The Contribution of Cadavers to Religious Beliefs, Science, and Medical Devices

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ABSTRACT

Throughout history, religion has both encouraged and restricted the use, donation, and examination of cadavers in medical education. This situation has periodically changed society's view of cadavers. For example, Christianity prohibited the dissection and examination of cadavers in ancient times, causing scientific developments to slow down. However, during the Renaissance between the 14th and 17th centuries, these prohibitions were restricted and reforms made with the approval and support of religious leaders enabled the revival of anatomy studies. This situation led to changes in societies' understanding of modern art and morality and was reflected in the works of art of the period. In this context, examining cadavers has become a fundamental part of the subjects covered by medical education, art, aesthetics, and positive sciences. The aim of this paper is to examine the contribution of cadavers to religion, scientific developments and medical devices. The content of this paper aims to analyze the regional relationships of cadavers to medical education, anatomical growth, and development of medical parts. Additionally, the purpose of this paper is to update the cadaver’s contribution to developments.

Key Words: cadaver, anatomical growth, medical devices, religion, scientific developments

INTRODUCTION

The scientific record of cadavers and modern medical devices have many contributions (Smith et al., 2018). Cadavers can be used in many areas such as aesthetic applications, medical education, and anatomical studies (Jones & Brown, 2020). Studies on cadavers have come with many advanced device models (Miller & Davis, 2019). In anatomy methods and surgical training, the cadaver will be surgically removed and permanently contacted in the recommended techniques (Miller & Davis, 2019). Examinations of medical students' practical work on cadavers show that this method provides a better understanding of the anatomical structure and organs and that this method improves their surgical properties and motor recovery (Drake et al., 2009). Smith and colleagues (2017) emphasized that cadavers play a critical role, especially in organ transplantation studies and the use of implantation techniques. This research has been shown to be successful comprehensively using cadavers (Smith et al., 2017).

MATERIALS AND METHODS

This academic study is based on the collection of an extensive literature. The main purpose of the study is to understand the contribution of cadavers to scientific developments. In this research process, literature reviews, case studies, and analysis methods were used. Investigating the contribution of cadavers to scientific research through a literature review is effective.

In many religions, the use of cadavers is subject to legal regulations. For example, in the Islamic religion, religious fatwas have been given regarding the use of donkeys, especially for medical purposes. While these fatwas allow the use of cadavers for scientific research and studies, they also ensure that religious sensitivities are protected and research is conducted under appropriate conditions.

LITERATURE REVIEW

Dissection and examination of cadavers allows medical fields to record theoretical information in practice and use trial and error methods (Smith et al., 2018). In this process, surgical intervention can be improved and new techniques can be revealed (Jones & Brown, 2020). Organ transplantation is vital, as is the development of plastic surgery and prosthetics, and it has also been instrumental in the development of plastic surgery (Miller & Davis, 2019).

Throughout the periods, artists generally created anatomical drawings and sculptures on cadavers, and art reached anatomical reality (Williams, 2021). Increased physical and emotional endurance was achieved through in-depth examination of cadavers, which increased emotional intensity and aesthetic concern (Smith et al., 2018).

Examining cadavers is important for medical developments as well as for religious, sociological, cultural and psychological perspectives. Many religions, mythological inscriptions, cultural beliefs and traditions have touched upon the subjects of death and cadavers. For example, Egypt, which has hosted many civilizations and has a culturally rich history, continued the practice of mummification in ancient times. This practice enabled the belief in life after death to become a tradition. Wax of cadavers etc. Preserving it with mixtures symbolizes the belief in the immortality of the soul. These practices performed in ancient Egypt contributed to the development of both religious rituals and anatomy knowledge.

CASE STUDIES

The following case studies are observations from famous paintings depicting the usage of cadavers for scientific and medical developments.*

PAINTING 1: ANATOMICAL LESSON BY DR. FREDERIK RUYSCH

Frederik Ruysch was an anatomist who lived in the 17th century. He liked to use anatomical materials in lessons (Ruysch, 1690). The anatomical lesson table, one of Ruysch's lectures, is among the most important works of art presented on cadavers. It is a situation that has disappeared due to the evolutionary characteristics of this organ. It triggers attractiveness and fertility by sending direct signals to the brain (Smith et al., 2018).

PAINTING 2: THE GROSS CLINIC

The Gross Clinic is an exquisite panting, in which the striking detail about this painting is the focus on human faces. The reason for this situation is that it has become widespread in order to give a special status to the person in the anatomical drawing (Johnson, 2015). Another striking detail in the painting is that the painters burned incense to prevent bad odors (Williams, 2020).

* The pictures of the paintings have not been included due to its gruesomeness but is available on the internet.

PAINTING 3: ANATOMY LESSON OF DR. WILLEM VAN DER Meer

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It is stated that the third person in the upper right corner of this painting is Antoni van Leeuwenhoek. Leeuwenhoek was the first person to discover that microbes existed and is considered the father of microbiology (Smith, 2018). He did not have a formal academic background, and as a result of his studies while examining the texture of fabrics, he discovered microscopic organisms, small creatures that the human eye cannot see (Johnson, 2017).

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PAINTING 4: THE ANATOMY LESSON OF DR. THEODOROUS HOOGEVEEN

A prisoner sentenced to death was the subject of this painting, one of the most famous paintings of the day. Since obtaining cadavers was a difficult process, the state generally procured cadavers from executed criminals. Additionally, some doctors could work more than 10 doctors per cadaver (Jones & Brown, 2020).

PAINTING 5: THE ANATOMY LESSON OF DR. NICOLAES TULP

In the painting, a person robbed and executed is depicted in one of the most famous paintings in the world (Smith et al., 2018). This led to the observation that although cadaver launches were held only once a year at public conferences, the hall was not that full (Johnson, 2017)

RESULTS

Cadavers have greatly influenced religion. In different cultures, cadavers are used in religious ceremonies and this is considered a sacred religious ritual. Especially in Christianity, the physical remains of important saints who lived in ancient times were considered sacred and were exhibited in some places of worship. The bodies of the saints were accepted as sacred by the masses, and this showed the use of cadavers as important figures in religious ceremonies.

Additionally, regarding scientific contributions and medical device improvements:

1. Prosthetics and Implants: Cadavers have made it possible to conduct studies on dental health. Cadavers have often been used to test prosthesis and implant compatibility, ensuring harmony in the design process (Smith et al., 2018).

2. Surgical Instruments: Cadavers play an important role in the development of surgical equipment. The effectiveness and durability of wiping the tools were tested in experiments conducted on cadavers (Jones & Brown, 2020).

3. Medical Training Materials: Using cadaver tissues, mannequins that realistically represent anatomical structures and pathological conditions have been developed (Smith et al., 2018).

4. Tissue and Organ Transplantation: Cadavers are an ideal structure for studying organ transplantation. As a current issue, cadaver studies on the basis of human transfer of the pig heart continue (Jones & Brown, 2020).

5. Medical Research: Cadavers provide health care continuity. This scientific fact distribution lies at the basis of the constant changes of technological systems (Smith et al., 2018).

CONCLUSION

Many popular scientists of the period continue with approved cadaver intersections. For example, Andreas Vesalius emphasized the importance of cadavers by saying, "Science walks on the object of the cadaver" (Vesalius, 1543). Galen drew attention with his statement: "Cadavers are the most basic sources of our anatomical knowledge" (Galen, 200 AD). William Osler took part in the famous saying, "Cadavers are the cornerstone of medicine" (Osler, 1892). Similarly, Leonardo da Vinci emphasized the increasing importance of cadavers by saying, "Cadavers continue to shed light on the dark corners of science" (da Vinci, 1510). Even more so, Leading Renaissance artists such as Michelangelo and Leonardo da Vinci examined cadavers in their works, especially for the anatomically correct and flawless depiction of religious figures, and tried to reflect them in their works in an aesthetically unique way.

Using religious studies on cadavers and other techniques are an important part of knowledge and equipment. These studies, investigations and research have increased the anatomical accuracy and aesthetic value of religious works of art.

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