

Public Health Education in Africa: The Case of Epistemic (in) Justice and Indigenous Health Systems



Amarachi Jane-Frances Orjinta and Marcellus F. Mbah

Abstract This chapter interrogates epistemic injustice in public health education; with a focus on indigenous systems in Africa; and calls for the prompt address of the persistent injustices associated with knowledge development, validation, and application. The forms of epistemic injustices including interpretive marginalisation and credibility deficit are discussed and arguments raised on how common practices in public health and public health education (such as research partnerships, authorship practices, and choice of research structure) are infused with imbalances. This viewpoint aims to interpret, avert, and nullify biased knowledge observances in public health that are imposed on indigenous individuals in their capacity as apprehenders, producers, and users of knowledge. It further provides probable means of accepting, developing, and sustaining useful knowledge systems with an ultimate intention of fostering good health and wellbeing for all as captured in the Sustainable Development Goal [SDG]- 3.

Keywords Epistemic injustice · Public health · Public health education · Indigenous health systems · Africa

1 Introduction

The adoption of indigenous knowledge [IK] to meet health care necessities dates to 1978 when the World Health Organisation [WHO] in the Health for All Declaration (1978) highlighted the conceivable application of traditional healing practices and prompted the use of these practices in primary health care. Indigenous knowledge, otherwise known as aboriginal or traditional knowledge (Bruchac, 2014), has been

A. J.-F. Orjinta (✉)

Department of Public Health, Bournemouth University, Poole, England

e-mail: orjintaaj@gmail.com

M. F. Mbah

Manchester Institute of Education, University of Manchester, Oxford Rd, Manchester M13 9PL, England

e-mail: marcellus.mbah@manchester.ac.uk

established as being instrumental in meeting world-wide health care goals (Lama, 2000). This was based on, but not limited to, the premise that the indigenous systems of health care practices have been employed to meet the needs of communities over numerous centuries and continue to do so now (Janska, 2008; Lama, 2000).

Indigenous knowledge of health care is simply based on the application of traditional medicine [TM] to gratify health care necessities (Rankoana et al., 2015). According to WHO (2002), “traditional medicine” denotes knowledge, opinions, and approaches encompassing plant, mineral or animal-based treatments, spiritual rehabilitation, and manual procedures used independently or collaboratively for preventive, protective, and curative health care. Knowledge of indigenous plant-derived remedies is considered a primordial form of health care and the oldest known to human history (Petrovska, 2012). Du Toi (1998) and Marecik (2007) argued that indigenous knowledge of health care goes beyond mere treatment; and is considered applicable in the understanding of the very nature and principal causes of diseases. TM persistently plays a significant role in the fight against life-threatening ailments such as malaria, diabetes, tuberculosis, among others, in several parts of the world (Fasanmade & Dangogo, 2015; Li et al., 2020).

Various affirmations have been made about the persistent application of IK in health care. Keleher (2001) asserts that to make health care easily acceptable and accessible in indigenous communities, community participation would be indispensable. For von Wolputte and Devisch (2002), community involvement would equip communities to combat the glitches in their health care in the most suitable ways as community leaders could make rational verdicts regarding primary health care while providing suitable support for health projects. Manguvo I and Mafuvadze (2015) also argued, that most members of African communities habitually seek counsel from traditional leaders in times of crises. However, as related by Bhakuni and Abimbola (2021, p. 1465), ‘knowledge systems are social systems, with their share of social prejudices and implicit biases that result in credibility deficits or interpretive marginalisation for members of marginalised groups’.

Certain class of individuals are acknowledged as credible contributors (predominantly modern-day experts), while the experience and knowledge presented by others is misrepresented and attributed with inferior credibility (Bhakuni & Abimbola, 2021). This situation depicts the concept of epistemic injustice which embodies the notion that an individual can be unjustly discriminated against his competence as a provider of knowledge grounded on prejudices about his social background, race, tone of voice, gender, ethnicity, sexual orientation, or accent (Fricker, 2013). Within the scope of health and healthcare guidelines, epistemic privileges are given to contributors with modern professional healthcare status (such as biomedical scientists, medical doctors, pharmacists). This invariably gives them an unfair advantage in communicating their experiences or ideas compared to their traditional-oriented counterparts (Byskov, 2021; Fricker, 2007).

The knowledge of patients alongside that of traditional or indigenous health-care providers is oftentimes restricted to their personal use and is not readily

integrated into mainstream public health education or policy development (Wainwright & Macnaughton, 2013). These biases restrict many individuals from participating copiously and equally in the invention, utilization, and circulation of knowledge (Bhakuni & Abimbola, 2021). Considering this inequity, calls to democratise, decolonise, and decentralise public health education, have been on the rise (Abimbola & Pai, 2020). To decolonise knowledge is therefore to counterbalance integrity discrepancies and counter interpretive marginalisation in the society (Tobi, 2020). Decolonisation of western or Eurocentric forms of knowledge is certainly overdue in public health, a discipline developed in colonialism, which incessantly presents inherent hierarchical postulations, and shows significant indifference towards indigenous knowledge systems (Affun-Adegbulu & Adegbulu, 2020; Büyüm et al., 2020; Richardson 2019). Furthermore, there have been growing calls for improved and principled diversion from top-down approaches to interventions, community engagement, and research; to approaches that impartially tend to the health needs of societies globally (Bardosh, 2018; Yegros-Yegros et al., 2020), which is where the thrust of the chapter is directed at.

Using Africa as a case study, the present chapter, therefore, seeks to make a case for epistemic justice and indigenous knowledge integration in public health and public health education interventions intending to foster good health and wellbeing for all as captured in the Sustainable Development Goals [SDGs]-3 (Rankoana et al., 2015). The rest of the chapter will examine the interplay between public health and epistemic justice, the methodological approach, key findings and discussions, and conclude with some recommendations.

2 Public Health and Epistemic Injustice

Public health, a concept with dynamic parameters and multiple interpretations, has experienced several transitional stages and debates over the years (Marks et al., 2011). Novick and Morrow (2010) described public health [PH] as efforts structured to progress the wellbeing of societies, merging both scientific and social approaches, with the principal aim of plummeting ailments and promoting health. Bryant (2014) supported this definition by describing PH as the art and science of averting disease, promoting health [both physical and mental], and prolonging life, while recognizing the importance of community input. Although PH should be defined to suit all societies, and ethnicities, irrespective of their industrialization status; however, some organized efforts may be more applicable in some societies compared to others (Azevedo 2017). It has therefore also been argued that PH definitions must be concise, while comprising fundamental components, and presenting functions that are relevant to the subject being defined (Azevedo 2017).

Definitions of PH that note the pronounced dependence of public health on the contribution of art and scientific innovations are assessed. However, the questions put forward are: who defines public health? Also, does public health still exist in the absence of science and technological advancements? By outlining public health

using this Eurocentric approach of science and art, as done over time, the less industrialized world, including Africa, may not have public health (Azevedo, 2017). Public health should involve, as Bryant (2014) elaborates, public health strategies provided by recognised influencers, including traditional medical practitioners or traditional rulers, as present in Africa. Furthermore, it has been established that public health and public health education cannot dismiss cultural or indigenous realization as its content has cultural principles underpinning it (Abah et al., 2013).

It is well known that epistemic exclusion endures persistently in various knowledge systems including public health education and that apprehenders, producers, and recipients of knowledge, from marginalised groups in both industrialized and non-industrialized countries experience distinct epistemic injustices [EIJs] (Bhakuni & Abimbola, 2021). The systematic models of epistemic injustice [EIJ] as positioned by Fricker (2007) include interpretive injustice [IIJ] and testimonial injustice [TIJ]. TIJ occurs when lower credibility is prejudicially ascribed to a speaker's ideas or experiences, for instance, via events that silence, misrepresent or debase the inputs of the speaker (credibility deficit); while IIJ ensues when individuals or groups find it difficult to effectively transfer their knowledge or experience due to various limitations such as access to standardized resources or when the experiences of such marginalised groups are not well comprehended by others because they do not align with any theories known to them (interpretive marginalisation).

3 Methodology

This chapter draws on a review that comprises a literature search on popular science, health research, and education databases comprising Google Scholar, Cumulative Index to Nursing and Allied Health Literature [CINAHL], and Education Resources Information Center [ERIC]. These databases were explored to retrieve relevant publications on the potential role of indigenous knowledge systems, and epistemic justice in public healthcare education and practices in Africa. Both primary and secondary papers, including grey literatures, were consulted. A total of forty articles published in English from the year 2004 to February 2022 with the keywords; "Africa", "Indigenous knowledge", "Traditional African Medicine", "Public Healthcare", "Public Healthcare Education", "Epistemic Injustice", "Modern Biases Against Indigenous Knowledge", and "Indigenous Knowledge Integration", and their alternative synonyms were retrieved subsequently. Boolean operators and truncations were applied to the search terms, to aid the retrieval of studies of relevance. Manual hand-searches through the reference lists of relevant studies were performed to further identify eligible studies (Bandara et al., 2015). Excluded from this review were non-relatable, duplicate studies, and papers that failed to attain the inclusion criteria. The retained outputs were analysed thematically. Thematic synthesis which is well established as a method that sustains the unambiguous link between the text of reviewed studies and conclusions attained, while preserving the objectives of the

review process (Thomas & Harden, 2008), was employed in combining relevant data from the studies retrieved and identifying the appropriate key themes.

4 Findings and Discussions

4.1 *Indigenous Knowledge Systems and Africa's Public Health*

Although the complexity and assortment of the health-seeking preferences of Africans is well established (Mpofu et al., 2011), Africa being one of the poorest continents in the world (Benson, 2021), is faced by a double burden of diseases characterised by the constant battle of long-lasting non-communicable and infectious ones (Agyei-Mensah & de-Graft Aikins, 2010; Kushitor & Boatemaa, 2018). African countries remain confronted by daunting public health challenges, particularly with the advancing numbers of HIV/AIDS patients and mortalities; the persistence of malaria and tuberculosis; the occurrence of the dreadful Ebola, Lassa fever and the current COVID-19 pandemic (Fukunaga et al., 2021; WHO 2022a, 2022b). Additionally, African countries experience hurdles including poverty, depreciation of health structures as well as low funding, and participation in health-related research. For many of these countries, this situation has resulted in a significant decline in the standard of living over the last twenty years, and this is predominantly so in sub-Saharan Africa where the disease burden is most pronounced (Kasproicz et al., 2020). However, Africa has reportedly had opportunities to address these challenges.

According to Mpofu et al. (2011), Africans have over time developed local or culturally inclined health care systems of responding to health needs. In many African nations, traditional medicine is used by approximately 80–90% of indigenous populaces to cope with their basic health essentials, with verification that over 120 pharmacological products are plant-derived, and 74% were first utilised by these indigenous populations (Elujoba et al., 2005; Mahomoodally, 2013). Aspirin for instance is produced from salicylic acid produced by white willow (*Salix alba*) and the *Filipendula ulmaria*, commonly known as meadowsweet plant. Also, Anticancer medications: Vinblastine and Vincristine are synthesized from *Catharanthus roseus* (Madagascar periwinkle) while popular antimalarial drugs including Artemisinin and Quinine are derived from *Artemisia annua* and *Cinchona pubescens* respectively (Oreagbe et al., 2011; Ozioma & Chinwe, 2019).

In African nations, indigenous remedies have gained non-stop impetus, with some of the compensations being low fee rates, easy access, high level of acceptance by the local populations, and reportedly low toxicity (Anthony & Kanu, 2021; Naja et al., 2015). The use of TM particularly herbal drugs declined in the nineteenth century owing to the initiation of synthetic chemistry (Rastogi, 2020). However, there has been exacerbating curiosity about the usage of naturally obtained traditional medicine globally, as synthetic drugs have indicated less effectiveness due to the

rising rates of drug resistance, higher toxicity, as well as high cost of drug synthesis (Kamsu-Foguem & Foguem, 2014; Shaiju & Omanakumari, 2013).

The use of TM has been extensively reported in Africa, particularly in underprivileged households (Cameron et al. 2008). As published by Vahekeni et al. (2020, p. 8), “the proportion of TM practitioners to the Africa population is 1:500 compared to 1:40,000 modern medical practitioners”. Moreover, a significant number of modern medicine experts accessible in Africa are densely resident in urban zones, at the detriment of rural regions; thus, for many rural dwellers, TM practitioners remain their source of healthcare (Abdullahi, 2011a, 2011b).

The concept of “Indigenous Knowledge” refers to local knowledge, technologies, practices, and belief systems, synonymous to traditional knowledge which is different from the knowledge systems [KSs] established by certain communities of the industrialized world or research institutions (Chikaire et al., 2012; Rankoana, 2012). Healthcare based on indigenous knowledge is reportedly one of the most ancient and diverse approach to health care that has stood the test of time (Abdullahi, 2011a, 2011b; Mothibe & Sibanda, 2019). It is commonly referred to as traditional medicine [TM] or traditional health practices, and these are unique to the communities where they are practiced and understood as real-world, intimate, and circumstantial elements which cannot be detached from individuals or their community (Tharakan, 2017; WHO, 2022c).

Traditional medicine or indigenous knowledge as used in healthcare, denotes all knowledge practices, justifiable or not, employed in prevention, diagnosis, management, and treatment of social, mental, or physical, health disorders, while trusting entirely on informal experiments or the experiences acquired from one generation to the next, whether in written or verbal form, prior to the inception of modern-day medicine (Ndubisi et al., 2021 ; WHO, 2022d). African traditional medicine [ATM] is Africa’s way of retorting to health challenges, using diverse methods (Anthony & Kanu, 2021). They include the use of animal parts, herbs or minerals and non-medication remedies which could be spiritual or manual (Fokunang et al., 2011). African indigenous knowledge and TM remain accepted even where modern practice of medicine is accessible (Kasilo et al., 2019). Furthermore, it is projected that its acceptance and high level of utilization is due to people being accustomed to ATMs as part of their culture (Ahlberg, 2017; Galabuzi et al., 2010); and there are convincing indications that traditional health care systems are being sought after by Africans, not only resident in Africa but also globally (Cook, 2009).

African traditional medicine has gone through several evolutionary phases, which have been described as trial and error (Ekeopara, 2005); but owing to the recent advances in the skills and testaments reported, the effectiveness of African traditional health care has become more appreciated by global health policy developers (Conserveafrica, 2006), while traditional healthcare providers have overtime gained increased recognition in their respective communities (Fokunang et al., 2011). Moreover, in the African perception, the concepts of diseases and mortality are commonly attributed to both metaphysical and physical causes (Kinsman, 2012); and as such the IKS-based healthcare employs a holistic approach in the identification, and management of ailments as they simultaneously account for not only the physical, but social,

mental, and metaphysical aspects of well-being, contrary to modern medicine which mainly seeks to treat diseases (Farzaei et al., 2015; Ochwang'i & Oduma, 2017). This is in line and agreement with WHO's definition of "health" as stated in Kühn and Rieger (2017, p.1): "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

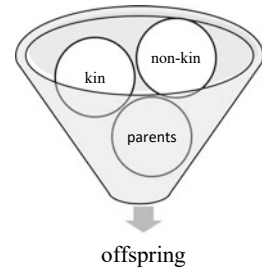
Furthermore, ATM centres on the fact that health issues do not occur by mere chance but are prompted by displacements in the physical or spiritual realms; hence it varies significantly from modern remedies which are based on scientific techniques and analysis (Ubani, 2011). Reportedly, in many African communities, traditional healers often stand as arbitrators between the physical and spiritual realms; in most cases to define the spirits in action or to understand how best to facilitate the timely recovery of their patients (Abdullahi, 2011a, 2011b).

As reported by Mahomoodally (2013), the world health organisation has been persistent about sensitizing African Member states towards the integration and extensive use of these traditional remedies otherwise known as Traditional African Medicine [TAM] into their health system. In addition, WHO (2001) approved a resolution on advancing the function of TM in Healthcare for Africa. This resolve acknowledged the prospect of ATM for the accomplishment of absolute wellbeing in Africa. In successive meetings, the African leaders declared 2001–2010 and 2011–2020 as key decades for the thrive of TM (WHO 2001, 2011), while WHO, announced every 31st of August as the African Traditional Medicine Day (Chinsembu, 2009). However, these goals are yet to be achieved, and to realise them, African governments need to establish policies to encompass the qualities of the present inter-disciplinarily health care systems in a poly-epistemic world, where knowledge systems are rather complementary than competitive (Nlooto & Kaya, 2017). It is based on the above considerations that this chapter presents perspectives on issues related to African Indigenous Knowledge Systems and Public Health Education.

5 Indigenous Knowledge System and Public Health Education in Africa

As affirmed by Abah et al. (2015), African indigenous knowledges have been in existence for thousands of years with underpinning unique education systems. This was long before western education was introduced by foreign missionaries and colonialists. However, present-day formal education continues to present Euro-centric orientation, reflecting and placing Western scientific discoveries over the indigenous orientations of learners or their instructors (Magni, 2017). Considering that the routes of transmitting modern scientific knowledge conflicts with those of indigenous education, the introduction of western education meant that learners confronted the contrasting expectations of their indigenous system and the newly introduced modern systems (Thaman, 2009).

Fig. 1 Transmission of indigenous knowledge



Research has demonstrated that the institutionalization of Western culture has given rise to a clash of ideologies, creating an uneven power-distribution or value-hierarchy that basically undercuts and pilloried Africa's traditional health care system due to the over-riding power given to Western culture (Abdullahi, 2011a, 2011b; Stavenhagen, 2015). As a result, many modern instructors have been affirmed to frequently de-highlight the ideals of the learners' individual cultures, particularly if they conflict with those that the modern learning institutions aim to incite. Consequently, the prior cultural knowledge of the learners becomes repressed not only by the ideas being promoted by the modern system of knowledge but also the reward of progressing with the school system (promotion to the next class) (Thaman, 2009).

Indigenous knowledge creation is based on beliefs and findings closely handed down across generations via tutelage which involves parents and elders in the community (as depicted in Fig. 1 below) imparting practical knowledge of culture, and survival using a broad range of songs, meetings, stories, initiations, bans, among others (Dweba & Mearns, 2011; Magni, 2017; Mokgobi, 2014).

Unlike indigenous epistemologies, Western scientific techniques are confined to classrooms with students detached from their cultures. The learner-teacher centred nature of formal education which confines learners to classroom and separated from their culture and environment also detaches children from the society, consequently leading to the parents and society-members being less able to transfer generational knowledge to their progenies (Hammersmith, 2007; UNESCO, 2010). This is more worrisome because the educational pattern negates the effective constructivist model which opines that learners ought to be taught how to construct their knowledge, rather than passively accepting ideas related to them by their instructors (Shah, 2019).

Until lately, IKSs were considered outdated and irrelevant, despite their conceivable ability to solve modern-day problems (Abah et al., 2015). Hence, it is vital that the shareholders in the African educational sector develop strategies, such as the reformation of the educational curriculum which permits the integration of indigenous knowledge system into the educational sector; therefore, making the process of teaching and learning culturally inclusive and easier for both teachers and the learners (Abah et al., 2015). Several authors (Johannson-Fua, 2006; Thaman, 2009) have proposed that for educational systems to confidently respond to health care needs; there is need for a standard modification from the modern-day Euro-centric educational curricula in place in Africa. However, it can be argued that this proposed

shift may be challenging for instructors serving as an interface between the distinct systems. As cultural mediators, teachers in the African setting are placed on a vital but culturally obtruse position. While their professional training obliges them to the reasoning and applications of their western education, their individual identities, alongside those of their students, are imbedded in their individual traditions and cultural beliefs (Tsindoli et al., 2018).

Without cultural competence among users, the survival of indigenous knowledge practices such as traditional medicine may be threatened (Ahlberg 2017). Hence, for Africans to undertake public health education with meaningful hands-on experience within their communities, there is need to constantly review and extend the existing pedagogical models beyond the current custom of transmission and indoctrination in a bid to ease learning through integration of the learner's IKS to transform their knowledge into forms understandable and applicable by learners (Abah et al., 2015). Academics and medical practitioners in Africa have chiefly been educated by means of theories from modern understandings; while modern understandings of indigenous knowledge and healing practices, have been limited (Levers 2006a, b).

While traditionally oriented Africans are more liable to seek indigenous remedies (Mpofu et al., 2011); many Africans with Western education may choose conventional medicines over indigenous systems (Levers, 2006a, b; Mpofu & Harley, 2002), partly due to several deductions about the association between African traditional healing and witchcraft (Levers 2006a, b). The topic "witchcraft" remains thought-provoking, and the connotation has vastly contributed to the stigmatization of ATM continuously (Mbah & East, 2022; Ozioma et al., 2019). The anti-witchcraft" laws were formally ratified and imposed by Christian colonists, who in many cases introduced Western medicine along with Christianity, but also deciphered several traditional practices including traditional medicine as evil (Levers, 2006a, b; Mumo, 2018); none withstanding, ATM practices have remained an important aspect of the region's culture (Levers, 2006a, b; Jidong et al., 2021); and a significant number of the people, particularly the traditionally oriented Africans or those who subscribe to a spiritual explanation for wellbeing still consult the indigenous health care system. Popular authors (Moodley, 2005; Mpofu et al., 2011) have referred to the supernatural and satanic projections by industrialized nations toward African traditional healing methods as being irrational, and queries have emerged from the ways in which ATM practitioners have been "othered", particularly in comparison with conventional medical practitioners. TM was the leading healing system for a greater percentage of the African population before the colonial period, which was a critical defining moment in the history of the long-standing custom of the sole use of TM in Africa (Ejikemeuwa & Kanu, 2021). The institutionalisation of the modern knowledge systems has been seen by many as one of the compulsory steps towards industrialization in Africa. Conversely, others opine that westernization hindered the development and standardization of indigenous knowledge systems in Africa specifically in terms of production and acceptance (Afisi, 2009; Taiwo, 1993). These researchers referred to capitalism, slavery, colonialism, and all practices of dominations that were entrenched in these eras as key hinderances in the realization of indigenous African advancement.

Epistemic injustice in public health education can be arguably linked to credibility excess allotted to dominant groups (Medina, 2011). This can be evidenced in who is recognised as a credible knowledge producer and whose interpretive tools are used to make sense of existing or novel knowledge; and as such, modern academic researchers tend to enjoy credibility excess while non-academic actors are afforded credibility deficit or interpretive marginalisation. Parker and Kingori (2016) reported that commonly in international research collaborations, while experts from industrialized nations who are assigned the role of theory makers tend to enjoy credibility excess, the role of indigenous low middle income countries [LMICs] scientists is oftentimes restricted to providing samples or undertaking fieldwork (credibility deficit [CD]) (Walker & Martinez-Vargas, 2020). As affirmed by Bhakuni and Abimbola (2021), the global health community tends to experience a frequent cycle in which researchers suppose that the indigenous communities in side-lined zones lack the capacity to contribute to research, and thereby bypass their contribution. Furthermore, academics are known to further exacerbate the interpretive marginalisation of indigenous holders by assessing their interventions using interpretive devices from other sources, without acknowledging or consulting the local individuals with the daily experience of implementing those interventions (Abimbola, 2021); therefore, imposing extraneous and dominant interpretive frameworks and theories on local realities which could lead to unfitting analyses, and ultimately to false results.

Credibility deficit can also ensue if local experts are not acknowledged as authors in positions indicating ownership. Various studies analysing authorship in international collaborations (Hedt-Gauthier et al., 2019; Schneider & Maleka, 2018), have identified a stuck-in-the-middle trend for indigenous experts, such that, even when acknowledged as authors, these local partners from LMICs are often neither first nor last author of studies carried out in their own country. Indeed, such exertions of power and position are so common that the phenomena have been given labels such as the Matthew effect (Merton, 1968) where established and recognised co-authors receive disproportionate credit over the less established or more junior researchers or the White Bull effect (Kwok, 2005) where senior researchers coercively claim a first authorship credit. A form of bias otherwise termed editorial racism can also be seen in how the work of LMIC experts or marginalised people when compared to high income countries [HICs] is judged and perceived based on their local position by peers, editors, and peer reviewers of academic journals (Skopec et al., 2020; Victora & Moreira, 2006). Credibility deficit results in prejudicial denial of the knowledge-production capacity of indigenous knowledge holders or members of marginalised groups (Lauer, 2017).

6 Integrating African Indigenous Knowledge into Modern Healthcare Educational Systems in Africa

Regardless of some preliminary scepticism on the functions of herbalists in public health, some advancements have been reported in some African communities (Appiah, 2012). In certain African countries, internal referral systems have been established to enable modern medical practitioners to identify and refer patients who require alternative treatments for certain ailments including hypertension and diabetes, and vice-versal (Ahlberg, 2017). Also, in the study by Osowole et al. (2005), over 50% of the ATM practitioners suggest modern medicine to their patients as an additional treatment, confirming that ATM practitioners can serve as a traceable lead to the use of modern medicine. Additionally, African governments have commenced trials and approval of several herbal remedies that have the potential to be included into modern medicine (Ailemen, 2020; Gavriilidis & Östergren, 2012) some of which include *Cryptolepis sanguinolenta* (traditionally used as an antimalarial) (Tempesta, 2010); “asena decoction,” (arthritis) (Kumadoh et al., 2014) and; *Bridelia ferruginea* (diabetes management); a *Psidium guajava* medication that has anti-cestodal potency (Tangpu & Yadav, 2006); alongside a concoction known as “campa T” that is derived from *Thonningia sanguinea* and employed in the management of waist pain and asthma (Appiah, 2012). There is therefore strong evidence to depict a wide array of possibilities for integrating African indigenous knowledge into modern healthcare educational systems in Africa.

To wholly accomplish unbiased standardisation, regulation, integration, and endorsement of TM application and indigenous knowledge in healthcare educational systems in the continent, certain challenges must be subdued. In the conventional medical circle, it is commonly believed that TM flouts the requirements for justifying safety for use and efficacy (Okaiyeto & Oguntibeju, 2021). Although, there are indications that some of the physical elements of TM (such as herbal remedies) can be technically evaluated using the conventional methods of investigation; scientific analysis of the spiritual realms may be far from feasible (Oyelakin, 2009). From a scientific view, aspects of ATM that cannot be proven by science including psychic healing or divination, cannot be integrated (Appiah, 2012).

Additionally, for the integration of ATM into modern medicine to wholly occur, other factors to consider would involve the consultation of holders of indigenous knowledge as it is still shrouded in secrecy and not easily disseminated (Ozioma & Chinwe, 2019). Consideration can be given to the provision of training or education of medical practitioners on the philosophy and the efficacies of ATM, possibly via curriculum review and incorporation of teachers of ATM. Also, as depicted in Fig. 2, the integration of Indigenous Knowledge or ATM into Modern Healthcare Educational Systems in Africa can draw on areas of commonalities that ascribe mutual strength to both forms of knowledge systems. However, the intrinsic epistemological and ideological characteristic differences of both knowledge systems [KSs], the decision on who determines the efficacy of ATM between the two KSs seems obscure. It is based on these difficulties that popular scholars (Konadu, 2008; Oyelakin, 2009)

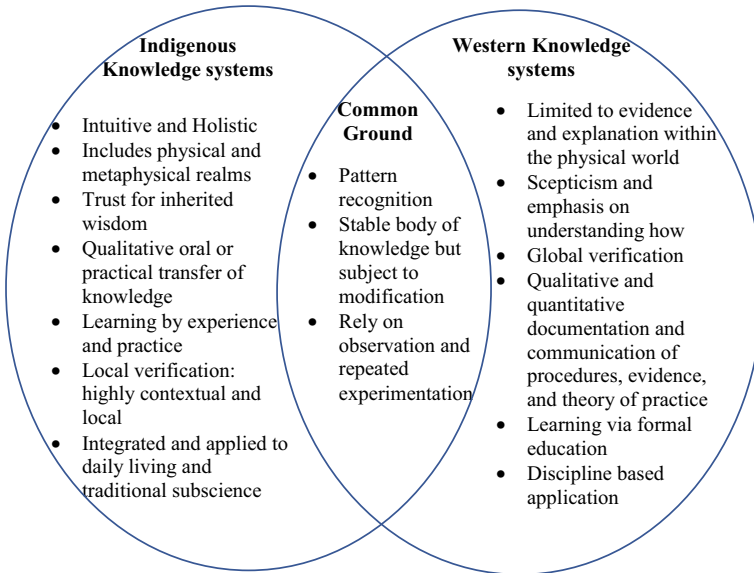


Fig. 2 Similarities and differences between IKs and WKs; adapted from Barnhardt and Kawagley (2005) and Lauter (2018)

suggest that both systems be allowed to operate and develop independently of each other. Furthermore, considering the western-centric predispositions in conventional public health educational systems, if indigenous knowledge systems get integrated into it without structures that promote and support epistemic inclusivity, the superiority of western epistemologies may be reinforced, thereby jeopardising the integrity of ATM (AbdullahI, 2011a, 2011b). Kiringe (2005) identified the influence of religion and Western education on the acceptance of TM and it can be maintained that since the integration of Western education and Christianity into African rural societies, certain traditions have been displaced and, in many cases, utterly forsaken.

Various ethnomedicines reportedly used to treat diabetes, malaria, and other opportunistic diseases are yet to attain scientific validation for their effectiveness and safety. This is because the present TMs and the underpinning forms of indigenous knowledge are considered yet to undergo rigorous standardization and evaluation. This, in itself, is problematic and gives credence to epistemic hegemony, whereby a form of knowledge is seen to be superior and seeks to validate another via scientific methods, for instance. These shortcomings that surround the prospects of integrating indigenous knowledge systems in public health education can be greatly ascribed to the noticeable paucity of collaborative research between modern scientist and TM practitioners (Kayombo et al., 2007); therefore, highlighting the need for intentional and sustained collaborations between the two parties (Banda et al., 2007; Chinsebu, 2009; Mills et al., 2006). However, inducting this is evidently not as easy as it seems from literature, and for it to yield results of high value, rigorous systematic actions must be taken (Kayombo et al., 2007).

Although not limited to TM practice alone, another vital contest to TM integration and wide acceptance in public health education systems in Africa is the re-counted events of false experts and healing. Arazeem (2011) reported that with the persistent economic status of Africa and affiliated high proportions of redundant individuals, there is a noticeable escalation in the rates of supposed traditional experts, among whom there are, inopportunately, several swindlers. For instance, reports on the Ebola outbreak in West Africa disclosed that several traditional healers misleadingly claimed to have the capability to cure Ebola (Umeora et al., 2018). One reported case was the use of warm salt baths and salt drinks as preventive measures (Umeora et al., 2018). Also, in Uganda ATM practitioners applied herbal medications on the bodies of their patients after making incisions. Noting that the transmission of Ebola ensues from contact with infected body fluids, it is not startling that the traditional healers themselves reportedly got infected and became sources of the disease (Manguvo & Mafuvadze, 2015). This however does not dismiss the fact that many ATM practitioners could be valid libraries or sources of information that could grant access to fresh insights into the identification of novel health remedies. Therefore, genuine ATM practitioners can be consulted and an enabling context framed for their participation in African public health educational systems as co-creators of relevant knowledge. Also, it is much easier for individuals to respect instructions given by well-respected local leaders considered indigenous knowledge holders, custodians and enforcers of their traditions, compared to unacquainted health officials or scientific experts who may not be in touch with the lived realities in communities. In addition, well-informed traditional persons and leaders in Africa can help with identifying skilled individuals or those with the potential to facilitate the development of applicable health educational interventions in their local communities (Manguvo & Mafuvadze, 2015). The resultant outcomes of such interventions would be reliable and important means of promoting the realisation of health and wellbeing, as captured in SDG3.

7 Recommendations and Conclusion

Stakeholders in both African and international health care sectors are progressively arriving at a consciousness that TM practitioners and their indigenous knowledge systems are key assets in public health promotion, particularly in LMICs (Hausmann-Muela et al., 2003). It is evident that these TM practitioners add value to health promotion and function as notable points of reference in modern medicine. Therefore, it can be deemed necessary for African public health educational actors to be attentive to the global dialogues and trends on TM and seek constructive avenues to integrate indigenous knowledge systems, for the benefit of all.

Although there have been several research initiatives to ascertain the potency of traditional remedies in some African countries like Nigeria, Ghana and South Africa (Adusi-Poku et al., 2010; Appiah, 2012; James et al., 2018), and ensuing prospects for recognition in public health education, these interventions are considered inadequate and marginal and there remains a dearth of research evidence in

Africa when compared to Asian traditional medicine which has grown popular across the world, including in Africa (Chazha & Atharv, 2020). This study acknowledges that overcoming epistemic injustices within the framework of public health education in Africa might require further resources and actions from all stakeholders (Mbah et al., 2021). For instance, while African traditional healers require attention, they also require training on best practices for their approaches. On the long run, the integration of ATM with modern medicine will oblige more training of both TM and scientific health practitioners and their instructors on the merits and application of both fields. Also, there is need for structured and impartial process of evaluating the available evidence on the efficacy of ATM products and services, to aid the arrival at a sustainable and explicit contribution (Raynor et al., 2011). Since the goal is to challenge epistemic injustice, counterbalance credibility deficits and overrule interpretive marginalisation (Tobi, 2020) in health knowledge systems, and not to undermine or simply use TM practitioners as mere extension workers aiding the access to health services, but rather to promote those elements exclusive to both knowledge systems and blend them to advance the quality of health services; therefore, there is need for new directions.

Having a plurality of perspectives, approaches, and sensemaking resources that complement one another is vital in public health education; as understanding a complex social system requires multiple ways of making sense of it (Appiah, 2017; Cilliers, 2004). In support, the successful implementation of even unanimously proven scientific interventions has been established to require such plurality to understand the complex systems within which such interventions will be implemented and the realities that they will alter or create (Bhakuni & Abimbola, 2021; Naaldenberg & Aarts, 2020).

Furthermore, as proposed by Zhang et al. (2011) this chapter advances that the integration of indigenous knowledge systems and TM in African public health education can be attained by incorporating TM as integral parts of a country's formal health care curriculum. Elements of TM ignored by modern medical professionals will require intentional considerations and conscious efforts to understand via investigation and training. It is vital to incorporate the training of the foundational principles of TM in all learning institutions from the basic primary level with the active involvement of indigenous health experts themselves who ideally possess the knowledge. What is hence being called for in this chapter is a search for openness to promote mutual collaboration that improves both systems as proposed by Ahlberg (2017).

In conclusion, it is important that both modern and TM practitioners recognize their strengths and limitations; and genuinely concern themselves with the demanding but obligatory task of minimising the current distrust perceived between both knowledge systems. Also, firm structures to disclose the impostors in TM practice should be established in Africa. It is only when these are adequately followed that the objective of legitimisation and institutionalisation of TM services alongside the recommended integration between TM and modern health infrastructures, and their underpinning knowledge systems can be attained for the benefit of millions of individuals who are dependent on both systems in Africa.

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