

## Blood Transfusion in Islam: An Integrative Analysis of Quranic Interpretation, Medical Ethics, and Social Perspectives

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### ABSTRACT

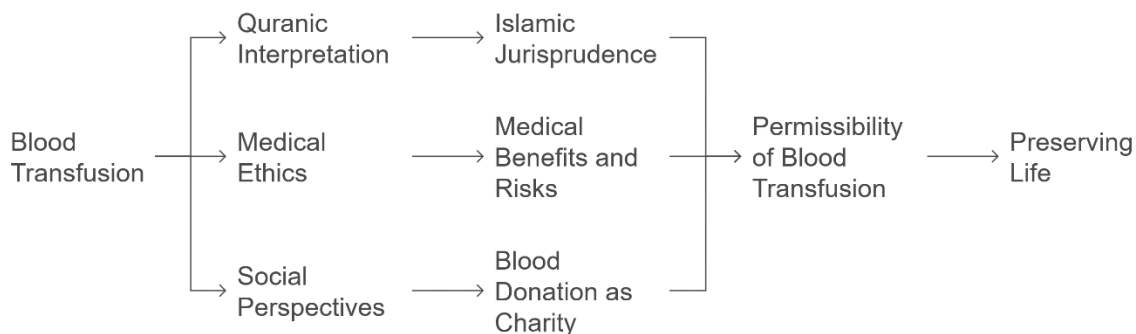
This study examines the Islamic bioethical perspective on blood transfusion, a common medical procedure that raises ethical and religious concerns. The research analyzes Quranic verses, hadiths, Islamic jurisprudence, and scholarly interpretations to understand the Islamic stance on blood, its use in medical treatments, and the permissibility of blood transfusion. While blood is generally considered impure in Islam and its consumption is prohibited, exceptions are made for life-saving medical interventions. The study explores the Quranic and hadith-based concepts of blood, its various mentions and contexts in Islamic texts, and how these relate to modern medical practices. It also discusses the medical benefits and risks of blood transfusion, including its life-saving potential and possible complications, within the framework of medical ethics. The research highlights the Islamic principle of preserving life (*hifdzu al nafs*) and how it applies to blood transfusion. Social aspects, including blood donation as an act of solidarity and charity, are examined through an Islamic lens. The study concludes that blood transfusion is permissible in Islam when medically necessary, aligning with the religion's emphasis on preserving life and helping others. This research contributes to the growing field of Islamic bioethics in contemporary medical practices.

### Key Messages:

- Islamic jurisprudence permits blood transfusion for life-saving medical interventions, despite the general prohibition on blood consumption, based on the principle of preserving life (*hifdzu al nafs*).
- Blood donation and transfusion are viewed as acts of solidarity and charity within the Islamic framework, aligning with the religion's emphasis on helping others and contributing to the understanding of Islamic bioethics in contemporary medicine.

## GRAPHICAL ABSTRACT

### Islamic Bioethical Perspective on Blood Transfusion



## INTRODUCTION

Developments of medicine open up a wide space for discussion about religious views on medical procedure that are sometimes considered taboo or not in accordance with religious norms. The Quran as a guide for Muslims is the main basis for assessing whether the medical procedure is acceptable or prohibited according to medical indications (1,2). Based on religious views, it can be assessed whether the medical procedure can be accepted by the community, especially by Muslims.

Blood transfusion is one of the medical procedures highlighted by religious communities. A person's religious views can influence their consideration towards blood transfusion. An example of a belief that rejects blood transfusions is Jehovah's witnesses, giving a dilemma for healthcare professionals to perform health services, especially those related to blood transfusions. Healthcare professionals must respect the patient's choice while maintaining the patient's safety from severe anemia. In Islam, blood is considered unclean, so it needs to be studied in terms of its halal status and medical necessity (3–6).

Blood transfusion is a common medical procedure to save lives by transferring a certain amount of blood from a donor into the body of the blood recipient who has the same blood type. Approximately 118.5 million units of donor blood are donated each year in the world and about 3 - 5% of the population of a country is required to donate blood to fulfill the need for blood transfusion. This high demand underscores the widespread use of blood transfusion in life-saving treatment (5,7–9).

This global need for blood transfusion highlights the urgency of providing clear Islamic guidance on its permissibility, especially considering the potential concerns regarding blood impurity, donor - recipient relations, and interfaith donations. Bridging religious norms with medical practice is essential for ensuring that Muslim communities feel confident and supported in accessing necessary treatments.

In some cases, human blood is considered *najis* (anything ritually impure or unclean in Islam that must be purified before performing acts of worship like prayer), which influences how Muslims approach its handling. In the Quran Surah Al-Baqarah verse 173: *"He has made unlawful to you only that which dies of itself, and blood and the flesh of swine, and that on which the name of any other than Allah has been invoked. But he who is driven by necessity, being neither disobedient nor exceeding the limit, it shall be no sin for him. Surely, Allah is Most Forgiving, Merciful."* This verse confirms that blood is one of the prohibited substances, whether it comes into contact with the skin or clothing or is consumed. However, exceptions are made under conditions of necessity, such as medical emergencies.

Blood is forbidden to be consumed, whether in whole form or as plasma. Menstrual blood is also considered *najis* and must be purified before worship (10–12). Some of the issues worried by Muslims on blood transfusion besides blood impurity also blood transfusion from married couples, blood from non-Muslims and the permissibility of intentionally removing blood from the body during blood donation (7).

Islamic scholars have provided various interpretations of these concerns. Ibn Jarir Attabari commenting on Quran surah al-An'am verse 145: *"Say, 'I do not find within that which was revealed to me*

*[anything] forbidden to one who would eat it unless it be a dead animal, or blood spilled out, or the flesh of swine – for indeed, it is impure – or it be [that slaughtered in] disobedience, dedicated to other than Allah. But whoever is forced [by necessity], neither desiring [it] nor transgressing [its limit], then indeed, your Lord is Forgiving and Merciful.”* The reason it is forbidden to consume carrion, blood or pork is because the Quran considers them as *rijsun*. *Rijsun* means impure and contains something dirty that must be purified (13,14).

In the Hadith, Imam Bukhari and Muslim recorded the words of Asma: A woman came to the Prophet and asked him, *“one of us has menstrual blood on her clothes, what should she do?”* The Prophet replied: *“She should scrape it, then rub it with water, then water it. (After that), he may use it for prayer.”* This hadith underscores the general principle that blood is impure and must be completely cleansed (15).

## AL-QURANIC CONCEPT OF BLOOD

In the Quran, the concept of blood is expressed through several key terms, each carrying significant meaning. The word *al-dam* and its derivations appear ten times in the Quran, highlighting various themes. For example, in Surah Al-Baqarah verse 30, blood is used symbolically to depict the violent tendencies of humans who shed blood and disregard the sanctity of life (16). In dietary contexts, blood is explicitly prohibited for consumption, as outlined in Surah Al-Baqarah verse 173 and Surah Al-Ma'idah verse 3. These verses emphasize the impurity of blood, along with carrion and pork, and declare them forbidden. However, in urgent circumstances, these prohibitions can be lifted without incurring sin, aligning with the Islamic legal principle of necessity (*darurat*), which permits the normally prohibited when life preservation is at stake. Additionally, the Quran uses the term *al-dam al-masfūh*, referring to flowing blood from slaughtered animals, to reinforce that spilled blood is impure and unfit for consumption, although blood remaining within the body is not treated the same way (17).

Beyond dietary law, blood also holds symbolic meaning in the Quran. In Surah Al-Hajj verse 37, the ritual act of animal sacrifice is mentioned, where the blood and meat do not reach Allah, but rather the devotion and piety of the individual do, signifying that the spiritual intention of the act holds more value than its physical elements (17). In other verses, blood is associated with disaster and impurity, likened to natural calamities such as floods or the death of livestock, further reinforcing its negative connotations. Yet, the Quran also acknowledges blood's critical biological role. The word *'alaqah*, which appears in Surah Al-Mu'minun verse 14, is used to describe a stage in fetal development where the embryo resembles a clinging blood clot. This stage corresponds to the formation of the mesoderm, a central tissue layer in the human embryo that gives rise to important bodily systems including the circulatory, musculoskeletal, and reproductive systems, as well as blood vessels and connective tissues (18,19).

Another Quranic term associated with blood is *ghislin*, referring to the punishment of the inhabitants of Hell who are fed filth in the form of blood and pus. This illustrates the concept of blood as something repugnant and unsuitable for human consumption, reinforcing its impure status (16). These various references demonstrate the Quran's complex portrayal of blood, as something forbidden and symbolically negative in dietary and ritual contexts, yet indispensable in the biological process of human creation. This duality informs ongoing Islamic ethical discourse regarding the use of blood in modern medical treatments, such as blood transfusions.

## BLOOD TRANSFUSION IN MEDICAL PERSPECTIVE

### Benefits of Blood Transfusion

Blood transfusion is a critical medical procedure used to restore and maintain adequate blood volume and oxygen-carrying capacity in patients facing life-threatening conditions. One of its most vital applications is in blood resuscitation during emergencies such as trauma, childbirth, or major surgical procedures. These situations carry a high risk of acute blood loss, which can quickly lead to hypovolemic shock and death if not promptly treated. Administering a blood transfusion in such cases helps restore the lost blood volume, significantly lowering the risk of fatal outcomes (20). Additionally, untreated chronic anemia can impair cardiac and respiratory function and, in severe cases, lead to multi-organ failure. In pregnancy, chronic anemia is associated with poor outcomes such as premature birth and low birth weight

infants. Blood transfusion remains a vital intervention in managing severe anemia, particularly when rapid correction is needed (21).

Beyond acute care, blood transfusions are essential in the treatment of chronic blood disorders such as thalassemia and cancer. Thalassemia, a genetic disorder characterized by defective hemoglobin synthesis, often results in life-threatening anemia. For patients with thalassemia, transfusion therapy is the cornerstone of treatment to reduce the risk of complications from severe anemia and improve quality of life (22,23). Similarly, anemia is commonly observed in cancer patients due to a combination of chronic disease, nutritional deficiencies, chemotherapy, radiation, and surgical blood loss. These factors create a substantial need for transfusions throughout the cancer treatment process (24,25).

Patients with blood cancers such as leukemia, lymphoma, and multiple myeloma often have compromised bone marrow, impairing their ability to produce adequate red blood cells and platelets. Blood transfusions are essential for sustaining organ function, preventing bleeding, and alleviating the effects of chemotherapy and radiation, which further suppress bone marrow activity (26). Platelets are especially important in preventing hemorrhagic complications in these vulnerable patients. While transfusion is a critical therapeutic measure, emerging research suggests that routine or excessive use may impair immune function or influence cancer progression, necessitating personalized transfusion strategies based on patient condition and cancer type (27).

Despite the need, donated blood products remain scarce and irreplaceable, as they cannot be synthetically manufactured. Less than 3% of eligible adults donate blood, though someone requires blood every two seconds (26). Global disparities also persist: 80% of the world's population has access to only 20% of the safe blood supply, contributing to millions of infections from unsafe transfusions, including hepatitis B, hepatitis C, and HIV (28). Appropriately administered red blood cell (RBC) transfusions have been shown to reduce in-hospital mortality, cardiac events, and infections, especially under restrictive protocols supported by clinical decision tools (29). Thus, blood transfusion remains a life-saving practice requiring ethical discernment, robust donation systems, and evidence-based clinical application, especially in oncology and hematologic care.

In light of these challenges and limitations, emerging medical technologies such as autotransfusion and artificial blood substitutes are gaining attention. Autotransfusion, the process of collecting and reinfusing a patient's own blood, minimizes the risk of transfusion-transmitted infections and eliminates compatibility issues. Additionally, ongoing research into hemoglobin-based oxygen carriers (HBOCs) and perfluorocarbon emulsions as synthetic blood alternatives offers promising potential to alleviate blood shortages.

From an Islamic bioethical perspective, these innovations could be seen as aligned with the principles of preserving life (*hifz al-nafs*), minimizing harm (*dar' al-mafāsīd*), and necessity (*darūrah*). If proven safe and effective, they may be considered permissible, especially when conventional donor blood is unavailable or poses a greater risk. These forward-looking solutions reflect Islam's adaptive legal methodology in addressing evolving medical needs while upholding ethical boundaries.

## **Risk of Blood Transfusion**

### **Transfusion-Transmitted Infection**

Infectious agents such as viruses, bacteria, fungi and parasites can enter a person's body through blood transfusion. Infection transmitted in medical procedures has been a concern since 1980 with the discovery of the transmission of human immunodeficiency virus (HIV) and hepatitis C virus (HCV) by transfusion. Various screening methods to detect infectious agents in transfused blood were performed to minimize the risk of infection through blood transfusion even down to the nucleic acid amplification test (NAT) method that detects up to the molecular level of viruses and bacteria. There is still risk of infection due to the limitations of screening tests that cannot examine all types of infectious agents (30,31). The Association for the Advancement of Blood & Biotherapies (The AABB) Transfusion Transmitted Disease Committee in 2009 identified 68 infectious agents that can be transmitted in transfused blood (32,33).

Epidemiological data can be used as a guide to determine preventive measures for the transmission of these infections through blood transfusion. Currently, mandatory screening tests for blood

transfusions are HIV, hepatitis B virus (HBV), HCV and *Treponema pallidum* (33–35). Blood donors are the key to providing transfused blood. Various programs need to be implemented to prevent transfusion-transmission infection including HIV prevention efforts in blood donors (36). Diseases or infectious agents recently been known to be transmitted by transfusion include severe acute respiratory syndrome (SARS), malaria, chagas disease, leishmaniasis, Babesia, Hepatitis virus A, hepatitis virus E, dengue virus (DENV), cytomegalovirus (CMV), west nile virus (WNV), parvovirus and others (37).

### **Blood Transfusion Reaction**

A transfusion reaction is defined as an adverse effect after a blood transfusion. Transfusion reactions have varied clinical symptoms from mild to life-threatening effects. The diagnosis of a transfusion reaction is difficult to identify due to the many symptoms after a transfusion. Each side effect found should be monitored until the patient receives adequate therapy (38).

Transfusion reactions are divided into immune reactions and non-immune reactions. Immune reactions are caused by incompatibility between antigens and antibodies. Non-immune reactions is caused by mechanisms other than immunologic mechanisms, the most common reaction is transfusion-associated circulatory overload (TACO) caused by large or rapid blood intake resulting in increased hydrostatic pressure and causing pulmonary edema (39,40).

## **RELIGIOUS ASPECTS OF BLOOD TRANSFUSION**

One of the concerns of religious communities regarding blood transfusion is the prohibition to consume blood. Most religions or beliefs in the world allow blood transfusions for saving live reason. However, blood is also a symbol of power in various beliefs as a symbol of sacrifice, martyrdom, menstruation, virginity and so on. Blood is a symbol of life considered essential to sustain life (41,42).

In some faiths the blood transfusion issue is not explained in detail in the scriptures and it is left to the adherents to make decisions regarding blood transfusion. There are many faiths such as Buddhist, Episcopal and Catholic that consider tissue and organ donation a noble act. While some other beliefs such as Gypsy do not allow blood transfusions with the belief in life after death and the body must remain intact because the soul is not related to the physical form (41).

Jehovah's Witnesses hold religious view it is wrong and forbidden to put one's blood into another person's body. This includes all blood components, including whole blood, plasma, packed red cells (PRC), white blood cells and platelets. Jehovah's Witnesses may choose to receive blood products such as albumin, immunoglobulin and coagulation factors. They generally receive medical therapies without involving blood or blood components (3).

In Islam, the law of a haram can change if there are life-threatening conditions. Just like the law of haram food can become halal if it can save lives. In other cases, vaccines are also found to be permissible due to urgency and no halal vaccines was found (7). Islam generally permits blood transfusions, but it needs to be assessed whether blood transfusions are truly necessary in a person's treatment without any worries that may interfere with faith.

The main challenge in the religious aspect of Islam towards blood transfusion is the unclear religious myths that are questioned and developed in the community. These myths include blood donation can break the fast, blood donation will create a *nasab/mahram* relationship (*Nasab*: the blood lineage or kinship, establishing your family tree and dictating rights like inheritance. *Mahram*: the individuals with whom marriage is permanently forbidden due to blood, fosterage, or marital ties, allowing for relaxed social interaction and often serving as travel escorts), donation is considered dangerous because it goes against fate, non-Muslim donor blood is *haram* and donating blood can reduce lifespan, but these myth has no basis in Islam (43).

## **SOCIAL ASPECT OF BLOOD TRANSFUSION**

Blood transfusion is not only a medical intervention but also a reflection of social solidarity in society. Generally, transfused blood is obtained from voluntary donors or substitute donors (from family or relatives). Blood products are obtained from healthy people to be donated to other people in need. According to the World Health Organization (WHO) standards, the minimum need for transfused blood in

Indonesia is around 5.1 million blood bags per year. This number is obtained from 2% of Indonesia's population. Currently, the production of blood and blood products is around 4.1 million bags from 3.4 donations. About 90% of the blood products come from voluntary blood donors. The people are expected to play a role by becoming blood donors to ensure the availability of transfused blood. Adequate blood supply reduces the risk of anemia and its effects (44,45).

The basic principle of humanity in Islam is to preserve human life. "*And whoever saves one – it is as if he had saved mankind entirely*" (QS. Al Maidah: 32). In Islam, Allah SWT bless every human being who protects the life and safety of his soul. Human life is so valuable so that protecting it becomes one of the main goals of religion (*hifdzu al nafs*). Every human being has relationships with other humans, both family and social relationships. That is why protecting the life of one human being seems to be as valuable as protecting the lives of all human beings, because it is essentially the same as preserving the existence of human life (14).

Islam gives special attention to human beings to work together to fulfill human needs. In Islam, people who are happy to help and ease the burden of suffering of others. Allah SWT promises to repay his kindness. This is in accordance with the hadith of the Prophet Muhammad (peace be upon him) narrated by Muslim: "*Whoever relieves a believer's distress of the distressful aspects of this world, Allah will rescue him from a difficulty of the difficulties of the Hereafter. Whoever alleviates [the situation of] one in dire straits who cannot repay his debt, Allah will alleviate his lot in both this world and the Hereafter. Whoever conceals [the faults of] a Muslim, Allah will conceal [his faults] in this life and the Hereafter. Allah helps the servant as long as he helps his brother...*" (46). One of the essential principle of social life in Islam is nurturing good relationship with others (*hablumminannas*). In addition, in Islam are the peoples encouraged to help each other in goodness and faith, and avoid helping each other in sin and hostility (Surah Al-Maidah verse 2) (47).

## BLOOD DONATION AND BLOOD TRANSFUSION IN AL-QURAN PERSPECTIVE

The Islamic jurisprudential perspective on blood transfusion and donation is deeply rooted in the interpretive tradition of the Quran and the principles of *fiqh* (the science of Islamic jurisprudence). Wahbah az-Zuhaili, in his *Tafsir al-Munir*, explains that the prohibition of consuming blood that flows out of the body is based on its harmful nature and the innate human aversion to it. Therefore, blood is considered haram not only due to its impurity but also because of its potential to cause harm (17). In *Tafsir ash-Sha'rawi*, blood is described as a substance that flows continuously through the veins, serving critical biological functions such as warming the body, delivering nutrients, and transporting waste to the kidneys and lungs. This highlights the essential role of blood in sustaining life and the complexity of its consideration within Islamic legal discourse (48).

Contemporary tafsir works also engage with the application of Islamic legal principles to modern medical issues. In *Tafsir Maudhu'i*, volume 7, page 312, it is stated that blood transfusion is addressed through *fiqh*-based reasoning, providing a theoretical foundation for interpreting verses related to its permissibility. The tafsir explains that blood transfusion is permissible to save patients suffering from certain medical conditions, and blood donation, whether direct or facilitated by institutions like the Indonesian Red Cross, is also allowed within this framework (49). These rulings are firmly grounded in the broader Islamic legal maxim that "necessity makes the forbidden permissible" (*al-ḍarūrāt tubīḥ al-maḥẓūrāt*), emphasizing the obligation of every believer to preserve life by seeking appropriate medical treatment, even if it involves elements that are normally prohibited. This aligns with the Quranic objective of preserving life (*ḥifẓ al-nafs*) as one of the core purposes of *maqāṣid al-sharī'ah*.

According to Imam Nawawi in his commentary on *Sahih Muslim*, the body of every human, including that of non-Muslims, is pure, indicating that Islamic law does not require the donor and recipient of blood to share the same religious beliefs or ethnicity. This reinforces the view that blood donation, when done with sincere intent, is a highly valued humanitarian act and is strongly encouraged in Islam, particularly when it serves to save human lives (46,50).

Furthermore, *Tafsir Maudhu'i* affirms that blood plays a crucial role in life preservation and that in certain medical circumstances, its use is not only acceptable but necessary. Islamic scholars permit the

use of human blood in treatments when no viable alternative exists, provided that the process adheres to ethical boundaries and Islamic principles (49). To address modern practices such as blood transfusion (*naqlud-dam*), *fuqahā'* (Islamic legal scholars) apply established *fiqh* maxims such as al-Qawā'id al-Khamsah, the five overarching legal principles, including the preservation of life and the prevention of harm. Scientific evidence strongly supports blood transfusion as an effective and life-saving treatment. Nevertheless, ethical boundaries remain important, particularly regarding the prohibition of commercializing blood. In Islam, blood donation is considered part of *ta'āwun* (mutual assistance) and *ṣadaqah* (charitable giving), and the selling or monetization of blood is strictly forbidden (51).

## CONCLUSION

According to Islamic jurisprudence, human blood is generally regarded as impure and prohibited for consumption or intentional contact. However, exceptions are recognized in cases of urgent medical need, particularly to preserve human life (*ḥifẓ al-nafs*), a fundamental objective of the higher goals of Islamic law (*maqāṣid al-sharī'ah*). In such contexts, blood transfusion is considered permissible. Moreover, Islam encourages blood donation as a form of altruism and charitable giving (*ṣadaqah*), provided it is carried out with sincere intent and in accordance with established medical guidelines. This study contributes to the broader field of Islamic bioethics by clarifying the permissibility and moral value of blood transfusion and donation within the Islamic legal framework. Future research may explore how these ethical principles are applied in clinical settings in Muslim-majority countries or compare Islamic rulings on blood transfusion with those of other religious traditions.

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## CONFLICTS OF INTEREST

The authors declare no conflict of interest

## REFERENCES

1. Swihart DL, Yarrarapu SNS, Martin RL. Cultural Religious Competence in Clinical Practice. Dalam: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [dikutip 13 Juni 2025]. Tersedia pada: <http://www.ncbi.nlm.nih.gov/books/NBK493216/>
2. Saleem SM, Jan SS. Exploring the Medical Knowledge Presented in the Quran: An Analysis of its Accuracy and Relevance. Indones J Interdiscip Islam Stud IJIIS [Internet]. 2023 [dikutip 13 Juni 2025]; Tersedia pada: <https://journal.uui.ac.id/IJIIS/article/view/28661>
3. Rumun AJ. Influence Of Religious Beliefs On Healthcare Practice. 2014;2(4).
4. Crowe EP, DeSimone RA. When blood transfusion is not an option owing to religious beliefs. Ann Blood. April 2022;7:22–22.
5. Zucoloto ML, Bueno-Silva CC, Ribeiro-Pizzo LB, Martinez EZ. Knowledge, attitude and practice of blood donation and the role of religious beliefs among health sciences undergraduate students. Transfus Apher Sci. 1 Oktober 2020;59(5):102822.
6. Charsetad P. Role of religious beliefs in blood donation behavior among the youngster in Iran: A theory of planned behavior perspective. J Islam Mark. 1 Januari 2016;7(3):250–63.
7. Zahid DM, Amin DZ. Blood Transfusion: A Critical Review in Light of Shariah. 2016;
8. WHO. Blood safety and availability [Internet]. 2023 [dikutip 28 Februari 2024]. Tersedia pada: <https://www.who.int/news-room/fact-sheets/detail/blood-safety-and-availability>
9. Friedman MT, Avadhani V, Gilmore S, Madrigal E. Blood Transfusion in the 21st Century. Discoveries. 2(1):e11.
10. Mohd Kashim MIA, Hasim NA, Othaman R, Yahaya MZ, Khalid R, Samsudin MA, dkk. Plasma Darah dalam Makanan daripada Perspektif Islam dan Sains. Sains Malays. 31 Oktober 2017;46(10):1779–87.

11. Yenti E. Berobat Dengan Benda Haram Dalam Perspektif Islam. *Al Irsyad J Bimbingan Konseling Islam*. 1 Oktober 2018;1(2):137–44.
12. Sa'adah N, Zafi AA. Hukum Seputar Darah Perempuan dalam Islam. *Martabat J Perempuan Dan Anak*. 1 September 2020;4(1):155–74.
13. Attabari IJ. *Jami Al-Bayan*. 8 ed. Vol. 11. Egypt: Darul Fikr;
14. Saheeh International, Muntadā al-Islāmī, editor. *The Qur'ān: English meanings and notes*. London: Al-Muntada Al-Islami Trust; 2011. 695 hlm.
15. Bukhari M bin I. *Shahih Bukhari*. 4 ed. Vol. 9. Egypt: Dar Al Basyair; 1992.
16. Al Asfahani R. *Mu'jam Mufradat Li-Alfaz*. Egypt: Dar Al Kutub AL Ilmiah; 2013.
17. Al Zuhaili W. *Tafsir Al Munir*. 8 ed. Damaskus: Darul Fikr; 2005.
18. Stevani Elenia. I'jazul Qur'an dalam QS. al-Mu'minin Ayat 14: Kajian 'Alaqah dan Mudgah di Era Modern. *Al-Jadwa J Studi Islam*. 14 September 2023;3(1):62–75.
19. Nassar MM. Embryology in the Qur'an: A description of the Mudghah Stage - Islam Compass [Internet]. 2023 [dikutip 13 Mei 2025]. Tersedia pada: <https://islamcompass.com/embryology-in-the-quran-a-description-of-the-mudghah-stage/>
20. Tien H, Nascimento B, Callum J, Rizoli S. An approach to transfusion and hemorrhage in trauma: current perspectives on restrictive transfusion strategies. *Can J Surg*. Juni 2007;50(3):202–9.
21. Badireddy M, Baradhi KM. Chronic Anemia. Dalam: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [dikutip 6 Mei 2025]. Tersedia pada: <http://www.ncbi.nlm.nih.gov/books/NBK534803/>
22. Shah FT, Sayani F, Trompeter S, Drasar E, Piga A. Challenges of blood transfusions in  $\beta$ -thalassemia. *Blood Rev*. 1 September 2019;37:100588.
23. Cappellini MD, Cohen A, Eleftheriou A, Piga A, Porter J, Taher A. Blood Transfusion Therapy in  $\beta$ -Thalassaemia Major. Dalam: Guidelines for the Clinical Management of Thalassaemia [Internet] 2nd Revised edition [Internet]. Thalassaemia International Federation; 2008 [dikutip 6 Mei 2025]. Tersedia pada: <https://www.ncbi.nlm.nih.gov/books/NBK173967/>
24. Goubran HA, Elemary M, Radosevich M, seghatchian J, El-Ekiaby M, Burnouf T. Impact of Transfusion on Cancer Growth and Outcome. *Cancer Growth Metastasis*. 1 Januari 2016;9:CGM.S32797.
25. Prescott LS, Vergote I, Sun CC, Bodurka DC, Coleman RL. Transfusion utilization and effect on progression free, overall survival and quality of life in up front treatment of advanced epithelial ovarian cancer: evaluation of the European Organization for Research and Treatment EORTC-55971 cohort. *Int J Gynecol Cancer Off J Int Gynecol Cancer Soc*. 3 Januari 2023;33(1):1–9.
26. Jones A. Mayo Clinic Health System. 2023 [dikutip 13 Juni 2025]. Blood donation benefits for cancer. Tersedia pada: <https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/benefits-of-blood-donations-for-cancer>
27. Goubran HA, Elemary M, Radosevich M, seghatchian J, El-Ekiaby M, Burnouf T. Impact of Transfusion on Cancer Growth and Outcome. *Cancer Growth Metastasis*. 1 Januari 2016;9:CGM.S32797.
28. Bates I, Owusu-Ofori S. Blood Transfusion. *Mansons Trop Dis*. 2009;229–34.
29. Goodnough LT, Panigrahi AK. Blood Transfusion Therapy. *Med Clin*. 1 Maret 2017;101(2):431–47.
30. Goodnough LT. Blood management: transfusion medicine comes of age. *Lancet Lond Engl*. 2013;381(9880):1791–2.
31. Vieira PCM, Lamarão LM, Amaral CE de M, Corrêa AS de M, de Lima MSM, Barile KA dos S, dkk. Residual risk of transmission of human immunodeficiency virus and hepatitis C virus infections by blood transfusion in northern Brazil. *Transfusion (Paris)*. 2017;57(8):1968–76.
32. Stramer SL, Hollinger FB, Katz LM, Kleinman S, Metzels PS, Gregory KR, dkk. Emerging infectious disease agents and their potential threat to transfusion safety. *Transfusion (Paris)*. Agustus 2009;49 Suppl 2:1S-29S.
33. Fong IW. Blood Transfusion-Associated Infections in the Twenty-First Century: New Challenges. Dalam: Fong IW, editor. *Current Trends and Concerns in Infectious Diseases* [Internet]. Cham: Springer International Publishing; 2020 [dikutip 11 Maret 2024]. hlm. 191–215. (Emerging Infectious Diseases of the 21st Century). Tersedia pada: [https://doi.org/10.1007/978-3-030-36966-8\\_8](https://doi.org/10.1007/978-3-030-36966-8_8)



34. World Health Organization. Screening for transfusion-transmissible infections. Dalam: Screening Donated Blood for Transfusion-Transmissible Infections: Recommendations [Internet]. World Health Organization; 2009 [dikutip 11 Maret 2024]. Tersedia pada: <https://www.ncbi.nlm.nih.gov/books/NBK142989/>
35. Weimer A, Tagny C t, Tapko J b., Gouws C, Tobian A a. r., Ness P m., dkk. Blood transfusion safety in sub-Saharan Africa: A literature review of changes and challenges in the 21st century. *Transfusion* (Paris). 2019;59(1):412–27.
36. Singogo E, Chagomerana M, Van Ryn C, M'bwana R, Likaka A, M'baya B, dkk. Prevalence and incidence of transfusion-transmissible infections among blood donors in Malawi: A population-level study. *Transfus Med*. 2023;33(6):483–96.
37. Stramer SL, Dodd RY, AABB Transfusion-Transmitted Diseases Emerging Infectious Diseases Subgroup. Transfusion-transmitted emerging infectious diseases: 30 years of challenges and progress. *Transfusion* (Paris). Oktober 2013;53(10 Pt 2):2375–83.
38. Ackfeld T, Schmutz T, Guechi Y, Le Terrier C. Blood Transfusion Reactions—A Comprehensive Review of the Literature including a Swiss Perspective. *J Clin Med*. Januari 2022;11(10):2859.
39. Andisari HE. Kegawatan Pada Reaksi Transfusi. *Oceana Biomed J*. 16 Agustus 2021;4(2):145–63.
40. Harun H. Transfusion-Associated Circulatory Overload. *J Kesehat Tadulako*. 2018;4(3):10.
41. Iowa Donor Network [Internet]. [dikutip 29 Februari 2024]. Iowa Donor Network. Tersedia pada: <http://www.iowadonornetwork.org>
42. Biale D. Blood and Belief: The Circulation of a Symbol between Jews and Christians [Internet]. University of California Press; 2007 [dikutip 1 Maret 2024]. Tersedia pada: <https://academic.oup.com/california-scholarship-online/book/20728>
43. Ashari F. Antara News. 2024 [dikutip 22 Mei 2025]. Mitos dan fakta yang perlu di ketahui tentang donor darah. Tersedia pada: <https://www.antaraneews.com/berita/3913968/mitos-dan-fakta-yang-perlu-di-ketahui-tentang-donor-darah>
44. Indonesia Butuh Darah 5,1 Juta Kantong Pertahun [Internet]. Sehat Negeriku. 2017 [dikutip 6 Mei 2025]. Tersedia pada: <https://sehatnegeriku.kemkes.go.id/baca/umum/20170711/5721625/indonesia-butuh-darah-51-juta-kantong-pertahun/>
45. Hendra H, Bakari Y, Hapsa H, Aepu SHN. Blood Donation as a Form of Social Solidarity. *J Univers Community Empower Provis*. 6 Desember 2024;4(2):120–30.
46. An Naisaburi IMBAH. Shahih Muslim. Egypt: Darul Fikr; 2010.
47. Translated Maulawi SherAli 1. The Holy Quran - Arabic Text and English Translation. Islam Int Publ Ltd. 2021;
48. Sya'rawi SMM. Tafsir Sya'rawi. Vol. 1. Medan: Duta Azhar; 2016.
49. Hanafi MM. Tafsir Maudhu'i. 1 ed. Vol. 7. Jakarta: Lentera Ilmu Makrifat; 2019.
50. Jamaa L. Penalaran Hukum Islam Terhadap Donor Darah Antar Orang Berbeda Agama. 2014;(2).
51. Firdaus. AL-Qawaid Al-Fiqhiyyah. 1 ed. Padang: Imam Bonjol Press; 2015.