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RESEARCH ARTICLE

ADAPTED PHYSICAL ACTIVITIES AND GERONTOLOGY IN THE REPUBLIC OF COTE D'IVOIRE: STUDY OF DETERMINANTS AMONG ADULTS AGED 50 AND OVER IN ANYAMA

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Abstract

Objective: Older people are physically less active and more sedentary than all other age groups because they are frail. They also have functional limitations or suffer from chronic illnesses.Yet physical activity (PA) slows down age-related physiological changes, improves the physical, mental and social health of older people and helps prevent chronic diseases associated with old age. The aim of this cross-sectional study was to determine the level of knowledge and regular practice of PA and to identify the determinants of regular PA practice (factors that encourage or provoke reluctance to practise PA) among people aged over 60 in the Anyama commune (Abidjan, Côte d'Ivoire).
Methods:An administered questionnaire was used to show the level of knowled ge,practice and determinant of regular physical activity among 213 elderly peo ple in the Anyama commune.
Results:The sample comprised 120 (56.3%) men and 93 (43.7%) women. The results showed that general knowledge of physical activity was low among 188 (88.24%)of the respondents,including 101(47.4%)men and 87(40.84%) women. Practice levels were also low among 112(52.58%)men and 87 (40.84%) women respectively.Poor health,lack of encouragement from family and friends, unsafe traffic conditions, lack of suitable facilities and professional constraints are the main factors holding back exercise among the elderly.
Conclusion: It is therefore necessary to take action to raise public awareness of the benefits of regular physical activity and to improve the physical activity env ironment in order to increase the level of physical activity among the elderly.

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Introduction:-

Originally, the human body was designed to perform movements because man needed to engage in physical activity as the only way to feed himself through hunting and gathering [1]. Today, with modernisation and changes in our living environment, physical activity is no longer a necessity of daily life. The way we work has changed, leading to a drop in physical activity levels [2] and an increase in sedentary lifestyles [3].

Physical activity is an essential element in maintaining good health and an optimum quality of life, particularly in adults aged 50 and over [4]. Regular physical activity helps to prevent non-communicable diseases and the main causes of morbidity and premature death [5]. It also promotes healthy ageing, i.e., ageing without physical disability and in good health [6]. Regular physical activity can help prevent and manage a number of chronic diseases, such as cardiovascular disease, diabetes and osteoporosis [7]. It can also help to improve mental health, increase life expectancy and promote independence in older people [8]. That's why older people are advised to adopt a healthy lifestyle, including a healthy, balanced diet, sufficient sleep and regular physical activity [9].

However, despite the many known benefits of physical activity, many people in this age group do not reach the recommended levels of physical activity [4]. According to the World Health Organisation (WHO) [10], more than 60% of adults aged over 50 worldwide do not meet recommended levels of physical activity. This is a worrying situation, given that physical inactivity is one of the main risk factors for mortality worldwide [10].

Given the importance of regular physical activity for health, it is important to gain a better understanding of the determinants of physical activity, particularly in older people, especially in sub-Saharan Africa, where the level of physical activity appears to be even lower, notably in Anyama, a suburb of Abidjan in Côte d'Ivoire. It is important to understand the factors that inhibit or encourage people in urban and rural areas such as Anyama to engage in regular physical activity. This understanding will enable effective intervention strategies to be defined in order to encourage people aged over 50 to engage in regular physical activity. The aim of this study was therefore to identify the factors involved in regular physical activity among people aged over 50 in the Anyama commune.

Materials and Methods:-

Type of study:

This was a cross-sectional study conducted in the form of a survey from 7 April to 21 May 2022, in the Anyama commune (suburb of Abidjan)

Participants:

The survey was conducted among adults (men and women) aged 50 and over in the Anyama commune. The sample was determined by the non-random method and the accidental technique so that all men and women encountered in the town of Anyama during the data collection period who met the inclusion criteria were surveyed. A sample of 213 subjects was thus constituted. To be included in the sample, the respondent had to be at least 50 years old, have lived in Anyama for at least 2 years and give written informed consent.

Data Collection Procedure:

Data were collected using a questionnaire. This questionnaire was pre-tested with 20 adults aged over 50 (who were not part of the sample), living in PK18 (a locality in the commune of Abobo, neighbouring Anyama). The pretest ensured that the questions were understandable. Twelve questions were therefore reworded following the pre-test. The questionnaire was administered directly to the respondents by the principal researcher.

Data Collection Tool:

The questionnaire was designed and validated by teacherresearchers at the INJS in Abidjan, specialists in exercise physiology and sports nutrition, with proven expertise in CAP surveys and in questions relating to the assessment of physical activity levels in populations. The questionnaire included 62 questions and was divided into 4 main sections. Socio-demographic characteristics (12 questions); levels of knowledge of physical activity (7 questions); levels of physical activity (18 questions) and determinants of physical activity (25 questions).

The variables:
The variables in this study were: 1) level of knowledge of physical activity; 2) level of physical activity; and 3) determinants of physical activity (25 questions).
The level of knowledge of physical activity was subdivided into two dimensions: the 'definition of physical activity' dimension and the 'benefits of physical activity' dimension.
The level of physical activity comprised three dimensions: 'frequency of physical activity', 'duration of physical activity' and 'body zones targeted by physical activity'.
The 'determinants of physical activity' variable comprised two dimensions: 'factors favouring physical activity' and 'barriers to physical activity'.

Operational aspect of the variables:
The level of knowledge and physical activity and that of the dimensions that make them up were assessed on the basis of two dimensions, good and poor. The questions making up the dimensions were also assessed on the basis of two modalities: 'right answer' or 'wrong answer'. The level of the dimension was considered good when the respondent recorded 80% correct answers. The level of the variable was good when the level of 80% of its component dimensions was good.
The variable determining the practice of physical activity was assessed through its two dimensions: 'factors favouring practice' and 'obstacles to practise'. The recurrence of factors promoting or hindering physical activity was used to identify the determinants of physical activity.

Statistical Analysis:
The data were analysed using SPSS version 21 software. The results were presented in the form of numbers and percentages. The $\chi 2$ proportion comparison test was used to compare the different proportions. The significance level of the tests was set at $p < 0.05$.

Results:-

Socio-demographic characteristics:
The research sample consisted of 213 respondents, 120 (56.3%) of whom were men and 93 (43.7%) women. There were 149 (70.0%) Christians and 56 (26.3%) Muslims. Of these respondents, 158 (74.17%) were living with a partner (married or cohabiting). Two main age groups were identified: the under-50s, who accounted for 120 respondents (56.33%), and the over-60s, who accounted for 93 respondents (43.66%). People living in urban areas accounted for 85.9% of respondents. The income level of 129 (60.55%) respondents was less than 100,000 FCFA/month. Of the total sample, 77 respondents (36.2%) had a university education, while 27% (58 individuals) had a secondary education (Table 1).

Table 1: Socio-demographic characteristics

VARIABLES	NUMBER PERCENTAGE (%)
Gender	
Male	120 (56.3)
Female	93 (43.7)
Marital status	
Married	143 (67.1)
Divorced	18 (8.5)
Widowed	27 (12.7)
Cohabiting	2 (9.0)
Single	23 (10.8)
Age Categories	
50-59 years	120 (56.3)
60-69 years	64 (30.0)
70-76 years	26 (12.2)
Over 70 years	3 (1.4)
Area of residence	
Urban	183 (85.9)
Rural	30 (14.1)
Ethnic group	

Akan	124 (58.2)
Southern Mande	27 (12.7)
Northern Mande	62 (29.1)
Religion	
Christian	149 (70.0)
Muslim	56 (26.3)
Animist	7 (3.3)
Buddhist	1 (5.0)
Educational level	
Primary level	42 (19.7)
Secondary level	58 (27.2)
Higher education level	77 (36.2)
No schooling	36 (16.9)
Professional activity	
Retired	40 (18.8)
Manager and employees	63 (29.6)
Liberal profession	88 (41.3)
Unemployed	8 (3.8)
Housewife	14 (6.6)
Monthly income	
No income	11 (5.16)
[10,000 – 100,000]	118 (55.39)
[100,000 – 500,000]	71 (33.33)
[500,000]	13 (6.10)

Level of knowledge of physical activity and sport

The results of the study revealed that 19 (8.9%) men and 6 (2.8%) women have a good level of knowledge of physical activity (table 2). The proportion of men and women with a low level of knowledge of physical activity was statistically higher (table 2) than that of men and women with a good level (men: 101 VS 19, $p < 0.00$; women: 87 VS 6, $p < 0.00$).

Table 2: Distribution of respondents according to the level of knowledge of physical activity and sport

		MEN	**WOMEN**
VARIABLE	**MODALITY**	**Number (%)**	**Number (%)**
Level of physical activity knowledge	**GOOD**	19 (8.9)	(6) 2.81%
	LOW	101 (47.4) ***	(87) 40.84% ***

*** **: Difference with the number of people in the good category, significant at p < 0.00**

Level of physical activity

Table 3 shows the level of physical activity among respondents. The results show that the level of physical activity was good for 8 (3.75%) men and 6 (2.81%) women respectively. Statistical analysis shows that the proportion of men and women with a low level of physical activity is higher than that of those with a good level ($p < 0.00$).

Table 3: Distribution of respondents by level of physical activity

		MEN	WOMEN
VARIABLE	**MODALITY**	**Number (%)**	**Number (%)**
Level of physical activity	**GOOD**	(8) 3.75%	(6) 2.81% ***
	LOW	(112) 52.58%	(87) 40.84% ***

***** : Difference with the number of people in the good category, significant at p < 0.00**

Positive determinants of physical activity among the over-50s in the Anyama commune

The determinants favouring physical activity among the over-50s are presented in Table 4. Analysis of the results revealed that 126 (59.14) respondents thought that a feeling of pleasure, particularly satisfaction after exercise, could encourage them to take part in physical activity. Then, for 131 (61.5%) of the respondents, improving physical condition, particularly strength, remained an objective. Finally, medical advice and the desire to avoid illnesses were also positive determinants of practice for 80 (37.55%) and 151 (70.89%) respondents respectively (Table 4).

Table 4: Determinants of exercise

Determinants	Number (percentage)
Enjoyment	
Enjoyment of making an effort	75 (35.21)
Sense of satisfaction after exercise	126 (59.14)
Physical fitness	
Improved strength	131 (61.5)
Improved endurance	64 (30.04)
Improved flexibility	37 (17.37)
Medical reason	
Medical advice	80 (37.55)
Willingness to avoid ill health	151 (70.89)
Reduced risk of cardiovascular disease	41 (19.24)
Recognition	
Recognition of personal abilities	50 (23.47)
Love of being with friends	74 (34.74)

Obstacles to physical activity

Analysis of the results relating to obstacles to physical activity shows that road traffic safety and lack of safety are major obstacles for 100% and 86.85% of respondents respectively. The lack of suitable facilities and spaces, the absence of social support, particularly of people with whom to engage in physical activity, and health problems were also obstacles to regular physical activity for 83.56%, 71.83% and 42.25% of respondents respectively (table 5).

Table 5: Obstacles to physical activity

Variables	Number (percentage)
Social support	
No one to do physical activity with	153 (71, 83)
I have to look after my children or family members	22 (10.32)
State of health	
Poor health	66 (30.98)
Suffering from joint problems	90 (42.25)
Traffic safety	
Speeding vehicles	213 (100)

Parking vehicles on the pavement	142 (66.66)
Rubbish on the pavement	133 (62.44)
Insecurity	
High morning crime rate	185 (86.85)
Night-time crime rate	184 (86.85)
Stray animals	126 (59.15)
Street design	
Lack of lighting	182 (85.44)
Lack of place to cycle	155(72.76)
Lack of pavements	184 (86.3)
Aversion	
Practising a physical activity is boring	48 (22.53)
I think the activity is painful	30 (14.08)
Being too old	62 (29.10)
Inconveniences	
Lack of equipment and place to practise PA	178 (83.56)
Lack of financial means	107 (50.23)
Lack of knowledge about how to practise physical activities	162 (76.05)
Obligations	
Professional reasons	81 (38.02)
Social reasons	55 (25.82)
Family reasons	54 (12.67)

Discussion:-

This research, which is one of the first carried out in the Anyama commune, has made it possible to highlight the factors that influence (positively or negatively) the practice of physical activity among people over 50. The importance of such research is justified by the need to promote regular physical activity among people in this age group, who are generally more exposed to metabolic diseases, one of the main causes of which is a sedentary lifestyle. This research will enable us to identify the obstacles to greater participation by adults aged 50 and over in physical activities adapted to their age and health profile.

Level of Knowledge:

This research has revealed a low level of knowledge about physical activity among the people surveyed. This low level can be explained by the low level of education of the populations surveyed. In our study, 36.2% of respondents had a university education.

The level of knowledge of physical activity can play a crucial role in the practice of physical activity. Indeed, a good level of knowledge about the benefits of physical activity can encourage greater participation by the population [11]. In the Anyama commune, the present study revealed that the level of knowledge of physical activity was low among the respondents. This situation could partly explain the low level of participation in physical activity among the over-50s. How can people, especially the elderly, take regular physical activity if they are not aware of its benefits?
It is also important to note that knowledge alone is not enough to change behaviour. Some authors, such as Maher et al.[12], have shown that even if individuals are aware of the benefits of physical activity, they may not be able to translate this knowledge into action. It is therefore important to examine other factors that could influence their physical activity levels.

Level of Physical Activity:

The level of physical activity in Anyama appears to be below that recommended by the WHO [15]. This result is in line with previous research by Hallal [1], who showed that participation in physical activity tends to decline with age.

This may be due to a number of factors that act as barriers to physical activity, including negative attitudes toward physical activity and environmental factors.

In this study, the elderly people studied generally had a low level of physical activity, regardless of their level of education. This result runs counter to previous observations which have shown that level of education is a determining factor of the participation in physical activity and sport. Contrary to the results of the present study, Giles-corti and Donavan [2] revealed that in the Australian population aged 18 to 59, the level of education and household income were positively correlated with the level of physical activity. According to these authors, compliance with public health recommendations in terms of physical activity was 17% to 26% higher among those with university certificates or diplomas compared with those who had not completed secondary education. In developed countries, people are aware of the importance of physical activity. Individuals who perceive the benefits of physical activity are more likely to engage in it [13].

It is also important to stress that in developed countries, the living environment is designed to facilitate the practice of and access to physical activity. It should therefore be noted that environmental factors can also have a positive influence on physical activity. Individuals are more likely to take part in physical activity if their environment is conducive to it [14]. It is therefore important to examine how the environment in Anyama influences physical activity.

Determinants of Physical Activity:
This research has identified several determinants of physical activity among adults aged 50 and over in Anyama. Among these determinants, physical health is a key factor. Participants in good health were more likely to participate in physical activity than those with health problems [15]. This suggests that interventions to promote physical activity among adults aged 50 and over in Anyama should take into account the promotion of health status through regular physical activity.

Several determinants have influenced the practice of physical activity among adults aged 50 and over in the municipality of Anyama. These determinants can be grouped into four categories: individual, social, environmental, and political [16]. Individual determinants include factors such as age, gender, health status, and education levels, which can have a significant impact on the practice of physical activity [13]. Social determinants include factors such as social support, cultural norms, and attitudes toward physical activity [14]. Environmental determinants include factors such as access to recreational spaces, safety, and environmental quality [17]. Finally, political determinants include factors such as public health policies, physical activity promotion programs, and community initiatives [16].

Barriers to Physical Activity:
Several barriers hindered the participation of physical activity among adults aged 50 and over in the commune of Anyama. These barriers can be classified into three categories: individual, social, and environmental [18]. Individual barriers that negatively influence participation include lack of time, fatigue, illness, and lack of motivation [14]. Social barriers include factors such as lack of social support and negative prejudices against physical activity [17].
This research revealed that the environment plays an important role in the participation of physical activity. Indeed, when people have access to safe and attractive spaces for physical activity, they are more likely to participate in physical activity [19].

Thus, lack of access to recreational spaces, insecurity, poor environmental planning, and road safety are factors likely to have a significant negative impact on physical activity [16], as was observed in this study.
The results of this research suggest the implementation of interventions aimed at promoting physical activity among adults aged 50 and over in Anyama. It is also necessary for local development policies to focus on improving the physical activity environment.

Conclusion:-

This researchhas revealed that the level of knowledge and practice of physical activity among adults aged 50 and over is low. This practice is positively influenced by post-practice satisfaction, the desire to improve physical fitness, medical advice, and the desire to avoid illness.
Road traffic safety and insecurity, the lack of suitable equipment and spaces, and health problems are the main barriers to PA practice. It is important to develop spaces for physical activity and promote physical activity among this age group in order to popularise and improve the health of the population.

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Conflict of Interest:
None.

Author Contributions:
- KOUASSI Jean-Paul: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing, Project Administration
- SINH Josi-Noelline: Methodology, Validation, Writing – Original Draft Preparation, Writing – Review & Editing, Supervision, Project Administration
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- KOUAMÉ N'Guessan: Methodology, Supervision

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