

The Role of Arab and Muslim Scholars in Defining and Treating Pain: A Review Article

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Abstract

Science is not the creation of a single nation or culture, nor it is the result of a single era. The prosperity we find in various fields is the result of successive civilizations throughout the ages, the work of nations that have followed the search for facts and the study of their scientific achievements generation after generation.

The aim of this study is to investigate the contribution of Arab and Muslims in the field of development of the understanding and treatment of pain.

In this regard, related historical books and reviews were the main sources of our investigation. Databases such as Google scholar, Scopus, Embase and PubMed were also searched.

The first contribution for Arab and Muslim scholars was recording and saving medical knowledge of the previous cultures by translating their books to Arabic and making this knowledge available for all researchers. They also used a scientific way to think about the treatment of pain and its origin using different strategies and new medications. They were the first to investigate the effect of pain on the body and its function and their work in this field was a cornerstone for the next advancement in treating pain in a modern way opening the doors for great developments in both anesthetic and surgical fields.

Keywords: Pain management, Muslim's heritage in medicine, Arab Muslim's doctors, Historical pain treatment.

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Introduction

Pain is “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage”. Although pain is an adaptive response to damage, it negatively influences body function and personal interaction with surroundings at different levels, including social, behavioral and psychological aspects.¹ Undoubtedly, pain has been known since the beginning of creation, as

it was mentioned in the writings of scholars, letters and poems.

Since ancient time, humans have tried to cure themselves and relieve their pains. It is said that man used some herbs to alleviate the pain. A Sumerian clay slab has been found, related nearly to more than fivethousand years, documenting a sample of the historical methods of using plants in medicine for pain relief. It described the usage of more than 250 plants as poppy and mandrake for drug

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preparation.² On the other hand, physicians have also been anxious to identify the causes of pain and the methods of curing it.

In the Greek age, Greek physicians were also very interested in understanding the causes of pain and the ways of relieving it. In his writings, the father of medicine; Hippocrates (460-375 BCE, island of Cos, Greece)³ briefly described some types of pain such as headaches, stomachaches, and eye problems. He tried to cure these pains by using a mixture of herbs and honey. Rufus (70 - 110 AD) followed his teacher's footsteps and wrote a book on chronic diseases in which he focused on the treatment of frequent and acute pains by using mixtures of herbs and honey as his teacher used to do.^{4,5}

Galleons also knew the use of opium in order to relieve pain.⁴ The Alexandria physicians also became interested in identifying pain and its causes. These physicians studied Greek sciences, but they added nothing new in treating acute and chronic pains.⁶

In the Islamic age, science became prosperous. During that period, great advances in the various divisions of medicine were made. For example, cutting-edge treatments such as cataract operations, regular vaccination, internal stitching and bone setting were part of standard practice. More than 200 types of surgical instruments were custom designed, such as forceps, different kinds of scalpels, retractors, curettes, pincers, specula, and also instruments designed for cauterization and ligature. Pharmacies were available in the markets as well as in their magnificent hospitals. These advances were accomplished through the dedication of great scholars like IbnSina, Al-Razi, Al-Zahrawi, Ibn Al-Haytham, Ibn Al-Beitar, Al-Bieruni and others who had their own great achievements in Islamic medicine.⁷ They also were interested in relieving pain, especially that the pain in the middle ages was considered a kind of God's punishment and still in some communities until this moment, this common belief has no origin in Muslims believes. Thus, they were encouraged to find new methods for

defining and relieving pains.⁸

This study aims at highlighting the role of Muslim scholars in the Islamic age in the field of treating pain. The study also aims at tracing the development of pain management during the golden age of Islamic history.

Method

In this study we reviewed multiple sources to present the role of Arab and Muslim doctors in defining and treating pain. Our primary sources were books, manuscripts and reviews of Arabic and Islamic doctors located in many university and national libraries. Scientific papers were also reviewed by searching multiple databases, such as Google scholar, Scopus, Embase and PubMed in order to find out all about the history of pain management and Islamic contributions and ameliorations in this field using the following keywords: "*history of pain management*", "*history of treating pain*", "*role of Arabs and Muslims in medicine*" and "*Islamic medicine evolution*".

Results and Discussion

With the early spread of Islam outside the Arabian Peninsula, it faced many great, well-established civilizations such as Greek, Syriac and Sanskrit. Muslim scholars started to translate most of scientific and philosophical works of these nations which made Arabic as the first scientific language worldwide for collecting and preservation of scientific records for more than 6 centuries. Today's Western world might look very different without the legacy of Muslim scholars in Baghdad, Cairo, Cordoba, and elsewhere.⁹

By reviewing medical books written by Arab Muslim authors, we can notice that they offered great attention to pain management including treating the underlying causes when they talked about treatment of any illness in their writings.

Alhareth Bin Kaladah (634 - 670 AD) became well known from the advent of Islam as one of the most influential doctors. IbnKaladah established a certain policy for medications. He used to say "*Don't take any medicine as long as you can tolerate the pain*"

and in another saying he explained more on this when he mentioned "*Don't seek treatment as long as you can tolerate the pain, use medicine whenever needed; don't buy it unless necessarily needed by cause. Medicine cures something and distorts something else*".¹⁰ This physician warns against the side effects of the drugs. His view later proved to be true, and it was confirmed by many physicians.

IbnSina (also known as Avicenna, 980 - 1037 AD) defined *Waja'* (pain) as one of unnatural (abnormal) conditions that affect the body and that it is a 'feeling of incongruity'. He offered further clarity in the statement *Waja'* as a sudden sensation of a different stimulus such as a sudden feeling of cold which leads to cooling of an otherwise hot organ as mentioned in his book '*The Canon of Medicine*', p. 54.¹¹ Avicenna stated that any stimulus leading to pain or unpleasant sensation should produce changes in a sudden way; otherwise the body would not be able to feel anything. He also indicates that pain may persist even if the original stimulus had disappeared and classified this pain as 'not true pain' thus suggested that doctors should not attempt to treat it, due the fact that the cause of pain (i.e. the stimulus) 'does not exist'. This is consistent with modern pain theory which recognizes that pain can occur in the absence of injury.¹²

In his book '*Al-Umda fi Al-Giraha*', Ibn Al Quff (from Al-Karak, central Jordan, 1233 - 1286 AD) talked about pain control in a separate chapter. He clearly mentioned the terminology of drugs such as *Al-Mokhadder* (anesthetic) that were used for pain management and to increase the possibility of applying surgical procedures, the administration of such drugs was by either inhalational, oral or rectal routes, the drugs he used are mentioned in the literature of modern anesthesia such as atropa belladonna, cannabis and opium. He also classified pain relief drugs into two categories, *true* which treats the underlying cause and *untrue* which treats the pain by masking it, such as opium and other drugs. This was a new method in dealing with pain stating the importance of identifying and

treating the underlying cause rather than just masking the sensation of pain itself.^{13,14}

The Arab and Muslim physicians were the first to classify pain into different types depending on the cause and nature of the pain. Avicenna extended Galen's classification of four types of pain within *The Canon* and categorized 15 types of pain with their causes. These were: *itching* (exposure to irritating substance or salt); *coarse* (coarse substance); *pricking* (something stretches membranes); *compressing*; *stretching* (bloat or muscle or nerve stretch); *disintegrating* (a substance disintegrate inside the muscle and membranes); *breaking* (bone change); *soft* (muscle change); *penetrating* (a thick substance or bloat trapped in colon); *stabbing* (a substance trapped inside an organ); *numbing* (extreme cold or vessels obstruction); *pulsating* (a tumor or swelling close to arteries); *heavy* (a tumor or a swelling in lungs, kidney or spleen); *tiredness*; and *bitter* (ulcers) '*The Canon of Medicine*', pp. 54, 55.¹¹ Some of these terms are remarkably similar to those used in the McGill Pain Questionnaire (MPQ).¹⁵

The influence of pain on the whole body was also studied by Arab and Muslim physicians, they were the first to think of the effect of pain on the physiologic performance of other parts of the body. Al-Razi (854 - 925AD) and Avicenna stated that pain weakens the body and distorts the functions of other parts. It may distort breathing.^{11,16} These scholars also identified the relationship between pain and the psyche as a method of determining the severity of pain.¹⁶

Al-Kindi (801 - 873 AD) highlighted the importance of psychiatric medicine.¹⁷ Avicenna also used this kind of therapy such as reading the holy Quran and some prophetic sayings which may help the patient to forget the pain. Arab and Muslim physicians were leaders in realizing the role of the central nervous system and the role of psychiatry in medication. In his treatise on the nature of the brain, Al-Zahrawi (936 - 1013 AD) stated "*the pain very often deceives the patient to think that it is in the healthy tooth and thus he*

extracts that tooth, but the pain does not disappear unless he pulls out the sick tooth".¹⁸ Therefore, Al-Zahrawi was the first scholar to emphasize that the pain moves from one place to another in the body (known as radiated pain). Avicenna wrote extensively about brain anatomy and its role as a center of pain sensation and recognition. Both Galen and Avicenna believed that the brain was the principal organ for perception of pain.¹¹

Sigrig Hunke said in her book "The Muslims are also credited for the introduction of inhalational anesthesia by using what was called back then The Anesthetic Sponge". The science of medicine has gained an extremely important discovery, which is the use of general anesthesia for surgical operations. Then in another statement "The art of using the anesthetic sponge is a pure Muslim technique which was not known before. Alcohol was distilled by El-Kinde and sulfuric acid by El-Razi, considering that, diethyl ether can be produced by extraction of water out of alcohol; it becomes likely that Muslims were the first to lay down the basis of the synthesis of this essential anesthetic substance".¹⁹

The Arab Muslim physicians used several methods to relieve pain such as:

A. Using herbs, plants and honey in different forms. These forms include liniments, syrups, pastes, pills, enema, suppositories, pessaries, eye salves, digestants, rubs, pulver, tablets, gargles, drops, snuffs, dusting powders, dentifrice, ointments, lotions, and spray. All these medications were used to control pain of all types. It is beyond the scope of this paper to mention all the herbs and plants which were used in making these medicines.

B. Using anesthetics especially opium, which is the juice of the fruit of Papaver. Some scholars warned against using this drug. In his book, Al-Razi said "Physicians are forced to use anesthetic drugs in cases of pain, and

these drugs do not cure but anesthetize the pain". Al-Razi was the first to warn against using anesthetics which may lead the patient to become addicted to them. Another side effect which was mentioned by Al-Razi is that these anesthetics should not be used in times of stomach-ache but after constipation disappears.¹⁶

C. Using ice and cold water to relieve the pain. Ibn Al Quff clarified in details how cold relieves the pain; it works in four steps: "Firstly, by its coolness, it blocks the conduits of the spirit and then it prevents painful sensation from penetration, so it reduces the feeling of pain and thus the pain is relieved or prevented".¹³ Avicenna also described this technique and defined it as 'local anesthetic', he used it for amputation surgeries.¹¹ This method is still used in modern era under the name of Cryo and Icing massage.

D. Using heat to control pain was successfully used by Al-Zahrawi who treated toothaches by using boiled oil after making a hole in the tooth in what was known as *Al-Kay*(to burn).²⁰

Conclusion

The perception of pain acquired its current concept as a result of historical work of Arab and Muslim scholars. We traced the development of the study of pain and the methods of treating pains in the pre-Islamic era and after the advent of Islam. It was revealed that the study of pain developed through Islamic era both quantitatively and qualitatively. The role of the central nervous system and the brain were highlighted by these scholars, in addition to the importance of treating the underlying cause and the impact of psychiatric therapy side by side with treating the pain itself. The development in their understanding of the phenomenon of pain and the methods of its treatment were the basis for the modern medical management of pain.

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دور العلماء العرب والمسلمين في تعريف وعلاج الآلام

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الملخص

الهدف من الدراسة: تهدف هذه الدراسة لابرار دور الأطباء العرب والمسلمين في مجال معالجة الألم خلال فترة الازدهار الإسلامي حتى القرن الثالث عشر، وتتبع التطور الذي أحدثه هؤلاء العلماء في تصنيف أنواع وأسباب الألم إضافة إلى الطرق المستحدثة في علاج الألم. **منهجية البحث:** تم خلال هذه الدراسة مراجعة المصادر العلمية التي تتناول موضوع دور العلماء والأطباء العرب والمسلمين في معالجة الألم والمتوفرة في المكتبات الوطنية والجامعية إضافة إلى ما تم تجميعه من صفحات الإنترنت من مقالات تحدثت عن تاريخ علاج الألم وتطور الطب عند المسلمين.

النتائج: تشير نتائج التتبع لتطور الطب في معالجة الألم في الفترتين ما قبل الإسلامية، وما بعد ظهور الأطباء في العهد الإسلامي الذين أظهروا اهتماماً في هذا المجال تمثل في بحثهم عن أسباب حدوث الألم ودور الجهاز العصبي في نقل الألم، الأمر الذي أدى إلى استحداث طرق وعلاجات جديدة وفعالة في علاج الألم والأسباب المؤدية إلى ظهوره.

الخلاصة: تشير الدراسة إلى أهمية دور الأطباء العرب والمسلمين في فهم الية وأسباب الألم وتقديم طرق جديدة في معالجته، والحد من الأسباب المؤدية له مما كان له الدور الكبير في استحداث التصنيفات الحديثه لأنواع الألم والأساليب الجديدة في علاجه في عصرنا الحديث.

الكلمات الدالة: تاريخ معالجة الألم، العلماء العرب والمسلمين في الطب، الأطباء العرب والمسلمين، التراث الإسلامي في الطب.