

Use profile of functional foods as a therapeutic method within the population of the city of Yaoundé

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ABSTRACT

Background:The World Health Organization (WHO) estimates that nearly 80% of African populations use complementary and alternative medicines for the prevention and treatment of illnesses, physical and mental ailments. Among these, biological therapies represent one of the most popular routes. With the confirmation of the food role in the occurrence or prevention of diseases and in view of public awareness, we are witnessing a medicalization and personalization of food. Beyond their nutritional function, certain foods are used for their therapeutic properties and have beneficial effects on one or more functions of the human body. The objective of this work was to establish the therapeutic profile of functional foods in Cameroon.

Methods: This was a descriptive cross-sectional study held in the community in the city of Yaoundé. The sample consisted of anyone aged at least 20 years old who expressed their consent to participate in the study.

Results: The sample consisted of 110 participants with a sex ratio of 1.04 and an average age of 31.2 years. Almost all (96.4%) of respondents attributed therapeutic virtues to foods and 76.5% of the sample declared themselves satisfied with the results obtained. Income had a positive association with the use of nutraceuticals as a therapeutic means. The reasons for use were disease prevention (70.2%), well-being (53.2%), disease treatment (51.1%).

Conclusion: Due to their geographic, cultural and economic accessibility, the use of CAM is a reality in Cameroon. Their valorization should be promoted to meet a growing demand for local therapeutic solutions.

Keywords:Functional foods, biological therapies, alternative and complementary medicine, Cameroon

I. INTRODUCTION

Despite the dual challenge of endemic communicable diseases plaguing the African continent, and the galloping progression of non-communicable diseases, access to health care still remains a major obstacle in achieving health goals. According to the World Bank, 400 million people on the continent do not have access to basic health services [1]. As an alternative or alongside the biomedical system, alternative and complementary medicines (CAM) are available, which refer to a broad set of health practices that are not part of the country's tradition or traditional medicine and are not fully integrated. to its predominant health system [2]. Worldwide, biological therapies are the types of CAM most sought after by populations [3]. The latter refer to the use of substances found in nature, such as plants, all or part of foods. Eating behaviors refer to all of an individual's behavior regarding food consumption. Their primary function is to ensure the body's supply of energy substrates and biochemical compounds essential for its survival. Beyond this energy dimension, food also has a therapeutic dimension [4]. Awareness of a relationship between food and health dates back to past civilizations. It is now accepted that diet constitutes a major determinant of individuals' health and quality of life. Beyond the nutritional impact, certain foods have preventive and curative properties. The latter, thanks to their richness in certain nutritional and/or non-nutritive elements, have beneficial effects on one or more functions of the human body. These effects result in an action to

improve physical condition and/or reduce the risk of disease progression [5]. Therefore, the objective of this work was to document the therapeutic profile of a selection of functional foods in Cameroon.

II. METHODS

The study was held in the community with a recruitment period ranging from April to June 2021 in the cosmopolitan city of Yaoundé. The sample consisted of anyone aged at least 20 years old who expressed their consent to participate in the study. In the absence of data on the use of functional foods in the general population, the calculation of the sample size was based on the prevalence of use of traditional medicines by the WHO estimated at 80% [2] with a final sample consisting of 94 individuals. The selection of functional foods included 10 items to choose from:

African eggplant, bitter cola, lemon, lemongrass, ginger, hibiscus, neem oil, honey, moringa. The data were collected using a questionnaire administered with 29 questions grouped into 4 parts: sociodemographic characteristics, use of functional foods, therapeutic profile and recommendations. Data analysis was carried out using IBM-SPSS software and the link between qualitative variables was assessed using the chi-square test with a $p < 0.05$ value considered significant.

III. RESULTS

• Sociodemographic characteristics

The modal class within the population was that of 25-29 years old with a sex ratio of 1.04. The sociodemographic profile of functional foods users is recorded in Table 1.

Table I: Sociodemographic profile of functional foods users

Variables	Components	n(%)
Educational level	Middle school	4(4,3)
	High school	6(6,4)
	Higher education	84(89,4)
Cultural area	Native	2(2,1)
	Coast	8(8,5)
	Forest	46(48,9)
	Grassfields	22(23,4)
	Sahel	6(6,4)
	Savana	10(10,6)
Matrimonial status	Single	68(72,3)
	Free union	2(2,1)
	Married	18(19,1)
	Widow(er)	6(6,4)
Monthly income (\$)	≤58	42(38,2)
	[58 - 80[12(10,9)
	[80 -160[24(21,8)
	[160 -240[14(12,7)
	[240 -319[4(3,6)
	[319 - 399[4(3,6)
	[399 -559[4(3,6)
≥ 559	6(5,5)	

The participants were mainly single, with a higher level of education, from the forest zone of the country. Nearly half (49.1%) had a low monthly income of less than 80\$.

• Use of functional foods

85.5% of participants declared that they used functional foods with more than half (60.5%) declaring that they did so regularly at least once a month. Use was independent of a chronic

pathology, only 7.3% of the population surveyed declared living with a non-communicable disease. Statistical analysis revealed a statistically significant association between the use of nutraceuticals and monthly income ($p=0.035$). Of the selection of functional foods given to the participants' choice, lemon (95.7%), ginger (91.5%) and honey (91.5%) were the most reported (Figure 1).

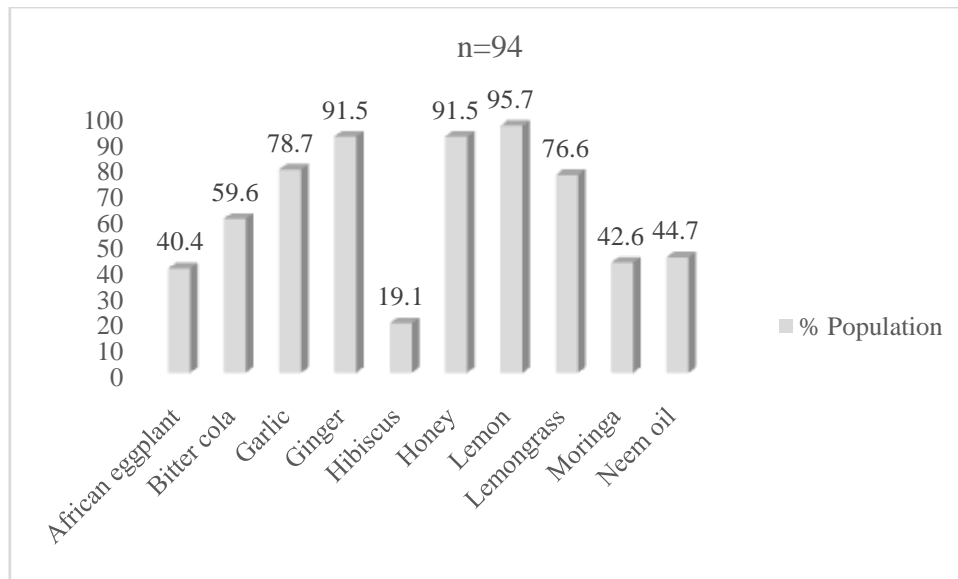


Figure 1: Functional foodsusers' preferences

Generally speaking, all functional foods showed moderate to significant use with an average use of around 64.0%; with the exception of the not very common hibiscus.

The vast majority of functional foods were consumed in their natural state (76.6%) or in the form of infusions (55.3%). Concerning sources of information, relatives and cultural habits represented the main channels with 64.6% and 45.8% respectively. For those who did not use it, the reasons consisted of a lack of recommendation

(57.1%), a lack of information (28.6%) and a lack of conviction (14.3%).

• **Therapeutic profile**

The reasons for use were the improvement of general well-being in 70.2% of cases followed by the preventive (53.2%) and curative (51.1%) aspect. The conditions for which functional foods were used were to a large extent respiratory and digestive (66.9%).

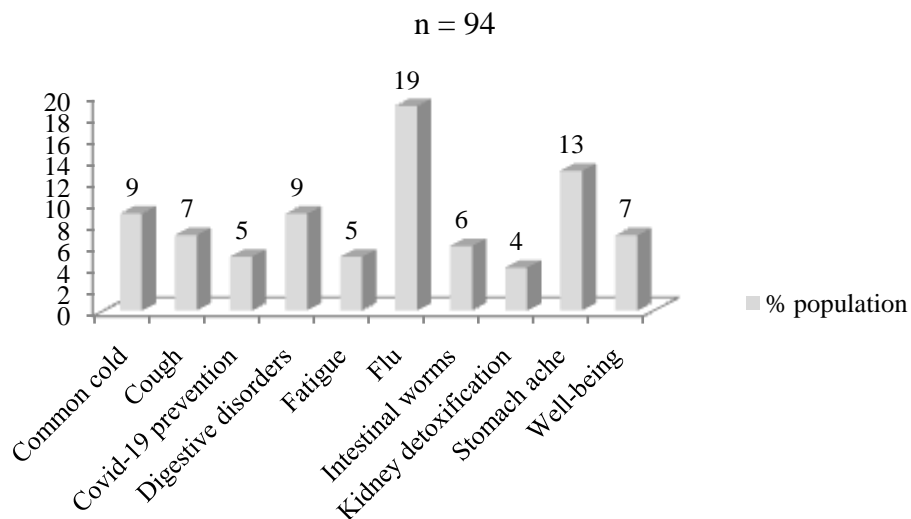


Figure 2: Conditions managed by the nutritional route

The most commonly mentioned disorders were the flu (19%), stomach ache (13%), colds (9%) and digestive disorders (9%) (Figure 2). The

participants' feelings about the effectiveness and safety of the treatment followed are expressed in Table II.

Table II: Perception of the effectiveness of functional foods

Variables	Modalités	n(%)
Degree of satisfaction	Not really satisfied	8(8,5)
	Moderately satisfied	14(14,9)
	Satisfied	54(57,4)
	Very satisfied	18(19,1)
Harmfulness	Yes	28(29,8)
	No	38(40,4)
	Maybe	20(21,3)
	I don't know	8(8,5)
Adverse effects	Yes	22(23,4)
	No	66(70,2)
	I don't know	6(6,4)

Despite a high satisfaction rate among users (76.5%), adverse effects were reported by almost a quarter of respondents. However, almost half associated a certain safety with functional foods.

IV. DISCUSSION

This work is part of a new approach in the cameronian scientific landscape. For several years, the promotion of the consumption of a certain number of foods described as “superfoods” has been at the heart of the media and scientific work. This study aimed to evaluate the use of a selection of functional foods by the population of the city of Yaoundé.

- **Sociodemographic data**

The sample of this study was characterized by a more or less equal distribution between the sexes. This result was not found in a study in Nigeria on the use of CAM within the population of the city of Enugu in which the female population was predominantly represented with a sex ratio of 0.59 [6]. The population was characterized by its strong youth and a high level of education. The same study also found a young population, as is the case in a majority of sub-Saharan countries, with an average age of 37.6 years. On this side, the use of CAM was associated with the level of education. People with low levels are more likely to use CAM. This trend was not observed in our results.

- **On the use of functional foods**

Use proportion of functional foods was 85.5% in our study in accordance with WHO estimates on the use of traditional medicine in sub-Saharan areas [2]. This strong adherence could be explained by cultural and economic reasons. The sources of information were, in descending order, relatives, cultural habits then the media, similar to

the results from Ghana but with a priority of the media over culture [7]. Furthermore, 40.4% of study participants did not consider this use as dangerous, citing their natural nature as an argument in line with the results in a study carried out in Osun State in Nigeria presented similar results with 47.3% of respondents declaring that CAM could represent a danger to health and 54.9% aware of the occurrence of possible adverse effects [8].

- **The therapeutic profile**

According to the WHO, in sub-Saharan Africa, the population uses CAM and traditional medicine both to maintain their health and to prevent communicable and non-communicable diseases [2]. During our study, functional foods were mainly consumed to treat conditions of the respiratory and digestive systems, and general disorders. In fact, the most reported illnesses were the flu, stomach aches and colds. For centuries, traditional medicine/CAM was the main medical system available in Africa before the arrival of Europeans [9]. The result is a vast knowledge of plants and their effects on health passed down from generation to generation mainly orally. A documentary review highlighted the justified and appropriate use of functional foods in the treatment of everyday ailments and illnesses by populations.

- **Health promotion**

After a strong medicalization and dehumanization of health, a new concept of health emerged the day after the 1st international conference on health promotion. From a clinical conception of health, this conference, the decisions of which were recorded by the Ottawa Charter, promotes a more global approach which integrates aspects of prevention and health promotion. The

latter aims to give an individual or a community the means to ensure greater control over their health and improve it. Functional foods use by respondents when their well-being or health deteriorated highlights this desire to take control in their quest for care. With the aim of reducing inequalities in access to health care, different tools and means are offered to public decision-makers, including empowerment. Coming from social science research, empowerment refers to reinforcement, to the acquisition of power. In health promotion, it refers to the capacity of an individual or a community to acquire power through 1/access to information, knowledge and skills or 2/involvement in decision-making processes among others [10]. In this case, it is up to health professionals to support individuals by providing them with reliable information relating to the benefits, risks and dosage to be associated with their use in order to get the most out of the benefits for their health.

Furthermore, the need for a reorientation of clinical and curative health services towards a broader dimension which takes into account the cultural aspects of individuals in their search for better health through non-predominant therapeutic solutions, is essential [11]. Study participants admitted that they turned to functional foods because of the culture in which they were immersed, which influenced the type of products to which they turned. So, depending on the cultural areas, certain types were more popularized than others.

V. CONCLUSION

Food is a means of improving the health of populations. A veritable arsenal of health, certain foods have therapeutic properties which make them culturally accepted biomedicines. Health is a right and a resource for individuals. By ratifying the Ottawa Charter, WHO Member States have committed to providing their populations with the means to ensure greater control over their health and to improve it. Eating is a daily gesture that could be exploited within the framework of public health policies to improve the health status of populations. Prevention is always better than cure and, in an approach, aimed at avoiding abusive and erroneous use of medicinal treatments, functional foods use proves to be a path to promote in view of the strong support of the population and the fewer side effects in a controlled context.

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Conflicts of interest: The authors declare any absence of conflict of interest.

Ethical considerations:

Data collection was preceded by obtaining ethical clearance from the Ethics Committee of the Faculty of Medicine and Biomedical Sciences of Yaoundé and research authorization from the National Committee for Research and Ethics in Human Health of the study region. The study was carried out in compliance with the Nuremberg principles of biomedical ethics, namely free and informed consent, the absence of any physical and mental harm, low risk for the participant, respect for anonymity and confidentiality.

REFERENCES

- [1]. Organisation mondiale de la santé (OMS) & La Banque mondiale. Rapport mondial de suivi 2017 : la couverture-santé universelle. Bibliothèque de l'OMS. 2018.
- [2]. OMS. Stratégie de l'OMS pour la médecine traditionnelle pour 2014-2023. Bibliothèque de l'OMS. 2013.
- [3]. Tatang Mambap A, Ukum GE, Teuwafeu DG, Mahamat M, Ashuntantang GE. Frequency, types and factors associated with complementary and alternative medicine use among patients on maintenance haemodialysis. BMC complement. med. ther. 2022; 22:325-34.
- [4]. Pauli Y. Les 4 dimensions de l'alimentation. LinkedIn. [En ligne] 03 Août 2017. Consulté le 02 Juin 2023. Disponible à : <https://www.linkedin.com/pulse/les-4-dimensions-de-l'alimentation-yannick-pauli/?originalSubdomain=fr>
- [5]. Ghosh D, Bagchi D, Konishi T. Clinical aspects of functional foods and nutraceuticals. Boca Raton: CRC Press Taylor Francis Group; 2015.
- [6]. Onyapat JLE, Okoronkwo IL, Ogbonnaya NP. Complementary and alternative medicine use among adults in Enugu,



- Nigeria. BMC Complement Altern Med. 2011 Mar;11:19-24.
- [7]. Yarney J, Donkor A, Opoku SY, Yarney L, Agyeman-Duah I, Abakah AC, Asampong E. Characteristics of users and implications for the use of complementary and alternative medicine in Ghanaian cancer patients undergoing radiotherapy and chemotherapy : a cross-sectional study. BMC Complement Altern Med. 2013 Jan;13:16-24.
- [8]. Bamidele JO, Adebimpe WO, Wasiu O, Oladele OA. Knowledge, attitude and use of alternative medical therapy among urban residents of Osun State, Southwestern Nigeria. Afr. J. Trad. CAM. 2009;6(3):281-8.
- [9]. Olisa NS, Oyelola FT. Evaluation of use of herbal medicines among ambulatory hypertensive patients attending a secondary health care facility in Nigeria. Int J Pharm Pract. 2009 Apr;17(2):101-5.
- [10]. Persiani M. Développer les aptitudes individuelles. Adsp. Juin, 2018, 103.
- [11]. Alami H, Gagnon M-P, Ghandour EK, Fortin J-P. La réorientation des services de santé et la promotion de la santé : une lecture de la situation. Santé publique. Société Française de Santé Publique, 2017, Vol. 29, 2.