Myths about Wildlife use for Medicinal Purposes

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Abstract

This chapter investigates the pervasive misconceptions about the use of wild fauna in traditional medicine showcasing the diverse set of cultural, economic and historical factors propelling these medicinal practices. Despite lacking scientific evidence backing therapeutic claims of wild animals and their body parts such as rhino horn, bear bile, tiger bones, and pangolin scales, wild animal based remedies are still sought after in various regions and cultures. These myths fuel illegal trade and poaching which have led many species to extinction causing major biodiversity loss. By analyzing these traditional medicinal practices and their implications, this chapter highlights the urgent need to debunk these medicinal fallacies and myths and educate people to promote awareness about sustainable substitutes. It calls for transition towards modern medicine and herbal remedies, stressing the individuals and communities to take responsibility for wildlife protection and biodiversity conservation for upcoming generations. The chapter ultimately appeals and advocates for global actions in biodiversity conservation and termination of harmful traditional therapeutic practices.

Keywords: Wildlife, Traditional medicine, Myths, Conservation, Poaching, Extinction

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Introduction

Since the origin of *Homo sapiens*, wildlife has been integral part of human needs, culture and tradition. Different species of wild animals and humans have coexisted and mutually benefitted each other in many ways (Cram et al., 2022). Early humans used wild animals and their body parts for food, medicine, clothes, making tools, for companionship etc. (Hernandez et al., 2015). Such interactions led to evolution of human-wildlife relation and laid the basis of domestication of some animals (Teletchea, 2019). Humans using their excellent cerebral abilities reduced the complexities of life and developed such agricultural and farming practices that were sustainable, efficient and less onerous than hunting wild animals for days and weeks for food and other basic needs (Milner & Boldsen, 2023). These advancements along with industrial revolution, scientific advancements and progress in information technology, ensured the survival of humans to become the most dominant specie of this planet earth (Tilman, 2022). Besides all the developments, human-wildlife relation remained multifaceted where pros and cons go hand in hand (Göttert & Starik, 2022). Alongside all the incentives humans get from wild animals, human-wildlife conflict and over exploitation of wildlife still persists to this date (Torres et al., 2018; Hughes et al., 2023). Illegal hunting of wild and exotic animal species and illegal wildlife trade are among largest transnational crimes in the world (TRAFFIC, 2025). For centuries, some wild animal species are believed to have extraordinary therapeutic properties and their meat, internal organs, blood, skin, fur, tusks, horns, nails, bones, scales etc. are being used as essential component of traditional medicine for thousands of years (Abebe et al., 2022). Ancient civilizations like Egyptian, Chinese, Greek and Indus valley civilizations have long sought wild fauna for cure of physical ailments, spiritual healing, and religious and cultural rituals. For example, Egyptian history mentions the use of lizard blood, glands of musk dear, honey from bees, bat limbs, body parts of ox, stag blood etc. to cure different diseases (Metwaly et al., 2021). Such practices have rooted so deep in these civilizations specifically and overall globally, that despite lacking enough scientific research, they are still operational in traditional medicine (Alves et al., 2021). Moreover, effectiveness of medicinal drugs derived from wild animals is a controversial and debatable topic as it raises concerns about human health, animal welfare and conservation (Fourchault et al., 2024). There is an urgent need to negate misconceptions about wild animals use in medicine, which have perpetuated by culture, tradition and illegal wildlife trade. In this chapter we will investigate these myths about medicinal use of swild fauna and cross examine them with scientific evidence to debunk them.

Rhinos Horn use in Traditional Medicine

Oral traditions and folklore are the modes by which traditional zootherapeutic practices have perpetuated in ancient civilizations although lacking proper research and scientific evidence (Kumera et al., 2022). Let's start with medicinal use of rhino horn in African and Asian region specifically in Traditional Chinese Medicine (TCM) for fevers, headaches, heat dissipation from body, even cancer treatment and as aphrodisiac

(Cheung et al., 2021). Rhino horn in powdered form is used directly or mixed with other ingredients and is applied topically or ingested directly mixed in drinks (Dang Vu et al., 2022). Rhino horn has calcium and melanin along with closely packed filaments of keratin protein which is its main constituent and also found in nails, hair and, hooves of other animals e.g., in horse hair (the close relative of rhinoceros) (Mi et al., 2019). Keratin doesn't have any meaningful effect on illness in our body as it is biologically inert molecule being 3rd most resistant polymer which occurs naturally, following cellulose and chitin (Banasaz & Ferraro, 2024). Although, rhino horn powder showed some antipyretic properties in rats when used in large quantities, but its dose recommended in TCM cannot have significant therapeutic benefits in humans (But et al., 1990). Along with medicinal fallacy, this myth raises concerns about conservation status of Rhinos. Since 1997 "Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)" has banned any kind of trade in rhino horn (Cheung et al., 2021). Rhino horn use in traditional medicine leads to illegal poaching, brutal killing of rhinos in wild, illegal trade and smuggling of rhino horn (Cheung et al., 2021; McConkie, 2021). Despite all these alarming facts with no extraordinary healing properties, rhino horn value is about US$60,000 per kilogram in Asian market, making it more valuable that diamond, gold and cocaine. (World Animal Foundation, 2024). This huge demand and extraordinary price of rhino horn drives poachers to kill rhinos, regardless of the fact that all rhino species are listed in Appendix 1(having species threatened with extinction) of CITES ('t Sas-Rolfes & Emslie, 2024). In addition, rhino horn trade and use involve extreme brutality, after cutting of the rhino's horn poachers leave rhino there for a slow painful death due to major head injury and excessive bleeding (Geldenhuys, 2023). All this bloodshed, illegal trade and smuggling is based on a misconception that needs to be addressed globally to stop killing of rhinos and to save people from falsely believing such wrong practices.

Bear Bile use in Traditional Medicine

Another practice still persisting in Asian culture is based upon the extraction of bear bile to heal hepatic and biliary disorders, inflammations, body heat reduction and body detoxification (Appiah et al., 2017a). For centuries, it is believed that bile extracted from gall bladder of bears have magical healing properties despite the fact that this method is cruel and unsafe for humans as well as bears due to multiple health safety risks (Ling et al., 2015). Bear bile mainly contains bile pigments and bile acids along with ursodeoxycholic acid (UDCA) being primary constituent used in liver and biliary treatments (Li et al., 2016). UDCA is naturally formed in liver of animals like pigs, cows and humans but synthesized in large amounts only in bears (Feng et al., 2009). This acid can be obtained in bulk on large scale form plant sources and artificial chemical synthesis in laboratories making its extraction from bear gall bladders unnecessary and outdated (Li et al., 2024). Moreover, multiple herbal substitutes having anti-inflammatory and hepatoprotective properties are available with at least 50 herbal alternatives present in TCM (Appiah et al., 2017a). To be used in traditional medicine, wild bears are killed, their gall bladders are cut off, sun dried and consumed in powder or sliced form mixed with wine or water (Thona et al., 2024). In bear farming, bears also undergo extreme physical torture and trauma when they are kept in captivity in small cages for harvesting and obtaining bile (Leary et al., 2021). Bile juice is extracted from live bears with help of catheter inserted in their gall bladder without anesthesia on daily basis or either through a tube permanently implanted inside bears body (Kalogeropoulu et al., 2022). A recent study revealed that approximately 40 tons of bear bile is required per year to meet its demand in TCM and pharmaceutical companies (Li et al., 2024). Although trading, hunting and killing of bears is illegal, poacher still kill bears in wild, cut their gall bladder out of their abdomen and smuggle these for hefty amounts making it a lucrative business in black market (Jabin et al., 2019). This has led to an alarming situation as 75% species of bear are now threatened with extinction (Bear Conservation, 2017). Use of bear bile in traditional medicine makes bear conservation a challenge that needs to be tackled by educating people about synthetic modern medicine or plant based remedies.

Tiger Body Parts use in Traditional Medicine

In ancient cultures, majestic animals were often considered as symbol of power and strength and consuming them and their body parts were believed to have healing and health boosting effects (Green et al., 2022). Sadly, tigers being very charismatic are included in the list of animals used in TCM and other traditional clinical practices (Coals et al., 2022; World Animal Protection, 2024). Various parts of tiger like its bones, teeth, claws and penises are believed to have various therapeutic benefits (Alves et al., 2013). For instance, tiger bones are boiled in water to form an elixir to drink or are crushed into powder to be ingested or applied topically on joints to relief joint pain, arthritis, and other such bone and muscle disorders (Qian, 2018). Traditional medicine practitioners believe that tiger bones have high levels of collagen and some minerals like calcium and phosphorus that help to treat the joint problems and strengthen them (Li et al., 2017). Collagen is a protein that is not only found in tigers but also present in connective tissues (skin, bones and cartilage) of animals including humans (Singh et al., 2023). This protein is important component of the medicines used to treat human joint disorders like arthritis. Collagen can be easily obtained from foods like fish, pork, chicken and beef or even from synthetic supplements in different forms (Cao et al., 2022). All the important constituents of tiger bone have their substitutes easily available in other animal and plant sources e.g., dairy products, seeds, leafy green vegetables and nuts (Moorhouse et al., 2022). Even tiger bone powder is artificially synthesized having same therapeutic benefits (Ren et al., 2021). With availability of all the organic and synthetic alternatives of tiger bone constituents, it seems very unnecessary and unethical to kill an endangered species which has only 5,574 individuals left in the wild (WWF, 2025). In Asian and African culture, another myth has perpetuated that consuming tiger penises can improve sexual performance in men (Manohar & Rao, 2020). This myth is more based on symbolism and cultural belief rather on any proven health benefits (Campbell, 2016; Cutcliffe, 2024). People believe in the power of tiger penis as a strong aphrodisiac, so they psychologically feel more potent sexually by simply consuming them with no actual medicinal effect (Nuwer, 2021). Instead of tiger penis, many plants and synthetic medicines have proven medicinal potential to cure sexual impotency (Argiolas et al., 2023). Far more affective drugs like Viagra, Cialis and Levitra are easily available in modern medicine to treat erectile dysfunction or other such sexual disorders in men (Ojewole, 2007). Hence this total misconception of tiger body parts use in medicine should be condemned as it has become a major hindrance in tiger conservation. According to CITES, tiger hunting and trade is banned as all tiger species are at brink of extinction. Fallacies about tiger body parts to treat various diseases are driving poachers and smugglers to hunt tigers to get large financial gains from illegal market (Klein, 2022; Poaching Facts, 2024). Since there is no extraordinary therapeutic outcome of consuming tiger body parts, people should avoid relying on such methods of treatment and avoid risking their health and welfare.

Pangolin use in Traditional Medicine

Another unique animal called pangolin is used in traditional medicines in various regions, particularly in parts of Africa and Asia (Xu et al., 2016). Pangolin is a mammal well known for striking scales providing a strong defense against predators and other environmental factors (Schaake, 2022). Its scales and meat are used in traditional medicine to improve lactation in milking mothers, to boost fertility in women, to treat vascular disorders, to cure arthritis, to treat inflammation and fever and even to alleviate cancer etc. (Sexton et al., 2021). Pangolin scales, just as rhino horn, are composed of keratin protein that is present in hair and nails of humans and horns and hooves of other animals (Tian et al., 2024).Diseases like cancer, arthritis, lactation problems, inflammations, fertility issues etc., have scientifically proven treatments in western allopathic medicine. Hence, relying on pangolin scales for therapeutic gains is entirely useless and based on wrong believes lacking enough scientific proof (Mizzi, 2015; ProFauna, 2016). Moreover, to get pangolin scales, pangolins are hunted from wild and are boiled alive which is extremely inhumane and a strong violation against animal welfare (World Animal Protection, 2018). Due to use in traditional medicines, pangolin scales and meat demand is raising rapidly bringing pangolins on the verge of extinction (Aisher, 2016). Approximately 2.7 million pangolins are poached annually making it the most trafficked mammal of this planet earth (Conciatore, 2019). There is an urgent need to address this false believe about pangolin scales and meat, as it is driving all 8 species of pangolin towards extinction. This is an alarming situation that how misconceptions, false and unnecessary medicinal practices and myths are driving extinction of species and causing reduction of biodiversity.

Summary

In addition to above mentioned myths and misconceptions, multiple other practices still persist in different regions of the world. For instance, use of snake fat and snake skin for skin ailments, use of spiny tail lizards to make oil for male sexual disorders, use of shark cartilage to treat cancer and arthritis etc. (Hassan et al., 2022). A total of 70 different wild animals belonging to mammals, birds, reptiles, amphibians, fish and even invertebrates are used in TCM and other traditional medicinal practices (Moorhouse et al., 2021). Almost every animal body part including bones, antlers, horns, skin, eyes, eggs, reproductive organs, all vital organs, hair, blood, nails, hooves, cartilage etc., are consumed directly or mixed with some herbs and other ingredients to treat various ailments based on misbelieves (Hernandez et al., 2015; Kalogeropoulu & Painer-Gigler, 2023). Although many herbal and allopathic alternatives are easily available having extensive scientific research and proven therapeutic outcomes, some wrong traditional medicinal practices are so deeply rooted in our cultures that it seems impossible to get rid of them. Unfortunately, even without strong scientific basis these traditional medicinal practices have posed some massive disadvantages. Due to overexploitation and poaching of wild animals for traditional therapeutic practices, many species have driven to the verge of extinction (Alves et al., 2021). This poses a serious threat to overall species richness and biodiversity of our planet when we are already facing sixth mass extinction and severe decline of biodiversity (Cowie et al., 2022). Moreover, to meet the traditional medicine market demand, wild animals are now harvested on farms in miserable conditions (Leary et al., 2021). This raises concerns about animal welfare as animals face extreme torture, cruelty and inhumane treatment to extract products like bear bile. Additionally, there is a great risk of zoonosis while using wild animals and their products for medicinal purposes (Rizzolo et al., 2023). Humans can get various infections creating regional and global health issues like epidemics and pandemics e.g., COVID-19 referred to be originated from bush meat (meat of wild animals) (Rahman et al., 2020). Besides this, trade of many wildlife species in banned internationally and nationally. Traditional medicine market is a major driving reason of illegal trade and poaching of wild animals which renders hindrance in conservation efforts creating legal and ethical problems (Alves et al., 2013). Furthermore, illegal demand of wild animals raises serious economic issues as illegal wildlife trade being fourth largest transnational crime jeopardize local and global economy (INTERPOL, 2023). In addition to all these issues, excessive exploitation of wild animals for traditional medicinal purposes leads to animal extinction. Some species removal from ecosystem can create cascade effect disrupting food chains and ecosystem balance (Kehoe et al., 2021). This may lead to extinction of other specie leading to destruction of ecosystems and deterioration or our biological resources (Kehoe et al., 2021). As for now we only have planet earth to live, it's really important to consider the protection and conservation of its biological resources especially wild animals to ensure survival of humans and all other existing species of living organisms. The best possible ways to combat this challenge are to educate people, promote alternative medicines and strengthen conservation efforts.

Conclusion

In conclusion, excessive and continuous consumption of wild animals and their products in traditional medicine lacks enough scientific evidence and is mostly based on myths, misconceptions and cultural traditions. This practice poses great threat to not only welfare of wild animals and humans but is also fueling biodiversity loss which is detrimental for ecosystems. The market demand of rhino horn, bear bile, tiger bone, pangolin scales and other wildlife products has become major driving reason of illegal trade, poaching, smuggling, trafficking and exploitation of protected species dragging many to brink of extinction. Despite availability of numerous scientifically proven and sustainable substitutes, these harmful practices still persist because of strongly incorporated cultural believes, lack of awareness and little knowledge. It is essential to debunk and challenge these myths with scientific research, promote modern medication, herbal remedies, and make global efforts to create awareness among masses about the harms of wild animal use in traditional medicine and about importance of wildlife conservation. To protect these wild animals is not just need of the hour but duty of everyone to ensure that our future generations can witness the beautiful wild creatures and extensive biodiversity of our planet. It is time to act now to protect our Earth and its inhabitants, before irreversible harm is done and it's too late.

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