

REVIEW ARTICLE

Connecting Humans and Non-humans: A Novel Approach to Disease Management

Katie LaBrie

Department of Anthropology, College of Arts and Science, University of Saskatchewan

ABSTRACT

A recent trend in public health campaigns has been to include non-human health data to capture all relevant variables related to human well-being. This specific approach is the foundation of the World Health Organization restructuring in the early 2000s as they adopted the “one health” framework. Politically, this movement is influential and draws significant health funding globally. “One health” is characterized by a multi-disciplinary collaboration between medical, veterinary, and health sciences. Similarly, the post-human turn in medical anthropology recognizes that viewing the non-human contributions to the cultural construction of health as symbolic does not adequately address how non-humans and nature independently contribute to human health realities. Ethnographic studies of the non-human perspective shed light on how humans are not the only beings that influence culturally constructed reality, nor are they exclusively in control of cultural phenomena. Theoretical trends in anthropology and public health seemingly converge; however, an artificial academic barrier between the sciences and social sciences remains. As these two disciplines are coming closer together through their data, breaking down structural barriers that prevent the successful integration of knowledge has potential to improve human health outcomes. Methodological concessions will have to occur on all sides to make the inclusion of the social sciences in public health possible. Doing so can bring academia closer to a comprehensive scientific understanding of human health.

Keywords: Public health, One Health, Ethnography, Multi-disciplinary, Posthumanism, Cultural construction

INTRODUCTION

Public health, the field concerned with developing and administering science-based programs to improve health outcomes of populations (APHA 2023), emerged from the early successes of large international organizations in the mid-twentieth century. The health of millions of people benefited from the coordination of scientific and administrative expertise in programs that achieved feats like the eradication of smallpox in 1977 (Lock and Nguyen 2018, 87). Today, biomedical expertise is dispensed to millions

of people through non-governmental organizations (NGO’s) in a coordinated effort to manage infectious and contagious diseases.

Most recently, the conditions brought on by globalization and climate change, also known as the Anthropocene, have radically altered the spread of infectious and contagious diseases and subsequently the approach chosen to address them (Brown and Nading 2019, 9; Keck and Lynteris 2018, 23; Wolf 2015, 6). In recognition of the interconnections between human health, the environment, and other living creatures, a new multi-disciplinary

framework has surfaced connecting biomedicine, veterinary medicine, and the environmental sciences in a coordinated effort to fight the spread of disease. The “one health” paradigm is an influential academic movement which has shaped and provided the title for the World Health Organization’s (WHO) “One Health” initiative that seeks to encourage “multi-sectoral approaches to reduce health threats at the human-animal-ecosystem interface” (WHO 2017).

While the social sciences have had some involvement in the “one health” movement, if contemporary anthropological theory were more strongly leveraged, it could make these programs more effective (Steffens and Finnis 2022; Wolf 2015, 6). Recent developments in environmental anthropology have influenced medical anthropologists to reconceptualize non-humans as more than just existing in the background. Realizing that privileging the human perspective when trying to understand human realities has created certain biases, the post-human turn in anthropology encourages a methodological dismantling of human-centered research to convey the human condition more accurately (Smart and Smart 2017). Post-humanist anthropology expands what is known of the culture concept to encompass not just humans, but plants, animals, and microorganisms: “To be posthumanist, anthropology must reject anthropocentrism, the assumption that everything revolves around us humans” (Smart and Smart 2017, 4).

Posthumanism posits that, following the postmodern/poststructuralist turn in anthropology, cultural studies have been overly concerned with humanism and have excluded perspectives essential to understanding how reality is constructed (Smart and Smart 2017, 52). Investigating how non-human actors participate in creating the human experience has changed how anthropologists perceive culture altogether and who is capable of effecting cultural change

(Rock 2017; Strang 2017). For example, Clifford Geertz’s famous Balinese cockfight (Geertz 1973) is gaining new criticism as scholars wonder why the positioning of the bird within the larger Balinese social, economic, and ecological structure is not discussed (Singer 2014, 1290; Smart and Smart 2017, 55). Expanding beyond regarding non-humans as symbolic has deepened what is understood of the human experience.

The shape of medical anthropology was significantly impacted in the 1990s when the discipline shifted away from studies strongly grounded in biomedical assumptions toward studying how the body itself is socially constructed at the individual, social, and political levels, a paradigm known as critical medical anthropology (Lock & Scheper-Hughes 1996, 44-45). Incorporating post-humanist theory into their practice, critical medical anthropology has been reshaped once again through an understanding of how the body is also culturally constructed through engagements with nature (Brown and Nading 2019, 6-11).

Understanding how analyses of the cultural construction of health can improve global health initiatives requires an understanding of where it fits into the broader discourse of health management. After a detailed discussion of the foundations and scope of the “one health” movement and post-human anthropological approaches, I will explore insights that anthropological perspectives can impart to the health sciences. I will then detail the advantages and obstacles to incorporating ethnographical methods into public health programming. In doing so, I argue that incorporating ethnography into public health campaigns is an effective strategy for managing the spread of disease by providing nuanced and culturally contextualized accounts of how humans are entangled with their surroundings instead of framing humans as being in control of them.

CULTURE AS A BIOLOGICAL VARIABLE

The shape of contemporary disease prevention programs and their limitations must be understood through how they came to be. Historically, critical thinking was thought to elevate humans above their non-human counterparts, creating a theoretical divide between humans and nature and placing humans conceptually in a position to maintain and manipulate planet Earth to suit human needs (Smart and Smart 2017, 45). More recent technological advancements produced from logical reasoning have reinforced scientific authority in health management. Inventions such as the microscope and antibiotics led many to believe that overcoming infectious threats was a matter of technology and proper organization. In the mid-twentieth century, the need for transnational cooperation when fighting infectious disease led to the inception of large international administrative bodies like the WHO to coordinate global efforts in addressing threats to human health (Lock and Nguyen 2018, 87; Wolf 2015, 7).

Despite biomedical technology and the influx of significant public and private funding into health administration, threats presented by emerging disease have changed in shape and increased in frequency, placing zoonotic infections, pathogens transmissible between species, at the forefront of global health discussions. A 2001 study of 1415 species of infectious agents found 61% of them to be zoonotic in origin and that zoonotic species are significantly more likely to present risks to human health (Taylor et al. 2001, 986). Often associated with the possibility of societal collapse, emerging zoonotic threats have firmly gripped the attention of scientists and politicians (Keck and Lynteris 2018, 23). Acknowledging that the disconnect between veterinary medicine and biomedicine obscured crucial connections between human and animal health, the “one health” paradigm

emerged that considers both in tandem (Brown and Nading 2019, 12). “One health” frameworks have been adopted by a broad range of disciplines “including those in comparative medicine, public health, the environmental sciences, biochemistry, nursing science, and plant pathology...” (Wolf 2015, 5-6).

Solutions implemented under the banner of “one health” are global in scope and strive to find generalizable solutions that are flexible enough to adjust to the cultural diversity in the different areas where they are implemented (Brown and Nading 2019, 9). While recognizing the influence of cultural phenomena on their programming, “one health” and public health research treat culture as an imagined entity that can be altered to create desirable outcomes (Smart and Smart 2017, 46). This approach results in social phenomena being operationalized as a biological variable into educational programming designed to eliminate what are thought to be unsafe conditions (Wolf 2015, 5). Social factors like intersectionality and poverty appear with increasing frequency within disease management studies (Brown and Nading 2019, 11). Cultural variables unquestionably affect health, making them attractive to public health professionals as a topic of study. One such exemplary study of this nature was conducted by Lee and colleagues (2021) who tried to determine cultural traits that made Chinese-Canadians more amenable to the imposition of COVID-19 restrictions. The definition used to identify “Chinese-Canadians” does not take into account the significant degree of cultural variability found in China and focuses solely on Torontonians. Through studies such as this, a poorly defined population becomes cemented in academic material, entrenching cultural misunderstanding into the academic record and subsequently health care encounters. While acknowledging cultural influences on health outcomes, the deeper

workings of culture remain unexplored in this and other studies.

Another example that fails to explore the full spectrum of culture's influence on health outcomes is an article by van Helden and colleagues (2003). This piece is concerned with drawing attention to the interconnections between human, environmental, and animal health in an attempt to draw attention to the "one health" movement (Van Helden et al. 2003, 497). Within the article, intervening between humans and domestic cats is used as an example of an action with the potential to significantly reduce incidences of human infection (Van Helden et al. 2003, 499). The potential social implications of such an action are only briefly mentioned: "The social aspect requires delicate handling in this era of social alienation, in which many humans are emotionally dependant on...cats" (Van Helden et. al 2003, 499). While this inclusion identified complex social concepts as being relevant to the discussion, they are incorporated superficially and without elaboration. The social complexities of cat ownership go far beyond emotional dependency and failing to account for this has the potential to create a blind spot that could affect the efficacy of any plan to separate pets from owners.

The turn in the health sciences towards acknowledging the impact of social relationships reinforces the notion that disease must be understood from within its social context (Rock et al. 2009, 992; Wolf 2015, 7). The artificial barriers between natural and social sciences reifies the erroneous idea that anthropologists work with symbolic and interpretative matters while the sciences observe reality (Smart and Smart 2017, 46). The multi-disciplinary approach that is championed by the "one health" movement could be made more effective if the social sciences were included more significantly in this collaborative approach (Steffens and Finnis 2022). It is not a coincidence that the

contemporary state of disease on planet Earth has led anthropologists to explore in depth the same cultural elements that are surfacing within public health studies. Anthropologists themselves have only recently begun to understand in depth how human worlds are co-created with non-humans and how potentially disastrous species separation can be.

SEEING HUMANITY THROUGH NON-HUMAN EYES

Historically, anthropology has been conceptually constrained because of its intellectual origins. Early anthropological work characterized culture as being oppositional to natural phenomena, accepting the artificially created division between nature and culture (Rock 2017, 360). Being cultural, and thus being human, became defined by an ability to separate oneself from natural elements (Sablehoff 2001, 45; Singer 2014, 1283; Strang 2017, 267). At this juncture, theorists favoured scientific explanations for the natural world. For example, animism, one of anthropology's earliest concepts, claimed that societies who ascribed agency to natural entities like trees and mountains were committing an intellectual error because of their child-like mentality (Bird-David 1999; S68). Even as anthropologists progressed towards a genuine understanding non-western ontology, non-humans remained treated as objects and were discussed in terms of their symbolic meaning *for humans* as opposed to their consequential influence over human life (Smart and Smart 2017, 52). More recently, Phillippe Descola (2013) has revised animism and re-introduced it as "*New Animism*" so as to acknowledge that the conceptual inclusion of non-humans in social relations reflects a logical understanding of the entanglements between humans and nature; a logic that is now beginning to be recognized in academia (Sullivan 2017, 159). The turn to post-humanism in environmental anthropology has signaled medical anthropologists that the

environment must be considered an active participant in the creation of health realities and not merely as context (Rock 2017, 358).

Post-humanist theory emerged as environmental anthropologists realized that an exclusively human perspective led to significant gaps in their theories (Smart and Smart 2017, 27). Annabelle Sablehoff's (2001) *Reordering the Natural World: Humans and Animals in the City* is one such piece that challenges human supremacy in the world order. Knowing what is at stake when humans are ideologically removed from their environment requires an acknowledgement of how plants and animals have co-created the world as we know it (Smart and Smart 2017, 3). Including the non-human perspective in anthropological studies is not merely an ethical consideration, it is a necessary tool to dismantle artificial divisions that obscure relational entanglements between humans and non-humans (Smart and Smart 2017, 11; Strang 2017, 259; Sullivan 2017). Anthropology has an important role to play in moulding how humans perceive themselves relative to other animals, plants, and landscapes on this planet (Sablehoff 2001: xi). Posthumanism and the perspective that it imparts allows for the appropriate language to emerge which can adequately articulate the shared global citizenship between humans and what is considered to be "natural" (Sablehoff 2001: 139-161).

The non-human perspective articulated by environmental anthropologists has been useful for critical medical anthropologists who have traditionally sought to make connections between individual, social, and political influences, and the condition of the human body (Lock and Scheper-Hughes 1996). Particularly when studying disease, an understanding of inter-species relationships is necessary to adequately account for how disease presents in humans (Singer 2014, 1283). The biological properties of pathogens do not sufficiently describe why they are

dangerous for humans; it is precisely because of how humans are socially connected to non-humans that they pose a threat (Keck and Lynteris 2018, 23; Rock et al. 2009, 992). Post-humanism is a broad concept that can be applied to many social subjects. Focusing on the human political and economic entanglements with non-humans, how humans have avoided taking responsibility for disease emergence, and the material effect of "othering" in public health initiatives, the following section will outline cultural considerations that impact disease management.

INTER-SPECIES ENTANGLEMENTS

Public health initiatives often fail when they are implemented in diverse cultural contexts that are shaped by different values than those that inform public health policy (Brown and Nading 2019, 9). Hyper-focused on the goal of separating human bodies from potentially dangerous pathogens, global health programming often fails to account for the culturally diverse possibilities for social connections between humans and non-humans (Brown and Nading 2019, 6; Rock et al. 2009, 993). The preventative nature of global health strategies requires an identification of social entanglements between humans and non-humans, but the natural sciences lack the methodologies to analyze them (Wolf 2015, 7). Regarding inter-species relationships as biological phenomena conceals crucial social considerations that must be understood in context in order to understand how they will impact culturally constructed realities. The following examples are used to illustrate some of the social complexities relevant to disease prevention strategies.

The increasing risk of potential infectious threats have given unprecedented authority to governing bodies to dictate and codify acceptable human and non-human interactions within the food production sector (Smart and Smart 2017, 32). In Vietnam, for example, small scale chicken farming which

accounts for almost two-thirds of the poultry production in the country was identified as using dangerous practices during the 2003 H5N1 (avian influenza) outbreak (Porter 2013, 66-67). Requirements such as gated pens and foot baths, essentially features of large-scale commercial operations, became legal requirements of chicken farming (Porter 2013, 78). Similarly, in Alberta during the bovine spongiform encephalopathy (BSE) crisis, mitigation strategies for managing the spread of BSE resulted in the sanctioning of significant capital investment to be permitted to raise cattle (Smart and Smart 2017, 40). In both cases, the requirements favoured large-scale commercial operations. The mandatory imposition of regulations that are financially unfeasible for local, small-scale producers leave many in the position of having to defy recommended protocols to make ends meet (Porter 2013, 79; Smart and Smart 2017, 40).

Top-down health programming does not only favour specific economic structures that may conflict with local perspectives, but also social structures. Rabies prevention in the Canadian Arctic has not been successful because of a limited understanding of the position of the dog within Inuit culture (Levesque 2018, 207). By relying on a western understanding of human-dog relationships, the Canadian Inuit Dog is systematically treated like a wild animal, disregarding the how the Inuit identity is formed collectively between a dog and its master, even if it is a free-ranging animal (Levesque 2018, 200). Actions taken without considering how dogs are conceptually related to their owners have traumatized the Inuit people who perceive dogs as family members and see rabies programs as an attack against their kin structure (Levesque 2018, 202). Similarly, mosquito management strategies are socially complex and their efficacy can be compromised if cultural nuance is overlooked. In Côte d'Ivoire, Granado and colleagues (2011) found that malaria interventions which

focused on educating the public to use simple, cost-effective technology such as bed nets and mosquito coils were unsuccessful because they did not consider how malaria was culturally constructed among the local population. Malaria, or "Palu" as it is understood by the participants, is thought to be endemic, an unavoidable part of life, conceptually minimizing the role of the mosquito in transmitting the sickness and making mosquito prevention a low priority for those with limited resources (Granado et al. 2011, 115). It is not my intention to argue that disease prevention is misguided or should be halted in any way. I do, however, suggest that a deeper understanding of the cultural construction of existing inter-species relationships should be considered if these strategies are to be effective and minimally disruptive to broader social structures in affected areas. Without understanding the forces that sustain inter-species relationships, disrupting them will result in non-compliance when individuals are forced to meet their needs that are not recognized by public health officials.

Limited engagement with social concepts in the "one health" framework can also obscure the role played by western society in shaping how infectious disease materializes. In the H5N1 and BSE outbreaks, these pathogens were made more dangerous through large-scale commercial farming practices like the overcrowding of chicken coops and feeding cattle ground bovine bonemeal (Singer 2014, 1293; Smart and Smart 2017, 38). Human activities such as tourism also create unique infectious conditions for animals. Working in Laos, Nicolas Lainé (2018) identifies how human tuberculosis is being transmitted to captive elephants through encounter tours and is making the elephants sick (158-159). Disregarding how accepted western practices contribute to the spread of disease will only ensure that a comprehensive understanding of the properties of pathogens is

never achieved and that possible solutions to the spread of infectious matter are overlooked.

The authority given to public health initiatives to determine “acceptable” human and non-human interaction has caused an othering of people, non-humans, and landscapes based on western definitions of normalcy. The premise that healthy humans should be separated from nature means that those who insist on maintaining inter-species relationships can be characterized as lacking education (van Helden et al. 2009, 500). While involved in the formation of economic and social realities, non-humans have no legal rights but are ascribed value based on how they fit within the dominant political narrative, legally denying the citizenship that they contribute in practice (Sablehoff 2001, 114-118; Strang 2017). Pets in North American settings are formally incorporated into human kin structures by way of titles such as “fur-babies” and borrow many cultural features from their owners such as socio-economic status, social media accounts, and designer wardrobes. Meanwhile, a cognitive divide exists between pets and commodified agricultural species such as birds and cows whose large-scale exterminations are considered justifiable to protect human lives (Porter 2013; Rock 2017, 359; Singer 2014, 1287; Smart and Smart 2017, 59; Sullivan 2017, 158). Landscapes that possess similar biological properties are represented in different ways; the Amazon is designated a “rainforest” with limitless botanical benefits for humans while Africa is viewed as having “jungles” that present dangerous threats such as Ebola and AIDS (Zerner 2005). Within the discourse on health management, characterizations of people, non-humans, and landscapes are not necessarily based on biological fact, but instead have been shaped by the culture of those implementing solutions. The privileging of biologically based research which centers on replicable and generalizable results by the health sciences while developing

health strategies obscures the culturally constructed nature of disease prevention and limits the success of health programming. Ethnographic studies can potentially contribute a nuanced understanding of the social phenomena that make only a fleeting appearance within many public health studies (Wolf 2015, 8).

INTRODUCING ETHNOGRAPHICAL EXPERTISE TO THE HEALTH SCIENCES

If anthropological work is to be more impactful in health programming, certain tensions between the needs of the health sciences and the realities of ethnographic research must be reconciled. Ethnography is a qualitative methodology based on immersed experiences with the participants or in the field of study (Harrison 2018, 6). Traditionally, this involves extended periods of conducting various types of interviews and participant observation. The immersive approach of ethnography allows for data to be understood from within its social context. While ethnographical methods are drawn upon by many social scientists as well as some in the natural sciences, ethnography was developed by anthropologists and remains the dominant methodology that guides cultural anthropologists today (Harrison 2018, 8-15). If the full value of ethnography is to be integrated into the health sciences, academic divisions between the sciences and humanities need to be broken down.

Human exceptionalism within the health sciences must be addressed. Understanding consequences for humans when intervening in natural processes requires more than just a human perspective (Smart and Smart 2017, 43). Multi-species ethnography has the potential to conceptually collapse the nature/culture dichotomy by illuminating the ways that non-humans contribute to creating human realities (Brown and Nading 2019, 16). This method “centers on how a multitude of organisms’

livelihoods shape and are shaped by political, economic, and cultural forces” (Kirksey and Helmreich 2010, 545). It can provide evidence for the suffering that non-humans experience both alongside humans and because of them (Lainé 2018; Sablehoff 2001, 105; Singer 2014, 1286). It can also reveal how non-humans should be extended certain rights if their crucial role in co-creating realities is to be sustained (Strang 2017, 272).

Tensions that exist between ethnography and the structure of public health programs must also be considered. As mentioned earlier, a focus on efficiency and broadly applicable data seemingly contradicts with a method that can typically only produce localized results over long periods of time. Also, specifically designed to extract highly contextualized cultural information, effective ethnography is, by nature, limited in what it can contribute to health campaigns striving for a single, broadly effective solution that can be implemented on a global scale. Finally, ethnographic insights are obtained from small sample sizes that are not conducive to statistical analyses (Waldram 2009, 81). The careful implementation of ethnographic data into locally focused health initiatives, however, can result in significant improvements to patient care. In one example from Ireland, neurologists drew themes from ethnographic research to develop an online medical resource for epileptics that improved key elements of the patient experience such as transparency, collaboration between patients and clinicians, and trust in the medical system (Power et al. 2020, 1895). The paper describing the project explicitly states how implementing an eHealth program is “not just a technology project, it is more to do with the people..., processes, and associated behavioural change and expectations” (Power et al. 2020, 1904), necessitating a cultural approach. While cultural diversity presents a hurdle for broad and generalized medical programs, it is not something that can be ignored. Moving towards local

ethnographically informed health solutions increases the probability of success by actively engaging with cultural nuance instead of trying to work around it.

The traditional speed of ethnographic methods stemming from extended engagement in the field presents a hurdle for health interventions that typically require rapid injections of knowledge into programming. A potential bridge to this gap is rapid ethnography where the validity generated by long-term engagement in cultural contexts can be substituted by other factors such as the triangulation of data gathered by multiple researchers or by using existing ethnographical data in combination with follow-up material (Ombere 2022, 126; Vindrola-Padros and Vindrola-Padros 2017, 322). While some may argue that speed affects quality (Adams et al. 2014, 189-190), rapid ethnographic techniques have proven to be effective in inducing health policy changes such as the previously mentioned study that successfully improved the patient experience for epileptics in Ireland during the COVID-19 pandemic (Power et al 2020). Further, rapid ethnography in combination with multispecies ethnography could provide clues to evolutionary biologists struggling to locate the origin of the virus who lament the fact that they “can’t observe the zoonotic transmission of a novel virus from animals to humans” (Gray 2023, 353). While rapid ethnography has had success, significant limitations identified in these techniques are a lack of researcher reflexivity and a failure to describe data analysis methods (Vindrola-Padros and Vindrola-Padros 2017, 327). If those who implement rapid ethnography can address these shortcomings, there is the potential to quickly contribute accessible and detailed cultural information into healthcare interventions.

Finally, it must be considered that the division between the humanities and sciences has collapsed within the data and should be challenged in academic structures as well. As

previously mentioned, sociality is a reoccurring theme in public health discussions. Likewise, anthropologists must draw on other disciplines to sufficiently understand their complex research topics. Academic analyses in all disciplines could benefit if the structural barriers to their cooperation are dismantled. The acknowledgement that another discipline may be able to provide expertise needs to be regarded as being more scientific by way of adequately addressing relevant variables and not as a threat to disciplinary integrity.

CONCLUSION

The multi-disciplinary structure of “one health” could be more effective if anthropological insights were more strongly leveraged in their studies. Including veterinary and environmental sciences into disease prevention strategies does not sufficiently address the underlying social forces that tie humans to non-humans. The relations that cause interspecies infection must be unpacked and analyzed. Medical anthropologists and their specific study of the cultural construction of the body are well equipped to explain how economic, political, and kin structures influence human health. Shifting attention towards non-human actors and how they co-create human realities strengthens the potential for anthropologists to provide insightful data to the health sciences to mitigate the impact of infectious diseases on humans. By being mindful of making anthropological data usable for other disciplines and what that entails, there is potential to bridge the disciplinary gap that is preventing effective health solutions from materializing.

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