




Chemical castration in the criminal law system: A study of effectiveness and toxicological impact

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Abstract: Chemical castration is an additional punishment in Indonesia's criminal law system that is applied to sex offenders, especially against children, with the main objective of reducing recidivism rates and protecting the public from the threat of repeated sexual violence. However, this policy also raises various challenges and serious impacts, especially in the toxicology aspect. Medically, chemical castration can cause significant side effects, such as metabolic disorders, decreased bone density leading to osteoporosis, and the risk of cardiovascular disease. The purpose of this study is to examine the effectiveness of castration policy, the impact of castration from the toxicology aspect and policy recommendations for equitable chemical castration. This research uses normative juridical with statutory, case study and conceptual multidisciplinary approaches. The results of the study explain that chemical castration is legally effective, but the impact of castration implementation can cause several side effects for the perpetrator. A policy recommendation for chemical castration that is equitable is needed. This research can provide an overview of the implementation of chemical castration from the legal and toxicological aspects. So that the application of castration needs to be evaluated against toxicological and ethical impacts is very important to create a balance between the protection of society and respect for human rights. So as to create justice in the policy of chemical castration.

Keywords: Chemical castration, Clinical toxicology, Criminal law, Human rights, Recidivism.

1. Introduction

Since children are the generation that will carry on the nation's accomplishments and struggles, it is important to create a supportive atmosphere for their physical and mental development. Furthermore, we can observe the numerous instances of violence against children that occur in the neighborhood. The truth is that children, the community, and the environment are still not receiving the full amount of attention they need. Since children are the nation's hope, it is crucial to properly comprehend their rights because they do not yet have the same physical and mental circumstances as adults.(UNICEF, 2018)

The public has long been concerned about sexual violence, particularly in light of the fact that most sexual abuse currently targets children. Children still lack the skills and knowledge necessary to defend themselves, in contrast to adults. Because of this, a lot of sexual assaulters now target children, particularly young ones. One of the cruelest and most callous acts is when a criminal commits sexual violence.(WI et al., 2024)

The state, government, society, family, and parents all have a responsibility to safeguard children in order to prevent this. The protection under consideration encompasses protection in all domains, including social, health, and educational. Article 28B, paragraph (2) of the Republic of

Indonesia's 1945 Constitution, which declares that "every child has the right to survival, growth, development, and protection from violence and discrimination," serves as the foundation for this. Children require legal protection that safeguards them so they may develop properly both mentally and physically since they will eventually take on responsibility as adults.(Tambaip & Tjilen, 2023) One feature of the rule of law is the defense of human rights. The foundation of Indonesian law is contained in Article 1 Paragraph 3 of the 1945 Constitution, which states that "Indonesia is a state of law." Every person has the fundamental right to human rights from the moment of their birth. Human rights are inalienable, and in order to uphold and defend human dignity, the state, the law, the government, and every individual must respect and defend them.(Wulandari et al., 2023)

As a result, one of the modern variations of hukuman or perawatan that is performed in many nations, including Indonesia and the US, is kebiru kimia. Sexually active individuals who hurt children, such as pemerkosaan, sodomi, and inses, are awarded hukuman kebiru kimia. About ten nations in the US—California, Florida, Georgia, Iowa, Louisiana, Montana, Oregon, Texas, Wisconsin, and Alabama—have previously experienced kebiru kimia.(Ilyasa, 2022)

Indonesia also has a Government Regulation of the Republic of Indonesia Number 70 of 2020 that regulates chemical castration, just like the United States. Chemical castration is the administration of chemicals to people who commit child sexual abuse. Government Regulation of the Republic of Indonesia Number 70 of 2020 states that "chemical castration is imposed for a maximum period of 2 (two) years." However, the application of this punishment is still debated because it uses an anti-testosterone substance, which reduces the level of testosterone, which has an impact on sexual arousal. The results of the substance are considered to violate human rights.(Supriatna et al., 2024)

Chemical castration is an additional punishment in the criminal legal system intended to reduce the sexual desire of sex offenders through the use of antiandrogen drugs. Law No. 17/2016 on Child Protection regulates this policy in Indonesia, requiring chemical castration as a punishment for perpetrators of sexual violence against children. Government Regulation No. 70/2020 strengthens the implementation of chemical castration and the responsibilities of medical personnel(TEREFE & SEID, 2019).

By providing a deterrent effect for perpetrators, chemical castration is considered a preventive measure to stop repeat sexual crimes. However, there is still debate on how effective chemical castration is in reducing recidivism rates. While there are some who argue that chemical castration only addresses the symptoms and does not solve the main problem of sex offending behavior, there are others who argue that chemical castration can help reduce the risks that victims face in the future.

The main objective of chem castration is to give safety to society. Narkotika seperti medroxyprogesterone acetate (MPA) mengurangi libido pelaku dengan menurunkan tingkat testosteron. Chemical castration may reduce recidivism rates, according to studies conducted in several countries. However, the findings are inconsistent. Closely monitoring, regular drug administration, and following other rehabilitation techniques often, limits the efficiency of this punishment.

Chemical castration using antiandrogen agents can lead to serious side effects such as metabolic disorder, osteoporosis and higher risk of cardiovascular disease. Extreme hormonal changes can also cause offenders to go through depression, anxiety, and loss of self-identity. These effects contribute to the offender's quality-of-life, and so making this policy debatable from a human rights perspective(Çöpür & Çöpür, 2021).

Key hurdles in the introduction of chemical castration include opposition from the medical community on the grounds that it is not in keeping with the ethical, professional ethics, ethos of medicine. Furthermore, poor legal oversight will ultimately result in drug administration disparities, thereby limiting the effectiveness of our policy. The public also needs clear information, to avoid seeing chemical castration as a kind of revenge on perpetrators(MAADI et al., 2021).

The purpose of this article is to analyse in depth the sexual crimes and the chemical castration effectiveness to deal with; to focus on toxicological aspects derived of the theory and legal-medic

context. This review also intends to address potential challenges and considerations that need to be addressed in order for chemical castration to be integrated into the criminal law system, so that this policy can be implemented fairly and through scientific evidence.

1.1. Research Methods

This research uses a normative juridical method with a statutory approach, case study approach and concept approach. This method is highly beneficial to examine the effectiveness of castration regulations, present a systematic overview of the effects of chemical castration in a toxicological perspective, and recommend a just chemical castration policy.

1.2. Research Result

This article recommends a multidisciplinary approach to ensure equitable implementation of human rights. chemical castration is legally effective, but requires evaluation of the toxicological impact on the offender. an ideal solution is needed for an equitable chemical castration policy.

2. Discussion

2.1. Legal Basis and Implementation of Chemical Castration

Law No. 17/2016 on Child Protection aims to reduce the recidivism rate of sexual offenders by increasing penalties for perpetrators of sexual violence against children by including chemical castration as an additional punishment. The Indonesian government issued Government Regulation No. 70/2020 in order to improve this law. This regulation outlines the role of medical personnel, the procedure for administering chemical castration, and how to monitor chemical castration.(Enmo & Pohan, 2024).

This legislative framework is in line with the state's obligation to protect children's rights, as prescribed by the Convention on the Rights of the Child (CRC), which Indonesia has ratified. The government's efforts to address the increasing number of cases of sexual violence against minors and to strengthen the deterrent effect of existing penalties include introducing chemical castration, which involves administering antiandrogen drugs, such as medroxyprogesterone acetate, to reduce offenders' testosterone levels and suppress their sexual urges. To do so, doctors and law enforcement agencies need to work together. Judges can apply this as a prison sentence, especially in cases of sexual offenses against children.

However, implementing this regulation will provide various obstacles. The engagement of medical staff has created ethical problems, as it may go against the Hippocratic Oath and medical ethics. Furthermore, long-term monitoring and enforcement of medication administration presents logistical and economical challenges. Ensuring commitment to treatment methods and sustaining the physical and emotional health of offenders remains a serious challenge.

There are several castration applications that have been carried out, including:

1. Muh Aris was the first person in Indonesia to undergo chemical castration. Aris was convicted by a panel of judges at the Mojokerto District Court in May 2019 for sexual offenses against children. Aris was sentenced to 12 years in jail and a fine of Rp100,000,000.00 (one hundred million rupiah) in lieu of 6 months in prison, with further punishment in the form of chemical castration. The main criminal sentence has been served since August 2019. However, the chemical castration judgment against Aris continues to face challenges because there is no technical law surrounding the implementation of chemical castration(Sujono et al., 2015).

2. In 2009, Poland implemented chemical castration for convicted incest and pedophilia offenders. The penalty is required and is administered after the offender has completed a jail sentence. This case drew international attention since it was considered a provocative move in law enforcement(Jafar & Lawang, 2024).

3. In 2011, South Korea became the first Asian country to enact chemical castration for perpetrators of sexual violence against minors. One prominent case was the application of chemical castration to a 45-year-old man who sexually abused children(Lee & Cho, 2013).

The efficacy of chemical castration is mainly dependent on strict surveillance and a

toxicological approach to the offender. While the legislation has a strong legal foundation, its execution demands a careful balance between protecting human rights and preserving criteria of legal efficacy and the consequent impact of the regulation, ensuring that justice is achieved without damaging the individual's dignity.

2.2. Effectiveness of Chemical Castration in Suppressing Recidivism of Sexual Offenders

Normatively, chemical castration is oriented as a preventive and rehabilitative measure. This punishment aims to reduce the libido of the perpetrator through the administration of antiandrogen agents such as medroxyprogesterone acetate (MPA), which works to suppress the production of the hormone testosterone.

Thus, it is expected that the offender will not repeat his actions (recidivism). However, the implementation of chemical castration involves several parties, including doctors, psychologists, prosecutors, and representatives of relevant ministries, who coordinate to ensure the procedure complies with regulations and medical ethics (Fikri & Setiyono, 2024).

However, the challenges of implementing chemical castration are quite complex. First, chemical castration poses an ethical dilemma, especially from the medical community. The Indonesian Code of Medical Ethics (KODEKI) prohibits doctors from performing actions that are not in accordance with humanitarian principles, so many doctors refuse to participate in the implementation of this punishment (Khairina Hanum Hasibuan et al., 2024). Secondly, the implementation of this punishment requires a strict supervision system to ensure that offenders comply with medical procedures and do not experience health-threatening side effects (Winarso et al., 2024).

Juridically, chemical castration has been debated regarding its compatibility with the Human Rights Act. This punishment is considered to violate the human rights of the perpetrators, particularly regarding bodily integrity and freedom from degrading treatment. However, from a community protection perspective, chemical castration is seen as a form of protection for vulnerable victims of sexual crimes (Burhanudin, 2023).

International comparisons show that chemical castration has been implemented in a number of countries such as Poland, South Korea, and several states in the United States.

In Poland, chemical castration has been mandatory for sex offenders against children since 2009. Despite being a decisive step, quantitative evidence regarding the reduction of recidivism is not yet fully available. The main criticism stems from ethical aspects and long-term effectiveness, given that offenders can stop treatment after the sentence is completed. (*16 Compelling Chemical Castration Statistics*, n.d.)

In Korea, the implementation of chemical castration began in 2012 for perpetrators of serious sexual crimes against children. Studies show that recidivism rates have decreased, but challenges remain regarding offender compliance in undergoing ongoing treatment. The program is oriented more towards rehabilitation than pure punishment. (Koo et al., 2014)

Some states such as California, Florida and Louisiana have laws that provide for chemical castration for repeat offenders. There has been a significant reduction in recidivism among offenders who underwent chemical castration compared to those who did not. A German study that is often referenced found a recidivism rate of 3% for castrated offenders compared to 46% for non-castrated offenders. However, issues of ethics and legality remain debatable in many jurisdictions. (Turner & Briken, 2018)

However, the implementation mechanism is often based on the consent of the offender as part of rehabilitation, rather than mandatory punishment. This approach is different from Indonesia, where chemical castration is more punitive in nature (Kusumawati & Poernomo, 2024).

Thus, while chemical castration has a clear legal foundation, its implementation in Indonesia requires special attention to ensure that the process is not only legally effective, but also takes into account humanitarian principles and medical ethics. The integration of legal, medical, and social approaches is needed to make chemical castration a just and victim protection-oriented legal instrument (Nasrullah, 2023).

2.3. Cases of Toxicological Impact of Chemical Castration

Several cases of toxicological effects related to chemical castration have been reported, here is a summary:

1. **Severe Side Effects of Drugs:** Drugs such as medroxyprogesterone acetate (MPA) and leuprolide acetate commonly used in chemical castration can cause serious side effects, including osteoporosis, cardiovascular problems, metabolic disorders, and mood disorders. In some cases, long-term use leads to irreversible effects, such as permanent sterility or severe hormonal imbalance.

2. **Risk of Psychological and Physical Deterioration:** Some offenders who undergo chemical castration report severe depression and suicidal tendencies. This raises ethical concerns about whether the treatment is a humane alternative to imprisonment.

3. **Insufficient Risk Reduction:** The goal of chemical castration is to reduce sexual drive, but some critics argue that this method does not address all the factors that lead to sexual offenses. Some patients also experience deterioration in physical health due to complications from low testosterone levels, such as increased bone fragility and decreased immunity. (III; & Cole, 1997)

2.4. Toxicological Impact of Chemical Castration

Chemical castration, which is applied as a punishment against sex offenders, involves the use of drugs that lower testosterone levels in the body. The most commonly used drugs in chemical castration are medroxyprogesterone acetate (MPA) and cyproterone acetate (CPA), which work by suppressing the production of male sex hormones to reduce sexual drive. Although the main purpose of chemical castration is to tackle recidivism and prevent repeated sexual violence, the toxicological effects in both the short and long term require serious attention, both from the physical and mental health aspects.

The use of MPA and CPA in chemical castration can have a variety of negative consequences on the offender's health. One of the most significant effects is metabolic abnormalities, which can raise the risk of obesity and type 2 diabetes. These medications can also reduce bone density, leading to osteoporosis. This loss in bone density might increase the offender's susceptibility to fractures, particularly as they age. Furthermore, chemical castration can create abnormalities in the cardiovascular system, such as an increased risk of heart disease, due to changes in blood fat and cholesterol levels produced by the decrease in testosterone (Ko et al., 2016).

Furthermore, sexual dysfunction can have long-term consequences, such as a lifelong decrease in sexual desire. Although the primary goal is to lower the offender's sexual urge, these effects might cause strain in their interpersonal connections after completing the term, which can aggravate the offender's psychological condition (Malhi & Bell, 2022).

The psychological impact of chemical castration must also be taken seriously. A large decline in testosterone levels can have an impact on a person's mood and vitality, perhaps leading to sadness, anxiety, and other emotional problems. Some offenders who undergo chemical castration describe emotions of loss of male identity or a major fall in self-esteem, which frequently relates to changes in their social behaviour and interpersonal interactions (Salimi et al., 2022).

In other situations, offenders may endure psychological distortions caused by a lack of control over their body, exacerbating feelings of alienation and dissatisfaction. Reduced sexual function can also worsen social anxiety, resulting in decreased connections with partners, family, and community (Vianto et al., 2024).

In addition, the social stigma against individuals who have undergone chemical castration can worsen their psychological state. A society that sees chemical castration as a shameful punishment can cause offenders to feel marginalized and punished beyond their criminal conviction. This can exacerbate the risk of hopelessness and even lead to recidivism if the offender feels there is no chance of social recovery (Mukanov & Begaliyev, 2024).

Such impacts include physical disorders such as metabolic disorders, osteoporosis, and sexual dysfunction, as well as psychological impacts such as depression, anxiety, and sexual identity disorders. Therefore, chemical castration should not only be seen as a punishment, but also as part

of a more holistic and humanitarian-based rehabilitation approach(Hermawan & Arso Hananto, 2022).

Continuous evaluation of the impact of chemical castration is needed to ensure that the implementation of this punishment is not only effective in reducing recidivism, but also does not excessively harm offenders in terms of health and psychological aspects.

2.5. Policy Recommendations Equitable Chemical Castration

Chemical castration, a contentious procedure that involves the administration of medicines to suppress sexual impulses, has been the topic of continuous discussion, particularly in terms of its use as a criminal justice tactic. While several governments have tried mandatory chemical castration programs, often targeting those convicted of sexual offenses against minors, this method raises serious issues about human rights and the fundamental freedoms of the persons concerned(Wei & Mo, 2022).

From a human rights standpoint, the use of chemical castration raises problems concerning the right to bodily autonomy, the right to privacy, and the prohibition of harsh, inhuman, or degrading treatment(Nour, 2020). The involuntary administration of drugs that suppress sexual desire can be viewed as a violation of an individual's right to make decisions about their own body and sexuality(Douglas et al., 2013). Furthermore, the lack of consent and the potential for long-term physical and psychological effects on the individual raise concerns about the ethical implications of this practice(Sugiharto et al., 2021).

However, it is critical to evaluate the possible advantages of chemical castration, particularly in terms of lowering the probability of recidivism among sexual offenders and protecting vulnerable persons, such as children, from recurrent victimization. In this environment, a balanced and equitable approach is essential that respects the people' human rights while also addressing the valid concerns of public safety(Vianto et al., 2024).

One possible answer is to provide chemical castration as a voluntary choice for sexual offenders rather than requiring it as a mandatory measure. In this method, offenders would be given detailed information about the operation, its possible dangers and advantages, and the consequences of their choice. This will guarantee that any decision to undergo chemical castration is done with the individual's informed permission, thereby respecting the idea of autonomy(Marliani et al., 2023).

In addition, any chemical castration program should include extensive rehabilitation and support services like as counseling and therapy. This would assist address the underlying causes that lead to the offender's behavior and give them with the tools and resources to safely and responsibly reintegrate into society(Shin et al., 2019).

To summarize, the use of chemical castration as a criminal justice tool necessitates a cautious and balanced approach that respects the human rights of everyone affected. While this procedure may have potential benefits in lowering recidivism and safeguarding vulnerable persons, the forced nature of chemical castration raises substantial human rights issues.

Chemical castration rules must be fair, respect human rights, and strictly enforced. Rehabilitation and social reintegration of offenders is critical for long-term success in lowering recidivism rates, and chemical castration should not be regarded the sole solution to sex crime prevention. Offering chemical castration as a voluntary option, offering thorough rehabilitation and support services, and assuring an educated decision-making process that respects individual autonomy can lead to a more equitable and ethical approach to this difficult issue.

3. Conclusion

Chemical castration as a punishment for perpetrators of sexual assault against children in Indonesia is supported by a solid legislative framework, including the Child Protection Law and Government Regulation No. 70/2020. Although chemical castration can reduce recidivism and prevent future sexual aggression, its execution raises concerns about medical ethics, human rights, and toxicological effects on the offender. Physical side effects, such as metabolic diseases, osteoporosis, and cardiovascular difficulties, as well as psychological affects including depression

and loss of sexual identity, are serious concerns.

As a result, chemical castration rules must be properly applied, with a focus on balancing legal efficacy with human rights protection. A multidisciplinary approach that includes law, medicine, and psychology is required to guarantee that this strategy is not only successful in avoiding crime, but also fair and compassionate to the offender. Close supervision and rehabilitative support should be an inherent aspect of the administration of chemical castration, taking into consideration the offender's long-term physical and mental health.

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