Concepts of Health and Medicine in Ferdowsi’s Shahnameh

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Abstract
Shahnameh (The Book of Kings) is a national epic of Iran and Farsi speaking territories. Shahnameh contains more than 50,000 couplets composed by Hakim Abu ‘l-Qasim Ferdowsi Tusi (940–1020 AD). There are many philosophical, social, ethical, and romantic as well as health and medical concepts in the content of Shahnameh. To mention a few, the stories of Simurgh, Alexander and the Indian physician, Borzuyeh Tabib as well as some diseases, treatments, psychological disorders, and injuries inflicted in the battles are presented in the context of Shahnameh. Ferdowsi also used some medical terminologies to describe his literary concepts. This brief review describes the antiquity and originality of medicine in Iran and reviews the health and medical concepts in the Shahnameh. Several examples of couplets in Farsi are selected to adapt with the English text.

Keywords: Ferdowsi; history of medicine; medicine in the Farsi literature, Shahnameh, Simurgh

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Introduction
Shahnameh (The Book of Kings) is a long epic poem written by the Persian poet Hakim Abu ‘l-Qasim Ferdowsi Tusi (940–1020 AD), between c. 977 and 1010 AD. (Figure 1) Shahnameh is a national epic of Iranians and Farsi speaking people. Shahnameh with more than 50,000 couplets is considered as the bible of Farsi language (1, 2).

Keyumars, who became the first king to the reign of Fereydon. The “heroic age” was from the uprising of Kaveh and the reign of Manuchehr until the reign of Bahman the son of Esfandiar and the death of Rostam. The “historical age” was from the reign of Bahman and the conquest of Persia by Alexander until the conquest of Persia by Arabs and the fall of the Sassanids (224 - 651 AD) (1, 3).

After the conquest of Persia (331 BC) by Alexander (356 –323 BC) almost every written document including the health and medical subjects were burned to ashes. In the old ages, health and medicine were not divided from...
religions. Our very limited knowledge about the health and medicine concepts in the ancient Persia has been extracted from the Zoroastrian’s religious texts (4). The oldest known medical treatise in the Persian language is Hedayat al-Motaallemin. It was written in the medieval period by Abubakr Rabi-ibn Ahmad Akhawayni Bukhari (? - 983 AD) (5). Therefore, Shahnameh is a valuable source of the health and medical concepts in the ancient Persia.

There are many philosophical, social, ethical, and romantic as well as health and medical concepts in the content of Shahnameh (6). This concise review describes the antiquity and originality of medicine in Iran and reviews the health and medical concepts in the Shahnameh. Several examples of couplets in Farsi are selected to adapt with the English text.

The Art of Medicine and Physicians:

In the ancient Persia treatments were divided into three groups: the priests provided spiritual treatments, physicians provided treatment with drugs, and surgeons provided treatments with knives.

According to the myths of Shanameh, the king Jamshid introduced sciences, crafts, and arts for the welfare of the people. Jamshid is credited as the first king who introduced the art of medicine for the health, pain relief, and treatment of the people’s ailments.²

The words “Pezeshk” (Farsi for physician) and “Parastar” (Farsi for nurse) are rooted from the Zoroastrian literature and are mentioned several times in Shahnameh. The word “Pezeshk” is repeated 57 times in the context of the Shahnameh. In the story of Zahhak, physicians had consulted about the treatment; however, their treatments were not successful.

Examples of couplets that mention the word “Pezeshk”:

1. در تندرستی و راه گردند پزشکی و دارمان هر درد مند
2. چنان هم که دیوانه خواهد پزشک
3. پزشکان داناد و ناموران
4. پزشکان داناد و ناموران
5. به ایران زمین باز بردنیشان
6. به دارمان آتناش پزشک
7. ز هر روانگیها ساختند
8. ز هر روانگیها ساختند
9. توان بیشتری ما را دید پزشک
10. پزشکان داننده را خواند
11. به نزدیک ناهید بنشانند
12. بمالید بر کام او بر پزشک
13. بفرمود تا رفت پیشش پزشک
14. که علت بگفتی چو دیدی سرشک
15. فغستان ببارید خونین سرشک
16. همی رفت با فیلسوف و پزشک
17. به داننگی نام کرد بلند
18. سوم انک دارم یکی نو پزشک
19. که علت بگوید چو بیند سرشک
20. فغستان ببارید خونین سرشک

² The words “Pezeshk” (Farsi for physician) and “Parastar” (Farsi for nurse) are rooted from the Zoroastrian literature and are mentioned several times in Shahnameh. The word “Pezeshk” is repeated 57 times in the context of the Shahnameh. In the story of Zahhak, physicians had consulted about the treatment; however, their treatments were not successful.
³ Examples of couplets that mention the word “Pezeshk”:
⁴ In the ancient Persia treatments were divided into three groups: the priests provided spiritual treatments, physicians provided treatment with drugs, and surgeons provided treatments with knives.
⁵ According to the myths of Shanameh, the king Jamshid introduced sciences, crafts, and arts for the welfare of the people. Jamshid is credited as the first king who introduced the art of medicine for the health, pain relief, and treatment of the people’s ailments.
In Shahnameh the word “Parastar” is used for a person who offers humble care. The meaning is comparable with the today’s sensitive and dignity careers of the nurses. The word “Parastar” is repeated 63 times in the context of the Shahnameh.

Examples of couplets that mention the word “Parastar”:

- Bimarestan (Hospital in English) was a place used to keep the psychopaths and physically injured individuals.
The word “bimarestan” is repeated 8 times in the context of the Shahnameh. Godarz told Kavus that a hospital is a more appropriate place than a town for him because of his careless and crazy acts.\textsuperscript{6}

Key-Khosrow humiliated Tus by telling that he must be fastened in a hospital because of his defeats and ineptitudes.\textsuperscript{7}
In a dream, Afrasiab saw that the town is changed into a hospital because of crowds of wounded people. Establishment or existence of a hospital was an important event. Therefore, the poet has indicated the hospitals in the kings’ resumes. Shapur II established a city in Ahwaz. In that city he built a palace and a hospital. The hospital later became the most important medical center of the ancient Persia known as the Academy of Gondishapur. The corpse of Mani, the prophet, was hanged on the wall of that hospital for a period of time.

Ghobad established a hospital in the Arran region.

When a city is destroyed, the hospital will also be ruined.

Khosrw came to a city named Origh in which there was a hospital.

Patient (bimar in Farsi)

Simurgh: 

Undoubtedly, the birth of Rostam is the most impressive example of the role of Shahnameh in the medical history. Simurgh (Figure 2) was as a sage magical bird with the knowledge of medicine, surgery, and healing wounds (7, 8).

There were difficulties in the birth of Rostam. Zal, the father, summoned Simurgh by burning its feather. Simurgh appeared and instructed a Zoroastrian priests how to kill pain and anesthetized the mother by consuming wine, cutting the mother’s flank, extracting the baby, suturing the incision and dressing with a mixture of milk, musk, and herbs.

Then a priest performed the procedure. The surgery was uneventful. The mother was asleep without pain the next day. The mother fully recovered to raise her child.

This account is in contrast with the history of cesarean in the roman history in which the mothers expired by the surgeries.

Simurgh also helped Rostam (Figure 3) and his horse (Raksh) to recover from the arrows wounds inflicted...
during the battle with Isfandiyar (Figure 4). The Rostam’s chest wound was debrided, cleaned, and dressed (8, 9). It has suggested that the sketch of Simurgh shall be considered as the symbol medicine in Iran (8).

**Figure 1:** Statue of Ferdowsi and Shahnameh stories in Delfan, Iran. (Adopted from Wikipedia under the Creative Commons Attribution-Share Alike 4.0 International license, available at: https://en.wikipedia.org/wiki/File:Statue_of_Ferdowsi_and_Shahname_in_Delfan.jpg)

**Figure 2:** Simurgh on Sasanid silver plate. (Adopted from Wikipedia under the Creative Commons Attribution-Share Alike 2.0 Generic license. available at: https://en.wikipedia.org/wiki/File:Sassanid_silver_plate_by_Nickmard_Khoey.jpg)
Relation between patient and physician:

On the relation between the patient and physician the poets admonishes that patients shall disclose secrets to physicians and present a correct medical history.16
Alexander and the Indian physician

After the conquest of Persia, Alexander contemplated to invade India. The Indian king, Kaid dreamed strange subjects on ten subsequent nights. In a dream he saw that there was a city that the citizens were all blinded; however, the people were not upset and ignored their blindness. In the subsequent night Kaid dreamed that the ill people visited the healthy people. The first dream was interpreted by a foreteller that people become self-blinded and are not able to see each other because of their lucrative businesses and trades. The other dream was interpreted that the time has changed and the wise people are humiliated and forced to serve the unwise people. The foreteller told Kaid that he had four things that there is no counterpart for them in the world. The foreteller advised Kaid to present the four precious gifts to Alexander to prevent the invasion and save his kingdom.\(^\text{17}\)

Among the gifts, there was a wise physician who was able to diagnose the diseases by examining the urine (uroscopy).\(^\text{18}\)

Alexander decided to examine the Indian physician. He questioned the physician that what the origin of the ailments is. The physician answered that it is overeating. He continued that who overeats and does not observe his eating will loss his health.\(^\text{19}\)

Then, the physician collected some medicinal plants from the mountain and mixed them to prepare an antidote (Theriac). The physician washed the Alexander’s body with that mixture which endorsed health for him for years.\(^\text{20}\)

That treatment reduced the Alexander’s sensuality and his adverse habit of excessive relations with the women. After a night that Alexander slept alone, he felt better and there was no need for further treatment.\(^\text{21}\)
Alexander became happy and rewarded the physician for his treatments.22

Alexander looked for a panacea to treat all the ailments and a medicine for immortality. Alexander continued his expeditions and adventures to look for the “water of life” (the Fountain of Youth). It was believed that life longevity will increase in anyone who drinks or bathes in its waters. He did not find the “water of life”; however, he was told that the secret of life longevity is knowledge.

**Borzuyeh Tabib:** Kašra Anushirvan used to decorate his court with Zoroastrian priests, artists, foretellers, eloquents and scientists. Among the entourages was Borzuyeh Tabib, a prominent Persian physician (10). He had read about a plant that was able to make alive the deceased in the Indian literature. Therefore, he arranged an expedition to India to find a total cure and the treatment for death. He did not find the panacea, but he was advised by a sage that immortality is along with knowledge. The sage introduced the book of Kalīlē ve Demneh. Borzuyeh Tabib brought the book as a gift to Anushirvan. The book was written in Sanskrit; however, it was translated by Bozorgmehr to Pahlavi language and later it was translated to Arabic and Farsi languages.23

Along with the mentioned famous physician in Shahnameh, some treatments were prescribed by anonymous physicians. Keykavus and his army were blinded by the witchery of the white demon. Their eyes were cured by a collyrium extracted from the liver and brain of the perished white demon.24

**Medicinal plants**

Several aromatic substances such as camphor, musk, amber (whale’s amber, ambergris), incense and rosewater are mentioned in Shahnameh. Persians were familiar with the medical applications of these substances and used them in raw, boiled, burned and extracted by distillation forms.

Medicine in the ancient Persia was based on botany. Several medicinal plants such as Albizia saman tree25, jujube, turmeric, saffron, sagebrush from Artemisia species 26, chicory27, apple, viscum28, garlic29.
papaveraceae, sandalwood, colocynth, adiantum, capillus-veneris, haoma from Ephedra vulgaris, and zhazh plant are mentioned in Shahnameh.

There are disagreements about the zhazh plant; however, it might be a form of the Alhagi, Ziziphora clinopodioides and Cirsium vulgare species. Ephedrine, a stimulant alkaloid, can be extracted from Ephedra vulgaris. It is a legendary drug described in the sacred texts of the Zoroastrian and Hindu faiths; the Avesta and the Rig Veda. The remedies prepared from roots, stalk, barks, fruits, leaves, and flowers of the medicinal plants were used orally; as inhalations or topical unguents.

Some mixtures and concoctions were used for lulling to sleep and anesthesia. In the story of the Bijan and Manijeh, Bijan was lulled to sleep with a mixture of wine and recovered the next day by an oil antidote.

The today’s meaning of the word “Theriac” which denotes opium is different from the meaning in Shahnameh. In Shahnameh, the word “Theriac” denotes an antidote to all known poisons and it is repeated several times.

The ancients believed that there was a medicine that would be a cure to all ailments and prolong the life indefinitely. Alexander and Borzuyeh Tabib searched for it but they failed to find that panacea. In the Rostam and Sohrab tragedy, Sohrab was wounded by Rostam’s dragger. When Rostam realized that Sohrab was his son he asked for the panacea that was kept in the king’s treasury to manage the impending death of Sohrab. The king hesitated to send the panacea, at last when the panacea arrived it was too late and Sohrab had already expired. This story became a proverb in Farsi that denotes that a panacea after the death is useless.

In the old ages, it was believed that some diseases could be expelled from the body through the gastrointestinal tract. Therefore, to clean the bowel, prescription of the laxatives purgatives was a common treatment.

Abortion: In the Siavash story, Ferdowsi tells about an intentional abortion by drug with unclean aims.
Foul mouth odor: Nahid, the Alexander’s mother, had a foul mouth odor. Durab, the king, was disturbed from that smelling and summoned the physicians to treat her. The physicians treated her by rubbing garlic to her palates. Although the patient’s mouth burned and she cried, she was cured(14).

Castration: Ardashir killed Ardavan and married his daughter to get access to his treasures45.

The wife (Ardavan’s daughter) tried to kill Ardashir by poison. The plot was unsuccessful. Ardashir ordered to kill his wife, but she was pregnant. The Ardashir’s minister disobeyed the order and hid the wife. Later she gave birth to a son. To prevent of accusation of illegitimate relation with the Ardashir’s wife and keeping the son’s name clean, the minister castrated himself by excision of his both testicles. Later, Ardashir became upset because he had no son and there was no crown prince. Then the minister disclosed the secret.

The minister proved his loyalty, honesty, and trusteeship by performing bilateral orchiectomy for himself46.

Snake bite: In a conversation between Ghabod and Mazdak, Mazdak asked what shall be done to a person who does not present the antidote of snake poison to a snake-bitten individual to save his life. Ghabod answered that an individual who does not present or hide the antidote shall be punished as a murderer. Although Ferdowsi indicated an antidote for the snake bites in the poem, it is not clear what antidote ingredients were and how they were used to treat snake poisoning in that time47.

Inheritance:

Although, in the Ferdowsi’s time nobody knew the science of genetic disorders and inheritance, he believed in physical and temperament inheritance in the human beings and emphasized on the effects of race, decent, nature, and blood48 on the human beings49.
In the boasting and self-praising between Rostam and Hooman, a Turani warrior, Rostam tells that the decedent of Viseh’s race are trickster. (indicating behavior and morals)50

Physical similarities and appearance through the decedents and generations: The newborn Sohrab was very similar to his ancestors51.

Today, we know that the risk of genetic disorders increases with maternal age. In a couplet the poet said: “An old aged mother gives birth to a vain descendent”52.

Giv identified Khosrow from his black mole which was inherited from his father Siavash53.

The inheritance sign in the Key-Ghobad dynasty was a black mole in the arm. Key-Khosrow and Froud were brothers and the sons of Siavash. They were identified by the presence of the black mole in their arms which was inherited from their father (Siavash), grandfather (Key-Kavus), and grand grandfather (Key-Ghobad)54.

The birth story of Zal is the most prominent example of Albinism in the Farsi literature. Zal was born with white hairs, eyelashes, and skin color. His face and lips were bloody reddish. His father, Sam, ashamed and believed that his son’s premature aging was a punishment for his deeds. So, he deserted the newborn in the mountains. However, the son was found and raised by Simugh and became one of the healthy, strong, and great Persian warriors in Shahnameh. He later became a legendary Persian King who ruled over Zabulistan55.

The inferred admonishment of this story is that albinism is not a shame56.

Now we know that Zal had Albinism and not progeria. The word “zaly” (white hair in Farsi) stands for Albinism and is rooted in that story.

Diseases:
Some diseases are used as a curse in the context. Key-khosrow in his declaration of conquered praised Kavus and wished his greatness be connected with mountain and wished illness for his malevolent57.
In the story of Siavash and Afrasiab, Siavash is blessed and his malevolent was cursed to develop kyphosis\(^58\).

In the battle between the Key-Khosrow and Touranian in the revenge for the Siavash’s blood, the malevolent are cursed to develop their face to yellow color. It may be inferred that the yellow face is a metonymy of jaundice\(^59\).

In the confrontation between Godarz (the Iranian’s commander) and Piran (the Turanian’ commander), Fariborz (an Iranian warrior) killed the Kolbad (a Turanian warrior). Then, Fariborz wished victory for his commander and liver sickness for the king’s enemy. Liver sickness is a metaphor of sadness, tiredness, exhaustion, and weariness\(^60\).

Wishing back (spine) fracture for malevolent\(^61\):

Wishing blindness for malevolent\(^62\):

The swelling in the anterior of the neck\(^63\) was mentioned as a curse for the enemies. It may be inferred that the implication of the poet was probably goiter\(^64\).

**Kyphosis as disease:** humpbacked as a metaphor\(^65\):

**Vitiligo:** In the old ages skin discoloration was considered as a sign of leprosy. Vitiligo\(^66\) and skin disolorations were considered as demonic disease\(^67\).

**Epistaxis:** Yazdegard developed epistaxis. The physician’s treatments were not effective. His complaint continued intermittently. A priest advised him to wash his head from the water of a special spring. Yazdegard went to that spring to treat his problem. A hippopotamus came out of the spring. He proudly tried to ride the hippopotamus; however, the animal kicked the king and he died\(^68\).
Hemoptysis:

It was believed that the liver was the center of circulation. Extrusion of the Liver’s blood was a common cause of death.

Simulation of disease: After the defeat of Yazdgerd from Saad Vaghas, Yazdgerd retreated to Tus where was ruled by Mahoy Suri; however, he avoided to help Yazdgerd and Farokhzad Hormozd by disease simulation.

Literary use of the medical terminology:

Blood is the most literary used word. The word “blood” is used as an adjective for the words: sea, river, wave, stream, spring, pond, plain, desert, and rain to intensify the descriptions. The blood stands for anger, regret, killing, tear, sadness, and pain. The word “blood” is also used as metonymy and is substituted for tear to increase the excitement and affections.

The hands washed by blood.

Blood relationship:

Afrasiab ordered to kill the innocent Siavash because of gossips and a conspiracy prepared by Garsivarz. The “Siavah’s blood” is a metonymy of an innocent’s blood.

A combination of the words “liver” and “blood” denotes sadness, exhaustion, and weariness:

Skin discoloration (Vitiligo) was used as a sign of hypocrisy.
Vitiligo was used as an adjective for Saad Vaghās who was the commander of the Arab’s army during the invasion to Iran.

The poet wishes pain of an arrow wound for Saad Vaghās:

Humpbacked and gibbosity are metaphors of the world and sky and their graceless happenings.

**Traumatic injuries of the combatants**

A majority of the kings and heroes were killed in the battles and hostilities. However, the descriptions of the injuries are not clear. In the battle between the Gushthasp (Iranian King) and Arjasp (Turanian king), of the thirty thousand killed Iranians, seven hundreds of them were famous. There were 1163 celebrities among the 100000 killed Turanians. 1040 Iranians and 3200 Turianians were injured from the battle wounds. All the wounded soldiers were carried to Iran and were treated by the wise physicians. In that battle the Iranian’s flag (Derafsh Kaviani) was felt down. Gerami, the Jamasp’s son, took the flag from the ground and cleared it from the blood and soil. The enemies cut off the Gerami’s hand; however, he took the flag with his teethes and saved the flag. He was killed in the battle later.

In a letter from Alexander to the wife and daughter of Dara, Alexander wished that God give the wages of the righteous for the wife and daughter of Dara and an arrow wound for the malevolent.

**Amputation:** Bahram and Farud lost his upper limbs through their shoulders and died because of their wounds.

Farud:

Bahram:

Amputation was used for punishment:

The enemies cut off the Gerami’s hand; however, he took the flag with his teethes and saved the flag.
Khosrow Parviz ordered to cut off the hands and feet of the assassin of his father.\(^{88}\)

Amputation was a title for Shapur II. He had used a cruel way of punishment for the Arabs. He pierced the shoulders and cut them off. He was titled Dhū al-aktāf ("who pierces the shoulders") by Arabs. \(^{89}\)

Shapur II established a city, named Khoram Abad, for the captives. The city was supervised by a man whose hand had been cut off before. \(^{90}\)

Amputation has been used as a curse for the malevolent: \(^{91}\)

Barbad was a skilled and favorite court musician during the rule of Khosro Parviz. When he was acknowledged of the execution of Khosro Parviz, he cried, burned his playing instruments and cut off his four fingers so as not to play music for malevolent. \(^{92}\)

Bijan ordered to mutilate Mahoy Suri to punish his treason. \(^{93}\)

**Fracture:** Piran’s arm was fractured in the battle. Siamak died because of a fracture (the fracture was not specified \(^{94}\)).

Fracture used for torture: \(^{95}\)

Bleeding from the Godarz arm: \(^{96}\)

Skull fracture and extruding the brain because of mace impact was a common cause of death.

Piercing of the liver (liver may also stands for lung) by spears or lancets was a common cause of death.

Chopping (cutting) off the head (decapitation) was used as an act of execution or an act of “coup de grace”. \(^{97}\)

Gostaham was heavily wounded and there was no hope for his survival. Key-Khosrow collected a team of
physicians from Asia Minor (Anatolian peninsula), India, China, Greece, and Iran to treat the Gostaham.98

During the first battle between Rostam and Isfandiyar, Rostam and his horse (Raksh) were heavily wounded by the arrows thrown by Isfandiyar. Rostam feared death. Therefore, he asked help from Simurgh, the magical bird. Simurgh looked inside the wounds and removed four arrow heads from Rostam and six arrow heads from the Raksh’s neck by its beak. Then the bird cleared and removed blood from the wounds by its beak. The treatment provided by Simurgh presents the concept of exploring, removing foreign bodies and debridement of the battle wounds.

Then, Simurgh told Rostam that Isfandiyar’s eyes were his weak points and instructed Rostom to prepare a special arrow. Then, Rostam killed Isfandiyar by the arrow thrown to his eye.99

**Death of the Bahram Choobineh:**

The death story of Bahram Choobineh is not unrelated to medicine. Bahram Choobineh was a great commander of Hormozd. Because of cruelty and injustice the people and army upraised against Hormozd and he was imprisoned. Then he became blinded by cauterization. In the aftermath, Bahram Choobineh believed that he had the qualifications to reign.

Therefore, he competed with Khosrow Parvis, who was the son of Hormozd, to capture the Sassanid throne. Khosrow Parvis defeat Bahram and he was forced to escape to China’s Khaghan to seek for a safe haven. Khaghan welcomed Bahram and he married with the Khaghan’s daughter. Kharad Barzin was a sage in the Khosrow Parvis court. Kharad Barzin went after Bahram to Khaghan’s court. He talked with Khaghan in private about the Bahram’s affairs; however, he realized that Bahram was welcomed by Khaghan and they had vicious contemplation to invade Iran.

Kharad Barzin visited an alderman in the Khaghan’s court. The Khaghan’s daughter was sick and the alderman asked Kharad Barzin whether he had knowledge of medicine or not. Kharad Barzin’s answer was positive and he as a physician, disguising his real career, visited the Khaghan’s daughter and diagnosed that she had a liver disease. He treated the daughter’s ailment with pomegranate juice and chicory100. After seven days the patient got well and the daughter wanted to compensate the physician’s work.

Meanwhile, Kharad Barzin met an old man and tempted him to kill the disobedient Bahram Choobineh. However, he must found a good excuse and cover for the assassin to send him close to Bahram. To keep the
preparation of the invasion to Iran in secret, Khaghan had forbidden any travel toward Iran unless his permission endorsed by his seal. Khabad Barzin forged a copy of the Khaghan’s seal with the help of the daughter. The daughter helped Khabad Barzin because of a compensation for the physician’s favor. Khabad Barzin instructed the assassin that he must pretend as a messenger and he had a secret message from the Khaghan’s daughter that must be told in the ears of Bahram. The message was that the Khaghan’s daughter was pregnant. Bahram admitted the messenger. When the messenger came close to Bahram’s ears to tell the message, he stabbed Bahram with a hidden dragger in his sleeves. Bahram died after two days because of continuous bleeding. The assassin was tortured. Although his hands and feet were fractured, he did not disclose who had assigned him for the mission.

Killing by poisoning:

Hormozd killed his father’s friends. One them was a priest who was killed by poison in his food. Hormozd plotted to kill his son, Khosro Parviz, by pouring poison in his wine:

Shirin was the wife of Khosro Parviz. She killed Maryam, the other wife of Khosro Parviz because of jealousy:

Shiroye the son of Khosro Parviz and his successor was killed by poison:

Farokhzad was killed by mixing poison with his wine:
**Suffocation:** Gordoyeh killed Gostaham:\(^{108}\)

Piroz Khosrow killed Ardashir the son of shiroyeh.\(^ {109} \)

Hormozd got blind by cauterization. He was later hanged and suffocated with an arch string.\(^ {110} \)

**Killing by burning:** Bahram Choobineh was followed by Khosrow Parviz army which was commanded by Nastoh. Bahram’s army went to a canebrake. Nastoh followed Bahram to the canebrake; however, Bahram set fire to the canebrake. Some were killed and some were burned, so Khosrow Parviz army was dispersed.\(^ {111} \)

**Health:**\(^ {112} \)

The admonishments and recommendations for the health are dispersed through the context of Shahnameh. Shahnameh recommends keeping the body, clothes, and foods clean. Shahnameh advise to keep a balance in eating and drinking.

The advices are presented on behalf of the wise men, sages, and experienced fathers to their sons.\(^ {113} \)

Shahnameh advises to avoid indulgence in consumption of wine.\(^ {114} \)

In reproach of drunkenness, the poet presents an exemplary story. Bahram was happy because he killed a lion in the hunting ground. Bahram and his entourages prepared a banquet and an orchard man brought some fruits for Bahram. The man had used to drink wine; however, he overindulged and drank too much wine in the king’s circle. On the way to his village, the man came down from his horse and became unconscious. A crow extracted his eyes and he deceased. Then, Bahram became upset and banned consumption of wine.\(^ {115} \)
Adverse effects of overeating: in the sixth banquet of Anushiravan, Buzarjumehr and Zoroastrian priests, Buzarjumehr admonished that avoiding overeating and eating less bring comfort.\textsuperscript{116}

Psychological disorders and psychology of the characters in Shahnameh

Ferdowsi described grief-related depression for two mothers who lost their beloved children. The first example is about Rudabeh who was the Rostam’s mother. In the aftermath of the death of Rostam, Rudabeh stopped eating because of the grief and mourning for his son. After a one-week of self-starvation, she lost her weight excessively and her eyesight was reduced. The poet has described an eating disorder and anorexia as a symptom of a complicated grief and depression. Consequently, she developed a disorder of perception because she intended to eat a dead snake found in water (11).\textsuperscript{117}

The second example is about Talkhand and invention of chess. Talkhand was surrendered in a battle; however, when the enemy approached to Talkhand, he was found dead. Talkhand’s death plunged his mother into deep sorrow. Chess was invented to describe the situation of Talkhand in the battle to his mother. Talkhand’s mother watched and studied chess days and nights until her death. (12)\textsuperscript{118}

Analysis of the overt and covert described characters about the personalities in Shahnameh provides an overview about the psychological status of the personalities. Ferdowsi have mentioned characters such as: wisdom, righteousness, prudence, shame, consultation, courage, continence, tolerance, appreciation, confidence, authority, leadership ability, forgiveness, goodness, good name, generosity, justice, theism, God fearing, happiness and happiness generating, relaxation and kindness to describe the personalities in Shahnameh. Although there are exaggerations in the description, the readers can reach an inference about the personalities of the characters. Kavus had emotional character. He made careless decisions; even he tried to fly with birds (15). Analysis of the characters described for Key-Khosrow indicates that he had a balanced personality (16). Rostam had a stepbrother named Shoghad. Shoghad prepared a trap to kill Rostam. By the descriptions the readers infer that Shoghad had inferiority complex (17). Bahram Choobineh had an outstanding character. He was introduced as a hero by Ferdowsi in the Shahnameh (18).

Bahram Gūr had a balanced personality. He proved his capability and courage by a hard examination. He picked up his crown after killing two lions. He had a firm, consistent, and popular personality. He reigned with justice for 63 years. The psychological fields in the context of Shahnameh invite further research.
Conclusion

In the old ages health and medicine was mixed with myths and legends. Shahnameh is an important source of the concepts the health and medicine in the old ages in Persia. The historical course of the events in Shahnameh ends with fall of the Sassanid dynasty (651 AD). Therefore, there is a hundred years gap between the medicine described in Shahnameh and the medicine in the Ferdowsi’s time (940–1020 AD). Ferdowsi collected and composed Shahnameh from his heard stories and some previous manuscripts. The medicine in Shahnameh was based on the Zoroastrian, Greek, and Roman schools of medicine, while Ferdowsi’s time was the golden age of Islamic medicine with the peaks of Avicenna (980- 1037 AD) and Cannon. Although, the readers may find some descriptions inexact, Shahnameh indicates the antiquity and originality of the art of medicine in Iran (19).

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