What is Traditional, Complementary and Integrative Medicine: An Operational Typology

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Abstract

Introduction: Following the World Health Organization (WHO)'s guidance, and in response to citizen demands, governments across the globe are working to better integrate 'traditional and complementary medicine' (T&CM) into national health systems, informed by evidence. Although the category of traditional, complementary and integrative medicine (TCIM) is very broad—and includes a wide and disparate range of therapeutic systems, knowledges, practices, products and devices not currently accepted within dominant biomedicine—no international standard currently exists for classifying these health care approaches. To address this gap, this work proposes an operational typology—one form of operational definition—of TCIM. Operational typologies are classification frameworks that theoretically differentiate between sub-categories within a larger construct. This work's typology is a tool meant to support scholars and policy makers in critically navigating the range of paradigmatic, evidentiary, cultural, political, and structural questions that may arise across in TCIM research, as well as in related evidence-to-policy and knowledge-to-practice cycles.

Overview: This operational typology of TCIM is predicated upon a detailed analysis of the WHO's theoretical definition of T&CM. The WHO definition is widely cited, has global applicability, is inclusive enough to account for a wide range of non-biomedical therapeutics, and is conceptually rich. Further informed by related critical scholarship, the typology is constructed with reference to three conceptual domains: (1) Historical Factors; (2) Paradigmatic and Cultural Features; and, (3) Knowledge Transmission Modes. Six primary classifications of T&CM therapeutic approaches comprise the typology: (A) Orally Transmitted Ethnomedical Systems and Practices; (B) Codified Ethnomedical Systems and Practices; (C) Non-Ethnomedical Whole Systems; (D) Complementary Therapeutics; (E) Community-Based Therapeutics; and, (F) Integrative Therapeutics. Each type is also classified into sub-types.

Conclusions: This theoretically-informed typology, elaborated in the disciplinary mode of critical medical anthropology, has the potential to support scholars and policy makers in classifying the field's diverse therapeutic approaches into meaningful sub-categories. The typology's associated conceptual explanations may also provide insights of theoretical and pragmatic value in advancing more equitable models of 'integrative healthcare'. Further, the TCIM typology may be deployed alongside related operational tools to focus scholarly literature searches, and to inform revisions to library database hierarchies in the field.

Keywords

Traditional medicine; complementary medicine; integrative medicine; operational typology; standard of classification; World Health Organization

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1. Introduction

The World Health Organization (WHO) has called upon governments worldwide to incorporate into national health systems a wide range of 'traditional and complementary medicine' (T&CM) practitioners, practices and products "not fully integrated into the dominant health-care system". In its Traditional Medicine Strategy (2014 – 2023), the WHO provides the following theoretical definition of T&CM [1]:

> *Traditional medicine has a long history. It is the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.*
>
> *The terms 'complementary medicine' or 'alternative medicine' refer to a broad set of health care practices that are not part of that country's own tradition or conventional medicine and are not fully integrated into the dominant health-care system. They are used interchangeably with traditional medicine in some countries.*

Theoretical definitions characterize "the fundamental nature of a construct", in contrast to operational definitions, which determine "whether a specific instance is or is not a member of the construct through a series of criteria" [2]. To date, however, no rigorous efforts to explicitly operationalize the WHO's theoretical definition are evident in the scholarly literature. The absence of such operationalizing tools can make it challenging for scholars and policy makers to: negotiate or determine what may (or may not) be included within T&CM's parameters; consider how the wide range of included therapeutic approaches may categorically relate to, or differ from, one another; and, characterize the range of sociopolitical considerations at play with respect to various forms of non-biomedical therapeutics across global contexts.

For example, it may be intuitively clear that Indigenous healing ceremonies are qualitatively different from standardized herbal extracts or dietary supplements, and that acupuncture delivered with reference to a traditional Chinese medicine diagnosis (along with moxibustion, a complex herbal formulation, and/or tuina massage) differs notably from styles of acupuncture that rely on biomedical diagnostic constructs. Such differences have major implications across the evidence-to-policy cycle, whether in terms of what research methods might be used to study particular therapeutic approaches [3], how to contend with issues of intellectual property and cultural misappropriation [1,4,5], or how decision makers might navigate governance strategies, including statutory regulation, of related practitioners, practices, products and devices [6]. Further, there are many therapeutic approaches within dominant biomedicine—such as vaccination and a wide range of pharmaceutical drugs—that have historical and cultural roots in ethnomedical[1] therapeutic systems and practices. Should these be understood to fall within T&CM's parameters? And what about those approaches increasingly termed 'integrative medicine', representing areas of overlap and intersection between multiple therapeutic approaches?

[1] As Iwu indicates [7], "Ethnomedicine encompasses the use of…cultural practices and/or the minimally processed naturally occurring products for the prevention and treatment of diseases, as well as for the maintenance of optimal physical and emotional health. These [I]ndigenous or culturally based forms of medicine have their origin in antiquity, but they are not ancient medicine, so the use of the term 'traditional' to describe ethnomedicine may be misleading."

Beyond the WHO's T&CM definition, there have been a wide range of definitions, both theoretical and operational, proposed by governments, scholars and organizations worldwide, in the field of traditional, complementary and integrative medicine (TCIM). Such definitions have addressed such constructs as 'complementary and alternative medicine,' 'integrative medicine and health', amongst others [2,8–17]. While an exhaustive account is beyond this work's scope, it warrants note that there currently exists "no international standard for categorizing… [non-biomedical] therapies" [9]. The WHO's theoretical definition has four primary advantages as the basis for such a project: (a) it is well-known to, and widely-cited by a large range of stakeholders worldwide; (b) it has clear global applicability, rather than being limited to a particular region or context; (c) it is inclusive enough to account for a wide range of therapeutic approaches that fall outside of dominant biomedicine's boundaries; and, (d) it is (as elaborated further on) conceptually rich—attending explicitly to historical, cultural, paradigmatic and health systems considerations—providing clear indications as to how the definition might be meaningfully operationalized.

Furthermore, as Ng *et al* have shown—and while the WHO definition is an outlier in this regard—there is a widespread trend in the scholarly literature to constitute TCIM-related constructs in terms of 'what they are not' (i.e., 'not' conventional Western biomedicine), rather than with reference to their own distinctive characteristics [18]. For example, the theoretical definition of 'complementary, alternative and integrative medicine/health', proposed by the U.S. government's National Center for Complementary and Integrative Health (NCCIH) defines 'complementary' and 'alternative' medicine as "non-mainstream approach[es]…that are not typically part of conventional medical care or that may have origins outside of usual Western practice" [8]. Such catch-all 'what is not' definitions, also termed 'residual categories', may—as Starr and Bowker have observed—inadvertently silence, erase or dismiss many layers of complexity held beneath the surface, in particular with reference to differential power dynamics [19]. As such, the operationalization of 'what is not' theoretical definitions risks being both arbitrary (in that it relies on unarticulated premises implicitly embedded within a dominant cultural context) and unstable (in that its parameters may change rapidly and contextually with varying social and political conditions).

Classification models based on weakly-theorized definitions inevitably fall short in their applicability. The NCCIH has for example proposed a four-fold typology based on its aforementioned definition, which classifies TCIM therapies according to their "primary therapeutic input": *nutritional* (including "special diets, dietary supplements, herbs and probiotics"); *psychological* (e.g., "mindfulness and spiritual practices"); *physical* ("e.g., massage, spinal manipulation"); or *combinations* (e.g., yoga, t'ai chi as psychological and physical combined). While these categories hold some descriptive value, NCCIH itself notes that "the practices of traditional healers, Ayurvedic medicine, traditional Chinese medicine, homeopathy, naturopathy, and functional medicine" do "not neatly fit" into any of its categories. Indeed, that model's stark omission of such ethnomedical and non-ethnomedical whole therapeutic systems not only signals the NCCIH typology's limited global applicability but also its conceptual fragility.

Further, as Gale has noted, definitions of 'complementary' and 'alternative' medicine that constitute politically-subordinated therapeutics in relation to dominant biomedicine may enact symbolic violence by falsely constructing relations of therapeutic domination and subordination as "natural and inevitable" [20]. This symbolic violence may perhaps best understood as a form of epistemic injustice [21] known as 'epistemic violence' which, as elaborated by Spivak [22], represents "the remotely orchestrated, far-flung, and heterogeneous project to constitute the colonial subject as Other". Historically speaking, biomedicine's hegemonic political dominance worldwide stems at least partly from its extended deployment as a tool of empire within the European colonial (and neocolonial) project [4,23–26]. Epistemic injustice in this context represents the long-standing "subjug[ation], devalu[ation], co-opt[ation], and in some cases decimat[ion]" of many ethnomedical systems [6] and their affiliated therapeutic paradigms or worldviews. The pursuit of epistemic justice [21] in the therapeutic domain, conversely, represents a two-fold call for: a) the equitable engagement, within health systems, of biomedical as well as TCIM paradigms–both at the level of knowledge and practice; and b) the respectful and socially-just recognition of the perspectives and contributions of community members, knowledge holders, and health care professionals alike. As this work will show, the WHO's theoretical definition of T&CM provides a meaningful conceptual basis for a global call to epistemic justice in therapeutics.

The present work proposes an operational typology of TCIM, based on the WHO's theoretical definition. Operational typologies are one kind of operational definition that serve to classify and characterize sub-categories within a broader construct. While the term typology is sometimes used interchangeably with 'taxonomy', "a typology is conceptual while a taxonomy is empirical" [27]. Operational typologies "identify and cluster phenomena with shared characteristics and dimensions within groups, so as to clearly differentiate between groups, based on carefully-articulated theoretical foundations" [28]. Typically, the 'categories' or 'classes' advanced on the basis of such conceptual work are "both *exhaustive* and *mutually exclusive"*, with clear explanations of their theoretical dimensions and inclusion parameters provided. Further, typological classes, as 'ideal types', may be further elaborated into sub-types.

However, as Weber has elaborated, ideal types rarely provide 'perfect' representations of the cases classified within them, offering instead an approximation of such cases' shared characteristics [29]. As such, there may often exist a kind of 'grey area' between discrete types or sub-types that defies unequivocal categorization. Related, it should be noted that efforts to statically "impose a bounded way of understanding the world" are characteristic of Eurocentric intellectual logics [30]. In light of the blurring of discrete categories that are often evident in "epistemologies of the South" (from which many non-biomedical therapeutic approaches originate) [31], this work's typology conceptualizes its categories—its 'ideal types'—as permeable and interconnected. This approach recognizes that particular therapeutic systems, knowledges and practices may dynamically occupy multiple spaces within the typology—at different temporal moments, in distinct contexts, and in the various forms they take.

1.1 Overview of this Work

This work's operational typology is built to support scholars and policy makers in critically navigating a range of complex historical, paradigmatic, evidentiary, political and structural questions that may arise in the TCIM field, whether in the research, practice or policy spheres. The author, a social scientist, has elaborated this theoretical work in the disciplinary mode of critical medical anthropology [32], a field that attends the aforementioned range of questions. This includes detailed consideration of the differential power relations at play between biomedical and non-biomedical knowledges and practices.

The typology is meant to have broad and inclusive utility across diverse global and regulatory contexts. This includes settings (such as those in many low-and middle-income countries) wherein non-biomedical therapeutics represent a primary form of accessible, affordable health care, including where biomedical care remains unavailable [1]. It also includes contexts (often but not exclusively in higher-income countries) in which non-biomedical therapeutics are preferentially used alone, or as a preventive or therapeutic supplement to biomedicine, and sometimes as "elite medicine for the worried well" [33]. The typology is ultimately a tool intended to support work across various facets of the evidence-to-policy cycle in the TCIM field, including regulatory engagements, research designs, literature reviews, critical sociological and anthropological analyses, health services and workforce studies, as well as clinically focused investigations. It is meant to complement and inform (rather than replace) use of other operational tools in the field; such coordinated usage will be discussed following presentation of the typology. Together, these tools may be fruitfully deployed to lend deepened rigour, integrity and nuance to TCIM scholarship and governance.

As explained in what follows, the typology follows the WHO's theoretical engagement with 'traditional medicine' as its primary definitional construct, with the concepts of 'complementary' and 'integrative' medicine being subsets thereof (Section 2). With reference to critical sociological and anthropological literatures, the typology's design is also theoretically underpinned by a series of ontological principles (Section 3). The typology itself, illustrated in Figure 1 and summarized in Table 1, includes six distinct TCIM 'types' and sub-types that together permit a pragmatic but conceptually-driven classification of a wide range of TCIM therapeutic approaches. As shown in Table 2, the typology is structured around three conceptual subdomains. These conceptual elements permit a categorical characterization of important TCIM-related contextual factors, including cultural context, knowledge transmission, and the historicized power relations between sociopolitically dominant and subordinated therapeutic approaches (including the impacts of European colonialism). Finally, Type F, Integrative Therapeutics, illustrated in Figure 2, is somewhat different from the other five types in that it

does not, strictly speaking, classify individual TCIM therapeutic systems and/or practices. Rather, Type F offers a conceptual model for analysing what is sometimes termed ‘integrative medicine’, that is, the interface between multiple TCIM therapeutic approaches, and/or between TCIM approaches and biomedicine..

Readers interested in simply applying the typology may choose to engage directly with its simplified overview, as presented in Figure 1 and Table 1. However, this work is meant to rigorously and transparently present the typology’s theoretical foundations, so that it may be evaluated and accurately applied. As such, the sections that follow detail:

a) Section 1, Unpacking the WHO Definition: elaborating key theoretical elements of the WHO definition of T&CM [1] that forms the typology’s basis;

b) Section 2, Critical Scholarly Perspectives: a critical narrative review of sociological and anthropological perspectives pertaining to the concepts of ‘traditional medicine’, complex medical systems, therapeutic paradigms, and therapeutic hybridities, all of which underpin the typology as a whole;

c) Section 3, An Operational Typology of TCIM: the typology itself, elaborated along with its six concomitant TCIM types and related subtypes; and

d) Section 4, Engaging with the Typology: a discussion of how to use the typology and its classification system, including with reference to other operational tools in the field.

[INSERT COLOUR FIGURE 1 HERE.]

Caption: Figure 1. Operational Typology of Traditional, Complementary and Integrative Medicine

[INSERT FIGURE 1 LEGEND HERE]

Type A: Orally-Transmitted Ethnomedical Systems and Practices

Type B: Codified Ethnomedical Systems and Practices

Type C: Non-Ethnomedical Whole Systems

Type D: Complementary Therapeutics

Type E: Community-Based Therapeutics

Type F: Integrative Therapeutics

2. Unpacking the WHO Definition

Since operational typologies are built upon theoretical foundations, it is necessary to begin with a careful examination of the WHO's T&CM definition, which forms the basis of the TCIM typology presented in this work. As elaborated below, the WHO's definition (provided at the beginning of this article) has several salient theoretical elements.

2.1 Centralizes Traditional Medicine as the Primary Construct, with Complementary Medicine as Secondary

The most prominent theoretical feature of the WHO's T&CM definition is that it positions traditional medicine as its primary conceptual construct, essentially nesting the secondary construct of complementary (and alternative) medicine, as well as the concept of 'integration', with reference to 'traditional medicine'. These definitional moves are important because they explicitly signal an historicized recognition of the Indigenous and ethnomedical roots of a wide range of non-biomedical therapeutic approaches, including those transplanted beyond their lands, communities and knowledge systems of origin. Traditional medicine's centrality in the WHO definition is also unusual, globally speaking, since many widely-used definitions (e.g., of complementary medicine; complementary and alternative medicine; complementary, alternative and integrative medicine and health) [2,2,9,18] overlook the 'traditional' medicine construct entirely, implicitly erasing the historical, cultural and paradigmatic roots of many non-biomedical therapeutic approaches.

2.2 Emphasizes Historical and Cultural Considerations

Closely related to the first point (2.1), the WHO definition explicitly emphasizes the historical and cultural contexts surrounding T&CM therapeutics. The definition's first sentence ("Traditional medicine has a long history") clearly draws attention to historical contexts, which—as the WHO observes in its 2014 – 2023 Traditional Medicine Strategy—include a "long history of use in health maintenance and in disease prevention and treatment, particularly for chronic disease" [1]. The second sentence, which refers to the "sum total" of therapeutic epistemologies and practices "indigenous to different cultures", underscores the culturally situated character of such therapeutics.

Notably, the WHO definition appears to engage the term 'indigenous' as a generality, with reference to the broad category of ethnomedicine, rather than with exclusive reference to Indigenous peoples as constituted in other United Nations documents such as the 2007 Declaration on the Rights of Indigenous Peoples [34]. As the 2014 Strategy observes, "many countries" have traditional medicine approaches that are "firmly rooted in their culture and history" [1] – and need not be necessarily affiliated with Indigenous communities *per se*. This interpretation may be further secured by observing that the WHO's Traditional Medicine Strategies (both in 2002 and in 2014) refer repeatedly to such ethnomedical systems as traditional Chinese medicine, Unani and Ayurvedic medicine as traditional medicine exemplars, despite these not being historically affiliated with particular communities of Indigenous Peoples [1,35].

In the 2014 Strategy, the WHO also makes explicit the kinds of issues that may arise in relation to the cultural and historical contexts of traditional medicine. For example, the Strategy identifies a "need to protect the intellectual property rights of [I]ndigenous peoples and local communities and their health care heritage while ensuring access to T&CM and fostering research, development and innovation" [1]. Such considerations, as elsewhere observed [4,6], are inextricably linked to the historical and ongoing marginalization, co-optation and misappropriation of Indigenous and other ethnomedical knowledges and therapeutic practices as part of the European colonial encounter and its neocolonial sequelae, whose impacts should not be overlooked in any rigorous account of TCIM across global contexts today.

2.3 Recognizes Biomedicine's Globalized Dominance

By explicitly highlighting the "dominant health-care system[s]" health systems contexts into which T&CM "are not fully integrated" [1], the T&CM definition clearly acknowledges that T&CM systems of knowledge and practice are significantly subordinated (to biomedicine) across many health systems worldwide, signaling the WHO's attention to the complex power relationships at play in this regard.

2.4 Emphasizes Therapeutic Knowledges as well as Practices

In the first section of its definition, focused on the traditional medicine construct, the WHO explicitly recognizes a wide range of *ethnomedical epistemologies* ("knowledge, skill…theories, beliefs and experiences indigenous to different cultures") rather than *therapeutic modalities* ("practices") alone. This dual recognition of therapeutic knowledges and practices is consistent with related messaging evident in other WHO documents (and illustrative of the definition's implicit call for epistemic justice). For example, the WHO's 2018 Declaration of Astana, focused on strengthening primary health care worldwide, calls not only for the inclusion of "traditional medicines" (i.e., therapeutic modalities) within national health systems, but also for the inclusion of "scientific as well as traditional knowledge" (i.e., non-biomedical therapeutic epistemologies) within related efforts [36]. Further, the WHO's definitional construction of traditional medicine as "the sum total" of diverse ethnomedical knowledges *and* practices clearly indicates that in operationalizing the T&CM definition, both of these dimensions must be concurrently considered.

2.5 Includes 'Expert' as well as ''Community-Based' Knowledges

It is noteworthy that the WHO definition uses multiple terms ("knowledge, skill,... theories, beliefs and experiences") to characterize ethnomedical therapeutic epistemologies. In doing so, the definition implicitly alludes to the various means and contexts wherein non-biomedical paradigms may be expressed or enacted, whether as formal, so-called expert knowledge ('knowledge'), as tangible, practical ('skill') or as community based, or 'lay' knowledge and usage (beliefs and experiences). This inferred range of meanings may be confirmed with reference to the WHO's Traditional Medicine Strategy (2014 – 2023), which not only recommends that governments regulate qualified T&CM practitioners, but also discusses at length the importance of government initiatives to advance safe, T&CM-related "self-health care" that is, community-based usage by lay people. Such self-care is explicitly constituted in the Strategy as a means to "support disease prevention or treatment, health maintenance and health promotion…in line with patient choice and expectations" [1].

2.6 Extends the Traditional Medicine Construct Beyond Ethnomedical Therapeutic Knowledges and Practices

Notably, in the definition's second section, focused on 'complementary' and 'alternative' medicine, the WHO discursively extends the meaning of the traditional medicine construct to include therapeutic approaches that are "not part of…conventional medicine and are not fully integrated into the dominant health-care system." In other words, within the parameters of the overarching traditional medicine construct initially specified with reference to ethnomedical knowledges and practices, WHO now also incorporates a wide range of politically marginalized, non-ethnomedical therapeutic knowledges and practices (e.g., homeopathy, naturopathy, osteopathy, nutritional supplements).

That the traditional medicine construct is intended to signify what is increasingly referred to as 'TCIM' is also made evident in other WHO documents. For example, in a published agenda for the WHO's first Traditional Medicine Global Summit, held in 2023 in India, a footnote indicates that "in this document, [the] term 'traditional medicine' refers to traditional, complementary, integrative medicine/health and well-being services" [37].

2.7 Advances an Intercultural, Culturally Safe Construct of "Integration"

The concept of T&CM's 'integration' within health systems is addressed just briefly in the WHO definition, but warrants analytic attention in light of recent indications that this concept, along with the related notion of 'integrative medicine', are of increasing importance to the WHO's work in this area. Indeed, "[i]n mid-2017, WHO's Traditional and Complementary Medicine unit was renamed" to "Traditional, Complementary and Integrative Medicine" [38]. The WHO further indicated, in 2019, that a "project is underway to define and understand the concepts of T&CM's health systems 'integration as well as integrative medicine'"[38].

The WHO definition characterizes T&CM approaches as those "not fully integrated into the dominant health-care system," requiring some interpretation. Rhetorically speaking, the "integrated into" phrasing might, if interpreted without context, appear to constitute 'integration' as a 'biomedicalizing' process, that is, as a unidirectional assimilative process of incorporating non-biomedical practices (separated from their concomitant

knowledges) 'into' existing biomedically-dominant health systems. Conceptually speaking, however, such an interpretation would be at odds with the WHO's repeatedly articulated commitment to preserving and honoring traditional ethnomedical knowledges and practices (see 2.4). Furthermore, such a biomedicalizing interpretation diverges from indications provided by former WHO Director-General Margaret Chan, which appear to align with the principles of 'interculturality' and 'cultural safety' (as opposed to assimilation).

Interculturality—from a definition advanced by the United Nations Educational, Scientific and Cultural Organization (UNESCO)—refers to "the existence and equitable interaction of diverse cultures and the possibility of generating shared cultural expressions through dialogue and mutual respect" [39] . Aligned with this principle, Chan indicates, with respect to "appropriate integration" in the context of T&CM:

> *The two systems of traditional and Western medicine need not clash. Within the context of primary health care, they can blend together in a beneficial harmony, using the best features of each system, and compensating for certain weaknesses in each. [1]*

Chan further indicates that T&CM is "care that is close to homes, accessible and affordable" as we well as "culturally acceptable and trusted by large numbers of people". T&CM's integration within health systems, then, may be understood as an imperative toward 'cultural safety'. Cultural safety refers to culturally appropriate health care that is "[d]etermined from the patient/community's perspective" [40] and "strives to address the power imbalances inherent in the healthcare system [including] current and historical and colonial impact and…structural racism and disrimination" [41].

As such, and in the absence of formal WHO definitions for 'integration' or 'integrative medicine', it may be inferred that the WHO's T&CM definition implicitly advances the construct of integration as an intercultural form of culturally safe synergy between distinct therapeutic systems of knowledge and practice, rather than an assimilative, biomedicalizing approach.

2.8 Specifies Definitional Parameters for Indigenous Traditional Medicine

In 2019, the WHO advanced a secondary definition for 'Indigenous Traditional Medicine' that partially operationalizes its primary T&CM definition by specifying a key sub-element within it [38]. This secondary definition, shown below, appears to refer more specifically (but again not exclusively) to those ethnomedical knowledges and practices affiliated with Indigenous peoples. Further, this definition echoes the WHO's primary T&CM definition both structurally and theoretically (including some identical text), while drawing attention to additional elements:

> *Indigenous traditional medicine is defined as the sum total of knowledge and practices, whether explicable or not, used in diagnosing, preventing or eliminating physical, mental and social diseases. This knowledge or practice may rely exclusively on past experience and observation handed down orally or in writing from generation to generation. These practices are native to the country in which they are practised. The majority of [I]ndigenous traditional medicine has been practised at the primary health care level.*

Like the primary theoretical definition of T&CM, the secondary definition attends to both "knowledge [and] practice" while attending to additional considerations that provide further indications as to how the primary definition might be fruitfully operationalized. More specifically, the Indigenous traditional medicine definition highlights particular modes of knowledge and practice transmission ("handed down orally or in writing from generation to generation"), geographic origins and land-based sites of practice ("native to the country in which they are practiced"), and health systems contexts of Indigenous traditional medicine practice ("at the primary health care level"). Importantly, by omitting to specify that Indigenous traditional medicine is based primarily on the knowledges and practices of Indigenous peoples, instead locating such therapeutics as "native to the country where they are practised," this WHO definition appears to include a range of ethnomedical practices transmitted orally or intergenerationally at the community level (rather than through textual codification or institutionally).

2.9 Analytic Summary

To maintain conceptual fidelity with the WHO's primary theoretical definition of T&CM, the present work's operational typology of TCIM must have the capacity to negotiate the range of historical, paradigmatic, cultural, and health systems considerations specified directly or indirectly by the WHO, and as analysed in the preceding sections. In alignment with the WHO's secondary definition for Indigenous traditional medicine, this typology should also permit engagement regarding modes of knowledge transmission, as well as sites and contexts of practice. However, since the TCIM typology is meant as a scholarly tool, it is important that its parameters also be informed by relevant critical scholarship.

3. Critical Scholarly Perspectives

3.1 Problematizing 'Traditional Medicine'

As Carlessi and Ayres observe, the WHO's "interest in rebuilding universal health systems through the recognition of culturally distinct knowledge" is both "well-intentioned" and laudable [42]. However, these scholars also characterize a "contradiction of the WHO's proposal" with respect to "the term traditional, which seems to merely qualify medicine without considering the political baggage that these terms carry" [42].

Prior critiques of the term 'traditional' (in the context of traditional medicine) highlight how this construct may inappropriately romanticize and essentialize ethnomedical therapeutic knowledges and practices (and their variations), either: a) as static artefacts arising from a nebulous ancient history that are "crystallized in time and space" [42]; and/ or, b) as the result of singular, continuous lineages of community-based transmission [7,43–47]. In fact, most therapeutic approaches with ethnospecific, non-biomedical roots are distinctly modern(ized), internally-plural, and often hybridized with other therapeutic systems (biomedical or otherwise).[2] In addition, many ethnomedical therapeutic approaches have been contemporarily reconstructed with reference to fragmented oral and/or textual lineages, following pauses in transmission resulting from a range of historical and political factors, including European colonization [44,48,49].

Moreover, as Martin-Hill observes, "the term 'traditional'" is "disliked by many Indigenous groups", who understand it as "a British colonial concept" that separates "discussion of medical practices into two time periods, pre- and post-contact" [48]. This separation, while conceptually useful (as it may helpfully draw attention to biomedicine's deployment as a tool of imperial domination [4,23]), also fundamentally constitutes long-rooted ethnomedical systems and practices with reference to European colonial powers, rather than in their own right.

Further, the term 'medicine' carries its own conceptual baggage, owing to its implicit association with pharmaceutical biomedicine: a hegemonic system [43,50] situated within a context of globalized capitalism and predicated on an ontology of "technoscientific rationality" [42] that emphasizes a "dichotomous dualit[y]" between mind and body, health and ill-health [51]. Conversely, many Indigenous, ethnomedical and otherwise non-biomedical therapeutic ontologies constitute "health and illness as...parts of the same continuum", and holistically constitute "environmental equilibrium" and "spirituality" as key elements of health [51]. Related critiques have arisen within the movement for 'integrative healthcare' (sometimes termed 'integrative medicine' or 'integrative medicine and health') in several high-income countries [52]. There, it has been repeatedly suggested a lesser focus on the term 'medicine' (and a greater emphasis on 'health') would better recognize a broad range of health-related determinants as well as therapeutic ontologies and epistemologies [52–54].

While the WHO has not explicitly defined 'medicine', its definition of 'health'—a construct in relation to which 'medicine' is presumably constituted—has been both praised and critiqued. The WHO defines health as "a state

[2] Biomedicine, widely (and falsely) constituted as an acultural, universal, neutral therapeutic system, may itself be understood as an ethnomedical system rooted in the 19th century "European scientific revolution and the linear reductionism of Rene Descartes and his contemporaries" [6].)

of complete physical, mental and social well-being and not merely the absence of disease or infirmity"[55]. This definition has been applauded for its holistic inclusion of not only physical but also mental well-being, its attention to health's broader social and structural determinants, including community health ('social well-being'), and for its broad generality, which allows for the definition's contextual applicability across a range of cultural settings [56]. However, critics have observed that the definition falls short in its "utopian rather than pragmatic" [57] call for complete well-being, which is generally seen as unattainable [56–58], and thus "contributes to the medicalisation of society" [58]. Proposals have been made for the WHO to reconstitute the concept of health with reference to 'the ability to adapt' [56–58]; and, to give attention to "environmental equilibrium" and "spirituality" as key elements [57], thus better reflecting globally-diverse understandings of health and well-being. Such definitional shifts, it has been furthermore suggested, would make "it easier to assume a complementary cooperation between traditional medicine and biomedicine" [51] as distinct complex medical systems in their own right.

3.2 Complex Medical Systems

The 'medical rationalities' framework of Brazilian scholar Madel Luz offers important conceptual tools for differentiating between 'complex medical systems' (which include their concomitant knowledges) and standalone therapeutic practices [59–61]. This framework also makes evident the irrationality of biomedicine being sociopolitically constructed as a singularly authoritative system of scientific therapeutics. As such, it provides a rigorous theoretical basis for interpreting the WHO's call [1] for the 'rational use' of T&CM within national health systems. Although Luz's 'medical rationalities' framework is now thirty years old and has been extensively applied by Portuguese-speaking TCIM scholars, it has rarely been engaged in English-language scholarship.

Like biomedicine, many T&CM therapeutic approaches may be characterized as complex medical systems with reference to the medical rationalities framework. Luz's original work uses the cases of biomedicine, traditional Chinese medicine, Ayurvedic medicine and homeopathic medicine to delineate six key elements that characterize complex medical systems [60]. These are:

1) a distinct *cosmology* (that is, an understanding of the world and its origins, elements and fundamental governing principles);
2) a *morphology* (characterizing the human organism's organizational form and structure, e.g., 'anatomy' within biomedicine);
3) a *physiology* or 'vital dynamics' (i.e., an explanatory model for the processes whereby balance or imbalance may be made manifest within the organism);
4) a *medical doctrine* that characterizes the health-disease process (including its origins and causes, and what may or may not be treated, healed or cured);
5) a *diagnostic system* whereby determinations of ill health may be made (including their causal trajectory or etiology, severity and possible prognoses); and
6) a *system of therapeutics* (wherein appropriate therapeutic interventions are determined with reference to the established diagnoses).

Critically, the 'medical rationalities' construct of a complex medical system is characterized by six key features joined together in an internal theoretical coherence. The model differentiates such systems not only from standalone 'modalities' but also, arguably, from 'microsystems' that may have some of the aforementioned characteristics but do not offer a comprehensive framework for understanding and addressing a wide range of health-related scenarios. Luz's framework also provides a theoretical basis—absent in English-language scholarship until now—for the concept of a 'whole medical system', advanced by TCIM scholars seeking to align research method(ologie)s with the paradigmatic basis of non-biomedical therapeutics [3]. Further, as elsewhere observed, "Luz's model of a 'complex medical system' may be …understood as similar to the concept of a therapeutic paradigm" [62].

3.3 Therapeutic Paradigms

As observed by Thomas Kuhn, paradigms refer to "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" [63]. Paradigms, including *therapeutic paradigms,* include three key elements: ontology (ways of 'being', i.e., how the world/reality is constituted), epistemology (ways of 'knowing', i.e., investigating the world/reality) and practice (ways of 'doing', i.e., techniques and methodologies) [64]. All therapeutic systems and practices are underpinned by historically-and culturally situated *therapeutic paradigms* that determine how particular healing approaches will be understood and applied. A closer examination of some ontological principles that underpin various therapeutic paradigms provides useful conceptual insights that underpin this work's typology. But three issues drawn from the discipline of philosophy must first be addressed.

It should first be recognized that despite "historic Western attempts to impose a bounded way of understanding the world", ontologies—and in particular, ontologies of the body—are "never singular" [30]. In other words, multiple ways of understanding reality (and health/ill health) often co-exist concurrently in a single context or paradigm, at times with internal contradictions or inconsistencies. While some cultures and paradigmatic communities may "feel compelled to insist on ontological uniformity" to a greater degree than others, seemingly distinct ontologies (like the 'ideal types' in the present work's typology) may be fundamentally understood as "heterogenous and open", with "blurred boundaries between" them. Second, and related, a paradigm may be structurally characterized by an "ontological hierarchy" (in which some ontological modes are subordinated to a primary one), or an "ontological heterarchy" (wherein different ontological elements are not ranked but co-exist more permeably, in parallel or in various forms of synergy) [30].

Finally, in characterizing ontological elements, it can be useful to use sets of binary comparators "involving two terms, concepts or thoughts with contrasting meanings", to draw attention to different ontologies' distinguishing features [65]. However, despite a "Western propensity" to view such binaries as mutually exclusive and fundamentally separate, a seemingly singular construct can at times contain within it what would initially appear to be its opposite. This "dialectical" insight, which allows for a relational "synthesis" to take place between seemingly opposite perspectives [65], is evident in many ethnomedical cosmologies, such as the Taoist construction of yin and yang as a binary pair. There, both yin and yang categories are understood as dynamically interdependent, and inclusive of their apparent opposites [66].

In what follows, four sets of ontological binaries with relevance to therapeutic paradigms—ecocentrism / anthropocentrism; vitalism/mechanism; holism/reductionism; and salutogenesis/pathogenesis—are briefly elaborated in this light. Conceptually, the first item in each of the aforementioned binary pairs may be understood as a 'larger' category with the capacity to 'contain' its apparent opposite, but the inverse is not the case. Ultimately, most non-biomedical paradigms many be understood as ontological heterarchies predominantly comprised in varying degrees by the first items in each pair (along, typically, with other paradigm specific elements). Conversely, dominant biomedicine—though not all forms of biomedicine—is predominantly underpinned by an anthropocentric ontological hierarchy with 'mechanism' at the top, secondarily (but not exclusively) supported by ontologies of reductionism and pathogenesis (though at times also informed by holism and/or salutogenesis). Each of the aforementioned ontological principles is briefly defined in the sections that follow.

3.4 Ecocentrism and Anthropocentrism

Most ethnomedical paradigms, both Indigenous and non-Indigenous, are fundamentally underpinned by ecocentric (rather than anthropocentric) ontologies. Anthropocentric ontologies, which form the basis of many contemporary, globally-dominant intellectual, medical, political and economic models [67], are based on a hierarchical view that "assumes human-centeredness and the privileged position of human beings as…the pinnacle of creation" [68]. There are many variants of anthropocentrism, some of which explicitly address environmental considerations [69]. However, on the whole anthropocentric ontologies privilege "humans above the rest of nature" [69], and tend to operate in terms of fixed/oppositional/static binaries. Anthropocentrism has

been historically tracked to Judeo-Christian traditions and the 17th century thinking of the French philosopher Rene Descartes, whose work strongly influenced both the industrial revolution and biomedicine's conceptual model [67,68]. Ecocentric ontologies, conversely, are fundamentally relational (rather than hierarchical), and represent "one of the most inclusive worldviews… recognis[ing] the whole ecosystem, including everything living and non-living" [65]. As Redvers explains, "ecocentric appproaches to planetary health have existed for thousands of years in Indigenous communities…and embody within them protocols around reciprocity, responsibility, and respect for the planet's wellbeing as a living entity" [70]. In the sense that ecocentric perspectives do include humans (as one part of nature), ecocentric ontologies have the capacity to contain or include human-focused considerations, without losing the larger, contextual, ecological picture of all living and non-living relations.

Despite their global dominance, anthropocentric ontologies have been extensively critiqued as philosophically untenable— "considering that humanity is (in the end) fully dependent on nature"—and, as "a significant driver of ecocide and the environmental crisis" [69]. Conversely, ecocentric paradigms (including therapeutic paradigms) may offer important conceptual lenses (and practical tools) for re-envisioning more sustainable and healthy worlds. As outlined in the sections below, both anthropocentric and ecocentric ontologies have related sub-ontologies, which are particularly evident across a range of therapeutic paradigms.

3.5 Vitalism and Mechanism

An ontology of 'vitalism' dwells at the heart of most ethnomedical systems, and some other marginalized therapeutic systems [71]. Based on the ecocentric metaphor of 'the world as a living system', vitalistic therapeutics hold "that there is a vital force operating in the living organism and that this cannot be reduced or explained simply by physical or chemical factors" [71]. Vitalistic therapeutics are notably diverse, both between systems and within systems, conceptualizing the 'vital force' and its ramifications in diverse ways (e.g., as 'qi' in East Asian medicine, as 'prana' in Ayurveda, as 'nature's healing power' in Naturopathy, and otherwise). Overall, however, this vital force is understood as a major source of health and healing in the body, which should not only be preserved but strategically fortified to maintain and create health.

Conversely, the ontology of mechanism (also termed 'scientific materialism' [71]) that strongly underpins dominant biomedicine is based upon the anthropocentric metaphor of 'the world as a machine' [71] (in a world where it is humans who build and use machines) [67]. This ontology was historically "coproduced with industrial capitalism" [72] beginning in 17th century Europe [23]. Extended to the domain of health and illness, mechanism aims to explain and resolve disorders constituted as dysfunctions in human biology, with reference to "physico-chemical" models predicated on material causes and effects. There are many branches within biomedicine underpinned by different sub-epistemologies, and a wide range of clinical practice modes. On the whole, however, these variants share an underlying mechanistic ontology [71].

Today, biomedicine's mechanistic paradigm carries significant political power worldwide, with the term 'vitalism' often deployed "as a derogatory label associated with lack of intellectual rigour, anti-scientific attitudes, and superstition" [73]. However, as philosophers explain, both mechanism and vitalism are ultimately "metaphysical doctrines… neither of [which] can be submitted to experimental control" [74]. Related debates "about the nature of life" [71] and about "why and how" living systems operate the way they do, thus remain a somewhat inconclusive prospect [75]. Nevertheless, it should be noted that biomedicine's primary ontology of mechanism excludes, by definition, vitalistic explanations of disease processes. Conversely however, vitalistic therapeutic ontologies do not necessarily exclude mechanistic explanations of ill health, which may complement, supplement, inform or even permeate more 'energetic' understandings of health and the healing process.

3.6 Holism and Salutogenesis

There are two additional ontological principles—*holism* and *salutogenesis*--that form an integral part of most ecocentric therapeutic paradigms, but which have also played a role in some strands of (mechanistic) biomedicine. It should be noted that the terms being used here—holism and salutogenesis—were coined in the

twentieth century by scholars in industrialized countries, with reference to biomedical contexts. However, the principles they describe have long been conceptualized and applied across many ethnomedical systems, predating the aforementioned Western intellectual constructs by millennia. Because the concepts of 'holism' and 'salutogenesis' will be familiar to many academic readers, these terms will be adopted here, while cautiously recognizing the misrepresentation of the older concepts that this usage may problematically represent.

First introduced in the academic literature in 1926 by Smuts, 'holism' is an ontological construct that includes but extends beyond the static truism by which it is often represented (i.e., the whole is "more than the sum of its parts") [76]. Smuts argued that holism is a synthetic principle governing "bodies and organisms" wherein the functioning of "wholes" can only be understood by examining the "reciprocal relationship" between parts, and together with the whole [77]. At the time, Smuts' notion of holism was strongly at odds with the Euroscientific "tradition of reductionism" which had, over "three centuries" [77], sought to explain "biologic phenomena using the principles of physics," strongly complementing biomedicine's mechanistic ontological principles [78]. In a reductionistic mode, disease is conceptually "separated from the sick person and scrutinized with successively finer analytic tools," whether at the level of pathogen, organ, tissue, cell, molecule, or gene [78]. Though reductionism remains a powerful ontological force within contemporary biomedicine, principles of holism have become increasingly influential [78,79]. This is evident in biomedicine's now widely-accepted biopsychosocial model (which today accounts for psychological and social factors in disease), and in such fields as epigenetics, immunology, network pharmacology and environmental health.

Salutogenesis is another ontological principle with relevance across diverse therapeutic paradigms. Coined in the 1970s by sociologist Aaron Antonovsky, the term 'salutogenesis' characterizes a concept in counterpoint with 'pathogenesis', biomedicine's predominant therapeutic orientation [80,81]. While pathogenesis asks: what is the biological origin of disease, salutogenesis asks: what are the origins of health? Salutogenesis, thus, is concerned with the 'creation' and 'promotion' of health, in its many complex dimensions, whether biological, psychosocial, historical, sociopolitical, spiritual, ecological or otherwise [82]. Salutogenesis ontologically constitutes health and illness on a continuum (rather than as a binary state of sick vs. healthy) and is concerned with health and well-being of the whole person (rather than treatment of biological disease pathways alone). Salutogenic therapeutic models typically call for the application of multi-modal, multi-target, personalized and community-engaged approaches to health and healing. They are also concerned with health's broader determinants, whether social, structural or planetary.

Though by other names, principles closely aligned with Antonovsky's salutogenesis construct have long been central within many ethnomedical (and other non-biomedical) therapeutic systems [83–85]. Today, over 10,000 peer-reviewed articles about salutogenesis have been published, primarily with reference to biomedical contexts of health promotion, though the principle continues to be marginalized across global medical systems [82]. Ongoing calls for the salutogenic transformation of biomedicine's 'sick care' system [82,86] substantially echo similar long-standing calls by TCIM scholars, practitioners and users.

3.7 Therapeutic Hybridities

Therapeutic paradigms are not static. Many strands of dominant biomedicine—which remains a predominantly mechanistic system, with strong ontological influences of reductionism and pathogenesis--have been shifting over the last century to incorporate more holistic and salutogenic ontological perspectives. Many ethnomedical systems, while retaining heterarchical ontologies in which the principles of vitalism, holism and salutogenesis work in tandem, have also absorbed mechanistic biomedical insights within their epistemic and therapeutic frameworks. Some complex therapeutic systems, like chiropractic, which have strong roots in vitalistic ontologies, have been gradually shifting towards more predominantly mechanistic paradigmatic positions [87]. Historically speaking, therapeutic hybridity—the ongoing exchange of knowledges and practices between and within therapeutic systems—is the norm, not an exception. However, the dynamics of therapeutic hybridities, which take place within larger sociopolitical and historical contexts, are complex, requiring theoretical specification, since the concept of therapeutic hybridization represents an integral design element in this work's operational typology of TCIM.

In a 2004 sociological study, Frank and Stollberg theorize four primary forms of medical hybridity between orthodox (that is, dominant) biomedicine and heterodox (that is, non-biomedical, or otherwise marginalized) therapeutics [88]. This theoretical framework offers a useful starting point around which to conceptualize therapeutic hybridities. Frank and Stollberg constitute their fourfold model with reference to two primary axes: the 'degree of hybridization' between therapeutic systems (weak, or strong), and the 'gravitational centre', that is, which therapeutic knowledges (biomedical, or non-biomedical) predominate within the new, hybridized form. 'Weak' forms of medical hybridization, in this model, are those in which either biomedical or non-biomedical knowledges are retained as the 'gravitational centre' for clinical work, with therapeutic elements from a separate set of knowledges serving as a complement or supplement. 'Strong' forms of medical hybridization, by contrast, are characterized by a greater degree of fusion between therapeutic paradigms.

Frank and Stollberg's model indicates that in cases of strong hybridization wherein heterodox (non-biomedical) epistemologies persist as the gravitational centre, this "fusion" may produce new medical rationalities, which they term "meta-theories" of "medical theory and practice". However, Frank and Stollberg do not theoretically elaborate why, in their model, there are no new meta-theories developed via strong hybridization that take biomedical knowledges as their gravitational centre. Indeed, their model may appear to suggest that dominant biomedicine is uniquely non-receptive to non-biomedical knowledges, in contrast to non-biomedical therapeutic paradigms, which are more permeable. But is this true? Does biomedicine only have the capacity, metaphorically speaking, to eat non-biomedical therapeutic systems whole, swallowing certain technical 'modalities' of practice, while spitting out the knowledge frameworks that underpin these practices? This question might be provisionally answered with reference to the work of other scholars.

One useful perspective, recognizing biomedicine's position of hegemonic global dominance [89], refers to Gramsci's theorizing of co-optation [90,91]. As has been illustrated in therapeutic contexts, a hegemonic group (such as dominant biomedicine) may "sustain its dominance" by strategically co-opting (that is, usurping, expropriating, and/or assimilating) elements of non-hegemonic worldviews and practices into its own hegemonic framework [50]. But this does not explain why a biomedical epistemology might not, in principle, have the capacity to strongly interhybridize with a non-biomedical therapeutic epistemology to create a new therapeutic meta-theory.

Drawing on the work of medical anthropologists and historians, Hollenberg and Muzzin offer another perspective, indicating that "biomedicine draws on the monotheism of the West that prevents biomedicine from tolerating alternative paradigms" [4]. These authors question whether "there is something 'different' about biomedicine" that potentially renders it "epistemologically unable to equitably integrate CAM [complementary and alternative medicine]" without "co-opt[ing], marginalis[ing] and/or assimilat[ing] CAM practices". Indeed, as noted earlier on, ecocentrism, vitalism, holism and salutogenesis can accept anthropocentric, mechanistic, reductionistic and pathogenesis-focused explanations, though the opposite is not the case.

Is the biomedicine's underlying paradigm—with its anthropocentric, mechanistic ontology—thus what Sandra Harding terms a "predatory conceptual framework" [23]? Or, as Hollenberg and Muzzin ask: "Could biomedicine change such that CAM could be fairly integrated into an equitable form of IM [integrative medicine], while respecting and incorporating the fundamental aspects of CAM paradigms? [4]" Coulter and colleagues pose a similar question: "Can the worldviews of vitalism, holism and scientific materialism[,] rather than create a schism…become a collective…set of radical design tools for health creation [?] … Is there a powerful future where [mechanistic] science, empirical practice and vitalism work together? [71]"

With these critical perspectives and questions in mind, we turn now to the typology itself.

4. An Operational Typology of TCIM

Figure 1, along with Table 1, provide an overview of this work's operational typology of TCIM. As shown, the typology includes six primary categories (or, 'ideal types'), each with its own sub-types (elaborated further on):

A. Orally Transmitted Ethnomedical Systems and Practices;
B. Codified Ethnomedical Systems and Practices;
C. Non-Ethnomedical Whole Systems;
D. Complementary Therapeutics;
E. Community-Based Therapeutics; and
F. Integrative Therapeutics.

[Insert Table 1 here]

Informed by a theoretical analysis of the WHO's T&CM definition and related critical scholarship, this typology is shaped with reference to three primary conceptual domains (some with associated sub-domains): (i) historical factors; (ii) paradigmatic and cultural features; and, (iii) knowledge transmission modes. Table 2 characterizes Types A through E in relation to each of these domains but omits Types E, which is elaborated in Table 1 as well as the relevant sections of the narrative..

[Insert Table 2 here]

4.1 Conceptual Domains

The first of the three domains, *Historical Factors*, recognizes that contemporary forms of TCIM arise from a series of defined historical (and related political) factors [23,43]. Although such factors will necessarily differ for each TCIM approach, and across regions, there are some common historical trends (including colonization's impacts) that support this work's typological classifications. These will be briefly discussed across the narratives explaining the typology's various TCIM types and subtypes, and are also elaborated in Table 2.

The second domain, *Paradigmatic and Cultural Features*, recognizes that all therapeutic approaches—including biomedicine—have distinct paradigmatic elements and are culturally-situated [23]. Accounting for these features, the typology categorically differentiates between ethnomedical and non-ethnomedical TCIM approaches, recognizing (amongst other issues) that some therapeutic approaches remain connected to (and/or displaced from) particular lands, ecosystems, and/or ethnocultural communities. The typology also distinguishes between therapeutic approaches with an historical or contemporary conceptual gravitational centre in ecocentric / vitalistic versus anthropocentric / mechanistic ontologies, while accounting for the fact that all therapeutic knowledges and systems are dynamic and evolving, inter-hybridizing with others in varying degrees [43]. Further, the typology draws attention to the place of spiritual and religious perspectives, which have, historically speaking, played a central role in many ethnomedical paradigms [92].

The final domain, *Knowledge Transmission Modes*, characterizes the ways in which different forms of TCIM are contemporarily shared, taught and/or disseminated. In particular, this domain draws attention to the degree of codification and knowledge standardization evident with respect to diverse TCIM approaches, as well as the extent to which oral, community-based modes of knowledge transmission (e.g., apprenticeship, family or community lineage) and/or institutional training modes may be at play [6]. It also attends to questions of expert versus community-based knowledge, and to their interface.

In recognition that the WHO's T&CM definition attends explicitly to structural (i.e., health systems) considerations, the typology addresses these as well, but does so almost entirely within a single Type (Integrative Therapeutics). As such, structural considerations are not included here as a primary conceptual domain driving the overall typological design.

4.2 Six TCIM Types

TCIM is a broad construct that includes a wide and diverse range of sociopolitically marginalized therapeutic systems, knowledges, practices, products and devices, as well as the interface between them, and with dominant biomedicine. Conceptually informed by the domains elaborated above, this typology, whose six TCIM types (along with their sub-types), ar elaborated in what follows, offers a comprehensive framework for understanding, classifying and analysing this wide range of therapeutic approaches.

Type A: Orally Transmitted Ethnomedical Systems and Practices

This first TCIM type includes a wide range of ethnomedical therapeutic knowledges and practices that are : (a) primarily transmitted at the community level through expertise constituted as oral tradition, family lineage, and/or apprenticeship (though some of their elements may be textually documented); (b) explicitly anchored to particular lands and communities in any world region (though they may have become displaced or exported); (c) characterized by a high degree of internal diversity (rather than standardization of knowledge and practice), whether at the level of family, village, community or nation; and, (d) in many cases include an explicit focus on spirituality, wherein humans (along with other life forms) are understood as sacred elements within complex, interconnected ecological systems. Although either weak or strong therapeutic hybridizations with other knowledge forms may be evident with respect to Type A therapeutics, these would typically retain orally transmitted knowledges as their gravitational centre.

Key examples of Type A therapeutic approaches may include highly localized approaches to herbal therapeutics, divination, ceremonial healing practices, and the work of traditional birth attendants. Some but not all Type A systems and practices may also align with Foster's anthropological category of a "personalistic medical system…in which disease is explained as due to the *active, purposeful intervention* of an *agent*, who may be human…nonhuman (a ghost, an ancestor, an evil spirit), or supernatural (a deity or other very powerful being) [93]. However, as with all types, the determination of whether a therapeutic approach falls within Type A should be based on the type's primary characteristics (rather than a provisional 'list' of included healing approaches).

It is useful to differentiate two sub-types within Type A: Indigenous Peoples' Traditional Medicine; and, Non-Indigenous Peoples' Traditional Medicine.

Indigenous Peoples' Traditional Medicine

This sub-type refers to Type A therapeutic approaches that have strong ties to Indigenous peoples, lands and ways of life. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) does not provide a singular definition of Indigeneity, based on the principle that Indigenous peoples' self-determination and self-definition should be honoured [34]. However, a widely-cited working definition, offered by United Nations Special Rapporteur Martinez Cobo, is useful [94]:

> Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system.

As Martinez Cobo further elaborates, Indigenous Peoples' "historical continuity" is linked to their "occupation of ancestral lands…culture [and] language". Further, Indigenous Peoples often have "[a]n experience of subjugation, marginalization, dispossession, exclusion or discrimination" [34]. Therapeutic approaches linked to Indigenous Peoples as described above may be characterized within the present sub-type, whether they are constituted as complex medical systems, fragments thereof, or as standalone practices.

As noted in a 2023 United Nations study, "Indigenous Peoples tend to approach health as an equilibrium fo spirituality, traditional medicine, biodiversity and the interconnectedness of all that exists… address[ing] the entire person within the context of past, present and unborn generations" [95]. Further, as Redvers indicates, "the health of the planet is intrinsically tied to the wellbeing of Indigenous Peoples. When Indigenous Peoples have

their Land, culture, and sovereignty, they are more likely to have greater wellbeing" [70]. This fundamentally involves the preservation of Indigenous languages and Indigenous knowledges as part of a "holistic lens that acknowledges cultural and Land-based practices as being crucial for human health and for the health of the planet." However, Indigenous Peoples around the world disproportionately experience health inequities that "originated during the colonization era…[and] have been perpeteuated by neocolonial systems" of governance today [95].

Further, a range of factors—European colonization foremost among them—-have contributed to the erosion, denigration and loss of living lineages of many Indigenous therapeutic knowledges and practices, which may later emerge in regenerated forms. Many such therapeutic approaches have been historically outlawed (and in some cases, continue to be outlawed) across some parts of the world, interrupting their free and continuous transmission [23]. Today, many Indigenous communities continue the work of reclaiming, reconstructing and revitalizing these approaches [48,49]. Marshall *et al* write, for example of the need to "relearn to use the proper herbs, plants, and trees for our good health and well-being" as a means to "recover from the cultural starvation" of colonization's impacts [49].

In terms of knowledge transmission, it further warrants note that while such therapeutic may sometimes be incorporated into national health systems in various forms [96], it is not usually not in a 'standardized' or 'professionalized' format [49]. Indigenous-led health care partnerships in such contexts often centralize the principle of "culture as cure" [97]. Further, as Indigenous scholars repeatedly observe, the persistence of many Indigenous Traditional Medicine approaches as internally diverse, non-institutionalized approaches that resist Eurocentric organizational modes is not accidental. Kovach, for example, writes, "Indigenous knowledges can never be standardized" [98]; and, Martin-Hill cautions against "transforming [traditional medicine] practice from cultures to institutions" [48].

Regulators contending with Indigenous traditional medicine's interface with national health systems may refer to stipulations made within UNDRIP [34]. In particular, Section 11 affirms Indigenous Peoples "right to practise and revitalize their cultural traditions and customs", which includes therapeutic knowledges and practices. Section 11 also affirms Indigenous Peoples right to state restitution "with respect to their cultural, intellectual, religious, and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs". The latter point is of particular relevance with respect to the widespread globalized extraction and misappropriation of Indigenous therapeutic practices and products, including traditional herbal medicines. Sections 24 and 31 of UNDRIP furthermore address Indigenous Peoples' right to health, including the maintenance and preservation of traditional health care knowledges, practices and resources, as key elements of Indigenous peoples' self-determination.

Non-Indigenous Peoples' Traditional Medicine

Type A's second sub-type refers to orally-transmitted, ethnomedical systems and practices are not specifically affiliated with Indigenous peoples. Some such therapeutic approaches may once have been forms of Indigenous peoples' traditional medicine but, having become historically displaced from their lands of origin (at times through violent means), are now practiced in other regions. One key example here would be the diverse (and variously-hybridized) systems and practice of Afro-descendent traditional medicine that have persisted and inter-hybridized across the Americas region following African peoples' forced enslavement there [99]. Other examples include a wide range of highly-localized, orally-transmitted therapeutic systems across all world regions but especially across the global South that are sometimes termed 'folk' medicine by anthropologists.[3] Such therapeutics are largely practised by trusted, community-defined expert practitioners (e.g., herbalists, hands-on healing practitioners, birth workers, spiritual healers and others). As in the Indigenous Peoples' Traditional Medicine subtype, the question of expertise here, and the determinations of what knowledges and

[3] The term 'folk' medicine will not be used here, as it holds the potential to exert epistemic violence by implicitly subordinating the complex ethnomedical systems and cultures of colonized peoples into the category of 'folklore', minimizing their sophistication and denigrating value in contrast to those of colonizing peoples.

practices are constituted as valid and who may legitimately transmit and enact such, are determined within non-institutional, community and cultural contexts [100].

Type B: Codified Ethnomedical Systems and Practices

Type B refers to a wide range of complex ethnomedical systems (along with their associated therapeutic elements) that are characterized by a high degree of textual codification. This codification might take the form of: a) associated historical texts that continue to inform contemporary practice; and/or, b) more contemporary textual documentation of a system and its affiliated practices, informed by historical fragments and/or culturally-situated elements. Globally speaking, codified ethnomedical systems and practices may be employed within their cultures and/or geographies of origin, as well as in diasporic contexts. Ecocentric, vitalistic ethnomedical sciences remain the dominant paradigmatic frameworks within which this category's therapeutics are employed. The ecocentricity of such systems is evident, for example, in conceptual models that conceptualize health and its balances in relation to fire, earth, water and other elements from the natural world. Today, many such systems may be characterized by weak hybridization with mechanistic knowledges (e.g., the inclusion of biomedical scientific elements in training curricula). There may also be evidence of strong or weak inter-hybridization between multiple ethnomedical knowledges (as the example of Arabic medicine, detailed further on, shows). However, only those hybridizations that retain codified ethnomedical knowledges at their gravitational centre are to be classified within Type B.

Key examples include such ethnomedical systems as Chinese medicine, Ayurveda, Unani Tibb, Kampo, Persian Medicine, Korean medicine, Sowa Rigpa, traditional Arabic and Islamic medicine, Thai traditional medicine, and forms of traditional European medicine that strongly ethnomedical paradigmatic elements (e.g., [101]). Critically, Type B includes ethnomedical systems' as their associated knowledges, vitalistic diagnostic approaches and treatment frameworks, as well as their affiliated therapeutic practices, tools and products. For example: 'traditional acupuncture' practised from within an East Asian ethnomedical framework would be included in this type, whether practised alone or in combination with other therapeutic elements from that ethnomedical systems (e.g., moxibustion, herbal medicine, etc.). Many Type B systems furthermore overlap at least partly within Foster's category of a "naturalistic" medical system, in which illness is explained "in impersonal systemic terms," resulting "from such *natural forces or conditions* as cold, heat, winds, dampness, and, above all, by an upset in the balance of the basic body elements…[or] humors" [93].

As in type A, ethnomedical systems and practices with a strong historical basis are neither internally singular nor unequivocally 'ancient'. Further, while many such systems and practices may have historically included spiritual or religious epistemic elements (e.g., Chinese medicine and Taoism, Ayurveda and Hinduism), such elements may have become minimized in contemporary variants. Conversely, other systems—such as traditional Arabic and Islamic medicine continue to retain explicitly-religious elements [102]. The latter case also shows how multiple ethnomedical systems may inter-hybridize into new systems. Indeed, Arabic medicine represents an "amalgam of indigenous medical knowledge" with "Islamic medical and Prophetic influences, as well as regional healing practices emerging from specific geographic and cultural origins," including from Ayurvedic, Chinese, Persian and Unani medicine.

Type B may be broadly categorized into two primary sub-types: a) Institutionalized Traditional Medicine Systems and Practices; and b) Non-Institutionalized Traditional Medicine Systems and Practices.

Institutionalized Traditional Medicine Systems and Practices

Over the last century, a particular, strongly-institutionalized configuration of codified ethnomedical systems has emerged that Hardiman and Mukharji refer to as "syndicated traditions" [43]. In such 'syndications', long-standing ethnomedical traditions and their affiliated practices have some of their paradigmatic and technical elements selectively standardized, at times re-codified, transmitted through formal educational institutions, professionalized, and in several jurisdictions governed via statutory regulation.

In particular in East and South Asia, such ethnomedical institutionalization trajectories have unfolded at least partly as a political means to bolster national identity. This is the case, for example, for traditional Chinese medicine, Ayurveda and Unani-Tibb, for each of which the WHO has also articulated institutional 'training benchmarks' [103,103,104]. In each case, these systems' politicized 'syndications' emerged at least partly in response to broader conditions of European colonization and biomedical dominance. Related, they have gained in political capital as a result of a strategic engagement with historically-European modes of health professionalization (e.g., educational standardization, statutory regulation) and the adoption of biomedical scientific elements (e.g., curricular components, evidentiary modes) as key elements [105–107]. In some cases, as in post-Soviet Uzbekistan, 'syndicated' ethnomedical systems may also draw upon "a body of local traditions that draw their substance from long-forgotten beliefs", which become reconstituted as a new "invented tradition" [44].

The institutionalization of ethnomedical systems has several important ramifications. Their standardized forms may lend these systems to heightened paradigmatic alignment with biomedical research approaches, a gateway to further political capital to support interface with dominant health systems [3]. Their adherence to dominant professionalization norms can also support trajectories leading to these systems' uptake within "public medical systems", where they may be "considered legitimate reimbursable services by insurers" [108]. However, as Fruehauf has argued [109], the transformation of ethnomedical knowledges and practices into institutionalized forms may also profoundly alter their paradigmatic character, extracting "the traditional art…out of the hands of its lineage holders and assigning it to the control of modern science". In other words, such institutionalizations may be viewed as therapeutic hybridizations that risk, over time, shifting the gravitational centres of ethnomedical systems from more vitalistic to more mechanistic ontologies. As Janes asserts: "alternative systems may become so much like biomedicine, so rationalized and 'sanitized' of their alternative epistemological tenets that they may not be able to meet the human and social needs of the rapidly approaching health crises" within which they may have the capacity to fruitfully intervene [108].

Non-Institutionalized Traditional Medicine Systems and Practices

As Lambert observes, the "selective processes of legitimation… whereby particular traditions of [I]ndigenous medicine undergo reformulation into professionalized and accredited knowledge systems" produces "hierarchies of legitimacy" that marginalize ethnomedical practitioner communities who "practice without official [state] sanction" [105]. Although less institutionalized variants of codified ethnomedical systems – including those that have 'syndicated' iterations – continue to be practised across many countries and regions, this typically occurs without state backing, and with lesser sociopolitical standing than their 'syndicated' counterparts. This sub-type characterizes such non-institutionalized, ethnomedical therapeutic approaches. These are often characterized by a combination of codified and orally transmitted knowledges, and institutional as well as more community-based training modes (including apprenticeship and family lineage). Two brief examples, with reference to Chinese medicine and Ayurveda, illustrate the complex and marginalized positionalities of such therapeutics.

As Taylor and others have documented, the institutionalized ('syndicated') system known as Traditional Chinese Medicine (TCM), took shape in 1950 China under Mao Zedong's regime [107,109,110]. At the time, following state licensure examinations that many people failed, "[t]he large majority of Chinese medical practitioners…[were] banned from practice…[and] unable to practice Chinese medicine legally" [107]. Fruehauf recounts, from that time [109]: "TCM departments were established in many city hospitals… [but] the doctors in charge were 'Western doctors with Chinese knowledge'", which had the effect of further infusing the emerging TCM system with biomedical paradigmatic elements. Over time, TCM's institutionalization, and its subsequent globalization, has had the persistent effect of marginalizing many 'classical' and Taoist (rather than Maoist) variants of Chinese ethnomedical knowledge and practice. Critically, however, all these approaches share a common textual basis as well as links to orally transmitted, local and regional lineages.

Another example, from India, makes visible how legislative regimes that lift up ethnomedical syndication strategies based on Eurocentric professionalization norms may marginalize non-institutionalized therapeutic lineages. There, non-professionalized "bone doctors", whose work has "historical and epistemological links with Ayurveda", treat "a wide range of complaints…[but primarily] sprains, fractures, injuries to limbs, or musculo-

skeletal pain". These practitioners' knowledges of medicinal plant preparations, as well as physical manipulative techniques, are transmitted via familial lineage as well as textually. But, bone doctors do not share institutionalized Ayurvedic medicine's state backing in India [105]. Although Indian state governments had initially valorized "experience-based registration" of bone doctors and other ethnomedical practitioners in the 1940s and 1950s as part of early efforts to "regulate indigenous medical forms", these statutory pathways were subsequently phased out. Although today "[b]one doctors have *expertise* in the eyes of the patients they treat…they are not *authorized* to provide care, since the modern State takes formal qualifications to be the sole criterion for recognition of expert status."

Type C: Non-Ethnomedical Whole Systems

The typology's third Type encompasses textually-codified, complex medical systems that are neither predominantly ethnomedical nor well-accepted within dominant biomedicine.[4] On the whole, these systems are underpinned by therapeutic paradigms that centralize holism and salutogenesis, either—in a first sub-type—with a more vitalistic ontological inclination, or—in a second sub-type—with reference to a mechanistic gravitational centre. Like Type B systems, Type C systems are often internally diverse (with sub-communities of knowledge and practice within them) and may be institutionalized and standardized in varying degrees. Type C systems also have their own distinct conceptual and diagnostic models, as well as therapeutic modes, sometimes produced via hybridizations with other ethnomedical, non-ethnomedical and biomedical systems. However, what distinguishes Type C systems from Type B is that their paradigmatic gravitational centres are not *predominantly* ethnomedical. In varying degrees, Type C systems remain sociopolitically marginalized in relation to dominant biomedicine. This may be due to a range of historical, economic, epistemic, political and socio-cultural factors, but not predominantly because of European colonialism, as in Type B. Type C's two sub-types are elaborated below.

Vitalistically-Inclined Whole Medical Systems

This sub-type involves complex medical systems that take as their gravitational centre an 'ontological heterarchy' (see 3.3) characterized by vitalism, along with holism and salutogenesis, along with other system-specific paradigmatic elements. Ecocentricity may be implicit or explicit in varying degrees within such systems. Salient examples of such systems include homeopathic medicine and anthroposophic medicine, as well as vitalistically-oriented strands within European phytotherapy, naturopathic medicine, chiropractic medicine and osteopathic medicine.

Homeopathic medicine is one example of such a vitalistically-inclined, holistic, salutogenic system. Its conceptual model "emphasizes the principle of 'like curing like'", its diagnostic model centres "the concept of an individualized 'constitutional' prescription", and its therapeutic modes rely on "the use of remedies prepared by 'infinitesimally' diluting particular substances to the point where no material trace of the original substance remains" [50]. Classical homeopathy originated in late 18th century Germany [111], and has been notably globalized across many nations [e.g., 112,113], with many variants worldwide today.

Anthroposophic medicine is another system that exemplifies this sub-type's complex potential characteristics, fusing ethnomedical, non-ethnomedical and biomedical elements into a vitalistic, holistic, salutogenic whole. Anthroposophy's conceptual model draws on elements from Greco-Roman ethnomedicine (e.g., its four-element cosmology) [114], and includes other vitalistic constructs (e.g., four 'formative forces', and a and a threefold

[4] Readers will note that Type C refers only to 'systems' and not to practices as do Types A and B. This deliberate design decision accounts for the high degree of medical hybridity represented across diverse Type C systems. This hybridity ultimately results in a greater degree of variability in the strength of the 'bond' between a given therapeutic practice or product and a particular set of affiliated knowledges, than is the case in Type A and B systems. Traditional acupuncture, for example, is an ethnomedical practice 'bonded' strongly to particular ethnomedical diagnostic and therapeutic knowledges in multiple Type B systems. When acupuncture is 'extracted' from those knowledge bonds (and practiced primarily with reference to biomedical concepts), it may fall more clearly within the Type C system of biomedical acupuncture, or (if used as a standalone modality) in Type D, complementary therapeutics. The use of homeopathic remedies, similarly, is a non-ethnomedical therapeutic approach which (like 'traditional' acupuncture) is strongly 'bonded' to particular diagnostic and therapeutic knowledges within the Type C system of classical homeopathy. But, homeopathic remedies are also used within the Type C system of naturopathy, but here with reference to a wide range of diagnostic and therapeutic knowledges [50], that is, with a 'weaker' bond to a given knowledge paradigm. To account for this variability and avoid confusion, 'practices' are thus not constituted as fundamentally affiliated with particular Type C paradigms, even though in some cases (e.g., homeopathic remedies in classical homeopathy) this would still be the case.

structural/functional model of the human organism) [114]. The system concurrently incorporates biomedical diagnostic and treatment approaches, ethnomedical European herbal medicines, and non-ethnomedical therapeutic approaches such as Eurythmy therapeutic movement, and homeopathically informed remedies.

There are several examples of complex medical systems that may straddle this sub-type and the next, at once illustrating the internal diversity of many therapeutic systems, and the permeability of this typology's categories. Such systems include European phytotherapy (sometimes termed 'Western herbal medicine'), naturopathic medicine, osteopathic medicine, and chiropractic medicine. As Nissen has shown in a case study of Western herbal medicine practitioners in the United Kingdom, their occupation unites around the principle of holism. But sub-communities within that occupation diverge as to their alignment with vitalistic perspectives, with some relying instead on more biomedical (mechanistic) diagnostic constructs and a biopsychosocial approach in their use of herbal medicines.

A similar phenomenon has been documented within naturopathic medicine, a therapeutic system historically underpinned by an ecocentric, vitalistic principle termed the *Vis Medicatrix Naturae* ('nature's healing power'). Casting 'the *Vis'* as a metaphor, Coulter and colleagues argue that it is simply the *interpretation* of this fundamental vitalistic principle that varies across the contemporary naturopathic occupation. However, as Ijaz *et al* have shown with reference to the Canadian context, there remains a substantial sub-community of naturopathic practitioners "who adhere more strictly to biomedical epistemology and bioscientific evidentiary constructs in their clinical activities" [115]. Like Nissen's herbalists, these naturopaths appear to "reject…notions of vitalism" [116], despite an overarching commitment to holism and salutogenesis within their work [115].

The case of naturopaths illustrates another important feature of this sub-type: the existence of 'syndicated' and 'non-syndicated' subcommunities within a single therapeutic system. In the United States, for example, an institutionalized naturopathic medicine profession is built upon a standardized, four-year curriculum offered at several 'accredited' institutions across the country, and has achieved licensure in 26 of the country's states and territories [115]. However, so-called 'traditional naturopaths' (who share many paradigmatic elements with professionalized 'naturopathic doctors') train within less institutionalized contexts, and continue to practice in many US jurisdictions [117], without explicit state sanction or the socioeconomic capital that institutionalization entails.

Mechanistically Inclined Whole Medical Systems

Type C's second sub-type characterizes complex medical systems with a mechanistic gravitational centre informed by holistic, salutogenic principles, and other system-specific paradigmatic elements. Key exemplars include chiropractic medicine, functional medicine, the whole system of biomedical acupuncture, and orthomolecular medicine.

As the case of chiropractic medicine shows, some therapeutic systems that have historical roots in a vitalistically-inclined ontology may shift their paradigmatic gravitational centres toward mechanism. Over the last fifty years, the 'vertebral subluxation theory'—a vitalistic construct at the heart of early chiropractic medicine, but one that is difficult to reconcile with mechanistic / biomedical explanatory models—has been increasingly de-emphasized (and even disavowed) across much of the chiropractic field [87,118,119]. Such biomedicalizing paradigmatic shifts have also been documented as taking place as part of the professionalization trajectories of several other non-biomedical therapeutic occupations (e.g., osteopathy, naturopathy, midwifery), as a means to advance their sociopolitical and economic standing [87,115,119–122].

In other cases, systems in this sub-type have their origins in mechanistic ontologies. Functional medicine (a mechanistic, holistic, salutogenic system) is a key exemplar, characterized by a "paradigm shift from the body-as-machine model to a systems biology approach. …This involves exploring patients' biochemical individuality[,]…may incorporate [diagnostic] tools such as gut microbiome testing and genomic testing" and offers "lifestyle medicine prescriptions" and other non-pharmacological therapeutic approaches to restore health [123].

Type D: Complementary Therapeutics

The therapeutic approaches included in Type D have three defining characteristics: a) they are therapeutic *practices, products or devices* that 'stand alone', i.e., , they do not, in themselves, comprise complex medical systems (although they may have historical origins or antecedents in such systems); b) they are not fully accepted within dominant biomedicine (in a particular context, which may vary from place to place); and, finally, c) they are often practiced as a 'complement' or adjunct to another defined complex medical system, biomedical or otherwise.[5] It is useful to categorize Type D into three sub-types, which reference their predominant ontological inclinations.

Vitalistically-Inclined Therapeutics

Type D's first subtype refers to a wide range of stand-alone therapeutics that have historically emerged and continue to be practised with reference to vitalistic perspectives. This includes such energy medicine approaches as reiki; vitalistic therapeutic touch techniques like foot reflexology, Trager, Craniosacral Structural Integration (Rolfing) therapies; and product-inclusive approaches like Bach flower remedies and Schuessler tissue salts. Such approaches, notably, may represent a kind of therapeutic micro-system with its own internal logics, diagnostic, and treatment approaches. But, the therapeutic scope and range of such micro-systems is considerably more limited than 'whole' complex medical systems as characterized by Luz, which typically include knowledge frameworks and tools that address a more comprehensive range of health-related considerations. At times, approaches within this sub-type may be applied in the form of 'this-for-that' or 'cookbook-style' therapeutics, in which a particular remedy is 'matched' to one or more (vitalistically-constituted) symptoms without the fulsome diagnostic assessment that would take place within the context of a Type A, B or C vitalistic system.

Mechanistic Therapeutics Extracted from Vitalistic Systems

This sub-type refers to therapeutic approaches that have origins in a vitalistic Type A, B or C system, but have been 'extracted' and isolated from their vitalistic paradigms to be used with reference to a more mechanistic perspective. Key examples include some forms of biomedical acupuncture, extracts of traditional herbal medicines extracts standardized to optimize a particular 'active ingredient' (e.g., curcumin, derived from turmeric), homeopathic remedies used for biomedically-constituted diagnoses without reference to a homeopathic diagnostic process, 'secular' mindfulness (originating in Buddhist meditative traditions), 'secular' postural yoga, and various psycho-active therapeutics practiced outside of their originating Indigenous ceremonial and/or ethnomedical contexts (e.g., psilocybin-assisted psychotherapy).

The mechanistic refashioning of once-vitalistic therapeutics has certain recognizable hallmarks. For example, ethnomedical herbal preparations often undergo (at least some part of) a threefold process involving "constituent isolation, compound standardization, and constituent synthesis" [127] as they are reformulated to "suit the biomedical paradigm". Biopiracy is another common consideration, involving a five-stage process in which an ethnomedicinal plant or food is: (a)'poached' (via bioprospecting) from its community of origin; (b) 'pulled apart' (into its 'constituent' parts), (c) 'patented' (with the commercial aim of commodifying an isolated and/or synthetic extract), (d) 'privileged' (via bioscientific evidence, as superior to its whole plant antecedent); and 'profited upon' (by corporate agents, without commensurate compensation to source communities). Complex sociopolitical and ethical issues, including cultural misappropriation, commodification, intellectual property rights, and social and ecological injustice, are key considerations relevant to to this subtype, especially with respect to therapeutic approaches extracted from ethnomedical systems [4].

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[5] Type D is *not* meant to include the many biomedical therapeutic approaches with historical, cultural and/or epistemic roots in non-biomedical therapeutic systems. This includes: pharmaceutical drugs derived from herbal ethnomedicines; devices with a conceptual and/or historical basis in a non-biomedical system (e.g., the design of the transcutaneous electrical nerve stimulation [TENS] unit, used biomedically for pain relief, was informed by contemporary variants of traditional acupuncture [124]); practices such as vaccination, with historical origins dating back centuries in ethnomedical inoculation / 'variolation' practices [125,126]; and, health occupations, such nursing-midwifery, whose tenets and practices have roots in ethnomedical birth work, but are today constituted as biomedical professions.

Mechanistically Inclined Therapeutics

Therapeutics within this final subtype have primarily originated within, and are currently practiced with reference to, a mechanistic therapeutic ontology.[6] Included approaches, which are often also inclined toward holism and salutogenesis, include some art and music therapies, some body-based therapies (e.g., Alexander technique, Feldenkrais, Myofascial release), a range of nutritional supplements and their combinations (e.g., vitamin, mineral, enzyme and probiotic products), and various therapeutic approaches that rely on medical devices (e.g., biofeedback, photobiomodulation, and others).

Notably, while some such therapeutics (e.g., vitamin supplements) are widely characterized as 'natural' or 'alternative' as compared to pharmaceutical drugs, and they may be food-derived or food-inspired, they carry the conceptual hallmarks of mechanistic biomedical science, which emphasizes isolation and synthetic production of so-called active ingredients [127]. In some cases, therapeutic approaches in this category may also represent therapeutic hybrids that include influences from ethnomedical (or other vitalistic) therapeutic systems. Trigger point dry needling, for example, today involves the therapeutic insertion of acupuncture needles (originating in East Asian medicine), but originated in the work of biomedical physician Janet Travell, who initially used hypodermic needles to inject saline solutions into painful bodily sites from a mechanistic standpoint [128–130].

Type E: Community-Based Therapeutics

The next type to be characterized in this work includes those TCIM therapeutics practised across community settings, typically by and for 'lay' people, though also in co-ordination with health care practitioners. People may engage in community-based therapeutics for various reasons, whether salutogenic / preventive, to treat active ailments, to palliate discomfort, and/or to build healthy relationships and communities. On the whole, this type represents a domain of health democratization, illustrating lay peoples' autonomous capacity to engage, with and/or without 'expert' inputs, the therapeutic knowledges and practices that meet their needs. In this sense, Type E may be clearly distinguished from (but may act as a complement to, or even as an overarching framework that draws upon) Types A through D, which emphasize externally validated and even monopolistic forms of 'expertise'.

Ultimately, this TCIM type may be understood as a space advancing what the WHO has termed "well-being societies", in which a "whole-of-government" and "whole-of-society" approach intersect to promote

> a positive vision of health that integrates physical, mental, psychological, emotional, spiritual and social well-being; the principles of human rights, social and environmental justice, solidarity, gender, inter-generational equity, and peace; new indicators of success, beyond gross domestic product, that take account of individual and societal well-being…[and] the focus of health promotion on empowerment, inclusivity, equity and meaningful participation [37].

Community-based therapeutics is constituted here within two sub-types: *Self-Care* and *Intercare*.

Self-Care

The WHO has characterized self-care as "the ability of individuals, families and communities to promote health, prevent disease, maintain health and to cope with illness and disability with or without the support of a health worker" [131]. As "the primary health resource in the health system," self-care is an essential element of the human right to health, encompassing health's "personal determinants… situational, economic, emotional and social determinants…[and] health systems determinants." In some jurisdictions, it has been furthermore shown that "CAM [complementary and alternative medicine] self-care constitutes the bulk of self-care… and represents the single largest area of modern CAM consumption" [132].

This sub-type refers to forms of remedial or salutogenic self-care practices at the level of the 'individual'. This includes such 'over the counter' TCIM therapeutics as self-administered herbal remedies, which at times may

[6] This subtype should not be understood to include mechanistic therapeutics that are on a clear track to acceptance within dominant biomedicine, e.g., recently developed pharmaceutical drugs that are being studied or in a government approval phase.

have cultural as well as therapeutic significance. Other examples, which address health's "personal determinants" include: healthy dietary patterns (including traditional and Indigenous dietary practices, the avoidance of industrially-processed foods, and therapeutic diets that fall outside of the standard of biomedical dietetic care); the consumption of nutrient-dense 'super'-foods (e.g., bee pollen, spirulina, nutritional yeast); the preventive and therapeutic use of culinary spices and medicinal herbs (e.g., in cooking or as teas); the use of dietary supplements (e.g., vitamins, minerals, probiotics and digestive enzymes, essential fatty acid products); health-promoting physical activity (including such approaches as yoga, t'ai chi, qi gong or eurythmy); spiritual and mindfulness-focused practices (such as prayer and meditation); and, engagement with health-promoting technologies or devices (e.g., sauna, mindfulness 'apps', sound healing musical tracks). At times, individual self-care activities may include an associated financial transaction (e.g., participation in a paid yoga class); and, although these may take place in group settings, they may still be conceptualized as self-care at the level of the individual. However, as the next sub-type—intercare—illustrates, self-care always takes place within a larger socio-ecological context.

Critically, dominant self-care narratives in global North countries tend to emphasize the well-being of the 'individual' rather than the 'collective' or the planet [133]. This emphasis may reproduce Eurocentric tenets of individualism, at odds with "the cultural focus on collectivism" [133] that underpins many global South cultures and communities of color across the North [134,135]. Further, 'individualizing' self-care narratives have at times been critiqued as potentially "reproducing neoliberal moralities of health and illness" [136] that inappropriately 'blame' individuals for poor health outcomes that should be attributed to health's social and structural determinants [136,137]. Moreover, some self-care narratives, in particular those that call for use of costly commercial products (e.g., dietary supplements) or services (e.g., expensive yoga classes) can reproduce patterns of sociopolitical marginalization, in which the "poor and most vulnerable" [132] are less likely to have access [132,138]. The dire ecological impacts associated with "overexploitation" of medicinal plants popularized on the open marketplace represent another critical consideration in the self-care domain [139]. The inclusion of the next sub-type—intercare—aims in part to redress such problems.

Intercare

The concept of 'intercare', elaborated in a 2019 report by the Pan American Health Organization, recognizes that the health-related concept of "care…refers not only to self-care, because people to do not care for themselves entirely on their own" [140]. Rather, "[h]ealth is the product of intercare that people provide to each other every day, while creating the conditions for a dignified life". As that report elaborates, "[u]nlike the self-care approach, [intercare] values the relational and collective perspective," explicitly recognizing "the support networks that are not yet considered part of health systems, but without which no health system can function". Intercare, thus, is a kind of synergistic, ecological principle. It at once recognizes the role of self-care at the individual level, as well as treatment offered by health care professionals. Intercare goes yet further to make visible the complex, symbiotic and reciprocal relations of care that exist among people and with place: between and within friendships and intimate partnerships, families, communities, health care teams, and health care institutions – and within broader ecosystems. Writ large, intercare represents the most comprehensive category within this TCIM typology, subsuming and encompassing the many and diverse ways in which all other types and subtypes interrelate within a larger socio-ecological fabric.

On whatever scale, intercare includes certain tangible features akin to what has elsewhere been termed 'collective care' [141,142] or 'mutual aid' [143]. As Downe explains, "collective care represents an ethos of social interconnectedness… It is a cultural touchstone" in many communities, not only in families where people share "biological connections but [also in] the ties among those who share… histories, and a similar ethic of care" [142]. Therapeutically speaking, intercare thus includes the many informal ways in which families and friends may mutually support one another in their health-related self-care. It also encompasses the wide range of "peer-to-peer" initiatives, lay-led educational classes (e.g., yoga, t'ai chi, mindfulness, nutrition), health-focused support groups that emphasize non-biomedical therapeutics; community kitchens, community gardens and farmers' markets (including those emphasizing traditional and Indigenous foodways); and, a range of communal spiritual activities. Intercare further extends to institutional health care settings in which the patient-provider relationship plays an integral role in the healing process, and to group-based clinical initiatives.

Finally, as Spade critically argues, mutual aid as a form of collective care also includes a wide range of social and ecological justice initiatives that address health's structural and planetary determinants through "(a) work to dismantle existing harmful systems and/or beat back their expansion, (b) work to directly provide for people targeted by such systems and institutions, and (c) work to build an alternative infrastructure through which people can get their needs met" [143]. Intercare of all of the aforementioned kinds are not only survival imperatives for many but can play an important therapeutic role within communities that, for a range of historical reasons, may have come to distrust dominant health care institutions, and that suffer collective traumas arising from social injustice. As Page and Woodland affirm [142], "[c]ollective trauma is transformed collectively… just as harm is collective, healing is not an individual act. …Our collective histories are filled with practices and traditions used to heal our people and ensure our survival." Ultimately, intercare represents the space of the therapeutic commons, where all health-related knowledge and healing practice dwell in social, ecological and epistemic justice as a shared, communal resource.

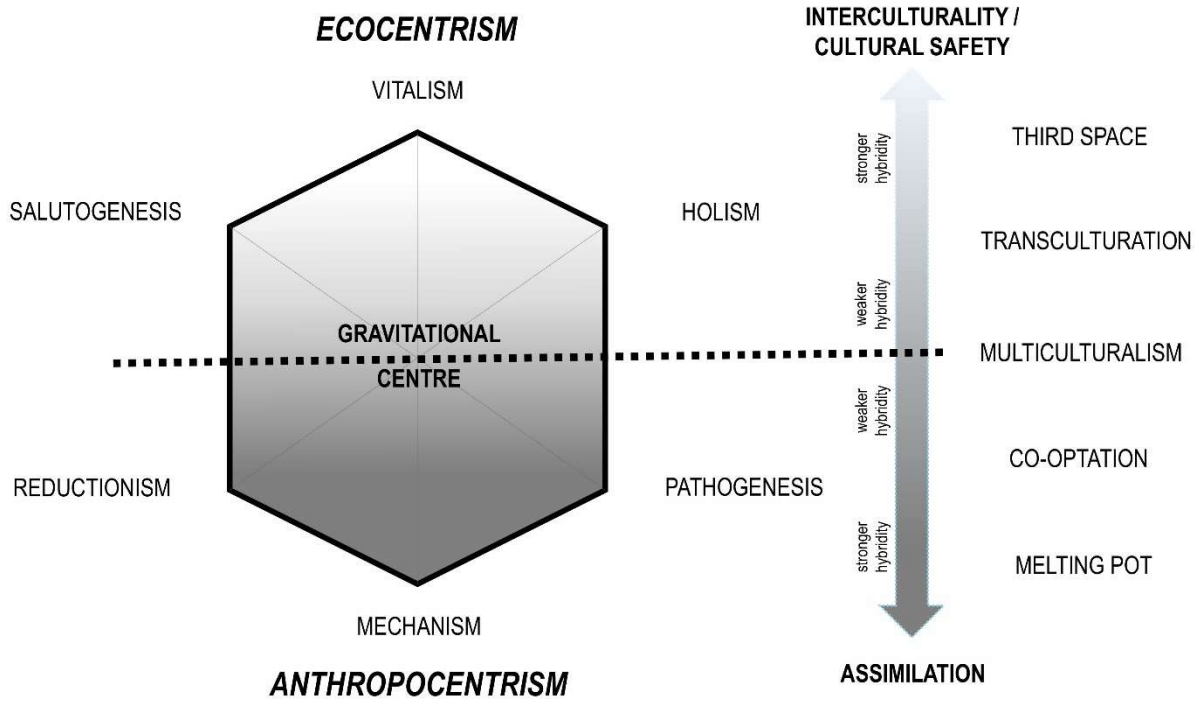
Type F: Integrative Therapeutics

Type F is conceptually different from the other five types elaborated to this point, in that it does not provide parameters for classifying particular therapeutic approaches *per se*. Rather, Type F is a 'relational' category whose purpose is to characterize the ways in which multiple therapeutic knowledges and practices may intersect or interface – that is, integrate – with one another. Importantly, this Type should be understood as the terrain of relations not only between biomedical and non-biomedical therapeutic approaches (as 'integrative medicine' is often conceptualized). Rather, it also reflects the intersections that take place between and among the different types of non-biomedical therapeutics characterized in Types A through E.

Integrative therapeutics encompasses a wide range of possible interplays between distinct therapeutic approaches, whether at the level of the individual 'lay' person or health care practitioner, within a particular community, between multiple health care practitioners, in a health care facility or institution, within a local or regional health system, and/or at the national health systems level. Integration may involve engagements between community members, local knowledge holders and community leaders, licensed and unlicensed health care practitioners, policy makers, medicine growers and manufacturers, civil society organizations, as well as corporate actors. Therapeutic blendings may take place concurrently or in sequence, in parallel, in co-ordination, or in collaboration, and sometimes with reference to an explicit 'model of care'. Its dynamics will result from context-specific conditions, including interpersonal, historical, cultural, economic and political factors.

There are prior analytic frameworks addressing integrative therapeutics [e.g., 144–146]. Overall, however, these tend to focus on specific integration contexts, such as within multidisciplinary health care teams [144,145], or at level of a department or service [146]. These frameworks also tend to overlook the impacts of biomedicine's sociopolitical dominance, as well as paradigmatic tensions, despite these factors being documented by sociologists as consistently arising across 'integrative medicine' contexts [e.g., 4,147–150]. Type F contends directly with these problems, offering an overarching conceptual framework for analysing the dynamics of therapeutic integration across a wide range of contexts.

[INSERT FIGURE 2 HERE.]



Caption: Figure 2. Therapeutic Integration Framework for Traditional, Complementary and Integrative Medicine

This work's analytic framework for understanding integrative therapeutics, illustrated in Figure 2, rests on five key tenets:

1. **Integration as Therapeutic Hybridity:** Therapeutic integration is a form of hybridization, in which multiple therapeutic paradigms (and their affiliated knowledges and practices) come to intersect or co-exist in a range of configurations. All therapeutic hybrids (that is, all 'integrative medicine' contexts) have their own paradigmatic gravitational centres, which may be described on a matrix characterized at its two poles by ontologies of ecocentrism and anthropocentrism. The matrix is further elaborated with reference to the ontological principles of vitalism/mechanism, holism/reductionism, and salutogenesis/pathogenesis (see Sections 3.3 – 3.7).
2. **Integration as a Spectrum of Paradigmatically Informed Power Dynamics:** The dynamics and characteristics of therapeutic integration are substantially produced by the power relations that arise at the interface between the paradigmatic features of the intersecting therapeutic knowledges and practices. These power relations may be characterized along a spectrum ranging from 'assimilation' to 'interculturality / cultural safety', described in more detail in the sections that follow.
3. **Biomedical Dominance and Mechanistic Paradigmatic Elements Exert an Assimilative Gravitational Force:** Dominant biomedicine's disproportionate hegemonic power globally often has the effect of exerting an 'assimilative' gravitational force within biomedicine-inclusive integration encounters, which tends to reinforce biomedical dominance. Further, since mechanistic ontologies axiomatically reject vitalistic principles, the strong presence of mechanistic knowledges within an integrative medicine context will also have the effect of pulling integration dynamics gravitationally toward assimilative (rather than intercultural) models.
4. **Holistic, Salutogenic and Vitalistic Paradigmatic Elements Exert an Anti-Gravitational Force:** Since holistic and salutogenic ontological perspectives are compatible with both mechanism and vitalism, their strong presence within an integrative medicine context will support the conditions for more intercultural integration models to take hold. The interface between predominantly vitalistic therapeutic paradigms (which have the capacity to accept mechanistic premises and practices) similarly tends to foster intercultural, culturally safe integration dynamics.

5. **Secondary Factors Exert Secondary Effects:** In any complex system, any single input ultimately bears in some way, large or small, upon all others, influencing the dynamics of the whole. Thus, there may exist a range of factors beyond paradigm and power (e.g., at the level of interpersonal, historical, sociocultural, economic or political factors) that may secondarily impact the dynamics of therapeutic integration in ways that the present work does not address in detail.

What follows is a brief overview, with examples, of the range of assimilative vs. intercultural dynamics that may be evident across contexts of therapeutic integration. Using concepts drawn from the fields of political and social science, these dynamics are framed as a series of five permeable 'types' along the vertical integration spectrum shown on Figure 2's right hand side, elaborated here from the bottom upward.

Melting Pot

The 'melting pot' refers to a principle most famously implemented as a political framework in the United States of America (USA), wherein "immigrants are expected to become members of the US American society by discarding their old World identities and taking on cultural traits, traditions, and habits of the dominant society" [151]. This "assimilationist" model, conceptually, holds that the norms of a sociopolitically dominant group should persist, and "not [be] expected to be altered by, or to accommodate" the "cultural traits" of groups that enter the dominant culture. With reference to therapeutic integration, the 'melting pot' conceptually legitimates biomedical science as a hegemonic form of knowledge, exemplifying what Hollenberg and Muzzin term "paradigm assimilation". Here, biomedicine's (mechanistic) paradigm "not only appropriates or takes over another entire healing paradigm or system but reinterprets it." In this process, the "theoretical attributes and characteristics of the appropriated paradigm are then eliminated, redefined, or given new names and meanings by the assimilating paradigm". They provide the following examples:

> [A]cupuncture, understood in traditional Chinese medicine as stimulating the flow of Qi along the body's meridians to resolve Qi obstruction and to promote healing, becomes instead in biomedicine the stimulation of cells to release pain-relieving endorphins. Indigenous herbs that are locally viewed to have synergistic spiritual, psychoactive and healing properties are biomedically reduced to having pharmacologically active ingredients. The healing and social relationship between patient and healer…become mere placebo.

Another example of melting pot-style integration would be contexts in which only biomedically trained professionals are permitted to practice TCIM therapeutics, and do so exclusively from a mechanistic, biomedical standpoint.

Because of the strong gravitational force exerted both by biomedicine's hegemonic global dominance, and by mechanistic ontological perspectives, the assimilative melting pot may be understood as the 'default' mode of therapeutic integration that may take hold across global contexts, unless actively resisted. However, with deliberate effort, the epistemic injustice that the melting pot entails and enacts may be transformed in other modes of therapeutic integration.

Co-optation

Co-optation is another political science concept that refers a dominant group adoption of elements from an opposing or subordinated group into its own dominant discourses or frameworks, without reinterpreting these elements to the degree evident in paradigm assimilation. Hollenberg and Muzzin's concept of 'paradigm appropriation' is useful here, characterizing situations in which "biomedicine appropriates certain aspects from other healing systems or traditions without fully acknowledging the paradigmatic worldview from which the particular treatment aspect was taken." In other words, therapeutic practices from vitalistic systems may be taken up within biomedically-dominant contexts, whether by biomedically trained clinicians or even by practitioners who (quietly) draw on vitalistic concepts to implement these practices. Here, however, the appropriated therapeutic elements are contextually framed "as technically 'complementing' biomedicine, versus as a legitimate healing system." For example, a practitioner of East Asian medicine might practice acupuncture as a 'technical adjunct' to conventional biomedical practice, but would not expect their paradigmatic explanations for

the treatments they offer to be given any professional weight. Rather, within the context of an interdisciplinary, biomedically dominant team, the East Asian medicine clinician might continuously engage in rough 'translations' of their therapeutic approaches in biomedical terms, ultimately subordinating, rendering invisible their work's "key theoretical elements".

As Fenner has reviewed, "models of co-optation tend to fall into (or combine) two general categories: transactional models and acculturation models" [152]. Transactional models are those characterized by an "exchange of benefits for political support", wherein opponents of a dominant regime "agree to contain or limit their opposition as long as the right level of benefits continue to flow". For example, a TCIM practitioner might choose to be gainfully employed in a biomedically-dominant setting under conditions of assimilative co-optation. Despite an acute awareness of the epistemic violence that their experience might entail, they may remain silent about it to preserve their financial security. Acculturation models of co-optation, by contrast, are those in which "the commitments" of incorporated groups are "fundamentally alter[ed]" through co-optation, as they come to "identify with the dominant regime and thus moderating…aspiration to an alternative model." For example, a TCIM practitioner community may choose to adopt or align itself strongly with biomedicine's epistemic, evidentiary, educational and professionalization modes to advance its sociopolitical standing and gain entry to work in biomedically-dominant settings and/or gain access to third-party insurance coverage. Despite these apparent short term advantages, key ontological elements of their work may be lost and even forgotten along the way, especially for the 'next generation' of practitioners.

Multiculturalism

In contrast to the melting pot and co-optation, which subsume vitalistic knowledges in varying degrees, multiculturalism is a political science principle describing a mode of integration that "seeks to actively preserve minority cultures against assimilatory pressures of the mainstream culture" [153]. In therapeutic contexts, one may see scenarios in which TCIM practitioners are working in ways that explicitly align with their therapeutic paradigms, often in parallel or loose co-ordination with biomedical or other TCIM practitioners. As Ashcroft and Bevir note, however, multiculturalism regimes "aim at accommodating difference without disturbing the status quo" [154]. In other words, biomedicine's mechanistic ontology and its associated professional norms would still be constituted as the normative therapeutic paradigm in multiculturalist contexts. Vitalistically-inclined TCIM practitioners may be granted certain concessions to work explicitly in line with their knowledge paradigms, but might only be permitted to practise following referrals from gatekeeping biomedical physicians, or be denied the reimbursement or other institutional privileges granted to biomedical providers. Further, conceptually speaking, multiculturalism "involves a notion of cultural authenticity rooted in purity…[that] views cultures as separate and timeless traditions" [153]. As such, there is not usually a strong effort to 'merge' multiple therapeutic paradigms in multiculturalist contexts, but rather to have them co-existing in parallel.

Nevertheless, there may also be multiculturalist contexts of therapeutic integration whose gravitational centres rise up along the spectrum shown in Figure 3, in the direction of interculturality/cultural safety. Some examples might include therapeutic settings in which traditional medicine practitioners and their therapeutic approaches are the predominant form of care, with biomedical professionals being called on as support-personnel, or biomedical diagnostic techniques (e.g., x-ray, blood work, CT scan) being employed as an adjunct. Alternately, a biomedically-dominant treatment context in which the principles of holism and salutogenesis are centralized may also provide more equitable (intercultural/culturally safe) conditions in which biomedical and non-biomedical clinicians may offer care consistent with their own paradigms, without changing the overall character of their respective work or the care context as a whole.

Transculturation

As Lull explains [155], transculturation "refers to a process whereby cultural forms literally move through time and space where they interact with other cultural forms and settings, influence each other, produce new forms, and change the cultural settings." In contrast to multiculturalism, culture is treated in transcultural contexts as dynamic and permeable (rather than fixed and bounded), creating space for the emergence of new therapeutic meta-theories, practices and transformed therapeutic cultures. However, as Rogers observes, new or emerging

cultural forms remain situated within, and informed by the dynamics of "unequal power of cultural dominance and exploitation" evident within broader sociopolitical contexts, including "globalization, neocolonialism, and the increasing dominance of transnational capitalism vis-à-vis nation states."

The concept of 'whole health' as described in a 2023 report of the U.S. National Academies of Medicine, and as implemented across parts of that country's Veterans' Administration, offers a tangible example of therapeutic transculturation [156]. As the report indicates, its holistic, salutogenic vision of whole health is

> intended to shift the focus from a reactive disease-oriented *medical* care system to one that promotes disease prevention, health, and well-being. It changes the conversation with people from identifying what is the matter with them to identifying what matters to them, and it puts the person, not their symptoms, at the center of care.

Also integral within the whole health vision are "improvements in the social and structural determinants of health", such as "poverty…structural racism and oppression, gender bias…access to healthy food and having a place to live". These factors are constituted as "the true reasons for health inequities", which cannot be redressed through individual-level medical care alone. Furthermore central to the whole health model is that it "integrates evidence-based conventional medical care with complementary and integrative health". Ultimately, the shift to a whole health care model is described in the National Academies report as a form of "cultural transformation".

The whole health model, as implemented within the US Veteran's Administration, may be understood as representing a transcultural shift 'upwards' along the integration spectrum. Here, integration's gravitational centre shifts upward as principles of holism and salutogenesis become centralized over what the National Academies report terms "the reductionist biomedical model" and its "reactive disease-oriented *medical* care system." The model's interculturality is also evidenced by its inclusion of "complementary and integrative therapies" (such as. "acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai Chi/Qi Gong, and yoga") as central therapeutic elements along with biomedical care.

Nevertheless, the whole health model as characterized in the National Academies report ultimately falls short of the epistemic justice represented by the Third Space of integration, described further on. Despite its holism and salutogenic focus on health's social and structural determinants, the National Academies report is substantially anthropocentric in its vision of health. While "air pollution" and "clean water" are addressed in the report, as are "safe built and natural environments", these are primarily constituted with reference to human wellbeing alone, rather than planetary health more broadly.

Further, the report substantially constitutes non-biomedical therapeutic approaches as "complementary and integrative modalities" rather than as whole medical systems or therapeutic paradigms in their own right. It is made clear in a single passage that the report's authors are aware that "complementary and integrative health…embrac[es] more holistic, complementary concepts and methods whose theory and practice may not be part of traditional western biomedicine". On one hand, practitioners working from within non-biomedical, vitalistic paradigms may be warmly welcomed in 'whole health care' contexts. But, that the lengthy (and heavily conceptual) report omits explicit recognition of the conceptual contributions of non-biomedical knowledges to the whole health model ultimately weights that model toward a holistic, salutogenic gravitational centre underpinned by biopsychosocial biomedicine's underlying mechanistic ontology. In this omission, there remains a long-term risk that implementations of the whole health model might sink gravitationally downward back toward mechanism, co-opting the therapeutic practices of vitalistic therapeutic systems and epistemically subordinating practitioners thereof.

Third Space

The Third Space is a theoretical construct introduced by the postcolonial scholar Homi Bhabha to characterize cultural hybridizations enacted within and by marginalized communities that "move beyond the binary dialectic" and its "politics of polarity" to create new, "liberatory" cultural forms [157]. As in transculturation, the Third Space is "based not on the exoticism of multiculturalism or the *diversity* of cultures" but on a continuous, dynamic interface between them that defies any notion of cultural "purity". In the Third Space, furthermore, it is not just a synthetic, syncretic blending of cultural elements—both dominant and marginalized—that takes place,

but a transformation of the power dynamics that usually accompany them. This is achieved through what Bhabha terms "mimicry", in which new cultural forms may variously appear, at their surface, to echo dominant cultural discourses. However, these echoes, enacted by—and from the vantage point of—the marginalized, "'rupture' the discourse" of dominant power in ways that pose "an immanent threat to both 'normalized' knowledges and disciplinary powers".

Within the context of therapeutic integration, the gravitational centre of the Third Space is ecocentric, with strong vitalistic, holistic and salutogenic paradigmatic influences. Here, however, mechanism and vitalism, holism and reductionism, as well as salutogenesis and pathogenesis, may interface in what Indigenous scholar Willie Ermine terms an "ethical space of engagement" [158]. In this ethical 'third' space, "disparate worldviews" become reconciled "in a meeting place…a neutral zone" beyond "institutionalized monoculture" and "notions of universality" [158]. Furthermore, one will often see the principle of cultural safety actively enacted within Third Space integration contexts.

The Third Space of therapeutic integration might be evident within Indigenous-led health care partnerships, wherein "health interventions in Indigenous communities are holistic and informed by cultural knowledge or local spiritual worldviews", but also infused with biomedical therapeutics [97], as in the US case of the Nuka System of Care, a "Native-owned…health center…serving nearly 65,000 Alaska Native and American Indian people" [156]. There, both "traditional [Indigenous] healing" and "complementary medicine" are not only offered in conjunction with biomedical treatment as integral elements of care [156], but the system's "operating principles are derived from Alaska Native culture and values" [159].

At times, it may be vitalistically inclined, biomedically trained professionals who engage what Bhabha terms "the innovative energy of the 'third' space" to create new therapeutic paradigms. For example, the Sintergética system of integrative therapeutics, developed by the Colombian medical doctor Jorge Carvajal, fuses conceptual and practical elements from Chinese medicine and Ayurveda, Indigenous healing traditions, auriculotherapy, neural therapy, as well as cybernetics and systems science, into a vitalistic, holistic, salutogenic system of bioenergetic therapeutics [160].

Another example might involve the fusion of more than one type of ethnomedical or otherwise vitalistically-informed care. One such case involves the British herbalist Jeremy Ross's application of Chinese medicine principles to the use of European herbs, also informed by data from clinical and pharmacological research [161]. As Ross explains, this synthesis permits the fruitful application of Chinese medicine's sophisticated diagnostic approaches, while minimizing the ecological impacts of long distance industrial herbal transport, as well as heightening (European) clinicians' relationality with the medicines they use.

Ultimately, the Third Space of therapeutic integration represents a space of epistemic and ecological justice, where therapeutic knowledges and cultures meet as equals, generating new healing knowledges and practices to meet the needs of the present and future, informed by multiple pasts.

5. Engaging with the Typology

The operational typology presented in this work is a conceptual tool constructed to support a range of stakeholders (including students, practitioners, scholars and policy makers) in making sense of the broad and complex landscape of therapeutic practices that fall outside of, and/or have historical, cultural and paradigmatic origins outside of dominant biomedicine's boundaries. Salient features of this typology include its strong theoretical basis in the WHO's globally relevant, broadly inclusive definition of T&CM, its explicitly articulated conceptual foundations informed by related critical scholarship, and its capacity to engage with a wide range of contextual considerations. In this sense, this operational typology of TCIM represents the first comprehensive scholarly classification tool of its type in the field with strong international relevance. A few final points, elaborated below, are meant to assist users in maximizing their engagement with the typology, whether to better understand particular therapeutic approaches or the field as a whole, to support governance initiatives, or to design a scholarly study, including with reference to other operational tools in the field.

5.1 Using the Typology's Classification System

Readers engaging with the typology who wish to understand where a particular therapeutic approach may best be categorized may do well to start by asking some key questions:

1. Is the approach ethnomedical?
2. Is it (or does it fit within) a complete 'whole' medical system, or is it rather a micro-system or stand-alone practice, product or device?
3. Is it orally transmitted or codified in textual sources?
4. Is it rooted in and/or practised from a vitalistic or mechanistic paradigmatic standpoint?

These four questions, taken together, should assist the user in discerning where to position a given therapeutic approach across Types A though D. At times, however, classifications may not be straightforward, owing to the hybridizations of therapeutic approaches that continue to take place over time. Sometimes, as explained within the section on Type C, an approach may straddle more than one category. Or, what may appears at the surface to be a single therapeutic practice (e.g., acupuncture) may occupy multiple types and/or sub-types depending on the context in which it is being practised (e.g., as part of a codified system of East Asian medicine [Type B], as part of a whole system of biomedical acupuncture [Type C], or as 'dry needling' [Type D]. Similarly, the relations of therapeutic integration outlined in Type E should be viewed as permeable and dynamic, as is – in particular – the terrain of community-based therapeutics characterized within Type F.

On the whole, the reader will do well to remember that this typology is not designed as a set of closed boxes from within which to statically list, contain or constrain the TCIM field's diverse, dynamic and inter-hybridizing elements. Rather, it meant as a conceptually-informed guide to help understand and interpret the TCIM field as a whole, along with its many related complex historical, social, political, economic, paradigmatic and cultural considerations – and what these may mean for practice, education, policy and research.

5.2 Using the Typology in Tandem with Other Operational Tools

Ng *et al* have recently proposed an operational definition for 'complementary, alternative and integrative medicine/health' to support systematic literature searches and bibliometric analyses [9]. Rigorously built upon systematic searches of English-language peer-reviewed literature, that definition includes an undifferentiated list of over six hundred therapeutic approaches, which the tool's creators "opted not to categorize", despite indicating a future need for such. The present work's typology represents a framework that, if paired with Ng *et al*'s tool, might expand its functional utility. Such a pairing might also make more visible the limitations of the "English-language and Western bias" of that tool, offering conceptual parameters for its useful revision to more comprehensively account for the diversity of TCIM therapeutics in use worldwide.

Another tool that functions as an operational typology has been advanced by the TCIM Americas Network, a participatory collaborative representing "more than 15 countries" across the region, in partnership with the Pan American Health Organization. The Network's typology serves as a "thematic structure" for organizing the databases held within the trilingual ("Spanish, Portuguese, and English") TCIM Virtual Health Library [162], classifying TCIM into four categories (some with sub-types) [163]. That typology's development reportedly followed a multi-national, multi-stakeholder process of "broad reflection and debate", taking into account "epistemological views on health" as well as sources from "sociology, medical anthropology, public health and…theories of systems of organization of information" [163], signaling scholarly rigour. However, in the absence of an explicit account of this process and its inputs, the thematic structure falls somewhat short as a scholarly tool.

Nevertheless, the Network's tool has been notably taken up within DeCS/MeSH, a "multilingual thesaurus…developed from MeSH – Medical Subject Headings of the US National Library of Medicine" [164] to support database indexing, search and retrieval activities for health-related scientific and technical materials. This has enabled the multilingual inclusion, within scholarly search engines, of new TCIM-related descriptors not included within the US National Library of Medicine's English-only MeSH thesaurus. This is a notable advance in global TCIM research infrastructure development. This advance is especially important since the

Network's thematic structure does not rely on the problematic residual category of *complementary medicine* as its dominant TCIM-related construct, as does the English-language National Library of Medicine. The Network's success in creating a competing database search hierarchy sets the scene for further development of a single, theoretically defensible bibliographic classification model for multilingual use across the global TCIM field. The present work's operational typology may offer a viable basis for such a classification system.

6. Conclusion

The operational typology of TCIM presented in this work represents a crucial step forward for scholars and policy makers working across the evidence-to-policy cycle. As the field's first conceptually rigorous classification tool of its kind, this typology has potential to inform a wide range of scholarly investigations and support the use of other operational tools in the field. For scholars and policy makers alike, the typology clarifies the distinct and common characteristics of diverse TCIM systems, practices, practitioners and products, in turn supporting development and implementation of more paradigmatically-sensitized research approaches, critical analyses, and governance models. As a dynamic tool, the typology's benefits are optimized when users actively engage with the concepts underlying the classification model proposed. The typology may also be fruitfully employed as a teaching tool meant to deepen critical engagement with the complex contextual issues at play with respect to therapeutic pluralism across global contexts. Ultimately, this work is a resource that may help to consolidate many strands of activity in the TCIM field within an inclusive, rigorously-elaborated conceptual framework.

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Data availability

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Table 1: Overview of Types and Sub-Types in an Operational Typology of Traditional, Complementary and Integrative Medicine

TYPE	OVERVIEW	SUB-TYPES	SELECTED EXAMPLES
A. Orally Transmitted Ethnomedical Systems and Practices	Culturally-situated and/or land-based therapeutic approaches transmitted mostly at the community level via lineage, apprenticeship, and/or oral tradition.	Indigenous Peoples' Traditional Medicine Non-Indigenous Peoples' Traditional Medicine	Bonesetting, Ceremonial and spiritual healing, Divination, Localized hands-on healing practices, Localized/land-based herbal therapeutics, Traditional birth attendants
B. Codified Ethnomedical Systems and Practices	Culturally rooted, textually documented complex medical systems and their affiliated diagnostic and treatment modes.	Institutionalized Traditional Medicine Systems Non-Institutionalized Traditional Medicine Systems	Systems: Arabic medicine, Ayurvedic medicine, Chinese medicine, Kampo, Sowa Rigpa, Thai traditional medicine, Traditional European herbal medicine, Unani Tibb Practices: Chinese herbal medicine, Nuad Thai, Shiatsu, T'ai qi, Traditional acupuncture, Tuina, Qi gong, Vedic yoga
C. Non-Ethnomedical Whole Systems	Textually codified, holistic and salutogenic complex medical systems that are not deeply rooted in particular ethnocultural or geographical contexts.	Vitalistically Inclined Whole Medical Systems	Anthroposophic medicine, Homeopathic medicine Some strands of: European phytotherapy, Naturopathic medicine, Osteopathic medicine, Chiropractic medicine
		Mechanistically Inclined Whole Medical Systems	Functional Medicine, Chiropractic medicine (institutionalized) Some strands of: European phytotherapy, Medical acupuncture (system), Naturopathic medicine, Osteopathic medicine
D. Complementary Therapeutics	Stand-alone therapeutic practices, products and devices not fully accepted within biomedicine, including those that have been extracted from non-biomedical therapeutic paradigms.	Vitalistically Inclined Therapeutics	Energy healing / therapeutic touch / bodywork micro-systems: Craniosacral therapy, Orthobionomy, Reiki, Reflexology, Rolfing, Trager Product-inclusive micro-systems: Bach flower remedies, Schuessler tissue salts
		Mechanistic Therapeutics Extracted from Vitalistic Systems	Herbal medicines standardized to active ingredients (e.g., curcumin), Medical acupuncture (as an adjunct technique), Mindfulness, Psychedelic-assisted psychotherapy, Postural yoga
		Mechanistically Inclined Therapeutics	Biofeedback, Feldenkrais technique, Many dietary supplements (e.g., enzymes, minerals, probiotics, vitamins), Myofascial release, Photobiomodulation,Trigger point dry needling
E. Community-Based Therapeutics		Self-Care	

		A wide array of therapeutic and health promoting approaches care, used by lay people at the community level, including at the interface with 'expert' health care practitioners.		Healthy and therapeutic diets; Self-directed usage of culinary and medicinal herbs, dietary supplements, superfoods, technologies/devices (e.g., sauna, sound healing tracks); Health-promoting physical activity (e.g., eurythmy, t'ai qi, qi gong, yoga); Spiritual/mindfulness practices
			Intercare	Various relational forms of collective care, between friends, partners and colleagues, in communities, health care teams and communities. Includes: Peer-to-peer initiatives and support groups, Lay-led health focused-classes, Collective spiritual activities, Community gardens and kitchens, Group-based clinical care, Social and ecological justice initiatives addressing health's structural determinants
F.	**Integrative Therapeutics**	A conceptual model for analysing the inter-paradigmatic and power-related dynamics of therapeutic integration along a spectrum from 'assimilative' to 'intercultural' approaches.	Melting Pot	Erasure and re-interpretation of elements of non-biomedical systems in mechanistic terms, e.g., synergistic, spiritually-active traditional herbal medicines become 'pharmacologically-active ingredients'. Often, only biomedical professionals are permitted to practice TCIM.
			Co-optation	Elements of non-biomedical systems adopted as an 'adjunct' to dominant biomedicine without respectful recognition of their paradigmatic underpinnings. TCIM practitioners may 'translate' their (subordinated) work into biomedical terms, to gain access to institutional benefits.
			Multiculturalism	TCIM and biomedical practitioners may co-exist in parallel or loose co-ordination, mutually recognizing their distinct paradigms. But, biomedical dominance remains largely uncontested. May also include TCIM-dominant contexts where biomedical professionals or diagnostic techniques (e.g., bloodwork, CT scan, ultrasound, x-ray) are engaged as supportive elements within the care environment.
			Transculturation	Cultural transformations at the interface between biomedicine and TCIM systems/practices producing care contexts that incorporate elements from diverse systems in increasingly equitable ways. While biomedicine's reductive, pathogenically-focused elements may be recontextualized within more holistic, salutogenic care models, scientific materialism may implicitly remain the paradigmatic reference point.
			Third Space	TCIM and biomedical paradigms and practices become synthetically, syncretically fused to produce new therapeutic cultures and systems that transform the inequitable power dynamics of biomedical dominance. Examples include Indigenous-led health care partnerships, fusions of multiple TCIM systems and practices along with biomedical elements within a vitalistic, holistic, salutogenic paradigmatic framework.

Table 2: Conceptual Features of Types and Sub-Types in an Operational Typology of Traditional, Complementary and Integrative Medicine

		A		B		C		D			E	
TYPE		**Orally Transmitted Ethnomedical Systems and Practices**		**Codified Ethnomedical Systems and Practices**		**Non-Ethnomedical Whole Systems**		**Complementary Therapeutics**			**Community-Based Therapeutics**	
HISTORICAL FACTORS		Often have pre-colonial origins and may have been detrimentally impacted and/or had transmission interrupted by European colonialism.		While standardization and institutionalization may have occurred as nationalistic responses to para-colonial conditions, multiple 'variants' of some systems, with differing access to political capital, may co-exist in the same contexts.		May or may not historically pre-date biomedicine, but may be informed by pre-biomedical knowledges (ethnomedical and non-ethnomedical). In some cases, the gravitational centres of such systems have shifted over time from vitalism to mechanism.		The origins of these therapeutic practices, products and devices will vary considerably. But, some, in the second sub-type, have complex historical trajectories, including through capitalism, European colonialism and their ongoing impacts. Related issues include biopiracy, cultural misappropriation, intellectual/cultural property rights, and appropriate compensation for source communities.			As this type may involve therapeutic approaches related to all Types A though D, historical factors will vary. Regardless, the collective histories of all peoples include lineages of community-based therapeutics.	
SUBTYPE		**Indigenous Peoples' Traditional Medicine**	**Non- Indigenous Peoples' Traditional Medicine**	**Institutionalized Traditional Medicine Systems and Practices**	**Non-Institutionalized Traditional Medicine Systems and Practices**	**Vitalistically Inclined Whole Medical Systems**	**Mechanistically Inclined Whole Medical Systems**	**Vitalistically Inclined Therapeutics**	**Mechanistic Therapeutics Extracted from Vitalistic Systems**	**Mechanistically Inclined Therapeutics**	**Self-Care**	**Intercare**
PARADIGMATIC & CULTURAL FEATURES	**Paradigmatic Gravitational Centre**	Vitalistic, Holistic, Salutogenic	Vitalistic, Holistic, Salutogenic	Vitalistic, Holistic, Salutogenic	Vitalistic, Holistic, Salutogenic	Vitalistic, Holistic, Salutogenic	Mechanistic (Holistic, Salutogenic)	Vitalistic, Holistic, Salutogenic	Mechanistic (Holistic, Salutogenic)	Mechanistic (Holistic, Salutogenic)	Variable	Variable
	Reliance on Ethnomedical Knowledges	High	High	High	High	Variable / Moderate	Low	Variable	Low (often have ethnomedical origins)	Low	Variable	Variable
	Reliance on Biomedical Knowledges	Low/Variable	Low/Variable	Moderate/ Variable	Low/Variable	Low/Variable	High	Low/Variable	High	High	Variable	Variable
	Relationship to Land and/or Community	High	Variable / High	Variable / High	Variable /High	Variable / Low	Low	Variable / Low	Low	Low	Variable	High / Variable
	Emphasis on Spirituality	Variable / High	Variable/ High	Variable / Moderate	Variable / High	Variable / Moderate	Variable / Low	Variable / High	Low	Variable / Low	Variable	Variable
KNOWLEDGE TRANSMISSION	**Oral Transmission**	High	High	Variable / Moderate	Variable / Moderate	Variable / Low	Low	Low	Low	Low	Variable / High	Variable
	Textual Codification	Low	Low	High	Variable / Moderate	High	High	Variable / High	High	High	Variable	Variable
	Standardized Knowledges	Low	Low	Variable / High	Variable / Low	Variable / High	High	High	High	High	Low	Low
	Institutionalized Training	Low / Variable	Low / Variable	High	Variable / Low	Variable / High	High	Variable / Moderate	Variable / Moderate	Variable / Moderate	Low	Low

Note: Type F, Integrative Therapeutics, is not included in Table 2 due to its unique conceptual characteristics, which differ from Types A through E. Type F, which includes five sub-types (Melting Pot, Co-optation, Multiculturalism, Transculturation, and Third Space) that are situated along a spectrum from 'assimilative' to 'intercultural/culturally safe' forms of therapeutic integration, is described briefly in Table 1 and elaborated in Section 4.2.. Each of these sub-types is characterized by a distinct paradigmatic gravitational centre created by the interface of multiple therapeutic approaches.

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