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(Evaluating the Perceptions of Modern Medicine Among Senegalese Citizens and the Effect on the Desire of Traditional Medical Practices Offered)

Department *of* International Studies

(Evaluating the Perceptions of Modern Medicine Among Senegalese Citizens and the Effect on the Desire of Traditional Medical Practices Offered**)**

Submitted to the Department of International Studies of Allegheny College in partial fulfillment of the requirements for the degree of Bachelor of Science.

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I hereby recognize and pledge to fulfill my responsibilities as defined in the Honor Code and to maintain the integrity of both myself and the College community as a whole.

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To coffee, the discovery of the coffee bean, the creator(s) of coffee, the people who have made and served me coffee, the people who have bought me coffee, and to Monster Engergy for Mango Juice Monsters

Patricia L. Albertus Fogland, Grace Y. Fogland, Dennis J. Fogland

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Global Health Executive Summary

Science and the Environment

- Identified and evaluated differences and similarities between the modern medical healthcare system along with traditional medical healthcare options in Senegal. 80% of Senegal's population seek and utilize traditional practices despite a perceived dominating modern medicine presence.
- Explores how traditional medicinal plants are being cultivated in the community to be utilized by traditional healers and for further pharmaceutical research.
- My senior thesis sought to evaluate how different healthcare options offered in Senegal effect citizens' desire and utilization in treating illnesses, diseases, and overall health.

Ethics and Social Responsibility

- My thesis discusses these of how medical international organization collaboration and how the World Health Organization's (WHO) definition further emphasizes the impact the divide of modern medicine and traditional medicine.
- This thesis also discusses the impacts of implementing a legal framework for traditional medicine in Senegal. The main concern being the protection and preservation of the indigenous practices. The proposed efforts would be done through standardized regulation, funded medical and pharmaceutical research, improved accessibility, affordability, and durable community implementations.

Cultures and Society

- Identified and evaluated the impact of Senegal's French colonialism through political, economic, and socio-cultural structures.
- This thesis discusses the importance and role that traditional healthcare options offer to Senegalese citizens in urban and rural areas,
- Explores how traditional medicine and modern medicine is currently utilized throughout the country in the specific cases of SICAP Liberté 4 through an internship, and Toubacouta through a field trip offered by the West African Research Center (WARC) in partnership with the University of Minnesota and Allegheny College.
- My thesis aims to evaluate the perceptions of modern medicine among Senegalese citizens and the effect on desire of traditional healthcare options offered in the community.

Power and Economics

- Identified and analyzed Senegal's neocolonial and neocapitalistic power relation with France. This relation affects their current economy and political structure.
- Emphasized the currency economy that is tied to France's economy along with the mention of current domestic corruption politically and economically.
- Evaluated the current legal standing of traditional medicine in Senegal's constitution and the illegality of traditional healthcare options, but the introduction of some regulations and funded research by the government and the University of Dakar.

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Abstract

80% of Senegal's population seek and use traditional medical practices despite the presence of modern medicine. Modern medicine was introduced in the country during the colonial period circa the mid-17th century. Healthcare is offered to citizens but there are issues of providing licensed personnel to rural regions to implement modern treatments. Population density in Senegal often determines the number and type of healthcare facilities available. Densely populated areas have more modern healthcare options than less populated rural villages.

The goal of my research is to evaluate perceptions of modern medicine among Senegalese citizens and the effect on desire of traditional practices offered. This was done by finding what aspects contribute to citizens' preferences and choice to utilize modern medicine or traditional medicine offered in urban areas, Dakar, to rural villages, Toubacouta.

To evaluate perceptions of traditional and modern healthcare options in Senegal, an analysis of past and current relations with France through economic ties and medical influence is conducted. This is conducted jointly with an evaluation of current policies regulating modern and traditional practices. This study is able to evaluate how both systems work within Senegal's current political and economic climate in relation to socio-cultural aspects. Efforts are being made to legitimize traditional methodology while protecting and preserving the practice. Traditional medicine has potential to offer Senegal economic sovereignty and independence from France's neocolonial rule by exporting medicinal products. It can offer more affordable, accessible, and accepted forms of healthcare to citizens. To do this, Senegal needs to initiate the same amount of research, regulation, and funding they do to modern medicine to create an effective dual system catering towards citizens' preferences to treat and prevent illnesses and diseases.

Résumé

Les Etats africains entretiennent une relation complexe avec les pays européens en raison de l'invasion du continent africain par des missionnaires religieux, des entreprises occidentales et du colonialisme collectif conduisant à des actes d'asservissement et un démarrage tardif du développement indépendant. Le Sénégal, pays ouest-africain, a gagné son indépendance en 1960 de la France, son colonisateur. Sa liberté à provoqué de nombreux changements dynamiques dans l'État en raison du contrôle que la France avait, spécifiquement dans les secteurs économique et politique mais aussi dans le secteur de la santé. La présence française a influencé une grande partie de la culture sénégalaise, leur société et leur histoire mais il ne s'agit pas de dire que la colonisation française est la seule raison du fonctionnement du système de santé actuel du Sénégal, puisque soixante-trois ans se sont écoulés depuis l'indépendance sénégalaise proclamée. Il y a eu suffisamment de temps et d'autres facteurs internes et externes qui influencent leur environnement aujourd'hui comme la corruption politique et le partenariat avec des organisations internationales telles que les Nations Unies ou l'Organisation Internationale de la Francophonie (l'OIF).

Le système de santé public au Sénégal est très similaire au système de santé universel que la France suit avec d'autres pays européens en termes de structure, les paiements et financement. Ce n'est cependant pas le seul système en place dans la région de Dakar, Sénégal, il y a un système de santé qui procure les médicaments et qui pratique des méthodes de santé traditionnelles en parallèle du système moderne. Ce rapport évaluera les perceptions de la médecine moderne parmi les citoyens et l'effet sur leur préférence des pratiques traditionnelles offertes dans la communauté. Les termes que j'ai utilisés dans ce rapport ne sont pas parfaits mais ils sont présents sous une multitude d'interprétations différentes. Les termes suivants sont

largement utilisés dans la littérature académique spécifiquement pour ce projet dans le domaine de la santé mondiale que dans celui des études internationales. Ces termes sont parfois remplacés par des synonymes tels que ‘alternatif’, ‘indigène’, ‘occidental’, ‘cosmopolite’, etc. Ces termes seront utilisés dans l’analyse suivante pour déterminer les aspects qui contribuent aux perceptions des citoyens sénégalais et à leur choix global d’utiliser la médecine moderne ou les options de la médecine traditionnelle offertes dans la ville urbaine de Dakar ou les villages ruraux. L’Organisation mondiale de la santé (l’OMS) définit la médecine traditionnelle comme “les connaissances, les compétences, et les pratiques fondées sur les théories, les croyances et les expériences propres à différentes cultures, utilisées pour préserver la santé et pour prévenir, diagnostiquer, et améliorer ou traiter les maladies physiques et mentales” (l’OMS, 2021). La médecine moderne dans ce rapport est considérée et définie comme un système dans lequel les professionnels de la santé traitent les maladies en utilisant des médicaments et traitements avec pharmacologiques et la technologies modernes.

Au Sénégal, c’est très important que les systèmes de médecine traditionnelle et moderne à Dakar aident les citoyens et travaillent ensemble parce que, même s’ils se ressemblent et sont similaires en leur but, ils sont différents en termes des méthodes qu’ils utilisent et préfèrent à prescrire. Les méthodes traditionnelles de diagnostic et les médicaments utilisés pour traiter les patients sont différents de comment les institutions, médecins, et docteurs modernes les traitent. Une raison pour laquelle ces deux systèmes de santé fonctionnent au Sénégal est qu’un système offre des options plus abordables et accessibles dans les régions moins urbanisées que Dakar, par exemple dans les villages ruraux, et c’est aussi une option de santé pas très chère.

L'Économie au Sénégal et ses Effets sur les Soins et la Santé

L'économie et les politiques gouvernementales indépendantes après la colonisation ont influencé ces comportements des choix de soins de santé. L'économie du Sénégal est très compliquée en raison de leur relation avec la France et leur monnaie. Le point important est qu'en dépit d'être un pays indépendant, le Sénégal est financièrement dépendant de la France encore aujourd'hui. Le fait en réalité est que leur monnaie est dépendante sur l'économie de la France et de leurs entreprises avec le monde. C'est un système unique parce que la France a gagné dans toutes les situations d'économie et ils ont bénéficié de la croissance du Sénégal et ne perd pas beaucoup si le Sénégal souffre financièrement. Il y a des exemples essentiels dans leur système qui indiquent leur contrôle des monnaies dans le pays, la première raison est-il existé une parité fixe entre le franc CFA et l'euro et c'est signifiant car la valeur du franc CFA par rapport aux autres devises varie en fonction de la variation entre l'euro et les autres devises. Cela signifie que si l'euro se déprécie ou s'apprécie, le franc CFA, dont la valeur est déjà à un taux inférieur fixe par rapport à l'euro a un taux de change fixe fixé à 1 euro = 655, 957 francs CFA. Il imite exactement la même variation et c'est pour cette raison que les pays africains se battent pour gagner une position pour une opportunité à développer leur économie bien que ce soit une grande région pour la production et l'exportation des matières premières, de l'industrie, et de l'agriculture. En bref, la France a influencé les échanges entre le Sénégal et ils utilisent le franc CFA comme une forme de pouvoir politique et économique Ceci est évident car il y a des membres français dans les conseils d'administration des banques sénégalaises qui influencent leur politique et leur gestion administrative.

L'une des façons que l'influence française entrave le développement du Sénégal en tant que pays est dans le fonctionnement du secteur de soins et de santé, en particulier le rôle du financement de leur système. C'est un grand problème maintenant et dans le futur s'ils souhaitent

améliorer leur qualité et capacité ou varier leurs options à choisir. Un historien et militant politique Walter Rodney (1972) explique que l'Afrique a développé au même rythme que l'Europe mais la raison que l'Europe a sous-développé l'Afrique est à cause du capitalisme et de leur idée de la supériorité. Ceci est la conséquence de leurs actions d'exploitation, la France, pendant la période coloniale et de leurs actions ultérieures qui ont influencé le pays de Sénégal. Cette idée continue à impliquer les inégalités et les disparités médicales au Sénégal ; ce n'est pas que les citoyens manquent de ressources mais qu'il y a une répartition inégale et injuste de la richesse des ressources.

Maintenant le système sénégalais de soins et de santé est sous l'administration du ministère de la santé et de l'action sociale et financé par le gouvernement et des organisations internationales comme USAID, World Bank, International Monetary Fund, WHO, etc. Le Sénégal a importé des milliers de dollars de produits de France pour le secteur médical, notamment les produits pharmaceutiques et les technologies médicales. Avec l'aide des organisations internationales, il y a aussi les règlements ou des normes qui sont imposés ou suivis d'un point vue occidental et une position de méthodologie médicale moderne avec leurs fonds et équipements. Ces pratiques suivies par les organisations sont fondamentales pour les idées de biomédecine et sont très différentes des pratiques et méthodes médicales traditionnelles. En plus de ces règlements, il existe des régulations et des protocoles concernant les signes vitaux des équipements spéciaux pour le diagnostic, et en retour les statistiques pour le pays du Sénégal et leur santé sont partagées avec le reste du monde.

C'est aussi à ce niveau que les fondements sur lesquels reposent les pratiques différentes de médecine moderne et traditionnelle existent. La médecine moderne est fondée sur des pratiques biomédicales impliquant l'évolution biologique et une méthodologie scientifique avec

une cause, un effet, et un traitement privilégié avec des résultats efficaces présumés. Cela diffère de l'application de la médecine traditionnelle à Dakar en raison que c'est considéré comme holistique. Ils ne traitent pas seulement les maladies mais les traitements s'articulent également autour de la relation entre le médecin et le patient. Si la médecine traditionnelle s'appuie sur sa propre histoire et ses propres méthodes de recherche, il met également en œuvre des éléments spirituels et des remèdes à base de plantes médicinales, ce qui est moins souvent le cas dans la médecine moderne. C'est en partie aussi parce qu'il n'y a pas beaucoup de recherche sur les plantes médicinales traditionnelles pour enregistrer les symptômes et les effets secondaires susceptibles de nuire aux individus. C'est la raison pour laquelle les pratiques traditionnelles ont d'abord été interdites, mais reviennent grâce au financement pour soutenir la recherche nécessaire par le gouvernement pour en faire une option plus sûre.

Le Structure de la Santé Moderne et Traditionnelle au Sénégal

J'ai brièvement décrit le système et la structure des soins de santé à Dakar, en faisant état de mes expériences personnelles. J'ai utilisé un peu mes expériences quand j'ai étudié là-bas et quand j'ai fait un stage au Poste de Santé au SICAP Liberté 4, un petit quartier dans la zone péri-urbaine, avec l'aide du Centre de Recherche Ouest Africain (CROA), WARC en anglais, et de l'université de Minnesota. Sous la surveillance de Monsieur Diouf, le médecin général, pendant un mois j'ai été en état d'observer des gens qui ont visité Monsieur Diouf pour les soins et leur santé. Malgré la barrière linguistique du Wolof et du Français, le stage m'a donné par observation et des discussions avec Monsieur Diouf et mon professeur de santé au le centre de recherche pour mon cours de santé publique, une vraie perspective transversale du quotidien et des doléances dans un quartier urbain à Dakar. À travers cette expérience, avec la possibilité de visiter une région plus rurale à Toubacouta avec le groupe, j'ai vu que l'accessibilité, le caractère

abordable et l'acceptabilité jouent un rôle significatif lorsque les individus décident du type de soins qu'ils souhaitent recevoir.

Les institutions plus grandes avec un système similaire de l'hôpital moderne en termes d'indice de prix, comme l'hôpital traditionnel de Keur Massar, ont une structure de soins de santé semblable, bien que le travail sur le terrain dans une ville plus rurale du Sénégal, Toubacouta, ait démontré à quel point les soins de santé et les médicaments sont appliqués et achetés différemment. Bien que ces établissements bénéficient d'une aide financière et d'équipements médicaux de la part des organisations internationales, ils s'appuient toujours sur une guérison traditionnelle plus communautaire et font appel aux anciens de la région pour les aider à fournir des soins complets, de manière à tenir compte des barrières linguistiques et culturelles de la médecine. Les observations que j'ai faites lors de la visite à Toubacouta, organisée par le CROA, montrent qu'il n'y a pas plus de 5 professionnels de la santé dans le personnel avec un certificat officiel par les institutions qui enseignent la médecine occidentale. Deux ou trois médecins spécialisés dans différents types de soins de santé comme les soins maternels, la nutrition, les soins généraux, un pharmacien, et un gardien. Ils sont tous âgés et certains travaillent après l'âge de la retraite parce qu'il n'y a personne d'autre dans la région qui serait capable de gérer l'opération s'ils partaient. Ce rôle est souvent confié aux femmes âgées de la communauté, appelées *Bajenu Gox,* qui possèdent des connaissances culturelles, sociales et médicales, ainsi qu'une grande expérience. Elles utilisent des méthodes plus traditionnelles qui intègrent la médecine et les pratiques modernes lorsque c'est nécessaire, afin que la population bénéficie d'une santé adéquate. Les Bajenu Gox sont également très importantes pour la santé maternelle, car elles aident la femme qui accouche et intègrent l'aide du village pour prendre soin d'elle, de

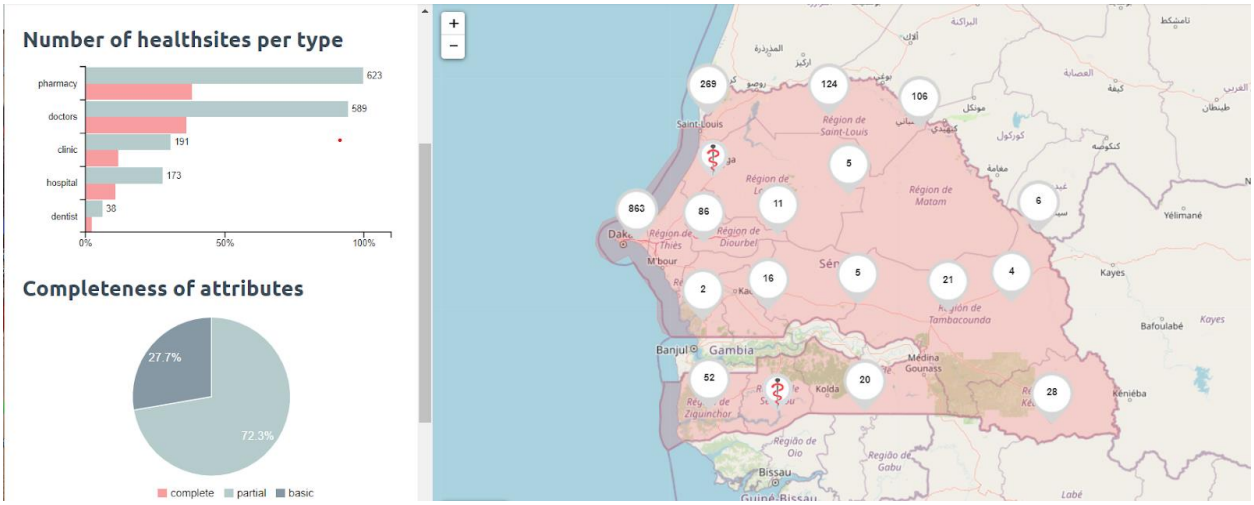
sa famille et pour l'aider de quelque manière que ce soit, par exemple en remboursant le traitement.

Le manque de financement et de rétention des professionnels de la santé dans les zones rurales rend difficile la mise en œuvre de la médecine moderne, ce qui fait que des facteurs comme l'accessibilité financière, l'accessibilité aux ressources et l'acceptation sociale et culturelle jouent un rôle important dans la recherche d'options en matière de soins de santé. La médecine traditionnelle devient alors influente dans les zones rurales car elle peut fournir ces aspects d'une approche holistique qui est mieux reçue dans la communauté. L'hôpital traditionnel de Keur Massar est le fruit de l'intégration du système médical moderne et du système de santé traditionnel au Sénégal. Il a des opérations économiques financées par le gouvernement et d'autres organisations, mais il utilise également des herbes et des plantes traditionnelles à un prix comparable pour les soins holistiques et les dépenses de traitement par rapport à la facture finale lors d'une visite dans un poste de santé pour une consultation et les prix des médicaments dans leur pharmacie.

Si les règles méthodologiques présentent certains avantages, l'application d'un soutien médical là où il est nécessaire pourrait en fait être bloquée si elles ne prennent pas en compte les valeurs culturelles et sociales de la communauté concernée. L'UNICEF ne considère pas non plus des obstacles financiers rencontrés dans chaque village et adopte une approche descendante très statique, alors que la communauté de Toubacouta est beaucoup plus mobile. Ce système fonctionne également en raison du discours de la médecine moderne (occidentale) et de l'application et de l'influence de la médecine traditionnelle qui sont tous deux présents au Sénégal.

La médecine moderne est plus souvent utilisée dans les villes et les zones densément peuplées (urbaines) où l'on trouve également plus de services, de professionnels et des technologies dans les grands hôpitaux, ce qui diminue le sens de la communauté et des soins personnels (Fig. 1).

Fig. 1 *Nombre de Sites de Santé et Niveau de Complétude au Sénégal 2023*



(heathsites.io, 2023)

Bien que la légitimité de la médecine traditionnelle soit encore controversée, une partie de la population estime qu'il s'agit d'une méthode importante à utiliser. Non seulement elle atteint les zones les plus rurales du Sénégal, mais elle est également perçue et acceptée comme une option de soins holistiques qui vise le physique, le mental, et le spirituel d'une manière qui implique activement le patient et la communauté. C'est quelque chose que les gens ont remarqué – qu'ils n'obtiennent pas souvent des expériences médicales modernes et cela soulève le besoin de développer la portée et la communauté de la médecine traditionnelle pour la rendre plus accessible à ceux qui voudraient ces options. Daouda Diouf de l'ONG Enda Santé (2019) a dit, "Il y a peu d'acteurs qui s'intéressent à la valorisation de la médecine traditionnelle et des plantes

médicinales alors que cet enjeu est essentiel.” L’objectif d’Enda est de proposer des alternatives au développement et à la politique. Son idée est de créer des organisations basées dans les pays du Sud ou les programmes de développement à mettre en œuvre. Son siège est à Dakar et il est présent dans trente pays, changeant la perception des organisations du Sud.

Conclusion

Les responsables politiques doivent être conscients de l’importance d'intégrer la médecine traditionnelle et les plantes médicinales dans le système de santé moderne, comme dans les pays asiatiques. Il offre aux citoyens davantage d’options en matière des soins de santé et augmente les possibilités d'accès aux soins disponibles. Non seulement les options de traitement sont plus nombreuses, mais les recours au système de soins de santé pourraient augmenter car davantage de personnes seront influencées par le caractère abordable, l'accès, mais aussi la relation interpersonnelle entre les patients et les soignants, que beaucoup apprécient.

Cela pourrait permettre de réduire le nombre de personnes touchées par certaines maladies, de prévenir les transmissions futures et d'améliorer les aspects sanitaires en général. Cela pourrait également profiter à l'économie sénégalaise car le secteur pourrait se développer et trouver des opportunités fiscales, comme l'hôpital traditionnel de Keur Massar qui vend ses produits principalement ailleurs, en France, dans le cadre de traitements plus cosmétiques et de traitements pour les maladies chroniques. C’est la raison pour laquelle il faut essayer d'élaborer des lois en faveur de la médecine traditionnelle et de l'intégrer dans le système moderne.

L’absence de dualité entre les pratiques médicales modernes et les pratiques traditionnelles dans le système de santé actuel du Sénégal est une conséquence de la structuration postcoloniale de son système politique et de son économie. Avec l'interdiction de la médecine et des pratiques traditionnelles, le développement et les connaissances supplémentaires se sont

arrêtés, ce qui a retardé toute amélioration et n’a pas permis d’offrir aux citoyens une option de traitement plus abordable, plus accessible, plus acceptable socialement et plus respectueuse de la culture.

Chapter 1: Medical History of Senegal and Colonial French Influence

"No one has the right to erase my culture, because a community without culture is a people without human beings"
- Leopold Sedar Senghor, Senegal's 1st President

Modern Era of Medicine and Science

The relationship between humans and the practice of medicine has evolved throughout the years, transforming the way care is administered and received in society. Pivotal advancements in the 19th century are responsible for current practices of modern medicine familiar today, specifically the implementation of science in medicine. These practices were founded in the geographical 'west' consisting mainly of Europe and North America, and achieves dominance over medical and health issues using the developments in pathology, physiology, bacteriology, and immunology for classification, diagnosis, and treatment of diseases in methodological practices (Quirke and Gaudilliere, 2008). This system spread across the west and into other parts of the globe through imperialism and expansion. It has impacted and oftentimes overtakes indigenous practices which are now more commonly referred to as traditional medicine.

The change in biology and medicine in Europe offered developmental opportunities that brought an increase of investment in research and created scientific entrepreneurship. The growth of biomedical research saw collaboration between scientists and states intensifying experimental medicine and other practices to find 'novel molecules' to classify, diagnose, and treat human diseases (Quirke and Gaudilliere, 2008). The assimilation of French culture and society through slave trade ports, namely Gorrée and Saint-Louis, implemented the use of modern biomedical practices in Senegalese culture and society over time. Modern medicine has then been incorporated and aligned with already existing indigenous systems traditionally used through the villages occupying present Senegal, and is now a prominent primary healthcare

option that works alongside traditional methods (Gueye, 2019). To establish the working definitions for this paper, the terms “traditional” and “modern” medicine in French are ‘*medecine traditionnelle’* (traditional medicine) and ‘*medicine moderne’* (modern medicine) respectively. They are used to refer to the indigenous healthcare practices made up of traditional healers who utilized herbal remedies as well as to the healthcare system comprised of health professionals who utilize the scientific method and pharmaceutical drugs.

While the definitions intrinsically are not perfect and are presented in a multitude of varying interpretations, the following terms are widely used in the academic literature reviewed for this project in both the global health and international studies discipline. The terms were found to be sometimes synonymously substituted with vocabulary like ‘alternative’. ‘indigenous’, ‘Western’, ‘cosmopolitan’, etc. These terms will be used in the following literature review to find what aspects contribute to Senegalese citizens’ perceptions and overall choice to utilize modern medicine and or traditional medicine options offered in the urban city of Dakar. This paper will evaluate the perceptions of modern medicine among the citizens and the effect on desire of traditional practices offered in the community.

The History of Senegal’s Healthcare After French Colonialism

In April of 1960, the West African state of Senegal gained independence from France after approximately 300 years of colonialism. The effects of colonialism not only altered the foundation of the new country, but influenced the functionality of governmental, economical, and social practices. France’s influence in Senegal also altered the perception and overall practice of healthcare treatment in the state that has continuously changed over time. It has resulted in a combination of Western medical practices implemented among traditional practices in larger cities, namely those with historical colonial influence, specifically the major city and

capital, Dakar. While France continues to influence some aspects of Senegal's society, culture, history, politics, and economics, it is not the sole reason their healthcare system functions the way it does at present. There is domestic political and economic corruption but also numerous international organizational influence through partnership that influences how the healthcare system functions (Gerth-niculescu, 2023). It has been over 60 years since Senegal has claimed independence from France, and while effects of colonialism are still apparent, a sufficient amount of time for other internal and external factors to affect the healthcare environment today are occurring.

The healthcare system in urban and semi-urban Dakar faces the lasting impacts of French colonialism which furthered the expanded application of modern medicine practices from Europe on indigenous practices undermining and stigmatizing traditional practices indigenous to the region. As a consequence of these historical events, the practice of traditional medicine was initially outlawed in 1966 in Senegal, although there was a proposed movement to legalize lawful practice and research in 2017 of traditional medicine (Loi n° 66-069). The prohibition of traditional practices in Senegal denied original systems the opportunity to develop and advance at the same rate of biomedicine in the area and left modern medicine to be the advertised 'best' choice. The number of hospitals, clinics, pharmacies, and doctors decrease farther from the urban areas in Dakar (See Fig. 1 on page 24) which decreases the accessibility to healthcare options as shown from the interactive map provided by healthsites.io where data is collected by health sites and partners in Senegal. The sea glass green represents the number of health sites per type in the displayed bar graph while the red represents the percent. The provided pie chart displays the completeness, either partial or basic, of the site's structure.

The importation of modern medicine resources, mainly by France with the support of Europe economics, promoted the mindset that the lives of Senegalese citizens needed to be 'improved', 'civilized', and 'developed', also a resulting mindset of colonialism. This has caused controversy affecting the utilization and legitimacy of traditional healing in Senegal demonstrating the power-knowledge dynamic of the legal state and traditional practices (Cloatre et. al., 2022). The modern medicine system also has impacted how traditional practices are discussed in scholarly articles and by international organizations. This perception was further shaped by the World Health Organization (WHO) which created and defined 'traditional' medicine as, "...the knowledge, skills and practises based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness," (WHO, 2021). WHO's definition minimizes the intensity that politics, economics, culture, and society had in Senegal before, during, and after colonization.

Senegal's establishment and development dependency on France have created discourse in the healthcare system most visible in aspects of individuals' accessibility, affordability, and acceptable forms of treatment in Senegal due to the comparison of the African state to Western countries with significant resources and time advantages of development (Smith, 2020). These factors contribute to the overall inequities affecting the lives and health of the Senegalese which are exacerbated by Western international organizations. It influences the behavior of modern medicine in replacement of traditional medicine creating more competition than ever between traditional medicine and more Western alternatives.

The Political Economic Relationship Between France and Senegal

During the transitional independence period of 14 previous French colonies, France created the CFA Franc currency (Franc of the French Colonies of West Africa and Central Africa). The creation of the CFA Franc and the utilization of the currency by African states has caused a relationship that has systematically built economic dependence on France despite the decolonization of previous colonies and sustains previous political connections despite their independence.

In the case of Senegal, there is a fixed parity between the CFA Franc and the Euro meaning that the CFA Francs' value in comparison to other currencies varies according to the variation between the Euro and other currencies. When the Euro diminishes or appreciates in value, the CFA Franc, whose value is already at a fixed lower rate in comparison to the Euro at a fixed rate of exchange set as 1 Euro = 655.957 CFA Francs, mimics the exact same variation making it nearly impossible for African states of the CFA Franc zone to capitalize on the opportunity of utilizing the exchange rate of their own currency as a large commodity production and exporting region (Samba Sylla, 2018) (Baye & Khan, 2009). The CFA Franc has become an instrument and symbol of French financial neocolonialism (neocapitalism) among some citizens because France still has control of African economies and the rate of exchange for profits between their previous colonies and the rest of Europe.

Currently, there is no limit of money transfers to France and further to Europe. African states act as a financier to France as their capital to France has been estimated at 850 billion USD between the years of 1970 (10 years after independence) and 2008 (Dembélé, 2009). Trading between Senegal and France is common, and this is also partially due to the fact that the CFA Franc has a guaranteed policy of unlimited convertibility to foreign currencies when exchanging with France. This is not guaranteed, however, for different CFA Francs that could be used for

inter-African exchanges making it hard for trading within the continent and difficult to build relationships with other African states. It presents France as the best choice for economic growth to have the ability to trade globally though it is the worst choice for sustainability and independence. Also, French businesses and France as a country stand to benefit from African capital markets and control their economy as they have French administrators with veto power over 2 African central banks: the BEAC (Bank of Central African States) and the BCEAO (Central Bank of West African States), guaranteeing the emphasis and implementation of decisions to aid French interests (Bouamama, 2018). The CFA franc is a colonial currency to fuel France's need to harbor economic integration among the former colonies gaining control over their resources, economic structures, and political systems. This affects the amount of resources Senegal has to use and trade to have an efficient healthcare system to treat patients. It also has influenced the type of medical pharmaceuticals and equipment that Senegal is able to obtain to integrate into their system as they import modern medicine amenities.

According to the World Integrated Trade Solution (WITS) (2020), Senegal imported $1, 366, 495.92 billion USD worth of products from France. $1, 271, 311.59 billion USD was categorized as machines and electric and $633, 444.74 million USD was chemicals (See Fig. 2 on page 25). Senegal also reportedly imported $262, 264.60 million USD of other medicaments of mixed or unmixed products. For overall pharmaceutical products imported from France, Senegal spent $246.2 million USD in 2021, of which $34.56 million USD for optical, photo, technical, and medical apparatuses (WITS, 2020) (See Fig. 3 on page 26). These imports from Senegal for medical equipment and pharmaceuticals are also combined with other United States' based charities and other international development organizations listed by The World Bank (2021):

United States Agency for International Development (USAID)

World Bank

International Monetary Fund (IMF)

United Nations Children's Fund (UNICEF)

Agence Francaise de Developpement (French Development Agency)

Enable (Belgium Development Agency)

Clinton Health Access Initiative

European Union Emergency Trust Fund for Africa

Luxembourg Agency for Development Cooperation

PATH

United Nations Population Fund

Japan International Cooperation Agency

Korean International Cooperation Agency

United States Centers for Disease Control and Prevention (CDC)

World Health Organization (WHO)

The ability for Senegal to further their economic and political power in the world market is hindered through the monetary opportunities restricted by the limitations the French government has placed upon them. This is directly reflected in the types of products that Senegal exports to France, usually raw materials and commodities, and imports of manufactured goods and other services. Walter Rodney (1972), a Guyanese historian, academic, and political activist argued that Africa developed Europe at the same rate that Europe underdeveloped Africa. He continued

to argue that the inequities and medical disparities that some citizens in Senegal face are not because of the lack of resources but an uneven and unjust distribution of wealth of resources.

An appeal to modern medicine is the measured efficacy in improving health as tested in western, developed populations through a scientific methodical hypothesis, test, diagnosis, and treatment which are considered the standard. This is in direct contrast with the fact that traditional healing, presently, tends to be utilized by the general Senegalese population for the following reasons (Smith, 2020):

1. To be healed from illnesses that are recognized to be healed by traditional medicine.
2. To treat chronic illnesses and pain.
3. Not having the money to pay for western medicine.
4. The inefficacy of western medicine.
5. To reinforce the results of western medicine.
6. To discuss personal matters.

Herbal remedies are often chosen over pharmaceutical drugs in Senegal because herbal remedies are presented as easily available, cheaper, and effective, especially for minor illnesses while seeking out modern medicine for major diseases (Abdullahi, 2011). In Dakar, an article by Agbor and Naidoo (2016) determines that the utilization of both types of medicine are often sought to a certain extent depending on individual preference. Traditional medicine is commonly used as a first choice of medicine when ill, particularly with minor illnesses such as colds and used more among the older generation than the younger population (Franckel, Arcens, & Lalou, 2008). The Senegalese government currently relies on international funding and intervention to support the function of their healthcare system lending themselves to the influence and censoring

of Western standards. Some Senegalese citizens believe that the international aid given is just another means of control trying to get the states in the African continent to adhere to a bigger set of rules generalized in accordance with a system that could be better (Waldron, 2010). Several notable international organizations have offered intervention in government policies, infrastructure and economies in Senegal subsequently affecting the level of healthcare available.

Traditional Medicine and Modern Medicine in Senegal

After Senegal's independence in the 1960s, there was a process of cross-cultural exchange of a capitalist rush for power and wealth leading to a latent French neocolonialism and capitalism that undermines Senegalese operations, making social and economic mobility difficult on the world stage but also having a significant influence on Senegal's public health system (Kasilo et al., 2019). For these reasons [access, affordability, and acceptability], the Senegalese are also experiencing more competition than ever between traditional medicine practices that are now being altered to market as cosmopolitan alternatives due to the presence of western modern medicine. These variables act jointly to contribute to Senegalese citizens' perceptions and choice to utilize modern medicine and or traditional medicine options that are offered in the city of Dakar.

Senegal follows a pyramid structured system of healthcare that covers the span of 14 different regions that the Ministry of Health oversees and operates in (See Fig. 4 on page 27). The government is working alongside the Senegalese Health Organization to provide healthcare, treatment, medical equipment, and to advocate to promote comprehensive education about illnesses and diseases to help with preventional measures. Depending on the population density of a certain area within the state, there are 6 main levels of healthcare options available operating at different levels of scope and scale (Ministère de la Santé et de l'Action Sociale, 2023). Certain

health levels are better equipped to treat certain illnesses, diseases, and injuries (See Fig. 5 on page 28). At the top of the pyramid, which is the most funded and medically equipped, is the national hospital followed by the regional hospital, Centre de Santé de Reference, Centre de Santé, Poste de Santé, Case de Santé. Following the pyramid structure down to the larger base, the Case de Santés are more accessible though they lack sophisticated medical equipment and medicine that might be offered at the national hospital since they are more commonly located in rural areas. This is all a part of the government's constitution that guarantees access to health services as a fundamental right. This has resulted in the creation of several programs including the National Plan for Health and Social development, in French, 'Plan National de Développement Sanitaire et Social' (PNDSS) and the Ministry of Health and Social Action, 'Ministère de la Santé et de l'Action Sociale', which in turn created universal health coverage available in the country (Article 18 PNDSS, 2019).

Senegal's government held 3 main objectives related to implementing their universal health care plan in the country: to promote access to health insurance for the poorest 20% in order to reduce inequity and vulnerability, to guarantee that 65% of Senegalese are covered by a universal healthcare program system by 2015, and to guarantee that 100% of local authorities have a community-based health insurance scheme available. The government of Senegal was determined to achieve universal health coverage by 2022 through an updated strategic plan for developing universal health coverage from 2013-2017 (Tine et. al., 2014). The main focus those years was to "scale up community-based health insurance for informal and rural populations, reform the formal sector scheme, strengthen existing free care for pregnant women and the elderly, and implement new free care policies for children under 5," (Results For Development, 2023). Affordability and accessibility, though still pose a significant issue as outreach and

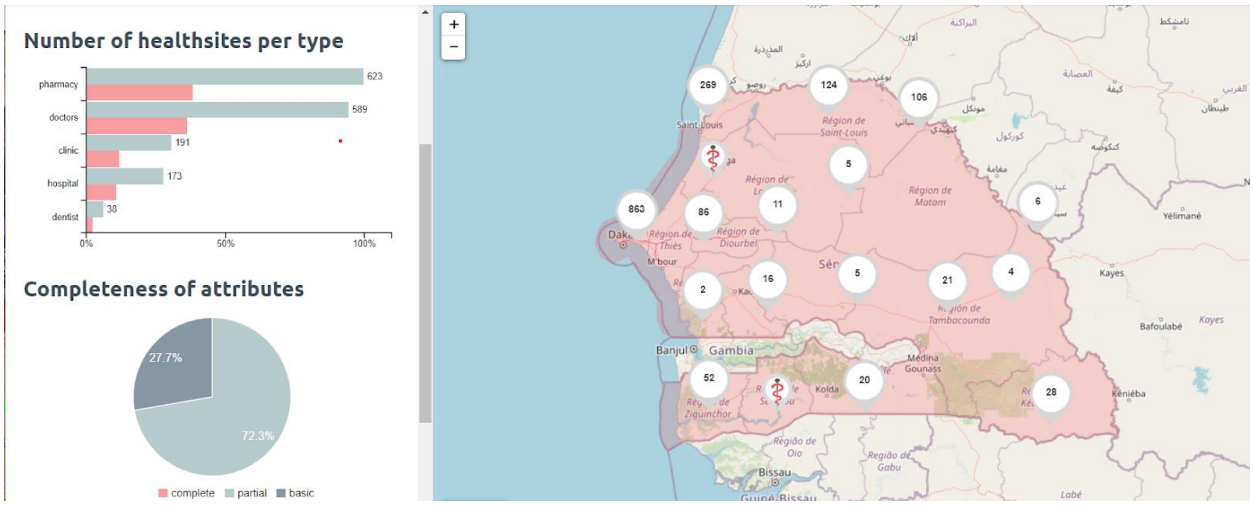
clinical programs are harder to operate and health those in the rural community. These development goals for universal health coverage cannot move forward without substantial funding which is where the aid from international organizations and other charities help provide modern medicine and equipment needed. This reliance makes Senegal's ties with France and other countries stronger and is where the social discourse between traditional and modern medicine comes into play as some see modern medicine as less effective than traditional and it holds a connotation associated with their colonial past of French rule.

Despite French being the official language of the country, Senegal is a pluralistic lingual speaking country with several local dialects spoken with Wolof being spoken by the majority (See Fig. 6 on page 29). Before the illegality of practicing traditional medicine in Senegal, medicinal plants often were sources of care whose knowledge was passed from generation to generation. The word for tree, 'garab', in Wolof also directly translates to medicine or remedy (Michigan State University, 2014). Traditional medicine has contributed to the cultural heritage and social aspect in Senegal and other African countries and has become deeply rooted in attitudes and beliefs of the population. Despite the presence of modern medicine, 80% of the population use traditional methods to treat health problems (Gueye, 2019). Accessibility to traditional medicine is in part due to the fact that the state is mostly agricultural and rural, contributing to higher poverty and illiteracy levels which make it hard to purchase more modern alternatives. Traditional medicines offer a more organic, inexpensive, and culturally accepted option. After lifting the ban on traditional medical practice, there was an emergence of herbal research, namely from the traditional hospital of Keur Massar which was bounded by Dr. Yvette Pares who taught at Cheikh Anta University Diop de Dakar in collaboration with traditional African healers, and the University of Dakar (HTKM, 2022). The traditional hospital of Keur

Massar cultivated a botanical garden with over 300 different species dedicated to growing medicinal plants used in traditional medicine that they created in 2002.

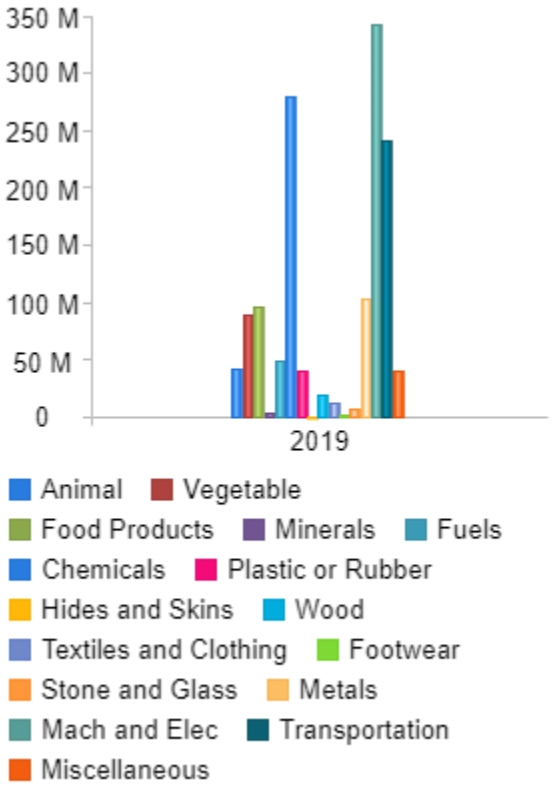
The traditional pharmacy of Keur Massar produced a financial income turnover of 9,6 million CFA francs in 2018 and made millions more through regular shipments to Salles, France. Joint research occurs between the University of Dakar and the traditional hospital to continue traditional medicine research as they treat not only Senegalese citizens' but also French citizens. In an interview conducted by *ReseauNews* (2019), Anne a Breton herbalist student said, "I have been here for more than a month and a half, and I have learned a lot in the preparation of plants, pharmacotherapy, and the relationship with the patient, which is very different from what we know in Europe,". The Senegalese author So-Ho, who wrote the initial article covering the success of the traditional hospital of Keur Massar in Senegal, wrote thereafter (2019), "the human side is undoubtedly what is most lacking in our westernized societies as well as the sense of listening and every European doctor should remember what the German philosopher Goethe said: "I am the product of all encounters what I have done in life". With the emergence of modern medicine, traditional medicine has had to adapt to the changes in society it caused. While patients are diagnosed in the similar way as modern medicine and sometimes with modern equipment, treatment methods remain traditional to provide a holistic care approach including more spiritual and sometimes religious practices to treat the mind, body, and soul. There is a growing demand for traditional medicine and the economic contributions the medicine has to the overall health delivery system in Africa, the possibility of an integrated system of modern and traditional practices into mainstream health services to improve accessibility and affordability to healthcare is incentivizing in numerous aspects.

Fig. 1 *Number of Healthsites and Level of Completeness in Senegal 2023*



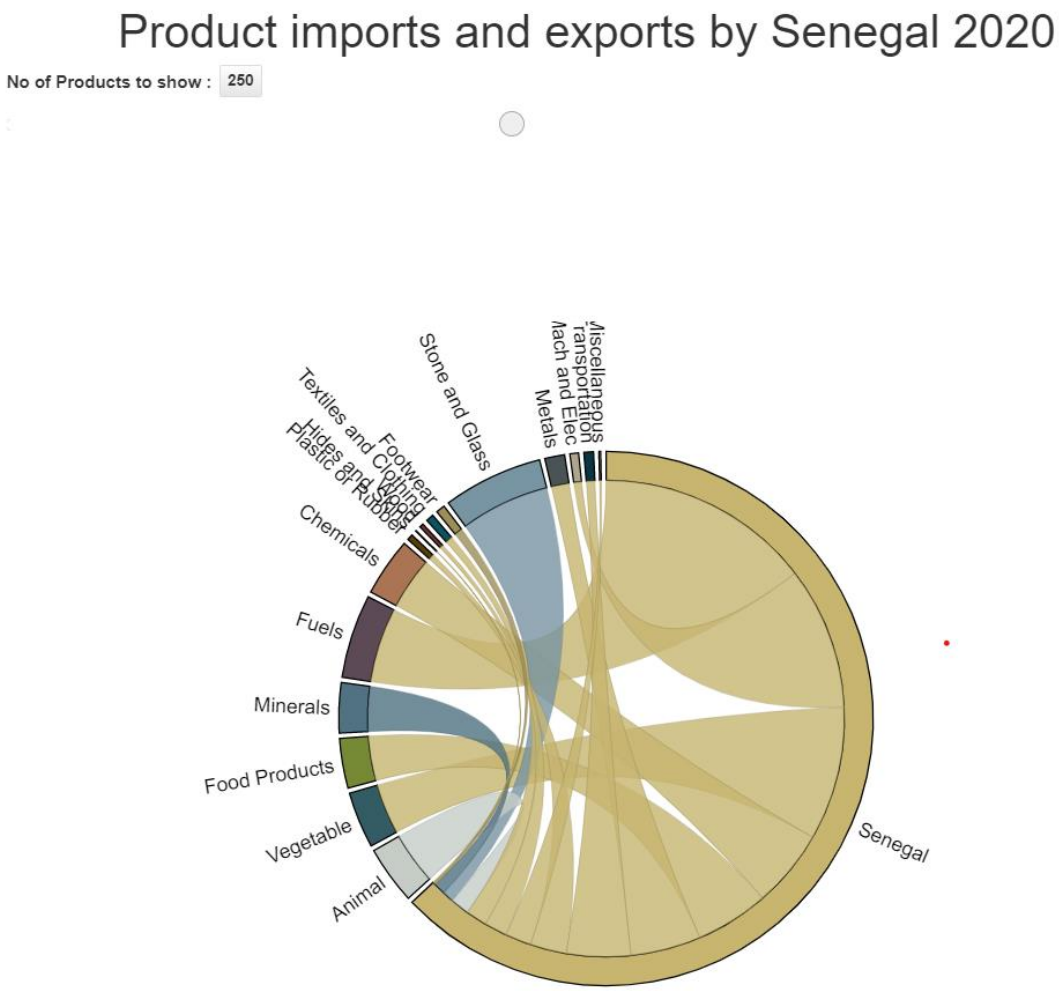
(heathsites.io, 2023)

Fig. 2 *Imports to Senegal 2020*



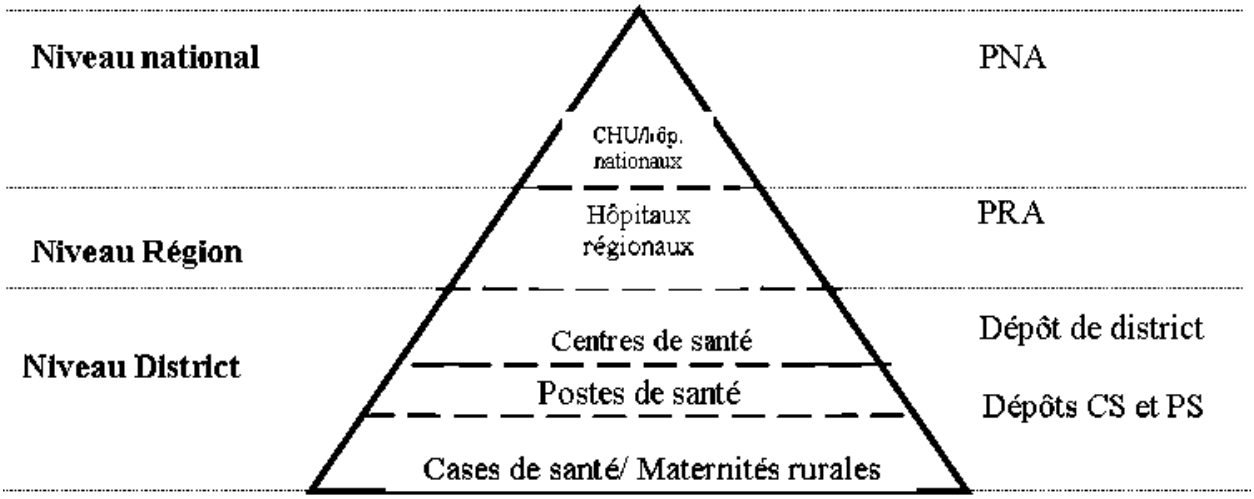
(World Integrated Trade Solution, 2020)

Fig. 3 *Imports and Exports to and by Senegal 2020*



(World Integrated Trade Solution, 2020)

Fig. 4 *Pyramid of Healthcare Structures in Senegal*



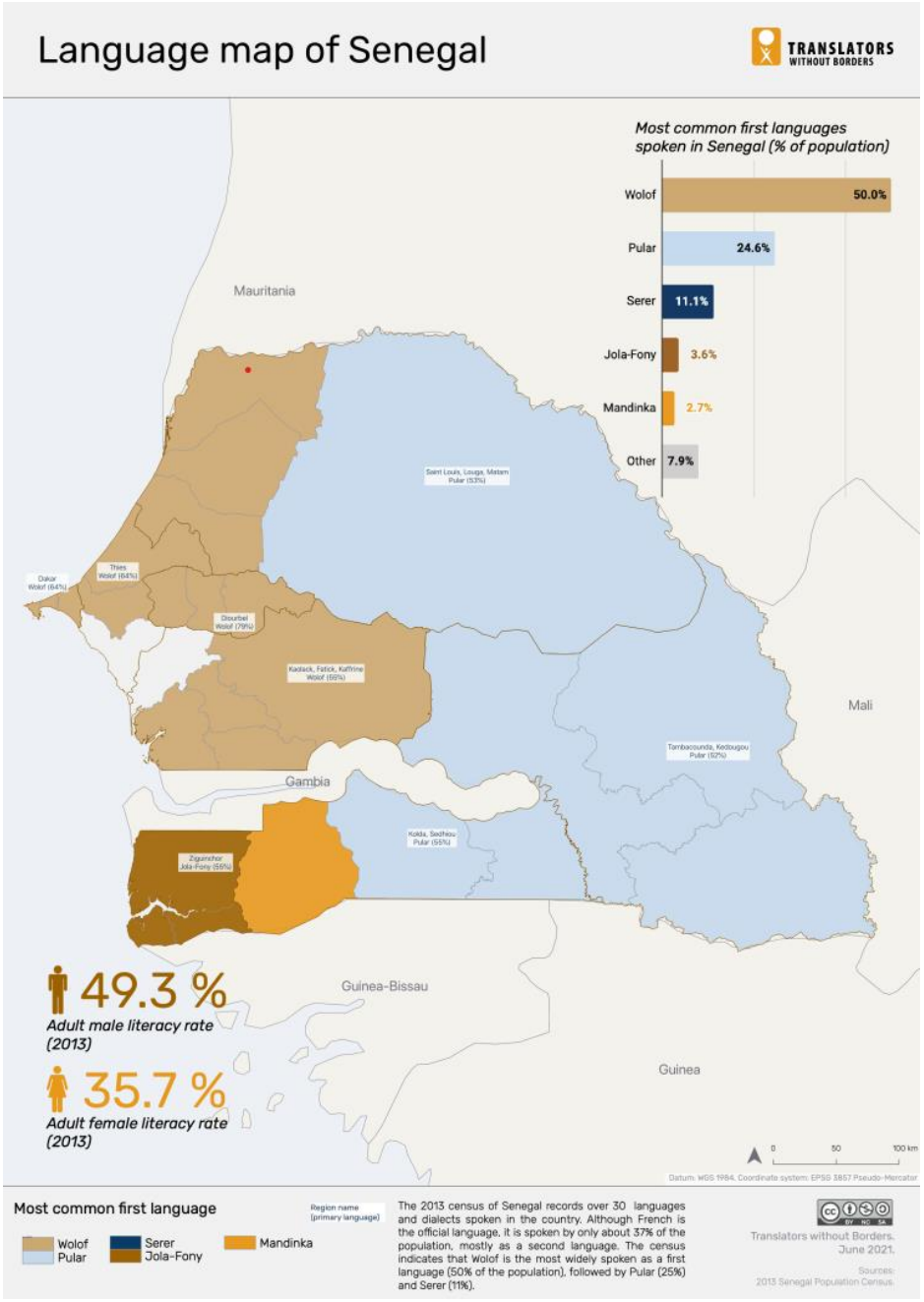
ACTE 3 DE LA DÉCENTRALISATION: VERS LA DÉSORGANISATION DU SYSTÈME DE SANTÉ (2014)

Fig. 5 *Levels of Healthcare Structures in Senegal (Descriptive)*

NIVEAU	ACTIVITES	PERSONNEL
HÔPITAL REGIONAL NIVEAU 2	Activités du centre de santé + Urgences chirurgicales Urgences obstétricales (césarienne) Pédiatrie	Personnel CS + Directeur Personnel administratif et financier Service de maintenance
HÔPITAL NATIONAL NIVEAU 3	Activités hôpital régional + Spécialités médicales (cardiologie, endocrinologie) Spécialités chirurgicales (Cancérologie, ophtalmo, ORL…) Activités d'enseignement	Personnel HR + Professeurs de faculté
CENTRE DE SANTE	Consultation primaire curative incluant les visites à domicile Consultation prénatale Consultation des nourrissons sains Vaccination Récupération nutritionnelle Planification familiale Supervision des postes de santé. Prise en charge des accouchements simples et compliqués, Urgences médicales et hospitalisations Evacuations sanitaires Examens de laboratoires, Radioscopie et radiographie.	Médecins Infirmiers Sage-femmes Techniciens de laboratoire Secrétaires Chauffeurs Personnel de nettoiement
CASE DE SANTE	Affections courantes Plaies minimes Accouchement simple Distribution communautaire de contraceptifs	Agent de santé communautaire Matrones
POSTE DE SANTE	Consultation primaire curative incluant les visites à domicile Consultation prénatale Consultation des nourrissons sains Vaccination Récupération nutritionnelle Planification familiale Supervision des cases de santé.	Infirmier-chef de poste Parfois sage-femme d'Etat

(Mohamed Lamine Ly, 2022)

Fig. 6 *Language Map of Senegal*



(Translators Without Border, 2021)

Chapter 2: Health Preferences in Dakar, Senegal

Lu kenn mën, ñaar a ko ko dàq - Wolof Proverb
(English Translation: What one person can do, two can do better)

Health Seeking Behavior of Urban Dakar Residents

In the Spring of 2022, I was fortunate enough to have the opportunity to study abroad for a semester through the collaboration of Allegheny College, the University of Minnesota, and the West African Research Center (WARC) in Dakar, Senegal. My group and I spent 5 months in Dakar, and due to COVID-19 restrictions, we were unable to participate in home stays with local Senegalese families. Instead, our entire group was able to live in a small apartment complex in a smaller neighborhood, SICAP Karak, which was located by the police academy and on the edge of SICAP Baobab. When one of us fell ill with either a cold or digestive issues, we would visit a nearby pharmacy 5 minutes away that sold all types of over-the-counter medications to treat our ailments. In more serious cases, we would contact our program directors who then would refer us to a local doctor for treatment. Often, they would prescribe medicine, to treat our symptoms, which did not come cheap even with the value of the United States dollar. In the bustling city of approximately 5.134 million people (World Population Review, 2023), Dakar's pharmacies were sparse in close vicinity though fairly modern in comparison to other surrounding structures, but you would never know that there is a traditional medical presence in the urban area unless you were really looking.

To re-establish the working definitions in this paper of "traditional" and "modern" medicine, the french term '*medecine traditionnelle'* (traditional medicine) and the French term '*medicine moderne'* (modern medicine) are used to refer to the indigenous healthcare practices made up of healers who mainly utilize herbal remedies and to the healthcare system comprised of health professionals who utilize the scientific method and pharmaceutical drugs. The

definitions are not perfect although the terms are widely used in the academic literature reviewed for this project in both the global health and international studies discipline. The terms have become synonymous with substitute vocabulary like ‘alternative’. ‘indigenous’, ‘Western’, ‘cosmopolitan’, etc. Traditional healing is seen both as a cultural resource whose values (social, economic, and health-based) have the potential to harness by a different form of state engagement and it is seen as a field that needs improvement needing the state’s aid to contribute to disentangling reliable healers from less trustworthy ones along with determining the efficacy of remedies.

Academic descriptions of African health systems in general tend to be based on the dichotomy used by medical anthropologists. These further divides Western modern medicine and more ‘primitive’ medicine often citing differences between medicine and magic, biomedicine and ethnomedicine (Fassin & Fassin, 1988). For Senegalese citizens seeking healthcare options, there are several factors that influence whether they choose more modern medical treatment or traditional medicine. More urbanized areas that are more densely populated tend to have more health sites that offer modern medical treatment. In more rural areas, however, there is a decrease in the number of healthcare structures and professionals that are able to provide modern medicine leading to an increase in traditional medicine usage by citizens. Field research was recently conducted by Sarah Smith through a School for International Training (SIT) Study Abroad in Spring 2020 in Dakar and Thiès comparing the concentration of modern medicine in urban areas to more rural areas in Senegal, the village of Djindji. Smith (2020) found that a main motive in favor of modern medicine usage by Senegalese citizens was its efficacy in improving health and the conflicting factor was its accessibility due to the cost of service and medication which has led to practitioners in more rural areas with a limited scope of knowledge and usage of

more modern products. Their recent findings are further expanded by Bignante's work *Therapeutic Landscapers of Traditional Healing: Building Spaces of Well-Being with the Traditional Healer in St. Louis, Senegal* (2015) which states that the majority of citizens often sought Western medicine for major diseases though not all diseases were curable by modern medicine. The main reasons for visiting a traditional healer, that were stated, were to be healed from illnesses that are recognized to have been healed traditionally. Due to the fact that modern medicine was too expensive, the inefficacy of modern medicine that only treated the illness but not the cause, and due to personal reasons, traditional healers were chosen over modern medical doctors.

In the findings of Smith's collection of interviews in Senegal, the patterns that emerged were that all participants utilized both types of medicine to a certain extent despite their preferences. Traditional medicine is commonly used as a first line of defense choice of medicine when ill, and traditional medicine is used more among the older generation than the younger generation (Smith, 2020). Health seeking behavior in Senegal varies in urban and rural zones primarily due to accessibility, efficacy, price, and personal preference although it is not uncommon for citizens to seek traditional and modern medical treatment despite these variable factors. The demand that drives health seeking behavior is not restricted to the modern versus traditional dichotomy which was found in disease-narratives of a Niakharr Social Networks and Health Project in Senegal (2014). They reported that there is a duality of cause and treatment where certain illnesses are perceived to be treatable only by traditional, only by modern, or a mixture of both. Perceived cause can affect the choice of treatment and perceived efficacy of previous treatments could also affect an individual's preference. What also influences healthcare

decisions in Dakar is the element of cultural acceptance, spiritual, religious, and sociological values or ideational context determine the preferred option of care.

For those sick during the semester, not only was there a lack of awareness and knowledge of traditional medical practices, but there was also comfort in the familiarity of a system similar to the United States. The majority of students in the group grew up in the United States and utilized the healthcare system which implements modern methodologies and technologies. While they did not experience the exact same process of diagnosis and prescription, what they were offered was comparable.

The Price of Traditional Medicine and Modern Medicine

While interning at a Poste de Santé in the neighborhood of SICAP Liberté 4 in Dakar, about a 40-minute walk northeast from our apartment, in March 2022, I observed that there was a distinct polarization of modern medical healthcare system operations and traditional healthcare operations. The price of primary health services are as follows at the clinic observed in March 2022 which were available from 08:00- 13:00 Mondays - Friday:

Consultation Adultes:..... 500 CFA *(0.83 USD)**

Consultation Enfants (5 ans):..... 300 CFA *(0.05 USD)**

Consultation PNL:..... 300 CFA *(0.05 USD)**

PEV Vaccination:..... 0 CFA —

Pansement:..... 300 CFA *(0.05 USD)**

Injection:..... 300 CFA *(0.05 USD)**

**Exchange rate of XOF/USD January 31, 2023*

This contrasts with traditional services offered in comparison to the traditional hospital in Keur Massar, one of the biggest, more expensive, and well-known traditional facilities. Consultations there are available every day from 09:00 - 18:00 for healers, Monday, Wednesday, Thursday, and Saturday from 09:00 - 13:00 for traditional therapists, with their Pharmacy open every day, with the exception of Sundays, from 09:00 -17:30 and closes at 14:00 on Friday's. Services that are provided there have a fee as follows which are provided in a handout brochure as well as available online (Hopital Traditionnel de Keur Massar, 2022):

Consultation:..... 1000 CFA *(1.66 USD)**

Consultation pour les non-résidents:..... 2000 CFA *(3.31 USD)**

Produits:..... 1000 CFA *(1.66 USD)**

**Exchange rate of XOF/USD January 31, 2023*

The traditional hospital in Keur Massar, which is East of Dakar with a population of around 590,000 (Mackey et. al., 2019), is the biggest operating facility in an urban area closest to the biggest city of Dakar. When comparing the price of services and goods with each other, their approaches to treatment and care along with funding determines not only the price but also whether they seek further care. The hospital in Keur Massar is the most expensive on the spectrum when financing traditional consultations and products.

After the outlaw of traditional medicine and then the informal reinstatement of non-formally regulated practice and research by the state of Senegal, traditional methods are attempting to garner legitimation in society and to the opinions of other countries while facing the burden of malnutrition, infectious diseases, and noncommunicable disease (Fassin & Fassin, 1988). Recognizing the vital role of traditional medicine and traditional health practitioners are

being shown through progress of integrations into the national health systems and funding from the government in more recent years (Kasilo, Wambebe, Nikiema, Nabyonga-Orem, 2019). Senegal has gained support from the government for traditional medicinal research along with funding from bigger international organizations like the Bill and Melinda Gates Foundation (VOA, 2010). Underlying structural factors explain the main driving point of traditional medicine use in Senegal including the fact that they have a large population who are economically disadvantaged and lack access to conventional care used often in modern medical systems. Besides the fact that traditional medicine offers more availability based on access and economic status, the greatest appeal is the holistic and active patient involvement in the diagnosis and treatment which is not comparable to the modern medical system (Adams, James, Wardle & Steel, 2018). This ties in with historical and cultural beliefs that influence the Senegalese's participation and perception of traditional medicine or modern medicine when given the choice.

Legal Stance of Traditional Medicine Healthcare Products & Services

African Day of Traditional Medicine began on August 31, 2000, when ministers of health adopted the relevant resolution at the 50th session of the WHO Regional Committee for Africa. On August 31, 2015, the theme in Dakar was "Regulation of Traditional Healers in the WHO African Region" (WHO, 2015). WHO initiated available guidelines related to traditional medical practices in Africa like legal frameworks, regulation frameworks, and a model of codes and ethics. The country then can adapt and modify their own set of regulations according to personal specific context for the protection of patients from harmful and malpractice.

Traditional practices in Senegal have been opposed by educators of Science and Medicine at the University of Dakar in the past and have not received much consideration from

the social sciences. African countries including Senegal had previously implemented jurisdiction and legislature over medical categories of healthcare treatments as authorized legal and official forms of practice, and unauthorized illegal and unofficial forms of treatment (Fassin & Fassin, 1988). This is a consequence of an attempt to reproduce colonial European law to medicine. The initial establishment, and further development, of modern biomedical practices occurred during the time of European colonization around the world between the 18th and 19th centuries, which accounts for its presence in Senegal in the first place. In the case of the colonized countries, the adoption of biomedical practices most likely was never a choice (Fanon, 1984). Colonization affected every aspect of Senegal which is why there is internal and global dichotomy between modern practices and traditional ones still being discussed today.

There is a new quest for new sources of legitimization in African medical systems since November 2017 when a legislative proposal on traditional medicine was brought to the Senegalese parliament. The legitimacy of traditional practices will help to emphasize the power of healthcare practices and the dynamics of the medical systems and help regulate potentially dangerous practices (Fassin & Fassin, 1988). In Dakar, jurisdiction condemned all medical practitioners who do not have an official diploma according to the Code of Public Health. Primary health workers were outlawed if they authorized and engaged in therapeutic activity making official statements and practices ambiguous and ambivalent (Law 66-69, 4 July 1966). The 2017 debate enlightens the skepticism that characterizes the interface between law and traditional healing in comparison to Westernized modern medical methodologies. My public health professor in Senegal, Doctor Mohamed Lamine Ly, who was the district head medical chief in Ziguinchor, Thiadiaye, and Dakar for 24 years wrote in a blog (2017) that it is important to lay the foundation to expand Senegal's traditional medicine sector. Defining the rights, duties,

and identifying true personnel can only be done to its full extent if appropriate standards and principles are created. The difficulty, however, is that traditional medicine has its own origin in Senegal's socio-anthropological and cultural reality than modern medicine does.

Senegal's traditional medical history and healers continuously play a significant part in everyday access to healthcare however despite past laws (Simon, 2003). Regulation of traditional healing has cemented a distinctive identity from traditional practices and modern medicine though there is progress to funnel more funding and university research in expanding the knowledge and development of traditional healing through a 2009 law creating the '*Code d'Éthique pour la Recherche en Santé'* and the Traditional Medicine Unit of the Ministry of Health. The importance of the future of traditional healing and the value are simultaneously practical and symbolic, pushing the message that support for the traditional medicine will help healers bring scientific support to improve their healthcare treatment while still being a part of the Senegalese culture and people are willing to go see them (Cloatre et. al., 2022). The increase of medical personnel would help treat the population suffering from illnesses and diseases and provide more options for citizens to choose from, giving them more freedom of choice concerning body autonomy.

Discourse of Modern Medicine

Institutional and social-cultural histories are at play and the law regulating traditional healing is shaped by multiple influences in Dakar. There is a complexity of the legal and scientific institutions while factoring in the logic of the institutional make-up of medical ontological possibilities. There is a Western perspective that modern medical experts are primary holders of knowledge over human bodies and healing are best equipped to intervene in the regulation of medicine dictates with the determination of how products, procedures, or

professionals are organized, ordered, or triaged (Guadilliere, 2013). Modern medical regulation is heavily based on industrial production, global markets, or laboratory processes that all come to define a finer translation of ideas into practice relying heavily on the state's decision-making through regulatory guidelines complicating the negotiation for traditional medicine to be seen by the state. The line between traditional and modern medicine is often blurred as a result of globalization although both have evolved over time and actively incorporate innovative elements (Luedke and West, 2006). These elements used respectfully between traditional and modern medical practitioners often combine into the practice of their methodology.

Research in Senegal is part of a larger project that looks at the dilemmas that arise in attempts to regulate alternative and traditional medicine through case studies. It is an opportunity to provide a normative stance and critical analysis of organizing practices other than scientific and biomedical research (Young, 2014). Due to the absence of explicit regulation of traditional healing in Senegal, their boundaries are framed indirectly and are the result of laws on illegal medical practice that shape the spheres of activity that are under the exclusive control of biomedical professionals. Legalization of traditional healing will call for a formal redefinition of traditional medical positioning, further amplifying epistemological and jurisdictional conflicts between states, healers, and doctors. Joseph Mendy, a conventional modern medical doctor in Senegal and vice president of the doctors' union stated in a 2018 interview with Al Jazeera's Nicolas Haque, "It's dangerous, there will be more sickness, more people with disabilities and the law will cause more unnecessary death. You can't have people without any medical knowledge treating ailments," when discussing the potential legalization of traditional medicine by parliament. An important aspect of legalizing traditional medicine in Senegal is that ethical

and professional principles are needed to avoid harm to patients and to protect individuals from the judicial system.

With legitimacy however, cultural lineage, reputation, and socio-cultural significance would be acknowledged to another extent, and they would be conceding a certain control of traditional practices to another agency which would affect its being in itself, and what it stands for presently in society. Traditional practices use complex combinations of knowledge, beliefs, and culture for management, prevention, and to restore the physical, psychological, and social well-being which Dr. Erick Gbodossou, founder of Promotion of Medicine and Treatment from Africa (PROMETRA), declared in a 2009 *Voice of America* interview, “Conventional medicine just works on the physical body. But traditional medicine works in the holistic approach. This is very different, very important. Because the human being is not just an organ, mechanical, no; the human being is all”; the holistic approach of taking care of the patient is an added incentive when choosing a treatment plan. If a portion of the population seeks out traditional healthcare despite the fragmented regulation presently stipulated, efforts should be made to incorporate it into the legislature for protective and preventive measures.

Chapter 3: The Duality of Traditional Medicine and Modern Medicine in Senegal

Education and Knowledge

The traditional hospital in Keur Massar has been able to surpass stigmatization of traditional medicine use after colonization and has been able to capitalize on their practices. Their facilities are currently tending to several hundreds of plant species that are then used in their remedies that they make and distribute to patients not only domestically, but internationally as well. The traditional hospital is an example of a larger scale operation in a more urban setting that is creating revenue and profits by using traditional medicine. With this example it is possible to envision how traditional medicine provides an outlet where cultural heritages can be preserved and respected and now traditional medicine trade contributes to several economies and revenue for some countries (Abdullahi, 2011). It could create a new pathway of not only overall improved health if improved access and prices are available, but it could also improve Senegal's economy and offer several jobs and another area of education to further our understanding of traditional practices and medicine.

In post-independent Africa, advocates and some doctors are making an effort to recognize traditional medicine as an important aspect of healthcare delivery in Africa by trying to gain the support of the government and other international organizations. Most western medical practicing physicians in Senegal appear unwilling to allow traditional medicine to be included in the official system of medical care though. As of now, traditional medicines are found to be effective by the engaged population in the management of chronic illnesses and for therapeutic regimens increasing economic benefits and now there is an increasing demand for traditional medicine in Europe (Abdullahi, 2011). Traditional medicine also offers a more affordable, accessible, and acceptable form of treatment in Senegal since a lot of burdens of

diseases in Senegal and a majority of Africa are correlated to various factors including poverty, food shortages, inadequate access to healthcare, and unaffordable treatment. Due to its initial illegality in 1966, the practice of traditional medicine in Senegal has faced delays in the promotion, research, and further development of methodology and pharmacology. Senegal is the last country in the sub-Saharan region to establish legal frameworks for the practice of traditional medicine. As time passed, in the 1980s, Dr Yvette Pares founded the notable traditional hospital of Keur Massar which hosts a garden of over 400 botanical species used by African traditional medicine practitioners (Reseau News, 2019). When visiting the site on March 5, 2022, I was able to take a tour of the facilities at the traditional hospital in Keur Massar along with my public health professor Monsieur Mohamed Lamine Ly, whose other works I cite in this report. The workers showed us their garden and the process of how they made their products and where they store them (See Fig. 7a-d on page 54). The main issues found during critiques is that there is still blurred regulation and guidelines of how dosages are measured, tested, and distributed. Depending on the type of regulation though it stands to lose its symbolic and practical potential as a socio-cultural practice.

In developed countries, post-industrial, culture and societal practices are beginning to promote more traditional alternative techniques to western scientific medicine which leads to more of an economic profit from the new sector pathway. Traditional medicine has an impact on the cost of healthcare interventions and there is discourse between modern medicine and traditional medicine. In Senegal big pharma companies, insurers, and those who benefit and profit from the current healthcare system feel threatened by a system they deem ‘unscientific’ and influenced by spiritual and magical practices of rituals instead of regulated mechanisms of scientific experiments and theories. Herbal remedies are increasingly being accepted as

therapeutic agents in modern biomedicine according to Iwu and Gbodossou (2001), although modern medicine may be effective for some medical situations, traditional medicine also offers to heal more social, psychological, and spiritual orders. Scientific knowledge in Western medicine serves to foster and sustain the marginalization of African indigenous health knowledge through diaspora. Africa diaspora in terms of Western medicine occurs through the dismissal of Africa-based religions, knowledge, and socio-cultural practices. Epistemological terrain which indigenous and Western health professionals' traverse is not level resulting in a hierarchy of knowledge and superficial dichotomous (Waldron, 2010). Modern medicine and traditional medicine are not effective for all conditions though they can each respectfully solve and treat significant health problems through their own methodologies and application. Medical syncretism is meant to elevate traditional health remedies knowledge and methods which have denied indigenous health approaches legitimate status in the healthcare system.

The Role of Modern Medical Sub-Category Biomedicine

Biomedicine is a European tool as a means to align African sociocultural beliefs and practices with the global structures and processes. Western medicine has become synonymous with the term biomedicine and the usage of vaccinations, laboratory testing, and high-technology application of 'scientific' medical care present at the current time. Western medicine is known to be a profit-generating venture creating problematic connections between physicians and corporate interests (Baronov, 2008). Biomedicine is understood as a symbolic-cultural expression representing a multifaceted social construct that reveals the material-ideological contours of Western capitalist societies. While modern medicine and biomedicine are similar, biomedicine encloses the specific practices of treating symptoms and diseases using drugs, radiation, or surgery which have had structured recorded clinical trials and tested efficacy and

effectiveness rates. Contemporary African communities though operate a pluralistic health system of biomedical health care that co-exists and competes with traditional medical practices. Most influential factors in determining which medicine are used by an individual are accessibility, efficacy, and personal preference when it comes to usage patterns of traditional medicine and western medicine in Senegal's urban centers of Dakar and Thiès (Smith, 2020). Some patients have dual consultations though despite the introduction of western biomedicine, it has never completely replaced traditional indigenous medicine and traditional healers. Lack of health care workers, inequalities in health due to socio-cultural and economic disparities prevent people from patronizing both health care systems (Agbor, Ashu, Sudeshni, 2016). Traditional medicine is associated with open access to medical knowledge, little standardized regulation, no formal testing of effectiveness, unfixed dosage amounts, lengthy but holistic consultations, and training is often passed down one-to-one through generations (Shetty, 2010). This contrasts with a general view of modern medicine as a closed knowledge system only available through formal education, examination, and board certification, where dosage amounts and drugs are clinically tested through several trials with a lot of regulation, consultations tend to be shorter and focused on certain symptoms and diseases (See Fig. 8 on page 55).

Clinical care and medical research are branches integrated into biomedical and modern medicine practices as integrated activities initially conducted on a large-scale at the Paris School which influenced the framing of medicine as a scientific enterprise. This, however, created issues as they attempted to develop which led to the implementation of technology and medical instruments to further medicine as quantitative empirical science (Baronov, 2008). By the 1930s biomedicine had a static worldview established in and by the West as the premiere form of medical care and the standard by which all other forms of medicine were to be compared to.

African biomedicine evolves and is adaptive, the context for biomedicine in Africa is a consequence of European colonialism and implementing a capitalist world-system. The preference for traditional medicine is mostly due to the factor that it is natural and not highly processed by pharmaceutical companies as well as the influence of religion and marabouts, and cultural ties of being 'African', a sense of nationalism and pride in using indigenous remedies and not a system of French colonialism (Smith, 2020). Urban areas tend to have a higher concentration of western medicine compared to rural areas. The increased popularity of western medicine is due to the efficacy of improving health, however inaccessibility is increasing due to the higher costs in comparison to herbal remedies.

Economic Opportunities

By obtaining this information, comparing it to other countries allows the formulation of a trend and correlation between healthcare seeking behavior and influencing factors. Senegal, and other African countries are in a unique position with the opportunity to redefine healthcare practices and further contributions to universal healthcare coverage in partnership with international organizations or without as a continuously developing state (Kasilo, Wambebe, Nikiema, et al., 2019). Due to traditional African medicine's influence in Senegalese culture as a primary healthcare provider, traditional medicine could offer more countries a more affordable, accessible, and acceptable form of treatment if promoted, funded, and if the standard 'western' ideal is reevaluated. Not only could it potentially improve Senegal's healthcare system, but it could also help the country as a whole in terms of development economically and politically. The revenue recorded from the traditional hospital in the Keur Massar hospital is just a glimpse of what type of economy and market on the global scale that Senegal and other African countries

could utilize in an attempt of full economic independence from the French influenced CFA system which implements certain constraints in mobility.

Along with a growing, stable economy and potentially a bigger spotlight on the world market, African countries with the use of traditional medicine could potentially gain more political influence that comes along with the increase of GDP and market power. This could all be done alongside the aid of international organizations to help promote and develop the standardization of traditional medicine practices in Africa (Sambo, Luis, et al., 2010). The WHO already has a commitment to a policy regulatory framework to heighten the profile of traditional medicine to produce safety, efficacy, and quality that is universally accepted as an alternative to western medicines. There has been a changing view of medicinal plants and herbs in the last 30 years. Out of the global population of 6.3 billion, about 4 billion utilize plants to meet their primary health care needs. Half the people in industrialized countries regularly use what is described as complementary and alternative medicine (CAM). The growth in consumer demand and availability of services for complementary medicine has outpaced the development of policy by governments and health professions (Sambo, Luis, et al., 2010).

It is important to work towards a point where traditional African medicine is seen as just as effective and as safe as possible urgently because of the large numbers of people who make use of it in the wake of high disease burden. Efforts to improve the traditional medical system should not be perceived as evidence of condemnation of western medicine though. The stigmatization and taboo-ness of traditional medicine is a consequence of neocolonialism because dynamics in the disease patterns and socioeconomic status of the global populations, including African population (Nyika, 2009). The ultimate goal should always be to make various complementary efforts that are ethical and are aimed at reducing the disease burden in African

countries. The efficacy and safety of African traditional medicines could be enhanced through well designed research that is conducted ethically in Africa. Similarly, scrutiny of African Traditional Healers should not be viewed as condemnation of the practice of African Traditional Medicine (ATM) in its entirety (Nyika, 2009).

Cross-Dimensional Factors Influencing Healthcare Seeking Behaviors

From my field observations during the Spring of 2022 and my courses conducted by Senegalese professors, in general, I found there is a pyramid of differing levels of healthcare available at any given time depending on population density as well as availability of medical professionals. In scenarios of more rural areas, healthcare through Case du Santé is more often available and as one continues up the chain of increasing population and medical professionals, there is also an increase of available resources, though much of it is imported and funded by international organizations. The Poste de Santé in Toubacouta caters to a population of roughly 3,000 habitants while the internship location, the Poste de Santé SICAP Liberté 4, caters to a population of roughly 8,230 but is also a part of an integral system of other nearby neighboring postes de santé working together to collaborate and analyze data of the West District with a total population of 265,278 (See Fig. 9 on page 56). The post in Toubacouta though, due to its more rural location, had insufficient resources and medical professionals to provide care ‘acceptable’ in western standards and they relied heavily on international interventions from organizations like UNICEF, USAIDS, and WHO than neighboring clinics which was expressed by the physicians there. In both locations of Toubacouta and my internship in a Dakar neighborhood, infographic posters, medical equipment, and the overall setup were present and utilized in everyday functions (See Fig. 10a-d on page 57). The location in SICAP Liberté 4 had significantly more than Toubacouta leading to the location to implement the utilization of female

community leaders without medical certificates or ‘proper’ training to pass on a comprehensive health education to the citizens and who help with treatment and care. What I have found interesting so far from my experiences in both locations, the semi-urban neighbor SICAP Liberté in Dakar and the rural Toubacouta, is the influence of western medicine and diagnosis: while the one in Dakar is more systematic and appreciates the international interventions and cooperation with the ministry of health, the latter, Toubacouta, finds it difficult to implement western standards to effectively help their community.

Rural Comparison

In Toubacouta on February 16, 2022, a few hours outside of the city of Dakar in a more rural village, the doctor in charge of the village’s health clinic led our study abroad group into a small building of only 4 rooms, introducing us to his office, the reception area, an operation and birthing room, and a recovery room. Further down the road across the pavilion was a resting waiting area with beds crowded into a room for those who traveled the distance to the poste de santé to seek care and treatment. Most of the patients that the doctor told us he received were mothers, women, and the older demographic population. A few more steps away, stood alone the pharmacy where people were filtering in and out during the time of our visit, receiving a prescription and fulfilling their payment. The sole worker was an elderly gentleman who continued to reiterate that he was the only one qualified to and the only one willing to work at the poste de santé as a pharmacist (See Fig. 11a-b on page 58). He was aging, the wrinkles and graying hair on top of his head told his story and work. There are 14 regions in Senegal that the Senegalese Ministry of Health oversees and operates as mentioned by my internship supervisor Dr. El Hadj Diouf and Madame Thiongane in March 2022. The government is working alongside the Senegalese Health Organization to provide health care, treatment, medical equipment, and

advocate to promote comprehensive education about diseases and illnesses to help with prevention. These efforts are also in collaboration with the goals also set by the United Nations of sustainable development of international development, abbreviated as SDGs, which Senegal has taken up post-colonialism. There are 17 goals that the United Nation members have adopted in 2015 for developed and developing countries:

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation, and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice, and Strong Institutions
17. Partnerships for the Goals

The progress of members and regions are recorded every year which are later presented in an SDG Progress report by the UN Secretary General. These reports are composed of data produced by each nations' statistical systems collected on a regional level. Goal 3.8 of the UN's SDG's good health and well-being states that they want to achieve universal health coverage by having access to quality healthcare services and to safe, effective affordable medicines and vaccinations. Goals 3.B-3. D state their commitment towards supporting research and development of affordable vaccines and medicines while increasing financing and recruitment of trained healthcare personnel. In the UN's 2022 annual report the same objective of good health and well-being reported that from 2014-2022 there was a 2.3% density of medical doctor professionals per 10,000 people in Sub-Saharan Africa, and 12.6% of nursing and midwifery personnel per 10,000 people in the region. The report remarked that despite an increase in the density of medical personnel globally, there are still disparities and they have grown due to COVID-19 leaving an estimated 40 medical doctors per 10,000 individuals in Europe compared to 2 per 10,000 in Sub-Saharan Africa (See Fig. 12 on page 59).

Depending on the population density of a certain area, there are 6 main tiers of health buildings available. Each type of level also has different operations that they are equipped to perform, for example, for a simple flu one would not go to the national hospital especially if they are in a rural area like Toubacouta. Residents of smaller rural villages go to the nearest health hut or health post to obtain the necessary drugs and treatment. However, if an individual suddenly had heart failure or a stroke, they would most likely be transferred to a regional hospital or a national hospital. This is mainly due to space, accessibility of health professionals and appropriate equipment which would be more available in cities with high population density, but it is a reason to receive more funding from either already partnered international organizations or

the Senegalese government. While international organizations help the health system in Senegal, most individuals end up paying out of pocket. This often leads to higher poverty rates and fewer people seeking care in clinics or health buildings, resulting in less funding as resources go unused. In cases where there is a spike in serious cases that require more medical help, often there are not enough resources due to this cycle and there are not enough motivated or incentivized workers in the rural areas. This economic situation that Senegal finds itself in is due to part of the neocolonialism power that France still has on Senegal with the control of the CFA and the exchange in the international market. The exchange rates officiated through the French market in Europe is how Senegal imports some of their medical equipment and medicine further making their healthcare system dependent on France. The rest of their dependency falls on the extra funding they receive from international organizations previously mentioned, who also provide needed resources for their healthcare system which implements modern medical practices. Senegal gained the practice of modern medicine from colonial French rule, and it is currently dependent on France for its country's finances and resources despite formal independence. France's alongside other international organizations that provide funding and resources, influence affects the economic system and equipment that Senegalese health officials can obtain, and how they are administered to the public. This in turn affects what is promoted, taught, and treated.

Quality of care has not changed with time despite the efforts in Senegal. In a 1982 journal article "La Santé au Senegal" written by Association des Travailleurs Sénégalais de la Santé en France, Présence Africaine (ATSSF), states that health situations are worse in the countryside than observed in the city of Dakar. Basic health posts experience the most acute problems where the provisions of drugs planned often do not cover a week. When we visited the health post,

there were only 6 workers that day and they were doing several jobs at the same time and caring for several patients while others were waiting. There were 3 small buildings which would be easily overrun in a severe outbreak, but they have basic medical equipment and medicine. The workers, however, were older, and the pharmacist was over retirement age but there was no one else to take his place, a very real situation indeed. There are not enough staff available or interested in covering positions in rural areas as told by the attending general physician and the pharmacist who ran the facility. This issue was also noted in the previously mentioned article stating,

> Le Sénégal connaît comme tous les États africains une pénurie de travailleurs dans le domaine sanitaire. Le problème n'est pas que quantitatif mais aussi qualitatif. En effet, de l'effectif total il faut retenir que la moitié n'a reçu aucune formation lui permettant d'être efficace ; et le personnel formé est souvent en butte à des problèmes d'adaptation, sa formation répondant peu aux besoins des populations en matière de santé. Il faut ajouter que sa répartition ne manque pas de poser des problèmes, car on note une forte concentration de personnel dans les zones urbaines, principalement dans la capitale et sa banlieue, ce qui laisse une bonne partie du territoire sans protection sanitaire, (Association des Travailleurs Sénégalais de la Santé en France, 1982)

This section reflects that Senegal in 1982 faced the same issue of experiencing a shortage of health workers as they do now. Not only is the problem quantitative but it is also qualitative. Most health personnel do not have any formal health training causing further issues of adaptation and not meeting the needs of the population. It also states that there is a higher concentration in urban areas of the capital and suburbs which alludes to the concept that health personnel do not have the same incentive to work in more rural territories.

During the extension of our 2022 tour of Toubacouta's poste de santé as part of MSID's orchestrated field trip experience, we witnessed that medicine was organized on lop-sided shelves, medicine and equipment were stacked in foreign imported boxes, and books of accounts scattered, his desk shoved in the corner of the small square room. As we concluded our tour, we

gathered around the gazebo where patients on and off came to pay their dues, we only saw 6 workers. As questions and descriptions of the day-to-day operations of the post were discussed amongst the MSID group and the workers, three *Bajenu Gox,* the translation from Wolof meaning 'godmother', arrived to discuss the role they play in women's health and in the society of the village (See Fig. 13 on page 60). The Bajenu Goxs we met create supportive networks to help with maternal and child healthcare in the village through culturally traditional methods. While they do not possess formal medical training, they are the oldest women in their village who pass their knowledge down and throughout their community. The women help create a community to mainly talk about women's and children's health that might not be widely available in the village, and they also communicate a more comprehensive education of diseases and illnesses that might not be widely accepted from outside organizations like UNICEF or USAIDS.

From this perspective, it is more effective to help the increase of knowledge and prevention by implementing and using the knowledge, cultural values, and social status of Bajenu Gox to help educate others in the community. Their actions help create a collective intergenerational solidarity in the community improving women's social status, rights, and community health. The main differences that we saw between the works of Bajenu Gox and more Western medical organizations or NGOs, such as UNICEF, is the restrictions of red tape procedures. While there are some benefits to the methodological regulations, the resulting application of medical support where needed might actually be hindered if they do not take into account cultural and social values of the community targeted. UNICEF also does not properly consider the financial barriers presented in every village and has a very static top-down approach where the Toubacouta community is much more flexible. Clémence Cluzel with Québec Science

and the International Development Research Centre (IDRC) wrote on November 24, 2021, that even this poses issues though, as success in the community of reduced health issues increases, some Bajenu Gox in other villages are becoming exhausted by the overwhelming demand for their services that lack payment, causing them to miss economic opportunities.

Modern medicine is more often used in cities and densely populated areas where most will also find more services, professionals, and technology in bigger hospitals, which decreases the sense of community and personal care. Despite the bigger facilities and more advanced technology there still aren't enough hospital beds for the patients who need treatment. Nor can most Senegalese citizens afford care which contributes to poverty rates. Traditional medicine is an option available for more of the population and offers a more community action especially if someone in the smaller village cannot pay for the medical fees. In rural areas, more often than not, you will find other members of society pooling funds to cover the bill. They rely on herbs and plants for traditional medicine, but they also rely on treating the symptoms and not addressing the root causes of illnesses and diseases.

Fig. 7a-d *Inside the Traditional Medicine Building at the Traditional Hospital in Keur Massar*

a.)

b.)

c.)

d.)

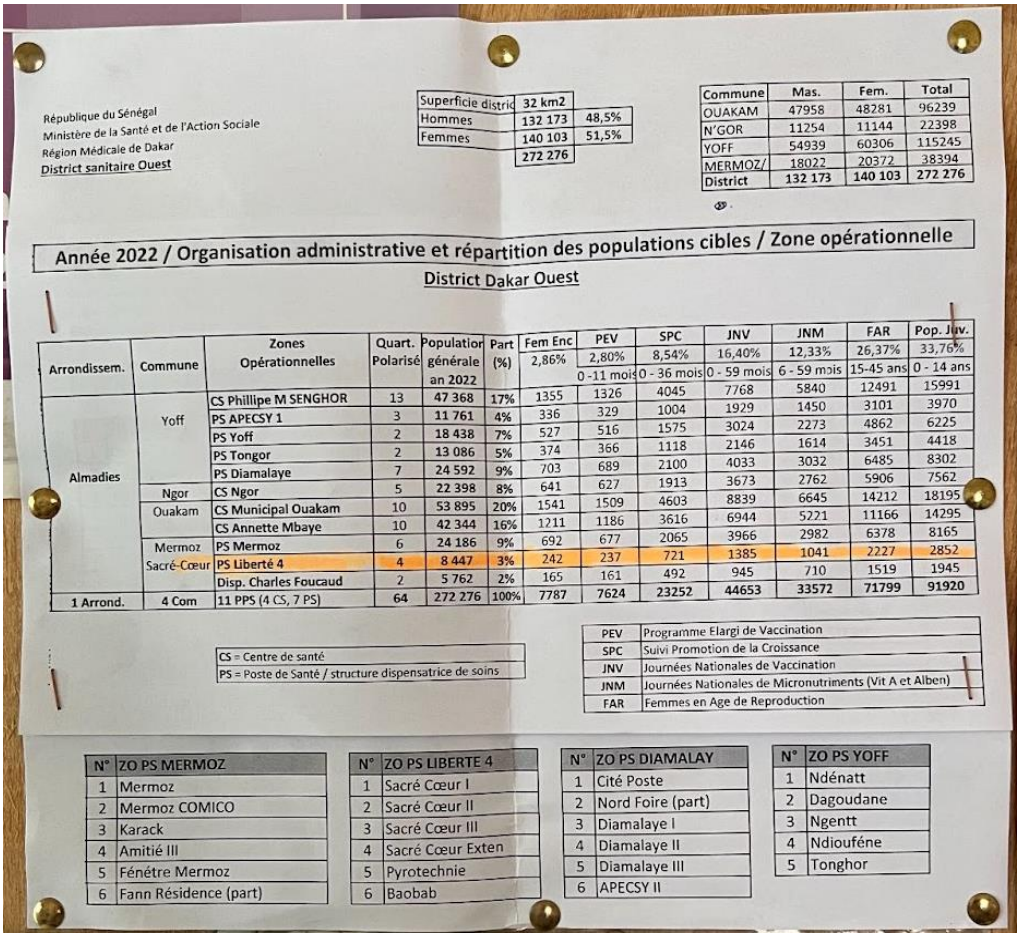
(Fogland, 2022)

Fig. 8 *Table Comparison of Traditional Medicine and Modern Medicine*

	Traditional Medicine	Modern Medicine
Access to Knowledge	Open access to medical knowledge.	Closed access and is often protected and obtained through fiscal transactions.
Diagnosis	Dependent on holistic information gained from consultation between physician and patient.	Often pre-determined pathways based on symptoms, diagnosis then based on clinical trials. Seldom changes unless re-tested effectiveness of different treatment.
Regulation	Little to no official regulation despite efforts to implement rules and standardization.	Extremely tight regulations and red tape that often increases costs of operations.
Testing	No formal testing of knowledge, effectiveness or clinical trials. Often handed down knowledge through generations.	Several clinical trials and phases to test safety and efficacy before prescribed and marketed to the public.
Prescriptions	Unspecified amount dependent on physician.	Fixed doses pre-determined through trials and only changes usually with age, sex, weight, and severity of illnesses and exposure/presence of disease.
Training	Lengthy training though knowledge is often passed through generations, no formal training in terms of institutions dedicated to the practice.	Graduate training that requires an undergraduate degree, prerequisites, and competitive entrance for formal training. Often vocational, further education and practice for specializations.

(Fogland, 2022)

Fig. 9 *Population of Dakar's West Health District by Structure 2022*



République du Sénégal
Ministère de la Santé et de l'Action Sociale
Région Médicale de Dakar
District sanitaire Ouest

Superficie district	32 km2	
Hommes	132 173	48,5%
Femmes	140 103	51,5%
	272 276	

Commune	Mas.	Fem.	Total
OUAKAM	47958	48281	96239
N'GOR	11254	11144	22398
YOFF	54939	60306	115245
MERMOZ/	18022	20372	38394
District	132 173	140 103	272 276

Année 2022 / Organisation administrative et répartition des populations cibles / Zone opérationnelle

District Dakar Ouest

Arrondissem.	Commune	Zones Opérationnelles	Quart. Polarisé	Population générale an 2022	Part (%)	Fem Enc 2,86%	PEV 2,80% 0 -11 mois	SPC 8,54% 0 - 36 mois	JNV 16,40% 0 - 59 mois	JNM 12,33% 6 - 59 mois	FAR 26,37% 15-45 ans	Pop. Juv. 33,76% 0 - 14 ans
Almadies	Yoff	CS Phillipe M SENGHOR	13	47 368	17%	1355	1326	4045	7768	5840	12491	15991
		PS APECSY 1	3	11 761	4%	336	329	1004	1929	1450	3101	3970
		PS Yoff	2	18 438	7%	527	516	1575	3024	2273	4862	6225
		PS Tongor	2	13 086	5%	374	366	1118	2146	1614	3451	4418
		PS Diamalaye	7	24 592	9%	703	689	2100	4033	3032	6485	8302
	Ngor	CS Ngor	5	22 398	8%	641	627	1913	3673	2762	5906	7562
	Ouakam	CS Municipal Ouakam	10	53 895	20%	1541	1509	4603	8839	6645	14212	18195
		CS Annette Mbaye	10	42 344	16%	1211	1186	3616	6944	5221	11166	14295
	Mermoz Sacré-Cœur	PS Mermoz	6	24 186	9%	692	677	2065	3966	2982	6378	8165
		PS Liberté 4	4	8 447	3%	242	237	721	1385	1041	2227	2852
		Disp. Charles Foucaud	2	5 762	2%	165	161	492	945	710	1519	1945
1 Arrond.	4 Com	11 PPS (4 CS, 7 PS)	64	272 276	100%	7787	7624	23252	44653	33572	71799	91920

CS = Centre de santé
PS = Poste de Santé / structure dispensatrice de soins

PEV	Programme Elargi de Vaccination
SPC	Suivi Promotion de la Croissance
JNV	Journées Nationales de Vaccination
JNM	Journées Nationales de Micronutriments (Vit A et Alben)
FAR	Femmes en Age de Reproduction

N°	ZO PS MERMOZ
1	Mermoz
2	Mermoz COMICO
3	Karack
4	Amitié III
5	Fénétre Mermoz
6	Fann Résidence (part)

N°	ZO PS LIBERTE 4
1	Sacré Cœur I
2	Sacré Cœur II
3	Sacré Cœur III
4	Sacré Cœur Exten
5	Pyrotechnie
6	Baobab

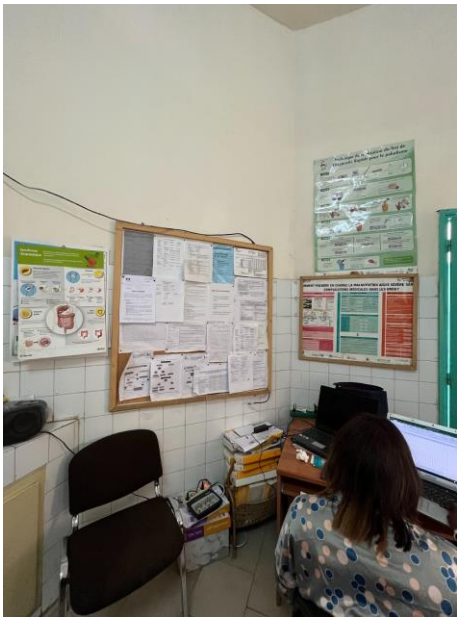
N°	ZO PS DIAMALAY
1	Cité Poste
2	Nord Foire (part)
3	Diamalaye I
4	Diamalaye II
5	Diamalaye III
6	APECSY II

N°	ZO PS YOFF
1	Ndénatt
2	Dagoudane
3	Ngentt
4	Ndiouféne
5	Tonghor

(Fogland, 2022)

Fig. 10a-d *International Organization Presence Through Posters*

a.)



b.)

c.)

d.)

(Fogland, 2022)

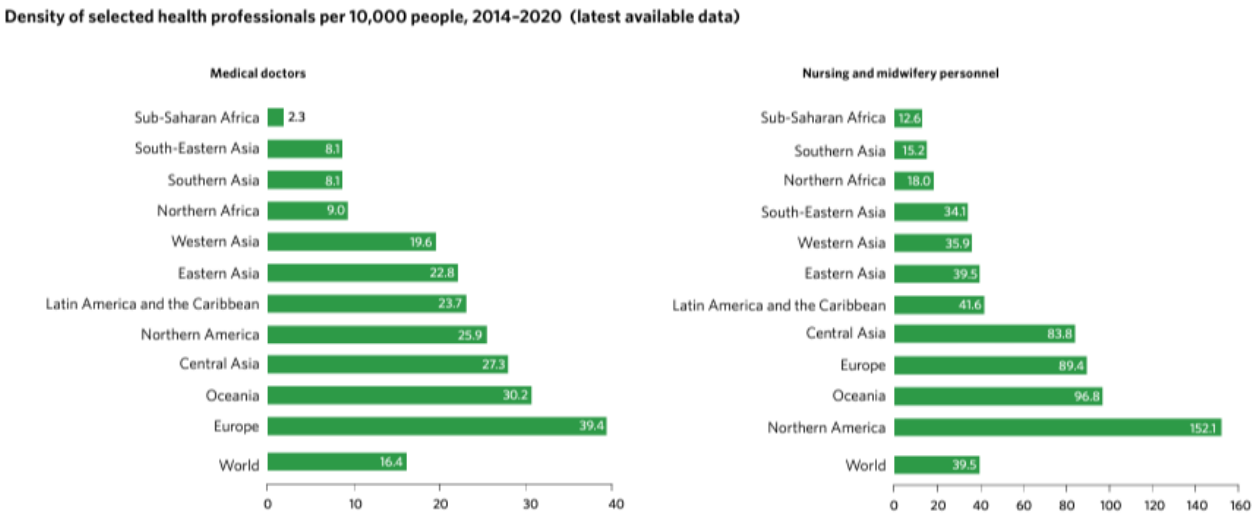
Fig. 11a-b *Toubacouta's Pharmacist and Pharmacy*

a.)

b.)

(Fogland, 2022)

Fig. 12 *United Nation's 2022 SDG Report of Density of Health Professionals per 10,000 (2014-2022)*



(United Nations, 2022)

Fig. 13 *Toubacouta's Bajenu Gox*

(Fogland, 2022)

Chapter 4: The Expansion and Development of Traditional Medicine and Modern Medicine

How France Hinders Senegal's Development

Chapter 1 of this project report provides a description of the system of the transaction and exchange operations between Senegal and other African countries in relation to their previous colonizer, France. For Senegal to support its own healthcare system, not only does it require funding from the government but the funding and cooperation of other international organizations to provide the necessary resources. The reliance on France not only hinders the ability to expand and develop their current healthcare options and quality but impedes Senegal's ability to develop further as a true independent democracy without monetary policies from Paris that further cripples their economy and does not offer true sovereignty. This aspect of neocolonialism and neocapitalism is just one pathway that the Pan-Africanism movement aims to strengthen through the union between all African countries and those of indigenous and diaspora African ancestry before colonization. Not only does traditional medical practices have room to expand and develop in Senegal to become a healthcare option operating and funded at the scale of modern medicine, but it could also be a pathway for Senegal to expand their economy and gain leverage to pull away from French influence while creating a sense of unity.

A common goal of the Pan-African movement stated in the American Historical Association is working towards true independence and unionization while finding a collective identity among themselves before the acts of enslavement and colonialism in the continent to signify a deeper bond and meaning (Langley, 1973). Despite the French government claims that the CFA franc is now an 'African currency' run by Africans, the French still hold power and influence over African economies. France as a country still infringes in Senegalese and African affairs which in turn has delayed their development in comparison to other countries.

There are 5 further indicators of a country's development as well proposed by Deddy T. Tikson (2005): income per capita (GNP/GDP), economic structure, urbanization, savings figures, quality of life index (IKH) or physical quality of life index (PQLI), and the human development index (HDI). The Human Development index (HDI) is composed of three indicators: life expectancy, education, and real GDP or GNP per capita which is synonymous with income. Quality of life is measured based on the average life expectancy at the age of one-year, infant mortality rate, and numerical literacy. Savings figures are influenced by the development of the manufacturing and industrial sectors where investment and capital were needed. Urbanization is interpreted as the increasing proportion of the population living in urban areas compared to rural areas. Economic structure assumes an increase in per capita income causing structural transformation in the overall economy and social classes.

Development of Senegal

In Senegal at the end of 2021, the GDP per capita in USD was $1,636.90 with an expected 0.8% growth rate. According to the 2022 index of economic freedom by the Heritage Foundation Senegal improved in overall rule of law pertaining to property rights, judicial effectiveness, and government integrity. Increased in business freedom and labor freedom though they decreased in monetary freedom, tax burden, government spending, fiscal health, trade freedom, and investment and financial freedom stayed stagnant.

PQLI in 2010 for Senegal was measured as 57.58 which was an increase from 1980 where their PQLI was 33.14 and the HDI that was measured in 2010 (HumanProgress) for Senegal was 0.513 which is a relatively low human development on a scale of 0 to 1. The higher a country's human development, the higher the HDI value as it is an average of key dimensions of human development like how long and healthy an individual lives, how knowledgeable they

are and how decent a standard of living they have. The health dimension is assessed by life expectancy at birth, which for Senegal was around 68 years old in 2020 according to the World Bank (2021), the education dimension is measured by means of years of schooling for adults aged 25 years and older and expected years of schooling for children of school entering age. The standard of living dimension is measured by GDP and the HDI using the logarithm of income, to reflect the diminishing importance of income with the increasing GNI. The three dimensions are aggregated however and do not reflect on social aspects of life, but it is used as a general broader way of determining human development, inequality, and mainly gender and poverty disparities. These are effects addressed by the citizens of Senegal and their healthcare seeking behaviors when choosing more modern medical attention or traditional treatment.

The Future of Traditional Medicine

Traditional medicine remains to hold an important place in not only the African healthcare system but other countries as well. With the increase of globalization and transnational migration, cultural diversity, and blurred cultural divisions it is imperative that health systems take more action in forming links between traditional and modern medicine use and knowledge to coexist. Its existence alongside modern medicine in these regions will require further research and funding to elevate it to the statute that modern medicine is held to due to the delay as a cause of colonialism. A way for Senegal to further their traditional medical knowledge and practice in the country and to be held to similar recognized merit as modern medicine and pharmaceuticals is through extensive pharmacopeia where a description of drugs, chemicals, and medicinal preparations are collected, recorded, and then approved as suggested in an interview with Abdoulaye Ndao the honorary president of the Senegalese federation of traditional medicine practitioners (Le Quotidien, 2022). This assures the quality and control of products and

substances used to produce pharmaceuticals used in traditional medical practices that are currently outdated. Mahomoodally (2013) also suggests the implementation of strategies that improve the plant collection and drug discovery from medicinal plants for a continuous comprehensive and mechanism-oriented evaluation of plants that Africa has to offer. They suggest that approved standardization can be achieved through proper management and set guidelines of raw material and procedures for a final product formulation.

An example of this is with *Senna italica*, or Leydour, which is a deciduous perennial herb that can be harvested year-round in Senegal where in the commune of Kaymor in Nioro du Rip farmers are growing the shrub on a large scale for larger profits than what they have gotten selling other crops like groundnuts, millet, and maize. The harvesting of Leydour is mainly done by some 300 women in the community spreading across three villages and there is now agricultural training activities in the area to teach about harvesting and the benefits of Leydour, "Leydour, which plays a part in social mobility, has radically changed the economic and health conditions of women in Kaymor," Bocar Dioum, the former head of the health department, told Cissokho Lassana from *The New Humanitarian* (2017). Harvesting these shrubs can occur every two months in comparison to seasonal crops and they sell for more at 1,500 CFA francs a 1 kilo which transfers to about 2.2 lbs. Not only is the plant offering economic benefits to the community, but it is also used to treat stomach illnesses, fever, jaundice, venereal diseases, and biliousness which has led to less visits to the health center in Kaymor (Lassana, 2017). While this is a small-scale operation, Senegal has a large agriculture economy in rural areas and not only could this implementation around the country with different medicinal plants increase economic growth and mobility, but it could also improve the health quality and coverage using community-based policies and treatments that are durable and comprehensive.

According to a panel by the United Nations in 2009 by the economic and social council, the total sales of herbal medicines in Europe in 2003 reached 3.7 billion euros and the market of herbal supplements in Europe was marked as 18.53 billion euros in 2021 and expected to reach around 24.80 billion euros by 2026 according to a report by Market Data Forecast in January 2022. These numbers are even higher in the United States with the herbal medicine market according to a Bloomberg business report by ZMR PR Newswire on August 17, 2022. These projections along with the profits that the traditional hospital in Keur Massar have been publishing throughout the years suggest a viable market that Senegal could capitalize on and get a stable foot into the global market rather than conducting business through France. In turn it could give the needed push to structure a currency system not influenced by France.

Environmental Benefits

Traditional medicine has the potential to promote durable and sustainable biodiversity conserving Senegal's environment. As mentioned with the new cultivation of Leydour, there are plenty of other plants in Senegal that can be used for medicinal purposes, some even with nutritional value and popular for consumption. *Hibiscus sabdariffa* is an herbaceous plant often used for bissap soft drinks and alcohol in Senegal but also has active ingredients used for traditional healing. Bissap in Senegal acts as an anti-inflammatory that can soothe colds, digestion, and is thought to reduce blood pressure and promote cardiovascular health (Demand Africa, 2023). If grown at the same rate and sold for profit as well, not only could communities gain economic opportunities and mobility, but their nutrition could increase, and their environment might improve as well depending on the types of plants cultivated. The mangrove system is one of the most important ecosystems in Senegal that help protect against floods, provides oxygen, and provides an environment to thousands of species (Fleming, 2019).

Mangroves only grow in tidal coastal areas and stream deltas of tropical and subtropical regions of the world, but they are currently under threat which is why Senegal has initiatives to protect them and plant more (See Fig. 14 on page 69). Not only this, but mangroves are essential to Senegalese history, culture, and have therapeutic traditional usages (Kumaravel, Ranganathan, Vinoth, 2019). Traditional medical usage of mangrove plants can be traced back to the beginning of human civilization and have been known to produce expensive drugs and have high export potential (See Fig. 15 on page 70). With the new initiatives to protect and grow the mangroves in Senegal, the growth of medicinal plants can expand the ecosystem helping the environment continue to host thousands of species of animals and plants. Agriculture is already an important industry sector for the country and accounts for about 16% of their GDP in 2020 (International Trade Administration, 2023). A majority of the workforce in the country are engaged in crop production already and there is an exclusive and expensive market of resources and services that can be harvested from the mangroves that can present Senegal with a protected ecosystem, stronger economic opportunities, and more nutrient options.

Challenges of Preserving Traditional Medicine

While the potential for traditional medicine in Senegal is high, challenges occur when deciding how the contribution of those practices can be implemented in the region when facing stigmatization and controversy from the lack of respect for traditional systems. It is important to ensure that the intellectual property is recognized and appropriately acknowledged. The director and head of the global intellectual property issues and life sciences program, Antony Taubman, stated during the economic and social council in the United Nations panel,

> The nature of the traditional medicine debate highlighted a double-edge sword: growing demand from strong economies brought with it concerns about misappropriation. Traditional knowledge systems were not just “fact”; they formed the cultural identity of

> indigenous peoples, and mishandling by others could be seen as an assault on the cultural identity of a community, (Tabuman, 2009)

Tabuman called for the preservation and acknowledgement of indigenous peoples' rights by viewing traditional medical systems and knowledge as "living" systems. This is in an attempt to ensure regulations and safeguards are established to protect against commercial misappropriation, which is where the terms preservation and protection are necessary. Ensuring that traditional medicine is preserved in a way that it does not disappear and working to ensure that there is no illegitimate usage as acts of protection.

Discussion

The hesitancy and discussion of how to properly preserve and protect traditional medical methods stems from the country's history of colonization and exploitation, something that the continent of Africa and other countries around the world are all too familiar with. This becomes more difficult when already facing a dominant system in place which is perceived as most effective and superior to 'informal' traditional knowledge due to western influence. Working towards a dual system means working towards destigmatizing traditional medicine in Senegal's community and on a global scale while providing proactive protective legislation that preserves part of their community culturally, spiritually, religiously, and adheres to their sociological values. The favorable outcome would result in more accessible, affordable, and accepted healthcare treatment that has the funding of the government and the same international organizations that support their modern medical system and quality assurance from further research.

Traditional medicine offers valuable opportunities for the country of Senegal and its citizens, but it needs the support of the government through regulations, standardizations, and

funding. This methodology offers an economic and cultural independent pathway that could create total sovereignty from the neocolonial powers France currently has. The affordability, access, and socio-cultural ties that traditional medicine has in the community provides a viable healthcare option that most of the country seeks. The dual existence of modern medicine with Senegal's traditional healthcare methodology could prove to provide an effective way to treat and prevent diseases in the country while catering towards patients' preferences. Senegal has the opportunity to provide effective, ethical, affordable, and holistic healthcare options to their citizens. It is important though that their traditional practices are protected and preserved in an appropriate manner and to not blur the line between the differing practices, but to respect each other's disciplines of what they have to offer and to learn from each other. This is a way to expand the knowledge of medical practices and treatments to help care for individuals not only in Senegal, but internationally as well. Improvements to their healthcare system could be indicated by the already established development indicators such as an HDI value, PQLI, IKH, or GDP/GNP.

Fig. 14 *Senegal's Mangroves*

(Fogland, 2022)

Fig. 15 *Chart of Medicinal Uses of Mangrove Plants*

Table 2: Medicinal uses of mangroves and halophytes

Mangrove plant names	Medicinal uses
Acanthus ilicifolius	To treat paralysis, asthma, diuretic, dyspepsia, hepatitis, leprosy, rheumatic pains. analgesic, anti-inflammatory, leishmanicidal
Aegiceras corniculatum	Cure for asthma, diabetes, rheumatism, fish poison
Avicennia marina	Cure for skin diseases
Avicennia officinalis	Aphrodisiac, diuretic, hepatitis and leprosy.
Bruguiera gymnorhiza	Eye diseases
Bruguiera parviflora	Antitumor.
Ceriops decandra	Hepatitis and ulcers
Lumnitzera racemosa	Antifertility, asthma, diabetes and snake bite
Rhizophora mangle	Angina, boils and fungal infections, antiseptic, diarrhoea, dysentery, elephantiasis, fever, malaria, leprosy, minor bruises, plaster for fractured bones and tuberculosis.
Rhizophora mucronata	Elephantiasis, febrifuge, haematoma, hepatitis and ulcers.
Salicornia brachiate	Hepatitis
Sesuvium portulacastrum	Hepatitis
Sueda maritima	Hepatitis
Sueda monoica	Hepatitis

(Kumaravel, Ranganathan, Vinoth, 2019)

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