

## Awareness of Physiotherapeutic Effects of Yoga Activities in Ageing Promotion among Healthy Nigerian Older Adults

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**Abstract:** Physiotherapy is effective in promoting health of older adults. This study aims to ascertain the awareness of the physiotherapeutic effects of yoga activities in ageing promotion among healthy Nigerian older adults. This descriptive study was conducted in Nigeria from January-March 2018 and comprised of older adults commonly addressed as retirees. Using a well-structured questionnaire a sample of 480 older adults was studied. Statistical package for social science Version 21 was used for data analysis. Of the 480 participants surveyed, 460 (96%) completed the questionnaire correctly. Majority of the participants were males (53%), aged 65-74 years (44%), Christians (48%) and had tertiary education (39%). Overall, the participants were aware of the physiotherapeutic effects of yoga activities in ageing promotion ( $2.53 \pm 0.21 > 2.50$ ). The awareness was high on males, aged 65-74 years, 85 years plus, Christians, Pagans, participants with secondary and tertiary education (Mean values  $> 2.50$ ). A statistically significant difference was observed with regards to gender, religion and level of education ( $p > 0.05$ ) while none existed on age ( $p = 0.01 < 0.05$ ). Majority of the participants were aware of the physiotherapeutic effects of yoga activities in ageing promotion. It was recommended that yoga activities should form integral part of post-retirement programmes of the older adults.

**Key words:** Ageing promotion, awareness, older adults, physiotherapy, effects, yoga

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### INTRODUCTION

Naturally, human ageing comes with pronounced health problems (Ugwu, 2016) that require some measures of interventions to enable the older adult cope effectively on daily basis. Among these interventions is yoga activity (a physical exercise that accommodates all categories of participants) (Ugwu and Nwagu, 2015). It also involves the combination of physical posture, breathing, relaxation, endurance and meditation (Ifeoma *et al.*, 2017). Many styles of yoga abound (i.e., Ananda, Anusara, Ashtanga, Bikran, Iyengar, Kripalu, Kundalini and Viniyoga) that increase relaxation, balance the mind, body and spirit (National Institute of Health, 2008). As a result, yoga is highly recommended for older adults because of its positive physiotherapeutic outcomes. Physiotherapy entails any form of treatment of disease, injury or weakness in the joints or muscles by exercise and massage (Sally *et al.*, 2006). As a potentially promising physical activity for older adults (Barnes *et al.*, 2008; Birdee *et al.*, 2008;

Chen *et al.*, 2009; Nguyen *et al.*, 2010), yoga enhances walking and balance (DiBenedetto *et al.*, 2005) and improves muscle strength (Bosch *et al.*, 2009). Further evidences demonstrate that yoga improves cardiovascular health (Innes *et al.*, 2005); Blood pressure (Yogendra *et al.*, 2004) and sleep quality in older adults (Manjunath and Telles, 2005; Chen *et al.*, 2009). With respect to body systems, yoga was effective in improving the functioning of all human body systems (Bosch *et al.*, 2009; Donesky-Cuenca *et al.*, 2009; Skoro-Kondza *et al.*, 2009; Telles *et al.*, 2010). These highlights are evidence-based, demonstrating the physiotherapeutic effects of yoga in promoting health and the quality of life of older adults.

The elderly are considered the most vulnerable groups to chronic health problems. This condition usually places them in a more dependent state (Ugwu *et al.*, 2013). However, treatment and relief were previously limited to chemoprophylaxis (Ene, 2004). Currently, physiotherapy is given more attention as veritable tool in the control, management and improvement of some health problems in

old age (Manjunath and Telles, 2005; Barnes *et al.*, 2008; Birdee *et al.*, 2008; Donesky-Cuenco *et al.*, 2009; Chen *et al.*, 2009; Skoro-Kondza *et al.*, 2009; Telles *et al.*, 2010; Nguyen *et al.*, 2010). More so, participation in yoga improved cardio-respiratory functions (Blumenthal *et al.*, 1991; Ifeoma *et al.*, 2017) and reduced the risks of fall in older persons (Province *et al.*, 1995).

The overwhelming evidences as highlighted above are indications that yoga activities hold significant physiotherapeutic effects in quality of life of older adult. However, data showing the status of awareness with regards to these effects by elderly persons are lacking. From the literature reviewed no studies of this kind exist particularly in Nigeria. Therefore, we aimed to fill this gap by ascertaining the awareness and demographic differences of the physiotherapeutic effects of yoga activities in ageing promotion among healthy Nigerian older adults.

## **MATERIALS AND METHODS**

This descriptive, questionnaire-based study was conducted in Nigeria from January-March 2018 and comprise of older adults commonly addressed as retirees. In Nigeria, the retirees have a functional body known as National Union of Pensioners (NUP) with branches in all the 36 states that fall within the six geopolitical zones. The zones are the division of the country into states with similar cultures, history, background and close territories and include: North-Central, North-East, North-West, South-East, South-South and South-West (National Institute of Health, 2008).

A sample size of 480 healthy older adults was studied using multi-stage sampling procedure. First, the six geopolitical zones constitute six clusters. Two states were selected from each of the six clusters in the second stage using simple random techniques. Using convenience sampling, 40 participants were selected from each of the sampled states resulting to 480 older adults. The sample size was calculated using confidence level of 95% and confidence interval of 5 (Cohen *et al.*, 2011). Only the older adults who were within the ages of 65 years and above, fully registered with the union were studied.

Questionnaire "Awareness of Physiotherapeutic Effects of Yoga Questionnaire (APEYQ)" was used for data collection. The APEYQ which was written in English language, composed of two sections "A and B". The section "A" presented the demographics while section "B" contained item statements on the awareness of the phenomenon. These two sections were bundled into one study package for the convenience of the participants (Ifeoma *et al.*, 2017). The APEYQ was a 4-point scale with

response options that ranged from 4 = strongly agree 3 = agree 2 = disagree and 1 = strongly disagree. The APEYQ was self-administered to the participants during the monthly meetings.

Prior to the study, permission was obtained from the president of all the sampled states and formal introduction to the study was given by the researchers. Only those who agreed to participate received a questionnaire package. For the illiterate participants, the items of the APEYQ were thoroughly explained by the researchers. In the cover letter, the potential participants were requested to complete the questionnaire and return to the researchers on the spot.

Descriptive statistics was employed Statistical Package for Social Sciences Version 21 was used to analyze the data. The criterion mean value of 2.50 accrued from the four-point response options was used for decision that is to say any item that weighs 2.50 and above implies high or being aware while any item <2.50 signifies low or unaware. The hypothesis was accepted when the p-value is below 0.05 and rejected when the p-value is 0.05 and above. The approval for the study was obtained from the Faculty of Education Research Grants Committee, University of Nigeria Nsukka (Ethical approval code: ERA.023). The ethical approval was in accordance with the principles of the declaration of Helsinki.

## **RESULTS AND DISCUSSION**

All the study participants were Nigerians a total of 480 participants responded to the questionnaire. Of them 460 (96%), completed the questionnaire correctly and was used for the final analysis. Only 20 (4%) did not and thus were discarded. Of all, 245 (53%) were males and 215 (47%) were females. Majority of them 200 (44%) were within the age of 65-74 years while only 140 (30%) and 120 (26%) were 75-84 and 85 years plus, respectively. A greater percentage 220 (48%) were Christians while 130 (28%) and 110 (24%) were Muslims and Pagans. Only 20 (4%) and 100 (22%) of them had no formal education and primary education while 160 (35%) and 180 (39%) had secondary and tertiary education, respectively (Table 1).

Overall, the participants were aware of the physiotherapeutic effects of yoga activities in ageing promotion ( $2.53 \pm 0.21 > 2.50$ ). Specifically, the participants were aware that yoga: improves quality of life ( $2.67 \pm 0.41$ ); muscle strength ( $2.85 \pm 0.08$ ); sleep quality ( $2.73 \pm 0.08$ ); cardio-respiratory functions ( $2.54 \pm 0.05$ ); reduces risks of fall ( $2.72 \pm 0.01$ ) and reduces chronic back pain ( $2.51 \pm 0.11$ ). It was indicated that they were unaware of yoga: enhancing stamina and balance ( $2.32 \pm 0.07$ ); promoting physical performances ( $2.36 \pm 0.09$ ) and reducing stress

Table 1: Demographic characteristics of the participants (N = 460)

Parameters	F-values	Percentage
<b>Gender</b>		
Male	245	53
Female	215	47
<b>Age by birth</b>		
65-74	200	44
75-84	140	30
85>	120	26
<b>Religion</b>		
Christian	220	48
Muslim	130	28
Pagan	110	24
<b>LoE</b>		
No formal	20	4
Primary	100	22
Secondary	160	35
Tertiary	180	39

percentage, F = Frequency, LoE = Level of Education

Table 2: Showing participant's awareness of physiotherapeutic effects of yoga in ageing promotion (N = 460)

Yoga	Mean±SD	Remarks
Improves quality of life	2.67±0.41	Aware
Enhances stamina and balance	2.32±0.07	Unaware
Improves muscle strength	2.85±0.08	Aware
Improves sleep quality	2.73±0.08	Aware
Promotes physical performances	2.36±0.09	Unaware
Improves cardio-respiratory functions	2.54±0.05	Aware
Reduces risks of fall	2.72±0.01	Aware
Reduces chronic back pain	2.51±0.11	Aware
Reduces stress and anxiety	2.43±0.60	Unaware
Stabilizes blood pressure	2.15±0.40	Unaware
Grand mean	2.53±0.21	Aware

SD = Standard deviation, N = Number of participants

and anxiety (2.43±0.60) and stabilizes blood pressure (2.15±0.40), respectively (Table 2). The study showed demographic differences on the mean response scores of the participant's awareness on physiotherapeutic effects of yoga activities in ageing promotion. Specifically, the awareness was high among: males (2.53±0.21), aged 65-74 years (2.51±0.30), 85 years plus (2.61±0.020), Christians (2.80±0.01), Pagans (2.61±0.05), participants with secondary (2.52±0.52) and tertiary education (2.90±0.61), respectively. Low awareness was observed among: females (2.47±0.10), aged 75-84 years (2.30±0.09), Muslims (2.21±0.03), participants with no formal education (2.40±0.04) and primary education (2.21±0.09), respectively (Table 3). A statistically significant difference was observed with regards to gender (p = 0.2>0.05), religion (p = 0.4>0.05) and level of education (p = 0.5>0.05) while none existed on age (p = 0.01<0.05) (Table 3).

The current study showed that healthy Nigerian older adults were aware of the physiotherapeutic effects of yoga activities in ageing promotion (2.53±0.21>2.50). The expected finding highlights some implications. First, the participant's understanding that yoga activities have direct effect in their health would increase their willingness and motivation to participate and stay

Table 3: Presenting demographic differences on awareness of physiotherapeutic effects of yoga and significant differences within variables (N = 460)

Parameters	N	Mean±SD	Status	p-values	Remarks
<b>Gender</b>					
Male	245	2.53±0.21	High	0.20	Rejected
Female	215	2.47±0.10	Low		
<b>Age by birth</b>					
65-74	200	2.51±0.30	High	0.01	Accepted
75-84	140	2.30±0.09	Low		
85>	120	2.61±0.02	High		
<b>Religion</b>					
Christian	220	2.80±0.01	High	0.40	Rejected
Muslim	130	2.21±0.03	Low		
Pagan	110	2.60±0.05	High		
<b>LoE</b>					
NFE	20	2.40±0.04	Low	0.50	Rejected
Primary	100	2.21±0.09	Low		
Secondary	160	2.52±0.52	High		
Tertiary	180	2.90±0.61	High		

LoE = Level of Education, NFE = No Formal Education, SD = Standard Deviation, N = Number of participants

healthy. Secondly, the finding could serve as indication for alternative measure in managing chronic health cases in old age. In consistence with other studies, yoga improved health-related quality of life (Roland *et al.*, 2011); Enhanced walking and balance (DiBenedetto *et al.*, 2005; Chen *et al.*, 2009) and muscle strength (Bosch *et al.*, 2009) and thus, demonstrating its effectiveness in improving health and wellness in old age.

Of great importance is the fact that the participants were aware that participation in yoga improves cardio-respiratory functions which was in accordance with previous studies (DiBenedetto *et al.*, 2005; Ifoema *et al.*, 2017) and therefore, our research study recommends inclusion of yoga in the post-retirement programmes of the older adults in general and further suggests that professionals such as geriatricians should encourage active participation in yoga activities as a veritable tool for the control and management of multiple chronic health cases. Our result is quite in harmony with others in that the participants are aware of the multiple health and ageing benefits of engaging in yoga. For instance, yoga scholars indicate that participating in yoga reduced the risks of falls (Province *et al.*, 1995) and improved quality of sleep, depression state and health status (Chen *et al.*, 2009). Indeed, the physiotherapeutic effects of yoga are overwhelming and thus should be encouraged in old age.

Our finding indicates that majority of the participants were males, aged 65-74 years, Christians and had tertiary education. The high quality of education of the participants as shown is quite encouraging and a clear indication that the era of illiteracy and ignorance is gradually fading away. Also, the awareness level varied within variables as evidenced in males, aged 65-74 years, 85 years plus, Christians, Pagans, participants with

secondary and tertiary education indicating high (Mean values > 2.50). A statistically significant difference was observed with regards to gender, religion and level of education ( $p > 0.05$ ) while none existed on age ( $p = 0.01 < 0.05$ ). The above findings demonstrate variations on the awareness status of the participants and thus could be attributed to their present circumstances and health challenges. Secondly, education level of the participants no doubt, greatly influenced their responses. As indicated in the study the awareness status of the participants with tertiary education as the highest level of education was high. These findings are in accordance with other researchers who found variations with respect to demographics (Blumenthal *et al.*, 1991; Province *et al.*, 1995; Ifeoma *et al.*, 2017). We therefore, suggest that further studies be carried out for empirical generalization.

The strength of this study lies in its methodology. This research was purely a questionnaire based survey restricting data from qualitative approaches. There is need for further research exploring qualitative approaches. The awareness regarding various forms of yoga activities and frequency of participation were not covered. In addition, high awareness regarding the effects of yoga may not denote high practice thus a further research is need to investigate the forms and frequency of practice by the older adults.

### CONCLUSION

Majority of the participants were aware of the physiotherapeutic effects of yoga activities in ageing promotion. We strongly recommend that yoga activities should form integral part of post-retirement programmes of the older persons. In addition, professionals-geriatricians should encourage active participation in yoga by the older persons in order to enjoy the positive health outcomes.

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UCU, JIO, ORN and BES conceived the current study. UCU, CUE, DJA and LEO did the data acquisition, statistical analysis, interpretation and writing of manuscript. All the researcher did the final review and approval of manuscript for submission.

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