PROCEEDING OF ANIMAL WELFARE INDONESIA 2022

1st National Conference on Animal Welfare in Indonesia

"Building A Kinder Society Through Animal Welfare Education in Indonesia"

A Hybrid Conference

14 December 2022 | Gran Mahakam Hotel, Jakarta

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Organized by ***Yayasan JAAN Kesejahteraan Hewan***

Supported ***by FOUR PAWS International***

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WELCOME MESSAGE FROM FOUR PAWS INTERNATIONAL

JULIE SANDERS

FOUR PAWS International Director of Companion Animals

On behalf of FOUR PAWS International, we are pleased to support the first national conference on animal welfare in Indonesia, held at the Hotel Gran Mahakam, Jakarta, on 14th December 2022. Organised by the Jakarta Animal Aid Network, the one-day event titled 'building a kinder society through animal welfare education in Indonesia' aims to bring together academics, veterinarians, policy makers and key stakeholders involved in the animal welfare sector to exchange experiences, learn from others, share best practices and ultimately benefit animals in Indonesia.

During the conference, we will see the launch of the digital education platform, animalwelfare.id, which will provide an accessible source of information about animal welfare to veterinary schools, scientific communities, veterinarians, shelters, and animal lovers. The event will also mark the official signing of a Memorandum of Understanding with Universitas Hasanuddin, as the first veterinary school in Indonesia to offer a Shelter Medicine and Animal Welfare elective course.

In keeping with the conference themes, which include education and collaboration to improve animal welfare in Indonesia, we would like to encourage delegates to actively participate in

the conference. Please talk to keynote speakers, ask questions, take part in the interactive sessions, and feel free to have your own discussions regarding animal welfare during the breaks throughout the day.

We would like to thank delegates for submitting their scientific papers in a timely manner. This has enabled the proceedings to be compiled and shared electronically for delegates to refer to during the conference. Most papers have a corresponding author email address, and we encourage delegates to meet authors personally, discuss their work and exchange contact details for future communication and collaboration in their specific areas of interest.

The success of the first national conference on animal welfare in Indonesia depends on you!

Welcome to Jakarta!

Please note, the views expressed in these proceedings are those of the respective paper authors and do not necessarily reflect those of the sponsor or organisers. FOUR PAWS International and Jakarta Animal Aid Network cannot vouch for the accuracy of information contained in the papers.

WELCOME MESSAGE FROM JAKARTA ANIMAL AID NETWORK (JAAN)

KARIN FRANKEN

Co-Founder Jakarta Animal Aid Network Executive Board Director
of Yayasan JAAN Kesejahteraan Hewan

Its with great pleasure to welcome you to the 1st national conference on Animal Welfare in Indonesia.

This conference has become possible by our amazing team from JAKARTA ANIMAL AID NETWORK, in particular our ANIMAL WELFARE INDONESIA team and our partners from FOUR PAWS INTERNATIONAL.

We hope that this conference with an impressive line up of speakers, is going to have a great impact on strengthening and empowering a variety of sectors including animal lovers, shelters, veterinarians, scientific communities, vet schools and many more.

This conference is uniting animal welfare proffessionals, who promote the humane treatment of animals; sharing best practices, challenges and successes.

Talking about strengthening & empowering a variety of sectors,our digital platform, ANIMALWELFARE.ID has become an indispensable tool that is incorporated within all programs that we run.

We need in depth human education more then ever, especially when we are looking at the world today, the different types of violence, e.g. bullying, domestic violence, crime, lack of

empathy, lack of respect, climate change, extreme exploitation of animals, which is not only cruel, but also leads directly to disasters and threatens the health and safety of all living beings. At this point educators, parents and governments should by now realize, human education combined with character building both have to be a top priority.

This website is, therefore, a platform for parents, teachers, communities and a variety of other sectors who wishes to make a positive contribution to today's society. We want to build kinder societies, we want people to learn about the importance of empathy.

We want people to understand that the principle of life means respecting and caring for all living beings and that all life is important, not only human lives. We want people to understand that becoming a responsible member of society is important to make this world a better place.

We are confident that this conferences and our digital platform will make an enormous contribution to positive change as well as bridging governments, communities, animal lovers, shelters veterinarians, educators and all stakeholders to achieve greater results in the future!

FOREWORD FROM THE ORGANIZING COMMITTEE

DR. DRH. DWI KESUMA SARI

Head of Veterinary Study Programme, Hasanuddin University

Dear colleagues, we are very pleased to provide information that the JAAN Animal Welfare Foundation and the Hasanuddin University Veterinary Study Program will be holding ANIMAL WELFARE INDONESIA 1st CONFERENCE (AWI). This event will be held in Jakarta, the capital city of Indonesia, on Wednesday 14 December 2022. This congress will be held in a number of activities, including awarding Recognition for Animal Welfare, building cooperation, and international scale seminars. The theme for this event is "building a kinder society, through animal welfare education in Indonesia". The Organizing Committee cordially invites the animal-loving community, veterinarians, researchers and veterinary faculties, students and the public. Scientific congresses and seminars will focus on animal welfare and shelter medicine. The main objective of this conference is to bridge and bring together animal welfare professionals from various parties who support the establishment of this program. Thank you

FOREWORD FROM KPHI (ANIMAL WELFARE AND PROTECTION INDONESIA COALITION)

CINDY KALIDJO

Co-Founder Koalisi Kesejahteraan & Perlindungan Hewan Indonesia
(Animal Welfare and Protection Indonesia Coalition)

KPHI along with all animal observers in Indonesia are grateful and excited for the 1st ANIMAL WELFARE CONFERENCE IN INDONESIA. This is a step and effort from everyone who is involved, so that together we can address animal welfare as a serious and important issue, because welfare for animals is a sign of mental stability, caring for all creatures and environment, and compassion as being a human with humanity

Welfare for animals can be achieved if all society together with stakeholders consistently giving education, advocation and applying the existing regulations

We hope the result from this event which based on culture and animal welfare condition in Indonesia, can be consider as our contribution in giving thoughts to the stakeholders so they can design and legalize Animal Protection Law, one step at a time to achieve safety, comfort and health for animals and people in Indonesia.

We also hope that this event can be an annual agenda and all the success for everybody involved.

Regards.

FOREWORD
"BUILDING A KINDER SOCIETY THROUGH ANIMAL WELFARE Education In Indonesia"

DRH. MARIANA FERDINANDEZ, M.SI

Chair of Organising Committee Animal Welfare Indonesia Conference 2022
Director of Jakarta Animal Aid Network (JAAN Domestic)/ Yayasan JAAN Kesejahteraan Hewan

Welcome to the Animal Welfare Indonesia, The 1st National Conference on Animal Welfare in Indonesia.

AnimalWelfare.id and as the committee of the AWI Conference 2022, would like to take this opportunity to welcome you to this national event on Animal Welfare in Indonesia.

We are delighted to be hosting this hybrid conference, o accommodate the dire need to have access regarding updated animal welfare knowledge and animal law protections, between professionals and other networks. In this conference, we would like to do a nationwide launch animalwelfare.id—as a digital education platform, easy and accessible, as a source of information of animal welfare for Indonesia.

We acknowledge the need to empower and support the grass root communities as well as animal lovers, animal shelters, veterinarians, scientific communities and Veterinary Schools in Indonesia, with the main goal to improve the welfare of animals in Indonesia. This event also will be an official launch of signing an MoU with Veterinary School of Universitas Hasanuddin. Universitas Hasanudin will be the first Veterinary School, who will have Shelter Medicine and

Animal Welfare elective Course, in their curriculum in Indonesia. The event will be held hybrid, both online and offline at Gran Mahakam Hotel, South Jakarta Indonesia.

Our purpose is to facilitate and unites animal welfare professionals, who promote the humane treatment of animals; sharing best practices, challenges, and successes in an environment of learning and teamwork. We would like to empower the community to be able to educate their surroundings about animal welfare nationwide. The conference expected outcomes are the animal welfare professionals discover the benefits of interaction with international and nationally-known experts and with their colleagues across Indonesia. We truly hope to enable opportunities towards greater collaboration across disciplines in animal welfare in Indonesia.

We would like to thank those who are contributing to the meeting, sponsors, collaborators, the keynote and invited speakers, the scientific paper speakers, moderators, facilitators, and all attendees. We would like to thank FOUR PAWS International for their tremendous support, also to the collaborators of the Ministry of Agriculture of Indonesia, Veterinary Study Program of Hasanuddin University, and Dinas Ketahanan Pangan, Kelautan dan Pertanian Province of DKI Jakarta.

We would also like to thank our official partners, Dinas Peternakan Province of Jawa Tengah, Dinas Pertanian of Semarang City, Dinas Peternakan Province of Jawa Timur, Vets4Welfare Foundation, Koalisi Perlindungan Hewan Indonesia (KPHI), Yayasan Natha Satwa Nusantara, Yayasan Animal Dont Speak Human, Yayasan Animal Lovers Bersatu, Stray Cat Defender, Cothink, and all the dedicated committee and volunteers to make the event serve the greater purpose for animal welfare.

We hope that you enjoy the Conference!

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TIME TABLE OF EVENT

ANIMAL WELFARE INDONESIA 1ST CONFERENCE EVENT PROGRAMME DESCRIPTION 14 DECEMBER 2022

Hotel Gran Mahakam Jakarta & Zoom

No	Activity	Time (WIB)
1	Registration	08.00 - 08.20
2	Greetings by MC	08.20- 08.25
3	Prayer and Indonesian National Anthem	08.25 - 08.30
4	Welcoming Ceremony Wonderful Indonesia Dance by Sanggar Yudha Asri	08.30 - 08.40
5	Welcoming remarks : Karin Franken, Co-Founder Jakarta Animal Aid Network (JAAN Domestic)	08.40 - 08.45
6	Opening Speech I : Davina Veronica, Co-Founder Koalisi Perlindungan Hewan Indonesia	08.45 - 08.50
7	Opening Speech II : Dr. Drh. Dwi Kesuma AP.Vet, Kepala Program Studi Kedokteran Hewan Universitas Hasanuddin	08.45 - 08.50
8	Official Opening Of The Conference by Governor DKI Jakarta Province *	08.50 - 08.55
9	Keynote Speaker I : Matt Backhouse, Head of Stray Animal Care FOUR PAWS International, Topic : One Health One Welfare	08.55 - 09.15
10	Keynote Speaker II : Directorate Veterinary Public Health of Ministry Agriculture, Topic : Current Status of Animal Law Protection in Indonesia *	09.15 - 09.35
11	Keynote Speaker III : Drh. RD Wiwiek Bagja, Animal Welfare Consultant of Ministry Agriculture & Ministry of Forestry, Topic: The Importance of Public Education about Animal Welfare	09.35 - 09.55
12	Keynote Speaker IV : Dr. V. C (Vivian) Goerlich, Assistant Professor Faculty of Veterinary Medicine Utrecht University, Current Updates in Animal Welfare Curriculum for Veterinary School (virtual)	
13	MOU signing with Veterinary School of Universitas Hasanuddin, JAAN Domestic, Vets4Welfare and FOUR PAWS International	09.55 - 10.05
14	Award Recognition For Individual Animal Welfare Figures in Indonesia	10.05 - 10.15
15	Press Conference Coffee Break I and Exhibition	10.15 - 11.00
	Seminar Session	
16	Keynote Speaker V : Ibu Ir. Eli Suharini Eliawati, Kepala Dinas Ketahanan Pangan, Kelautan dan Pertanian DKI Jakarta	11.00 - 11.15

No	Activity	Time (WIB)
	Parallel Session I : Sub-Theme: The Importance of Collaborations To Improve Animal Welfare Moderator : Suci Cisika Putri, S.T	
17	Presentation I : Dr. drh. Hasudungan A. Sidabalok, Kepala Suku Dinas Ketahanan Pangan, Kelautan dan Pertanian Jakarta Selatan, The Importance of Regulation and Enforcement to Improve Animal Welfare	11.00 - 11.15
18	Presentation II : Loes (ML) Schure DVM MVSc from Vets4Welfare Foundation : Intregated Animal Welfare in Veterinary Medicine	11.15 - 11.30
19	Presentation III : Corlevin Kalalo, BAWA Dharma Programme : One Health One Welfare	11.30 - 11.45
20	Presentation IV : Karin Franken & Adhy Hane (DMFI) : Ending The Dog Meat Trade in Indonesia, Current Status and Its Challanges	11.45 - 12.00
21	Presentation V : Karen O'Malley, FOUR PAWS International : Dog Meat Trade in Asian Countries, Current Status and Its Challanges	12.00 - 12.15
22	Discussion	12.15 - 12.35
	Lunch Break and Praying Time	12.35 - 13.10
	Parallel Session II: Sub-Theme Companion & Wildlife Animal Welfare, Challenge & Its Solution in Indonesia Moderator : Rheza Maulana, S.T., M.Si	
23	Presentation VI : drh. Merry Ferdinandez, M.Si., Animalwelfare.id as An Accesible Tool For Mass Education in Animal Welfare ; Launch and Introduction to Animal Welfare Indonesia Scientific Journal	13.10 - 13.25
24	Presentation VII : Femke Den Haas, JAAN Wildlife/ Yayasan Jaringan Satwa Indonesia : Indonesia Free Dancing Monkey (Indonesia Bebas Topeng Monyet) (virtual)	13.25 - 13.45
25	Presentation VIII : drh. Wendi Prameswari Animal Management Welfare International Animal Rescue (IAR), The Mitigation of Urban Wildlife Welfare in Indonesia (virtual)	13.45 - 14.00
26	Presentation IX : drh. Zulfikar Basrul, M.Sc, Dokter Hewan Karantina Pertanian Kelas I Ambon, The Influence of Classical Music Stimulation to Captive Californian Sea Lions Behavioral Responses (virtual)	14.00 -14.15
27	Discussion	14.15 - 15.00
28	Presentation X: Dr. C.M. (Cornélie) Westermann, Associate Professor of Utrecht University, Animal Welfare Science Review (virtual)	15.00 - 15.20
29	Discussion	15.20- 15.35
30	Coffee Break	15.35 - 15.50
	Parralel Session III: Scientific Paper Speakers, Oral Presentation (On Site & Virtual) Moderator : Adinda Rana, S.KH	

No	Activity	Time (WIB)
31	Presentation XI : Fiolitha Berandhini, SH, from Animals Dont Speak Human Foundation (virtual), mplications of Fulfilling Animal Welfare and Animal Protection Due to Speciesist and Anthropocentric Beliefs	15.50- 16.00
32	Presentation XII : Naomi Kristiana, MPsi Psycholog, Child Phsycologist Specialist from Puri Health Mansion, Humane Education and Child Character Development: A Conceptual review of correlation between animal welfare education and prosocial behavior	16.00 - 16.10
33	Presentation XIII : Rheza Maulana S.T., M.Si., Universitas Indonesia, Between Ecology and Economy: How to Profit from Wild Animals without Exploiting Them	16.10 - 16.20
34	Presentation XIV : Winaya Satasya University of Edinburgh & drh. Khalisya Anjani Putri, Jakarta Animal Aid Network (JAAN) Yayasan JAAN Kesejahteraan Hewan, A Case Study of Cat Sterilization in Karangwuni, Yogyakarta: Impacts Perceived by Caretakers & Their Understanding of the Program	16.20 - 16.30
35	Discussion	16.30 - 16.40
	Parralel Session IV: Scientific Paper Speakers, Oral Presentation (On Site & Virtual) Moderator : Drh. Carina Khairunnisa	
36	Presentation XV: drh. Bagus Brahmanto Aji Guno, DjiO Pet Care + Vets Clinic, Teeth clipped-out in Javanesse Slow Loris (Nycticebus javanicus) and its preservation through root canal treatment	16.40 - 16.50
37	Presentation XVI : drh. Michael Gunawan, My Vets Clinic, Acute Pain Management in Cats: Assurance of Feline Welfare Fulfillment Within Clinical Setting	16.50 - 17.00
39	Presentation XVII : drh. I Gede Hendra Prasetya Wicaksana, Dinas Pertanian dan Ketahanan Pangan Provinsi Bali (virtual), The Perception of Veterinarians in Bali Towards Antimicrobial Resistance	17.00 - 17.10
40	Discussion	17.10 - 17.20
41	Closing and Documentation	17.20

* to be confirmed
** to be announced

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Implications of Fulfilling Animal Welfare and Animal Protection Due to Speciesist and Anthropocentric Beliefs

Fiolita Berandhini, S.H[a]

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Abstract

Every year, billions of animals are slaughtered on industrial agricultures and animals whose status does not include under the category of protected animals and stray dogs or cats are subjected to various kinds of abusive behavior by human as a result of the moral exclusion of animals of certain species. The idea of speciesism and antropochentrism causes suffering on a massive scale that people may find hard to fathom. This paper discusses the definition of speciesism, antropocentrism and its impact on advocacy for farm animals, stray animals and wild animals that are not protected by law, which begins with an explanation of how animals stand before the law and how society practices the concept of speciesism and anthropocentrism which has an impact on animal welfare. Then, identify how speciesism and antropocentrism affects the protection of animals classified in certain species as a result of unfavorable protection or treatment for the animals. The position of animals that are still categorized as property by the law makes it difficult to apply animal protection for certain species of animals and for them who do not have owners. This condition occurs because the definitions of animals included in various existing laws are not in line with the clauses in the articles that should protect certain animal species as stated in the definitions in the regulations. In addition, there is a strong belief that certain species of animals such as the wildlife animals which are legally protected, companion animals (i.e. dogs and cats) and animals whose owned by people are more deserving of protection than other animal species and for non-owned animals. At the end of writing, this paper examines how the concepts of speciesism and anthropocentrism, which are unfavorable treatment or consideration towards those who are not categorized as the human and towards certain animal species which often become victims of speciesist and anthropocentric ideas have an impact on animal law protection.

Keywords : animal welfare, law, speciesism, anthropocentrism, advocacy

Introduction

Every year, billions of animals are slaughtered on industrial agricultures (Orzechowski, 2022). The practice causes animal suffering on a massive scale that up to recently small amount of people are understood. Not merely farm animals that are often forgotten that they are able to feel pain and suffering for how they are being treated and how their welfare is fulfilled by humans, however akin thing also happens to wild animals whose status is not legally protected. Based on Bas Sanders' statement, who has explored more than 50 years of animal slaughter trends, claims that there are 5 species of farm animals that are slaughtered the most globally, that are cows, chickens, goats, pigs and sheeps based on the data from Food Agriculture Organization (FAO, 2022). Data for 1961-2020 shows that chickens are the most land animals to be slaughtered troughout the world, followed by pigs, sheep and cows. (FAO, 2022). Various forms of suffering that occur in wild animals, stray dogs and cats and farm animals pose various kinds of threats to human life, such as conflicts between humans and animals due to damaged natural habitats so that they have difficulty finding food, emergence of zoonoses caused by pain and stress experienced by animals due to living close to humans or because animal welfare is not fulfilled.

Metodology

Research Time Period

The research was conducted based on the idea of speciesism and anthropocentrism that occur in a society which has an impact on the protection of certain animal species. The period of time conducting research was carried out from November to December 2022.

Data Analysis

The research was conducted using the empirical legal research method, which is a legal research method that aims to be able to see the law in a real sense and examine how the law works in a society. Because in this empirical legal research is researching people in the relationship of life in society, the empirical legal research method can also be said to be sociological legal research. The author collected information sourced from scientific articles by previous researchers, and various reports from foundations, organizations, and institutions working in the field of animal protection. A collection of information obtained from scientific articles and reports serves as supporting information to obtain specific descriptions of the treatment of government institutions and society in their participation in protecting certain animal species.

A general and specific information which are collected then studied and reviewed according to the author's background, that is law. The author then performs an analysis with an exploratory descriptive method. This method is used to explain the circumstances or phenomena that occur based on the discussion. Through this method, the author attempts to analyze the Implications of fulfilling animal welfare and animal protection due to speciesist and anthropocentric beliefs. The author then presents the results of the research and provides appropriate considerations.

Discussion

Speciesism Toward Animals

Discrimination towards certain animal species has become normalized things done by humans. A number of philosophers have observe the way humans treat animals, describing a form of discrimination referred to as speciesist as a deliberate attempt to express equality in other forms

of unjustified discrimination such as racism and sexism (Horta, 2010; Ryder, 2017; Singer, 1975, 2009). Speciesism is a form of discrimination that occurs when other individuals are given lower moral considerations than others or are treated worse for some reasons that cannot be justified (animal ethics, 2022). Discrimination also occurs toward humans based on gender, skin color, sexual preference, and for many other reasons. Meanwhile, non-owned animals, farm animals and wild animals that are not legally protected are groups of animals that often become victims of speciesism.

Speciesism is a term used in philosophy regarding how one treats individuals of different specie s (Ryder, 2010). This term comes from Richard D. Ryder's argument in 1970 to protest animal experimentation. Then in 1975, this term was popularized by Peter Singer in his book Animal Liberation (Institute of Animal Law Asia, 2021). Philosopher Peter Singer defines speciesism as "a prejudice or bias that favors the interests of members of one's own species and against those of members of other species." But it is also speciesist to treat a species of animal as more valuable than another (Singer, 1975).

According to the article What is Speciesism?, there are three statements of speciesism, which are:

- Statement 1: Speciesism is the unjustified disadvantageous consideration or treatment of those who are not classified as belonging to one or more particular species;
- Statement 2: Speciesism is the unjustified disadvantageous consideration or treatment of those who are not classified as belonging to one or more particular species for reasons that do not have to do with the individual capacities they have; and
- Statement 3: Speciesism is the unjustified disadvantageous consideration or treatment of those that are not classified as belonging to one or more particular species on the basis of species membership alone.

There is a special term used to oppose the idea of speciesism which is called anti-speciesism. Anti-speciesism is a notion that suffering of any animals is considered equal, regardless of the individual species involved (Effective Altruism, 2020). Furthermore, anti-speciesism is an opposition to discrimination based on species membership. This is an attitude of resistance to various abusive activities that have long been normalized to use, eat or ignore certain animal species (Center for Reducing Suffering, 2022). Anti-speciesism does not require humans to treat all animal species equally, but only requires that humans consider the interests of all animal species in social relations, freedom in expressing their natural behavior, and physical and psychological suffering, regardless of their species (Center for Reducing Suffering, 2022).

Even though Indonesian law stipulates generally declared on how farm animals and wild animal welfare must be fulfilled, the belief in speciesism and anthropocentrism that is deeply rooted in the society. Hence, it poses humans concerning more to fulfilled the welfare of certain animal species such as dogs, and cats, owned animals or animals whose population is already threatened with extinction rather than fulfill the welfare of farm animals such as chickens, cows, pigs, goats, fish, etc.

Anthropocentrism Toward Animals

The justification why there is still much debate about the importance of fulfilling animal welfare apart from the belief in speciesism is because humans have a strong understanding of anthropocentrism. Anthropocentrism literally means human-centered, but in its most relevant philosophical form is the belief that only humans have intrinsic value. In contrast, all other creatures have value only in their ability to serve humans, or in their instrumental value (Goralnik & Nelson, 2012). People with strong anthropocentric beliefs tend to see

humans as separate from nature or as part of nature but at the top of the species hierarchy (Goralnik & Nelson, 2012).

If traced in religious traditions, such as Judeo-Christianity, and ancient Greek philosophy. The word anthropocentrism comes from the Greek anthropos which means human and kéntron which means center (Goralnik & Nelson, 2012). From an anthropocentric perspective, all creatures and objects are only useful in so far as they contribute to human survival and enjoyment (Goralnik & Nelson, 2012). Humans believe that although humans exploit nature and all other living beings in it, they claim that they protect it for human life and therefore benefit indirectly through human protection.

Animal Welfare and Animal Law Protection

In accordance with Indonesian law, the definition of animal welfare stated in the Act of Husbandry and Animal Health and Government Regulation Number 95 of 2012 concerning Public Veterinary Health and Animal Welfare. Whereas, in another regulation which contains the protection of wild animals, which is Act Number 5 of 1990 regarding the Conservation of Natural Resources and Its Ecosystems, there is no delucitaion of animal welfare standards for wild animals. However, this act only covers protection or prohibition for:

1. catch, injure, kill, store, possess, nurture, transport, and trade-in protected animals in alive condition;
2. store, possess, nurture, transport, and trade-in protected animals in dead condition;
3. take out any protected animals from a place in Indonesia to other places inside or outside Indonesia;
4. trade-in, store or possess leather, body or other parts of protected animals or goods

made of parts of the animals or take the out from a place in Indonesia to other places inside or outside Indonesia;

5. take, damage, abolish, trade-in, store or possess eggs and/or nests of protected animals

However, this regulation is not covered for animals whose status is not protected. Therefore, how their welfare should be fulfilled is not stupulated in this law. This condition resulted on how the law enforcer and society consider have no obligation to protect unprotected animal. Everyone has a legal obligation to ensure the welfare of animals under their control, such as ensuring that animals are free from hunger, thirst and malnutrition; freedom from fear and depression; free from physical suffering; pain free; injuries and illnesses; and freely express their natural behavior.

Based on Article 66 paragraph 1, Act number 41 of 2014 amendment to Law Number 18 of 2009 concerning Husbandry and Animal Health, the definition of animal welfare is:

> "all matters relating to animal physical and mental conditions based on the natural behavior of animal that needs to be applied and enforced for animal protection from any unreasonable action of any person against the animal that is beneficial to human being."

The principle of animal welfare must be upheld by all people who care for animals or anyone who is responsible for animals. Furthermore, in Act Number 41 number 41 of 2014, is stated in more detail regarding what aspects must be considered in fulfilling animal welfare, including in terms of all measures that shall be taken that relate to catching and handling, placement and multiplication, care, transportation, slaughtering and killing, as well as reasonable treatment and tender care of the animal. Furthermore, in Article 66 paragraph 2 of this law it is explained

in detail how to implement it. This law applies to all vertebrates and several of invertebrates animals and can feel pain.

If we examine more deeply how government institutions, companies, and societies contribute to fulfilling animal welfare, it is still far from what is mandated by the law. A speciesist, anthropocentric, or discriminatory perspective on fulfilling animal welfare for certain animal species, namely farm animals and wild animals that are not protected as covered in those two acts, is unacceptable. On the other hand, the fulfillment of animal welfare for all animal species, including animals that are not included in the list of endangered animals, has the right to obtain legal protection because they both have the ability to get freedom, feel pain and live without interference from humans. Thus, the fulfillment of animal welfare should not be judged only on the basis of its species.

Speciesism in Society's Everyday Life Towards Farm Animals

Generally, in many developing countries, the concept of animal welfare depends more on the religious and ethical background of people than on the legislation itself. Based on data from the Department of Primary Industry Australia in 2005 as described in Figure 1, it is stated that Indonesia is a country that has a considerably low level of concern for animal welfare compared to 16 other countries (Satya, 2005). In Figure 2, it is also explained about how the percentage of public awareness in Indonesia compared to other countries for the condition of the farm animals enclosures, how to handle animals and their transportation process which is shown in Figure 3. It is also reported that Indonesia has appalling level of concern (Satya, 2005).

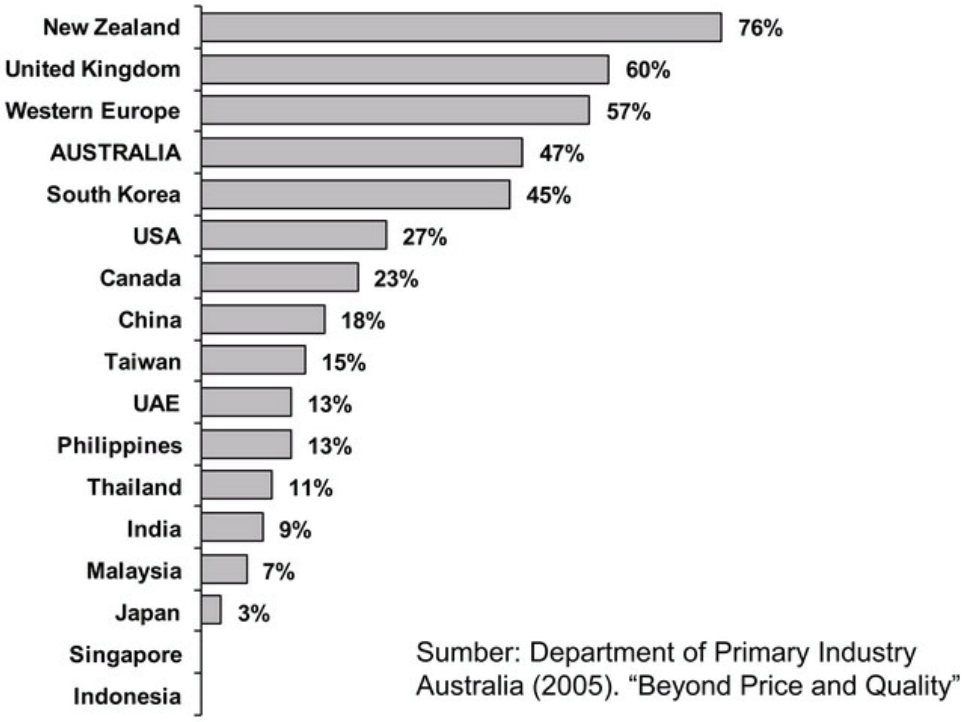

Figure 1. Public awareness level of animal welfare issues

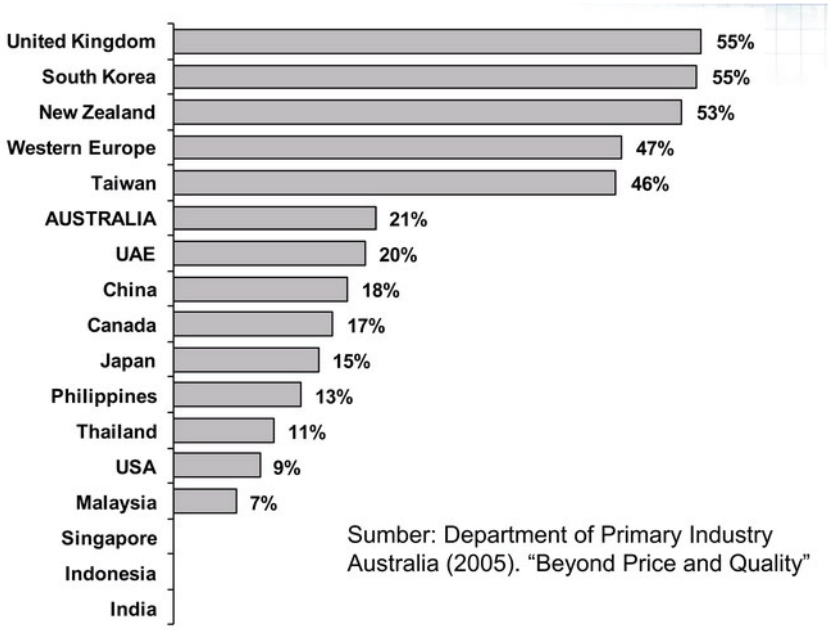

Figure 2. Consumers' concern for the condition of farm animals enclosures

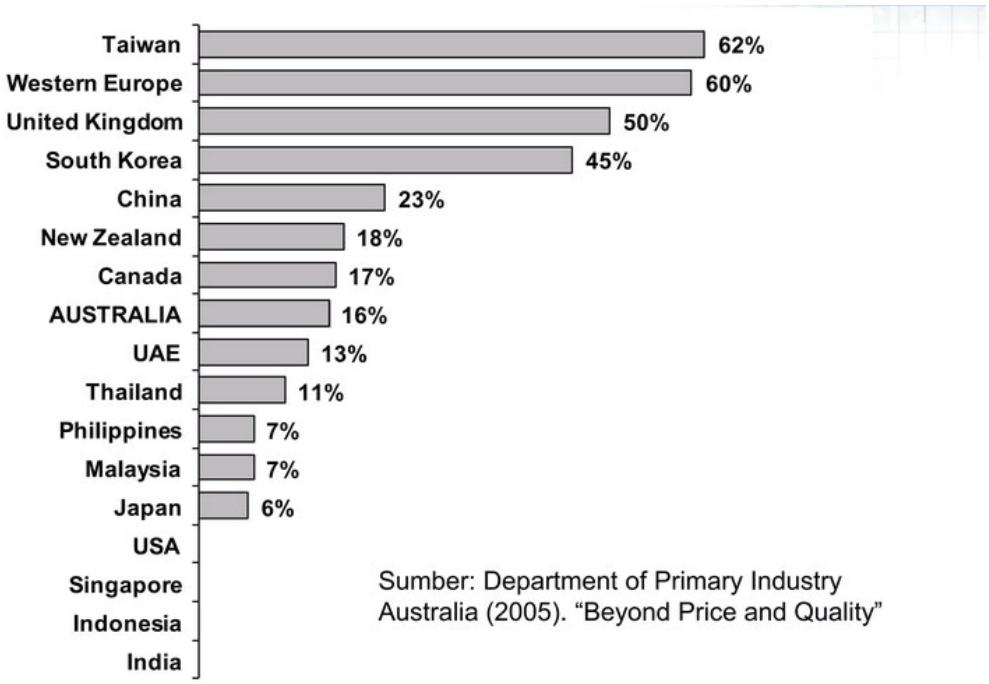

Figure 3. Consumers' concern for the interests of farm animals transportation and handling

Each day, scenes of how farm animals are treated improperly and far from animal welfare standards are often normalized. How the animal welfare standard is met on the farms so that farm animals can live in prosperity and express their natural behavior is still far from expectancy. Based on the data presented at the Workshop on Strengthening Animal Welfare Laws taken from the Department of Primary Industry Australia "Beyond Price and Quality" public awareness of animal welfare issues is also at a dejected level (Satya, 2005). Furthermore, a considerably low percentage is also shown in the graph regarding consumer concern about the condition of the cattle barn and how consumers care about how livestock is transported and handled (Satya, 2005).

An illustration of speciesism is that some species of animals are commonly used as food, cloth, laboratory test subjects, etc., while others are not. As a result of the speciesism idea that is still believed by many people, certain animal species experience various abusives activities such as

how farmer raise farm animals that are far from encounter the minimum standards of animal welfare, how farm animals are being transported from one place to another without provided with food and drink as a basic thing that must be fulfilled as stated at husbandry and animal health act, 2014, it is commonly found how farm animal is being slaughtered which is not in accordance with the procedure for slaughtering animals based on guidance from World Organization for Animal Health or from the ministry of agriculture. Supposedly, justification should not be made based on what species they are and all mistreatment of all species of animals should be reduced and eliminated. Therefore, anti-speciesism is a possible thing and requires people not to treat certain species of animals with miserable implementation animal welfare standard for animals which used as a food, objects or products. Their own well-being and interests must be properly considered and protected like any other species.

The Legal Status of Animals Based on Indonesian Law

In accordance of Indonesian law, animals are still categorized as property or objects and are considered as something that can be owned either by a person, legal entity (company, institution), or by the state. Animals are often seen as abundant resources, designed to be used, useful/valued only for human purposes or enjoyment. Ownership of an animal does not always mean that it is cared for responsibly because the 'owner' can manage all aspects of the animal's life.

The position of animals in legal terms which are still considered as property creates problems, for instance how society allows various kinds of exploitative actions towards animals that have become habits. The laws and legal systems of most Western countries have been a major cause in facilitating the exploitation of animals (Francione, 1996). Common-law and civil-law legal

systems are dualistic in that there are two main normative entities in these systems: people and things. Animals are treated as an object, and, more specifically, as the property of people (Francione, 1996). The status of animals as property has severely limited the legal protections that states provide to animals (Francione, 1996). Any significant improvement in compliance with animal welfare will be extremely difficult to achieve as long as animals are considered property by law.

Farm animal ownership is legally attached to the farmer, in addition to wild animals whose ownership status is protected is attached to the state or to a legal entity. Meanwhile, other animal species, for instance wild animals that are not included in the list of protected animals, stray dogs and cats, are animals that are not attached to their ownership. This is can be observed by how laws, government institutions, legal entities and society treat other animal species outside of the category of ownership of those animals. This is a common example of how speciesism beliefs occur that have a major impact on the fulfillment of animal welfare and its protection. If law is aim to be a valuable instrument for animals freedom from the arbitrary treatment by humans, animal protection law reform must be directed at the status of animalswhich are not anymore as a property.

Article 1368 Indonesian Civil Code confirms the ownership of animals, namely:

> "The owner of an animal, or an individual who uses one, as long as the animal remains under his usage, is responsible for any damage caused by the animal, whether the animal is under his/her supervision and in his/her custody, or whether it is lost or has escaped.".

Whereas in Article 490 paragraph 2 of the Penal Code, it is also stated regarding crime by the animal "owners" who neglect to look after their animals:

"any person who does not restrain an animal under his care, when it assaults a man or an animal being ridden, put before a carriage or a transport vehicle or carrying a load;"

Although by the Indonesian law in general, animals are still considered goods or property, there is a definition of an animal that does not differentiate between species, namely:

Government Regulation Number 95 of 2012 concerning Veterinary Public Health and Animal Welfare

Article 1 paragraph 4

"Animals are those whose whole or part of their life cycle is on land, water, and/or air, either reared or in their habitat".

Act number 5 of 1990 concerning Conservation of The Living Natural Resources and Its Ecosystems

Article 1 paragraph 5

"Animals are all kinds of animal natural resources that live on land and/or in the water, and/or in the air".

Meanwhile, in the several act there are definitions that describe certain categorized of animals, such as:

Farm Animals

Article 101 of the Criminal Code

Farm Animals are all animals with one hoof, ruminants and pigs

Compan**ion Animals**

Act No. 41 of 2014 concerning Amendments to Act Number 18 of 2009 concerning Husbandry and Animal Health, pets are defined as:

Animals whose lives are partly or wholly dependent on humans for specific purposes

Wildlife

Act No. 5 of 1990 concerning Conservation and Natural Resources and Their Ecosystems

Wildlife are all animals that live on land, and/or in the water, and/or in the air that still have wild characteristics, whether free-living or kept by humans.

Although there are differences in the definitions of farm animals, pets and wildlife, in general, animals that have "ownership" status, especially pets (e.g.dogs, cats), are given more animal welfare consideration by humans than stray dogs and cats. Meanwhile, wildlife that is protected by law and "belongs" to the state is more concerned about its protection than wildlife that is not categorized as protected animals. However, although farm animals are commonly owned by somebody it does not have a crucial impact on the fulfillment of their welfare.

Gary L Francione, a Rutgers University Law Professor, argues that animals only need one right, which is the right not to be considered property (Richards, 2019). Francione also argues that we need to rethink our relationship with animals. Animals deserve equal consideration (Richards,

2019). Furthermore, animals are not a property and their presence in human life is essential (Richards, 2019). All living beings can feel pain and suffering and all have an interest in avoiding pain, suffering and death (Richards, 2019).

Conclusion

Rejecting the notion of speciesism also means looking objectively at our personal choices and changing choices that hurt animals. It's time to realize that all living beings deserve to be treated with kindness. We can reject speciesism and act with integrity and consistency towards all living beings, and the first step is to recognize that every animal has the right to live free from any human exploitation. Therefore, the view of anti-speciesism is considered appropriately to be able to realize law reforms for the betterment animal protection. Anti- speciesism leads to equality of animals and requires everyone to treat animals equally, not discrimination based on their species. Dogs and cows should not be treated differently on the basis of their species. All living beings must be considered for their own inherent importance, no matter what species they are. Fulfillment of animal welfare is not only aimed at the animals themselves but also has a positive impact on human welfare and the environment. Accordingly it is crucial to have anti-speciesism idea that there is no increase in the emergence of new diseases that infect humans in the coming years since the UN Environment Program report states that 75% of new diseases that infect humans in the last 10 years are caused by pathogens originating from animals (UNEP, 2020).

Law reforms based on anti-speciesism may increase the welfare and legal protection for the animals themselves. Amendment in animal protection law can be achieved by eliminating the notions of speciesism and anthropocentrism within society and the government, thereby animal welfare and animal protection can be fullfilled. Make amendments toward animal protection

laws that are just for all animal by adopting the idea of anti-speciesism is a crucial thing that can be done, as a result the fulfillment of animal welfare and protection can be applied for all species of animal including farm animals, non-owned animals, and wild animals whose status is not legally protected. Creating a new law which still rooted on speciesism and anthropocentrism will not fully benefit animal health, social development, poverty and hunger reduction, conflict management and environmental sustainability.

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Conflict of Interest

I certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organization related to the material discussed in the manuscript.

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Humane Education and Child Character Development: A Conceptual Review of Correlation Between Animal Welfare Education and Prosocial Behavior

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Abstract

Humane education is an educational program that does not only focus on supporting the animal's well-being but also generally gives positive impacts on children's character development. Characters were born from the process of learning and habit practices that were carried out at early age. Therefore, character education should be taught early. Positive character development in children, for example, empathy and compassion, will contribute to the emergence of prosocial behaviour. This could become preventive action or solution to anticipate the increasing violence trend that is directed either to humans, animals or, the environment.

Keywords: *Humane Education; Character Development; Childhood; Animal Welfare Education; Prosocial Behaviour; Child Psychology*

Introduction

Human resource qualities will determine how a nation could develop to become a strong, independent, and empowered nation in global competition. The development process of human resource does not only focus on physical aspects but also consider psychological or mental aspects. One psychological factor which is of concern in creating good human resources is character. Lickona (2004) explained that character is a personality of a person who could be relied on to respond to various situations with good morals. A character's development

process begins at an early age. In fact, at the age of 6 months, a child could already start showing the ability to develop empathy (Altmann, 2007). Character building and character education are a must because education does not only make the nation's children smart but also has good manners and politeness so that their existence as members of society could become generally meaningful for themselves and society (Kaimuddin, 2018). This goes hand in hand with the crisis of social conditions which recently is becoming more concerning. The increased *bullying case*, destruction of others' belongings, sexual harassment, drug abuse and narcotics, destruction of the environment, to rampant violence or abuse towards animals surely need special attention. Cases of violence against animals are quite high in Indonesia. Based on data from Asia for Animals Coalition, Indonesia is dominating the world that uploads the most animal cruelty content on social media. Of the total of 5,480 contents collected, 1,626 contents of those are coming from Indonesia (downloaded from dpr.go.id, December 7, 2022). Easy access through social media makes it more possible for those who want to repeat or imitate similar things, including kids. Children are at a crucial age when they can easily imitate and absorb what they see or hear from their surroundings where they grow (Ormrod, 2008). When this is not balanced with adequate education character, surely the chance of making violence towards animals could be considered normal and it would be okay if the cases are high. Character education with a knowledge base on animals' well-being could be considered in the hope it could disconnect the chain of this condition.

Humane education is one of the forms of a learning system that can become an alternative for introducing and teaching the exact method of how to behave towards animals with animal welfare principles in mind (Taylor & Signal, 2005). *Humane education* could be introduced to children at the start of early age. Educational programs in *humane education* will not only help reduce violence trends and develop empathy in animals but also in humans. Various studies

have mentioned that empathy is an important contributor to prosocial behaviour (Roberts and Strayer, 1996; McDonald and Messinger, 2011). Prosocial behaviour could be defined as purposeful action to help, give benefits, or support other people. Prosocial behaviour in children could become a medium to predict low internalization and externalization problems, diminish future aggression trends, increase social function, and achieve better academics (Samuels, 2018). This study aimed to provide answers related to the question of whether the application of *humane education* that focuses on animal welfare education could support the development of characters in children, in particular prosocial behaviour. Besides that, this research is expected to become a base for related field studies in Indonesia with the implementation of *humane education*.

Methodology Study

Type of Research

This study used an approach method in the form of *Library Research* or literature studies. Though considers as research, research with literature studies is research that does not require the researcher to go to the field or meet with the research's respondents. Prastowo (2012) revealed that literature study is one of the methods used in qualitative research where it is done in a library. Documents, archives, and various types of documents that can be traced scientifically are used as materials in order to gather information and data. The purpose of this study is to get the base theory of the problem that is going to be researched by learning various references or results from studies that have been done before (Sarwono, 2006).

Procedure Study

This literature research is used to arrange a draft about the influence of *humane education* applications (with a focus on animal welfare education) in the development of children's character, specifically prosocial behaviour. Kuhlthau (2002) mentions there are steps in literature study as follows:

1. Topic selection
2. Information exploration
3. Determine the focus of the study
4. Data sources collection
5. Data presentation preparation
6. Organize the report

Research Data Sources

This study used relevant data which focuses on humane education to develop prosocial behaviour character in children. Various literature such as journals or scientific articles is obtained by downloading necessary materials through *e-journal* sites, such as sciencedirect.com, researchgate.net, academia.edu, journal.sagepub.com, etc.

Techniques and Instruments of Data Collection

The data collection technique used in this study is documentation, which is the process of searching materials that are connected to this study's variables in the form of written sources

such as_ articles or journal research (Scott & Marshall, 2015). The instruments used in this study are a classification list of research sources, a writing scheme, and a research note format (Imah and Purwoko, 2018).

Data analysis technique

The researcher used the analysis content method (*content analysis*) as a data analysis technique. This method is used to form a valid conclusion from some written source through sets of systematic procedures. The content analysis technique makes the researcher possible to do quantification and analysis of the meaning and relationship between words, sentences, or drafts of certain written sources (Elo et al., 2014). This process covers selecting, sorting, comparing, and merging various definitions so that relevant conclusions can be found.

Results and Discussion

Results

Humane education can be defined as a form of education that encourages humans to better understand animal welfare and how to treat animals with compassion and love. In *cross-cultural* research, *humane education* can also be implemented in an educational program in order to introduce the understanding that animal also has the intelligence and awareness to feel emotion similarly to humans (Balcombe, 2016; Bekoff, 2013). In relation to animal welfare education, *humane education* introduces 5 principles of animal welfare, namely (1) freedom from Hunger and Thirst; (2) freedom from Discomfort; (3) freedom from Pain, Injury or Disease; (4) freedom to Express Normal Behavior: (5) freedom from Fear and Distress (Susanto & Gandha, 2015).

Apart from being related to the principle that carries attention to animal welfare, *humane education* could also be a medium for character education, social and emotional skills learning and support the development of emotional ability to empathize and be compassionate to humans, animals, and the environment. Learning programs of *humane education* would not close the possibilities that will give the opportunity to evaluate whether those three things could be related to one another. When *humane education is* implemented as part of children's education, then it will become a medium which will contribute to developing skills outside of class. *Humane education* would help children to become part of and be responsible figures for the environment around them (Itle-Clark, 2011).

Related research conducted by Samuels (2018) about the application of *humane education* to first and second-grade students in a school in China exhibits significant good results in connection with prosocial behaviour. *Teacher Observation of Classroom Adaptation–Checklist (TOCA-C) Prosociality subscale* is used as a tool to measure prosocial behaviour. Dimensions of measurable prosocial behaviour are friendly attitude, compliance, emotion management when angry, capability to feel empathy, sporty, likeable among classmates, and capability of accepting different opinions. A number of other studies also support this statement. Sprinkle (2008) found that the *humane education program* that is carried out in schools would increase the ability to empathize and reduce trends of violence in elementary and middle high school students. Samuels, Meers, and Normando (2016) also found that *humane education* could improve prosocial behaviour in experiment groups compared with the control group who received a *non-humane educational* program. The findings of Piek et al. (2015) even explain that improvement in prosocial behaviour tends to stay for 6 to 18 months after participating in animal-focused educational programs.

Ngai et al. (2021) demonstrated that *animal-assisted humane education* provides positive

impacts on self-regulation, human behaviour, also growth in academic ability. Sustainable monitoring is recommended in that study to see the consistency of the provided educational program. Arbor, Signal, & Taylor (2009) described that *human education program* brings a significant influence on ways to behave toward animals, especially on empathy abilities.

Discussion

Character is a set of traits possessed by a person and become signs of goodness, virtue, and moral maturity of an individual. Good character consists of knowledge about *knowing the good*, *desiring the good*), and *doing the good*. In this case, it required habitational thought (*habit of the mind*), habitational heart (*habit of the heart*), and habitational action (*habit of the action*). When we think about the characters that parents want to be instilled in their children, Clearly, parents wish their children to be able to judge whether they really care about human rights and act accordingly (Zubaedi, 2011). Of course, this ability does not only limit to other humans but also expected could be applied when interacting with animals and the environment.

There are many traits within the character traits framework that a child could have and develop, some of which are being able to empathize, respect others (*respect*), being responsible (*responsible*), compassionate (*compassionate*), and being able to display kindness (*kind*). Empathy is included in related characters in which an individual is able to express his emotions because empathy could be measured through his insight on emotion, emotional expression, and one's ability to take on the role of another individual. Furthermore, empathy will be related to the behavioural responses that are displayed when interacting with the surrounding environment. Empathy becomes the limit of the individual whether he will do or actualize the prosocial ideas

they have into their behaviour or not (Asih & Pratiwi, 2010). Thus, children's character development is tightly related to the implementation of prosocial behaviour.

The research's results related to the application of humane education describe that this educational program could be a promising tool for character development. One of the traits that can be the focus of development is empathy. Good empathy development will enable a child to understand the feelings and emotions of other people as well as the ability to imagine oneself in someone else's place. This ability to empathize begins to be owned by someone when he reaches early childhood (6 years), thus it can be said that all individuals have the basic ability to empathize, it is just that the level of depth and how to actualize it varies with age. (Hurlock, 1999 in Asih & Pratiwi, 2010).

The development of empathy character has a close relationship with prosocial behaviour (Decety et al., 2016). When a person is able to understand the conditions and needs of the environment around him, be it humans, animals or the natural environment, then his behaviour will show a caring attitude to reach the welfare of the surrounding environment. A caring attitude will certainly reduce the tendency to engage in violent behaviour, including when interacting with animals. A child would be able to have empathy for animals when he is interested in understanding animals. This interest would allow children to have satisfactory knowledge of the basic needs of animals and how to treat animals properly. Programs in humane education will facilitate and make it easier for children to access the learning materials needed related to these topics.

Conclusion

Humane education could become one of the programs of character development education that have long been developing in Indonesia. This program would benefit Indonesian children to have alternative ways of learning related knowledge of character development through

deeper knowledge regarding animal welfare. With comprehensive character development, it is hoped that children will not only be able to show prosocial attitudes towards fellow humans but also animals and the natural environment. This research has limitations in collecting material related to the implementation of humane education in Indonesia since this concept is a new thing in Indonesia. It is hoped that the reviewed concept can become a reference for subsequent research to further echo the importance of implementing humane education for the character education of Indonesian children.

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Acute Pain Management in Cats: Assurance of Feline Welfare Fulfillment Within Clinical Environment

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Abstract

Assessing, acknowledging, and managing pain in feline patients are often challenging. Failure to recognize and protect the cats from harmful effects of nociception, therefore, often ensue. Feline patients that are afflicted with illness and tissue trauma that may arise from trauma or surgery have acute pain that needs to be addressed. Acute pain can present with varying degree of intensity, a parameter of sensory-discriminatory aspect, and unpleasantness, a perceived feeling that is integral to affective aspect. Notwithstanding its usefulness to protect the tissue from further damage, acute pain is detrimental to the feline's welfare, comprising physical and mental wellness if not managed properly. Uncontrolled pain has also been associated with increased morbidity, prolonged hospitalization period due to delayed recovery, increased health-care cost, and decreased quality of life. This review article is made with the aim to elucidate how acute pain in cats is recognized, prevented, and treated, both pharmacologically and non-pharmacologically.

Keywords: Acute pain, nociception, feline welfare, trauma

Background

Pain in cats is often overlooked. The inability of animals in general to communicate their pain is natural, but it does not nullify the likelihood that they do indeed experience pain. Studies have found that consequences like increased morbidity, impaired quality of life, hampered recovery and subsequent increase in hospitalization period and health-care cost entail refractory pain (Gan, 2017). The lack of pain assessment, recognition, and management has been reported, especially among older and male practitioners, and those who practice in smaller clinical settings,

with multifactorial causes such as limited access to various analgesics, concern over opioid's adverse effect, inadequate curriculum material about pain management taught in veterinary schools and differing subjective perception of pain between the sexes (Dohoo & Dohoo, 1996; Hugonnard et al., 2004; Joubert, 2001). Furthermore, validated pain assessment tools were not widely used within the clinical setting (Coleman & Slingsby, 2007). When pain is unrecognized, less analgesic is used, leading to inadequate pain management (Simon et al., 2017).

According to the International Society of Feline Medicine, the employment of pain scales that are not approved for use in cats was a hurdle that recently has gotten a breakthrough (Steagall et al., 2022). Admittedly, there are species-related pain-related alterations that become major limitations, especially when using dog-validated pain assessment tools to assess pain in cats. These differences can also be seen within the species, based on the pain threshold, temperament, and different cause of pain each individual can have (Reid et al., 2018; Steagall et al., 2022). There are now three validated feline-specific pain assessment tools that can be employed, although the use of whichever will need training for the veterinary staff (the clinicians and nurses) (Belli et al., 2021; Evangelista et al., 2019; Reid et al., 2017). The use of these validated pain scales has also led to an advancement in research and clinical studies, leading to discovery of feline-specific analgesics that significantly improve the margin of safety of the administered drugs (Steagall et al., 2022). This review article will try to elucidate the mechanism behind pain perception, use of these advent feline-specific pain assessment tools, and the art of feline acute pain management, both pharmacologically and non-pharmacologically.

Acute Pain: Why and How It Happens

Acute pain arises from any insults that results in tissue injury and subsequent inflammation. Acute Inflammation is a physiological response to tissue injury and death to facilitate tissue

recovery. For instance, inflammation gives rise to prostaglandin, a vasoactive, pyrogenic, and neuroactive eicosanoid that facilitates not only the amplification of inflammation, but also inflammation resolution, perception of pain to protect the affected area from further damage through use withdrawal (*eg.*, animals with painful limbs instinctively will not perambulate as much to protect the diseased limbs), and prevention in the proliferation of potentially pathogenic microorganisms through increase in body or the affected area's temperature (Ackermann, 2017). This is termed as "protective pain". Despite its beneficial purposes, uncontrolled acute pain does more harm than good, because it is associated with perpetual tissue deterioration and exacerbation of the preexisting tissue damage. Furthermore, pain that exceeds the threshold of the individual will result in, but not limited to, reduced quality of life (*eg.*, decreased sleep quality, emotional instability due to the perceived "ceaseless perceived pain"), stress that leads to immunosuppression, hypertension, and behavioral changes that can affect the human-animal bond (Muir, 2015). Hence, acute pain should be managed, not necessarily to eliminate the "protective" role of it, but to control the pain so that it does not exceed pain threshold needed for protection. Furthermore, uncontrolled pain can result in pain that is unnecessary and results in increased pain perception that goes beyond its adaptive, protective, and recuperative purpose, often referred to as maladaptive pain (Costigan et al., 2009).

Pain is initiated by peripheral stimuli with sufficient intensity that are detected by nociceptors. These stimuli are often referred to as noxious stimuli, and those that fall in this category have the likelihood to cause harm to the body tissue. Nociceptors have some differences in their axons: Aδ and C fiber axons. Aδ fiber is lightly myelinated and has small diameter, transforming mechanical and thermal stimuli into electrical signals and conducting them more slowly, and giving rise to sharp, rapid pain that is responsible for withdrawal reflex to acute pain. C fibers are entirely unmyelinated and have even smaller diameters than Aδ. They respond to chemical,

thermal, and mechanical stimuli, and conduct more slowly than the A□ (Fields et al., 1998). These electrical signals then get transmitted to the central nervous system through dorsal horn ganglia. This signal is then processed, resulting in increased alertness and altered behavioral strategies that are used to avoid further contact with the harmful stimuli (Latremoliere & Woolf, 2009). Sometimes, noxious stimulus with such intensity that overwhelms the pain threshold can result in dysfunction of the components of either peripheral or central nervous system, or both. Though not necessarily a pathologic state, which instead could become integral parts of protective pain, allodynia (*ie.*, pain that results from normally unpainful stimuli) and hyperalgesia (*ie.*, increased pain sensitivity) can arise. Increased neuronal membrane's excitability and synaptic transmission, or reduced neuronal inhibition, can be the causes of such states. This phenomenon is termed as functional plasticity. When the nociceptive afferent neurons are deluged with increased noxious inputs, functional plasticity of the afferent nociceptive neurons occurs, altering the receptive field threshold, and even the spatiotemporal property of nociception. During this plastic state, sensitized peripheral nociceptors become more excitable, so more electrical signals are conveyed towards the central nervous system, evoking a heightened state of pain in affected and the surrounding areas (*ie.*, primary and secondary hyperalgesia, respectively), even with stimulus that are not commonly painful (*ie.*, allonydia) (Tsagareli, 2019).

Assessing Acute Pain in Cats

Effective pain management is only possible if valid, dependable and sensitive pain assessment tool is readily accessible to be utilized. A pain assessment tool is considered reliable and sensitive if it has scientific proofs of consistent results reproducibility in distinction of painful animals from healthy state, valid if it is proved to be able to assess the targeted parameters. These features are essential because pain assessment tool is going to be needed for constant reassessments

to evaluate whether the interventional analgesic given is adequate to relief the pain of the affected individual. The assessment result will not give valid and accurate result if it could not discriminate between painful and non-painful individuals, and between different pain intensities (Calvo et al., 2014; Steagall & Monteiro, 2019).

Pain is multidimensional. In human medicine, Melzack and Casey (1968) described pain with three dimensions: sensory-discriminative, affective-motivational, and cognitive-evaluative. Sensory-discriminative aspect of pain is assessed through thorough physical examination to determine pain location and intensity, obtainment of complete medical history to determine the duration of the pain. This domain is usually assessed concurrently with the second aspect, affective-motivational. This domain explains the demeanor and behavioral changes that arises from the extent the pain can be perceived as unpleasant to the affected cat. Straightforward changes in the demeanor such as mental dullness or aggression, or more subtle changes like different head position and whiskers tensity, can be picked up from the initial assessment, with the help of pain assessment tool and hands-on physical examination. The third domain, cognitive-evaluative, is virtually implausible to evaluate because it involves cognitive alterations due to experienced pain (Merola & Mills, 2016a; Steagall & Monteiro, 2019).

Figure 1. A cat with painful abdomen due to urinary obstruction. This cat was depressed, hyporexic, and expressing "grimace" (Self documentation)

There are common pitfalls that can make pain evaluation ambivalent, especially when relying solely on behavioral or physiological changes. First, detection of these changes can be subjective, as many studies have pointed out (Dohoo & Dohoo, 1996; Hugonnard et al., 2004; Joubert, 2001; Williams et al., 2005). This is exacerbated by the lack of use of validated pain assessment tool (Coleman & Slingsby, 2007). Variations in pain behaviors between individuals have complex affecting factors that can arise from the environment, the individual's disposition, and anesthetic influence (in post-operative patients). The latter is especially true in post-operative patients, where veterinarians would frequently discharge the animals following elective surgical procedure (*eg.*, orchiectomy) without analgesics, because there is a bias of dysmorphia following anesthesia recovery (Buisman et al., 2016; Williams et al., 2005). Painful cats can be characterized by the

change in their demeanor, either becoming more dull or aggressive. However, other conditions may cause this change, or overshadow coexisting pain perception, such as patients presenting with shock and central nervous system disorders. Cats, being closely related to other big cats, may conceal painful behaviors due to their predatory instinct (Berteselli et al., 2014). Individuals with high fear, anxiety, and stress level may have alterations in their physiological and mental variables, especially when they are evaluated in settings that are unfamiliar, so that metrology evaluation scores higher when the cats are assessed at home than at clinical settings. Anorexia is also a sign of acute pain. However, not eating can also mean they are already in satiated condition (Steagall et al., 2022). Although acute pain assessment by the judgment of either behavioral or physiological alterations is insufficient (Merola & Mills, 2016b, 2016a), display of multiple behavioral signs can be a tip-off information that encourages further pain assessment and recognition.

Figure 2. Same cat in figure 1, after rescue analgesia was given. Although some of its facial components still indicated pain, the cat was appetent, of which behavior is usually absent in cat with uncontrolled pain (Self documentation)

Due to the subjectivity of pain evaluation, pain assessment metrology is used to help making a more sound, unbiased clinical judgment. Three validated feline-specific pain assessment are now available (Belli et al., 2021; Evangelista et al., 2019; Reid et al., 2017). As mentioned before, pain is multidimensional. Therefore, a good, validated pain assessment should be composite, that it comprises of sensory and other aspects that reliably detect for the feeling of unpleasantness due to pain. These three pain assessment tools have their respective discerned parameters, and cut-off value of which interventional analgesic is indicated once reached or even surpassed. Nonetheless, none of these tools have a sensitivity or specificity of near 100%, making these, to some extent, are still possible to overlook pain in cats. Whatever metrology is used, sufficient training is necessary to reduce bias and judgment differences among the veterinary staff.

Universidade Estadual Paulista (UNESP)-Botucatu (UFEPS) multidimensional pain assessment scale – The initial study of the use of this pain scale was conducted in cats with postoperative pain, following ovariohysterectomy. However, many studies have used this pain scale. It discerns pain expression (miscellaneous behaviors, vocalization, reaction to palpation of surgical wound), psychomotor change (level of activity, posture, attitude), and physiological variables (appetite, blood pressure) (Steagall & Monteiro, 2019). This scale is also the first validated multilanguage feline-specific assessment tool. UNESP-Botucatu scale, however, has limited practicability due to its extensive subscales and assessed variables, including blood pressure monitoring. This issue has been addressed by the creation of a shorter version (UFEPS-Short Form [SF]), evaluating the cat's posture, level of activity, attitude, and reaction to palpation on painful area. A study conducted by Belli et al (2021) indicated good validity, although the current study lacked a more randomized, blinded evaluation. It has strong criterion correlations between the UFEPS and UFEPS-SF. A moderate sensitivity with known increase in psychomotor change score in cats previously induced with ketamine (Buisman et al., 2016). Both UFEPS and UFEPS-SF is slightly

higher in specificity than sensitivity. Inter-rater reliability remains as a limitation for this pain scale. Original study performed by Brondani et al (2013) and most recent study where veterinary anesthesia and analgesia specialists were enrolled to assess (Luna et al., 2022) indicated higher inter-rater reliability (CI 0.93-0.97 for the former study, and CI 0.84), whereas other studies reported lower, moderate inter-rater reliability (CI 0.79-0.82) (Belli et al., 2021), with considerably high variability in one study (Benito et al., 2017). These findings corroborate the need for extensive staff training, should this valid, reliable pain scale be used in- clinic. It is recommended to access the site (www.animalpain.com.br) for online training using provided videos and other information. The cut-off value of UFEPS-SF and UFEPS are ≥ 4/12 and ≥ 7/24, respectively.

Glasgow composite measure pain scale-Feline (Glasgow CMPS-F) – Glasgow CMPS-F included behavioral parameters like vocalization, level of activity, posture, attention to wound, response to palpation, and reaction in response to the caretaker. The most updated version also included facial expression of pain (shape of muzzle, ear pinna position). The developmental stage of this tool creation included positive control groups with different health problems that result in pain: trauma, surgery, and other medical illnesses (Calvo et al., 2014). Hence, it can be more appropriate to use in clinical settings where diverse pain inciting agents may present. Moreover, as opposed to the validity assessment of UFEPS, Glasgow CMPS-F validation was conducted in clinical environments where it was assessed by observers of different levels of experience, so it can be more applicable in small animal practices where veterinary anesthesia and analgesia specialists are not present. This study also proved a much higher pain discriminatory ability among the observers, resulting in less inter-rater reliability (Reid et al., 2018). Nonetheless, this pain scale needs more studies to prove its reliability. Rescue/interventional analgesia is given when cut-off point of ≥ 5/20 is reached (Gruen et al., 2022; Steagall & Monteiro, 2019).

Feline Grimace Scale (FGS) – FGS is the most recent validated pain assessment tool which uses

facial components of the cats. Validated grimace scales have been developed for other species, such as mice (Langford et al., 2010), rabbits (Keating et al., 2012), and horses (Dalla Costa et al., 2014). The evaluated facial components, referred to as "action units" that construct a facial expression, comprise of ear position, degree of orbital tightening, muzzle tension, whisker position, and head position. This assessment tool can be less invasive (due to the absence of hands-on approach) and more practical. Indeed, the assessment can be carried out real-time or through a photograph of the cat, unperturbed and unrestrained inside the kennel, as any forms of handling and restraints will affect the facial expression (Holden et al., 2014). FGS has been reported to be valid, reliable, sensitive, and specific. However, note should be taken that brachycephalic breeds may present with either false positive or false negative result (*ie.*, higher and lower score than the cut-off point, respectively), due to their different facial conformities compared to mesocephalic breeds (Evangelista et al., 2019). Cut-off point for FGS is ≥ 4/10.

Pain Management: A Pre-emptive, Multimodal Approach

From previous paragraphs, the author beseeches the readers that becoming sufficient in pain assessment is just as important as becoming proficient in physiological evaluation. Failure to recognize pain results in *oligoanalgesia*, a state of inadequacy in pain management (Simon et al., 2017). When referring to pain management, the term analgesia is conjured up. However, the term itself means "the absence of pain sensation", which may become a virtually implausible objective to obtain when managing pain. Pain should be effectively controlled, to the point that it does not interfere with the welfare of the patient. Conversely, when pain is expected, as in surgery, it is now generally accepted that pain prevention is favorable than once tissue damage and subsequent pain are produced (Gruen et al., 2022). Pain management goal should focus on the most pain alleviation and comfort level that can be achieved, while minimizing

the potential adverse drug reactions. Therefore, a multimodal approach is advised to: (1) control pain through multiple drugs with differing mechanism of actions, as pain pathways are often redundant (Zochodne, 2012), and (2) possible dose reduction when multiple analgesics are used. The author is trying to summarize some of pharmacological and non-pharmacological interventions that are proven to provide analgesia in cats. Nevertheless, some surgical procedure, or pathomechanisms, may elicit more pain than the others, and hence could become more challenging to manage.

Pharmacologic Agents

There are a few things to be considered in the administration of analgesics. Steagall et al (2022) proposed the acronym "T.E.L.L.S" to determine the type, dose, frequency, and route of analgesic(s) to be given to the patient: Type of noxious stimuli (*eg.*, visceral, neuropathic, oncologic, somatic, orofacial), Expected duration of the nociception (*eg.*, transient stimuli such as endoscopy *vs* extended pain perception as in surgery), Location of noxious stimuli (*eg.*, onychectomy procedure can benefit from femoral and sciatic nerve blocks), Location of the patient throughout the medication (out- *vs* inpatient), and Severity of noxious stimuli.

Opioids

Opioids act on opioid receptors, and opioids can be categorized based on the matching receptor: mu, delta, and kappa. Although the functional effects of each receptor are different once activated, they have similar cellular responses after becoming activated. Dissociation of alpha-guanosine triphosphate (aGTP) and beta-gamma complex of the receptor's plasma membrane

results in decrease in intracellular adenylyl cyclase, hence in turn reducing cyclic adenosine monophosphate levels, dampening signal transduction. Moreover, activation of mu- opioid receptors increases potassium and decreases calcium influx, rendering the neurons hyper-polarized. Since the central nervous system expresses an ample of opioid receptors, less pain is perceived once these receptors are activated (Pathan & Williams, 2012).

Because opioid receptors are expressed in high levels in the nervous system, according to a recent proposal for acute pain management in both cats and dogs, opioids should be the first choice when pain is evident, but the causative factor is not determinable immediately. Once the pain has subsided into a more comfortable level, diagnostic workup should be performed to pinpoint the etiology of pain (Gruen et al., 2022). Opioid selection should be based on veterinary staff's pain assessment of the patient. If moderate to severe pain (*eg.*, cat with pancreatitis, cat who undertakes invasive surgery like ovariohysterectomy and orthopedic procedures) is indicated or predicted, opioid that exerts more activation of mu-opioid receptor is recommended. Single dose of methadone (0.2-0.6 mg/kg IV/IM q6h) or pethidine (5-10 mg/kg SC/IM q1-2h) can be given initially, and reassessment should be done to evaluate the requirement of other rescue analgesia. In the author's experience, methadone is inaccessible in our practice, so pethidine is the only full mu-opioid we can get access to. However, pethidine has short plasma half-life, and repeated injection can add stress and exacerbate pain. If pain is indicated to be prolonged, constant rate infusion (CRI) of fentanyl (0.005 mg/kg bolus, followed by 0.003-0.02 mg/kg/h IV) is recommended. Although there was a concern of the use of morphine due to its need for glucuronidation (Bell, 2009), it has been reported that there is no significant difference in morphine elimination rate between cats and dogs. Instead, cats may have reduced active metabolite bioavailability (Bloomfield et al., 2001). Mild to moderate pain can be managed with buprenorphine (0.02-0.04 mg/kg IV/IM q8h), a partial mu-opioid

receptor agonist. Nonetheless, variabilities in the response to the opioid treatments, irrespective of the receptors they are working on, have been reported, so it is important to always reassess the patient to cater to the patient's need on individual basis (Bloomfield et al., 2001; Johnson et al., 2007).

Although opioid use is recommended in management of acute pain, the author acknowledges that opioid may be inaccessible in many practices. This shortage has become an issue in the effectiveness of a pain management protocol when opioid is not included, as NSAID alone has been proven to be inadequate to control post-ovariohysterectomy pain, even when intraperitoneal bupivacaine is added (Steagall et al., 2018). Involvement of multiple stakeholders like governmental bodies, pharmaceuticals, and drug regulatory bodies may be necessary to resolve this inaccessibility to opioid drugs (Steagall et al., 2022).

Non-steroidal anti-inflammatory drugs (NSAIDs)

As the name suggests, NSAID works best when acute tissue damage and subsequent inflammation are highly determinable. Oftentimes, NSAID can be indicated in conditions such as neoplasia, lymphoplasmacytic gingivostomatitis, idiopathic cystitis, uveitis, and even in other condition where short-term use of NSAID can be opted to make better clinical judgment based on the therapeutic response, owing to its anti-inflammatory, antipyretic, and analgesic properties. In cats, there are only two approved NSAID for use in cats. NSAIDs exerts its anti- inflammatory, antipyretic, and analgesic actions by inhibition of cyclooxygenase (COX), an enzyme that catalyzes the production of prostanoids. There are two isoenzymes: COX-1 and COX-2. Concerns regarding the use of non-selective NSAID raise from its inhibitory effect on COX-I, which is constitutively expressed in nearly all cells in the body to carry out physiological functions,

including maintenance of renal perfusion and electrolyte homeostasis, and gastric mucosal integrity (Fromm, 1987; Kim, 2008). Meloxicam and robenacoxib are the only two approved NSAIDs for use in cats. Studies have indicated generally accepted use safety in cats, even when used for extended period (dose 0.01-0.03 mg/kg q24h per oral), in which cases can benefit the cats by reducing pain level, especially in chronic musculoskeletal pain (Gunew et al., 2008). Meloxicam is also present as a promising analgesic in cats with "stable" chronic kidney disease (*ie.*, cats with CKD of IRIS stage 1-2, with minimal to no change in bodyweight and plasma creatinine level in 1-2 months), although this study was retrospective, therefore is subject to biases (Monteiro et al., 2019). Robenacoxib is licensed for therapeutic use of up to 6 days. Although pharmacokinetic studies have shown robenacoxib to have elimination half-life of 2 hours in cats, high protein-binding rate may facilitate persistence of robenacoxib within inflamed tissue. It should be underscored that cats have different hepatic metabolism in comparison with dogs, and studies have reported inter-individual differences in the rate of NSAID elimination, therefore different toxicity threshold and response to analgesic property when NSAID is administered, even if approved NSAID is used (Court, 2013; Sparkes et al., 2010).

Adjunctive Analgesics

Although NSAID and opioid can be used concurrently as a multimodal approach, oftentimes pain management requires other pharmacologic agents to provide breakthrough in pain pathway redundancy. It is helpful to remember the T.E.L.L.S. that has been mentioned in previous paragraph. For instance, if neuropathic pain is indicated, use of gabapentin (alpha-2- delta calcium channel disruptor), or addition of ketamine (N-methyl-D-aspartate [NMDA] antagonist) can be considered. Gabapentin exerts its antineuropathic pain through disruption of alpha-2-delta

voltage-gated calcium channel (VGCC), which reduces interactions between its subunits with NMDA receptors. Both VGCC and NMDA receptors are found in the central nervous system, modulating pain sensory signals, and inhibitory effect of gabapentin therefore will result in decreased pain sensation, though gabapentin use alone may not alleviate acute pain (Dolphin, 2013; Park & Luo, 2010; Steagall et al., 2022). Although ketamine is extensively excreted by renal elimination route and may accumulate in the plasma in patients with renal insufficiency, it has been indicated that sub-anesthetic dose of ketamine administered continuously (*ie.*, CRI, 0.01 mg/kg/minute) is safe and can provide neuropathic pain amelioration through downregulation and reduced phosphorylation of NMDA receptors (Steagall et al., 2022).

Other Supportive Pharmacologic Agents

Besides from provision of analgesia, patients with other existing health condition should also be managed properly. For example, nauseous and vomiting cats should be controlled through the administration of antiemetic agent (*eg.*, maropitant 1 mg/kg q24h IV; ondansetron 0.5 mg/kg IV bolus, followed by 0.5 mg/kg/h CRI for 6 hours) and/or gastrointestinal protective agents (decision to use such agents should consult a consensus statement regarding the rationale for gastrointestinal protectants administration [Marks et al., 2018]). Cats with high fear and anxiety level may benefit from gabapentin (50-100 mg per cat). Use of premedication like medetomidine (alpha-2 agonist) provides a degree of muscle relaxation, sedation, and analgesia, though patients with compromised cardiovascular health is contraindicated. Tramadol, a racemic mixture that possesses opioid receptor agonist, serotonin and norepinephrine reuptake inhibitory properties. Its use is deterred due to its unpleasant taste in cats, although it has been shown to be more efficacious in cats than dogs (Steagall et al., 2022).

Non-Pharmacological Interventions

A positive interaction between the caretaker and the cat is the hallmark of non-painful cats. Cats should be approached and handled gently to maximize level of comfort and prevent exacerbation of pain. Cage enrichment is recommended. For instance, provision of a card box for hiding and perching, and layers of sheets for comfortable bedding are encouraged. The ward environment should be kept as quiet as possible to prevent stress in cats (Rodan et al., 2011; Steagall & Monteiro, 2019).

Conclusion

Effective pain control in cats is a serious matter to be reckoned with. Appropriate veterinary staff training for pain recognition and assessment is pivotal in a successful pain management, and all staff, including the veterinarians and paramedics, should be involved. Pain control protocol should always be tailored in a case-by-case manner, and provision of a feline-friendly environment is as important as the administration of pharmacological interventions.

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The Perception of Veterinarians in Bali Towards Antimicrobial Resistance

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Abstract

Antimicrobial resistance (AMR) is a global crisis that will greatly impact human and animal health. This phenomenon is mostly caused by veterinarians who use antimicrobial to their patient irresponsibly. This study aims to know how the perception of veterinarians toward AMR phenomena in Bali. As many as 204 clinical practitioner veterinarians who were officially registered in the province of Bali divided into two group namely pet and livestock veterinarians. Both of groups were asked to answer a Likert-type scale questionnaire. The Kruskal-Wallis H test was performed to determine significant differences in median responses and mean ratings between different veterinary groups for each question. Both of groups strongly agreed with the factor of patients did not finish antimicrobials therapy and using antimicrobials from previously unfinished therapy greatly contributed to the problem of AMR. Vet clinic, human clinic, human hospitals, livestock, aquaculture, and irregular use of antimicrobials contribute greatly to AMR. Patient health in a general hospital, the general public, livestock and food industry from animals are considered quite problematic due to AMR phenomenon. The role of many parties seems very important in managing and preventing AMR from both veterinarian groups. Our finding provided valuable insight into the awareness of AMR on Bali veterinarian and have important implication for the future studies.

Keywords: antimicrobial resistance, veterinarian, perception

Introduction

Antimicrobial resistance (AMR) is a phenomenon that occurs when bacteria can adapt and thrive in an environment that has been exposed to antibiotics. AMR is a significant threat to worldwide public health systems (Founou *et al*., 2017). The fact that infectious diseases caused by bacteria can no longer be treated with antibiotics, illustrates the uncertain future of the post-antibiotic resistance era of human health (Chokshi *et al*., 2019). The phenomenon of AMR events has an impact on increasing disease fatalities, prolonged patient care in hospitals, increasing patient care, and treatment costs, higher costs for second-line antimicrobial drugs, and patient treatment failures (Shrestha *et al*., 2018).

AMR is mostly caused by veterinarians who use antimicrobials to their patients irresponsibly and excessive use of Antibiotic Growth Promotors (AGP) in the intensive farm. The main goal of antimicrobial treatment is to limit the spread of pathogens in sick animals, but over-treatment by veterinarians is often done in non-infected animals (Economou and Gousia, 2015).

Nowadays, animal welfare is a social obligation for an animal practitioner with set rules that had been recognized internationally (Vale *et al*., 2020). The relationship between animal health and animal welfare is well acknowledged and both of them will combine and become "One Welfare", one of "One Health" approaches. Both of the concepts have a beneficial close relationship between humans, animals, and the environment (Garcia Pinillos *et al*., 2016). Therefore, AMR is very important from the perspective of animal welfare in veterinarians who have medical authority in administering antimicrobials to animals. This study aims to know how the perception of veterinarians toward the AMR phenomenon in Bali.

Method

As much as two hundred four clinical practitioner vet who officially registered in Bali divided into two group based on the animal they handle the most namely pet veterinarian and livestock vet. Both of groups were asked to answer a Likert-type scale questionnaire that had been described by Norris et al., (2019) with minor modification. The Kruskal-Wallis H test in IBM SPSS software was performed to determine significant differences in median responses and mean ratings between different veterinary groups for each question.

Result

The majority of veterinarians considered the current levels of antimicrobial use in human hospitals, general medical practice, farms, aquaculture and globally unregulated use of antimicrobials immensely contribute (median = quite problematic) to antimicrobial resistance. Factors in human dental practice as well as in companion animals that are considered to slightly contribute (median = slightly problematic) to AMR by both types of respondents. As for the factor of antimicrobial use in the respondent's practice, the pet doctor stated that it was quite a contribution (median = moderately problematic). In contrast, livestock veterinarians stated that it contributed slightly (median = slightly problematic). Likewise, the use of antimicrobials in nursing homes where pet doctors stated that they had a small contribution (median = slightly problematic) while the other group stated that they did not contribute at all (median = no problem) to AMR.

Factors that contribute according to respondents from pet doctors and farm animals to AMR are patients/clients who do not finish the prescribed antibiotics and patients/clients who use antibiotics from previous unfinished therapy. Meanwhile, the contributing factors for these two types of practice are too many antibiotics prescribed, the long duration of antibiotic treatment, low antibiotic doses, using antibiotics in mild or self-limiting diseases, not removing

the place/source of infection, and prescribing antibiotics when the benefits are for the patient. uncertainty, prescribing broad-spectrum antibiotics when equally effective narrow-spectrum antibiotics are available, environmental contamination with waste antibiotics, and the transfer of resistant bacteria between humans, animals, and the environment. Regarding the factor of continuing antibiotic therapy without laboratory examination, livestock veterinarians thought that these factors significantly contributed to AMR compared to pet veterinarians who considered these factors to be quite a contribution but livestock veterinarians regarded as factors of poor hand hygiene and poor environmental hygiene to be considered a small contribution compared to with pet doctors who think enough to contribute.

According to the two groups of respondents, the AMR problem for human medical hospitals, the general public, livestock, and the animal feed industry is quite problematic. While the factors of themselves, their patients, residents in nursing homes, and the health of dogs and cats are considered a bit problematic. Livestock veterinarians stated that the health factors of patients in human dental hospitals and patients in animal clinics in AMR problems were categorized as quite problematic, which was different from the other groups who stated that they were slightly problematic.

Both groups agree that the role of itself, co-workers, clients and patients, the general public, pet owners, farmers and food producers, dentists, general practitioners, nurses, pharmacists, researchers, government, and the mass media are very important in preventing the problem. AMR. The two groups of respondents also agreed that the role of world organizations is extremely important in preventing this phenomenon. The role of veterinarians, hospital doctors, and pharmaceutical companies according to livestock veterinarians is considered extremely important when compared to pet doctors who consider it only very important.

In conclusion, all respondents agreed that AMR is a serious enough threat in the future.

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Teeth clipped-out in Javanesse Slow Loris *(Nycticebus javanicus)* and Its Preservation Through Root Canal Treatment

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Abstract

Nycticebus javanicus or often called the Javan slow loris is one of Indonesia's endemic primates whose status is now in the critically endangered category because their numbers are decreasing. The illegal trade often causes serious problems for the health and survival of slow lorises in their natural habitat. There is a wrong perception that the teeth of slow lorises are poisonous, which makes illegal traders cut or even pull out the teeth of slow lorises indiscriminately. Slow lorises (*Nycticebus spp.*) are obligate exudativators that gouge at tree bark with their teeth. In addition to functioning for the process of eating, slow loris teeth also function for defense mechanism and allogrooming. Amputation of dental crowns or crown fractures in slow lorises can be a serious problem. Slow lorises do not survive either slowly in rehabilitation centers due to changes in diet or even faster in their natural habitat when being released. Root canal treatment as an effort that can be taken to maintain the damaged or broken teeth, so as to prevent tooth from infection and maintain the function of slow loris teeth to survive in its natural habitat. The method of root canal treatment involve three fundamental component: root canal shaping, disinfection and obturation. Teeth restoration to be performed after obturation, using composite. Teeth that have been successfully treated provide an opportunity for slow lorises to express their natural behavior as well as in surviving in their natural habitat.

Keywords : Slow loris, illegal trade, tooth fracture, root canal treatment, natural behaviour

Introduction

All Asian slow lorises are threatened with a crushing defeat against their habitat, or even greater immediate threat due to a high demand in Asia for pets and traditional medicine trade (Schulze and Groves 2004; Streicher 2004). Easy to catch due to their slow locomotion and their slow reproduction factor, numbers of lorises in animal markets far outstretch to their population numbers in the wild (Shepherd *et al.* 2004). Indeed, this threat raised international concern, which is transfering of all members of the genus Nycticebus to CITES Appendix I in 2007 (Nekaris and Nijman 2007). Five species of slow loris are now recognized: N. coucang (greater), N. pygmaeus (pygmy), N. bengalensis (Bengal), N. menagensis (Bornean), and N. javanicus (Javan) (Roos 2003; Chen *et al.* 2007). All slow lorises suffer from trade throughout their range, but when combined with tremendous habitat loss, no other species has been harder hit than the Javan slow loris (Nekaris *et al.*, 2008).

The existence of the Javan slow loris is increasingly threatened due to the loss of much of its original habitat and the high level of trade in the animal market (Suprijatna & Wahyono 2000: 22; Nekaris & Munds 2009: 2; IUCN 2013: 1). Slow lorises in Indonesia have been protected since 1973 by Indonesia Law No. 5 of 1990 concerning Conservation of Biological Resources and Their Ecosystems, and Government Regulation (PP) No. 7 of 1999 concerning Preservation of Plant and Animal Species. In addition, the Javan slow loris is also included in Appendix I, which is a species that is prohibited from being traded for any reason, except for conservation purposes and must be signed with an agreement between countries (CITES 2007: 1-2).

The high number cases of cutting teeth in slow lorises which are traded triggers the emergence of cases of tooth infection due to the practice of cutting teeth in an unethical manner using clipped nails or pliers. The practice of cutting teeth is intended so that potential maintainers do not get bitten. There is a misconception that slow loris teeth are poisonous when biting,

making these illegal cutting of teeth is a mandatory when trading slow lorises.

The teeth of slow lorises are actually not poisonous. The sweat glands that secrete noxious oil are underneath their armpits. When slow lorises are scared, they will raise their hands and lick their armpits so that their oral cavity and also teeth are full of poison which can cause vomiting, fever and swelling when bitten. Those noxious oil will reacted by the saliva and form a toxic compound (Nekaris et al., 2013).

The practice of cutting teeth in slow lorises will reduce their ability to be released back into their natural habitat, related to their ability to access food in nature. Teeth are an important part of primates. In addition to helping the digestive process and as a means of self- defense from threats, teeth are also an indicator of age and health status. The dental formula for slow lorises is 2 1 3 3 /2 1 3 3, namely two incisors, one canine, three front molars and three rear molars in each jaw starting from the midline (Coote, 2005), with the frontmost pre-molar teeth have a canine-like structure. Each tooth shape has its own function.

Tooth fracture are classified based on the location (crown, crown-root or root) and whether the pulp is exposed (uncomplicated or complicated). A complicated crown fracture is a fracture of the crown that exposes the pulp. The opened pulp may lead to be pulpitis and pulp necrosis. Pulpitis is causing dystrophic mineralization of the pulp and leading to narrowing or complete disappearance of the pulp cavity. Pulp necrosis is a sequel to untreated irreversible pulpitis, a traumatic injury or events that cause long term interruption of the blood supply to the pulp. A tooth with necrotic pulp is called a non vital pulp (Reiter & Gracis,2018).

Endodontic therapy is the treatment of the dental pulp. Dental pulp consists of blood vessels, nerves, and connective tissue that support odontoblastic cells and provide internal sensory and metabolic function to the interior of the teeth. The pulp is the innermost part of the tooth (Holmstrom, 2011). Endodontic treatment is indicated to preserve a tooth when pulpal necrosis

happened because of apical periodontitis (38.1%), followed by pulpitis (37.7%) (Wigsten *et al.*, 2018). In Veterinary Medicine, most of the causes is a fracture of the crown exposes the pulp chamber or the root canal. A carious erosion has perforated either the pulp chamber or the root canal. A pulpal injury is present that results in hemorrhage or necrosis either in an open or a closed pulp canal (Holmstorm, 2011).

Root Canal treatment is commonly performed in Veterinary Dentistry in a attempt to retain periodontally strategic teeth that are affected by pulpal injury. Well defined general procedural principals have been developing adapting mainly techniques from human endodontic methodology and applied to the specific anatomy of animal teeth (Harvey & Emily, 1995). A rational for root canal treatment is much less invasive than surgical extraction of a large canine or carnassial tooth, and so it is an easier and quicker procedure to perform. Standard root canal therapy is less traumatic for the patient and more aesthetically pleasing to the owner than surgical extraction (Holmstorm, 2011).

The principals of Root canal therapy is a treatment which involves removing infected pulp from the root canal of the tooth, sterilizing the canal, and replacing the removed tissue with dental material (Hiscox, 2022). In this procedure, the pulp canal is approached in a normograde direction (from the crown to the apex). The entire pulp is removed through either the fracture site or one or more drilled access holes. Standard root canal therapy is indicated for adult teeth that are discolored and endodontically dead or that have been contaminated with long-standing infection. In a mature tooth, a long-standing infection is one in which the pulp has been contaminated for more than 48 hours (Holmstorm, 2011).

Material and Methods

The anesthesia process begins with initiation using Ketamine (Ketamil®) and Acepromazine (Castran®), followed by intubation (endotracheal tube size 2.0) with gas anesthesia using isoflurane. Overall dental evaluation was carried out with a dental probe (IM3Vet®) and dental explorer (IM3Vet®) and the condition of each tooth was recorded on the dental chart for primates. Evaluation of the root canal should be carried out using a DR x- ray (Toshiba®) for the entire head, followed by measuring the length of the root canal to be repaired. Measuring the length of the root canal is essential because it determines the length of the dental file like barbed broach (Spiro Colorinox®), k-file (Denstply®) and h-file (Dentsply®) to be used, as well as the length of the obturation material like gutta perch (Meta Biomed®) to be filled into the root canal.

Based on this treatment goal, endodontic procedures have developed from mechanical to more biological in nature maintaining three fundamental components: root canal shaping, disinfection and obturation. Failure of endodontic therapy may occur if any of these components are performed poorly (Ruddle, 2002).

Root canal shaping is the first step devoted to preparing endodontic cavity allowing endodontic materials and instruments to move without impediment within the coronal part of the root canal hence the term *access for success*. Inadequately shaped canals can not be cleaned efficiently, even if pulp tissue has been removed from root canal. After opening the root canal to a greater extent with an open-access bur (Dentsply®) and high speed handpiece (Dynaled®), the next step is devoted to enlargement of the coronal two third of the root canal. This method removes restrictive dentin, thus reducing pressure form most of the coronal cutting flutes of any endodontic file; creates a reservoir for irrigants; increasing their working time for penetration and circulation; and reduces the amount of debris inadvertently pushed down into the periapical

area (Ruddle, 2002). This root canal enlargement can use rotary files hand-use (Dentsply Protaper®).

The second step is disinfection of root canal. Effective irrigant delivery and agitation are prerequisites to promote root canal disinfection and debris removal to improve successful endodontic treatment. The main aim is to disinfect the entire root canal system, which requires elimination of microorganisms and microbial components , also prevention of its re- infection during and after treatment. This step is pursued by chemo-mechanical debridement, where the mechanical systems are associated with the irrigating solutions (Plotino *et al*., 2016). One of the standard endodontic irrigation protocol is using Sodium Hipochloride (NaOCl) (Onemed®) and Chlorhexidine (CLS® by IM3Vet). Final step of disinfection is drying the root canal using paper point

The next stage is obturation. The obturation stage is carried out to fill the root canal in an attempt to provide a hermetic seal from the coronal orifice of the canal to the apical foramen at the cementodentinal junction. However, it is important to recognise that the responsibility does not end here; the coronal seal forms an integral part of endodontic treatment and therefore plays a vital role in the treatment's success (Ray & Trope, 2005). The material that we used for obturation step is Gutta Percha (Meta Biomed®), EDTA gel (Prosimi®) as chelating agent, and Glass Ionomer Cement (GC Fuji®) as sealer.

After the root canal treatment is complete, the next step is tooth restoration. Beginning with the application of Blue Etch Acid on the surface of the enamel and dentin for 15 seconds, then wash and dry it with a micro-brusher. The second step, apply restoration bond and irradiate it with Lightcure for 10 seconds. Ended by covering the surface of the crown fracture with flowable composite, and irradiated with lightcure for 20 seconds. Then use composite polisher with low speed handpiece for leveling the composite patch.

Result and Discussion

There are 2 confiscated Javan slow lorises from local residents which will be prepared for the rehabilitation process, both of them had severe dental conditions in which several experienced crown fracture, both complicated and uncomplicated due to careless clipped out of teeth procedure by illegal trader. All dental treatments are carried out under general anesthesia, including dental examination with a dental probe and explorer, as well as the x- rays. Anesthesia of the slow loris begins with an injection of Ketamine and Acepromazine, followed by the installation of gas anesthesia using Isoflurane through a Size 2.0 Endotracheal tube.

Picture 1. The slow loris under general anasthesia
and intubation using endotracheal tube 2.0

After a complete dental examination was carried out, it was found that many teeth were in a state of severe condition. Its more due to fractures of many dental crowns. The complete dental examination data for the two slow lorises can be seen in the table 1.

Table 1. Complete dental examination data of two Javan Slow Loris

Loris	Maxilla			
	Incisivus	Caninus	Premolar	Molar
Normal Reference	4	2	6	6
Loris A	2 MT 2 RF	2 CCF	2 UCF 4 N	6 N
Loris B	2 MT 2 N	2 CCF	2 UCF 4 N	6 N

Loris	Mandibula			
	Incisivus	Caninus	Premolar	Molar
Normal Reference	4	2	6	6
Loris A	4 N	2 CCF	1 CCF 1 UCF 4 N	6 N
Loris B	4 N	1 CCF 1 N	2 UCF 4 N	6 N

(N = normal; MT = Missing Teeth; CCF = Complicated Crown Fracture; UCF =Uncomplicated Crown Fracture; RF = Root Fracture).

Based on the data above, it shows that both of Javanese slow lorises experienced complicated crown fractures for all the canines, whereas Slow loris A has an incomplete number of teeth where there are 2 missing incisors so that the total number of teeth is only 34. Slow loris A also has 2 root fracture of insicors that should be solved by extraction. Slow loris B has a complete number of teeth (36 teeth).

Picture 2. Dental Examination and Dental Charting showed that all four canines and one mandibular premolar (canini like) had complicated crown fractures (exposed tooth pulp) marked with white arrows and two incisors had complicated root fractures (broken and left tooth roots) marked with yellow arrows.

An endodontic procedures, namely root canal treatment, are performed for all the canines of both slow lorises, while exodontic procedures (tooth extraction) are performed for 2 incisors with left roots. All canines are found no peripockets, examined using a dental probe and confirmed with DR x-ray, so it is good to do root canal treatment on all four canines.

X-Ray evaluation to determine the type of crown or root fracture and measure the length of the root canal, while also looking at the structure of the periodontal tissue consisting of the periodontal ligament, gingival sulcus and periapical area, shows good condition so that Root Canal Treatment (PSA) is prioritized over tooth extraction . Ideally it should be done using a dental x-ray.

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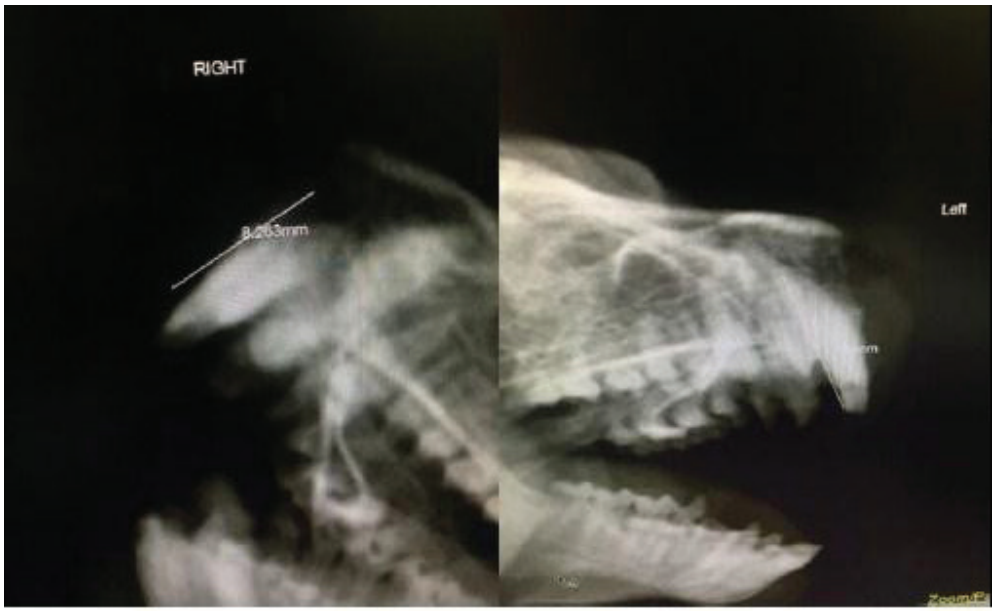
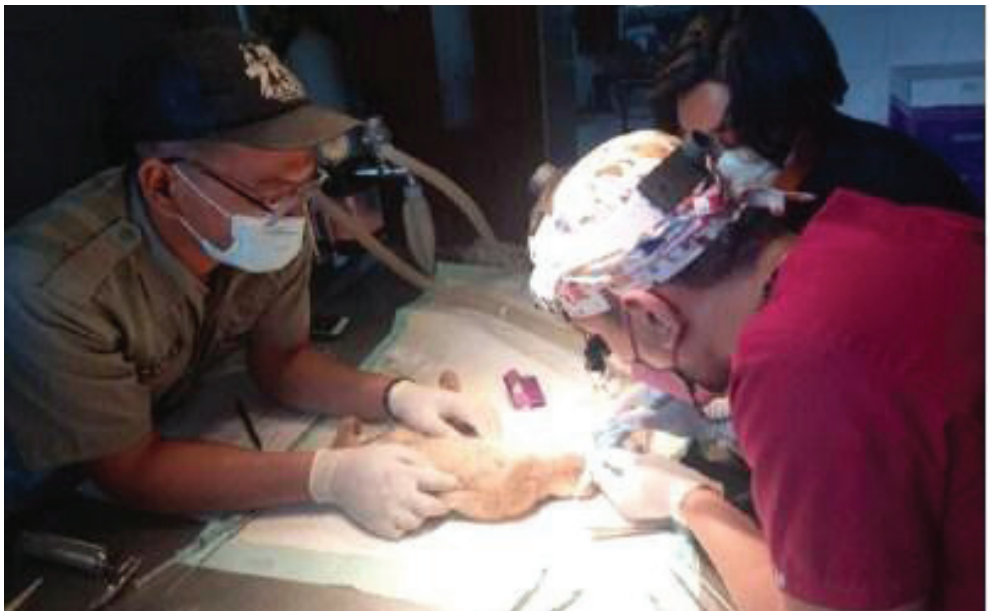


Picture 3. DR x-ray evaluation shows that all four canines have complicated crown fracture. Measurement the lenght of root canal shows different length for each canines

After the size of the root canal is obtained, root canal treatment begins with 3 main steps, namely reshaping the root canal, disinfection and obturation. Root canal shaping is the first step devoted to preparing endodontic cavity. Its very important beacuse its allowing endodontic materials and instruments to move without impediment within the coronal coronal part of the root canal hence the term *access for success*. Inadequately shaped canals can not be cleaned efficiently, even if pulp tissue has been removed from root canal. This first step is devoted to enlargement of the coronal two third of the root canal. This method removes restrictive dentin, thus reducing pressure form most of the coronal cutting flutes of any endodontic file; creates a reservoir for irrigants; increasing their working time for penetration and circulation; and reduces the amount of debris inadvertently pushed down into the periapical area (Ruddle, 2002). This step begins by opening the orifice with an open- access bur, widening the orifice with a protaper file and continuing with root canal preparation with k-files and h-files whose length must be the same as the length of the root canal (measurement by DR x-ray).



Picture 4. The three main steps of root canal treatment were performed for both slow lorises. The second step is disinfection of root canal. The principals of this step is effective

irrigant delivery and agitation are prerequisites to promote root canal disinfection and debris removal to improve successful endodontic treatment. The main aim is to disinfect the entire root canal system, which requires elimination of microorganisms and microbial components , also prevention of its re-infection during and after treatment. This step is pursued by chemo-mechanical debridement, where the mechanical systems are associated with the irrigating solutions (Plotino *et al*., 2016). One of the standard endodontic irrigation protocol is using Sodium Hipochloride (NaOCl) and Chlorhexidine (CHX).

Sodium hypochlorite (NaOCl) is the main endodontic irrigant used, due to its antibacterial properties and its ability to dissolve organic tissues (Zehnder, 2011). Its effectiveness has been shown to depend on its concentration, temperature, pH solution and storage conditions. Heated solutions (45-60 °C) and higher concentrations (5-6%) have greater tissue-dissolving properties (Beus *et al*., 2012). However, the greater the concentration the more severe is the potential reaction that may happen if some of the irrigant is inadvertently forced into the

periapical tissues. To reduce this risk, use of specially designed endodontic needles and a technique of injection without pressure are recommended (Kishen, 2010). The main disadvantage of NaOCl is its inability to remove the inorganic portion of smear layer.

CHX should not be used together with or immediately after sodium hypochlorite. CHX is hindered by its interaction with NaOCl, which tends to create products that may discolor the tooth and precipitates that may be potentially mutagenic (Basrani *et al*., 2007). Both of slow loris only use NaOCl as disinfection agent for the root canal, but the CHX only use for clean up the teeth surface (not enter into the root canal). This second step ends with drying the root canal with a paper point. Drying of the root canal is necessary so that the obturation material can fix well fill into the root canal. the use of standardized absorbent paper points are extensively used in endodontic therapy, not only to dry root canals after irrigation, but also to carry antiseptic or disinfecting dressings, and to transfer bacteriological samples from the root canal to the culture medium (Sune *et al*., 1998).

The next step is obturation. The obturation stage is carried out to fill the root canal in an attempt to provide a hermetic seal from the coronal orifice of the canal to the apical foramen at the cementodentinal junction. However, it is important to recognise that the responsibility does not end here; the coronal seal forms an integral part of endodontic treatment and therefore plays a vital role in the treatment's success (Ray & Trope, 2005).

The aim of obturation is to establish a fluidtight barrier with the aim of protecting the periradicular tissues from microorganisms that reside in the oral cavity. While a perfect airtight or hermatic seal is unachievable in reality, every effort should be made to reach this target.

The establishment of a well obturated system would serve three main functions: 1.) Prevent coronal leakage of microorganisms or potential nutrients to support their growth into the dead space of the root canal system 2.) Prevent periapical or periodontal fluids percolating into the

root canals and feeding microorganisms 3.) Entomb any residual microorganisms that have survived the debridement and disinfection stages of treatment, in order to prevent their proliferation and pathogenicity (Sundqvist & Figdor, 1998).

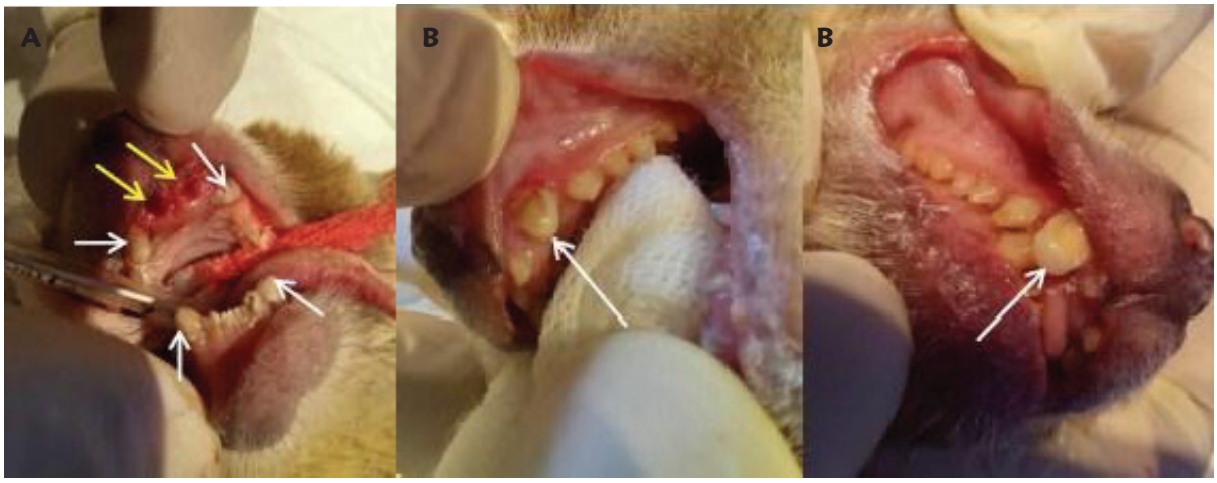
The material that we used for obturation step is Gutta Percha and Glass Ionomer Cement as sealer. Gutta percha (GP) is the most commonly used root filling material, it is a naturally occurring rubber with the chemical name trans-1,4-polyisoprene. GP in a traditional form contains zinc oxide (65%), gutta percha (20%), radio opacifier (metal sulphate) (10%) and plasticiser (5%) (Friedman *et al*., 1997). For the sealer, although they adhere to dentine, glass ionomer-based sealers have been shown to be more soluble and exhibit less antimicrobial activity than both zinc oxide eugenol and calcium hydroxide-based sealers. They can also be more difficult to remove for any correction or retreatment (Weiger et al., 1995).

After the three steps of root canal treatment are completed, the next step is tooth restoration. The stages of tooth restoration include applying Blue etch acid to the enamel and dentin; applying restorative bond and applying the composite. Blue Etch Acid allows bonding of the composite to the enamel surface. Etch is an acidic chemical that functions to remove mineralized surface of the tooth and form microporous which make up the surface of the enamel becomes rough, so that the composite resin can penetrate inside tooth surface and forms a resin tag. The depth of microporous depends on the length of the etching process and sufficient rinsing time to produce an adequate etching pattern (Anusavice, 2003).

After rinse the blue etch acid and dry it well using microbrusher, the next step is application of restorative bond on the teeth surface and irradiated with Lightcure for 10 seconds. Dentin adhesive/bonding materials is applied to the dentin surface during 15-20 seconds, using a brush or applicator tip. Movement agitation or light rubbing can used during application to facilitate infiltration of material onto the dentin surfacewhich has been etched (Fibryanto,

2020). The usage of lightcure after the application of restorative bond will strengthen the dentine bond to the composite material (Catelan *et al*., 2014).

The last step of restoration is application of flowable composite evelny over the dentine, then Lightcure for 20 seconds. These composites, which are mostly hybrids, are recommended for specific clinical indications (occlusal microcavities, slot cavities, cervical cavities or dentine substitutes, for example). Due to their fluidity, they show easy spreading, associated with good adaptation to cavity walls. These composites are useful for thin films. They are preferred in the step consisting in covering the bottom of the cavity before adding a more viscous composite (Chapute and Faure, 2021). The result of root canal treatment and restoration in both of slow loris may be seen in picture 5.



Picture 5. A. the remaining root has been removed (yellow arrows), whereas four canines and one premolar such as a canini or canini-like (white arrows) after root canal treatment and restoration for slow loris A., B. Two canines of maxilla after root canal treatment and restoration in slow loris B.

It is necessary to confirm the results of root canal treatment and restoration using DR x-rays. Good results will indicate that the obturation material completely filled the root canal and the composite successfully closed the orrifice. From a radiographic point of view, several criteria

for success of endodontic therapy are generally accepted. These include healing (or at least regression) of recent osseous rarefication, normal (or only slightly thickened) periodontal ligament space, normal lamina dura, missing evidence of resorption, and a dense and homogeneous three-dimensional obturation of the root canal system, including a sufficient coronal restoration (Kielbassa *et al*., 2017). The evaluation post root canal treatment may be seen on picture 6.

Picture 6. The root canal treatment area is indicated by the presence of obturation material in the root canal with radiopaque appearance (white arrows).

Conclusions

The procedure of clipping out the teeth indiscriminately by illegal traders is a clear violation of animal welfare, apart from endangering their health and survival ability as well. The wrong clipping-out teeth procedure makes the slow lorises feel discomfort, pain, leading to infection/ diseases happen, and could not express the normal behaviour. When the teeth is clipped-out,

the slow lorises lose its ability to survive from predators, making it prone to stress and fear. Also prohibit them to express their normal behaviour, escpecially for doing allogrooming which is depend on the function of insicivus, canines, and canini-like premolar mandibular teeth to groom their fur. The clipped-out teeth procedure also prohibit them to get the access to their normal diet in wildlife habitat. Root canal treatment is an endodontic treatment for preservation the normal function of their teeth.

Acknowledgement

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Between Ecology and Economy: How to Profit from Wild Animals without Exploiting Them

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Abstract

The wild animal trade is a large-scale and profitable business. We understand that it is a business that generates economic income, and people actually profit from it. However, it comes with many negative implications, starting with the practice itself, which is deemed unethical and harmful to animal welfare. Excessive practice leads to biodiversity loss, nature imbalance, and even the spreading of infectious diseases. It begs the question: is profiting from wild animals worth all the negative implications to the ecology? What if there were other ways to generate income from wild animals without physically exploiting them? This paper tries to answer that question. Utilizing the literature review and exploratory descriptive methods It is done by researching similar issues, such as tree cutting for timber, which causes deforestation. And how people can earn money by preserving trees rather than cutting them down, through the carbon offset mechanism. The results showed that it is possible to profit from wild animals without physically capturing and selling them. It is suggested that we can develop a means of ethical wild animal tourism. Instead of selling the animals, we are selling the experience of finding them and watching them doing their natural activities in national parks. The more numbers of wild animals preserved in their natural habitat, the more abundant they are and the more appealing they are as a tourist destination. In a way, profits could potentially be higher and more effective than selling individual animals.

Keywords: Wild animal, welfare, ethics, ecology, economy

Introduction

The act of removing wild animals from their natural habitat for the purpose of selling or buying is known as wild animal trade. One would argue about the ethics of this practice, as wild animals are not domesticated animals or pets to be kept as possessions. Yet, this does not stop people from conducting it anyway. Wild animal trade—both legal and illegal—is currently the subject of concern on a global scale, as billions of species of wild animals are captured to be sold (Wyatt *et al*., 2021). The illegal wild animal trade is one of the world's four major crimes, ranking just beneath drugs, arms, and human trafficking (Doody *et al*., 2021).

The illegal wild animal trade is also closely linked to deforestation and biodiversity loss (Symes *et al*., 2018) of multitudes of species, even driving some of them to extinction, such as elephants (Wittemyer *et al*., 2014), tigers (O'Kelly *et al*., 2012), and rhinoceroses (Haas *et al*., 2016). Biodiversity loss is a concern because it will affect the natural balance of the environment in producing fresh water, healthy soil, clean air, crop pollination, the ability to combat and adapt to climate change, as well as the ability to lessen natural disasters (The European Parliament, 2020). However, that does not justify the "legal" wild animal trade either.

According to the United Nations Environment Programme and the International Livestock Research Institute (2020), both legal and illegal wild animal trade pose the same risk of increasing infectious disease transmission due to the close proximity of many different species of wild animals. Such close interaction between wild animals and humans can trigger emerging disease events with higher pandemic potential. There has actually been a long history of infectious diseases transmitted by wild animals (Devaux *et al*., 2020), with the latest case being the COVID-19 pandemic. Scientists believed the COVID-19 pandemic emerged from the wild animal trade of bats (Andersen *et al*., 2020) and pangolins (Zhang *et al*., 2020). As a result, the issue is not about legality but about the practice of wild animal trade itself, be it legal or illegal. In

fact, at the moment, scientists aim for the long-term idea of ending wildlife trade altogether (D'Cruze *et al.* 2020).

In the last two years, wild animal trade has become a very popular trend in Indonesia. For example, in the case of "pet" monkeys, there was a rise in early 2020, around the same time several local celebrities went viral for owning monkeys (International Animal Rescue, 2021; Maulana, 2021). The number of "pet" monkey posts on social media rose higher than in the two previous years and has continued to rise exponentially ever since (International Animal Rescue, 2021). Even though during the same time, the world was facing a pandemic believed to be sourced from the wild animal trade. The trend of keeping wild animals as pets has become so popular that it has become the subject of social media posts. Unfortunately, not in a positive light.

The Social Media Animal Cruelty Coalition (2021) published a report that stated Indonesia is the number one producer of animal cruelty content. Most of the wild animals used as pets on social media have cruelty themes that went unnoticed by the general audience, likely due to low education on animal welfare knowledge. Contents range from the ambiguous and unintentional to borderline sadistic (The Social Media Animal Cruelty Coalition, 2021). Therefore, the negative impacts of wild animal trade have snowballed into the territory of mainstream social media animal cruelty (Social Media Animal Cruelty Coalition, 2022). The normalization of wild animal trade, especially when endorsed by public figures, also causes harm to conservation efforts (Social Media Animal Cruelty Coalition, 2022). There are so many negative consequences from wild animal trade as an act of exploitation towards wild animals that there must be a way to generate profit from wild animals without physically selling, buying, and using them for contents.

Meterials and Methods

The methods used in this study were a literature review and an exploratory descriptive approach. They are used to explain the circumstances or phenomena that occur based on the discussion. In this case, the research tried to explain the possibility of an alternative to economically profiting without physically exploiting wild animals while still maintaining a healthy, undisturbed ecology. The research will start by searching for similar issues that already have an alternative solution to them; data that is deemed fitting to be used as a literary review would then be gathered. Afterwards, the data would be analyzed as a means to replicate the core idea of that solution to the issue of wild animal trade and exploitation.

Results and Discussion

A similar issue is researched with the core idea that wildlife is taken out of its habitat for the sole purpose of being sold to generate profit, and the issue must have an example of an alternative solution. I found a similar case, though in another form of wildlife. The wildlife used in comparison is not in the form of fauna or wild animals but in the form of flora, which is a tree. Trees have been long utilized as a natural resource in the form of timber, which people can generate income from. Trees are cut from the forest, their timber is taken out of the forest, and then they are sold for profit (National Geographic Society, 2022). The practice of cutting down trees to sell the timber is a business-as-usual practice that has occurred all around the world for a long time. The practice also causes a problem; generally, it contributes to deforestation (Subramanian, 2018).

In recent years, there's been a new method of utilizing trees without cutting them at all. In fact, people can now generate income and gain profit by planting trees. The more trees planted, the more profit they get. This method is in the form of a mechanism called "carbon offset."

The idea is that, instead of selling the physical form of the tree, what is being sold is the tree's natural ability to absorb carbon, so individuals or companies are paying for such activities, including tree planting (Collins English Dictionary, 2011). As we know, the world is facing climate change in the form of excess carbon in the atmosphere (Jorgenson, 2018). Therefore, there needs to be a way to reduce the amount of carbon produced daily. Trees can offer a solution for that issue, as trees are natural and efficient carbon absorbers (Macauley and Shih, 2010). It is estimated that around 31–46 trees are able to absorb as much as 1 tonne of carbon from the atmosphere (Kilgore, 2022). That amount of carbon absorbed would then be priced, and those who wish to remove a certain amount of carbon could pay accordingly.

Through this method, technically, you can gain profit without cutting and selling the tree. Instead, you get paid for preserving as many trees as you can. The more the tree population, the greater the profit. This is a good compromise between maximizing economic profit and protecting the ecology. With that core idea in mind, I would then analyse the similar principle to be applied to the wild animal exploitation issue. How we can profit from them without actually taking them out of their habitat and selling them physically. These are the basic outlines from the carbon offset core idea, in order to gain profit, the wildlife:

1. Must not be taken out of its habitat.
2. Must continue performing their natural behaviour undisturbed.
3. Must be thriving in population, the more they are, the better.

We can apply these principles to the wild animal exploitation issue in order to analyse it. The research tries to make a comparison to a form of popular wild animal tourism, such as zoos. However, it is decided that these practices, though profitable, do not fit the qualifications of

the principles. Wild animals in zoos do not live in their natural habitat, but rather in a man-made environment. It does not line up with Principle 1. Zoos put wild animals in enclosures to be seen and interacted with by visitors (Wild Welfare, 2022) or even perform tricks for entertainment. Those practices are not natural wild animal behaviour (Daly, 2019). Zoos are essentially man-made; thus, space is limited and you can only have a certain number of animals. In limited enclosure space, wild animals often cannot perform their natural behaviours (Smith, 2014). Therefore, these practices do not align with Principles 2 and 3.

We then look at another alternative of wild animal tourism, in a form of national parks. National parks as defined by the International Union for the Conservation of Nature and Natural Resources (IUCN) are "Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities" (Dudley 2008). National parks can be seen as a place where wild animals can live in a natural setting while still having the ability to be utilized for recreational purposes with income-generating potential.

In national parks, wild animals can live freely in their habitat. It is in line with Principle 1. The wild animals in national parks do not live in enclosures and can live freely. This is in line with Principle 2. National parks are essentially protected areas to preserve wild animals; therefore, it is expected for wild animals' populations to grow.

This fact is in line with Principle 3. As of now, we have a general idea of where our practice will be located: in a national park in the form of wild animal tourism.

National parks as a tourist destination are already a common practice in Indonesia. The Indonesian government put national park tourism as one of its priorities, as it is a competitive practice with the ability to generate income sources (Eddyono *et al.*, 2021). When managed

sustainably, it can also be beneficial to rural communities by increasing their livelihoods; thus, alleviating poverty (Purnomo *et al.*, 2020). Tourists could visit a national park, enjoy the nature, and see wild animals in their natural habitat. In turn, local communities can derive income from it. Therefore, it is not a new practice. However, this research suggests that perhaps there are ways to improve this existing practice so that it is more efficiently profitable while also contributing more to the conservation of wild animals in their habitat.

One method is to find a certain amount of leverage in order to achieve the best result with the least amount of effort. It is possible to target a specific group of audience members that are more willing to spend a good amount of money simply to experience national park and wild animal tourism than just casual tourists. We can look at cases from overseas, for example, bird watching. Bird watchers have been known to be quite passionate about the hobby, and the practice of bird watching in the United States has managed to generate $41 billion of income yearly for the United States economy (Catalano, 2021).

It is also known that bird watching, can help conservation efforts. Birding ecotours in the United States can provide a 2-week tour for birding and bird photography enthusiasts, for as much as $5,000 or $10,000 per person (Catalano, 2021). Even the slightest percentage from that fee, can be significant as donation to conservation efforts. Research also showed that when birding ecotours are managed well with increased services, visitor satisfaction will also increase that also leads to a higher willingness to pay (Lee, 2010). Indonesia is already among several countries cited as the best destination in the world for birding (Bullen, 2022). As a result, it is safe to assume that the market exists and that there is room for further development to attract the right visitors with higher willingness to pay; perhaps, international ones.

However, it is worth to note that wild animal tourism has a history of being unethical. The majority of wild animal tourism have substantial negative animal welfare and conservation

impacts (Moorhouse *et al*., 2017). Therefore, the practice of wild animal tourism, though intended to generate income, must put ecological ethics above economic gain. It can be done by applying strict guidelines and regulations. Daly (2019) recommends to avoid "red flags" such as when wild animals are being chained, performing, interacting with tourists, giving rides, posing with them, and being washed by them, as these are not natural behaviours.

The red flags mentioned also does not in line with Principle 2. Therefore, it is a very strict and serious aspect to consider in practicing wild animal tourism in national parks. There needs to be a guarantee that such red flags will not occur. Aside from ethical perspective, the measures are applied also for both human and wild animal safety in preventing the transmission of diseases. In doing so, it is encouraged that management would educate the visitors to practice ethical behaviour. Specifically for wild animal photographers, they must be advised to always keep a safe distance with the wild animal, do not interact, do not take selfies, and preferably only took photos of the wild animals only (IUCN SSC Primate Specialist Group, 2021).

This ethical wild animal tourism, targeted at a specific audience with a high willingness to pay, can be applied to an existing national park tourism industry as a means of improvement. It could also be applied as a possible solution or alternative to existing issues, such as wild animal conflicts. One of the most common forms of wild animal conflict is crop raiding (Gemeda and Meles, 2018). Farmers are upset that wild animals would eat their crops for many reasons. Wild animals could be driven out of their habitat because human settlements are too close to wild animal habitat or because food in the forest has become scarce. This is surely a problem that often results in the wild animals being killed (IUCN SSC HWCTF, 2022). Or even in some cases, the wild animals are taken and sold due to them being regarded as "pests" (Lewis, 2022). We can apply the same non-exploitative measures to this issue. Instead of killing or capturing the wild animals, perhaps we can turn the problem into an opportunity. Instead of lamenting the

loss of crops, we can capitalize on the current situation by attracting wild animal enthusiasts, photographers, and tourists just to see wild animals eat. With proper management, this loss can be turned into profits. Instead of relying solely on crop sales, farmers can now sell the experience of a wild animal encounter to willing tourists.

In conclusion, it is possible to generate income and profit from wild animals without taking them from their habitat and physically selling them. It is done by preserving them as much as possible in their natural habitat, preferably in a national park. Then, what is sold is the experience of finding and seeing them in nature through ethical wild animal tourism. The tourism can be targeted at a specific group of tourists, such as wild animal enthusiasts and wild animal photographers, or even foreign tourists with a higher willingness to pay. These are the types of people who would appreciate seeing wild animals thrive in nature and would pay a good amount of money just to experience that. Locals would then work not to capture wild animals but to preserve them. This way, locals can generate income without needing to capture wild animals. Instead, they would allow wild animals to live as nature intended and profit from it. In turn, both the wild animals and their habitat are thriving and protected.

Conflict of Interest

We certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organization related to the material discussed in the manuscript.

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A Case Study of Cat Sterilization in Karangwuni, Yogyakarta: Impacts Perceived by Caretakers & Their Understanding of the Program

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Abstract

There is yet to be collected the number of cats in Indonesia, including free- roaming cats. Studies have shown that there is a connection between sterilization and free-roaming cats' health and welfare. In 2021, Suara Suaka Indonesia decided to hold a small-scale sterilization program in a neighborhood called Karangwuni, Yogyakarta to contribute in lowering cat population. In this case study, we focus on the effect of sterilization to cats that are perceived by humans. Survey was done using Google Forms, taking information on their demographics, involvement with Suara Suaka Indonesia, feedback on their cats' post-surgery changes and their understanding on sterilization. Respondents are generally satisfied with the impact sterilization has on them and their cats, this is supported by how they perceive sterilization as important and their willingness to recommend the procedure to other people. However, there can still be improvement on delivering messages of sterilization to ensure that the purpose, process, and impact of sterilization can be adequately understood by all participants of the program.

Keywords: Sterilization, free- roaming cats, qualitative, TNR

Introduction

There is yet to be collected the number of cats in Indonesia, especially free-roaming ones. In Yogyakarta's traditional markets particularly, there are approximately around 10.000 stray cats (Pandangan Jogja, 2022). Free-roaming cat populations have always been an ongoing issue but there has yet to be a governmental body that regulates their population control, at least in Indonesia. The Trap- Neuter- Return, as a method of control in many parts of the world, has been scientifically argued to be ineffective in significantly reducing the number of cats in a population (Lepczyk et al, 2022), and yet the method appeals to many for its non-lethal outcome and its promised solution when it is done in a large scale (Crawford et al, 2019). Sterilization itself, however, has provided real- life benefits for humans and cats which encompasses health and behavioral benefits (Crawford et al, 2019); prevention of unwanted (dead or alive) kittens, reproductive organ-related disease, aggression, and roaming.

Free-roaming cats are generally vulnerable to parasite infections and naturally occurring viral diseases as they are continuously exposed to pathogens. Interaction with cats acting as ectoparasite and feline virus hosts also contributes to the widespread of such diseases on the street. Thus, cats that live in highly-populated area are in danger of such risks, whether they are owned or not (Crawford et al, 2019).

In 2021, Suara Suaka Indonesia (SSI) decided to hold a small-scale Trap- Neuter- Return (TNR) program in a neighborhood called Karangwuni, Yogyakarta. There were around 4 groups of cats sterilized in a span of 7 months. There were 38 cats sterilized, 12 males and 26 females which comprised of both street and owned indoor and outdoor cats. We had planned originally to focus on one neighborhood but later-on more cat owners reached us out from outside of the neighborhood. The intention of this program was to reduce the number of cat population in Karangwuni, by reducing the number of intact males and females in order to prevent un-

wanted kittens living on the street or dead by disease. However, due to time constriction and lack of planning, we were unable to sterilize all the free-roaming cats in the neighborhood.

In this case study, we decided to focus on the effect of sterilization on cats that are perceived by their caretakers and their perception and knowledge of sterilization by collecting responses from our program's participants. We would like to see whether sterilization fulfills the expected changes caretakers have and the knowledge they will gain after joining the program.

Methods

Survey was done using Google Forms, taking information on their demographics, involvement with Suara Suaka Indonesia, feedback on their cats' post-surgery changes and their understanding on sterilization (Figure 1). Aside from the demographics, all the questions are written in an interrogative manner. Out of 15 surveys we have shared, only 10 responded with answers. The survey was carried out in Bahasa Indonesia.

There are three sections in the survey. Firstly, we took the caretakers' personal information for demographics data. On the second section we focused on their involvement with SSI. Lastly, we asked their opinion on the cats' changes and their understanding on why sterilization is impactful.

Analysis was done by comparing our results to existing journals that can determine, support, and oppose our results.

Results and Discussion

Demographics

The ten respondents of our survey comprised of 6 females and 4 males (Figure 1), 40% of them are young adults (age 17 to 25), 30% are adults (age 26-50) and the rest are older than 50 (age 51- 75). 50% of the respondents are known to have completed a Bachelor's degree or higher, while 30% of them do not complete a tertiary education. Two respondents are known to be a Diploma graduate.

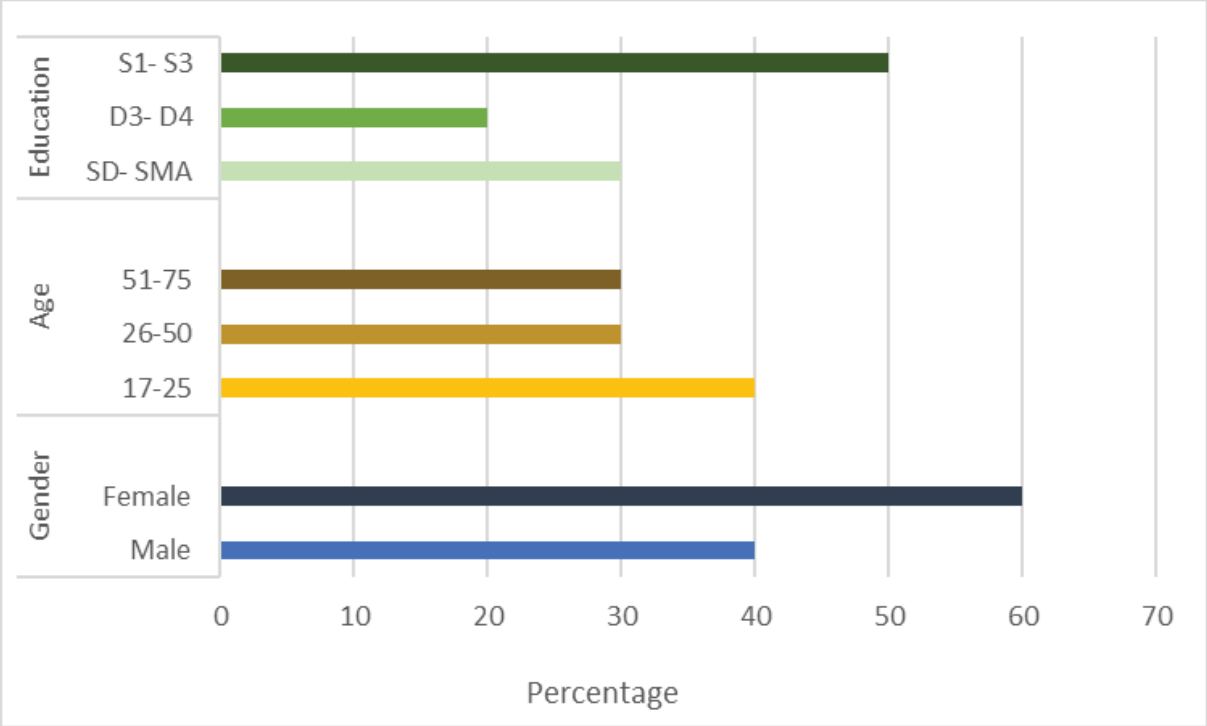

Figure 1: Respondents demographics in the form of percentages

The act or decision to sterilize a pet cat is believed to have a correlation on the owner's age, gender, educational background and occupation (McKay *et al*, 2009). Our results are consistent with the outcome of the study by McKay *et al* (2009, that female owners are more likely to

sterilize their pets. Male owners are known to be more concerned of sterilization as they are wary of their pets losing their sexual identity. However, there is also a possible cultural impact. In Indonesia, the men of the family have the tendency to be the breadwinner, making them frequently away from the house while the women stay at home. Thus, women tend to be more receptive with the house and the neighborhood situation. This can be an alternative reason why there are more females involved in our sterilization program as it happens that we directly approached cat owners to their home.

Another result of McKay *et al* (2009) research that align with ours is that people with higher qualifications in education are very likely to sterilize their pets. This is partially true for our survey, respondents with an elementary to high school qualification are higher in number than those that had finished a Diploma. This might be due to the lack of large simple size,

Young adults are seen to be more in number than adults that are older than 26 years old. A possible reason for this might be because younger people are more exposed and concerned to welfare issues (Driscoll, 1992) and thus might be less hesitant to sterilize their cats.

Table 1. List of respondents' occupation

Occupation	Amount
University Teacher	1
Private employee	4
Housewife	3
Freelance	1
Student	1

According to our survey, 40% of the respondents are working at private sectors while 30% of them are housewives (Table 1). The rest of the respondents are working as a university lecturer, a freelancer, and a student. This complements with the cultural impact previously mentioned, considering one of the private employees is based at home. Other occupations listed might have more travel in their line of work.

Information of the Cats

Respondents were asked on the type of cats they have (Figure 2) and how many cats they have that were sterilized by our group (Figure 3). Survey shows that 80% of the respondents own indoor cats, 10% of them have own cats outdoor and the rest only take care of the stray cats. 60% of the respondents have only one cat, 20% of them have two cats and the rest own more than 3 cats.

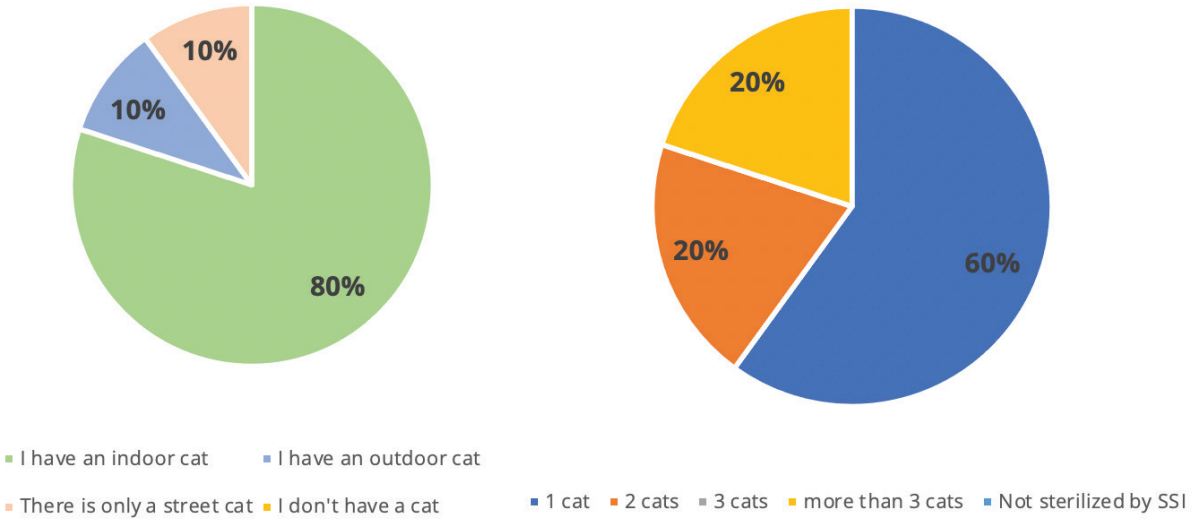

Figure 2. shows the respondents' answers on whether they have a cat which refers to the cat's living situation. Followed by figure 3 that shows the respondents' answers on the number of cats they own or take care of, that were sterilized by Suara Suaka Indonesia.

Respondents were also asked on why they joined the TNR program we held (Table 2) which we encouraged them to give open-ended answers. This allowed them to give multiple reasons why. Most respondents sterilized their cats to 'prevent them from reproducing' and hence, eliminating kittens' existence which will decrease the population growth. A few of them gave similar answers that are directed to 'a better health condition'. Only a small number of respondents have 'prevention of animal cruelty' and 'better welfare' as answers. Respondent perceives sterilization as a way 'to be less bothered' in taking care of unwanted kittens.

Table 2. Respondents' answers on their purpose of cat sterilization.

Keywords	Mentioned … times
Prevent overpopulation	5
Better health for the cats	3
Prevent unwanted sexual behavior	1
Prevent animal cruelty	1
Better welfare for the cats	1
Less bothered about unwanted kittens	1

Most responses reflect the primary purpose of cat sterilization which is population control. It is well-known that cats perform actions that negatively affect the environment, this includes preying on wildlife, littering, and fighting on the neighbor's yard (Grayson and Calver, 2004). The rapid growth of cat population could significantly increase the magnitude of negative effect in a short period of time. We believe that sterilization for health and behavioral benefits come secondary to preventing unwanted kittens, as complemented on the study by Wongsaechan and McKeegan (2019). This is also reflected by our results which happens to have intention referring to population control as the most frequently mentioned, with health reasons as second and unwanted behaviors as third.

One respondent had raised 'prevention of animal cruelty' as one of their purposes to sterilize their cats, this highlights a citizen's awareness of animal cruelty that correlates to the overpopulation in the streets of Indonesia (Basiroen and Hartady, 2019). Animal cruelty and abandonment have consequences that can be impactful to cats, humans, and the environment (Perdomo *et al*, 2021) Another respondent answered 'good animal welfare' as a purpose of sterilization. This can be deciphered in many ways; prevention of unwanted kittens, which brings the chance of kittens suffering on the streets to zero, prevention of suffering for the species as a whole,

or prevention of reproductive organ- related diseases. Lastly, a respondent replied that they want to sterilize their cats in 'prevention of unwanted kittens' due to their lack of intention to take care of the kittens. This can lead to abandonment, which is a form of animal cruelty.

All of the 10 respondents were asked whether there were any changes experienced by their cats that they have seen post- sterilization. All of them answered yes and we asked them to mention the changes that visually stood out to them. Most responses encompass answers that can be linked to 'better health condition' as they mentioned 'cats being healthier' and an 'increasing in weight'. Another two popular answers indicate a change in behavior. Firstly, cats are seen to be more 'approachable' and 'calmer'. Secondly, they 'stay at home more' and have less frequency of roaming. Thirdly, cats are less vocal which might indicate the lack of biological need to mate. Respondents also gave a few answers that indicates the sterilization impacts on cats' population growth and indirectly the cleanliness of the neighborhood.

Table 3. Respondents' answers when asked to specify what kind of health or behavioral related changes observed on their cats after the sterilization.

Keywords	Mentioned … times
Docile behavior	6
Healthier-looking cats	3
Less roaming	2
Less overpopulation, less unwanted kittens born	2
Cleaner environment	1

Contrary to the intention of sterilization, the primary benefit of sterilization that is highly visible in human eyes are body condition score and behavioral changes. These sterilized cats experience an increase in weight. A study by Nguyen *et al* (1999) found that there is lack of differences in

the activity level between intact and neutered cats, but food intake was found to be higher in neutered cats than the others (Flynn *et al*, 1996) as intact cats was seemed to self-regulate their intake. However, weight gain can be a problem if it is not supervised by the owners. Some owners might take their cat increase in size as a sign that they are healthier, but it is not the suitable indicator of health in sterilized cats as they are prone to obesity. However, in feral cats, Body Condition Score can be a method of judging their overall health and welfare (Scott *et al*, 2022).

Testosterone-dependent behavior such as mating call and spraying were found to be reduced after being neutered and thus opposing genders no longer becomes a trigger of aggression, female cats also no longer perform mating call after they are sterilized (Cafazzo *et al*, 2019). Resource aggression, however, still occurs when they are faced with it. People also observed that there was less aggression in their cats and study has proven that neutering can prevent fighting and disease that are transmitted through bite wounds like FIV (Hosie *et al*, 2009). Scott, Levi and Gorman (2015) stated that caretakers of outdoor cats reported that they roamed much less than they were before sterilized, something that was also visible in our results. However, there were no systematic method on how they have taken such testimony from the caretakers. This is also against what Nguyen, Duncan and Martin (1999) stated about activity level. In addition, Scott *et al* (2015) also stated that there are other variables to be considered in determining the changes in a cat's ranging activity, which was not being done on their paper. Two respondents mentioned reasons that refer to prevention on unwanted kittens which in itself is the primary purpose of sterilization. Such effect can be experienced on an individual level. However, real impact needs more time and a thorough planning of sterilization to be able to confidently say that sterilization program creates a significant change on the population level.

One respondent mentioned a good level of environment's cleanliness as a result of population control. Street cats often mark their territories with their excretion, including spraying and this can be reduced or even eliminated by sterilization (Cafazzo *et al*, 2019). A steady number of populations can also limit the number of scavenging for food from the trash which can be a nuisance to the environment surrounding assuming that the number of resources in an area satisfies the number of cats in a population.

Owner's Knowledge

Figure 4a summarizes how important sterilization is for cat owners or cat guardian. 70% of the respondents feel that it is important while the rest feels that it is very important. Figure 4b shows that more than half of the respondents have an average understanding of sterilization while 30% of them still not have enough understanding. Only 10% of them responded that they have adequate understanding. Figure 5a shows that majority of the respondents will recommend sterilization for cats to their surroundings and majority of them will consider to sterilize the next cat they will have (Figure 5b). 20% of them are still unsure but there were no respondents that reject the idea of sterilization in the future.

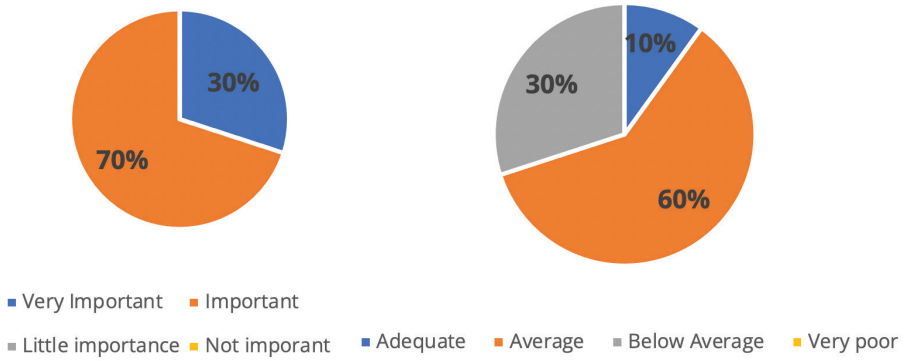

Figure 4a shows the respondents' stand on how important cat sterilization is. Figure 4b shows the respondents' understanding on cat sterilization.

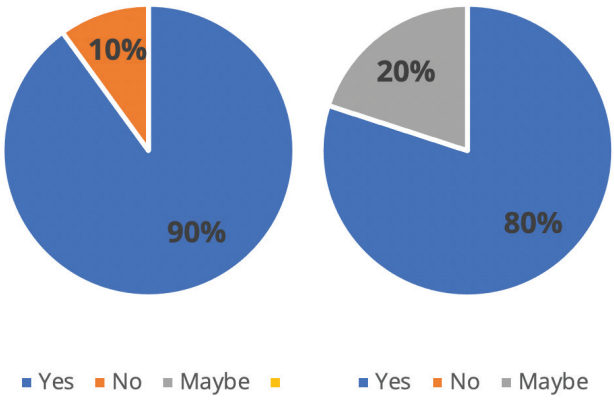

Figure 5a shows whether respondents' will recommend cat sterilization to their surroundings. Figure 5b shows whether they are considering to sterilize a cat they will have in the future.

Based on our results, most of the respondents' intention of sterilization were fulfilled. Respondents are generally satisfied with the impact sterilization has on them and their cats, this is supported by how they think sterilization is important and the chance of them recommending the surgery to other people.

However, there can still be improvement on delivering messages of sterilization to ensure that the purpose, process and impact of sterilization can be adequately understood by all participants of the program. This improvement might be able to make all participants certain on sterilization for the years to come.

Limitations

This study case focuses on qualitative observations and interpretation. It requires statistical interpretation that can have valid and legitimate results, especially the correlation between all survey questions as we do not have one. The sample size we acquired is also not enough to provide accurate comparisons with existing journals despite of having a few of our results align to some theories. There is also a lack of pre- sterilization survey that could have given a higher level of eligibility on the changes we are looking at. Lastly, there is a large time- gap between the sterilization and survey, changes observed and collected might have been impacted by other external variables.

This study case can be used for future references of TNR program and more advanced qualitative research on sterilization impacts, especially in Indonesia that is having an overpopulation of cats. Research on how mass sterilization can have an impact on humans' lifestyle, including our social and economic state, as our interaction with street cats have become a part of our everyday life.

Conclusion

Sterilization, be it a TNR program or done individually on indoor cats have positive impacts not only to cats but also humans. Participants of the program had also shared their understanding level on sterilization, which can be an indicator that a real- life evidence of the impact can be a step forward in inviting people to sterilize their cats. Thus, more awareness about the importance of sterilization needs to be conveyed to the public in order to make a real impact on stray cats' overpopulation.

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ABOUT ANIMAL WELFARE INDONESIA

Animalwelfare.id is an educational/character building website, which teaches Empathy, Respect and Responsibility through Animal Welfare. It gives animal lovers, teachers and communities the necessary tools to help educate through easy to use and step–by–step resources.

Who Are We?

Jakarta Animal Aid Network (JAAN) is a non–profit organisation dedicated to improving the welfare of animals throughout Indonesia. JAAN was founded in January 2008 and is 100% dependent on donations.

JAAN runs a number of programs for domestic animals as well as for wildlife. To learn more about our programs please visit our website: WWW.JAKARTAANIMALAID.COM

JAAN owns and operates a number of programs, both for domestic animals and for Wildlife. Since 2020, JAAN Domestic has been officially established as the JAAN Animal Welfare Foundation.

To Learn more about the JAAN Prohram, you can visit our website at: **www.jakartaanimalaid.com/domestic http://linktr.ee/jaandomestic**

Why We Do What We Do?

Welfare Education promotes knowledge, understanding, skills, attitudes and values related to animals, but it also encourages a general attitude. Empathy is believed to be a critical element often missing in today's society and the underlying reason for callous, neglectful and violent behaviour.

There is a well documented link between childhood cruelty to animals and later criminality, violence, and anti social behaviour. The link between animal abuse and human violence reveals that animal abuse can often have a domino effect. When adults disrespect, neglect, abuse or harm an animal; it starts a process of desensitisation or loss of feeling in our children. They become able to witness the neglect, hurting, harming or killing of animals without feeling a response. Habituation to neglect and cruelty means that abuse has become a routine part of a child's life and is accepted as normal.

Lack of empathy leads to dehumanisation because it slows down children's emotional development and they are not able to realise their full potential as emotionally mature adults. We can break this cycle and replace it among others with empathy, respect, responsibility, and compassion, which is needed to build kinder and better societies.

How?

Everybody can help by sharing knowledge to those close to you. Sharing knowledge doesn't cost a thing, but can have an enormous impact on society in general.

This website is for all educators, animal lovers, people who care about the environment or just simply people who care about people and be part of creating a kinder society. This easy to use website has provided step by step action plans for teachers, animal lovers and communities which includes lesson plans, action plans, resources, activities, letters, educational posters,

videos, books and lots more!

Background of How It All Started

Education has always been a high priority for JAAN from the very early start. JAAN realised that Education equals with change and using Nelson Mandela's quote: "education is the most powerful weapon which you can use to change the world".

We started with the concept of this website after having the opportunity to present to former DKI Jakarta's Governor Mr Ir. Basuki Tjahaja Purnama, NM regarding Animal Welfare. Our presentation and ideas were very well received and the Department of Agriculture was instructed to collaborate with us on all these ideas. This happened in September 2015.

After this presentation, we started creating content and further developing our concept. Regular meetings to present our developments and after 5 months of hard work we were ready to meet the Governor again!

To celebrate our major milestone and to socialise our Mass Education Project, we had a launching event at Jakarta's City Hall (Governor's office) in North Jakarta on the 7th of February 2016! The launching was a great success! In 2017 parts of our education programs were featured on big LED's throughout Jakarta. 2017–2018 we continued with some further developments, but due to lack of financial support, we were not able to explore these developments any further.

Supported by Four-Paws International

And in 2018 we held a meeting with FOUR PAWS and presented the program and what we've been doing up to that point. We also submitted a proposal containing what we still want to develop, including content and website creation which later can be a guide for animal lovers, teachers, parents, communities and others with an easy-to-use website design and program

stages so that make it easier for us to provide education.

We are very grateful that FOUR PAWS was willing to sponsor the entire program thus giving us the opportunity to complete this excellent project.

The ultimate goal of JAAN is to create a better society through animal welfare education programs.

So Who Is Behind This Website?

The following are the names and roles of each of the teams behind the process of making this website :

Project Management:

- Karin Franken *(Project Director)*
- Drh. Mariana Ferdinandez, M.Si *(Project Manager)*
- Drh. Mikeu Paujiah, Dipl. Montessori *(Content & Editorial Manager)*
- Levina Dewi Lomena, B.A *(Art Director & Creative Manager)*
- Cerian Yuwono *(I.T. Manager)*
- Febe Kristiana *(Web Analytical Manager)*
- Monique Kauffman *(English Content Spv)*
- Loes (ML) Schure *(Content Advisor)*
- Ludmilla *(Translator)*
- Pratiwi Wahyu *(Audio Editor & Content Tracker)*

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