**Analysis of Stunning Methods in Animal Slaughter: A Comparative Study Between Countries**

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**ABSTRACT:** *This study analyses the differences in regulation and application of stunning methods in halal slaughter between Muslim-majority and Muslim-minority countries, as well as the implications for meat halalness and animal welfare. In Muslim-majority countries such as Indonesia, Malaysia, and Saudi Arabia, stunning is accepted under strict conditions, such as it must be reversible and not cause death before slaughter, to ensure compliance with the principles of Islamic law. In contrast, in Muslim minority countries such as the UK, USA, and Australia, stunning is required to fulfill animal welfare standards, although exceptions are made for ritual slaughter. This study uses normative juridical research with a Systematic Literature Review (SLR) approach to identify the regulation and application of stunning in various countries. The results show that stunning can improve animal welfare if done correctly, but its compatibility with Islamic law remains contentious. This research provides important insights for policymakers to align religious principles with modern industry standards through more intensive cross-cultural and religious dialogue.*

**ABSTRAK:** *Penelitian ini menganalisis perbedaan regulasi dan penerapan metode stunning dalam penyembelihan halal antara negara mayoritas Muslim dan minoritas Muslim, serta implikasinya terhadap kehalalan daging dan kesejahteraan hewan. Di negara mayoritas Muslim seperti Indonesia, Malaysia, dan Arab Saudi, stunning diterima dengan syarat ketat, seperti harus bersifat reversibel dan tidak menyebabkan kematian sebelum penyembelihan, untuk memastikan kepatuhan terhadap prinsip syariat Islam. Sebaliknya, di negara minoritas Muslim seperti Inggris, Amerika Serikat, dan Australia, stunning diwajibkan untuk memenuhi standar kesejahteraan hewan, meskipun pengecualian diberikan kepada penyembelihan ritual. Studi ini menggunakan jenis penelitian yuridis normatif dengan pendekatan Systematic Literature Review (SLR) untuk mengidentifikasi regulasi dan penerapan stunning di berbagai negara. Hasil penelitian menunjukkan bahwa stunning dapat meningkatkan kesejahteraan hewan jika dilakukan dengan benar, tetapi tetap menimbulkan perdebatan terkait kesesuaiannya dengan syariat Islam. Penelitian ini memberikan wawasan penting bagi pembuat kebijakan untuk menyelaraskan prinsip agama dengan standar industri modern melalui dialog lintas budaya dan agama yang lebih intensif.*

**Keywords:** *Stunning, Halal Slaughter, Intercountry Regulation*

1. **INTRODUCTION**

The global halal industry has grown rapidly, with a market value estimated to reach USD 3.2 trillion in 2022. It includes key sectors such as food, Islamic finance, cosmetics, pharmaceuticals, and halal tourism, with an annual growth rate of 8% (Herianti et al., 2023; Utari et al., 2022). This development is driven by the global Muslim population of 1.8 billion people and the increasing interest of non-Muslim consumers in halal products because they are considered more hygienic and safe (Saleh & Rajandran, 2024).

Indonesia, as a country with the largest Muslim population, has an excellent opportunity to become the center of the world's halal industry through the halal certification target for 10 million products by 2024 as part of a strategy to strengthen the national halal ecosystem (Aida et al., 2024). This sector is projected to contribute significantly to future economic growth with collaboration between the government, business actors, and the community (Jufra, 2020). Muslim consumer's purchase decisions have been influenced by halal certification and label (Giyanti & Indriastiningsih, 2019; Millatina et al., 2022; Muhammad Hamka Habibie et al., 2020; Siregar & Alam, 2018).

With the increasing global demand for halal meat, dialogue between animal welfare researchers, Islamic scholars, and halal certification bodies is essential to ensure sharia-compliant slaughtering practices while meeting animal welfare standards (Fuseini, Wotton, et al., 2017). This phenomenon shows that the halal industry is developing economically and continues to adapt to modern challenges in ethical and technological aspects (Bottoni, 2017; Enggarani & Nugroho, 2020; Okdinawati et al., 2021).

Halal slaughter plays an important role in this industry as it ensures the halalness of the meat consumed by Muslims (Aidaros, 2013). The halal slaughter method, following Islamic law, involves cutting the trachea, esophagus, and carotid arteries while saying the name of Allah (Roselia & Hafiz, 2024). This practice fulfills the religious aspect, considers animal welfare, and becomes part of the halal food supply chain (Wahyuni et al., 2021). Animal welfare is one of the main things in producing halal meat. The issue of animal welfare violations is a sensitive situation for the world community because it has an impact on the results of the slaughter (Noor et al., 2023).

In some Western countries, slaughter has required animals to be stunned before slaughter to prevent their suffering (Zuolo, 2015). A simple stun results in the animal being temporarily unconscious and insensitive to pain, pressure, fear, and suffering (Tetlow et al., 2022). From the point of view of animal welfare standards, several issues have been raised related to halal slaughter without stunning, especially regarding stress control methods and animal conditions that arise due to unconsciousness (Nakyinsige et al., 2013).

The most widely used stunning methods are mechanical stunning, electric stunning, and exposure with gas (Velarde & Dalmau, 2017). The method of slaughtering by stunned aims to increase the efficiency of the slaughtering process and reduce pain in animals, but it raises debate regarding its suitability with Islamic sharia law (Nugraha, 2024). However, the fainting method is the most effective way to avoid the pain experienced by animals, affecting their welfare (Nakyinsige et al., 2013).

In Muslim-majority countries, regulations on the *stunning* tend to consider halal aspects based on Islamic sharia while meeting industrial modernization standards. In contrast, in Muslim minority countries, the regulation is often influenced by social and political pressure from non-Muslim groups who fight for animal welfare without fully understanding the principles of halal slaughter (Riaz et al., 2021).

A comparative analysis of laws between countries regarding *stunning* methods is important to explore how the application of Islamic law can adapt to various cultural contexts and diverse political dynamics. It also provides insight into the challenges faced by the global halal industry in bridging the religious needs of Muslims with the demands of modernization and international regulations.

This study aims to conduct a systematic review of stunning regulations in halal slaughter in various Muslim and non-Muslim majority countries. Using the Systematic Literature Review (SLR) approach, this study will identify the regulation and application of the stunning law in halal slaughter to the halalness of meat and animal welfare. The results of this research are expected to provide deeper insights into how Islamic law is applied in a diverse global context.

1. **LITERATURE REVIEW**

Halal slaughter is an integral part of Islamic teachings that regulate the procedure for slaughtering animals according to sharia. In the modern context, Riaz et al. (2021), in their research, said that the stunning is one of the controversial topics because it involves technology that is not explicitly mentioned in the Qur'an and Hadith. The stunning method is a technique used to make animals immobile or unconscious before or during the slaughter process (Nakyinsige, Sazili, et al., 2014). Stunning is done to make animals unconscious before slaughter, to reduce pain and stress in animals, and to improve welfare standards during the slaughter process. However, This stunning method has given rise to debate among scholars and Muslim communities regarding the halalness of the meat produced (Fuseini, Wotton, et al., 2017).

In the perspective of Islamic law, it is mentioned in QS. Al-An'am verse 119 says that halal slaughter must meet several conditions, such as animals must live when slaughtered, the name of Allah must be mentioned, and blood must come out ultimately. Stunning is considered halal if it is reversible. That is, animals can regain consciousness if they are not slaughtered and do not cause death or permanent injury before slaughter (Nakyinsige, Fatimah, et al., 2014).

In Indonesia, the Fatwa of the Indonesian Ulema Council (MUI) Number 12 of 2009 allows the use of the method of stunning (stunning), provided that the stun does not cause death or permanent injury to the animal before slaughter (Majelis Ulama Indonesia, 2009). This mechanism ensures that the meat produced remains halal and meets the principles of Courtesy in Islam (Husna, 2021; Nakyinsige, Fatimah, et al., 2014). In contrast, the research conducted by Nugraha, 2024 that the Aceh MPU Fatwa No. 6 of 2013 prohibits all forms of stunning, arguing that this method is considered incompatible with Islamic sharia principles because it can increase animal suffering. This difference of views reflects the complexity of applying Islamic law in the modern context.

In Muslim minority countries such as the European Union and Australia, halal slaughter regulations include the use of stunning as an animal welfare standard. Based on research in the UK, although stunning is allowed in specific contexts, there is political pressure to limit the practice of halal slaughter manually (Fuseini, Wotton, et al., 2017). Roselia and Hafiz (2024) revealed that some countries provide exemptions for Muslim communities to carry out slaughter without stunning as long as it is under religious rules.

In Muslim countries such as Malaysia and Saudi Arabia, stunning is widely accepted because it meets strict halal standards (Fuseini, Knowles, Lines, et al., 2016; Fuseini, Knowles, et al., 2017). Comparison between Muslim-majority countries such as Indonesia and Muslim minority countries, according to Tsalitsah, 2022 shows that there are differences in approaches to accommodating religious needs and modern industry standards.

Studies show that stunning has advantages in reducing animal suffering and increasing the efficiency of the slaughtering process. However, stunning can reduce blood expenditure efficiency and affect meat quality (Anil & Gregory, 2014; Franco & Lorenzo, 2014). In addition, a survey in Europe shows that the majority of Muslims prefer meat to slaughter without stunning for religious reasons (Sazili et al., 2023).

In the global context, the difference in views related to stunning reflects the challenge of aligning Islamic sharia principles with modern animal welfare standards. This study aims to explore the stunning differences in regulations between Muslim majority and minority countries on halal meat and animal welfare. With the Systematic Literature Review approach, this research will provide comprehensive insights into how stunning is applied in various legal and cultural contexts.

1. **METHOD**

This study uses a type of normative juridical research with an approach *Systematic Literature Review* (SLR) to analyze the regulation and application of stunning laws in halal slaughter in countries with a Muslim majority and a Muslim minority. A systematic Literature Review *is* a methodology or analytical tool used to collect and process several studies, which are then identified and analyzed (Triandini et al., 2019). This process can be carried out through critical analysis, mapping, or evaluation of previous studies on the same topic. Therefore, SLRs effectively summarize the literature to help researchers answer predetermined research questions (Hassan, 2022).

The SLR method is considered appropriate for this study because it has a systematic structure in the analysis process. Using SLR, synthesis from various previous studies can be obtained more easily (Korber & McNaughton, 2018). Therefore, empirical measurements, as carried out in other studies, are considered less relevant to be used in the context of this study. The SLR method was chosen because it allows researchers to systematically identify, evaluate, and synthesize relevant literature to answer research questions comprehensively and evidence-based (Kitchenham et al., 2009). This approach aims to provide an in-depth understanding of the differences in regulations, views of Islamic law, and implications for halal meat and animal welfare.

The research begins with literature identification by searching for each country's scientific articles, legal documents, and official reports. The primary data sources are obtained from academic databases and official legal documents of each country. Identification criteria include literature that discusses stunning regulations in halal slaughter, Islamic Sharia perspectives related to stunning, and its implications for animal welfare.

The collected data was analyzed using a descriptive-qualitative approach, where information from various literatures was categorized based on key themes, such as regulations in Muslim-majority countries (e.g., Indonesia, Malaysia) and Muslim-minority countries (e.g., European Union, Australia). The focus of this research is to analyze the comparison of laws related to stunning methods in animal slaughter on the halalness of meat and animal welfare in 6 countries: 3 Muslim minority countries and three others are Muslim majority. Seven sources of legal documents from these six countries were obtained.

**Table 1. Country Name and Number of Documents**

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| --- | --- | --- | --- |
| **Information** | **Number of Documents** | **Country Name** | **Document Name** |
| Muslim Minority | 3 Documents | English | Welfare of Animals at the Time of Killing (England) Regulations 2015 |
| America | Humane Methods of Slaughter Act |
| Australia | Australian Animal Welfare Standards and Guidelines |
| Muslim Majority | 4 Documents | Indonesia | * MUI Fatwa No. 12 of 2009 * Aceh MPU Fatwa No. 06 of 2013 |
| Malaysia | MS 1500:2009 |
| Saudi Arabia | GSO 993/1998 |

The results of this method are expected to provide a comprehensive picture of how stunning laws are applied in different countries with different political, cultural, and legal backgrounds. This study highlights the importance of an evidence-based approach in evaluating the regulation and application of stunning. This study provides important insights for policymakers in formulating harmonized global regulations by understanding the differences in perspectives between countries and their implications for halal meat and animal welfare. In addition, this study also aims to identify gaps in previous studies and offer practical recommendations to align Islamic sharia principles with modern halal industry standards.

1. **RESULT**

This study analyzes the differences in regulations and the application of stunning laws in halal slaughter between Muslim majority and minority countries. The results show that although the stunning method aims to improve animal welfare, the acceptance of this method varies greatly depending on the legal context, culture, and interpretation of Islamic sharia in each country (Sazili et al., 2023). In contrast, in Muslim minority countries such as the United Kingdom, the United States, and Australia, stunning is required by law to ensure animal welfare. However, there are limited exceptions for ritual slaughter.

The stunning method of slaughtering animals is a controversial topic because it involves differences of opinion between Muslim majority and minority countries. In Muslim-majority countries such as Indonesia, Malaysia, and Saudi Arabia, stunning is allowed with certain strict conditions according to Islamic sharia principles. MUI Fatwa No. 12 of 2009 states that stunning can be used as long as it does not cause death or permanent injury to animals before slaughter and aims to simplify the slaughter process according to Islamic sharia rules. This fatwa emphasizes that stunning must be done in a manner that is under the principles of animal welfare in Islam.

However, the Aceh MPU Fatwa No. 06 of 2013 expressly prohibits the use of the stunning method in slaughtering animals. This fatwa was issued after an in-depth study by Acehnese scholars involved discussions with animal health experts and anesthesiologists. In the fatwa, stunning is considered contrary to the principles of Islamic sharia because it is considered to add suffering to animals and is not under the concept of *Ihsan* (kindness) towards animals as taught in Islam. In addition, stunning is also considered to affect the quality of meat because blood does not entirely exit the animal's body, which has the potential to reduce nutritional value and increase the risk of disease.

This fatwa includes eight main points that govern the law related to stunning and other animal slaughter methods. Some of them are the stunning of animals declared haram and the consumption of meat from slaughter using the stunning method. In addition, poisoning or shooting animals with firearms before slaughter is also haram. Not only that, the sale of food, cosmetics, and drugs containing harmful substances such as formalin or borax is also declared haram in this fatwa.

Malaysia also regulates stunning through the MS1500:2009 standard, which requires that stunning must be reversible (temporary loss of consciousness without causing permanent death or injury) and does not violate halal principles. The stunning procedure must be performed by trained professionals, with supervision from halal inspectors, to ensure compliance with the standards. If an animal is known to have died due to the stunning process, then the animal cannot be considered halal and must be removed from the halal system.

Saudi Arabia has stringent regulations regarding stunning methods in animal slaughter based on GSO 993/1998, a standard approved by the Gulf Cooperation Council (GCC). This fatwa prohibits the use of stunning electricity on poultry because it is considered to cause death before slaughter, which is contrary to Islamic sharia principles.

Furthermore, GSO 993/1998 emphasizes that the method must be reversible if stunning is used in animals other than poultry. This law means that the animal must remain alive and be able to regain consciousness if it is not slaughtered immediately. Stunning is only allowed if it aims to make the slaughter process easier without causing permanent injury or death to the animal before slaughter is carried out. In addition, the stunning tools used should not cause excessive pain or torture the animal.

In contrast, in Muslim minority countries such as the UK and Australia, stunning is required by regulations to ensure animal welfare. Regulation in countries with a Muslim minority places more emphasis on animal welfare according to international standards than adherence to religious principles.

In the UK, The Welfare of Animals at the Time of Killing (England) Regulations 2015 (WATOK) regulates the use of stunning in animal slaughter to ensure animal welfare. This regulation requires stunning before slaughter, except for ritual slaughter, such as halal and kosher, which are exempted with certain conditions. In this context, Muslim and Jewish communities can perform slaughter without stunning as long as they comply with rules aimed at minimizing animal suffering. The stunning must be quick and effective, performed by a certified individual with a Certificate of Competence, and supported by a backup tool to ensure the procedure runs correctly.

The federal law in the United States, The Humane Methods of Slaughter Act (HMSA), which regulates the humane method of slaughtering animals, requires that farm animals, such as cows, goats, sheep, and pigs, must be made pain-free before being slaughtered. This process can be done through stunning methods such as shooting with captive bolts, electric current, or carbon dioxide gas. Stunning should be done quickly and effectively to ensure the animal becomes unconscious before being cut, lifted, or further processed. However, the HMSA provides an exception for the slaughter of religious rituals, such as halal and kosher, which are considered to meet the standard of "humane slaughter" because the animal loses consciousness due to brain anemia caused by the simultaneous cutting of the carotid artery using a sharp tool.

In Australia, the Australian Animal Welfare Standards and Guidelines stipulate that stunning is a mandatory part of the slaughter procedure for all animals to ensure animal welfare. *Stunning* is done to make the animal lose consciousness before being slaughtered to reduce pain and stress during the process. The stunning method applied includes using electricity, mechanical (non-penetrative), or carbon dioxide gas, depending on the animal being slaughtered. This process must be carried out by trained personnel using appropriate equipment in order to be effective and not cause permanent injury or death before slaughter. Nonetheless, ritual slaughter without stunning is allowed under certain conditions as an exception to the general rule.

This difference reflects social, political, and cultural dynamics in the application of Islamic law related to halal slaughter. In Muslim-majority countries, regulations focus more on compliance with Islamic law by ensuring that stunning methods do not interfere with the halalness of meat. In contrast, in Muslim minority countries, regulations are more influenced by socio-political pressure from non-Muslim groups who fight for animal welfare without fully understanding the principles of halal slaughter. This research shows that dialogue between clerics, animal welfare researchers, and halal certification bodies is essential to bridge the religious needs of Muslims with the demands of global industrial modernization.

The difference of views between Muslim-majority and non-Muslim countries reflects the challenge of aligning Islamic sharia principles with modern animal welfare standards. On the one hand, Muslim-majority countries tend to be more cautious in implementing stunning methods to ensure compliance with Islamic law. On the other hand, non-Muslim countries place more emphasis on animal welfare aspects based on international standards (Farouk et al., 2014). Therefore, more intensive dialogue between religious and scientific stakeholders is needed to find solutions that meet both aspects.

**Table 2. Summary of Results from the Legal Source Documents Studied**

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| **Legal Aspects Studied** | **Muslim-Majority Countries (Indonesia, Malaysia, Saudi Arabia)** | **Muslim Minority Countries (UK, USA, and Australia** |
| Application of the Stunning Method | Allowed with strict conditions, such as being reversible and not causing death before slaughter | Required by using stunning by law to ensure animal welfare, although there are exceptions for ritual/religious slaughter |
| Halal Meat | Focus more on the halalness of meat following Islamic law, ensuring that animals remain alive (*hayat mustaqirrah*) before being slaughtered. | Emphasizing animal welfare based on international standards without always understanding halal principles |
| Supervision and Certification | Supervision is carried out by a halal certification body that ensures stunning following Islamic sharia (Indonesia) | Supervision is more focused on animal welfare with certified operators (Certificate of Competence) and strict SOPs (UK and US) |
| Freedom of Religion | Prioritizing religious principles in slaughter regulations. | Exceptions are granted to halal slaughter as a form of protection for religious freedom, but it often faces socio-political pressure from non-Muslim groups. |

1. **DISCUSSION**

The application of the stunning method in halal slaughter continues to be a significant debate among scholars, scientists, and practitioners of the meat industry. One of the main reasons for this controversy is the difference in interpretation of Islamic law regarding the halalness of meat from animals slaughtered after stunning. In Islam, one of the main conditions of halal slaughter is that the animal must be alive while being slaughtered, and the blood must flow ultimately to avoid the consumption of forbidden blood. The slaughter must be carried out by cutting the trachea, esophagus, and prominent blood vessels of the animal. In contrast, the animal is still alive (*Al-Hayah Al-Mustaqirrah*), and stunning should not interfere with this process (Fuseini, Knowles, Hadley, et al., 2016). However, stunning methods are often seen as disruptive to this process, especially if not done correctly, and can raise the risk of technical errors that could potentially lead to the animal's death before slaughter (Fuseini, Knowles, Hadley, et al., 2016; Nakyinsige, Sazili, et al., 2014)

The Fatwa in Saudi Arabia also stipulates that slaughter must be carried out by a Muslim or a scholar of the book (Jewish or Christian) who understands the rules of Islamic law. The name of God must be mentioned during the slaughter process, and the tools used must be sharp and clean to ensure that the slaughter is carried out quickly and efficiently. If an animal dies as a result of stunning before being slaughtered, the meat is considered non-halal and must be removed from the halal system.

The regulations in the UK, in WATOK, also stipulate that the slaughter must include both the carotid artery and the main blood vessel to ensure the rapid death of the animal. Business operators must have Standard Operating Procedures (SOPs) covering the entire handling, stunning, and slaughtering process. The regulation reflects Britain's efforts to balance animal welfare and religious freedom, although some have criticized it as adding more administrative burden than significantly impacting animal welfare.

In addition, the law in the United States, HMSA, also regulates the handling of animals before slaughter to ensure their welfare. Animals should be handled in a manner that does not cause pain or injury, including the design of the cage and safe transport routes. Although the HMSA sets high standards for animal welfare, the law does not cover poultry and is often criticized for its weak enforcement. USDA inspectors have the authority to stop operations at slaughterhouses in the event of a serious violation of HMSA. However, in the context of ritual slaughter, including halal and kosher, exceptions are granted to protect religious freedom per the First Amendment to the U.S. Constitution.

In the context of halal slaughter, Australia accommodates the needs of the halal market by using reversible stunning methods, such as non-penetrative mechanical stunning (percussive stunning). The halal authorities approve this method because the animal remains alive (*hayat mustaqirrah*) before being slaughtered. This procedure is closely monitored to ensure compliance with halal standards while meeting animal welfare regulations. The standard is designed to balance religious demands and international animal welfare standards, making Australia one of many countries' leading halal meat exporters.

Regulations regarding stunning in Indonesia aim to ensure that meat remains halal while meeting animal welfare standards. In practice, stunning is often used in modern slaughterhouses (RPH) to simplify slaughtering and reduce animal stress. However, some scholars in Indonesia still question the suitability of this method with Islamic sharia principles because of the potential risk of permanent injury or death before slaughter (Husna, 2021).

From a scientific perspective, research shows that the stunning method, done correctly, can improve animal welfare without reducing the efficiency of blood expenditure during slaughter. For example, the head-only stunning is considered halal because it is reversible and allows animals to stay alive until slaughter is carried out (Farouk et al., 2014). However, risks such as misapplication or the use of too high a voltage can lead to death before slaughter, thus making meat haram according to Islamic law (Fuseini, Knowles, Hadley, et al., 2016).

In addition, there are differences of opinion among Muslim consumers regarding the halalness of meat from animals slaughtered using the stunning method. A survey in Europe showed that the majority of Muslim consumers prefer meat to slaughter without stunning, although this method is often more challenging to implement in modern slaughterhouses (Fuseini, Knowles, Hadley, et al., 2016). This situation shows the need to educate the public about stunning technology by sharia and to supervise its implementation in the field strictly.

Furthermore, some scholars argue that as long as the animal remains alive when slaughtered and the blood ultimately comes out, the use of stunning is acceptable as part of the principle of *Ihsan* in Islam. This principle emphasizes the importance of treating animals well during slaughter (Nakyinsige et al., 2013). However, other scholars reject this method because it deviates from the tradition of manual slaughter taught by the Prophet Muhammad PBUH (Fuseini, Knowles, Hadley, et al., 2016).

The discussion on the application of stunning in halal slaughter reflects the complexity of integrating Islamic sharia principles with the needs of modern industry. This research emphasizes the importance of dialogue between scholars, scientists, and other stakeholders to find solutions to meet halal and animal welfare. With an evidence-based approach and strict supervision of the implementation of halal regulations, it is hoped that controversies related to stunning can be minimized in the future.

1. **CONCLUSION**

This study examines the differences in regulations and the application of stunning methods in halal slaughter between Muslim-majority and non-Muslim countries, as well as their impact on halal meat and animal welfare. In Muslim-majority countries such as Indonesia, Malaysia, and Saudi Arabia, stunning is accepted with strict conditions, such as being reversible and not causing death before slaughter, to ensure compliance with halal principles. In contrast, in non-Muslim countries such as the European Union and Australia, stunning is required to meet animal welfare standards. However, exceptions are granted to Muslim communities to carry out slaughter without stunning. These differences reflect the influence of the legal context, culture, and interpretation of Islamic sharia in each country.

From a scientific perspective, being done correctly can improve animal welfare without reducing the efficiency of blood expenditure during slaughter. However, the risk of technical errors can lead to a violation of halal principles if the animal dies before slaughter, raising concerns among Muslim consumers who prefer meat to animals slaughtered without stunning. In addition, differences of opinion among scholars regarding the halalness of this method show the challenge of harmonizing Islamic sharia principles with the needs of modern industry. Therefore, transparent regulations, strict supervision, and education to the public are key to ensuring that the stunning method can be applied without violating religious principles. The study also emphasizes the importance of dialogue between scholars, scientists, and other stakeholders to harmonize global religious principles and modern industry standards.

1. **REFERENCES**
2. Aida, F. U., Imroatul, S., & Khafsoh, S. (2024). Inovasi dan Strategi Pemasaran Produk Halal di Era Digital. *Journal of Economic Welfare, Philantropy, Zakat and Waqf*, *03*(01), 49–71. https://journal.iainlangsa.ac.id/index.php/asnaf/article/view/8586%0Ahttps://journal.iainlangsa.ac.id/index.php/asnaf/article/download/8586/3123
3. Aidaros, H. (2013). Proper Application of Halal Slaughter. *12th Conference of the OIE Regional Commission for the Middle East*, 1–4.
4. Anil, M. H., & Gregory, N. G. (2014). Slaughter, ethics, and the law. In *Encyclopedia of Meat Sciences* (pp. 280–283). Elsevier Inc. https://doi.org/10.1016/B978-0-12-384731-7.00242-7
5. Bottoni, R. (2017). The recent decrees of the Walloon and Flemish regions on religious slaughter in the context of the related Belgian and European debate . *Quaderni di Diritto e Politica Ecclesiastica*, *20*(2), 545–580. https://doi.org/10.1440/88273
6. Enggarani, N. S., & Nugroho, W. T. (2020). Policy Regarding Increased Control of Circulation or Trade of Dog Meat in Karanganyar Regency (Reviewed through the concept of Animal Welfare and The Rule of Adz-Dzariah Fiqh). *Journal of Transcendental Law*, *2*(1), 28–44. https://doi.org/10.23917/jtl.v2i1.10934
7. Farouk, M. M., Al-Mazeedi, H. M., Sabow, A. B., Bekhit, A. E. D., Adeyemi, K. D., Sazili, A. Q., & Ghani, A. (2014). Halal and kosher slaughter methods and meat quality: A review. *Meat Science*, *98*(3), 505–519. https://doi.org/10.1016/j.meatsci.2014.05.021
8. Franco, D., & Lorenzo, J. M. (2014). Effect of muscle and intensity of finishing diet on meat quality of foals slaughtered at 15months. *Meat Science*, *96*(1), 327–334. https://doi.org/10.1016/j.meatsci.2013.07.018
9. Fuseini, A., Knowles, T. G., Hadley, P. J., & Wotton, S. B. (2016). Halal stunning and slaughter: Criteria for the assessment of dead animals. *Meat Science*, *119*, 132–137. https://doi.org/10.1016/j.meatsci.2016.04.033
10. Fuseini, A., Knowles, T. G., Hadley, P. J., & Wotton, S. B. (2017). Food and companion animal welfare: The Islamic perspective. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*, *12*, 1–6. https://doi.org/10.1079/PAVSNNR201712043
11. Fuseini, A., Knowles, T. G., Lines, J. A., Hadley, P. J., & Wotton, S. B. (2016). The stunning and slaughter of cattle within the EU: A review of the current situation with regard to the halal market. *Animal Welfare*, *25*(3), 365–376. https://doi.org/10.7120/09627286.25.3.365
12. Fuseini, A., Wotton, S. B., Hadley, P. J., & Knowles, T. G. (2017). The perception and acceptability of pre-slaughter and post-slaughter stunning for Halal production: The views of UK Islamic scholars and Halal consumers. *Meat Science*, *123*, 143–150. https://doi.org/10.1016/j.meatsci.2016.09.013
13. Giyanti, I., & Indriastiningsih, E. (2019). Impact of Halal Certification on The Performance of Food Small Medium Enterprises. *Jurnal Ilmiah Teknik Industri*, *18*(2), 116–123. https://doi.org/10.23917/jiti.v18i2.7242
14. Hassan, Y. (2022). A Decade of Research on Muslim Entrepreneurship. *Journal of Islamic Marketing*, *13*(6), 1288–1311. https://doi.org/10.1108/JIMA-12-2019-0269
15. Herianti, H., Siradjuddin, S., & Efendi, A. (2023). INDUSTRI HALAL DARI PERSPEKTIF POTENSI DAN PERKEMBANGANNYA DI INDONESIA. *Indonesia Journal of Halal*, *6*(2), 56–64. https://doi.org/10.14710/halal.v6i2.19249
16. Husna, F. (2021). Stunning From Sains and Islamic Perspective. *Journal of Halal Product and Research*, *4*(1), 8. https://doi.org/10.20473/jhpr.vol.4-issue.1.8-13
17. Jufra, A. A. (2020). *Studi Pemulihan Dan Pengembangan Ekonomi Kreatif Sub-Sektor Kuliner Pasca Pandemi (Covid-19) Dalam Menunjang Pertumbuhan Ekonomi Di Provinsi Sulawesi Tenggara*. *9*(June), 116–131.
18. Kitchenham, B., Pearl Brereton, O., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering – A systematic literature review. *Information and Software Technology*, *51*(1), 7–15. https://doi.org/10.1016/j.infsof.2008.09.009
19. Korber, S., & McNaughton, R. B. (2018). Resilience and Entrepreneurship: A Systematic Literature Review. *International Journal of Entrepreneurial Behavior & Research*, *24*(7), 1129–1154. https://doi.org/10.1108/IJEBR-10-2016-0356
20. Majelis Ulama Indonesia. (2009). *Fatwa MUI No. 12 Tahun 2009 tentang Standar Sertifikasi Penyembelihan Halal*.
21. Millatina, A. N., Hakimi, F., Budiantoro, R. A., & Arifandi, M. R. (2022). The Impact of Halal Label in Halal Food Buying Decisions. *Journal of Islamic Economic Laws*, *5*(1), 159–176. https://doi.org/10.23917/jisel.v5i1.17139
22. Muhammad Hamka Habibie, H., Roesmara Donna BENEFIT Jurnal Manajemen dan Bisnis, D., & Roesmara Donna, D. (2020). Factors That Influence The Intention To Purchase Halal Food Products (Case Study Of Universitas Gadjah Mada Students. *BENEFIT Jurnal Manajemen Dan Bisnis*, *5*(1), 83–955.
23. Nakyinsige, K., Che Man, Y. B., Aghwan, Z. A., Zulkifli, I., Goh, Y. M., Abu Bakar, F., Al-Kahtani, H. A., & Sazili, A. Q. (2013). Stunning and animal welfare from Islamic and scientific perspectives. *Meat Science*, *95*(2), 352–361. https://doi.org/10.1016/j.meatsci.2013.04.006
24. Nakyinsige, K., Fatimah, A. B., Aghwan, Z. A., Zulkifli, I., Goh, Y. M., & Sazili, A. Q. (2014). Bleeding efficiency and meat oxidative stability and microbiological quality of New Zealand white rabbits subjected to halal slaughter without stunning and gas stun-killing. *Asian-Australasian Journal of Animal Sciences*, *27*(3), 406–413. https://doi.org/10.5713/ajas.2013.13437
25. Nakyinsige, K., Sazili, A. Q., Zulkifli, I., Goh, Y. M., Abu Bakar, F., & Sabow, A. B. (2014). Influence of gas stunning and halal slaughter (no stunning) on rabbits welfare indicators and meat quality. *Meat Science*, *98*(4), 701–708. https://doi.org/10.1016/j.meatsci.2014.05.017
26. Noor, F. R., Riyadhi, M., Rizal, M., & Syahdan, R. (2023). Sosialisasi Penyembelihan dan Penanganan Hewan Kurban. *Pro Sejahtera (Prosiding Seminar Nasional Pengabdian Kepada Masyarakat)*, *5*, 96–101. https://snllb.ulm.ac.id/prosiding/index.php/snllb-abdimas/article/view/801/808
27. Nugraha, S. W. (2024). *Hukum Penyembelihan Hewan Menggunakan Metode Stunning Menurut Fatwa Majelis Ulama Indonesia No. 12 Tahun 2009 dengan Fatwa Majelis Permusyawaratan Ulama Aceh No. 6 Tahun 2013* [Universitas Islam Negeri Sunan Gunung Djati Bandung]. https://digilib.uinsgd.ac.id/85742
28. Okdinawati, L., Simatupang, T. M., Imran, A., & Lestari, Y. D. (2021). Value Co-Creation Model of Halal Logistics Services. *Jurnal Ilmiah Teknik Industri*, *20*(1), 45–60. https://doi.org/10.23917/jiti.v20i1.13028
29. Riaz, M. N., Irshad, F., Riaz, N. M., & Regenstein, J. M. (2021). Pros and cons of different stunning methods from a Halal perspective: a review. *Translational Animal Science*, *5*(4). https://doi.org/10.1093/tas/txab154
30. Roselia, D. P., & Hafiz, M. (2024). Sejarah Perkembangan Regulasi Penyembelihan Halal Indonesia. *Wahana Islamika: Jurnal Studi Keislaman*, *10*(2), 48–69.
31. Saleh, H., & Rajandran, T. (2024). Relationship between Non-Muslim consumer intention to purchase Halal Products with Halal Awareness, Halal Certification, Halal Marketing and Halal Knowledge: Systematic Review. *International Journal of Academic Research in Business and Social Sciences*, *14*(9). https://doi.org/10.6007/IJARBSS/v14-i9/22495
32. Sazili, A. Q., Kumar, P., & Hayat, M. N. (2023). Stunning Compliance in Halal Slaughter: A Review of Current Scientific Knowledge. *Animals*, *13*(19), 3061. https://doi.org/10.3390/ani13193061
33. Siregar, R., & Alam, A. (2018). Halal Label On Food Products By Mui (Indonesian Ulama Council) And Students Purchasing Decision Of Faculty Of Business And Economic Universitas Muhammadiyah Surakarta. *Journal of Islamic Economic Laws*, *1*(1), 1–30. https://doi.org/10.23917/jisel.v1i1.6163
34. Tetlow, S. A. J., Brennan, M. L., & Garcia-Ara, A. (2022). Welfare indicators for stunning versus non-stunning slaughter in sheep and cattle: A scoping review. *Veterinary Record*, *191*(6), no-no. https://doi.org/10.1002/vetr.1739
35. Triandini, E., Jayanatha, S., Indrawan, A., Werla Putra, G., & Iswara, B. (2019). Metode Systematic Literature Review untuk Identifikasi Platform dan Metode Pengembangan Sistem Informasi di Indonesia. *Indonesian Journal of Information Systems*, *1*(2), 63. https://doi.org/10.24002/ijis.v1i2.1916
36. Tsalitsah, I. M. (2022). Stunning Method on Slaughter in Islamic and Health Perspectives (Research on Al-Islam and Kemuhammadiyahan-4 Material on Health Sciences). *Mas Mansyur*, *1*(1), 16–23. https://journal.um-surabaya.ac.id/MasMansyur/article/view/13148/4878
37. Utari, D., Fasa, M. I., & Suharto, S. (2022). INDUSTRI HALAL BERKONTRIBUSI TERHADAP PERTUMBUHAN EKONOMI DI ERA PANDEMI COVID-19: PELUANG DAN TANTANGAN. *Jurnal Bina Bangsa Ekonomika*, *15*(1), 87–98. https://doi.org/10.46306/jbbe.v15i1.119
38. Velarde, A., & Dalmau, A. (2017). Slaughter without stunning. In *Advances in Agricultural Animal Welfare: Science and Practice* (pp. 221–240). Elsevier. https://doi.org/10.1016/B978-0-08-101215-4.00012-2
39. Wahyuni, H. C., Putra, B. I., Handayani, P., & Maulidah, W. U. (2021). Risk Assessment and Mitigation Strategy in The Halal Food Supply Chain in The Covid-19 Pandemic. *Jurnal Ilmiah Teknik Industri*, *20*(1), 1–8. https://doi.org/10.23917/jiti.v20i1.12973
40. Zuolo, F. (2015). Equality among animals and religious slaughter. *Historical Social Research*, *40*(4), 110–127. https://doi.org/10.12759/hsr.40.2015.4.110-127