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Promotion of Physical Activity among the Older Persons: Challenges of Sustainable Human Development in Côte d'Ivoire

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Abstract Côte d'Ivoire is characterized by a predominantly young population. However, the ongoing demographic transition leads to significant changes in the size and structure of this population. In this context, maintaining regular physical activity appears essential for reducing the incidence of chronic diseases and improving quality of life, particularly among older persons. The objective of this study is to identify the policies and strategies implemented by public authorities to promote physical activity among older persons. To achieve this objective, the researchers adopted a mixed methodology, combining quantitative and qualitative surveys with 96 older persons. The results reveal that the services offered do not meet the expectations of this population. Public authorities pay little attention to the practice of physical activities among older persons. Sports infrastructures, when they exist, often remain inaccessible. Furthermore, sociocultural barriers, such as the fear of judgment from others and the perception of physical activity as unsuitable, hinder the participation of older adults in these activities. The study highlights the need for greater public involvement in adapting infrastructures and developing health programs that address the specific needs of older persons. It is also recommended that local communities play an active role in this dynamic, particularly by implementing initiatives that promote the inclusion of older persons in regular physical activities, which could transform perceptions and enhance access. This research provides valuable insights into the challenges associated with promoting physical activity among older persons in Côte d'Ivoire and suggests avenues for developing more appropriate public health policies, thereby contributing to the sustainable development of the country. Nevertheless, the sample size and limited geographical coverage represent limitations that may restrict the generalization of the results.

Keywords Promotion of Physical Activity, Côte d'Ivoire, Sustainable Human Development, Older Persons

1. Introduction

In 1800, the Earth was home to one billion people, but since Tuesday, November 15th 2022, it has exceeded the threshold of eight billion people [1]. It could reach nearly 10 billion people in 2050 [2].

Concomitantly with this, the number of people aged over 60 is increasing quickly in developed countries, especially in many developing countries. Indeed, their number is expected to triple, from 143 million in 2019 to 426 million in 2050 [3]. In the Economic Community of West African States (ECOWAS) area, the number of older persons would increase from around 16 million in 2017 to 53 million in 2050. However, this demographic transition is

accompanied by an increase in the specific health needs and problems of older persons. With this in mind, and to enable older persons to enjoy their independence for as long as possible, major international bodies are considering the practice of physical activity as a central tool for preventing the deleterious effects linked to organ aging and as a fundamental element of well-being [4].

Thus, in the conception of active aging as a model of successful aging, experts invite each country to offer older persons the opportunity to regularly practice physical activities adapted to their condition to maximize their health potential and participate in them in complete safety in social life [5, 6].

It is therefore clear today that physical activity can strengthen the resilience and empowerment of individuals and communities. And that satisfactory health contributes to developing the human capacities necessary in achieving the 2030 sustainable development agenda [7].

Côte d'Ivoire, a developing country, is also facing a demographic transition. In this context, promoting the practice of physical activity among older persons is of particular importance. By promoting an active lifestyle and encouraging regular participation in appropriate physical activities, it is possible to prevent health problems and improve the quality of life of older persons. To this end, the Ivorian State, through article 32 of its fundamental law, has demonstrated its desire to preserve the specific needs of vulnerable people and is committed to taking the necessary measures to guarantee access to health services, education, employment, culture, sports and leisure by older persons. In 2016, the Ministry in charge of Sports adopted a Support Program for the Promotion of Mass Sport and Sport for All (SPPMSSA). This program aims to make physical and sporting activities a factor in improving the well-being of populations. In addition, the practice of physical and sports activities for all is encouraged and led by sports groups such as the Ivorian Federation of Hiking and Well-being for All (IFHWA), the Ivorian Fitness Association (IFA), Association Sport dans ma Vie (ASV), and the Heart Disease Foundation (HDF).

So, what could explain this situation in a country which is organizing the African Cup of Nations (CAN) for the second time and which is full of important educational and sporting infrastructures? The objective of this work is to identify the obstacles linked to the practice of physical activities by older persons.

2. Materials and Methods

2.1. Choice of Field of Study

The study took place in Abidjan, in the economic capital of Côte d'Ivoire, precisely in the commune Plateau. There are two (02) reasons for this choice.

Strategically, the commune of Plateau is the first historic core of the ten communes of Abidjan. Created by the will of the colonizer, this commune is easily accessible and receives older retired persons from all over Côte d'Ivoire.

Regarding socio-cultural reasons, the commune of Plateau is a cosmopolitan municipality which has a high concentration rate of populations whose origins, social conditions and religious beliefs are diverse. This commune is a socio-cultural melting pot, a crossroads commune, well structured, and well-ordered, which brings together the majority of the country's main administrative and commercial activities. In addition, it houses the head office of the General Retirement Fund for State Agents (GRFSA) and the National Social Insurance Fund (NSIF).

2.2. Participants

This reflection concerns the promotion of the practice of physical activities among the older persons: challenges of sustainable human development in Côte d'Ivoire. As a result, the target population is mainly composed of older persons affiliated with the GRFSA and the NSIF as well as actors with long experience in sports and leisure in Côte d'Ivoire. To this end, the researchers were interested in people aged 60 and over present during the study period. The threshold used to define elderly persons varies according to the authors and the circumstances. To avoid any confusion on the matter, they chose this age group based on the definition of elderly persons according to the World Health Organization [8].

The older persons who freely agreed to answer the questions were interviewed as they presented themselves to the GRFSA or the NSIF. Sports and leisure stakeholders in Côte d'Ivoire with at least 5 years of experience were interviewed at their workplace.

The sample is composed of one (1) official from the National Directorate of Leisure, one (1) from the sub-directorate responsible for the older persons at the Ministry of Employment and Social Protection, one (1) from the Ministry in charge of sports, three (3) club leaders and ninety (90) older persons. A total of ninety-six (96) people were investigated regarding confidentiality and ethics. Older persons suffering from a mental disorder and those who refused to participate in the study were excluded from the sample. Sports and leisure stakeholders in Côte d'Ivoire with less than 5 years of experience were also excluded from the study.

The research lasted four (04) months, precisely from September 1st to December 30th, 2023.

2.3. Instruments

The study used a mixed approach (qualitative and quantitative) with a predominantly qualitative approach.

The questionnaire was sent to 70 older persons. This questionnaire focuses on the knowledge and perceptions of older persons regarding the practice of physical activities, the challenges and opportunities linked to the aging of the population and sustainable human development.

The interview was addressed to 6 players in the field of sports and leisure and 20 older persons responsible for approved associations of people. This made a total of 26 respondents submitted to the interview. The representativeness of the sample is not a criterion of validity, and the aim here is to carry out a sufficient number of interviews (saturation) to collect the testimonies of people who work in various sectors of activity linked to the subject of the study. The content of the interview also covers knowledge and perceptions of the practice of physical activities, the policies and strategies put in place to encourage and promote the practice of physical activity among older persons, the challenges and opportunities linked to aging and human sustainable development.

2.4. Data Processing and Analysis

The researchers opted for thematic content analysis with regard to the interview. This analysis was carried out in several stages. First of all, they transcribed the interviews. Then, manual data processing was carried out. Finally, the data entered and transcribed on a computer were processed and analyzed. This made it possible to dissect discourses and ideas and establish links between them in order to understand what they reveal in common and what is divergent. As for the questionnaire, it was processed on the computer using Microsoft Excel. This led to the results below.

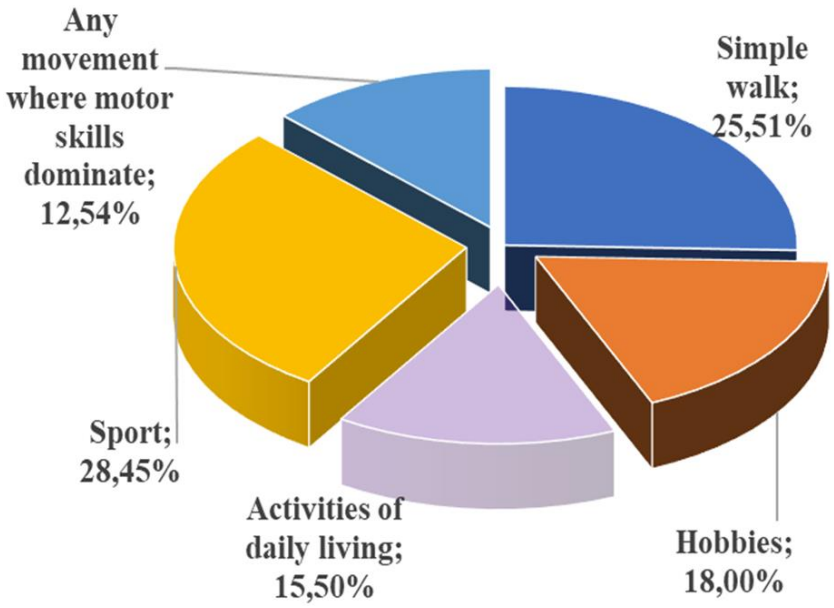
3. Results

The results of this study are organized around the following main themes: knowledge and perception of older persons on the practice of physical activities, policies and strategies put in place to promote the physical activity among older persons, challenges and opportunities linked to population aging and sustainable human development.

3.1. Knowledge and Perception of Older Persons on the Practice of Physical Activities

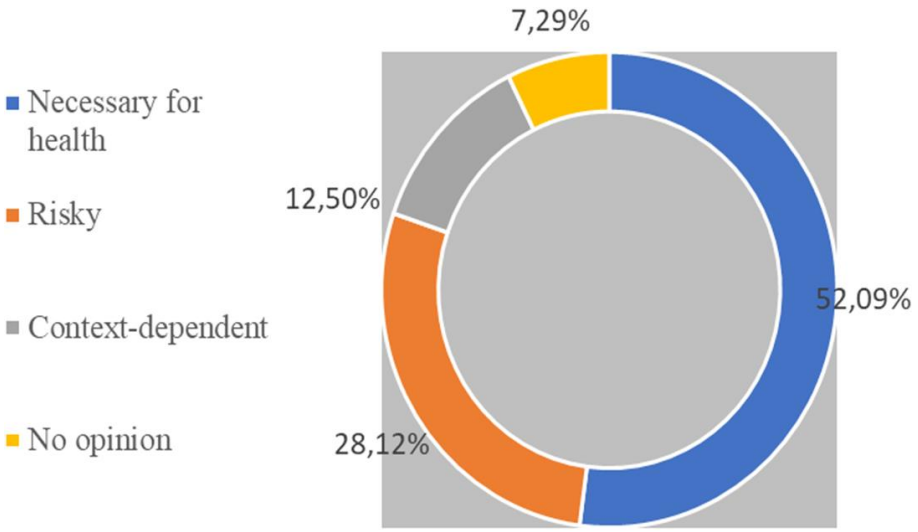
Figure 1 reveals that the older persons surveyed have more or less knowledge of physical activity. 28.45% associate it with sport, 25.51% with walking and 18% with leisure compared to 12.54% who affirm that it is any movement where motor skills dominate.

Their perceptions about regular physical activity vary depending on various factors such as cultural context, available resources, local infrastructures, social norms and leisure opportunities. This is supported by figure 2, followed by the comments that result from it.



Source: our interviewee from September 1st to December 7th, 2023

Figure 1. Knowledge of the people surveyed on the practice of physical activities



Source: our interviewee from September 1st to December 7th, 2023

Figure 2. Perceptions of respondents

Around 52.09% of respondents consider the practice of physical activities necessary for the health of the older persons compared to 28.12% who find it risky. Furthermore, 12.50% believe that the regular practice of physical activities is linked to the socio-cultural, economic and health context of the older persons and 7.29% did not give an opinion on the question.

The verbatim reports of older persons allow us to better understand their perception of physical activities and the various factors that influence these points of view:

Q.L. aged 71:

"It is necessary for older persons to practice physical activities. This is beneficial for everyone's health but also for everyone's living conditions."

This speech clearly expresses a positive vision of physical activity, particularly for its benefits on health and quality of life. Indeed, regular exercise plays a key role in maintaining the physical and mental health of older persons.

Y. U: 68 years old:

"You have to move to maintain your physical abilities. This is why I regularly go to work on my agricultural farm. For me by doing it, I'm doing physical activities."

Here, YU evokes an often-forgotten reality: physical activity is not limited to sports, but also includes everyday tasks, such as agricultural work. Thus, such activity can significantly contribute to maintaining good physical fitness in older persons. This point of view highlights a more natural approach to physical activity.

Z.P. 76 years old:

"Physical activity at our age is highly risky. It concerns young people who still have the strength. If it was useful, the authorities would encourage it to retirees like us."

Here, this participant expresses fears about the practice of physical exercise, perceived as dangerous at an advanced age. Certainly, aging leads to the weakening of physical functions, however, the negative perceptions of this respondent may be based on false ideas and a lack of information concerning the risks linked to physical activity.

These speeches collected make it possible to summarize the perception of the respondents.

3.2. Policies and Strategies Put in Place to Promote Physical Activity among Older Persons

The verbatim reports on policies and strategies reveal a lack of concrete measures to encourage older persons to practice physical activities.

H.L. aged 71: *"Naturally, rural areas often provide a natural environment conducive to practicing outdoor physical activities, such as hiking, cycling or gardening. Colleagues living in these environments can benefit from these opportunities and consider their environment as an advantage for the practice of physical activities."*

H.L talks about the importance of the environment in the practice of physical activity. For example, in rural areas, there are numerous opportunities to practice outdoor activities. This environment then promotes an active lifestyle among older persons. However, the absence of formal programs and supervision in these areas remains an obstacle to the full use of these natural resources.

In the village, when an older person runs or walks quickly, it portends the existence of danger. Revered **Mrs. T. K. widow aged 69 years**. She goes on saying that:

"For reasons of sociability, seeing an older person running in the village is scary and attracts the attention of others. So, there is no lack of awareness and encouragement, we prefer not to get involved."

This discourse highlights sociocultural obstacles to physical activity. In some communities, older persons do not feel comfortable engaging in physical activities in public, which can discourage their participation. Social

norms therefore often play a role in the decision to participate or not in sporting activities.

Q.P. aged 64, teacher: *"As a young girl in high school, I played sports. Today I want to continue. But, no suitable infrastructure such as green spaces and sports facilities accessible to people of my age, is put in place by public policies."*

This sixty-year-old highlights here a major structural problem: the lack of adapted infrastructure for the older persons. In Africa, the lack of appropriate facilities is one of the main barriers to physical activity for older persons. This shows that public policies should focus on creating spaces specifically designed for the needs of older persons.

The emptiness of devices to encourage the regular practice of physical activities recurs in all the speeches collected.

This is the case for the actors interviewed.

T.D., an official of the National Leisure Directorate:

"Sport is a leisure activity serving development. It constitutes a real opportunity for sustainable human development in our country. Aware of this, the State set up in 2016 a Support Program for the Promotion of Mass Sport for All. But, due to lack of funding and additional resources, this program did not have the expected results".

The lack of financial support, mentioned here by TD, is a recurring problem in underdeveloped countries. This shows that, despite the good intentions of public policies, the absence of financial resources limits the effective implementation of development programs.

3.3. Challenges and Opportunities Linked to population Aging and Sustainable Human Development

Aging offers enormous potential in terms of increased wealth for future generations. This represents an opportunity for Africans, says **L.M., serving at the Ministry of Employment and Social Protection:**

"Aging will have a deep impact on human development. And this will have to attract more and more attention from our authorities to benefit from the long wisdom of elders. By creating a secure environment conducive to their development, seniors will continue to guarantee stability in families."

This participant gives an optimistic perspective on aging, seen as an asset for society. When older persons remain active and integrated into society, they can continue to contribute to community stability and development.

For T.Y., working at the Ministry of State in charge of Sports, the main objective of the ministry is to develop and encourage the population's participation in sports and in particular to make it accessible to young people, women and vulnerable people. However, he adds:

"As the phenomenon of population aging is relatively new in Africa, a general reorganization of development strategies and policies is necessary to effectively respond to the needs of older persons in terms of practicing physical and sporting activities."

Instead of looking at aging in terms of a provider of chronic diseases, those interviewed see it more as a second chance for the country.

Y.T., club leader:

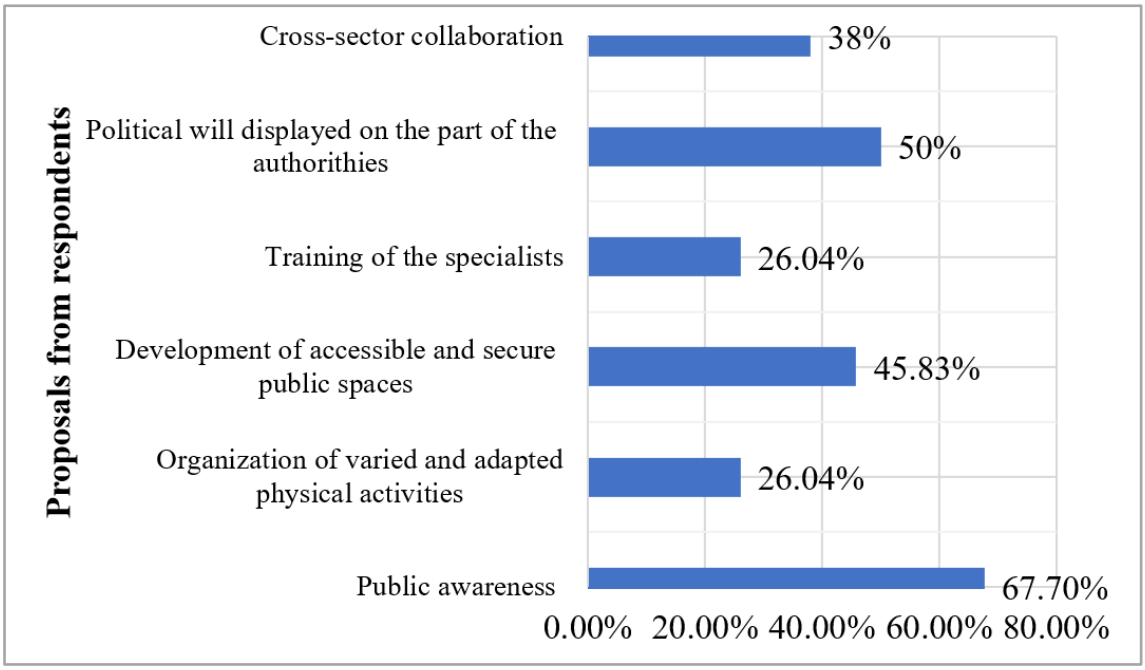
"Public authorities must take advantage of the aging of the population and ensure that older persons remain integrated into society for sustainable human development. Aging becomes a problem when adaptation actions are not taken early. The situation in the West should inspire decision-makers to reorganize all sectors of development, education, culture, health, social security, traditional games and leisure."

This club leader emphasizes the importance of anticipating the needs of older persons in order to better integrate them into society. Their inactivity is often the result of a lack of adaptation policies. This suggests that for aging not to be perceived as a burden, authorities must act upstream by developing strategies that meet the specific needs of older persons.

To promote the practice of physical activities and age well in order to benefit the community from the skills of older persons, all of the respondents made several proposals grouped into six sections in Figure 3.

The data in figure 3 highlights that 67.70% of the responses are in favor of raising awareness among the population.

50% of responses invite the authorities to make a real commitment by developing specific programs for the older persons. 45.83% propose the development of public spaces. 38% of responses are in favor of developing collaborative policies between the different ministries and stakeholders involved in promoting physical activity among older persons.



Source: our interviewee from September 1st to December 7th, 2023

Figure 3. Proposals from respondents

This collaboration, according to the speakers, will make it possible to mobilize resources and put in place concerted initiatives to encourage the participation of older persons in leisure activities and other activities useful to the development of "crowned" heads.

Finally, for sustainable development, 26.04% of respondents call for the training of specialists in aging.

4. Discussion

4.1. Perception of Stakeholders Regarding the Practice of Physical Activities by Older Persons

The results of this research show that the entire population surveyed considers that regular physical activity is beneficial for health. This can be superimposed on the data from Thémés work [9] on the perception of physical activity prescribed by the general practitioner within a sample of soldiers from the Brest Naval Base. In his work, the author establishes a correlation between physical activity and health in 82.76% of the soldiers interviewed.

Bherer, Erickson and Liu-Ambrose showed that for many people, physical exercise is seen as an essential means of healthy aging. Conversely, inactivity is often associated with more difficult aging and increased health problems [10]. At the same time, it appears that the lack of knowledge about the benefits of physical activity, as well as the absence of appropriate advice and supervision, constitute major obstacles to regular practice. This has been highlighted in several studies, including that of Franco and colleagues, who identified these barriers in older persons with chronic illnesses after a rehabilitation program [11]. Perrot goes further by explaining how these factors influence physical activity levels in older persons [12].

In a survey, the main reasons for not practicing Physical Activity cited by those over 60 were illness, the feeling of being too old, and a lack of interest in sports [13]. Health problems such as osteoarthritis and cardiovascular problems are the cause most cited by older persons as a barrier to practice [14].

Certain obstacles, although not mentioned by our respondents, are widely recognized in scientific studies. For example, the fact that practice locations are far away and transportation difficulties are often cited as obstacles to physical activity among older persons [15]. Facility security also plays an important role. Many feel anxious about traveling to places they perceive as dangerous, whether because of the possibility of attacks or the risks associated with road traffic [16]. Additionally, the fear of falling is a major concern that prevents many older persons from exercising, as they fear falls and possible injuries that could result from them [15].

4.2. Policies and Strategies Set up to Promote Physical Activity among Older Persons

The respondents affirm that in Côte d'Ivoire, there is neither a policy developed for the practice of physical activities for older persons, nor coherent strategies put in place in the interest of older persons with a view to regularly practicing physical activities. In this sense, the results of this research are identical to those of Prévot-Ledrich & al. [17]. In their study, these authors realize that there is no overall public policy to promote physical activity in France. Conversely, the general literature has

shown the existence of several chronic disease prevention plans. Thus, the "aging well" plan proposes specific measures to promote Physical Activity among people aged 55 to 75. Among these measures we find: the establishment of a directory of sports associations offering activities for this population, financial support from sports federations, the evaluation of the physical abilities of this population and training of professionals [18].

The "National Nutrition" health plan combines nutritional goals with specific recommendations for physical activities for older persons. This approach aims to simultaneously improve diet and physical activity, which is essential for maintaining the health and well-being of older persons [19].

As for the report "regaining freedom of movement", it proposes concrete measures for the promotion of physical activities among vulnerable subjects [20]: specific promotion within retirement homes, training of health professionals in prescription and monitoring, establishment of a system of sport-health tickets or coupons for people in precarious situations suffering from chronic illness, with disabilities based on individual financial aid identified by the sport-health network, communicating about this financial aid. Furthermore, certain fun and social strategies such as dance, tai chi, and group gymnastics are used to encourage seniors to regularly participate in physical activities [21]. These activities are not only enjoyable but also foster social connections, making regular exercise more appealing.

Supervision by a professional and participation in adapted activities are described as motivators in a study of elderly persons with functional limitations [22]. Knowing that there is expert guidance and engaging in activities tailored to their needs can greatly enhance motivation for older adults.

Additionally, promotion and accessibility to adapted programs were noted as motivators in a multicultural cohort study [23]. Making these programs visible and easy to access helps motivate seniors from diverse backgrounds to stay active.

For older persons with specific needs due to their pathologies, professional and reassuring supervision appears essential. Personalized support from professionals not only addresses their unique challenges but also provides the confidence needed to participate fully in physical activities.

4.3. Challenges and Opportunities Linked to Population Aging and Sustainable Human Development

Demographic aging, instead of being dramatic, appears to respondents to be an opportunity that communities must seize to contribute to sustainable human development. For these respondents, it is also a challenge to ensure that people of all ages remain integrated into society and to give them the means to participate. Integrating aging is therefore one of the priorities to ensure that it is not left aside when establishing policies in any area. This positive vision regarding human aging and its consequences is mixed.

Indeed, according to Paré [24], this paradigm results in the adoption of various measures to fight poverty, reduce social inequalities, manage and protect natural resources, as well as adapt modes of production and consumption. It examines how social transformations influenced the standard of living of Quebecers between 1986 and 2016, showing that demographic growth is not the only determining factor. His research indicates that to make development sustainable, it must be both creative and inclusive. Thus, the aging of the population can be seen as an opportunity to better understand and address the injustices in our society.

Aging questions society and helps it ensure that old age is not synonymous with exclusion [25]. A society cannot maintain its standard of living when a rapidly increasing proportion of its members are dependent on others and when their opportunities to participate and make their own contributions according to their abilities are limited. Older persons have accumulated expertise, knowledge and experience in ways that were not possible in the past. They can therefore make a great contribution to society.

On the other hand, the data from this study do not go in the same direction as the analysis by Charbit & Gaimard [26]. In their research, they sometimes underscore that rapid demographic growth is considered a major obstacle to economic development; sometimes they affirm that certain problems of underdevelopment show that the demographic variable only plays a minor role. Policies on active aging, according to their conclusion, should focus on involvement in life in general, rather than reducing the concept to economic participation or involvement in activities with high physical intensity.

5. Conclusions

To conclude, this article highlights the challenges of demographic transition and the promotion of physical activity among older persons in Côte d'Ivoire for sustainable human development. In a world with limited resources and facing the challenges of climate change, such growth is debated. The recommendations proposed here can serve as a basis for the development of policies and programs aimed at improving the quality of life of older persons and promoting their social inclusion. Unanimously, the reflection underlines that physical activities can contribute to improving well-being, preventing chronic diseases, maintaining mobility and autonomy, as well as promoting positive social interactions. Encouraging public authorities to resolutely commit to this and raising media awareness on the importance of promoting physical activity among older persons by broadcasting positive messages highlighting inspiring examples are necessary.

Applicable Notes

The Ivorian government must provide older persons with infrastructure adapted to their needs, such as fitness trails, gymnasiums equipped with low-impact equipment and secured green spaces.

Municipalities must create local parks with accessible facilities (ramps, benches, flat paths) and clear signage to encourage walking and other physical activities.

The ministry in charge of sports must establish certified training programs for physical educators, so that they acquire specific skills for working with older persons. These programs may include modules on managing age-related physical limitations, preventing falls, and motivating older adults to stay active.

Author Contributions

Concept and design of the study: Antoine DROH and Moustapha SYLLA

Data acquisition: BEVA BI Innocent, DROH B. Méasseu Débora

Analysis and interpretation of data: Antoine DROH and Moustapha SYLLA

Writing of the manuscript: BEVA BI Innocent, DROH B. Méasseu Débora

Critical revision of the manuscript with important intellectual content: Antoine DROH and Moustapha SYLLA

Statistical analysis: Antoine DROH and Moustapha SYLLA

Administrative, technical and material support: Antoine DROH and Moustapha SYLLA

Supervision of studies: Antoine DROH and Moustapha SYLLA

Conflict of Interest

There is no conflict of interest in this study.

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REFERENCES

[1] Parant A. "The world population: trends and perspectives," Futuribles, vol. 452, no. 1, pp. 63-85, 2023.

[2] Pison G., Dauphin S., "Demographic challenges and perspectives in France 2020-2050: A state of knowledge." Working paper, 2020, 59p. https://hal.science/hal-03019287.

[3] Ladame V. "Intra-family abuse of the elderly." Trascontinental Human Rights Institutions, no. 10, 2021. DOI: 10.25965/trahs.3695.

[4] Collinet C., Delalandre M. "Physical and sports activities, and healthy and active aging: Establishing a frame of reference for public action." International Review for the Sociology of Sport, vol. 52, no. 5, pp. 570-583, 2017.

[5] Paris M, Beaulieu M, Garon S, Bigonnesse C. "According to the time, the manner," or how to position "Age-friendly cities" in the evolution of international frameworks on aging? Canadian Review of Social Policy, no. 68/69, pp. 10-23, 2012.

[6] World Health Organization. "World report on aging and health." Geneva: World Health Organization; 2016.

[7] Barredo L, Agyepong I, Liu G, Reddy S. "Enabling everyone to live healthily and promoting well-being for all ages." UN Chronicle, vol. 51, no. 4, pp. 9-10, 2015.

[8] World Health Organization. "The global network of age-friendly cities and communities: A retrospective of the last 10 years, and a perspective for the next decade." Geneva: World Health Organization; 2018.

[9] Thémé M. H. "Perception of physical activity, and of physical activity prescribed by a general practitioner, within a sample of military personnel at the Naval Base of Brest," 2018, 77p.

[10] Bherer L, Erickson KI, Liu-Ambrose T. "A review of the effects of physical activity and exercise on cognitive and brain functions in older adults." Journal of aging research, vol. 2013, no. 1, pp. 657-508, 2013. DOI:10.1155/2013/657508.

[11] Franco M. R, Tong A, Howard K, Sherrington C, Ferreira P. H, Pinto RZ, et al. "Older people's perspectives on participation in physical activity: a systematic review and thematic synthesis of qualitative literature." British journal of sports medicine, vol. 49, no. 19, pp. 1268-1276, 2015. https://pubmed.ncbi.nlm.nih.gov/25986931/

[12] Perrot A. "The theory of cognitive enrichment through physical stimulation: from traditional programs to combined approaches", Ph.D. thesis, University of Paris-Saclay; 2021.

[13] Mignon P. "Benchmark - Sports practice in France: developments, structuring, and new trends." Informations sociales, no. 1, pp. 10-13, 2015.

[14] Desveaux L, Goldstein R, Mathur S, Brooks D. "Barriers to Physical Activity Following Rehabilitation: Perspectives of Older Adults with Chronic Disease." Journal of aging and physical activity, vol. 24, no. 2, pp. 223-233, 2016.

[15] Moschny A, Platen P, Klaassen-Mielke R, Trampisch U, Hinrichs T. "Barriers to physical activity in older adults in Germany: a cross-sectional study." International Journal of Behavioral Nutrition and Physical Activity, vol. 8, pp. 1-10, 2011.

[16] Chaudhury H, Mahmood A, Michael YL, Campo M, Hay K. "The influence of neighborhood residential density, physical and social environments on older adults' physical activity: An exploratory study in two metropolitan areas." Journal of Aging Studies, vol. 26, no. 1, pp. 35-43, 2012.

[17] Prévot-Ledrich J. Van Hoye A. Lombrail P. Lecomte F. & Vuillemin A. "Overview of French public policies promoting physical activity beneficial for health." Public Health, no HS, pp. 25-31, 2016.

[18] Julia, C., Hercberg, S. “Politique nutritionnelle de santé publique en France: le programme national nutrition-santé”. Traité de santé publique. pp. 329-334, 2016.

[19] Anton SD, Manini TM, Milsom VA, Dubyak P, Cesari M, Cheng J, Daniels M. J, Marsiske M, Pahor M, Leeuwenburgh C, Perri M. G. "Effects of a weight loss program combined with exercise on physical function in overweight older women: a randomized controlled trial." Clinical interventions in aging, pp. 141-149, 2011.

[20] Desveaux L, Goldstein R, Mathur S, Brooks D. "Barriers to Physical Activity Following Rehabilitation: Perspectives of Older Adults with Chronic Disease." Journal of aging and physical activity, vol. 24, no. 2, pp. 223-233, 2016.

[21] Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. "Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy." The lancet, vol. 380, no. 9838, pp. 219-229, 2012.

[22] Gennuso KP, Gangnon RE, Matthews CE, Thraen-Borowski KM, Colbert LH. "Sedentary behavior, physical activity, and markers of health in older adults." Medicine and science in sports and exercise, vol. 45, no. 8, pp. 1493-1500, 2013. DOI: 10.1249/MSS.0b013e318288a1e5.

[23] Taylor D. "Physical activity is medicine for older adults." Postgraduate medical journal, vol. 90, no. 1059, pp. 26-32, 2014. DOI: 10.1136/postgradmedj-2012-131366

[24] Paré PO. "Evolution of the impacts of five social transformations on the progression of the standard of living of Quebecers from 1986 to 2016." master's thesis, 150p, 2021.https://hdl.handle.net/20.500.11794/70285.

[25] Fontaine R. & Pennec S. "Social inequalities in old age." Gerontology and Society, vol. 42, no. 162, pp. 19-36, 2020,

[26] Charbit Y. & Gaimard M. "Is population growth a hindrance to development? The demographic bomb in question," 2015, 173-227.