



EXPLORING THE INTEGRATION OF LOCAL ECOLOGICAL KNOWLEDGE AND WESTERN SCIENCE FOR IMPROVED PUBLIC HEALTH

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Abstract: *In the most recent decades, there has been a rise in interest in local ecological knowledge, and a significant amount of research has been carried out on the topic of how an understanding of local ecosystems may assist in the management of complex systems. This question has been at the center of a lot of attention in recent years. A greater knowledge of local ecosystems has been the primary emphasis of the study as it relates to how such an understanding could contribute to the prevention, mitigation, and management of environmental risks. Combining the two distinct epistemologies that reflect indigenous medicinal knowledge and Western science may result in the creation of regional institutions that improve public health, support biocultural conservation, and assist the community in achieving medical sovereignty, according to the findings of a number of researchers. In this article, I will be concentrating on the indigenous people who call the Punjab area of Pakistan home, especially on their knowledge of traditional medical practices. I will do this by analyzing the indigenous people's medical practices. The purpose of this article is to simultaneously accomplish two separate goals at the same time. Investigating whether or if Pakistan has a system that theoretically and practically combines the use of plants and pharmacological treatments for gastrointestinal disorders is the first thing that needs to be done. The second goal is to determine whether the practitioners of the two unique medical systems are willing to communicate with one another, working on the presumption that such collaboration may contribute to the improvement of the health of the indigenous people. I have arrived at the conclusion that the cultural domain of medical treatments in Pakistan does not contain pharmacy treatments; rather, it integrates ethnomedical and biomedical treatments on a practical level. This was my primary takeaway from researching this topic. This is something that I've picked up along the way. Researchers in academic and public venues, as well as members of the general public, bring attention to the significant gap that exists between Western medical experts and traditional healers. The results of a participatory workshop suggest that both biomedical and ethnomedical practitioners are receptive to the possibility of collaborating with one another and developing synergies across the various medical systems. Despite the fact that indigenous communities currently engage in a diverse array of activities and have shown a desire to cooperate, these negative impressions may make it difficult for the two systems to function together. This is despite the fact that indigenous communities have shown a readiness to work together. Additionally, contemporary indigenous groups participate in a diverse range of practices.*

Keywords: *Local medicinal knowledge, ethnomedicine, western medicine, biomedicine, biocultural conservation, indigenous people, Pakistan, eclectic practices, Bolivia.*

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1. INTRODUCTION

Researchers have shown an increasing interest in the knowledge of rural and indigenous peoples, with the overarching idea that indigenous knowledge may assist in the implementation of development programs and collaboration. Researchers have shown this interest in the topic. As can be seen in Table 1, both academics and policymakers often consider the knowledge possessed by indigenous peoples to be a different kind of competence distinct from that possessed by Western scientists. This is because indigenous peoples have a longer history with the subject matter.

Table 1: Comparison of the characteristics of traditional ecological knowledge and Western science by authors who oppose these two types of knowledge. Source: Adapted from Berkes and Gadgil et al (2010).

Characteristics	Ecological knowledge	Traditional Western Science
Qualitative	Quantitative Method	
Rational	Intuitive	Component
Holistic	Reductionist	Worldview
Conceptualization of the mind and Matter	United	Separate
Conceptualization of the cosmos	Spiritual	Mechanistic
Data collection	Trial and error	Experimentation
systematic facts	Data generated by Local people	Specialized Chair
Data type	Diachronic	Synchronous

Other authors argue that these two separate kinds of knowledge, although being indisputably distinct from one another, do not have to be in opposition to one another in order for there to be a conflict between them. According to these authors, both of these bodies of knowledge are indigenous to a given context and are the outcome of the same intellectual process, which is to generate order out of chaos. This process is what gives each of these bodies of knowledge their distinctive characteristics. The question of whether or whether indigenous peoples interpret Western knowledge and their own indigenous knowledge as two separate types of knowing is one that has not yet been satisfactorily answered. In this body of work, I explore how a native society in the Pakistan comprehends and applies both Western and traditional forms of medical knowledge. To be more precise, I analyze (1) whether or whether the nation of Pakistan integrates or disassociates local medicine and Western medicine, both conceptually and in reality, and (2) whether or not practitioners of both kinds of medical systems are willing to participate in the merging of both kinds of medical systems. In the paper, I refer to "local medicinal knowledge" as the accumulated body of information about medicinal plants and therapeutic techniques that are unique to a culture and have been adapted to a specific location. This information has been handed down through the centuries, is discussed in social settings by people living in the same period, is taught to members of the family unit, and is learned on an individual basis (Alrubaiy, Al-Rubaye et al. 2023). In other words, local medicinal knowledge is a body of information that has been accumulated through time.

To provide more clarification, when I speak to "local medicinal knowledge," I am referring to an understanding of the natural elements that are used to manufacture medicines, in addition to an awareness of the sociomedical issues that go into the creation and use of these medicines. I am able to take the local health belief system and the treatment alternatives that are accessible to address recognized diseases and apply them as a result of my participation in healing activities. The phrase "local medicinal knowledge" is what I have in mind when I use the term "ethnomedicine" in this context. Native practitioners make use of it while speaking about "Desi Medicine" (the Pakistan uses both terms' and refers to individuals who practice native medical knowledge), as well as health assistants (community health workers trained to react to the health concerns of the community people on a voluntary basis). When I say "doctor" or "biomedical practitioner," I'm referring to someone who participates in the practice of allopathic medicine (Wolff, Hammoud et al. 2023). When I say "biomedicine," I'm referring to Western or allopathic

medicine. When I say "biomedicine," I'm referring to Western or allopathic medicine (Chen, Wang, et al. 2023).

2. Justification of the investigation

An increasing number of people over the last two decades have shown an interest in indigenous, traditional, or regional forms of knowledge. This interest is shown in the large number of studies that have been conducted on the topic, as well as in the incorporation of regional ecological knowledge into international agreements such as the Convention for Biological Diversity and the Declarations of the Rights of Indigenous People. Both of these documents highlight the importance of indigenous peoples' rights to their natural environments. Because (i) it is widely recognized all across the world, (ii) it is politically and economically relevant for legislators, and (iii) it is socially necessary for the health of the people, the emphasis of this article is on local medical knowledge rather than other parts of indigenous knowledge. Indigenous people. To begin, research conducted by Pun and Kong (2023) indicates that anywhere between 70 and 80 percent of the population in developing nations rely on medicinal plants for their primary form of medical treatment.

The fact that this research explores such a broad field of knowledge means that the results have the potential to stimulate the interest of a wide range of different communities of individuals. Second, official institutions as well as non-governmental organizations have recently made the shift from downplaying the significance of indigenous medical expertise to acknowledging its significance. This shift took place during the course of the most recent several years. The economic and political relevance of the region's specialized medical competence is beginning to be recognized by political leaders. Third, local medical knowledge is culturally acceptable, broad, and competent to fulfill the requirements and expectations of patients in a range of circumstances. This is important since patients might have quite different needs and expectations depending on the setting. Elvin-Lewis et al. employed ethnomedical surveys to gather answers from a substantial percentage of the local population in order to show that the most prevalent treatments were often also the ones that were the most effective and safe. This was shown in the case of hepatitis. The conventional treatments for hepatitis that have been shown to be effective in treating the illness are also beneficial in preventing secondary infections from developing. In addition, local medical knowledge remains long after local uses of plants and animals as sources of food, weapons, totemic identities, and religious rites have been abolished. This is because local medical knowledge is passed down from generation to generation. According to the study conducted in 2023 by Pattra, Thawng, and others, indigenous and rural communities would, as a result, continue to rely on traditional medical knowledge for decades.

At least four different aspects should be taken into account when assessing the significance of this study. In the first place, the relationship between Western science and other forms of knowledge is at the center of the debate on how the combination of many different epistemologies may contribute to progress. This link is at the center of the conversation because it is central to the topic at hand. This disagreement revolves on the many epistemologies and how they may each make a unique contribution to the process of progress. In this article, I investigate whether the practitioners of the two distinct medical systems are prepared to interact, with the presumption that such cooperation may improve the health of the general population. Indigenous. A number of authors have put forward the idea that the development of a new paradigm might be made possible by the discovery of a constructive discourse that synergistically combines a number of different epistemologies. A debate of this kind would be based on the use of eclectic methods. This new paradigm recognizes the prospect that the medical knowledge held by indigenous people and that held by outside influences, such as medical professionals, may mutually contribute to the development of one another. It recognizes the intrinsic value of indigenous medical knowledge but also takes into consideration the fact that, in some situations, it may not be as adequate as scientific information. In other words, it accepts the inherent worth of indigenous medical knowledge. The act of negotiation amongst all of the individuals that are engaged is the essential approach for establishing synergy between the two knowledge systems. Second, previous research gives credibility to the idea that indigenous medical skill is coherent with the social mores of the local community. However,

the recent availability of Western drugs in less developed countries often comes into conflict with the local beliefs and traditions around health care (Canepa, Sihuay, and others 2023).

It would seem that this is the circumstance with the people of Pakistan. According to Byron and Tanner, there is a lack of communication between the practitioners of both health systems, which results in a poor understanding of Western treatments in Pakistan. This was shown to be the case in both countries. People in Pakistan often misuse pharmaceuticals, which may have negative repercussions for the health of the country as a whole because of the people's lack of knowledge on biomedicine. This research has the potential to help lessen the negative consequences that the Western medical system has on local beliefs and practices, as well as the health of indigenous peoples, provided that it encourages dialogue between the two medical systems in question and performs an analysis of those systems. The findings of this study are presented here. Third, previous studies have proven the positive attitude that healers have of biomedicine and the motivation that they have to collaborate with medical experts. This is something that has been proved to be the case. Awad(2023) demonstrates that cooperation between ethnomedicine and biomedicine is not only possible, but also has the potential to help both the original people and the natural environment. The results of these studies provide evidence of the potential synergy that might exist between the two unique bodies of knowledge and show the ways in which the combination of these two medical systems can assist improve the overall health of indigenous people (Allen 2023).

3.1. The health of the Pakistan

Previous research has shown that infectious illnesses provide a considerable risk to the health of the general population in Pakistan, which includes both children and adults of all ages. The most common types of illness are ones that manifest themselves as conditions affecting the digestive and respiratory systems respectively. Intestinal parasites, namely hookworm, which is a sort of helminth that enters the body via the soil, are likely to blame for people in Pakistan suffering from chronic nutritional stress(Ray 2023).

Hookworms are one of the most common types of helminths. In Pakistan, hookworms are a very widespread health concern. I discovered that sixty-five percent of the persons who responded to an earlier survey that was carried out in the region in 2006 said that they had been unwell in the week leading up to the week in which they were questioned. This information was obtained from a prior survey. I was the one who came upon this information. The influenza virus was responsible for the vast majority of reported instances of illness, with gastrointestinal problems coming in a close second. According to Alrubaiy, Al-Rubaye et al. 2023, fifteen percent of the people who took part in the study reported having had symptoms such as stomach pain, diarrhoea, vomiting, or intestinal parasites in the week leading up to the interview. This information was gleaned from the participants' accounts of their experiences during the research. Participants in the study reported experiencing these symptoms to the researchers.

As a direct consequence of the integration process that is now taking place inside Pakistan's national economy, the country is now confronted with two brand-new and extra health dangers. To begin, a number of studies have indicated that Pakistan does not make good use of the treatments that are accessible from the pharmaceutical business. The overwhelming majority of people living in Pakistan are unable to get the appropriate prescriptions or have the information that is necessary to comprehend the many pharmacological treatments that are now accessible. This is due to the fact that Pakistan lacks a national health care system. As a direct consequence of this, a considerable percentage of patients either do not take the necessary prescriptions for their illness or take the appropriate meds in an erroneous dose. Second, the people of Pakistan are concerned that they will be unable to pass on their traditional medical expertise to future generations because they do not feel that the younger people in their society are adequately retaining the information. They have this dread because they do not feel that their younger generations are learning it well, which is why they have this anxiety. Previous research has shown that the ethnomedical knowledge held by the people of Pakistan has a positive correlation with indicators of the nutritional quality of the country as well as with improvements in the health of children. This has been shown to be the case in Pakistan. It was revealed that there was a particularly substantial association between these two factors in Pakistan. The results of a research that was carried out in 2023 by Wolff,

Hammoud, and others suggest that the loss of traditional knowledge on medicines may have a significant impact on Pakistan's overall health (Wolff, Hammoud et al. 2023).

3.2. Explanations of the Pakistan of the causes of diseases

Previous study has indicated that infectious diseases pose a significant threat to the health of the general population in Pakistan. This group comprises people of all ages, including children, and may be affected by infectious diseases. Illnesses that express themselves as illnesses affecting the digestive or respiratory systems are, respectively, the most frequent forms of sickness. Intestinal parasites, including hookworm, which is a kind of helminth that enters the body via the soil, are probably to blame for individuals in Pakistan suffering from chronic nutritional stress. Hookworms are particularly problematic since they enter the body through the soil. One of the most frequent kinds of helminths is the hookworm. The health risk posed by hookworms is quite common across Pakistan. I observed that sixty-five percent of the individuals who answered to a previous survey that was carried out in the area in 2006 said that they had been sick in the week preceding up to the week in which they were questioned. The survey was carried out by the Centers for Disease Control and Prevention (CDC). This data was gleaned from a poll that was conducted in the past. This information was first brought to my attention by myself. The influenza virus was shown to be the cause of the great majority of cases of sickness that were recorded, with gastrointestinal issues coming in a close second. According to Alrubaiy, Al-Rubaye et al. 2023, fifteen percent of the persons who participated in the research reported having had symptoms such as stomach discomfort, diarrhoea, vomiting, or intestinal parasites in the week preceding up to the interview. This information was gleaned from the participants in the study. The participants' own recollections of their experiences throughout the course of the study were the source for this material. Participants in the study have indicated to the researchers that they have experienced these symptoms.

The nation of Pakistan is now faced with two brand-new and additional health risks as a straight result of the integration procedure that is currently going place inside of Pakistan's national economy. To get things started, a number of studies have shown that Pakistan does not make effective use of the treatments that are readily available from the pharmaceutical industry. This presents a challenge. The vast majority of individuals who live in Pakistan are either unable to get the required prescriptions or lack the knowledge that is essential to grasp the many pharmacological treatments that are now available. This is because Pakistan does not have a comprehensive health care system at the national level. As a direct result of this, a significant number of patients either do not take the required medications prescribed for their ailment or take the right medications in an incorrect dosage. Second, the people of Pakistan are afraid that they will not be able to pass on their traditional medical skills to future generations because they do not believe that the younger people in their society are effectively retaining the information. This is due to the fact that they do not feel that the older people in their community are adequately passing down their knowledge. Because they believe that their younger generations are not learning it effectively, which is why they have this fear, they have this dread. This is why they have this anxiety. Previous studies have indicated that the ethnomedical knowledge possessed by the people of Pakistan has a positive link with indices of the nutritional quality of the nation as well as with improvements in the health of children. This correlation has also been shown to exist between the ethnomedical knowledge and overall improvements in the health of children. In Pakistan, it has been shown that this is in fact the case. It was discovered that there was a particularly significant connection between these two elements in Pakistan, and that this link existed. According to the findings of a study that was conducted in 2023 by Wolff, Hammoud, and others, the disappearance of traditional knowledge on medicines may have a substantial influence on Pakistan's general health (Chen, Wang et al. 2023).

3.4. Use of medicine by the Pakistan.

In Pakistan, a large proportion of the population is of the view that identifying the primary factor that contributes to the sickness is the single most important stage in the process of formulating an efficient treatment approach for the condition (Pattr, Thawng et al. 2023). This is one of the beliefs held by people in Pakistan. The great majority of illnesses that are brought on by natural causes are amenable to therapy,

and some of these treatments include the use of medicinal plants and the application of conventional medical practices. On the other hand, spiritual maladies that are brought on by spiritual beings may only be cured if a cocojsi is present throughout the treatment in order to carry out the appropriate rituals and ensure that they are carried out correctly. Because the disease is so pervasive, it causes people to get unwell, and when they do, they are cared for as if they had a condition that affects the whole population. It is possible to provide drugs, whether they are herbal or pharmaceutical, one after the other or simultaneously. Both of these methods are viable options. In the vast majority of cases, Pakistanis will tend to their own health and treat themselves with any kind of medication. People in Pakistan, in the same way that they do with medicinal plants and pharmaceutical treatments, often stop the therapy as soon as the illness symptoms have lessened, regardless of the package insert or any medical advice that may have been supplied to them. This is done in the same way that they do with medicinal plants and treatments from pharmaceutical companies. This is done in the very same manner as medicinal plants and pharmaceutical treatments are handled and administered. In the event that the condition does not improve after the Pakistani has tried their hand at self-medication, it is customary for them to seek the opinion of a member of the community who is both informed and experienced. If a person's condition does not improve after the use of a number of different treatments, residents of Pakistan are more prone to blame witchcraft for the illness. The reason for this is because the majority of people in Pakistan have the belief that traditional medicine is more likely to cause sickness than witchcraft. Because of the specific nature of this situation, they would seek the assistance of a cocojsi. The people of Pakistan have a deep-seated mistrust of medical professionals, according to research that was carried out in 2023 by Canepa, Sihuay, and others. As a result, they only go to hospitals in really desperate situations, after alternative treatments have been attempted and proved to be ineffective.

For the sake of this investigation, I will be concentrating on four unique gastrointestinal issues, namely abdominal pain, vomiting, diarrhea, and intestinal parasites. There are three primary reasons why I have decided to do this, and I will discuss each of these reasons in turn as we go through the rest of this paragraph. To begin, the people of Pakistan are prone to gastrointestinal and intestinal illnesses, as was mentioned before. This has been a problem for quite some time. The nation is facing an issue because of this. Second, both biomedicine and ethnomedicine agree that issues with the digestive system are diseases, and it is not difficult to recognize the signs of digestive system disorders. Despite the fact that these diseases are typically difficult to detect, this is the case. When it comes to identifying the role that social, cultural, and behavioral elements play in the development of disease, the biological method presents a number of hurdles that must be overcome; however, if we choose disorders that are recognised by both medical systems, we are able to circumvent these obstacles. Third, it is known that gastrointestinal ailments in Pakistan have an etiology, which means that there is a potential that they are the consequence of both internal and external factors. This is because there is a possibility that they have an etiology. Even though constipation and intestinal parasites are never the result of haunting, several key informants have reported that the causes of stomach discomfort and vomiting may either be natural or created. This is despite the fact that diarrhea and intestinal parasites are never the result of haunting. Because gastrointestinal disorders can be brought on by either an accident or a provocation, and also because the situation in Pakistan dictates the method of treatment for the illness that is being endured, gastrointestinal disorders constitute an ideal choice for the purpose of analyzing treatment options. This is because the situation in Pakistan dictates the method of treatment for the illness that is being endured (Awad 2023).

4. METHODS

4.2. Data collection methods

The methods of data collection included methods that 1) helped me to contextualize the Research (participatory observation and semi-structured interviews), 2) evaluated whether Pakistan integrated the ethnomedical and biomedical knowledge systems at a conceptual level ("free listings" and "pile sorts"), 3) to assess whether the Pakistan use ethnomedicine and biomedicine in an integrated way at a practical

level (questionnaire), and 4) to assess the willingness to cooperate with other researchers in the field. Chowdhury (2023) refers to this approach of doing research as "participatory observation."

Participant observation gave me the opportunity to get a more in-depth understanding of a variety of ailments, in addition to the links that exist between many dimensions of knowledge. This was a very beneficial experience for me. The chances that were offered to me made it feasible for me to accomplish my goal. For instance, while we were in the middle of nothing in the middle of nowhere, I helped deliver medicine to people who came to us because they were sick (Ray 2023). Using a combination of semi-structured interviews and contact with persons who were ill, I was able to discover that Pakistanis, in general, do not follow instructions and are unable to know how to appropriately deliver the essential quantities of medicine. I was able to get to this conclusion by doing research in Pakistan. After having conversations with others who were experiencing various illnesses, I was able to recognize this particular phenomenon. Through conducting semi-structured interviews, I was able to acquire information on local medicinal knowledge, ailment etiology, medication consumption, and predicted interest in partnership between biomedicine and rural medicine (Weber 2023).

Listings are made accessible at no additional cost to the user. As part of this approach, which asks the participants to utilize their imaginations, the informants are given the task of compiling a list of everything and everything they can think of that relates to a certain subject area. I questioned the informants and asked them to describe all of the medical treatments that they were aware of that would potentially cure illnesses connected to the digestive system. I received a variety of different responses. They provided me with a significant amount of information. In response to the questions I asked, I received a wide range of answers. Both modern scientific methods and more time-honored approaches, sometimes known as traditional or folk medical practices, are included on the lists as viable treatments. I questioned a large number of medical specialists in Pakistan about the accessibility of a variety of treatments and asked them to develop a list of treatments that are available for me to choose from. I did this so that I could make an informed decision. I am presently in Pakistan. I also participated in an activity that is known as "free listings" with the people who live in Pakistan's communal regions in order to get an idea of the cultural knowledge that they have about medical treatments. This was done in order to learn more about the medical treatments that are prevalent in their culture. This was done for the purpose of educating me on the cultural norms that they adhere to, so that I may better understand them. The final lists include treatments that may be categorized as biological, as well as treatments that could be categorized as alternative or folk (Negessa, Joseph, et al. 2023).

Pile sorts. I used the lists that were created using the "free listings" methodology, and from those lists, I selected the ten biomedical treatments that were mentioned the most often, in addition to the ten ethnomedical treatments that were readily available within a three-hour walk of the research area. I did this so that I could evaluate the two different kinds of treatments side by side and decide which one was more successful. The final list of "pile sorts" had one stone, nine distinct types of flora, and ten distinct drugs. I went into the woods and gathered the various plant species, and then I went to the store and acquired the various medications. I did all of this with the intention of making it simpler for the people who were going to be playing the "pile sort" game to identify the different things that were being played with. I went into the woods and collected the various plant species. I gave each of the participants their very own one-of-a-kind collection of the 20 objects, and then I asked them to classify the items into groups according to the extent to which the components of their construction were comparable to those of the other items. After that, I questioned them about the reasoning that went into their specific classification of each (Guntarik 2023).

Questionnaire. When it came time for me to construct an official questionnaire, I relied on the information that I had gotten from the semi-structured interviews as well as the participatory observation. In other words, I combined both of these sources of data. To put it another way, I merged the two distinct kinds of data. The participant's age, gender, and the total number of years that they had spent in school were some of the most relevant sociodemographic aspects that were enquired about in the questionnaire. In addition to questions on the participants' states of health, the questionnaire also included questions regarding these variables. I questioned all of the people in the sample regarding the ailments that they had suffered from

in the previous week in addition to the first three treatments that they had gotten for any gastrointestinal ailment that they had suffered from in the previous week prior to the interview. This took place during the workshop that included participant input. It was done in this manner so that I could have a deeper comprehension of the experiences that the participants had. In order for us to talk about the findings of the research and come to some conclusions, I organized a workshop with the primary focus being on the participation of the attendees. During the interactive workshop, the findings of the research were supposed to be described, the primary concerns of the contemporary health environment in Pakistan were supposed to be recognized, and an assessment of the preparedness of practitioners of ethnomedical systems to collaborate was supposed to be carried out. All of these things were scheduled to take place. It was anticipated that each of these events would take occur. In addition to that, studies carried out within the realm of bio medical (Sibandze and Dlodlu 2023).

4.3. Analysis

I used the software ANTHROPAC 4.983/Xin order to do an analysis on the data on the free listings and the pile sorting. By looking through the "free listings," we were able to determine which treatments are the most often utilized for the gastrointestinal conditions that we chose. The results of the "free listings" made it possible to establish Pakistan's cultural superiority over medical treatments. This was made feasible thanks to the findings of the "free listings." This was made feasible due to the fact that there was no charge for the listings. The fact that Pakistan included the greatest number of listings prepared the groundwork for this to materialize into a truth. I relied on a technique that is often known as "non-metric multidimensional scaling" (MDS) in order to carry out my analysis of the "pile sorting" data. This allowed me to get a more accurate picture of the data. Because of the MDS, it is now possible to carry out an observational study to establish whether or not individuals have a shared idea on how things and medical treatments should be categorized. When items in the MDS are crammed in closer to one another, this implies that they have been graded next to one another in a higher number of distinct pile types. I resorted to descriptive statistics in order to make sense of the data that was gleaned from the surveys in order to make sense of the data. In particular, I focused my efforts on identifying how often various treatments were administered (Chane-Po, Gatina et al. 2023).

4.4. Limitations and strengths of the study

There are at least three issues that might be discovered with the study. To begin, the fieldwork only lasted seven weeks, which limited the amount of data that could be acquired as a result. Second, since the interviews had to be conducted with the aid of a translator, the information chain was broken as a direct consequence of the evident challenges given by the need of overcoming language hurdles. Beginning with the origin of the material, then going on to the translator, and finally coming to the person who did the research. In conclusion, but certainly not least, the fact that the investigation was limited to solely gastrointestinal diseases could have had a role in shaping the results. The findings of the study conducted in 2023 by Malaeb, Sallam, and others suggest that this may only apply to disorders of the digestive system and not to other conditions.

The information that was acquired provides evidence of two key advantages. The information and secondary data that was supplied by the TAPS research panel were both available to me, and I was able to utilize them right away. The present inquiry could not have been carried out without the assistance of the previous research that had been conducted in the same area. Second, since my study was included in the TAPS panel, I was able to easily communicate with the people who took part in the experiment, which helped me win their trust and gain their cooperation.

5. Conceptualization and use of ethnomedicine and biomedicine by the Pakistan.'

5.1. Conceptualization of the cultural domain of medical treatment by the Pakistan.'

The results of both the "free listings" and the "pile sorts" studies show that traditional medical practices in Pakistan do not include the use of pharmaceutical treatments. During the free listing activity, participants from Pakistan came up with a total of sixteen different probable treatments for digestive

diseases. According to the data in Table 2, not a single patient mentioned receiving any kind of pharmaceutical treatment. The value of 2.4 was determined to be the value of the standard deviation for the number of treatments for gastrointestinal illnesses that each participant stated. The list that featured the fewest things comprised just two, while the list that contained the most things contained nine. Oveto, also known as *Uncariaguianensis*, was the most significant species to be taken off the list, and it was also the one that was removed last. Every single individual who was questioned about Oveto mentioned it in response. Oveto was consistently highlighted as the very first item in each and every day's "free listings." At least two individuals claimed eleven treatments, however only one individual could identify five of those treatments.

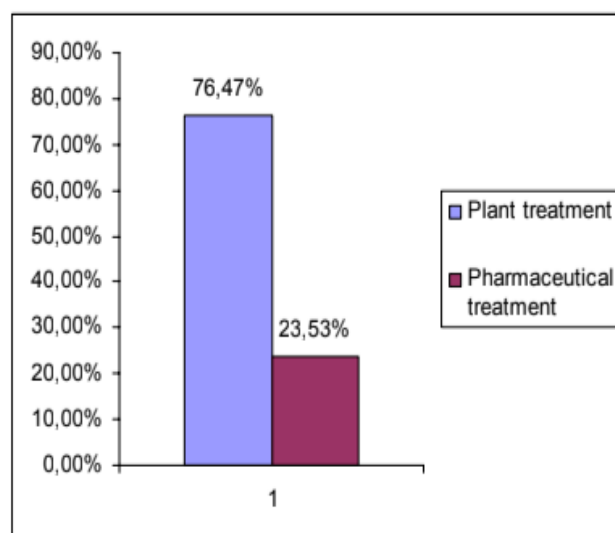
The fact that the results of the "pile sorts" and those of the "free lists" are in accord lends credence to the notion that biomedicine and ethnomedicine are conceptually distinct in Pakistan. An investigation known as "non-metric multidimensional scaling" was carried out using the data obtained from the "pile sorts" of three different societies. The results of this investigation are shown in the figure labeled 1. The Pakistan makes a distinction between 1) a group of pharmacy treatments that are recommended by medical professionals for the treatment of gastrointestinal conditions; 2) a stone known as cuppa that is used in the treatment of conditions that are brought on by bewitchment; and 3) a variety of medicinal plants that are used to treat gastrointestinal conditions. I found that there were a total of six separate categories included among the nine medicinal plants that were classified into heaps. In Pakistan, vejqui(1)', vuayuri(3), and Andover(4) are used as treatments for diarrhea, sore throats, and stomach problems. They treat gastrointestinal issues with went, as well as leishmaniasis, which is an illness that does not impact the digestive system in any way. They make use of vambason(5), the root of belief(6), and Natasha(9) in order to treat gastrointestinal ailments as well as a number of other problems. Himvambason is a good illustration of this point. It is supposed to be effective against intestinal parasites and kidney difficulties, in addition to the common cold and the ashasha for both of these disorders. Because they could only put each item in one of the categories that they had access to, Items 5, 6, and 7 are isolated from one another on the MDS. For the treatment of intestinal parasites, traditional remedies in Pakistan include both the Titij' (7) plant and the seed of the I'm Hungry (8) plant. Specifically, the Titij' (7) plant is employed. As a direct consequence of this, Pakistan's medicinal plants are arranged in categories according to the ailments that they are capable of curing. Additionally, I found that the coffee appeared to differentiate itself from all of the other treatments in some way. When treating a spiritual illness with curpa, it is not necessary to take into account the symptoms that the patient is experiencing. In the end, I was successful in locating a cluster that combined all that the medical professionals had developed for the list into a single location. According to Adler, Escóbar-Márquez, and others (2023), the participants from Pakistan put them all together into a single category since they were unaware of the purpose that they served in the system.

An investigation using non-metric multidimensional scaling of the many biological and ethnomedical treatments for gastrointestinal diseases. I performed three non-metric MDS using the data from each village separately so that I could compare the findings to see if there were any differences in the MDS results for each of the three villages where the data was acquired. This allowed me to determine whether or not there were any significant differences in the MDS results. When I compared the communities' classifications of medical plants, I did not find any major differences between them; nevertheless, when I compared their classifications of pharmacy remedies, I did find inconsistencies (the results of which are not provided). When I compared the classifications of medicinal plants, I did not find any significant differences between them. People in the most distant of the three hamlets, Yaranda, lumped pharmacy treatments into a single category that was not identified. This category was not pharmacy treatments specifically. Residents of Santa Maria and San Juan de Nápoles, on the other hand, identified at least four separate categories, including those for issues relating to the gastrointestinal system, pain, and Trainin.

5.2. The use of medical treatments by the Pakistan.'

On a functional level, the answers of the questionnaire reveal that Pakistan treats gastrointestinal diseases using a combination of biomedical and ethnomedical treatments. This is shown by the fact that Pakistan employs both of these strategies simultaneously. Sixty-four out of the eighty-seven individuals who were questioned about their health before the interview said that they had been feeling poorly in the preceding week before the interview. This particular group accounts for 73.56% of the total population. After doing an analysis on the data pertaining to the first ailment that was mentioned, I arrived at the conclusion that the most prevalent illness was the common cold (20.69 percent of those who reported any symptom), which was followed by headache (9.20 percent) and diarrhea (9.20 percent). In the aggregate, 17.24% of the individuals who reported having suffered from any disease also reported having suffered from a gastrointestinal condition. This amount does not include the persons who denied having any kind of disease in their reports. At an overall incidence of 1.15 percent, it was reported that these individuals had experienced symptoms including nausea, stomach discomfort, and vomiting. Not a single one of the informants ever once used the phrase "intestinal parasites" when providing their unique testimonies. In accordance with the findings of the research that Rajasekharan, Nair, and his other researchers (2023) carried out, the pattern of illness prevalence is comparable to that of Byron.

18.18% of those who reported having any kind of gastrointestinal ailment were not taking any medication for their disease. This percentage was higher among women than men. This particular proportion of persons is an all-time high for that particular measure. 35.29 percent of those who sought therapy did so entirely via the use of medicinal plants, whereas 17.65 percent of those who sought treatment did so exclusively through the use of pharmaceutical treatments. A combination of the two distinct forms of treatments was used by the remaining 47.06 percent of patients (Figure 2). Figure 3 presents data pertaining to the first therapy that was carried out in an attempt to relieve symptoms associated with digestive diseases. This treatment was carried out in an effort to improve patients' quality of life. According to the findings, Pakistan puts a substantial amount of value on the ethnomedical knowledge that is already in their possession. 76.47% of those who had some kind of treatment for gastrointestinal disorders picked medicinal plants as their major form of treatment, whereas only 23.53% of respondents selected a medicine from a pharmacy as their primary form of treatment (Chowdhury 2023).



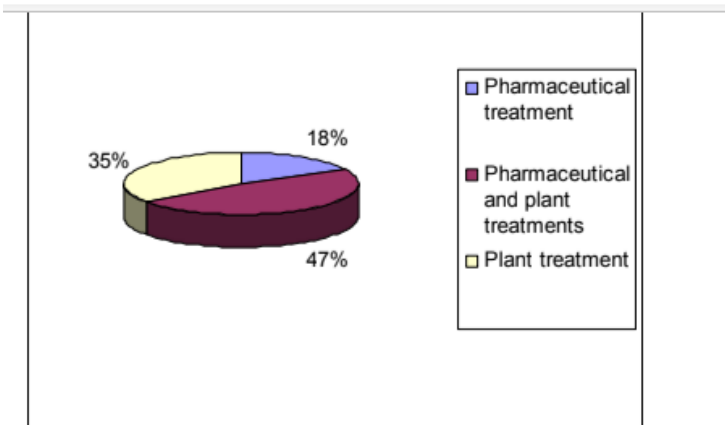


Figure 3: Frequencies of the first treatment option for gastrointestinal diseases during the week before the interview (n=18).

6. Assessing willingness to cooperate

During the semi-structured interviews, practitioners of biomedicine and ethnomedicine indicated a desire for a medical system that would permit cooperation between biomedicine and ethnomedicine on a local level. This preference was voiced by the interviewees. The practitioners of both systems came to the conclusion that the biomedical system may be more successful in treating some diseases (such as tuberculosis), while the local medical system could be more suited for treating other ailments (such as diarrhea). Local medical experts have underlined the necessity for a system that promotes collaboration between the two separate medical systems in order to offer patients with the most useful choice for treating their diseases. This would be done in order to meet the goal of providing patients with the most beneficial treatment option possible. Both parties were interested in learning information from the perspective of the other individual. However, the indigenous medical system was regarded with suspicion by the doctors, who stated that it was necessary to perform scientific study in order to prove the alleged curative abilities of medicinal plants (Weber 2023). This caused the indigenous medical system to be seen negatively by the physicians.

I organized a participation workshop with members of both medical systems so that the local representatives of both medical systems would be able to speak with one another and have a better grasp of the willingness to cooperate that was indicated on both sides. I did this so that the local representatives of both medical systems would be able to communicate with one another. I called for a total of seven medical professionals including four "cocojsi," three medical doctors, and one licensed nurse. On the other hand, since it sparked a greater amount of interest among health assistants, a bigger number of those professionals attended the session. There were a total of 34 individuals that took part in the activity. The participants highlighted the beneficial qualities of both kinds of medical practices, pointing out that biomedicine was more successful and was backed by scientific study, but ethnomedicine was more economical, more ubiquitous, and encompassed the tacit knowledge of a number of generations that came before it. According to Negessa, Joseph, et al. 2023, the participants in the workshop saw the health of the communities as a primary priority, and they provided suggestions to improve it. The most significant ones involved training assistants in both biomedicine and ethnomedicine;

- (1) strengthening local medical knowledge;
- (2) enhancing the role of the "cocojsi" and health assistants
- (3) open medical posts in the communities;
- (4) improve education in disease prevention;
- (5) have care of the environment;
- (6) build communal gardens of medicinal plants and
- (7) build some facilities directly related to health, such as wells and latrines, and have a drinking water supply and electricity.

Participants discussed the case, where a healer works with the biomedical health system and makes herbal remedies sold in the same medical post. The revaluation of local medicinal knowledge became one of the main discussion points of the workshop since, for the participant, herbal remedies were the only resources available in the most isolated communities. The participants felt that they could obtain an economic benefit with the revaluation of medicinal plants and contribute to forest conservation. They considered that the training workshops, reassessing the knowledge of the elderly, institutional help, and maintaining their customs, could help to achieve the local revaluation of ethnomedicine (Guntarik 2023).

They suggested that the workshop was the spark needed to promote cooperation between doctors and local health practitioners and underlined their willingness to continue the process. They proposed immediate steps such as building school gardens of medicinal plants, having elders explain their knowledge of local medicine in schools, and collecting local medical treatments among communities. The participants also plan to apply for municipal funds to carry out more participatory workshops to discuss the relationships between biomedicine and ethnomedicine in greater depth (Sibandze and Dluclu 2023).

7. DISCUSSION

The outcomes of this study allow for the formation of three primary conclusions that may be drawn from those findings. To begin, the medical treatments that are offered in Pakistan are not considered to be a part of the conceptual or cultural sphere of medical treatments in Pakistan. This is because Pakistan does not have a very developed healthcare system. This is due to the fact that treatments offered at pharmacies are not generally regarded to be medical treatments. Second, on a more practical level, the people of Pakistan utilize a combination of pharmaceutical treatments and medicinal plants, but they continue to place a greater degree of confidence in medicinal plants. This is despite the fact that pharmaceutical treatments are available. Despite the fact that pharmacological treatments are far more successful than those derived from medicinal plants, this is still the case. At last, members of the local medical community and other health professionals have shown an interest in collaborating with one another. The first result, which demonstrates that pharmacy treatments are not seen as being part of the cultural domain of medical care in Pakistan, is comparable to findings that were reported in another case study that was carried out in communities situated inside Pakistan. This finding was discovered in Pakistan, which is the location of the country. Ticona carried out research in the neighborhood of Tacuaraldel Matos on the ethnobotany of the plants and wildlife that are native to the area. It was informed to him that the country of Pakistan does not consider treatments acquired from pharmacies to be under the category of "medicine." However, in order to get pharmaceuticals from pharmacies or vendors, they refer to them as "remedios" or "medicines" in Spanish and Pakistan Punisher'to in Pakistani (Chane-Po, Gatina, et al. 2023). In Pakistani, the word "remedios" is pronounced as "punisher'to." In Pakistani, the word "remedios" is pronounced in the same way as the term "punisher'to."

It is possible that this finding may be explained by the fact that members of a community normally adhere to the same treatment norms. It is possible that this conclusion could be explained. This is probably the case for two reasons: first, the illness in issue is a pervasive and persistent problem, and second, health treatments in a community typically have a restricted supply. Both of these factors contribute to the likelihood that this is the situation. Due to the fact that Pakistan is geographically isolated and its people have little financial means, its citizens have restricted access to a wide range of biomedical treatments. Because of the restrictions mentioned earlier and the relatively recent history of pharmacy treatments in the region, it is very likely that Pakistan does not consider pharmacy treatments within their cultural sphere of medical treatments. This is due to the fact that the history of pharmacy treatments in the area is only a few decades old. This is due to the fact that pharmaceutical treatments have only been available in the area for a comparatively short amount of time. It should not come as a surprise that Pakistanis do not have their own categories for pharmaceutical therapies since, according to the results of anthropological research, Pakistanis make incorrect use of pharmacy treatments. The research that was carried out by

Adler, Escóbar-Márquez, and others (2023) came to the conclusion that "because they do not have a classification system for such treatments, they use them regardless of the ailment."

According to Tanner's idea, this might have highly negative implications on the state of public health in Pakistan, one of which is the development of medicine resistance, which is a definite possibility. The second significant discovery is that on a practical level, Pakistan combines elements of both biomedicine and ethnomedicine. This is an important finding. In Pakistan, it was discovered that this was in fact the case. The hypothesis is dependent on the complex response system that is connected to cultural conceptions, individual interpretations of symptoms, and the resources that are readily accessible. The following information was provided to me by one of my sources, for example: "If I have money, I buy medicine from the pharmacy; however, if I don't, I use medicinal plants." If nothing you do succeeds, then I will have compelling evidence to support the conclusion that I am possessed, regardless of what you do. My confidence in naturally occurring medications that are produced from plants is higher than it is in pharmaceuticals; but, the nearest forest is too far away, and the treatments take too much time. I just wish there was some alternative choice.

As a direct result of growing engagement with the Punjabi culture over the course of the previous half century, a rising number of people in Pakistan are increasingly making use of medical treatments. This phenomenon may be directly attributed to the expansion of Pakistan's middle class. During the middle of the 20th century, missionaries were responsible for establishing the region's first hospital and bringing its first medical treatments to the area. Even though individuals in Pakistan have been swayed by the persuasive claims that have been made about the efficacy of biological treatments, the usage of medicinal plants has not been displaced by the acceptance of these treatments. In addition, the findings of this research reveal that Pakistani patients who suffer from gastrointestinal disorders are more likely to seek therapy from medicinal plants rather than medicines as their primary method of treatment. People in Pakistan could collect medicinal plants for a variety of reasons, some of which are tied to the country's rich cultural history, while others are motivated primarily by a desire to improve their quality of life. As was said before, the cultural area of treatments in Pakistan does not contain any kind of therapy, including pharmacies. This is true even though Pakistan has a long history of medical practice. This is also the case with regards to the cultural zone that treatments come from. (Rajasekharan, Nair, et al. 2023) Because of factors such as the needed physical distance or a lack of financial resources, there are some groups of individuals who do not have easy access to the treatments that are supplied by pharmacies. This may be due to any of these factors.

The third and last finding that should be brought up for discussion is the fact that researchers from the scientific and ethnomedical sectors have shown a readiness to collaborate with one another. Previous research has shed light on the considerable distrust that exists between the two medical systems that are practiced in the region. It has been brought to everyone's attention that there is a lack of trust. As a consequence of my study, I discovered that many people in Pakistan held the misconception that hospitals were places where people went to die and that there was skepticism about the provision of free medications in hospitals. In addition, there was widespread ignorance regarding the availability of free pharmaceuticals in hospitals. It was one of the discoveries like this that took me by surprise the most. Reports indicate that the people of Pakistan have a poor degree of faith in Western medical practitioners owing to the fact that they have had awful experiences in the past with Western medical practitioners. In a similar vein, Pakistani physicians have noted a lack of information of Pakistan's traditional health belief system while asking for the need of scientific confirmation of the value of medicinal plants. They have also called for the necessity of scientific confirmation of the value of medicinal plants. In addition to this, they have stressed the need of having scientific evidence to back up the claims that medicinal herbs are effective. The fact that there is a difference between the two is what separates them from one another and is the primary differentiation between them. Both parties are of the opinion that collaboration is absolutely necessary due to the possibility that the two distinct medical systems will be able to complement one another. This would provide Pakistan the ability to choose the treatment that is most appropriate for a certain condition, which would be to the country's advantage as a whole. In addition to

this, students demonstrated an interest in obtaining information from the many knowledge systems that are available (Yu and Pun 2023).

8. CONCLUSION

In this piece, I will explore Pakistan's healthcare system in connection to the treatment of diseases that affect the digestive tract. Specifically, I will focus on Pakistan's ability to diagnose and treat gastrointestinal diseases. In particular, I shall be concentrating on the availability of antibiotics. Even though pharmaceutical treatments and medicinal plants are utilized equally in day-to-day practice in Pakistan, ethnomedicine and biomedicine are still considered to be two separate fields of study in that country. As a result of my time spent studying in Pakistan, I came to the following opinion of the nation. I've also discovered that biomedicine and ethnomedicine are both open to the possibility of partnering with one another. As a result, those who are interested in doing so are able to enjoy the advantages of both of these medical modalities simultaneously if they so want. Research in the scientific field is credited as having both a powerful and effective impact by the general populace as well as members of the professional medical community. On the other hand, there is a growing sentiment in the community that the indigenous medical knowledge need to be reevaluated. This is an opposing viewpoint. This stands in stark contrast to the earlier point of view. People in Pakistan have a strong belief that maintaining their traditional way of life and protecting their environment requires them to have knowledge about their traditional medical practices. It is because the general populace of Pakistan does not have a basic comprehension of the biomedical system that the country's healthcare system has deteriorated in recent years. According to the findings of the study that Malaeb, Sallam, and the other researchers carried out in 2023, investigating the linkages between indigenous medicinal knowledge and the possibility of co-management of health between ethnomedical and biomedical practices ought to have the dual effect of both improving the current state of health and making a contribution to the protection of the environment. This research has the potential to be the first step in future participatory research that tries to develop local institutions to improve public health with the collaboration of the many health systems in a particular region, supporting biocultural conservation, and enabling the people to have sovereignty. In other words, this research could be the first step in future participatory research. The findings of this study have the potential to serve as the groundwork for more participatory research in the future. This study may potentially serve as the first step in following research that attempts to develop regional institutions with the goal of improving the health of the general people. Medical.

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