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The Concept of Mode of Life in Veterinary Education in Mexico

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Abstract

This review advances "mode of life" as a foundational, cross-species concept that surpasses "way of life" and "lifestyle." A mode of life names the integrated configuration of material exchanges with environments, socio-technical mediation (tools, symbols, infrastructures), rules, communities, and divisions of labor through which beings persist and become. Marxian analysis grounds modes of life in productive and reproductive activity shaped by power, ideology, and political economy (e.g., Gramsci on hegemony; Federici on social reproduction). Cultural-Historical Activity Theory (Vygotsky, Leontiev, Engeström) reframes learning as transformation of object-oriented, tool-mediated activity systems, in which both the object (what is produced) and the subject (who we become) change. Burkitt's relational account of emotion and Levin's agentive evolution widen the lens to multi-level intelligence and subject formation across phylogeny. Within this framework, veterinarians and animal scientists are designers and mediators of modes of life. In public/One Health, they reconfigure human–animal–ecosystem relations through vaccination, biosecurity, food safety, and risk communication.

In animal production, they co-design welfare-centered husbandry (silvopastoral systems, environmental enrichment, antimicrobial stewardship) that counters industrial alienation and ecological harm. In companion-animal practice, they align species-typical needs with domestic routines; in wildlife and conservation, they restore or ethically approximate species-authentic modes of life; in laboratories, they secure humane, reproducible research. Throughout American and Latin American contexts, institutional infrastructures, cultural practices, and inequalities condition what modes of life are materially possible. Ethically and politically, the essay advocates non-authoritarian relations and democratized organization of animal work (Wolff's workplace democracy; Blakeley's community governance). Veterinary praxis is cast as expansive learning: diagnosing contradictions, modelling alternatives, implementing and consolidating improved activity systems. Health is reconceived as a property of modes of life—nutrition, movement, rest, stress regulation, sociability, safety—rather than mere disease absence. The argument closes on need as the mediating category binding organisms to particular modes of

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life and orienting professional responsibility: to co-create just, sustainable, and flourishing interspecies life-ways.

Keyword: Mode of life, veterinary science, Marxian philosophy, cultural-historical activity theory, one health, animal welfare, human-animal relations

This review differentiates the concepts of "mode of life," "way of life," and "lifestyle" to argue that 'mode of life' is a more foundational and phylogenetically scalable concept. It will also justify the idea that veterinarians and animal scientists are professionals engaged in designing, improving, and transforming modes of life across species. The framework will draw from Marxian theory and cultural-historical activity theory, with a regional focus on American and Latin American contexts. It integrates philosophical foundations, biological relevance, and socio-cultural implications – particularly around human-animal relations, veterinary science, animal production, and pet-keeping.

Introduction

Understanding how living beings live – their daily activities, interactions, and survival strategies – requires clarifying key terms that are often used loosely. In particular, mode of life, way of life, and lifestyle are frequently treated as synonyms, but they carry distinct meanings in scholarly discourse. This work differentiates these concepts and argues that "mode of life" is a more comprehensive, ontologically grounded, and biologically scalable concept than "way of life" or "lifestyle." We explore this thesis across the phylogenetic scale – from lower animals to humans – and highlight implications for professionals like veterinarians and animal scientists. These professionals are portrayed here as transformative agents dedicated to designing, improving, and reshaping modes of life for animals in diverse contexts, from wildlife and livestock to companion animals, since they will be always related to human modes of life.

Our analysis is grounded in Marxian philosophy and cultural-historical activity theory, drawing on thinkers such as Karl Marx, Lev Vygotsky, Aleksei Leontiev, Yrjö Engeström, Anna Stetsenko, Igor Arievitch, Antonio Gramsci, and Silvia Federici. We have also included Ian Burkitt's and Michael Levin's perspectives, which conform the up-to-date social view of emotions and evolutionary approach, respectively, that could fit within our activity theoretical worldview. Finally, we complete this analysis drawing from Richard D. Wolff's framework of workplace democracy and Grace Blakeley's advocacy for community-based economic reorganization, both of which offer critical tools to rethink the industrial mode of life imposed on farm animals. This theoretical lens underscores the transformative and relational role of veterinarians and animal scientists in public and animal health, animal production systems, and the psychological, physical, and social well-being of families with companion animals. We emphasize how the concept of mode of life integrates material exchanges with the environment, mediated social and organic activity, and institutional infrastructures, while also accommodating cultural practices and interspecies relationships. Examples and contexts are drawn primarily from American and Latin American settings, where issues of animal and human welfare intersect in complex socio-economic and ecological systems.

Defining "mode of life," "way of life," and "lifestyle"

Mode of life

In the broadest sense, Mode of Life refers to the holistic way in which an organism or group of organisms exists and meets the demands of life. It encompasses the material and behavioral context of life – how needs for food, shelter, health and social interaction are met in a given environment (Eisenring, 2018). In Marxian terms, mode of life is deeply linked to productive and life-sustaining activity. Marx and Engels famously wrote that the "mode of production" in society is "a definite form of activity, a definite mode of life" (Marx & Engels, 1970), highlighting that how individuals produce their subsistence defines their way of being. Mode of life thus integrates not only habits or behaviors, but the entire material and cultural environment in which life unfolds (Eisenring, 2018). For example, the mode of life of a wild herd of elephants includes their diet, migratory patterns, social structure, relationship with predators, and interaction with the landscape and climate – all of which form an interdependent system. Notably, mode of life is a term applicable across species. Ecologists use similar ideas when they note that different species can share a broad mode of life, for instance, grazing herbivores on different continents occupy a similar ecological role (Gordon & Prins, 2019). Thus, mode of life is biologically scalable: one can speak of the mode of life of a bacteria, an insect, a mammal, or a human, referring to how each lives within and interacts with its environment.

Way of life

The term way of life is often used interchangeably with mode of life in casual contexts, but scholarly usage sometimes distinguishes it. In sociology and anthropology, way of life typically refers to the customary patterns of behavior, values, and practices of a people or community – essentially, the socially typical routines and norms that characterize a group (Mykhaylyova & Shkurapet, 2020). A way of life is shaped by culture, tradition, and collective history. For example, one might speak of the "pastoral way of life" of nomadic herders or the "urban way of life" in a modern city. Crucially, ways of life are maintained and normalized by social structures and institutions, for example, economic systems, religious institutions, and laws (Mykhaylyova & Shkurapet, 2020). In the Soviet and post-Soviet scholarly tradition, the concept of "obrazzhizni*"* (way of life) was distinguished from "stilzhizni" (lifestyle) – the former denoting the objective, typical living conditions and routines shaped by society, and the latter denoting individual variations. Generally, way of life sits at an intermediate level of analysis: less encompassing than the ontological breadth of mode of life, but more collective and structural than lifestyle. It often implies a set of shared practices within a community or species – "the way of life of honeybees involves division of labor among the queen, drones, and workers," or "the way of life of rural farmers includes close-knit family labor and seasonal cycles". Unlike mode of life, the phrase way of life is applied more to humans and sometimes metaphorically to animals, focusing on patterns of living rather than the underlying material conditions per se.

Lifestyle

Lifestyle is the narrowest of these terms. In contemporary use, lifestyle usually refers to an individual's or subgroup's distinctive habits, preferences, and consumption patterns within the options provided by their way of life. One's lifestyle might include choices or behaviors related

to diet, exercise, leisure activities, fashion, etc. – aspects often seen as expressions of personal identity. Lifestyles are "more individualized" and represent particular manifestations in everyday life that an individual or group adopts (Mykhaylyova & Shkurapet, 2020). Unlike mode of life, which is grounded in survival and ecological adaptation, lifestyle is often a matter of choice – at least for those with the privilege to choose – and is frequently discussed in the context of human health and consumer culture – e.g. "sedentary lifestyle" or "vegan lifestyle". Sociologists note that lifestyle is a subset of way of life (Mykhaylyova & Shkurapet, 2020) – essentially the personal version of broader social patterns. For instance, within an urban way of life that offers many food options, one person may choose a vegetarian lifestyle and another an omnivorous lifestyle. Importantly, lifestyle as a concept is generally not applied to non-human animals except anthropomorphically; we do not normally speak of a wolf's "lifestyle." This highlights that lifestyle is tied to individual agency and identity, largely a human construct that emerges from modern conditions – where individuals can, to some extent, design their own daily routines.

In summary, mode of life is a fundamental, species-spanning concept capturing how life is materially and structurally lived; way of life refers to characteristic cultural or communal patterns within that mode; and lifestyle refers to individual-level enactments or choices. Mode of life is ontologically deep – tied to an organism's relations with nature and society – whereas lifestyle is relatively superficial in scope – habits and preferences – and way of life lies somewhere in between. Crucially, mode of life provides an analytical lens that can unify discussions of life across biological and social scales, which is why it will be central to our further analysis.

In other words, a mode of life is a way of organizing the existence of a living being. It can be real or imaginary, planned or unplanned, chosen or imposed, satisfactory or unsatisfactory, desired or abhorred, full or precarious. It can be seen at the generic or specific, group or individual level. It encompasses the relationships and exchanges between all components of a system. It characterizes a level of satisfaction of the physical, psychological and spiritual dimensions of needs, according to the evolutionary scale on which the organism finds itself. The mode of life is the way in which human beings produce, express and conceive their individual and collective existence in a given material and historical context. It denotes how a person or group of people pursue and satisfy their needs according to their socio-economic conditions and social background within a historically, culturally and geographically defined social formation. This concept is associated with the notions of lifestyle and way of life, but these are partial visions that focus mainly on the appearance and prestige of people and fulfill an ideological rather than a scientific function.

Marxian foundations of the mode of life concept

A robust theoretical foundation for mode of life comes from Marxian philosophy. Karl Marx and Friedrich Engels, in their materialist conception of history, asserted that the way humans produce their means of subsistence – food, shelter, etc. – fundamentally shapes their mode of life. In The German Ideology (Marx & Engels, 1970), Marx and Engels wrote that individuals' life is directly a function of their material activity: "As individuals express their life, so they are. What they are, therefore, coincides with their production, both with what they produce

and how they produce. This production of ideas, of conceptions, of consciousness is directly interwoven with the material activity and the material intercourse of men, the language of real life". In other words, mode of life is not an abstract state of being; it is an active process, "a definite form of activity" inseparable from the mode of production.

Marxian thought also differentiates human mode of life from that of other animals. In his early writings (Marx, 1977), Marx suggested that animals have a more or less fixed mode of life tied to their species' instincts and needs, whereas humans have a flexible, consciously socially-transformable mode of life. As one commentator summarizes Marx's view: other animals "are characterized by a certain fixity in their mode of life," meeting their needs in ways largely determined by their species' "definite 'standard" of activity, whereas humans act upon the external world in a way that is free, self-conscious, and socially coordinated (Stache, 2018). This does not mean animals cannot adapt or learn, but rather that an oak tree or a wolf pack lives according to relatively narrow parameters – nutrition, reproduction, survival tasks set by ecology and evolution – while humans, through labor and technology, have transcended many natural limits.

Marx saw human history as the transformation of our mode of life through the development of productive forces and social relations—from feudal agrarian life to industrial capitalist society, and potentially beyond. Each socio-economic formation—such as slavery, feudalism, or capitalism—entails a distinct mode of life characterized by different daily routines, family structures, relationships to nature, and health conditions. Within these transformations, human-animal relationships have also been historically shaped and reshaped. The roles animals play – whether as companions, sources of labor or food, perceived pests, or elements of wild ecosystems – are embedded in the broader mode of life of each period. For example, in feudal societies, animals were integral to subsistence farming and spiritual symbolism; under capitalism, they became commodified as units of production, consumer products, or subjects of conservation and biopolitics. Thus, the human-animal bond evolves alongside changes in economic systems, reflecting shifting labor practices, urbanization, ecological thinking, and social values. Marx criticized the capitalist mode of life for alienating humans from their true potential, reducing life's rich social and creative dimensions to mere survival and profit-making. He also believed this mode of life was historically specific and could be transcended.

Marxian thinkers after Marx continued to explore mode of life. Antonio Gramsci (Gramsci, 1971), for instance, analyzed how a dominant class can shape society's way of life through cultural hegemony. In his discussion of "Americanism and Fordism," Gramsci observed that early 20th-century industrialists like Henry Ford didn't just revolutionized production in the factory; they also tried to engineer a new way of life for workers that suited mass production, as two analysts of Gramsci's works explain (Antonio & Bonanno, 2000). Ford went so far as to enforce moral codes on workers – through plant social departments, monitoring their family life, diets, and habits – to create "standardized individuals" whose private lives would not detract from their factory discipline. "Henry Ford's surveillance of workers' family life, sexuality, and other activities outside the workplace exemplified efforts to nurture the voluntary submission of workers to the labor discipline required by [the new industrial] order,". This shows an acute awareness that mode of life can be deliberately transformed by social

forces: capitalists sought to reshape workers' mode of life – both at work and at home – to sustain a new economic way of life. Gramsci thus reinforces the idea that mode of life, far from being a static background, is a contested domain subject to political and ethical critique and intervention. It is noteworthy that Gramsci also highlighted how such transformations can meet resistance or foster contradictions that will enhance people's creativity. For example, imposing a new way of life may clash with deeply rooted cultural practices, leading to social tension that will impel workers to organize. As an illustration, the elevation of pets to "family members" can reflect alienation in a neoliberal society, where people seek connection in the absence of strong human social bonds. However, it can also be seen as a creative response, an ethical extension of care, or even a critique of capitalist individualism through the cultivation of nonhuman kinship, helping families – especially their young members – become more empathetic.

Another Marxian-inspired thinker, Silvia Federici, adds a crucial dimension to the discussion by focusing on social reproduction – the activities and relations by which life, especially human life, is sustained day to day and generation to generation. Federici's historical work (e.g. Federici (2004)) argued that the transition to capitalism in Europe was not just an economic change, but a profound transformation of the way the masses, especially women, lived. The traditional communal modes of life, in which women's work in caring, healing, subsistence farming, and tending to animals was valued in sustaining the community, were violently disrupted during the witch hunts and enclosures. Women's control over reproduction and folk knowledge – often including knowledge of animals and nature – was attacked, paving the way for a capitalist mode of life that devalued any labor not producing profit. According to Federici, the advent of capitalist rationality led to the subjugation of both women and animals to a subordinate status. This subjugation was characterized by the regulation of women's bodies through a patriarchal lens and the reduction of animals to a state of brute matter, with the exception of their utilization as resources. In contemporary discourse, Federici and other feminist-Marxists underscore the extent to which the modus vivendi within capitalist societies is contingent upon the execution of labor that is imperceptible to the naked eye – a substantial proportion of which is predominantly executed by women – for the purpose of caring for individuals, maintaining domestic dwellings, and tending to domestic animals. This labor is indispensable for sustaining life and is frequently unacknowledged. (Federici & Andrews, 2022). This insight broadens the mode of life concept: a mode of life is not only about production and survival in a narrow sense, but also about the reproduction of life itself – feeding, nurturing, healing, resting, relating. A healthy mode of life in a society would ensure that this "life-making" work (as Federici calls it) is valued and shared, rather than placed on the shoulders of the most marginalized. In this sense, Federici's view on labor force reproduction can – and should – be extended to professions like teaching, veterinary medicine, and health care. These are crucial nodes in the network of social reproduction, and understanding them through Federici's lens helps to highlight their invisible centrality and the contradictions they face under neoliberal capitalism. We will later see how veterinarians and animal scientists contribute to this life-making work by safeguarding animal health and welfare, which in turn supports human communities.

In summary, Marxian frameworks give us three key ideas: 1) a mode of life is grounded in material activity, labor, production, and reproduction; 2) humans have a unique capacity to

revolutionize their mode of life – for better or worse – whereas other animals generally maintain species-typical modes of life, and 3) modes of life are intertwined with power, ideology, and economics, meaning they can be sites of domination – as in capitalist impositions – or emancipation – as in envisioning more equitable ways of living. This underlines our thesis that veterinarians and animal scientists, as professionals who intervene in the material conditions of life – albeit for non-human creatures and interspecies systems – are inherently engaged in shaping modes of life, not just "lifestyles" or superficial outcomes.

Activity theory and the ontology of life activities

Complementing the Marxian perspective, cultural-historical activity theory (CHAT) provides another rich framework for understanding modes of life. Originating with the work of Lev Vygotsky (Vygotsky, 1978) and his student Aleksei Leontiev in the Soviet Union, activity theory examines how purposeful activity mediates between individuals and their environment. At its core, CHAT posits that activity – practical, goal-directed interaction with the world – is the primary unit of analysis for understanding mind, behavior, and society. This approach naturally aligns with the concept of mode of life, since it can be seen as a system of activities through which an organism sustains itself and realizes its potentials.

Leontiev, in particular, studied the differences between animal and human activity. He noted that animals do engage in activities – hunting, nest-building, play, etc. – and even have social forms of activity – like the collective work of an ant colony or a wolf pack (Leontiev, 1981). However, animal activity is driven almost entirely by biologically given needs and environmental cues, whereas human activity is additionally mediated by culture, tools, and conscious goals. According to Leontiev, when we talk about an individual's mode of life, we mean something more than just a series of self-chosen acts; we refer to the entire organized system of activities in which that person participates, which is shaped by social relations and cultural artifacts (Nida, 2012). In other words, an individual's mode of life is not merely personal but interwoven with collective practices and historically accumulated ways of doing. For example, the mode of life of a dairy farmer includes not only the personal routines of waking early and milking cows, but also the use of specific tools and techniques – milking machines, breeding practices – adherence to social institutions – cooperatives, agricultural regulations – and integration in economic networks – markets, supply chains – a whole activity system that has evolved over time.

Yrjö Engeström, a contemporary activity theorist, has expanded this framework and explicitly linked it back to evolutionary levels of life activity. Engeström points out that human activity evolved out of animal activity, but underwent qualitative changes as humans developed tools, social rules, and division of labor (Engeström, 1987). He provides a model of an activity system as a complex triangle of relations between a subject – individual or group – an object – goal or motive of activity – mediating artifacts – tools, symbols – rules, community, and division of labor. From an activity theory viewpoint, we can define mode of life as the characteristic configuration of activity systems through which a being lives. Importantly, Engeström emphasizes a shift in human societies: "What used to be adaptive [animal] activity is transformed into consumption and subordinated to the three dominant aspects of human activity — production, distribution and exchange (or communication)" (Engeström, 1987).

This observation echoes Marx's critique, under complex economic systems, human activities – and thus, modes of life – become structured by roles of producer, consumer, distributor, etc., rather than just immediate adaptations. In effect, activity theory provides a bridge between biological life processes and socio-cultural processes. It acknowledges an ontological continuity – we are animals, after all, engaging in life-sustaining actions – and an ontological rupture – since human modes of life are also social projects mediated by ideas and culture.

With all of this in mind, the role of veterinarians and health professionals must be reconceptualized beyond technical expertise toward that of systemic mediators and transformative agents. Within CHAT, this shift entails recognizing that animal life – its movements, behaviors, and biological rhythms – is increasingly reorganized by human socio-economic systems, often at the cost of species-specific needs and ecological balance. As such, veterinarians bear the ethical and professional responsibility to critically interrogate how their interventions may reproduce or resist the commodification of life. This includes participating in the expansive transformation of existing activity systems – such as industrial animal production, urban pet economies, and wildlife management – toward configurations that are ethically defensible, eco- logically sustainable, and attuned to the relational integrity of human and non-human lives. Furthermore, by engaging in public dialogue, translating scientific knowledge into culturally grounded practices, and advocating for animal agency, veterinarians and health professionals can reframe their role as custodians not only of health, but of life itself – mediating between biological viability and social meaning in an increasingly technologized and market-driven world.

Thinkers like Anna Stetsenko and Igor Arievitch (Stetsenko & Arievitch, 2004), building on Vygotsky's legacy, further argue for a transformative understanding of activity: humans do not just adapt to a mode of life, we constantly co-create and change it in collaboration with others. Stetsenko proposes a "transformative activist stance," (Stetsenko, 2014) which posits that individual agency is realized through collective, object-oriented activity aimed at transforming reality (Stetsenko, 2011). Applying this to our topic: veterinarians or animal scientists are agents who, through their work – which make part in a variety of activities – can transform the mode of life of animals and also influence the mode of life of humans who depend on or co-exist with those animals. This transformation is relational and systemic; it is not the professionals acting alone, but within activity systems that include scientific tools, clients – farmers, pet owners – institutional rules – law, ethics – and a community – colleagues, and public health officials. For instance, consider veterinary epidemiologists working to eradicate a zoonotic disease like brucellosis in cattle: their activity involves laboratory diagnostics, field vaccination campaigns, community education, and policy coordination. Through this multi-layered activity, veterinarians contribute to changing the mode of life of cattle – they no longer harbor the disease; perhaps husbandry practices are altered to maintain disease-free status – and also the mode of life of farming communities – who will no longer suffer the disease's impacts and adopt new routines of reproductive practices and milk handling.

CHAT also underscores the relational ontology of living beings. Ian Burkitt, a sociologist influenced by relational perspectives, argues that even personal attributes like emotions are not just inside an individual but are relational practices embedded in a way of life (Burkitt, 2012).

"Feelings and emotions are to do with our relationships to other people and things within our lives," Burkitt writes, emphasizing that how we experience life is shaped by our interactions. Extending this idea, we can say that the well-being of animals – their emotional and physical health – is tied to their relationships – with conspecifics, with humans, with the habitat. Thus, a mode of life is inherently relational: it is not just an organism in isolation, but an organism-in-community. Modern ethology and animal behavior research confirm this – many social animals have rich emotional lives that depend on social bonds. Think of elephants that mourn or primates that groom each other for stress relief. When humans, such as veterinarians or animal caretakers, intervene, they become part of those animals' mode of life, for better or worse. In sum, activity theory contributes the insight that modes of life are constituted by organized activities and relationships. It provides a methodological blueprint for analyzing mode of life as a system – or systems – of activity that can change over time – developmentally or via intervention. It also aligns with Marxian views by recognizing that human modes of life involve additional layers of mediation – tools, symbols, institutions – that allow greater flexibility and responsibility in how we choose to live. This theoretical grounding sets the stage to discuss concrete ways in which veterinarians and animal scientists participate in and transform modes of life across species.

Finally, emerging from Michael Levin's framework (McMillen & Levin, 2024) of agentive evolution and collective intelligence, the concept of mode of life can be reimagined not merely as a description of species-typical ecological behavior or structural adaptation, but as a distributed, goal-directed pattern of existence enacted across biological, cognitive, and social systems. In this view, all living systems – from cells to organisms to societies – are intelligences negotiating problems of survival, coherence, and future-making through mechanisms of active inference and morphological computation. A mode of life, then, is not a fixed position on an evolutionary tree or a sociobiological script, but a multilevel intelligence-driven process of maintaining and transforming form and function in relation to a changing world. This perspective aligns with CHAT's focus on the mediated, systemic nature of human action, and it invites an ex- tension: living systems enact modes of life through agentive, relational, and meaning-oriented engagements with their environments.

Within this expanded view, veterinarians, health professionals, and researchers inherit a profound responsibility – not only to diagnose or manage life conditions, but to participate in and co-shape the trajectories of these distributed intelligences. Their interventions are no longer neutral applications of biomedical knowledge, but transformative inputs into com- plex, agentive systems. For instance, altering the gut microbiome of a livestock species or developing habitat enrichment protocols for captive wildlife involves influencing collective be- havioral and physiological intelligence toward more sustainable or ethical configurations. In Levin's terms, these professionals serve as collaborative partners in guiding morphogenetic fields and behavioral networks toward states of higher adaptability, flourishing, and coherence.

Moreover, these reframing charges veterinary and biomedical research with an ethical imperative: to support the emergence of novel, desirable modes of life – those that are not merely productive within human economic systems, but that respect the agentive capacities and relational needs of animals and humans alike. This includes cultivating environments that

allow for learning, exploring, affective bonding, and intelligent feedback at multiple scales – from the cellular to the societal. Health professionals, then, must see themselves as participants in life's dialogical unfolding, accountable not only to clinical outcomes, but to the broader co-evolutionary narrative of species, ecosystems, and civilizations. The challenge is no longer to preserve a "normal" mode of life, but to collaborate in its intelligent redefinition, guided by values of agency, dignity, and interdependence.

The concept of mode of life in biology and zoology

In biological and zoological sciences, the concept of mode of life refers to the characteristic way in which an organism lives and functions within its environment. It serves as a unifying concept that brings together diverse aspects of an organism's behavior**,** physiology, ecological interactions, and evolutionary history. Understanding a species' mode of life allows researchers to make sense of its organic resources, ecological roles, and its place within broader evolutionary lineages.

Behavioral dimensions

Central to an organism's mode of life are its behavioral adaptations – the strategies and actions that shape its interactions with the environment and with other organisms. These include foraging methods, mating behaviors, social structures, migratory patterns, territoriality, and circadian rhythms. Such behaviors are not static; they are shaped by evolutionary pressures and ecological contexts, contributing to an organism's fitness and survival.

Habitat and environmental context

Every species is adapted to a particular set of environmental conditions, and its mode of life reflects the habitat in which it thrives. Whether aquatic, terrestrial, arboreal, or subterranean, the environment exerts a profound influence on an organism's physiology and behavior. Factors such as temperature, humidity, light availability, and substrate type determine the constraints and possibilities for living organisms, guiding their spatial and temporal patterns of activity.

Dietary and trophic specializations

Feeding ecology constitutes a major component of an organism's mode of life. Organisms occupy various trophic levels – herbivores, carnivores, omnivores, detritivores, or specialists – and this dietary identity shapes their morphology and behavior. Traits such as dentition, digestive enzymes, foraging techniques, and even food storage behaviors, reveal the intimate connection between diet and life strategy.

Reproductive and developmental strategies

The manner in which organisms reproduce and ensure the survival of their offspring is also integral to their modes of life. Reproductive strategies range from r-selected species that produce many offspring with minimal investment, to K-selected species that invest heavily in fewer progeny. Mating systems – monogamy, polygyny, promiscuity – parental care, gestation periods, and dispersal mechanisms are all critical components that influence population dynamics and evolutionary success.

Survival mechanisms and anti-predator strategies

Survival within complex ecosystems often depends on an organism's capacity to avoid predation, compete effectively, and endure environmental challenges. Many species have evolved intricate survival strategies—camouflage, mimicry, toxin production, burrowing, or coordinated social behavior. Temporal patterns of activity, such as diurnally or nocturnality, also reflect embodied regulations aimed at maximizing resource use while minimizing risk.

Ecological roles and interactions

An organism's ecological niche – the functional role it plays within an ecosystem – is inseparable from its mode of life. Whether as a primary producer, pollinator, predator, decomposer, or keystone species, each organism contributes to and is shaped by the dynamic interplay of ecosystemic processes. The concept of mode of life captures both the constraints and the opportunities an organism navigates in forging its ecological role.

Evolutionary co-creation and phylogenetic context

Finally, the mode of life concept reflects a species' evolutionary history. Anatomical, physiological, and behavioral traits are shaped over time as they co-create their environment, and they are conserved or modified according to phylogenetic trajectories. Comparative studies of mode of life, across related species, often reveal both shared evolutionary heritage and purpose-driven differentiation according to their ecological specialization.

Integrative perspectives

Additionally, rather than isolating specific traits or behaviors, the mode of life concept provides a holistic perspective on how an organism survives, reproduces, and interacts within its world. It draws together strands from ethology, ecology, morphology, and evolution, offering a comprehensive lens through which to interpret the diversity of life forms and their strategies for persistence. Whether in paleontological reconstructions, eco- logical modeling, or evolutionary analyses, the mode of life remains a foundational concept for understanding the complexity and variability of living systems.

Modes of life across the phylogenetic scale

One advantage of the concept of mode of life is that it is applicable at different levels of biological complexity, from the simplest organisms to complex human societies. Let us briefly illustrate modes of life at various points on the phylogenetic scale – highlighting both continuity and change – before focusing on the human-animal interrelations.

Lower organisms

Even a bacterium has a mode of life. For example, Escherichia coli lives a particular mode of life largely defined by its environment: gut flora E. coli thrives in warm, nutrient-rich intestines – a commensal mode of life – but can also survive in water or soil for some time. Its mode of life includes how it obtains energy – heterotrophic consumption of nutrients – how it reproduces – cell division – and how it responds to environmental stimuli – moving up chemical gradients. While we would not attribute culture or "lifestyle" to a bacterium, we can

see a consistent pattern of life activity that lets it survive and propagate – its mode of life is essentially its ecological niche. Some bacteria have flexible modes of life, for example, switching between oxygen-rich and oxygen-poor environments, but those flexibilities are genetically encoded strategies, not individually learned habits.

Social invertebrates

Consider a bee in a honeybee colony. A honeybee's mode of life is highly social and cooperative. It has been born into a colony with a structured division of labor – workers, drones, and a queen – and its activities – foraging for nectar, feeding larvae, maintaining the hive – are driven by both instinct and social signals – pheromones, dances. The bee's mode of life is the colony life, which has evolved over millions of years. We might call this an instinctual mode of life – species-typical behavior patterns – but since it is common to all honeybees in that context, it is effectively their mode of life. If the environment changes – say a new predator or pesticide – bees have some capacity to adapt, that is, change foraging times or nectar sources, but largely within the fixed framework of being bees. There is no "lifestyle" choice for a worker bee – it cannot decide to live differently from the hive's mode of life. This illustrates Marx's point about the "fixity" of animals' mode of life (Stache, 2018). However, bees do have a form of communication and can learn – like adapting to new flower sources based on information from other bees – so their mode of life includes a bit of what we might call culture in a loose sense. Still, it is a far cry from human cultural malleability.

Social vertebrates

Moving up to mammals, say a pack of wolves or a troop of capuchin monkeys, we see increasingly complex modes of life. Wolves have social hierarchies, cooperative hunting, and even what could be described as traditions – pack-specific howling patterns or hunting territories. Capuchin monkeys use simple tools – like stones to crack nuts – and can have group-specific practices – some troops wash their food in rivers, others do not. These suggest rudimentary cultures – meaning their mode of life has some learned, not purely instinctual, components. Certain primates and cetaceans show various cultural behaviors that vary between groups and are transmitted by learning. For example, orcas have culturally learned hunting techniques that differ among pods – one pod's mode of life includes intentionally beaching themselves to catch seals in Patagonia, while another pod in the Western coast of the United States specializes in fish. This challenges a strict notion of animals' mode of life being completely fixed by species; rather, some higher animals have multiple potential modes of life depending on social learning. Nevertheless, these variations occur within an overall species-characteristic mode of life – all orcas are apex predators of the sea, highly social, with long childhood learning periods. There is no evidence that animals can voluntarily choose a fundamentally different way of living than what their biology and social setting afford – a wolf cannot decide to become a vegetarian or to live solo in a city or a capuchin monkey will not decide to start swimming and eating fish if its group does not.

Human beings

Humans represent the extreme end of flexibility in mode of life. Our species is characterized by extraordinary ecological and cultural adaptability – we live in deserts, rainforests, tundra,

and cities. We eat all manner of diets; we develop technologies that can utterly change our living conditions – from fire to the internet. The human mode of life is not singular: it is plural and dynamic. Anthropologically, one could speak of the hunter-gatherer mode of life, the agrarian-village mode of life, or the industrial-urban mode of life, as broad variations in how humans organize to meet their needs. And within each, there are many ways of life – different cultures – and lifestyles – different individual paths. What makes humans unique is that we consciously reflect on and debate our mode of life. We have philosophies and religions that prescribe ways of life, we implement laws and build institutions that enforce certain modes of life – e.g. the 9-to-5 workday, or monogamous marriage, or compulsory schooling – all components of a prevailing mode of life in many societies. Additionally, humans can radically alter another species' mode of life through domestication, captive management, and by the invasion and transformation of natural habitats. For instance, when wild wolves were domesticated into dogs, their mode of life shifted from autonomous pack predator to human-dependent companion – a profound transformation of a species' mode of life achieved through human intervention.

This cross-species perspective reinforces that mode of life is a biologically grounded concept – every living organism has one – but that its complexity and mutability increase with cognitive and social complexity. Humans not only adapt to modes of life but purposefully engineer new ones. This engineering can extend to other species, which is where veterinarians and animal scientists become crucial actors: they are at the forefront of how humans deliberately organize the lives of animals.

The entwinement of health and modes of life in veterinary context.

In the field of veterinary practice – as in human medicine – the relationship between health and modes of life is both intricate and foundational. A mode of life encompasses the dynamic configuration of material conditions, behavioral patterns, cognitive and affective dispositions, and relational structures through which living beings, human or animal, carry on their existence. When applied to health, this concept expands far beyond the mere absence of disease. It foregrounds the lived processes that condition the emergence of health or illness over time.

Traditionally discussed under the term "lifestyle", particularly in public health discourse, the mode of life includes a constellation of factors such as nutrition, physical activity, sleep, stress regulation, substance use, environmental exposure, and social relations. These factors not only influence an individual's risk of disease but generate the very trajectory of their physical, mental, and emotional development.

Nutrition and feeding

The dietary intake of an individual – whether human, companion animal, or livestock – constitutes one of the most direct material mediators of health. Balanced nutrition supports metabolic stability, immune competence, and cognitive function, while dietary imbalances are associated with the onset of chronic conditions such as cardiovascular diseases, metabolic syndromes, and certain cancers. In veterinary practice, feeding systems are not only biological interventions but cultural and economic constructs embedded in modes of production, consumption, and caregiving.

Movement and functional health

Physical activity supports muscular-skeletal integrity, cardiovascular efficiency, and psychological well-being. From working animals to pets, or from pastoral herds to industrial livestock systems, the conditions under which animals move – or are constrained – impact their health directly. Similarly, human modes of life shaped by sedentary labor, restricted mobility, or excessive exertion correlate with significant morbidity outcomes.

Sleep and biological rhythms

Restorative sleep is indispensable for homeostasis, neural repair, and behavioral regulation. Disruptions in circadian rhythms – common in intensive animal production systems or in humans subjected to shift work – can precipitate systemic dysregulation, including hormonal imbalances, impaired cognitive function, and increased vulnerability to disease.

Stress and adaptative capacity

Chronic stress, whether psychological in humans or physiological in animals, weakens systemic resilience. It elevates the risk of cardiovascular dysfunction, immunosuppression, and behavioral disorders. Veterinary care increasingly recognizes the importance of minimizing stress through environmental enrichment, humane handling, and species-appropriate housing – an acknowledgment that health is not merely anatomical but ecological and relational.

Substance use and toxins

In humans, the consumption of tobacco, alcohol, and narcotics presents clear health risks. In animals, exposure to environmental toxins, inappropriate pharmacological interventions, or contaminated feed similarly compromises health. Managing substance exposure – whether self-inflicted or imposed – is integral to fostering sustainable modes of life.

Environmental and occupational factors

The material environments in which beings live and work—whether polluted or clean, crowded or spacious, enriching or impoverishing—mediate their exposure to health risks and opportunities. Access to clean air, potable water, adequate space, and safe working conditions is essential for both human and animal well-being. Veterinary professionals must engage with these structural conditions, especially in agricultural or wildlife settings, where environmental health directly intersects with zoonotic risks and ecosystem stability.

Social and emotional embeddedness

Social relations profoundly affect physiological and psychological health. Loneliness and social isolation in humans are linked to heightened mortality risks, while social deprivation in animals leads to abnormal behaviors, weakened immunity, and poor development. Companion animals, production animals, and wildlife all require relational environments conducive to their species-specific social needs.

Labor and bodily wear

Modes of labor – both in human and animal lives – contribute to patterns of fatigue, injury, and systemic strain. Manual labor may cause musculoskeletal degeneration, while overly mechanized or cognitively intense labor leads to other forms of wear. Similarly, animals engaged in repetitive work or living under exploitative conditions manifest stress injuries and developmental disorders. Veterinary practice must assess occupational hazards in relation to long-term health and functionality.

Prevention and systemic care

Preventive health measures – such as vaccinations, regular check-ups, and screenings – are crucial in sustaining health across the lifespan. They form part of a proactive mode of life that emphasizes maintenance rather than crisis response. In veterinary settings, the institutionalization of preventive care marks a shift toward welfare-based and sustainable animal management practices.

Toward transformative veterinary practice

In summary, the concept of mode of life provides a powerful analytic and practical framework for understanding how health emerges, is sustained, or deteriorates across human and animal domains. Health is not merely a biological condition but the outcome of an integrated life process involving material arrangements, informational flows, and relational dynamics. For veterinarians, this implies a dual responsibility: to treat pathological conditions when they arise, and to help design, co-create, and improve the modes of life in which health can flourish – for animals, for people, and for the ecosystems they inhabit together.

Veterinarians and animal scientist as mode of life designers

Veterinarians and animal veterinarians and animal scientists, by the nature of their work, routinely engage with the fundamental conditions of life for animals. They are tasked not simply with treating individual ailments or improving productivity in isolation, but with altering the environments, behaviors, and relationships that constitute an animal's mode of life. In doing so, they also affect human modes of life, given the interdependence of humans and animals – in ecosystems, agriculture, and households. Here, we explore several professional branches – public health, animal pro- duction, and companion animal care – to illustrate the transformative and relational roles of these professionals.

Public and one health

The health of humans, animals, and ecosystems is deeply intertwined, an understanding crystallized in the One Health approach (Gibbs, 2014). Veterinarians working in public health address zoonoses – diseases transmitted between animals and humans – food safety, and environmental health. Their interventions often target the mode of life of pathogens and hosts alike. For example, eliminating rabies in Latin America required mass vaccination of dogs and wildlife and educating communities – essentially re-shaping the mode of life of the rabies virus – by denying it hosts – and the way of life of people and dogs – instilling new norms of vaccination and dog ownership. In the United States, the past century saw veterinary-led campaigns that eradicated diseases like rinderpest globally and brucellosis in many regions, changing the mode of life of cattle herds from one where those diseases were endemic – with all the associated

reproductive losses and trade restrictions – to one where they are absent. A One Health perspective explicitly frames these efforts as system changes. As Cristine Jost notes, "Veterinarians are naturally One Health practitioners… In remote pastoral lands, veterinarians are often the only service providers. We use our training to support the health of domestic and wild animals, which includes understanding the health of the ecosystem on which those animals depend and, subsequently, the health of people that depend on the animals." (Jost, 2024). This quote highlights how veterinarians in places like sub-Saharan Africa – and similarly in parts of Latin America – integrate across species: by sustaining livestock and wildlife, they sustain human livelihoods – modus vivendi of communities. When climate change or environmental disruption threatens a mode of life – e.g. drought forcing pastoralists and their herds into new patterns – veterinarians help adapt that mode of life – introducing drought-resistant livestock breeds, managing water points to prevent disease. The outcome is not just healthier animals but a stabilized mode of life for an entire human-animal-environment nexus. In urban America, veterinarians in public health roles ensure food supply safety – inspecting meat, dairy, preventing contamination – which is part of the invisible infrastructure supporting the modes of life of millions of consumers. In both American and Latin American contexts, we see veterinarians contributing to transformational public health initiatives: for instance, controlling foot-and-mouth disease in cattle across South America required coordinated veterinary science interventions that have enabled a more secure and productive mode of life for ranchers and affordable protein supply for populations.

Animal production and agriculture

Animal scientists and livestock veterinarians collaborate to design better modes of life for domesticated animals used in production – cattle, pigs, poultry. Historically, domestication itself was the first large-scale human project to alter animals' modes of life. Today, animal scientists continue this by improving housing, nutrition, breeding, and welfare. The goal is often two-fold: enhance the animal's **health** and **productivity**, and thereby benefit humans – farm profitability, food security. From an ethical viewpoint, there has been growing emphasis on quality of life for farm animals – essentially acknowledging that these animals have a mode of life that can be better or worse, not just productivity metrics. For example, researchers might discover that dairy cows are healthier and produce more milk when they have comfortable bedding and freedom to roam; implementing these findings means changing the mode of life of dairy cows from confinement on hard surfaces to free-stall barns with soft bedding and exercise yards. This is a deliberate design of mode of life, integrating physiological needs – rest for joints – behavioral needs – ability to walk and socialize – and environmental modification – barn architecture. Similarly, in Latin America, improvements in smallholder livestock management – such as integrated silvopastoral systems (Mendoza et al., 2024) where cattle graze among trees – are altering the mode of life of cattle to be more environmentally sustainable – providing shade, diverse forage – while improving production. Such systems were often developed by agricultural scientists who realized that replicating industrial Western models was not suitable for all contexts; instead, blending traditional practices with new science yielded a mode of life for animals that fits local ecological and cultural conditions.

Veterinarians in agriculture also mitigate the negative effects of intensive farming on mode of life. Industrial farm animals can have very restricted and stressful modes of life – e.g. battery-cage chickens or feedlot cattle. Veterinarians may advocate for or implement changes like enriched environments for pigs – to allow rooting behavior – or vaccination and biosecurity protocols that obviate the need for constant antibiotics. These improvements not only prevent disease but allow animals to engage in more natural behaviors, arguably approaching a health- ier mode of life. While economic pressures can constrain how far improvements go, there is a clear trend towards recognizing animal welfare as integral – for example, major food companies now audit farms for welfare conditions, effectively pushing producers to adjust the mode of life of their animals (Amos et al., 2020). The concept of mode of life helps here because it frames welfare not just as absence of cruelty but as the presence of positive life elements – social interaction, proper diet, low stress – a holistic state.

Companion animals and families

In the realm of pets and companion animals, veterinarians directly influence the daily lives of animals and their human families. Pets have a peculiar status: they often live almost as members of human families, sharing our homes and routines. Their mode of life is deeply interwoven with human lifestyle. A dog in a city apartment has a mode of life involving in-door living, leash walks, and interactions with human schedules and emotions; this is entirely different from the mode of life of its wolf ancestors. Small decisions made by veterinarians can change a pet's mode of life significantly. For example, a veterinarian might counsel a dog owner on weight management and exercise for the pet – essentially guiding the owner to alter the dog's lifestyle – diet and activity pattern – for better health. Beyond individual cases, veterinarians contribute to public education on responsible pet ownership – vaccination, socialization, nutrition – which over time elevates the mode of life of pets in society – fewer stray animals, longer lifespans, more integration into family life. In European society today, pets commonly receive advanced medical care – from dentistry to cancer treatment – and specialized services – training, physiotherapy (Springer et al., 2024) – evidencing a transformation in their mode of life to one of greater care and longevity. In Latin America, attitudes toward companion animals vary, but many countries have seen a rise in treating pets as family and an accompanying growth in veterinary services (Mota-Rojas et al., 2023; Springer et al., 2024). This has public health implications too – e.g. better cared-for dogs mean less roaming and biting, reducing rabies risk. Psychologically and socially, pets provide comfort and companionship; vets thus indirectly support human mental health by keeping those human-animal bonds intact and healthy. One could say veterinarians are specialists in interspecies relationality – they facilitate harmonious living between humans and animals. When a vet helps a family address a cat's destructive scratching by recommending scratching posts and behavior modification, that preserves the relationship and ensures the cat's natural behaviors are channeled acceptably. This minor example shows how vets mediate between an animal's innate mode of life – e.g. cats need to scratch to maintain claws and mark territory – and human domestic life, crafting a situation where both can coexist. The result is a transformed mode of life for the animal – the indoor cat is accommodated with environmental enrichment – and for the family – who adapt their home.

Wildlife and conservation

Although not always highlighted, veterinarians, especially wildlife veterinarians and conservation biologists, also work on arranging modes of life for wild animals in human-affected landscapes. In Latin America, for instance, conservation projects for species like the jaguar (World Wildlife Fund, 2020) involve veterinarians for health monitoring, rehabilitation, or reintroduction. These efforts often try to maintain or restore an animal's natural mode of life. In some cases, we even create new modes of life for conservation purposes – such as captive colonies of endangered frogs kept disease-free under veterinary care (Murray et al., 2011). These scenarios raise ethical and philosophical questions: What is the authentic mode of life of an animal – is a frog living in a zoo under vet care leading a meaningful frog life or just a bare existence? Such dilemmas echo concerns from Marxian humanism about alienation: an animal can arguably be alienated from its species-being if its mode of life is too constrained – a tiger pacing in a small zoo cage is a stark example (Stache, 2018).

Across all these domains, veterinarians and animal scientists serve as mediators and negotiators of life. They use scientific knowledge to propose changes that will benefit animals and, by extension, humans and ecosystems. Their role is inherently relational: they must balance the needs of the animal, the owner or community, and the broader public or environ- mental good. This mirrors Engeström's activity system idea – the vet is at the intersection of multiple nodes – animal, human, tools, rules, community. It also resonates with Gramsci's notion of intellectuals who help society move toward a new equilibrium; veterinarians and animal experts can be seen as organic intellectuals in the realm of human-animal interactions, translating scientific and ethical developments into practical changes in how we all live.

Mode of life: an integrative lens for health and society

Having traversed theory and practice, we circle back to the central claim: mode of life is a concept that integrates material exchanges, environmental mediation, sociobiological interactions, and institutional infrastructures in a way that neither "way of life" nor "lifestyle" fully capture. Let's unpack this integration with an emphasis on American and Latin American contexts:

Material exchanges

Mode of life directs attention to how living beings exchange matter and energy with their environment – food, water, oxygen, waste – and with each other – e.g. predator-prey, symbiosis, or in human terms, economic exchange of goods. In subsistence farming the mode of life involves a cycle of material exchanges: crops and livestock feed the family; the family's labor and care sustain the animals; animal manure fertilizes fields; surplus is sold at market for other goods. A veterinarian's intervention – say, introducing a new feed supplement or parasite control – alters these material exchanges – healthier animals convert feed more efficiently, yielding more milk or meat, improving family nutrition and income. Thus, mode of life encompasses the metabolic dimension of life at individual and community level. "Lifestyle" medicine might tell a person to eat healthier, but "mode of life" public health looks at whether healthy food is materially available and culturally accepted – a broader view. In American cities, issues like obesity or diabetes are often framed as lifestyle problems, but they are also mode-of-life problems: the food system – material environment – and urban design –

opportunities for exercise – configure a default mode of life that may promote sedentary behavior and high-calorie diets. A purely lifestyle approach would focus on individual choices; a mode-of-life approach asks how to transform the urban environment and socio-economic conditions – food deserts, work schedules – that predispose people – and even their pets, who often mirror human activity levels – to unhealthy patterns.

Environmental mediation

Every mode of life is mediated by the environment, and conversely, living beings modify their environments – what ecology calls niche construction. Veterinarians often deal with environmental mediation – from advising how to build a safe shelter for horses, micro-environment, to tackling climate change impacts on disease patterns, macro-environment. A mode of life approach ensures we consider all elements involved in environmental threats. In Latin America, deforestation has brought humans into closer contact with wildlife, altering modes of life on both sides and sometimes leading to disease spillover (National Geographic, 2019). Solutions require rethinking land use – an institutional and political challenge – and sometimes creating buffer zones – essentially redefining how human and animal modes of life intersect spatially.

This broad, systemic thinking is exactly what the concept of mode of life encapsulates and what experts must engage with.

The dialectic of biology, society, and veterinary practice

The deployment of the concept of mode of life demands that we conceive living beings not merely as biological entities but as participants in historically constituted systems of social relations and productive activities. From a Marxist and activity-theoretical standpoint, life itself is always already mediated by labor, tools, and collective organization. Human beings, like certain social animals, are situated within dynamic totalities where biological necessities – such as nutrition, health, reproduction – are not satisfied directly, but through socially organized practices that are historically specific. Humans, as biological organisms, follow physiologies, consume diets, and catch diseases; yet their very means of reproducing life – through work, language, technology, and institutions – constitute a qualitatively distinct social metabolism with nature (Marx & Engels, 1970). Similarly, other animals, especially social species, manifest modes of life where biological imperatives are mediated by social structures – whether the hierarchy of a herd, the bonds of a pack, or the reciprocal grooming behaviors of primates.

The mode of life, therefore, forces a dual analysis: How do social structures – such as hu- man class divisions or animal group hierarchies – mediate, amplify, or distort the fulfillment of biological needs? How does the historically specific organization of activities enhance or undermine the conditions necessary for health and flourishing? In veterinary epidemiology, for example, disease outbreaks cannot be fully understood or controlled solely through biological measures such as vaccines and biosecurity protocols. Effective intervention demands an analysis of the social activity systems within which animals and humans are embedded (Scarpino et al., 2021). Farmers' behaviors, shaped by economic pressures, institutional norms, and knowledge infrastructures, critically determine the success or failure of bio- logical interventions. Thus, epidemiological work becomes not simply a biological act but a form of praxis – a conscious effort to reshape the material and social conditions underpinning health.

Within the intimate domain of family life, a pet's well-being is likewise a function of social relations. The owner's income – mediating access to quality food, housing, and veterinary care – and knowledge practices – shaped by educational systems and cultural norms – directly condition the animal's biological outcomes. The improvement of an animal's mode of life, therefore, often entails transforming the human activity systems that surround it (Butterworth et al., 2020; Lima et al., 2020): educating, organizing, and empowering human actors to act differently within their material conditions.

An illustrative case can be found in the struggle for animal welfare reforms in Mexican zoos and aquariums. It was not sufficient to establish scientifically that dolphins suffer in small, barren tanks – a fact known biologically for decades. Real change emerged only through shifts in social consciousness, driven by activism, media exposure, and legal reform—collective social activity that reshaped institutional policies and ultimately transformed the conditions of dolphin life (Green, 2017; Mexico News Daily, 2022; Whale and Dolphin Conservation, 2021). Here, the biological truth of suffering became an agent of historical activity, catalyzing a movement that altered both social relations and material practices.

The insights of Ian Burkitt are pertinent here: emotions, health, and well-being are not sim- ply private states but relational productions, arising within the material and symbolic exchanges between subjects. Human-animal relations, shaped by affection, exploitation, companionship, or neglect, become sites where modes of life are materially and emotionally constituted. From this perspective, the veterinarian is not merely a technician managing isolated organisms, but a participant in the collective activity of transforming modes of life—a practitioner situated at the intersection of biology, labor, society, and historical development. To heal a body, one must often engage in the more arduous task of recon- structing the activity systems within which that body lives and labors take place (Burkitt, 2012).

Institutional infrastructures

Modes of life are supported – or hindered – by institutions – laws, economies, healthcare systems, educational systems. In the U.S., the mode of life for most pets now includes regular vet checkups, which is supported by a vast infrastructure of veterinary clinics, pharmaceutical supply chains, and pet insurance companies (American Veterinary Medical Association, 2024; Grand View Research, 2024; MarketWatch, 2025). In rural Latin America, the mode of life for small farmers and their animals can be heavily influenced by whether government agricultural extension and veterinary services reach their area (Palomares Velosa et al., 2022; Zamora et al., 2017). If a region lacks veterinary infrastructure, farmers might be locked in a mode of life of recurrent animal disease outbreaks and low productivity. Introducing a sustained veterinary presence – perhaps via a development program or a social enterprise – can uplift that whole community's mode of life – healthier animals, more stable income, less risk of zoonotic disease for people. In a sense, veterinarians and animal scientists often act as institutional agents: they implement public policies – like vaccination campaigns – contribute to regulations – setting animal welfare standards, advising on food safety rules – and sometimes help build local institutions – training paraveterinarians, establishing community animal health clinics. These institutional roles illustrate how a mode of life extends into governance and collective decision-making. Gramsci's idea that a mode of life is tied to hegemonic projects (Gramsci, 1971) is

apt here: for instance, the "American way of life" with its high pet ownership and treatment will be supported by an ideological consensus that pets are family – something promoted by media, veterinary associations, and legal changes – such as felony animal cruelty laws. In contrast, where institutions treat animals purely as property or tools, the mode of life for those animals – and the humans interacting with them – will be different. Changing laws to recognize animal sentience, as some countries are beginning to do, could be seen as shifting the institutional backing of a mode of life toward greater compassion.

Cultural practices and interspecies relationality

Finally, the concept of mode of life inherently includes culture – not just human culture, but what we might call interspecies culture: the accumulated practices of humans and animals living together. In Latin America, there are rich cultural traditions involving animals – from Andean communities and their llamas to Amazonian indigenous relationships with forest creatures. These cultures hold knowledge about coexisting with animals that reflect modes of life adapted to local ecologies. Modern science can learn from and work with these practices. For example, pastoralists in the high Andes have traditional rotational grazing that avoids overuse of pastures – a practice that sustains the mode of life of both grasslands and live- stock. Animal scientists partnering with such communities might integrate modern veterinary care with respect for these practices, thus improving animal health without undermining the cultural fabric. Conversely, ignoring cultural context can doom interventions – a vaccination campaign might fail if it doesn't account for local mistrust or if it conflicts with a festival when animals are taken on journeys, etc. Culturally sensitive approaches effectively mean adapting the envisioned mode-of-life improvements to the existing way of life of the community. In the U.S., culture around animals is also diverse – compare a Midwestern farm family's outlook on barn cats – valuable pest control, semi-feral – to an urban millennial's view of a housecat – a pampered indoor companion. A cat's mode of life in these two scenarios is drastically different, and a vet working in each context will approach things differently – the farm cat might get rabies and flea treatments but not spay/neuter unless offered by a free clinic; the housecat gets neutered, microchipped, and fed specialized diets. There is no one-size-fits-all – and that is exactly why mode of life as a concept is useful, because it encourages tailoring solutions to the full context of life, not just applying an abstract "best practice."

Conclusion

"Mode of life" is more than a phrase – it is a paradigm for understanding life in a comprehensive way that bridges biology and culture, individual and society, humans and other animals. By contrast, "way of life" often remains a descriptive term for cultural habits, and "lifestyle" usually isolates individual choices divorced from structural context. This article has argued that mode of life, grounded in Marxian and activity-theoretical thought, offers a powerful lens, especially when applied to the work of veterinarians and animal scientists. These professionals emerge not just as clinicians or technologists, but as custodians of life-modes: guardians and designers of the living conditions of animals (and by extension, humans). Whether it's controlling a livestock disease, advising a pet owner, or conserving an endangered species, their interventions exemplify how deliberate action can improve a mode of life – making it healthier, more sustainable, and more attuned to the needs of all participants in the system.

In American and Latin American contexts alike, the transformative impact of veterinary science is evident. From rural villages in the Andes to suburban homes in the U.S., better modes of life for animals correlate with better outcomes for people and nature. Our analysis underscores that improving health and well-being is rarely just about treating one organism; it's about reshaping relationships and activities – in short, upgrading the mode of life. This might mean creating new norms of care, new institutional supports, or new technical solutions, but always with an eye on the whole configuration of living. Activity theory reminds us that such change is a collective endeavor: veterinarians and scientists work with communities, governments, and the animals themselves (who often "tell" us what they need through their behavior or health data) in a cycle of expansive learning and adaptation.

If an animal or a person has a poor mode of life – say, confined, stressed, and unfulfilled – then any compassionate or justice-oriented profession should seek to change that. This elevates the role of veterinarians and animal scientists to one akin to social reformers in their domain. They are not only solving technical problems but contributing to what Gramsci would call a new "historically specific socio-cultural regime" (Antonio & Bonanno, 2000), in which humans and animals can thrive together. In a time of global challenges – climate change, emerging diseases, factory farming debates, biodiversity loss – the concept of mode of life becomes especially salient. It pushes us to ask: How can we collectively live better in relation to each other and our environment? And it highlights that vets and animal scientists have crucial knowledge and skills to guide such improvements at the interfaces of species.

In closing, the stark differentiation of mode of life from way of life and lifestyle is not just theoretical hair-splitting; it has practical consequences for research, policy, and daily action. A mode-of-life perspective demands an integrative approach to health and well-being. It prompts interdisciplinary collaboration – as One Health exemplifies – uniting veterinarians, physicians, ecologists, social scientists, and communities toward holistic solutions. It also guards against reductionism: we cannot reduce health to personal lifestyle nor isolate animal care from human contexts. Mode of life is a reminder that life is a web of interdependency. Veterinarians and animal scientists, situated at key nodes of this web, are indispensable allies in the project of understanding and transforming modes of life towards greater flourishing for all – animals and humans, present and future.

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Tzitzi de la C: Conceptualization, Investigation, Supervision, validation, Visualization

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