Akhlat Galiza</i> (Expellant of viscid Humours)	0.25 g	(Najmul Ghani, 2011, p. 775)

Dyslipidaemia can be linked to *Amraz-e-Balghamiyya* (Diseases caused by an unusual quantity or quality of Mucous humors and these diseases are of cold and moist temperament). As seen from the ancient prism, an unusual quantity or quality of *Balgham* (phlegm) in circulation gradually deposited in blood vessels.

The physicians specifically recommended *Munziji* (concoctive) and *Mushil* (purgatives) therapy for the repair of metabolic disorder (Ahmed, et al., 2015, p. 453). The *Munziji* (Concoctive) drug corrects the metabolic abnormality at the *Hazm-e-Uzvi* (cellular level digestion) level, making it easier for the waste to come together and get ready for excretion, which is accomplished by the *Mushil* (purgatives) drug's expelling process (Sapra, and Rifaee, 2021, pp. 24–29). Drugs with the names *Munziji* (concoctive) and *Mushil* (purgative) may work by detoxifying the body and expelling waste substances from the body.

According to the humoral theory attributed to *Buqrat* (Hippocrates), homeostasis



and health are maintained when the four primary humors, *Akhlat-e-Arba'a*, comprising *Khilt-e-Dam* (sanguineous), *Khilt-e-Balgham* (phlegmatic), *Khilt-e-Safra* (bilious), and *Khilt-e-Sauda* (melancholic) are optimally balanced and mingled in proper proportion. Conversely, any qualitative or quantitative dyscrasia within this humoral composition disrupts systemic equilibrium, precipitating disease states such as dyslipidaemia. On critical analysis, the hypothesis of four humours appears to be nothing more than a chemical classification of digestion's end products, which have been transformed into particular components, such as fat, protein, and carbohydrate (Mand, et al., 2015, pp. 212-215). *Akhlat* (Humours) not only are of four distinct entities they also encompass the biochemical groups that make up carbohydrate, protein, fats, and their intermediates, all of which contribute to the body's nutritional function. The incomplete degradation of these chemicals, as well as their aggregation, causes an imbalance in the equilibrium, resulting in sickness. *Khilte Balgham* (Phlegm) is also comparable to peptide and protein macromolecules in blood, which are more prevalent in people with a phlegmatic temperament. Excess and abnormal levels of *Khilte Balgham* (Phlegm) in blood circulation leads to develop *Dasumat-e-Dam* (a fatty substance in the blood), which may be correlated with dyslipidaemia. In this condition, the *hararate ghariziyah* (innate heat) is greatly affected by various causes, which may produce *barudat-e-badan* (coldness in the body), which can subsequently contribute to the emergence of diverse metabolic dysfunctions. The *barudat-e-badan* (coldness in the body) engenders an impairment in the body's capacity to adequately assimilate *fuzlat* (undigested waste molecules), culminating in the progressive accumulation of unutilized constituents within the blood vessels and interstitial compartments various organs (Nasir, 2013, pp. 1–8). The excess of *barudat* (coldness), which results in the narrowing of the blood vessels because of the accretion of abnormal phlegm in the lumen. The pathophysiology of *Saktaa* (stroke), *Jiryaanud dam* (haemorrhage), and sudden death has been linked to the narrowing of blood vessels (atherosclerosis).

So, the emphasis is given to *Istifragh* (evacuate) the deranged humours from the body or *Imala* (divert) them to a route from which they can be eliminated easily to restore health.

In a meta-analysis of seven randomized controlled trials (n = 380) assessing the efficacy of *Muqil/Guggulu* (*Commiphora mukul*) in hypercholesterolemia, Gyawali et al. (2021) demonstrated significant lipid-lowering outcomes compared to placebo. *Guggulu* administration reduced serum total cholesterol (TC) by 16.78 mg/dL (95% CI: 30.96 to 2.61mg/dL, p = 0.02) and low-density lipoprotein cholesterol (LDL-C) by 18.78 mg/dL (95% CI: 34.07 to 3.48 mg/dL, p = 0.02) (Gyawali, et al., 2021, pp. 1–24).

Singh et al. (1993) recruited 200 people with ischemic heart disease for research to assess the cardioprotective effects of guggul. The patient's total cholesterol, triglyceride, and blood lipid levels were decreased due to their six-month treatment with gum guggul and *Inula racemosa*. Additionally, it returned the electrocardiogram (ECG) to normal in 26% of the patients, improved the ECG in 59% of the patients, and reduced



chest discomfort in 25% (Singh, et al., 2008, pp. 147–60).

Gum resin *Muqil* / *Guggulu* (*Commiphora mukul*) has several pharmacological actions, but its hypolipidemic, anti-obesity, anti-inflammatory, cardioprotective, and hepatoprotective effects are particularly notable (Kunnumakkara, et al., 2018, p. 686). More in vitro, and in vivo, investigations, and carefully planned clinical trials, are needed to confirm guggul's clinical utility.

In a clinical trial evaluating an integrative intervention for hyperlipidaemia, Rauf et al. (2020) investigated the combined effects of *Safufe Muhazzil*, structured lifestyle modifications, and daily yoga practices over a 12-week period. Participants received 5 g of *Safufe Muhazzil* orally twice daily, paired with a low-fat, low-carbohydrate dietary regimen.

Following the 12-week intervention, statistically significant reductions were observed across all primary metabolic and lipid markers: body mass index (BMI) decreased by 4.29% ($p < 0.05$), total serum cholesterol by 11.77% ($p < 0.01$), serum triglycerides by 19.31% ($p < 0.01$), very low-density lipoprotein cholesterol (VLDL-C) by 6.38% ($p < 0.05$), and low-density lipoprotein cholesterol (LDL-C) by 19.80% ($p < 0.01$) (Rauf, et al., 2020, pp. 1274–1283). A randomized controlled trial on 90 patients was conducted by Jahangir et al. to assess the efficacy and tolerability of *Safufe Muhazzil* in the treatment of hyperlipidaemia. Patients having a total cholesterol level of more than 220 mg/dl were randomly assigned to one of three treatment groups (Jahangir, et al., 2014, pp. 167–79). Group 'A' received 5 g of *Safufe Muhazzil* orally twice a day, Group 'B' received 5 crushed tablets of *Safufe Muhazzil* at the same dosage, and Group 'C' received a tablet containing 10 mg of atorvastatin for six weeks. The second, fourth, and sixth weeks all had follow-ups. All the groups experienced significant reductions in total cholesterol ($p < 0.001$), with percentage drops in group A of 7.35 %, group B of 9.11 %, and group C of 26.3 %. The results show that the test medication decreases cholesterol levels safely and efficiently.

To facilitate the translation of these traditional Persian and Unani therapeutics into mainstream clinical practice for the prevention and management of dyslipidaemia, further rigorous scientific validation is needed. Conducting well-designed, large-scale, randomized controlled trials (RCTs) is essential to definitively establish their clinical efficacy, long-term safety profiles, and molecular mechanisms of action.

Conclusion

The etiopathogenesis of dyslipidaemia, as explored through the lens of Persian and Unani medicine, highlights a multifaceted interplay of dietary, behavioural factors like Raahat wa Farhat (Pleasant life, unnecessary rest, and lack of exercise), Sarwat (Luxurious lifestyle) and intrinsic factors that contribute to this complex condition. The insights derived from ancient physicians underscore the significance of maintaining a balanced lifestyle and diet to mitigate the risks associated with dyslipidaemia. The accumulation of undigested humours and the resulting metabolic disruptions elucidate the critical role of hepatic function in maintaining overall health.

The therapeutic approaches rooted in Persian principles—ranging from diet modi-



fications to regimenal therapies and pharmacotherapy present a holistic framework for managing dyslipidaemia. These methods not only emphasize the importance of individualized treatment but also reflect a broader understanding of health as a balance of bodily humours.

Contemporary research supports the efficacy of these traditional strategies, indicating their potential in lowering cholesterol levels and enhancing overall cardiovascular health. However, further investigations are essential to validate the clinical utility of these remedies and their integration into modern therapeutic paradigms. By bridging ancient wisdom with modern scientific inquiry, we can develop comprehensive strategies for preventing and treating dyslipidaemia, ultimately improving patient outcomes, and promoting long-term health.

Acknowledgements

The authors are grateful to Prof. Mohd. Anwar, Professor & Chairman, Department of Ilaj Bil Tadbeer, AMU, Aligarh and wish to express their heartfelt thanks to the librarian faculty of Unani Medicine, AMU, Aligarh for his favourable attitude and moral support.

Authors' Contribution

Conceptualization, design of the study, and drafted done by S M Ahmer. Ataullah Fahad helped in the collection of necessary Arabic textbooks and their translations. All authors read and approved the final version of the work.

Funding

This study was conducted without any financial support or grants from public, commercial, or non-profit funding bodies.

Conflict of Interest

None.

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