

Perception on Physical Activity for the Elderly among Secondary School Teachers in Enugu State of Nigeria

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Abstract

In recognition of the need for people to appreciate that functional ability enables well-being in older age, the researcher embarked upon a descriptive survey study to determine the perception on Physical Activity (PA) for the elderly, among Secondary School Teachers in Enugu State, Nigeria. Three research questions and six hypotheses guided the study. The population for the study was 7,972 Secondary School teachers while the sample for the study was 1,071 secondary school teachers drawn from the 293 Government owned Secondary Schools in the six Education Zones in Enugu State, through a multistage sampling technique. The instrument used for data collection was a self-structured questionnaire. Frequency, percentage and mean were used to answer the research questions, while chi-square and t-test statistics were respectively used to test the applicable hypotheses at .05 level of significance. Findings from the study revealed that secondary school teachers in Enugu State of Nigeria had low perception on the benefits and forms of physical activities for the elderly, but had high perception on the factors associated with elderly's participation in physical activities in Enugu State. There are no significant differences in the teachers' perception on benefits of physical activity, forms of physical activity and factors associated with participation in physical activity, based on gender. Although, location did not significantly influence the teachers' perception on benefits and forms of physical activity for the elderly, but it significantly influenced the teachers' perception on factors associated with participation in physical activities by the elderly. Some recommendations were made, including that: Stakeholders should design educational and social programmes that are aimed at improving people's perception on the relationship between physical activity and healthy ageing.

Keywords: Functional Ability, Physical Activity, the Elderly, Healthy Ageing, Perception.

Introduction

Ageing is a natural process, which although is believed to begin from conception but it is generally accepted as the period in life when the bodily functioning begins to decline. The onset of ageing process varies from one person to another; depending on both genetic and environmental factors. No wonder Hall and Batey (2008) explained that ageing is a relative term. Most developed countries have generally accepted the chronological age of 65 years as the definition of an 'older person' (World Health Organisation (WHO) 2009). Bringing it down to specifics, this is also the age at which retirement from active employment is generally expected in Nigeria. In addition to chronological age, the age of a person can be defined in many ways, encompassing biological, psychological and socio-cultural processes (Barrett and Cantwell 2007). Physical factors such as facial looks, hair color and body image have been highlighted in the literature as defining features of ageing. Mental alertness and mobility have also been considered particularly important criteria in defining an older person (Musaiger and D'Souza, 2009). On a general note however, aging past the sixth decade is accompanied commonly by declines in functional ability or the ability to complete functional tasks. These declines have been attributable to symptoms of chronic disease and declines in musculoskeletal and cardiovascular functioning.

Healthy old age, or what is often referred to as "healthy ageing" (HA) is characterized by good health in advanced years with little or no disability, a high level of personal satisfaction, active involvement in life, meaningful pastimes, sustained powers of perception, good motor skills, psychological well-being and a feeling of goal achievement (Beard and Petitot, 2011). According to Peel, Bartlett and McClure (2004) Healthy Ageing starts at birth with our genetic inheritance, which can be influenced by experiences in the womb, and by subsequent environmental exposures and behaviours. On the other hand, WHO (2015) considers *Healthy Ageing* in a more holistic sense, one that is based on life-course and functional perspectives and defines Healthy Ageing as the process of developing and maintaining the functional ability that enables well-being in older age.

Meanwhile, Physical Activity has been identified as a major contributory factor that assists ageing people to achieve functional ability which is a sine qua non for "Healthy Ageing" (HA) because PA protects against some of the most important health conditions in older age. Specifically, King (2001) noted that (PA) in older adults

improves pathology, impairment, and functional limitations, including muscle strength, aerobic capacity, flexibility, balance, walking, and physical function.

At this point, it becomes pertinent to highlight that there are types/intensity of physical activities considered to be ideal for the elderly. Accordingly, the Active Ageing toolkit (<http://www.aginblueprint.org/>) laid out four components of a physical activity programme for older adults to include: Cardio-respiratory, flexibility, strength and balance activities. Cardio-respiratory (aerobic) physical activities improve endurance and decrease chronic disease and mortality; Flexibility activities improve range of motion for activities of daily living and possibly prevents pain or injury; Strengthening activities improve muscle and bone mass and reduce fall risk; while balance activities are designed to improve postural stability and gait, and reduce risk/fear of falls.

Expectedly, participation in regular PA and the benefits therefrom, among older adults are being influenced by certain associated factors. These factors have been identified by King (2001) as correlates of PA in older adults. They include: psychological/demographic correlates such as overweight status and living alone. Others are programme related factors associated with PA such as the fact that older adults prefer activities that are convenient, as well as lower, rather than higher intensity activities (King, 2001). Humpel, Owen and Leslie (2002) have also identified the role of environment among other associated factors; noting that older adults living in neighbourhoods with problems (such as, heavy traffic, noise, trash, poor lighting and lack of public transportation) experienced greater loss of physical function over 1-year period; relative to older adults living in neighbourhoods with no problems (Balfour and Kaplan, 2002).

It is necessary to gain an insight and understanding into how PA which facilitates older people's health are perceived by the public. According to Wehmeier (2010), perception is an idea, a belief or an image one has as a result of how one sees or understands a thing or situation. Consequently, Arnold-Cathalifaud, Thumala, Urquiza and Ojeda (2008) and Musaiger and D'Souza (2009) asserted that older people are generally perceived as sickly, weak or ill, with health worries, requiring check-ups and fearing death. Given this mindset, it is possible that the elderly are perceived to be too weak to engage in PA. Therefore, it is important to determine the perception of secondary school teachers on PA for the elderly, based on the premise that secondary school teachers being opinion moulders are in a position to impact on people's adoption of positive lifestyle; once they correctly perceive the need and effect of PA on HA. Furthermore, their perception on the issue would likely influence the level of support elderly people receive from the public, towards their participation in PA. Hence, the specific purpose of the study was to determine the secondary school teachers' perception on:

1. benefits of physical activity for the elderly,
2. forms of physical activity for the elderly,
3. factors associated with participation in physical activity by the elderly.

Based on the specific purpose of the study, the following research questions and hypotheses guided the study.

1. What are the benefits of PA for the elderly as perceived by Secondary School Teachers in Enugu State Nigeria?
2. What is the perception of Secondary School Teachers in Enugu State Nigeria on forms of PA for the elderly?
3. What is the perception on factors associated with participation in PA by the elderly, among Secondary School Teachers in Enugu State, Nigeria?

The following hypotheses were tested at .05 level of significance; at the appropriate degree of freedom.

H₀₁. There is no significant difference in the benefits of PA for the elderly as perceived by secondary school teachers in Enugu State, Nigeria by gender.

H₀₂. There is no significant difference in the perceived form of PA for the elderly among secondary school teachers in Enugu State, based on gender.

H₀₃. There is no significant difference in the mean ratings of secondary school teachers in Enugu State perception on factors associated with participation in PA by the elderly, by gender.

H₀₄. Location does not have significant influence on the secondary school teachers' perception of benefits of PA for the elderly.

H₀₅. Significant difference does not exist in the perception of secondary school teachers on forms of PA for the elderly, based on location.

H₀₆. There is no significant difference in the perception of secondary school teachers in Enugu State, on the factors associated with participation in PA by the elderly, by location.

Method

The descriptive survey design was used for the study. The population for the study was 7,972 teachers in the 293 government owned (public) secondary schools in urban and rural areas of Enugu State (Post Primary School Management Board (PPSMB), 2018). The sample used for the study comprised of 1,071 secondary school teachers, made up of 210 males and 861 females. This sample was got from a multi stage sampling procedure. The instrument used for data collection was the questionnaire titled, Physical Activity for Healthy Ageing (PAHA), which was designed by the researcher, based on related literature reviewed. The validated questionnaire has two sections (A and B). Section A contained 2 items which sought information on the bio-data of the respondents while Section B, has three parts, containing 12, 24 and 11 respectively (totaling 47) questionnaire items, that addressed the three research questions for the study.

The instrument was validated by three experts, including: two from the Department of Health and Physical Education and one in Measurement and Evaluation, all in the Faculty of Education, Enugu State University of Science and Technology (ESUT), Enugu. Twenty students each were selected from one school each in both Enugu and Awgu zones (representing urban and rural locations, respectively); but which were not among the schools sampled for the study. The Kuder Richardson’s formular 20 (K-R₂₀) was used to test the reliability of the items on knowledge of benefits of PA because they are dichotomous (Section B, Part I); while Cronbach’s Alpha (R) was used to test the reliability of the items in Section B (Parts II and II) because they are polychotomous; yielding the internal consistency values of 0.82 (for K-R₂₀) and overall 0.79 (Cronbach’s Alpha) respectively. The reliability coefficient were considered high and good for the study, based on Ogbazi and Okpala’s (1994) suggestion on 0.60 for good instruments. The 1,071 copies of the questionnaire were utilized for the study. While frequency counts and percentage scores were used to answer research question one on perceived benefits of PA for H.A, the arithmetic mean was used to answer research questions two and three on forms of PA and factors associated with participation in PA by the elderly, respectively. Meanwhile, only the percentage score for correct responses were considered (B part I). Any score less than 50% is considered low, while any score 50% and above is considered high. On the other hand, a four-point scale was used for section B, parts II and III and is rated as follows: Very high (VH) = 4 points; High (H) = 3 points; Low (L) = 2 points; Very Low (VL) = 1 point. The arithmetic mean was obtained by computing the sum of the nominal values assigned to the 4 point rating scale thus: 4 + 3 + 2 + 1 = 10/4 = 2.50. Mean 2.50 and above is regarded as high while any mean below 2.50 is regarded as low. While hypotheses 1(H₀₁) and 4(H₀₄) were tested using chi-square; hypotheses 2, 3, 5, and 6(H₀₂, H₀₃, H₀₅ and H₀₆) were tested with t-test statistic, all at .05 level of significance and at appropriate degree of freedom.

Results

Table 1: Frequency and percentage distribution on perceived benefits of PA for the elderly among Secondary School Teachers in Enugu State n = 1,071

S/N	Items	Freq.	%	Decision Level
1	PA improves walking.	553	51.63	High
2	PA improves physical function capacity.	609	56.86	High
3	PA during work or leisure reduces the risk of heart attack.	462	43.14	Low
4	PA reduces colon cancer	281	35.57	Low
5	Reduces osteoporosis	618	57.70	High
6	PA maintains muscle strength	598	55.84	High
7	PA improves mental capacity	422	39.40	Low
8	PA improves cognitive ability	399	27.25	Low
9	PA improves flexibility	586	54.72	High
10	PA is associated with lower risk of stroke.	288	26.89	Low
11	PA improves self-esteem	359	33.52	Low
12	PA reduces anxiety and depression	465	43.42	Low
Average		478	44.63	Low

Table 1 showed that the teachers had high perception on items 2,5,6,7 and 9 (including: improvement in walking, physical function, reduced osteoporosis, muscle strength and flexibility) as benefits of PA for the elderly. They had low perception on other items: 3,4,8,10,11 and 12 (including: reduction in risk of heart attack, colon cancer and improvement of mental capacity and cognitive ability). On the average the teachers perceived lowly the benefits of PA to the elderly (44.63%).

Table 2: Mean ratings of secondary school teachers' perception on forms of PA for the Elderly.

S/N	Items	\bar{x}	SD	Decision
13	Walking	2.89	1.07	H
14	Brisk walking	2.94	1.00	H
15	Dancing	2.89	1.07	H
16	Running	2.38	1.12	L
17	Climbing of stairs	2.32	1.04	L
18	Jogging	2.87	1.04	H
19	Jumping rope	2.12	0.95	L
20	Playing indoor card game	2.64	1.05	H
21	Biking	1.95	0.94	L
22	Swimming	2.14	1.07	L
23	Playing soccer	2.96	1.06	H
24	Playing basketball	2.37	1.06	L
25	Playing handball	2.32	1.04	L
26	Cross Country race	2.27	1.08	L
27	Weight lifting	2.15	1.05	L
28	Gardening	2.68	1.13	H
29	Performing chores like washing plates	2.50	0.96	H
30	Doing sit-ups	2.29	1.04	L
31	Balance activities such as pivot turns	2.27	1.11	L
32	Doing strengthening exercise like pull-ups	2.30	1.05	L
33	Doing flexibility exercises like some bends	2.09	1.08	L
34	Endurance activities like pushups	2.29	1.12	L
35	Balance training activities such as walking backwards	2.29	1.05	L
36	Doing some stretches	2.58	1.12	H
Grand mean		2.43	1.06	L

Table 2 shows that the secondary school teachers in Enugu State perceived highly nine (9) items (13, 14, 15, 18, 20, 23, 28, 29 and 36) as forms of PA for the elderly. The activities include: walking, dancing, jogging, playing indoor card game, gardening and house chores like washing plates, among others. However, their perception on the remaining 15 forms of PA for the elderly is low. The physical activities include: climbing of stairs, jumping rope, biking, swimming, weight lifting, doing sit-ups and balance activities such as pivot turns. The Grand mean of 2.43 is evidence that the teachers generally had low perception on PA for the elderly.

Table 3: Mean ratings of secondary school teachers' perception on factors associated with participation in PA by the elderly.

S/N	Items	\bar{x}	SD	Decision
37	Fear of injury and falling	2.80	1.09	H
38	Poor health	2.63	1.05	H
39	Health status (such as a heart attack make victims adopt PA to remedy the situation).	1.72	0.83	L
40	Older adults prefer activities that are convenient (such as walking).	2.84	1.10	H
41	Level of education is a positive correlate of PA in older adults.	2.17	0.97	L
42	Neighborhood with noise problem discourages participation in PA.	2.39	1.00	L
43	Living in neighborhoods with heavy traffic frustrates participation.	2.72	0.95	H
44	Lack of low cost community based programs is a barrier to participation.	2.69	0.99	H
45	Proximity to PA facilities like sidewalk encourages participation.	3.10	0.4	H
46	Poor lighting discourages participation in PA.	3.07	0.99	H
47	Self efficacy (confidence in one's ability to be regularly active is positively correlated to PA in older adults).	2.68	1.03	H
Grand mean		2.62	1.07	H

Table 3 shows that teachers in secondary schools in Enugu State had high perception on eight out of eleven factors associated with participation in PA by the elderly (items 37,38,40,43,44,45,46 and 47). Some of such factors include: fear of injury and falling, poor health, preference for activities that are convenient, living in neighbourhoods with light traffic and proximity to PA facilities. On the other hand, the teachers perceived lowly certain factors associated with participation in PA by the elderly. These include: health status, level of education and noisy neighbourhood (items 39, 41 and 42). Grand mean shows that the teachers had high perception on the identified factors associated with participation in PA by the elderly.

Table 4: χ^2 summary table for influence of gender on the teachers' perceived benefits of PA to the elderly

Gender	High	Low	df	χ^2 -cal	χ^2 -crit	Decision
Male	82	128	1	3.30	3.84	Do not reject H_0
Female	396	465				

Table 4 shows that the calculated (χ^2) (3.30) value is less than the critical χ^2 value (3.84). Hence gender has no significant influence on the secondary school teachers' perception on benefits of PA to the elderly. The hypothesis is therefore not rejected.

Table 5: t- test of difference between the mean ratings of male and female teachers' perception on forms of PA for the elderly

Gender	N	\bar{X}	SD	Df	t-cal	t-crit	Decision
Male	210	2.55	1.12	1,069	1.17	1.96	Do not reject H_0
Female	861	2.65	1.08				

Table 5 shows that the calculated t-value (1.17) is less than the critical-t value (1.96). This shows that there is no significant difference between the mean ratings of male and female secondary school teachers on their perceived forms of PA for the elderly. Hence the hypothesis is not rejected.

Table 6: t-test of difference between the mean ratings of male and female teachers on their perception on factors associated with participation in PA by the elderly

Gender	N	\bar{X}	SD	Df	t-cal	t-crit	Decision
Male	210	2.59	1.07	1,069	0.50	1.96	Do not reject H_0
Female	861	2.63	1.06				

Table 6 shows that the calculated t-value (0.50) is less than the critical t-value (1.96). The null hypothesis is not-rejected showing that significant difference does not exist in the mean ratings of male and female secondary school teachers on factors associated with participation in PA by the elderly.

Table 7: χ^2 table of influence of location on the teachers' perception on benefits of PA to the elderly

Location	Yes	No	Df	χ^2 -cal	χ^2 -crit	Decision
Urban	348	342	1	3.30	3.84	Do not reject H_0
Rural	130	251				

Table 7 shows that the calculated chi-square (χ^2) (3.30) is less than critical χ^2 value (3.84), hence the hypothesis is not rejected. Hence location has no significant influence on the perception on benefits of PA to the elderly, among the teachers.

Table 8: t-test of difference between the mean ratings of urban and rural teachers' perception on forms of PA for the elderly

Location	n	\bar{x}	SD	df	t-cal	t-crit	Decision
Urban	690	2.51	1.04	1,069	2.35	3.84	Do not reject H_0
Rural	381	2.35	1.09				

Table 8 shows that calculated value of t (2:35) is less than the critical t-value (3.84). This implies that there is no significant difference between the mean ratings of urban and rural teachers' perception on forms of PA for the elderly. Hence the null hypothesis is not rejected.

Table 9: t-test of mean ratings of urban and rural teachers' perception on factors that influence participation in PA by the elderly

Location	n	\bar{x}	SD	df	t-cal	t-crit	Decision
Urban	690	2.73	1.09	1,069	3.14	1.96	Reject H_0
Rural	381	2.51	1.11				

Table 9 shows that the calculated t-value (3.14) is greater than the critical t-value (1.96), hence the null hypothesis is rejected. This mean that there is a significant difference between the mean ratings of urban and rural secondary school teachers' perception on factors associated with participation in PA by the elderly.

Discussion

The study surveyed the perception of secondary school teachers in Enugu State, Nigeria on Physical Activity (PA) for the elderly. The findings on table 1 revealed that the teachers have low perception on the benefits of PA for the elderly (44.63%). The teachers reported high perception mainly on the physical aspects of the benefits of PA, such as: maintenance of muscle strength, improvement of walking, physical function and flexibility, but showed low perception on other benefits of PA such as: reduction in the risk of heart attack, colon cancer and improvement of mental capacity, cognitive ability and self-esteem. This finding fell short of some evidence based reviews which reported among other benefits that PA reduces anxiety and depression and is also associated with lower risk of stroke while some others concluded that PA may help prevent breast cancer (Friedenreich, 2001) and hypertension and improve insulin resistance in non-diabetics and persons with type 2 diabetes (Ryan, 2000).

Moreover, a review of prospective cohort studies had also linked PA to increased longevity (Oguma, Sesso, Paffenbarger, and Lee, 2002) and decreased mortality due to coronary heart disease (Fraser and Sharvlik, 1997). The finding from the study is surprising, particularly because they did not perceive highly such important benefits as the improvement in pathology; including but not limited to impairments, aerobic capacity, flexibility and balance. The tested hypothesis one revealed that gender did not influence the perception of the teachers on the benefits of PA for the elderly. Additionally, tested hypotheses four showed that location did not significantly influence the teachers' perception on the benefits of PA for the elderly.

The result in table 2 revealed that teachers have low perception ($\bar{x} = 2.43$), on the forms of PA for the elderly. Judging from the type of physical activities perceived lowly by the respondents (including: running, jumping rope, biking, playing basketball, cross country race, weight lifting, among others), one can confirm that the finding is on the same fores with the American College of Sports Medicine (ACSM) (1998) which had earlier found that older adults are less likely to engage in rigorous physical activity or resistance training than in aerobics activities, and that walking is the most common activity that they report doing. This can be explained from the premise that the older adults and elderly are considered to be weak, fragile and sickly (Musaiger and D'Souza, 2009). Moreover, most of the elderly people present with disabling arthritis, and some other age related ill health conditions. This naturally makes them sedentary, compared with persons without arthritis. This finding of low perception on forms of PA for the elderly may further have basis on the fact that physical exercises (PE) are prominently assumed to be the only form of PA. This assumption may have led the respondents to forget that every PA is for the practitioner to achieve physical fitness and overall well-being and as such PA are varied in nature and scope and include all daily activities requiring dissipation of energy; such as hobbies, sports or exercise.

The tested hypothesis two revealed that gender did not significantly influence the teachers' perception on the forms of PA for the elderly. This finding disagrees with earlier report of Peel, Bartlett, and McClure (2004) which reported that older adults with higher levels of PA and functional fitness have better perception on health,

and that this association was stronger in women probably due to their daily living routines, including housekeeping and shopping. In the same vein, the tested hypotheses five showed that the secondary school teachers' perception on forms of PA for the elderly is not significantly influenced by location.

The result in table 3 revealed that the teachers perceived highly the factors associated with participation in PA by the elderly ($x = 2.67$). Specifically, the finding on association of health status with participation in PA agrees with the report by Schutzer and Graves (2004) that poor health is consistently associated with a more sedentary lifestyle. Moreover, Wilcox, Tudor-Locke and Ainsworth (2002) also reported that fear of injury and falling are largely age-specific barriers to PA. Regarding the program related factors, it was also found that older adults prefer activities that are convenient, including walking and gardening and that most prefer and adhere better to lower rather than higher intensity activities. Some of the findings of the study are not surprising, judging from our immediate experience. For instance, the teachers' high perception on factors associated with participation in PA among the elderly agrees with Humpel, Owen and Leslie (2002) who had reported that older adults living in neighbourhood with problems (such as heavy traffic, noise, trash, poor lighting and lack of public transportation experienced greatest loss of physical function over a one year period; relative to older adults living in neighbourhood with no problems (Balfour and Kaplan, 2002). It is trite to observe that older adults are commonly seen taking a walk in some parts of Enugu city considered to be low density areas such as Independence Layout, the Government Reserved Area (GRA) and Golf Estate than in areas considered to be high density areas such as Uwani, Awkunanaw, Achara Layout and Abakpa.

The tested hypothesis revealed that gender has no significant influence on the respondents' perception on the factors associated with participation in PA by the elderly (H_3). On the other hand, location significantly influenced the responses of the teachers on the issue (H_{06}). This finding is not surprising, judging from the characteristics of urban locations which ordinarily creates a different environment from the rural settings in Enugu State. This has also given credence to the fact that the study of non-modifiable correlates of PA including, age, gender, race and location which allows identification and targeting of subgroups that need planned PA programs.

Conclusion and Recommendations

The findings of the study showed that Secondary School Teachers in Enugu State, Nigeria had low perception on the benefits and forms of Physical Activity for the elderly. This translates to poor appreciation of PA for healthy ageing (HA), which may negatively influence the people's mindset and pose hardship on the advocacy for independent living among the rapidly growing aged population, if not encouraged to participate in PA. It would also enhance negative attitudes, leading to discrimination of older people; with regards to the form and level of PA they should be encouraged to engage in. If this trend is not checked and corrected, it would result to increase in several socio-economic challenges among the elderly with far-reaching effects on other members of the family, who may feel overburdened by demand for support by physically inactive old adults with attendant health challenges that would have been greatly ameliorated by engagement in both casual and planned physical activities. In order to minimize the negative effect of the above findings on quality-of-life of the older population and other relations, it is recommended that:

1. Stakeholders should design educational and social programs that are aimed at improving people's perception on the relationship between physical activity and healthy ageing. This would translate to protection and improvement on the support given by other members of the society to older people; to engage in PA and make them less dependent on others for their day to day mobility and living. This would also decrease negative perception on the elderly among people who now see them as nuisance and unproductive.
2. Curriculum and workshop planners should develop interventions and policies geared towards promoting PA in older adults. This can be achieved by understanding the association between social and environmental factors that influence PA for the different older adults in the society.
3. Individuals, especially older people should engage in PA, even if it is just taking a walk, doing the housework or tending the garden.

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