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KNOWLEDGE OF ORGANIZED PHYSICAL EXERCISE PROGRAMME AS A PHYSIOTHERAPEUTIC TOOL IN PROMOTING FUNCTIONAL EFFICACY IN OLD AGE

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ABSTRACT

Background: An organized physical exercise program is a physiotherapeutic tool in promoting functional efficacy in old age.
Aim: To determine the quality of knowledge possessed by older adults on organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age and to verify the null hypotheses of no significant difference on demographic characteristics of the subjects.
Methods and Materials: A descriptive survey research study was done on 400 older adults in Nigeria. This study sample size was conveniently selected. Data was collected through interview method and questionnaire. Descriptive statistics was adopted for data analysis. All the analyses were done using SPSS version 18.
Results: The result showed that the older adults possess adequate knowledge of organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age. Statistically, the study revealed that significant differences existed between demographic characteristics of the subjects.
Conclusion: This survey has revealed the quality of knowledge possessed by older adults on organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age. The finding is quite encouraging as it reflected the quality of health and functional abilities of the subjects.

INTRODUCTION

A well-organized physical exercise programme is a physiotherapeutic tool in controlling chronic diseases (Ugwu and Nwagu, 2015) and in promoting functional efficacy particularly in old age. In a nutshell, preserving functional efficacy requires that an elderly individual has the physical strength and functional abilities to carry out the usual activities of daily living such as bathing, toileting and feeding (Sandeep, 2016). Literature evidence indicated that with ageing, physical health and functional ability decline leading to increased risk of falls, disability, dependency, fractures as well as risks of developing chronic metabolic diseases (Evans, 1997).

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This has been attributed to the fact that ageing as a natural process, is accompanied by a progressive loss of plasma protein, which eventually result to a substantial decline in resistance to infections and increased risks of acute and chronic conditions including sarcopenia (Rosenberg, 1997) and high blood pressure (Ugwu *et al*., 2016). Previous studies revealed that the relative loss of muscle mass and strength with age are similar for both men and women, and perhaps might represent a great health concern in women as older women tend to suffer more from physical disabilities, functional impairment and chronic conditions (Katz *et al*., 1983). In a related study by Keller *et al*. (1999), and Eagan and Sedlock (2001), it was found that both gender and age were found to be correlated with age-related problems including trunk extensor muscle strength. Further research also indicated that the decrease in muscle strength in older adults are associated with poor physical performance; increased risk of falls, fractures and disability; increased mortality and poor quality of life and fear induced inactivity (Rantanen *et al*., 1999; Leuretani *et al*.,

2003; Rolland *et al*., 2006; El Haber *et al*., 2008; and Harnandez *et al*., 2010). This understanding portrays the need to determine the quality of knowledge of individuals on the importance of organized physical exercise programme to health and ageing. The present study was guided by the disablement process model which stated that both acute and chronic diseases may eventually lead to impairment and when the impairment worsens, functional health becomes constrain (Verbrugge and Jette, 1994). In addition, available literature indicated that in a very old population, substantial improvements in muscle mass, musculoskeletal system, physical strength and functional capacity are following well-planned physical exercise training (Fiatarone *et al*., 1994). Also, at the musculoskeletal system particularly the muscle fiber level, it has been reported that both elderly men and women maintain the capacity to augment muscle fiber size and function (Trappe *et al*., 2000; and Trappe *et al*., 2001). Despite the overwhelming evidence showing the effectiveness of physical exercise on improving physical and functional health in old age, there is still inadequacy on the amount of available literature on the quality of knowledge. Nonetheless, previous studies showed that musculoskeletal strength gained during well-programmed physical exercises are either equal, smaller or greater in older women when compared with older men (Tracy *et al*., 1999; Ivey *et al*., 2000; Roth *et al*., 2001; and Bamman *et al*., 2003). The unique impact of physical exercise to functional efficacy in old age is quite enormous, though depending on the quality of knowledge possessed by individuals. Thus the need for the present study which determined the quality of knowledge possessed by older adults on organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age and verified the null hypotheses of no significant difference on demographic characteristics. This was the gap the present study filled.

MATERIALS AND METHODS

A descriptive survey research study was done on 400 older adults in the East, West, North and South regional districts of Nigeria. The study sample was conveniently selected. Data was collected through interview method and questionnaire. The questionnaire focused on the validated items measuring the adequacy of knowledge of the subjects on organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy with four point response options. That is to say that, each of the items has four options for selection. The descriptive statistics involving frequency, percentage, mean scores, standard deviation, t-Test and analysis of variance were used to analyze the data. All the analyses were done using SPSS version 18. The cut-off point for the weighted mean was 2.5 accrued from the four-point response options, hence, any item that weighed 2.5 and above signifies adequate knowledge while any item less than 2.5 implies inadequate knowledge. The null hypotheses were verified at 0.05 level of significance. This study was approved by the Federal Ministry of Health -FMH2783-012FCT. The informed consent of the respondents was obtained. This consent was approved by the Research Review Committee of Ministry of Education in Nigeria.

RESULTS

A total of 400 older adults were studied. Table 1 showed the frequency and percentage representatives of the demographic characteristics of the subject. For instance, in health status, about 51.25% were normal while approximately 31% were disability and about 18.25% were dependent respectively. Only 39% were females while about 61% were males. In housing apartment, approximately 64% were owners, while about 20.25%, 8.25% and 5.25% lives in rented, hired and squatted apartments. Chronologically, approximately 46% and 40% were within the ages of 75-84 years and 65-74 years respectively, while about 14% were 85 years and above. A good number of the subjects were Christians and Pagans with approximately 73% and 7%. Only 16% and 5% were Muslims and Traditionalists respectively. In occupation, only 3.25% were employed, while 39.25%, 19.25% and approximately 31% and 8% were farmers, transporters and unemployed and businessmen respectively.

Table 1. Demographic characteristics of the Subjects (N = 400)

Demographics	f (%)
Health Status	
Normal	205 (51.25)
With disability	122 (30.5)
Dependent	73 (18.25)
Gender	
Male	244 (61.0)
Female	156 (39.0)
Housing Apartment	
Rented	81 (20.25)
Owned	255 (63.75)
Hired	21 (5.25)
Squatted	33 (8.25)
Age	
65-74	158 (39.5)
75-84	187 (46.75)
85+	55 (13.75)
Religious Affiliation	
Christianity	290 (72.5)
Muslim	64 (16.0)
Pagan	26 (6.5)
Traditional	20 (5.0)
Occupation	
Employed	13 (3.25)
Transporter	77 (19.25)
Farmer	157 (39.25)
Businessman	123 (30.75)
Unemployed	30 (7.5)
Marital Status	
Married	240 (60.0)
Unmarried	12 (3.0)
Divorced	27 (6.75)
Widowed	121 (30.25)
Level of Education	
No Formal Education	11 (2.75)
Primary	29 (7.25)
First Degree	65 (16.25)
Higher Degree	105 (26.25)
Living Arrangement	
With Family	271 (67.75)
Alone	31 (7.75)
With Relatives	82 (20.5)
With Friends	16 (4.00)

It was obvious that a good number of the subjects were married with 60%. Approximately 7% were divorced while only 30.25% and 3% were widowed and unmarried. Surprisingly, only 26.25 had higher degree while approximately 48% and 3% had first degree and no formal education. Only 16.25% and 7.25% had primary and secondary education respectively. There was evidence that the majority of older adults live with family members, relatives and alone with approximately 68%, 21% and 8% respectively. Surprisingly, only 4% live with friends. Data in Table 2 showed that the average mean score 2.73 and standard deviation 0.142 on the knowledge of organized physical

Table 2. Showing knowledge of the Subjects (N = 400)

Knowledge Level	Mean Value	Standard Deviation	Remark
Average Mean	2.73	.142	Adequate Knowledge

Table 3. Showing Significant Differences between demographic characteristics of the Subjects

Demographics	N	Mean	Standard Deviation	t-cal	P-value	Remark
Health Status				-2.3	.61	*
Normal	205	2.82	.002			
With disability	122	2.41	.019			
Dependent	73	2.52	.013			
Gender				0.12	.02	**
Male	244	2.62	.601			
Female	156	2.45	.123			
Housing Apartment				-4.0	.91	*
Rented	81	2.55	.020			
Owned	255	2.89	.019			
Hired	21	2.31	.287			
Squatted	33	2.08	.010			
Age				.010	.53	*
65-74	158	2.43	.810			
75-84	187	2.72	.195			
85+	55	2.63	.100			
Religious Affiliation				-2.0	.03	**
Christianity	290	2.54	.231			
Muslim	64	2.60	.711			
Pagan	26	2.12	.002			
Traditional	20	2.19	.280			
Occupation				0.9	.02	**
Employed	13	2.50	.013			
Transporter	77	2.18	.922			
Farmer	157	2.62	.435			
Businessman	123	2.70	.081			
Unemployed	30	2.56	.031			
Marital Status				-1.0	.42	*
Married	240	2.72	.001			
Unmarried	12	2.01	.381			
Divorced	27	2.70	.034			
Widowed	121	2.13	.012			
Level of Education				0.2	.72	*
No Formal Education	11	2.40	.203			
Primary	29	2.70	.143			
Secondary	65	2.02	.231			
First Degree	190	2.70	.009			
Higher Degree	105	2.56	.020			
Living Arrangement				1.4	.03	**
With Family	271	2.68	.060			
Alone	31	2.09	.003			
With Relatives	82	2.65	.046			
With Friends	16	2.21	.193			

exercise programme as a physiotherapeutic tool in promoting functional efficacy among older adults was above the cut-off point of 2.50. This implied that the older adults possess adequate knowledge of organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age. From Table 3, it was revealed that there were statistical significant differences between the demographic characteristics of the subjects in relation to the knowledge of organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age. Statistically, the Table showed that significant differences existed on the demographics characteristics of subjects on health status; housing apartment; age; marital status and level of education (P-value > 0.05) while gender; religious affiliation; occupation; and living arrangement showed no significant difference (P-value < 0.05).

DISCUSSION

The present study revealed that the older adults possess adequate knowledge of organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age.

The expected result reflected on the health status of the subjects which showed that about 51.25% were normal, that is, without disability or dependency (Table 1). The quality of knowledge the subjects possessed might have influenced their practices to physical exercises. The study agreed with Ugwu and Nwagu (2015) who perceived exercise as a physiotherapeutic tool in the control of chronic conditions in the elderly. However, the finding could be linked with the findings of other researchers who indicated that the decrease in muscle strength in older adults were associated with poor physical performance; increased risk of falls, fractures and disability; increased mortality and poor quality of life and fear induced inactivity (Rantanen *et al*., 1999; Leuretani *et al*., 2003; Rolland *et al*., 2006; El Haber *et al*., 2008; and Harnandez *et al*., 2010) and therefore recommended physical exercise for improvement. Statistically, the study also indicated that significant differences existed between demographic characteristics of the subjects. Keller *et al*. (1999) Eagan and Sedlock (2001) revealed that both gender and age were found to be correlated with age-related problems including trunk extensor muscle strength. Other related research found that at the musculoskeletal system particularly

the muscle fiber level, that both elderly men and women maintain the capacity to augment muscle fiber size and function (Trappe *et al*., 2000; and Trappe *et al*., 2001). Similarly, other studies showed that musculoskeletal strength gained during well-programmed physical exercises were either equal, smaller or greater in older women when compared with older men (Tracy *et al*., 1999; Roth *et al*., 2001; Ivey *et al*., 2000; and Bamman *et al*., 2003).

Conclusion

This survey has revealed the quality of knowledge possessed by older adults on organized physical exercise programme as a physiotherapeutic tool in promoting functional efficacy in old age. This finding is quite encouraging as it reflects the quality of health and functional efficacy of the subjects. Although, there were significant differences on the variables of the subject, yet, the quality of their knowledge was still adequate. Since a good number of the respondents indicated normal health status, it could easily be inferred that the quality of their knowledge has influenced their practice towards adopting physical exercise programme as a measure for promoting functional efficacy.

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Competing Interest: The authors have no competing interests.

Authors' Contributions

UFC and NGC analyzed and interpreted the data. UCU and OJI wrote the manuscript. ADA, OCC and OPC contributed to the study concept and design, acquisition of subjects and manuscript review. UCU drafted the manuscript and revising it critically for important intellectual content. All authors have read and approved the final version of the manuscript.

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