

## ORIGINAL ARTICLE

# Soltan Ali Gonabadi (16<sup>th</sup> Century AD): Biography and Contributions to Medicine and Ethics

### Abstract

The Safavid period (907-1135 AH/1501-1736 AD) is considered one of the most important periods in the history of Iranian medicine. One of the famous Iranian physicians in the early Safavid period is Sultan Ali Gonabadi. The purpose of this research is to examine the description of Sultan Ali Gonabadi's scientific works in the medical knowledge and medical ethics of the Safavid period. This research is a descriptive-analytical study. In this research, data collection was done based on the library method and by studying historical texts and sources. The results show that Gonabadi was one of the great physicians at the beginning of the Safavid and also during the Uzbek period, and he authored valuable works such as *Dastur al-Elaj*, Introduction to *Dastur al-Elaj*, and the Book of Crisis. Gonabadi's works, especially *Dastur al-Elaj*, have been known as a valid source in the field of medicine in Iran and different parts of the world for several centuries. He, in addition to using the opinions of other scientists and paying attention to the basics of treating diseases, pays attention to the principles of professional medical ethics, including faith in God, medical honor, respect for the rights of patients, compliance with the rules of treatment, and compliance with humility. Sultan Ali Gonabadi, a prominent Safavid physician, was not only a medical scientist but also a medical ethicist, whose works, particularly "*Dastur al-Elaj*," contributed to the development of Iranian medical knowledge and raised ethical principles.

**Key words:** Medical History, Safavid period, Sultan Ali Gonabadi, *Dastur al-Elaj*, Medical Ethics, Physicians, Iran

Received: 7 Feb 2025; Accepted: 27 May 2025; Online published: 25 Feb 2026  
**Research on History of Medicine/ 2026 Feb; 15(1): 27-40.**

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### Citation:

Aghabeiglooei, Z., Saghebi, R., Rezaei Orimi, J., Khabiri, M., Shoushtari Yeganneh, M., Mojahedi, M., Ghaffari, F., 2026. Soltan Ali Gonabadi (16<sup>th</sup> Century AD): Biography and Contributions to Medicine and Ethics. *Res Hist Med*, 15(1), pp. 27-40. doi: 10.30476/rhm.2025.105824.1288.



## Introduction

Iran has long been considered the birthplace of civilization and knowledge, and it has contributed a priceless wealth of achievements across a variety of fields, most notably in medical science. Throughout this country's turbulent past, there have always been gifted and renowned medical professionals who, through their hard work and dedication, have advanced medical science and enhanced the health and well-being of society (Abdoli, and Mahlooji, 2022; Dadmehr, et al., 2023). The Safavid period (907-1135 AH/1501-1736 AD) is considered one of the most important periods in the history of Iranian medicine. The medical organization during the Safavid period had a distinct coherence, and the head of the physicians, or the special physician of the king, was a distinguished person. A large number of other physicians supervised the medical work of the court, the army, and the administrative bodies of the country under his leadership. Physicians and pharmacists were usually members of Persian-speaking Tajik families (Tadjbakhsh, 2000; Aghabeiglooei, et al., 2025). The medicine of the Safavid period was the continuation of the medicine of the middle period, which had stagnated before the Safavid period, but with the emergence of the independent and powerful Safavid government, medicine and pharmacology had significant developments, compared to the era before and after that. Ibn Sina's *Qanun* and Zakhirah Khorezmshahi were among the important textbooks that medical students studied in the mentioned period (Elgood, 1970; Eslamifard, Karimi, and Ahansazan, 2021).

During this period, there were prominent physicians such as Baha al-Dawlah Razi and Imad al-Din Shirazi who had innovations and wrote important works such as *Kholasah al-Tajarob fi al-Tibb* and *Treatise of Atashak*. These physicians were researching newly emerging diseases of their time, such as syphilis, as well as effective drugs in their treatment (Tadjbakhsh, 2000). One of the famous Iranian physicians in the early Safavid period, who practiced medicine and was able to write important works in the field of medicine, is Sultan Ali Gonabadi (10<sup>th</sup> century Hijri/ 16<sup>th</sup> century AD) (Bahar, 1990; Sarmadi, 1999).

Previous studies on Soltan Ali Gonabadi's life and works, while insightful, lack a comprehensive and specialized study of his contributions to both medicine and ethics within the Safavid period (Elgood, 1970; Mohaghegh, 2005; Muris, 2012; Tadjbakhsh, 2000; Dorri, Azarmakan, and Masroor, 2018). For instance, Elgood explored general medical conditions of the era (Elgood, 1970), while Mohaghegh briefly described features of Gonabadi's works in a broader pharmacology context (Mohaghegh, 2005), and Tadjbakhsh only mentioned two of his works (Tadjbakhsh, 2000). More focused articles, such as Dorri et al.'s introduction and criticism of *Dastur al-Elaj* (Dorri, Azarmakan, and Masroor, 2018) and Muris's bibliographic perspective on the same text, analyze specific aspects of his medical writings (Muris, 2012). However, a dedicated and integrated examination of Gonabadi's biography alongside his significant contributions to both medical knowledge and ethical principles remains a notable research gap. Unlike previous studies that either touch upon his work peripherally or focus on a single aspect, this research uniquely aims to provide a holistic analysis of Soltan Ali Gonabadi, specifically highlighting his intertwined advancements in the fields of medicine and ethics during the Safavid era.

Researching the life and work of Hakim Gonabadi, a prominent physician of the Sa-



faavid era, is crucial for understanding the evolution of medical knowledge during this period. As a leading authority in early Safavid medicine, Gonabadi's contributions extended beyond descriptive summaries of existing works; he played a significant role in shaping the medical landscape. This study provides an analytical examination of Gonabadi's role in advancing medical knowledge and ethics during the Safavid period. By analyzing his training, practical experience, written works, and therapeutic methods, the research clarifies how his scientific endeavors advanced medical practices and ethical considerations of his time.

### Methods

This research is a descriptive-analytical study. In this research, data collection was done based on the library method and by studying historical texts and sources. To obtain information and new research, keywords in Persian and English were searched in Scopus, ScienceDirect, Google Scholar, and SID databases. Articles pertinent to the research objectives were selected, analyzed, and synthesized. The findings presented in this research are the result of a comprehensive analysis of all consulted sources.

### Results

#### Examining Biography

Sultan Ali Gonabadi, one of the great physicians at the beginning of Safavid rule (907-1135 AH/1501-1736 AD) and also during the Uzbek period<sup>1</sup>, authored valuable works (Tadjbakhsh, 2000). He studied medicine in Samarqand<sup>2</sup> (Nafisi, 1984; Safa, 2019) and spent forty years in Khorasan and Mavara-al-Nahr (A region between the two rivers Jeyhun and Seyhun in Central Asia), especially in Samarqand, in the court of "Abu Mansur Kochkanji Khan" known as "Kuchum Khan" (died 936 AH/1530 AD) (reigned from 916-936 AH/1510- 1529 AD), practicing medicine (Tadjbakhsh, 1961). He also practiced medicine for some time in the court of "Abul Ghazi Sultan Abu Saeed Bahadur Khan" (reigned from 936-939 AH/1529-1532 AD), who was the son of "Abu Mansour Kochchanji Khan" (Haghighat, 2009). There is no information about the date of birth and death of Sultan Ali Gonabadi. It seems that the time of his birth was at the end of the reign of Agh Qyunlu (854-907 AH/1450-1501 AD) and lived during the reign of Shah Ismail I (907-930 AH/1501-1524 AD) and Shah Tahmasab I (930-984 AH). 1576-1524 AD) (Masroor, 2017). During the Safavid era, many scientists and physicians emigrated from Iran for various reasons.

1- During the 10th century of the Hijri (16th century AD), the Uzbek government ran parallel to the Safavids in Samarqand and Mavara-al-Nahr, and they were constantly fighting with each other. When the Safavid dynasty was being formed, Muhammad Shaibani, the Uzbek sultan, was ruling Mavara-al-Nahr. Shah Ismail Safavid fought against this family to overthrow the Uzbeks, and Mohammad Shaibani was killed, but despite this, the Uzbeks often invaded Iran and the land of Khorasan during the Safavid era, especially during the days when the Iranian government was engaged in war with the Ottoman Turks (Bahar, 1990).

2- Samarqand is considered one of the oldest cities in the world and was founded by the Iranians in the late fourteenth century BC in the fertile plain of Zarafshan as a city in the agricultural region, and was the most important city in the region for a long time during the Achaemenid period. Being located in the center of the Silk Road, connecting China to Europe in the olden days, Samarkand has had significant importance. In terms of size and population, Samarqand has always been considered the first city of Mavara-al-Nahr (Safa, 2019).



Considering this issue, the reason for Gonabadi’s migration and his presence in the Uzbek court has not been determined (Bahar, 1990).

**Description of Scientific Works**

**1- The book “Dastur al-Elaj”**

In the early years of the establishment of the Safavid government, Sultan Ali Gonabadi wrote<sup>3</sup> the book “*Dastur al-Elaj*” in the year 933 AH/1527 AD (Dorri, Azarmakan, and Masroor, 2018). According to Elgood, this work is the first valuable medical book that was written after the Safavid government came to power (Elgood, 2007). “*Dastur al-Elaj*” is written in two articles in Persian (Muris, 2012). The first article in twenty-five chapters is about diseases specific to one organ, and the second article in eight chapters is about diseases not specific to one organ (Table 1) (Gonabadi Khorasani, 1874). In the introduction of the book, the author mentions that Mahmoud Sultan fell ill in Akhsi<sup>4</sup> rovince, and Sultan Ali was called to his bedside. Mahmud Shah, who was treated by Sultan Ali’s skill, asked him to write a book on medicine, and Sultan Ali obeyed his order. In this way, he wrote his experiences and studies in the form of the book *Dastur al-Elaj* (Esfehni, 2008; Elgood, 1970). At the end of the book, Sultan Ali mentions the place of writing and its completion in the year 933 AH/ 1527 AD in the Dar al-Khilafah of Akbarabad (Gonabadi Khorasani, 1527). (Figure 1)

3- Because 933 years had passed since the Prophet’s emigration, and he had been engaged in the discussion of noble sciences for 40 years (Gonabadi Khorasani, 1874).  
4- Akhsi province on the northern coast of Syr Darya was the capital of Ferghana in the 4th century AH (Safa, 2019).



Figure 1. The first and second pages of the manuscript of *Dastur al-Elaj* No. 86995 are available in the library of the Islamic Council (Gonabadi Khorasani, 1721)

**Table 1:** Index of the general structure and different chapters of the Book *Dastur al-Elaj* - the 1<sup>st</sup> and 2<sup>nd</sup> articles (Gonabadi Khorasani, 1874)

<b>First Article: About diseases specific to one organ</b>					
Chapter	Number of sections	Subject	Chapter	Number of sections	Subject
1	18	Head diseases	13	21	Stomach diseases
2	27	Eye diseases	14	7	Liver diseases
3	6	Ear diseases	15	4	Spleen diseases
4	7	Nasal diseases	16	2	Liver diseases
5	3	Lips diseases	17	7	Intestinal diseases
6	5	Teeth diseases	18	7	Anal diseases
7	4	Gum and tooth root diseases	19	11	Kidney diseases
8	10	Tongue and mouth diseases	20	11	Bladder diseases
9	7	Throat diseases	21	18	Diseases of the penis and testicles
10	7	Lung diseases	22	16	Uterine diseases
11	4	Heart disease	23	3	Breast diseases
12	4	Esophageal diseases	24	2	Skin diseases
			25	9	Back and joint pain diseases, gout, sciatica, varicose veins, leg swelling, and hip pain
<b>Second Article: About diseases not specific to one organ</b>					
Chapter	Number of sections	Subject	Chapter	Number of sections	Subject
1	2	Fever	5	5	Injuries
2	2	Swelling and acne	6	5	wounds
3	18	Diseases that appear on the skin and other organs	7	1	falls, fractures and sprains and bruises
4	6	Hair leprosy	8	3	Poisons

In the book's introduction, the author states that its purpose is therapeutic application, writing: "According to the words of His Holiness, what I have ascertained from authentic books and experience, a legitimate treatise has been compiled for treatment and named *Dastur al-Elaj*...". Gonabadi structures each chapter by first identifying a disease, followed by describing different types of the disease and their symptoms. Finally, he explains in detail the forms of the disease and discusses their treatment methods. (Gonabadi Khorasani, 1874)

At the beginning of each chapter of his book, Gonabadi goes into the details related to that section by referring to the name of each disease. In several chapters, he describes the different types of each disease and the symptoms of each type. Especially, in the types section, he has carefully examined the forms and types of each disease, discussing the different methods of treatment for each one (Gonabadi Khorasani, 1874). Gonabadi's comprehensive approach is not only limited to the explanation of various diseases but also deals in detail with their treatment methods. This promotes this work as a valuable source in the field of medicine in the Safavid period.



## 2- The Book “*Introduction of Dastur al-Elaj*”

Another book available from the author is an introduction with 16 chapters titled “*Introduction of Dastur al-Elaj*”, which is available in a separate version (Gonabadi Khorasani, 1527). Gonabadi, after finishing the writing of *Dastur al-Elaj*, wrote the book “*Introduction of Dastur al-Elaj*” by order of Sultan Abu Said Uzbek (reigned from 936-939 AH/1529-1532 AD) (Sarmadi, 1999). As he notes, “*In accordance with the royal command, a summary has been included to serve as the book’s introduction*” (Gonabadi Khorasani, 1527). The book begins with divine praise as follows: “*The jewel of praise is to God Almighty, who is a wise sage, and the praise of incomparable thanks is for the merciful, who cures the people and brings comforts to the suffering...*” (Gonabadi Khorasani, 1527). Gonabadi spent twenty years in the service of Sultan Abu Said of Uzbek, and this book, which is the result of the author’s experiences and studies, was dedicated to him. “*And the success of writing this summary was made possible by the support of that lord because, for twenty years in the service of that king, he has been honored with all kinds of favors and support...*” (Gonabadi Khorasani, 1527). The later editions integrate this introduction into the main text of *Dastur al-Elaj* (Dorri, Azarmakan, and Masroor, 2018).

The contents of the sixteen chapters of this book are as follows: 1- health maintenance, 2- measure of medicine, 3- knowledge of organs, 4- dissection, 5- forces, 6- knowledge of health and illness and the cause of diseases, 7- pulse states, 8- Breathing, 9- Identifying urine, 10- Identifying diseases caused by certain foods, 11- Sweating conditions and their causes, 12- Phlegm conditions that come from the chest, 13- Knowing the conditions that appear in the body and each causes something else, 14- states of birth and death, 15- examination of signs of health, hope and despair, and what emerges from the nature of illness, 16- in the expression of crisis (Gonabadi Khorasani, 1527).

## 3- The book “*Crisis*”

The book “*Crisis*” is another work of Gonabadi, which is available at number 3663 of the Academy of Sciences of Uzbekistan under the name “*Kuliyat Tibb*”, which was written by Mirza Saleh Hakim in special calligraphy (Nastaliq) in 1216 AH/1801 AD (Mojani, 1996).

## Checking the Publication of Works

The analysis of the publication of Gonabadi’s works, especially the book “*Dastur al-Elaj*”, shows that this work has been known as a valid medical source in Iran and different parts of the world for several centuries. *Dastur al-Elaj* is one of the few books written during the Safavid rule in the Uzbek court in the 10<sup>th</sup> century of the Hijri. The book was published long after (Elgood, 1970). The list of Iranian manuscripts (FANKHA) and other lists have introduced more than thirty versions of *Dastur al-Elaj* (Derayati, 2012; Safari Agh-Ghale, 2011). Various manuscripts in libraries such as the Islamic Council (date of writing: 1039 AH/1629 AD, 1032 AH/1622 AD), University of Tehran (date of writing: 944 AH/1538 AD), Astan Quds Razavi (date of writing: 1106 AH/ 1694 AD and 1110 AH/1698 AD), Ayatollah Golpayegani (date of writing: 933 AH/ 1527 AD, which is the oldest version available), Malek (date of writing: 1152 AH/ 1739 AD), Tehran University of Medical Sciences, Tehran Sepahsalar School, Melli of Tehran, Waziri of Yazd (date of writing: 1078 AH/1666 AD) and Ayatollah Marashi of Qom are available (Table



2). These manuscripts were written by different scribes in cities such as Lahore, Pakistan and Akbarabad, India (Derayati, 2012; Safari Agh-Ghale, 2011).

**Table 2:** Specifications of the oldest manuscripts of the Book of *Dastur al-Elaj* in different libraries in Iran and other parts of the world

No	Library	The year of writing	Name of the scribe/ Place of writing	Number of sheets and pages	Line type	Version number
1	Ayatollah Golpayegani	933 AH / 1527 AD	No author/Akbarabad, India	325 sheets, 21 lines	Nastaliq	1/25-25
2	Tehran University	944 AH / 1538 AD	Haji Ashraf/unknown	139 sheets, 15 lines	Naskh	3030
3	Treasure of Toshkent manuscripts	998 AH / 1592 AD	Mohammad ibn Baba Ahmed Sagharchi/ Samarqand	260 pages	Nastaliq	2264
4	The Islamic Council Parliament	1032 AH / 1622 AD	No author/Lahore	249 sheets, 18-20 lines	-	8293
5	The Islamic Council Parliament	1039 AH / 1629 AD	No author/unknown	112 sheets, 15-17 lines	-	8969
6	Vaziri	1078 AH / 1666 AD	No author/unknown	276 pages	Nastaliq	3826/1
7	School of Isfahan's Sadr Bazar	10th and 11th centu- ries of Hijri	No author/ unknown	227 sheets, 21 lines	Nastaliq	832
8	Tehran University of Medical Sciences	10th and 11th centu- ries of Hijri	No author/ unknown	292 pages, 21 lines	Nastaliq	102
9	Sepehsalar School of Tehran	11th century AH	No author/ unknown	254 sheets, 21 lines	Nastaliq	747
10	Astan Quds Razavi	1106 AH / 1694 AD	Izzatullah Abbasi/ unknown	-	-	30881
11	Tehran National Library	12th century AH	No author/ unknown	119 sheets, 17 lines	Nastaliq	2639
12	Treasure of Toshkent manuscripts	1296 AH / 1879 AD	Habibullah Abdul- salam/SamarQand	446 sheets	Nastaliq	7269

There are eight copies of *Dastur al-Elaj* in the Ganj Bakhsh Library of Pakistan, the oldest of which is 1127 AH/1715 AD (Noshahi, 1986). There are many versions of it in other countries. Copies of it have been introduced in the manuscript treasure of Toshkent<sup>5</sup>, Saltykov Library of Russia<sup>6</sup>, Arif Hikmat Library of Medina, and Agha Seyed Abbas Shah Gardizi Library in Multan, Pakistan. The book *Dastur al-Elaj* was lithographed in Lucknow, India, in 1271 AH/1854 AD. Several other lithographs of this book (years of publication: 1865, 1890, 1896, 1899, and 1914 AD) were made, mostly in Lucknow and Delhi, located in India (Mohaghegh, 2005).

The wide distribution of this work demonstrates its enduring influence and the importance placed upon it across societies and time. Historically, its dissemination confirms the lasting impact of Gonabadi's text on the development of medical knowledge and the promotion of medical ethics in diverse

5- The Treasury of Oriental manuscript

6- Saltykov-Shchedrin Russian National Library



cultural contexts. (Figure 2)



Figure 2. The last pages of version No. 86995 of *Dastur al-Elaj* available in the Library of the Islamic Parliament (Gonabadi Khorasani, 1721)

### Resources by Gonabadi in The Field of Medicine

In his works, the author frequently references earlier physicians and sages, quoting their perspectives on the topics under discussion. He often quotes scholars such as Galen, Hippocrates, Aristotle, Rhazes, Avicenna, Toranji, Ahwazi, Ibn Sadiq, and Sabit Ibn Qora. (Tavernier, 2004; Sadeghi, et al., 2020). Sultan Ali mentioned that in addition to his forty years of experience, he used the information he obtained from these scholars’ “*authentic books*” in writing his book. He cites several foundational texts as his accepted sources, including *Moalijat al-Boqratiah* by Abul Hassan Tabari Toranji, *Al-Hawi* by Rhazes, *Al-Fosool* by Hippocrates, *Al-Qanun* by Avicenna, *Kamil al-Sinaah*, and *The Description of Fosool*, quoting material from each to support his arguments. For example, on page 311, regarding cessation of menstruation (Panahi, 2012), it says: “*This spice loosens the congestion of the uterus. The author of Kamil al-Sinaah<sup>7</sup> and Ibn Sadiq<sup>8</sup> said this in the book Description of Fosool...*” (Gonabadi Khorasani, 1874). His main objective was to compile a comprehensive medical text that drew upon both established knowledge and his

7- Ali ibn Abbas Ahwazi was the author of *Kamil al-Sinaah al-Tibbiyah*, who lived in the 4th century of the Hijri (Tadjbakhsh, 2000).

8- Abd al-Rahman ibn Ali ibn Ahmed ibn Abi Sadiq Neishabouri (H. 385-470 AH/ 995-1077 AD) is a physician, anatomist, and commentator on the works of Hippocrates and Galen, nicknamed Hippocrates II. The book *Description of the Fosool of Hippocrates* is his most important work (Tadjbakhsh, 2000).



extensive clinical insights. Therefore, references to these “*authoritative books*” served to enrich and validate his work, building upon the foundational wisdom of his predecessors to create a holistic and practical medical guide. This approach reflects a profound respect for medical tradition and a project of scholarly consolidation rather than a detailed, critical appraisal of the individual sources he employed.

Also, one of the important sources of Gonabadi is the book *Zakhirah Khawarazmshahi* by Seyed Ismail Jorjani, a Persian writer of the 5<sup>th</sup> and 6<sup>th</sup> centuries of Hijri. On page 277 of *Dastur al-Elaj* for the treatment of impotence, he introduces some sources and books that are mentioned in the *Zakhirah Khwarazmshahi*: “*The remedy is to read the Book of Alfyyah, etc., which they wrote in that chapter and they said in that chapter...*” (Gonabadi Khorasani, 1874) (Table 3).

Sometimes, the source of the quotations is not explicitly mentioned, and it is said that some physicians, ancients, sages, or people have given such an opinion (Gonabadi Khorasani, 1874). For example, he says: “*One of the ancients told that I mixed two parts of Aloes Socotrina and one part of Saffron and during cholera every day the amount of twelve barley with a bowl of wine and I was cured.*” or that “*some physicians have told some things in children’s epilepsy...*” (Gonabadi Khorasani, 1874).

Even though Persian Medicine during the Safavid era was especially correlated with Indian medicine, and some consider the Safavid era to be the Golden Age of Indian medicine and pharmacology, in the works of many physicians and pharmacists of this period, the medicine and treatment methods of Indian medicine have been cited (Jackson, and Lockhart, 1986), the review of Gonabadi’s works has shown that he did not mention physicians or Indian medicine (Dorri, Azarmakan, and Masroor, 2018; Gonabadi Khorasani, 1874).

### **The Importance of Medical Ethics in The Eyes of Sultan Ali Gonabadi**

In the ancient medical texts of Iran and Islam, medicine has always been considered a sacred knowledge and profession (Ghasempour, Khakrand, and Dehghan, 2022). The observance of ethical and professional principles in medicine has been recommended and given serious attention as the most important feature for physicians (Hindi Shuja Alotaib, 2021). During the Safavid era, physicians highly regarded ethical and legal principles, and they studied religious sciences even before they learned the specialized knowledge of medicine, which committed them to adhere to the legal and ethical principles (Tadjbakhsh, 2000).

Building on this tradition, Gonabadi weaves various topics related to medical ethics throughout the chapters and content of *Dastur al-Elaj*. A central ethical principle he emphasizes is the necessity for a physician to submit to and have faith in God Almighty, and many times, with phrases such as “*if God Almighty gives success or God knows best,*” he entrusts himself to the Great God and heals from Him. And it requires recovery. On page 222 of *Dastur al-Elaj*, he advises the physicians about the treatment of the disease by them that they should be afraid of God and not abandon the treatment. He also considered a mistake in treating a patient by a physician a great sin (Gonabadi Khorasani, 1874).

In the introduction of the book, he mentions some points about the honor of medicine, whose goal is to save the patient’s life and bring health to the body, and to express the virtues of the science of medicine: “*The reason for writing this book is that because all*



people need physicians and treatment rules, and medicine is a noble science in its essence, as the Prophet (May God Bless Him), said that "science is of two types: the science of the body and the science of religions" (Gonabadi Khorasani, 1874).

**Table 3:** The list of sources used by Gonabadi in the compilation of the book *Dastur al-Elaj* (Gonabadi Khorasani, 1874)

No	Source	Name of disease	Drug treatment	Page
1	Galen	Quarter fever caused by phlegm*	Galen said that he saw many people who got rid of four-day fever by laxatives easily after they ate wormwood and antidote...	362
2	Galen	Safa**	Galen said that this disease was poulticed with burnt paper and vinegar, and it got better	408
3	Galen Hakim	Stroke	Galen said that they should not bury the person who suffered a stroke for two days, but they should wait for fifty hours	49
4	Galen	Roaf***	Galen said that he saw someone with a nosebleeding who was relieved by inhaling cold water, drinking it, and plunging into cold water	104
5	Hippocrates hakim	Pneumonia	Hippocrates Hakim mentioned in the book Fosool... and first of all, they should drink violet syrup, lotus syrup, and barley curd juice before diarrhea.	151
6	Hippocrates hakim	Faint	Hippocrates stated that frequent, unexplained fainting could lead to a coma.	162
7	Aristotle	Melancholy	Aristotle said that a lover is blind	38
8	Avicenna	4-day fever caused by phlegm	It has been said that Anguzah (a type of gum) and pepper are beneficial.	362
9	Avicenna Hakim	Liver tumors	Avicenna warned against using Terminalia chebula for this condition, reasoning that it expels only thin phlegm while leaving the thicker phlegm behind.	119
10	Avicenna	Qotrob****	Avicenna notes in his discussion of Qatrab (Paralysis) that the term is of Roman origin, referring to a very small creature that moves on water.	37
11	Avicenna Hakim	Liver disorder	Avicenna noted that, based on his clinical experience, stones can form within the liver.	200
12	Avicenna	Nozooli- Ab*****	Avicenna says that I saw a man who had cataracts, and he cured himself.	78
13	The author, Al-Hawi, the Great	Hair loss	The author of al-Hawi believes that if they poultice spun cotton with egg oil, hair will grow in all parts of the body.	228
14	Avicenna and Rhazes	Fever	Some physicians, such as Avicenna and Rhazes, have said that at the beginning of the disease, if there is a need to soften, dissolve fifteen shekels of mangosteen in water and use fresh oil with two drams of sugar...	349
15	Sabit ibn Qurra	Cataracts	Another healer that Sabit ibn Qurra experienced is that Salikhah (bark of a kind of tree that is red) is beaten soft and cooked to make a paste and...	79
16	Sabit ibn Qurra	Melancholy	Galen Hakim's opinion and Sabit ibn Qurra's opinion is that the vapors go to the brain.	36
17	Toranji	Raby*****	Toaranji has given in his book: "and none of the physicians have mentioned this disease and the state of this disease is..."	144

\*Four-day fever (Panahi, 2012)

\*\*Scalp disease (Panahi, 2012)

\*\*\*Nose bleeding (Panahi, 2012)

\*\*\*\*Qatrab is a type of melancholic disease that mostly occurs in the 2<sup>nd</sup> month of winter (Panahi, 2012)

\*\*\*\*\*Cataracts (Panahi, 2012)

\*\*\*\*\*Asthma (Panahi, 2012)



Regarding the scientific and practical competence of the physician, a prominent feature in Gonabadi's works is his frequent reference to previous scientists and eminent physicians, whose opinions he regularly cites. This demonstrates the value he placed on studying and investigating the works of his predecessors. (Aqhayani Chavoshi, 2018) When describing the treatment of one of the eye diseases, Gonabadi says that "*most physicians do not agree to this treatment because the cause of the pain is directed at the eye*" or when describing the treatment of epidemic fever, he states that some physicians have said they used an amount of one derm of Aloe vera, Saffron, and Myrrh equally every day and found a lot of benefits. He has repeatedly mentioned his clinical experiences in different sections of the book *Dastur al-Elaj* (Gonabadi Khorasani, 1874).

Gonabadi, while explaining intestinal diseases, defends the rights of the patient and blames the physician for ignoring that (Chapter 3, Type 4, Section 17). He states that the physician does not intend to harm the patient: "*...but some physicians who are proficient enough in the case of diarrhea, for example, would prescribe medicines to cause constipation, and as the nature of the body becomes constipated, the patient dies.*" Also, when explaining the medical treatment of joint pain, he states that if the physician misses the etiology, he does not consider the strengthening of the organ and does not use the medicine in the required organ, so the joint pain increases (Gonabadi Khorasani, 1874). When discussing the treatment of umbilical cord protrusion, he says: "*The remedy is to cut and sew the umbilical cord, but there are many risks, and it is better to leave it.*"

Another key principle is "*the necessity for the physician to be knowledgeable and skilled in the practical diagnosis and treatment of diseases.*" On page 313, he underscores the critical importance of accurate diagnosis, noting that "*Much remains hidden from ignorant physicians, such as the distinction between the placenta and the uterus—namely, that the placenta is narrow while the uterus, by contrast, is broad.*".. (Gonabadi Khorasani, 1874)

Another point that Gonabadi emphasizes is "*respecting the principles of treatment*". Regarding the treatment of mixed fevers on page 342, he says: "*The cure is for the physician to observe which fever symptom is strong and treat it, and if one is strong, treat it, and if both are equal, give the appropriate medicine,*" and they should try to use laxatives. Also, on page 222, when explaining the treatment of dysentery, he states that it is necessary to know the source of any blood that comes from (Gonabadi Khorasani, 1874). Gonabadi wants to describe the principle of usefulness in its practical form in medicine.

Another point mentioned by Gonabadi is that the physician must correctly diagnose emergencies and have the ability to take necessary action. To relieve the joint pain, he suggests a medicine that can relieve the pain immediately. On page 173, in describing one of the stomach diseases (a disease caused by phlegm in the head of the stomach), he says that it is necessary not to delay the treatment of this disease, because it corrupts the whole body and leads to ascites. Regarding ear diseases, he pointed out the dangerous cases and said that "*swelling of the bottom of the ear, which is from the outside, is less dangerous and less painful, and swelling inside the ear is dangerous and fatal for the elderly*" (Gonabadi Khorasani, 1874).

Also, one of the principles of medical ethics is to observe humility and avoid self-righteousness (Faraji, et al., 2019), so Gonabadi mentions himself many times in the book *Dastur al-Elaj* with titles such as "*modest*" or "*poor*". For example, on page 225, he



says: “*And I, the humble one, have experienced repeatedly and observed many benefits.*” Also, on page 174, he says: “*The responsible physician, due to his good nature, treats the patients who fall ill due to poverty and lack of care without any expectations...*”. Other principles of medical ethics that Gonabadi was interested in were effort and diligence in the treatment, not using dangerous drugs and the need to make efforts to increase knowledge (Gonabadi Khorasani, 1874).

### **Conclusion**

Sultan Ali Gonabadi, one of the most prominent physicians of the Safavid period and also during the Uzbek period, can be considered not only as a medical scientist but also as a medical ethicist. His works, especially the book “*Dastur al-Elaj*”, in addition to helping the development of Iranian medical knowledge, were also able to raise the ethical principles of medicine. In addition to his focus on clinical practice, Gonabadi consistently emphasizes principles of professional medical ethics, such as maintaining professional honor, respecting patients’ rights, adhering to therapeutic protocols, practicing humility, and avoiding self-righteousness. A comparison of his ethical discourse with the four standard principles of medical ethics reveals that his framework is more expansive. While he observes the core principles, his work also systematically addresses the physician’s relationship with God, with the self, with the patient, and with colleagues, thereby constructing a more holistic ethical system.

Gonabadi’s significance lies in his synthesis of scholarly opinion and the wide dissemination of his works across subsequent centuries, which helped make medical knowledge accessible to students throughout the region. Examining Gonabadi’s medical works shows that he played an important role in the medical knowledge of the Safavid period by using Iranian medical texts and also the works of non-Iranian scientists. His works, as an authentic source, play an important role in the scientific heritage of this period. Therefore, examining the life and works of this great physician allows us to extract the best solutions and principles in the fields of medical science and ethics, and from their experiences improve health and treatment services, increase the quality of medical care, and improve skills and benefit from the individual knowledge of physicians.

In today’s era, the issues of medical ethics still maintain their importance. With advances in medicine and technology, issues have become more complex, and the need for ethics in medical decision-making has increased. Therefore, studying the views of predecessors such as Gonabadi in the field of medical ethics can help physicians and healthcare professionals face ethical challenges and issues correctly and improve medical services. This research can contribute to the development of medical science in today’s era due to the attention to the principles of medical ethics and the use of Gonabadi’s diverse knowledge as a useful and inspiring guide.

### **Acknowledgements**

The current research has been approved by the ethics committee of Shahid Beheshti University of Medical Sciences with the ethical code IR.SBMU.RETECH.REC.1402.711.

### **Authors’ Contribution**

The authors confirm their contribution to the paper as follows: Conceptualization, Su-



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### Funding

This research funded by Medical Ethics and Law Research Center (MELRC) of Shahid Beheshti University of Medical Sciences.

### Conflict of Interest

None.

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