



The Hippocratic View on Humors and Human Temperament

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Published online: 19 October 2015

Abstract: A quintessential element in Hippocratic medicine is the theory of humors: The human body contains four basic substances, called humors. Their relative proportions in the human body regulate the human temperament and its behavioral manifestations, and their correct balance defines 'health'. Hippocrates, a founding father of ancient-world medicine, systematically observed human temperaments and behaviors, and concluded that besides physiology, they are greatly influenced by environmental factors and geography, thus setting the stage for holistic approaches.

Keywords: theory of humors, environment, temperament, eucrasia, Hippocrates

Acknowledgement: This is an original paper that presents personal views of the author(s).

Introduction

Hippocrates (460-370 B.C.) is the most famous ancient Greek physician; Outstandingly, his pioneering, rigorous scientific *modus operandi* impacted not only Medicine but Science in general. *Coprus Hippocraticum* covers numerous medical fields (among others: Pathology, Trauma and Emergency Medicine, Neurology, Gynecology), always trying to understand and cure disease scientifically, rather than superstitiously. Before the Hippocratic times, disease was regarded as divine punishment for sins, and any treatments were performed by priests. Their contributions were significant, yet, their approaches, if not superstitious, often lacked scientific rationale (e.g. *Lithika* of Orpheus describes healing properties of stones).

Hippocrates targeted real bases for disease using more determinism and causality, as inspired by contemporary genius Presocratic philosophers. Notably, Democritus, was a mentor to Hippocrates, and probably a dear friend to whom he would offer

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unlimited medical help if called or in need. This article presents Hippocrates' theory of humors as catalytic ingredients within the human body, also shaping human character.

Hippocratic theory of humors

Hippocrates was a student of the revolutionizing omniscientist Democritus who explicitly stated 'atoms' ('further indivisible' particles) and void as the ultimate blocks of Matter (Aristotle 1924). Thus, Nature's fundamental forms are defined entities moving according to a law of vacuum and relatively independent of other external influences (Kalachanis et al. 2014). In a similar context, Hippocrates attempted to identify the basic constituents of the human body. He therefore propounded the existence of four basic humors, per the four basic elements of the Universe (Nemesius 4, 8-12), and four secreting organs, as follows:

HUMOR	ELEMENT	ORGAN
YELLOW BILE	FIRE	LIVER
BLACK BILE	EARTH	SPLEEN
WATER	PHLEGM	BRAIN
BLOOD	AIR	HEART

The four humors are very crucial for the body, since their harmonious mix maintains healthy states. Health absolutely requires the correct humor proportions. Consequently, humor excesses and/or shortages trigger the pathophysiology of disease. Thus, these elements cannot mix randomly at all (Hippocrates, *De Natura Homini*, 4, 1-9). The state of harmonious mixing of the humors is called eucrasia, recorded by Aristotle (Aristotle 1956, 673b, 26), whereas humor imbalance is dyscrasia.

This Hippocratic notion, however, of the *correct ratio* of humors refers us to Mathematics, and a quantitative approach in Medicine. It has been argued that within (or beyond) the Hippocratic work, "knowledge of geometry and numerology is very useful in Medical Physiology, Pathophysiology, Orthopedics, Pathologic Anatomy and Therapeutic" (Eftichiadis 1995). Importantly, for those physicians who diagnose patients and treat them directly, it is vital to understand the precise dosages of all drugs to be administered (Kalachanis 2011).

Despite the fact that modern Science has pointed away from those four Hippocratic humors, there remains a compellingly common point with Hippocratic notions: the existence of basic biochemical substances and building blocks in the body. For example, our genetic material DNA is made of nucleotides containing the, coincidentally four as well, bases adenine (A), cytosine (C), guanine (G) and thymine (T). Nucleotides mix to construct genes and chromosomes with ultra-high precision in their amounts as well as sequence.

Humors and human behavior

From the core of its foundation, Hippocratic Medicine is not restricted to the diseases of the body, but also makes sure to study human personality, raising Mind-Body issues similarly to modern Science. In this context, Hippocrates supported the view that the ratio of the humors in the human body greatly influences temperament, leading to four basic types of people and behaviors shown on table 1 (Keirse 1998).

Table 1: The correlation between humors, organs and temperaments which shows that human physiology has a major impact on human behavior.

HUMOR	ORGAN	TEMPERAMENT	ATTRIBUTES OF CHARACTER
Blood	Heart	Sanguine	courageous, hopeful, playful, care-free
Yellow Bile	Liver	Choleric	ambitious, leader-like, restless, easily angered
Black Bile	Spleen	Melancholic	despondent, quiet, analytical, serious
Phlegm	Brain	Phlegmatic	calm, thoughtful, patient, peaceful

Thus, obviously humor proportions in the human body do not only contribute to its health state, but also serve to predict and/or indicate character types. Besides the effects of humors, Hippocrates supports the view that environmental factors may also directly impact the human temperament: Both the temperament and the mood of the inhabitants of a particular region are subject to changes by factors such as the ambient air, its weather, and its general conditions. The fact that changes not only in mood but also in productivity correlate to weather conditions (Barnston 1988), is supportive of Hippocrates' view, suggesting that the human psychological state is indeed influenced decisively by the environmental circumstances.

Hippocrates, having himself travelled to many regions of the ancient world, had made his own original observations on the potential connection between human temperament and residential locus: "Tribes living in countries rugged, elevated, and well-watered, and where the changes of the seasons are very great, are likely to have great variety of shapes among them, and to be naturally of an enterprising and warlike disposition; and such persons are apt to have no little of the savage and ferocious in their nature;" On the other hand, people living in low-lying places which are not properly ventilated and exposed into warm winds instead of cold, are not courageous and also are not capable of performing laborious enterprises (Hippocrates 1840, 24, 4-10).

Conclusion

In summary, according to Hippocrates, the human body contains four basic element-humors, whose harmonious proportions are a catalyst for maintaining health. Moreover, also dependent on the proportions of these humors in our bodies, are many attributes of our temperaments and characters. Finally, in addition to humors, temperament and behavior are decisively influenced by the environment as well, especially the one containing our place of residence. In this context, choosing a place to live is a decision that may not only affect our health via its potential environmental effects, but can also regulate our temperament.

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