

## Physiotherapists' Knowledge on Effect of Exercise on HIV Infected Persons

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### Abstract

**Purpose:** This study surveyed the knowledge of physiotherapists in northern Nigeria on the effect of exercise on HIV-infected persons.

**Method:** This study was a cross-sectional survey. A sampling of convenience was used to recruit participants in the selected institutions in northern Nigeria. A structured and validated questionnaire was used to assess the knowledge of physiotherapists on the effect of exercise on HIV-infected persons. Descriptive statistics was used to summarize the socio-demographics of the participants. One-way ANOVA and independent t-test was used to explore the factors associated with the knowledge of physiotherapists on the effect of exercise on HIV-infected persons

**Results:** A total of one hundred and thirty-five questionnaires were administered to the respondents out of which one hundred and three were retrieved. Out of the retrieved questionnaire, only ninety-three was properly filled out, hence yielding a response rate of 90.3%. The mean age of the participants was  $29.35 \pm 2.68$  years and their age ranged from 20-55 years. Majority (72.1%) of the participants fell within the second decade (20- 29 years) of life. Male participants were in preponderance (58.1%). Majority of the respondents were internee physiotherapists and accounted for 54.2% of the total respondents. The result from this study showed that 52 (55.9%) of the participants have a good knowledge on effect of exercise on HIV-infected persons.

**Conclusion:** The current survey concluded that only 55.9% of physical therapist has good knowledge on the effect of exercise on HIV infected persons. Further enlightenment campaign on the effect of exercise on HIV infected persons should be done among physiotherapist in the lower cadre in our region to further equip them with the knowledge and necessary skills needed for the management of persons infected with HIV/AIDS.

**Keywords:** Physiotherapist; Exercise; Human immunodeficiency virus; Acquired immune deficiency syndrome

### Introduction

Human immunodeficiency virus (HIV) is defined by the World Health Organization (WHO) as a slow virus that infects the cells of the immune system destroying or impairing their function [1]. HIV, the causative organism of acquired immune deficiency syndrome (AIDS) has become one of the world's most serious public health and developmental challenges. It is considered as the greatest pandemic of the twenty first century with sub-Saharan Africa having the highest impact of the disease burden [2]. Globally, there are approximately 35 million people living with HIV infection with women representing about 52% of this population [3]. In Nigeria, HIV and AIDS has continued to be of major concern with approximately 3.5 million persons living with this condition, thus placing Nigeria as the third nation with the world's highest HIV and AIDS prevalence, and second in Africa as at 2008 [4]. At the same period, about 217,000 Nigerians were reported to have died from AIDS related illnesses. By 2011, the Nigerian Federal Ministry of Health [5] projected that 3.2 million Nigerians lived with HIV/and AIDS, and an estimated 2.4 million

children were orphaned by AIDS in the country. Although, there was about 8.6% reduction in the number of Nigerians living with HIV and AIDS compared to 2008 estimate, Nigeria the most populous black nation, projected at >160 million by the World Bank in 2011 [5] found herself dealing with a disease which gradually transformed to an epidemic and currently placed as the second nation with the highest burden of HIV and AIDS worldwide [5]. The complications resulting from HIV radically alter the physiological and psychological health components of HIV infected persons. Treatment with highly active antiretroviral therapy (HAART) allows this population to live longer, healthier and more productive lives than was possible at the inception of the infection [6]. However, apart from improving the health status of HIV infected persons, HAART also has adverse effects which bear a resemblance to the complications posed by the virus [7].

With these arrays of problems caused by HIV infection and its drug management, Tiozzo et al. [8,] are of the view that this population should endeavor to lead a healthy lifestyle with special emphases on regular exercise and healthy diets Standish et al. [9] reported that exercise is consistently the commonest accessible, nontoxic and cheapest adjunct therapy to HIV management in the developed countries such as the United States of America (USA). Exercise is a subset of physical activity that is planned, structured and repetitive,

and has a final or an intermediate objective, which is the maintenance of physical fitness [10]. Exercise has been shown to improve strength, cardiovascular function and physiological status in the general population [11].

Over the years, several studies on benefits and effectiveness of exercise in persons infected with HIV exist in the literature. La perriere et al. [12] reported that aerobic conditioning increased CD4 cell counts. Mustafa et al. [13] observed that HIV infected persons self-reporting exercise participation had 107.5% higher CD4 cell counts compared to HIV infected non exercising participants. Additionally exercise has been shown to improve the mental health status in non-infected persons, thus exercise is being proposed to improve the psychological parameters in HIV infected persons [14]; and this has been established by several studies [14-16].

Physiotherapists are health care professionals trained among other services to provide rehabilitative care in a wide range of disabling conditions with the aim of restoring, maintaining and promoting functions in persons with activity limitations and participation restrictions [17]. Physiotherapist are saddled with the role of prescribing, designing, administering and monitoring therapeutic exercises in a variety of medical conditions with several therapeutic aims. Successful management of persons infected with diseases such as HIV requires adequate knowledge, feeling of comfort, preparedness and willingness to provide care to such individuals [18]. However, in Northern Nigeria and indeed in Nigeria generally, extensive literature search reveals that no existent study has surveyed the knowledge of effect of exercise on HIV infected persons among physiotherapists. Oyeyemi et al. [19] explored the knowledge, attitudes and willingness, and affective traits of physiotherapy students to provide care for persons living with HIV and AIDS in Nigeria. Maduagwu et al. [20] investigated knowledge of effect of exercise on HIV infected persons among healthcare professionals in Northeastern Nigeria. We envisage that this study will bridge the gap in knowledge as well as add to the global knowledge on the effect of exercise on HIV infected persons among various populations, especially those involved in health care services. Hopefully, this will inadvertently encourage the incorporation of therapeutic exercises as part of the management of HIV infected persons in Nigeria as obtainable in the United States (US) and other advanced nations.

## Methodology

### Study design

This study was a cross sectional survey. Participants were enrolled using convenient sampling

### Study setting

The study sites were the following tertiary hospitals in Nigeria: Aminu Kano Teaching Hospital, University of Ilorin Teaching Hospital and University of Maiduguri Teaching Hospital, and their respective parent universities all located in the three geopolitical zones in Northern Nigeria, which are North West, North Central and North East respectively.

### Study protocol

The instrument for this study was a questionnaire on knowledge of effect of exercise on HIV infected persons developed and used by

Maduagwu et al. [20]. The instrument was validated by two professors in cardiopulmonary physiotherapy and a professor of exercise physiology at different universities in Nigeria. The test-retest reliability of this questionnaire yielded 0.82. It consists of two sections: section A and section B. Section A comprises questions on respondents' sociodemographic characteristics which may be restructured based on population under study. Section B contains 20 item questions for assessing the knowledge of effect of exercise on HIV infected persons. Each item has three responses ("Agree", "Disagree" or "Undecided"). The maximum score is 20 and the minimum score is 0. An "Agree" response to a correct statement is scored 1, a "Disagree" response to a wrong statement is also scored 1, and a "Disagree" response to a correct statement is scored 0, An "Agree" response to a wrong statement is scored 0 and an "Undecided" response is disregarded. The total scores obtained from the responses were added and the mean scores computed for onward statistical analysis.

The higher the score, the more knowledgeable a physiotherapist is on the effect of exercise on HIV infected persons while the lower the score, the less knowledgeable a physiotherapist is on the subject. The scores were ranked as follows: 0-5 indicates poor knowledge of effect of exercise on HIV infected persons, 6-10 implies fair knowledge, 11-15 connotes good knowledge and 16-20 signifies very good knowledge. This ranking was essentially for the determination of level of knowledge among the participants and was not for inferential statistics.

### Data collection procedure

The study obtained approval from the Ethical Review Committee of the University of Maiduguri Teaching Hospital (UMTH), Nigeria. The researchers explained to the participants the protocol and rationale for the study. The questionnaire was administered on those participants who indicated their willingness to participate by signing informed consent forms. Participation in this study was strictly confidential and voluntary, and names of the respondents were not used in connection with the information provided.

### Data analysis

Descriptive statistics of mean, standard deviation, frequency counts and percentages was used to summarize the socio-demographic characteristics of the participants. Student t-test for independent samples was utilized to determine the difference in knowledge of effect of exercise on HIV-infected persons among physiotherapists in Northern Nigeria based on gender, type of primary facility and educational qualification. One-way Analysis of variance (ANOVA) was employed to determine the difference in knowledge of effect of exercise on HIV infected persons among physiotherapists in Northern Nigeria based on the location of primary facility, rank, different areas of specialization and duration of practice. Significant difference was set at an alpha value of  $p < 0.05$ . Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 20.0 software (SPSS Inc., Chicago, Illinois, USA).

## Results

A total of one hundred and thirty five copies of questionnaire were administered to the respondents out of which one hundred and three were retrieved. Out of the retrieved questionnaire, ninety three were properly completed, hence yielding a response rate of 90.3%. The mean age and age range of the participants in years were  $29.35 \pm 2.68$  and

20-55 respectively. Majority (72.1%) of the participants fell within the third decade (20-29 years) of life. Male participants were in preponderance (58.1%) and most (54.2%) were physiotherapists on internship training (Table 1).

Variable	Category	Frequency n (%)
Age group (years)	20-24	18 (19.4)
	25-29	49 (52.7)
	30-34	8 (8.6)
	40-44	9 (9.7)
	≥ 45	1 (1.0)
Gender	Male	54 (58.1)
	Female	39 (41.90)
Marital status	Single	55 (59.1)
	Married	38 (41.9)
	Divorced/separated	-
	Widowed	-
Educational Level	Bachelor degree	79 (84.9)
	Post-graduate	14 (15.1)
Primary facility type	Clinic	82 (88.2)
	Academics	11 (11.8)
Primary Facility	BUK/AKTH	42 (45.2)
	UNIILORIN/ UITH	24 (25.8)
	UNIMAID/UMTH	27 (29.0)
Area of Specialization	Orthopedics/ sports	6 (6.4)
	Medicine/ Neurology	11 (11.8)
	Pediatrics	7 (7.6)
	Others	69 (74.2)
Working Exp (years)	≤ 10	79 (85.0)
	Nov-20	13 (14.0)
	≥ 21	1 (1.0)
Rank	Low	54 (58.1)
	Middle	33 (35.5)
	High	6 (6.4)
<b>Key:</b> BUK/AKTH=Bayero University Kano/Aminu Kano Teaching Hospital.		
UNIILORIN/UITH=University of Ilorin/University of Ilorin Teaching Hospital. UNIMAID/UMTH=University of Maiduguri/University of Maiduguri Teaching Hospital		

**Table 1:** Socio-demographic characteristics of the respondents.

The result from this study showed that 52 (55.9%) of the participants have good knowledge of effect of exercise on HIV-infected persons (score of 11-15 on the study questionnaire) (Table 2).

Categories of Score	Frequency n (%)
0-5 Poor Knowledge	3 (4.3)
6-10 Fair Knowledge	16 (17.2)
11-15 Good Knowledge	52 (55.9)
16-20 Very Good Knowledge	21 (22.6)

**Table 2:** Ranking of scores on knowledge of effect of exercise on HIV-infected persons.

No statistical significant difference was found on knowledge of effect of exercise on HIV infected persons between male and female physiotherapists ( $p \geq 0.05$ ,  $p=0.904$ ), area of specialization of physiotherapist ( $p \geq 0.05$ ,  $p=0.583$ ), years of experience ( $p \geq 0.05$ ,  $p=0.398$ ), educational level ( $p \geq 0.05$ ,  $p=0.398$ ), Primary facility ( $p \geq 0.05$ ,  $p=0.466$ ) and type of primary facility ( $p \geq 0.05$ ,  $p=0.627$ ). However, an average significant difference was found on knowledge of effect of exercise on HIV-infected persons among rank of physiotherapist ( $p \geq 0.05$ ,  $p=0.021$ ) (Table 3).

## Discussion

This study revealed that substantial number of physiotherapists in Northern Nigeria had good knowledge of effect of exercise on HIV infected persons. This observation is similar to the findings of Maduagwu et al. [20] in a study on knowledge of effect of exercise on HIV infected persons among health care professionals in Northeastern Nigeria in which a vast majority of the participants demonstrated good knowledge on the subject. This good knowledge demonstrated by the participants in our study could be attributed to the fact that physiotherapists (based on the nature of their training) are experts in exercise and physical activity related issues both in healthy and disease conditions. In addition, in clinical practice, exercise is a core modality used by physiotherapists to restore functions in persons with mobility impairments and limitations in participation in activities of daily living. However, a few number of participants had very good knowledge on effect of exercise on HIV infected persons. This finding is not confounding because earlier study in Nigeria [18] concluded that Nigerian physiotherapists exhibited unsatisfactory knowledge of universal precautions and AIDS pathophysiology, and most physiotherapists surveyed did not feel comfortable and showed low ethical disposition when it comes to caring for persons infected with HIV and AIDS. In addition, Maduagwu et al. [20] in their study on knowledge of effect of exercise on HIV infected persons among health care professionals reported unexpectedly that the mean score of physiotherapists on knowledge of effect of exercise on HIV infected persons was less than that of the pharmacists. In Canada, O'Brien et al. [15] found that few physiotherapists work with persons living with HIV and AIDS. Worthington et al. [16] also in Canada observed that most physiotherapists never managed persons living with HIV, were uncomfortable with the idea and reported not receiving HIV management training in their rehabilitation degree program.

In our study, gender of physiotherapists, institution of practice, years of work experience, educational level and type of primary facility did not influence the physiotherapists' knowledge of effect of exercise

on HIV infected persons. Although gender was identified as not being a factor influencing physiotherapists' knowledge on the subject under discuss, female physiotherapists displayed a better knowledge of the effect of exercise on HIV infected persons in Nigeria.

Variable	n	Mean Score	Test Statistics	p-Value
<b>Gender</b>				
Male	54	12.61 ± 1.32	2.03‡	0.904
Female	39	12.82 ± 2.19		
<b>Education</b>				
Bachelors	79	12.47 ± 1.81	4.84‡	0.398
Post-graduate	14	14.00 ± 0.27		
<b>Primary facility type</b>				
Clinic		12.61 ± 1.44	5.24‡	0.627
Academics	11	13.31 ± 1.03		
<b>Working Experience (years)</b>				
≤ 10	79	14.67 ± 2.52	0.894‡‡	0.583
Nov-20	13	12.33 ± 2.89		
≥20	1	19.00 ± 0.17		
<b>Primary Facility</b>				
BUK/AKTH	42	12.55 ± 3.36	0.860‡‡	0.466
UNILORIN/UITH	24	10.88 ± 4.52		
UNIMAID/UMTH	27	14.56 ± 2.98		
<b>Area of Specialization</b>				
Orthopedics	6	11.83 ± 6.52	1.990‡‡	0.583
Medicine/Neurology	11	15.18 ± 2.75		
Pediatrics/ O&G	7	15.00 ± 1.41		
Others	69	12.20 ± 3.62		
<b>Rank</b>				
Low	54	12.15 ± 3.43	3.43‡‡	0.021*
Middle	33	12.72 ± 4.43		
High	6	13.93 ± 3.75		
Alpha level=0.05				
Key: BUK/AKTH=Bayero University Kano/ Aminu Kano Teaching Hospital.				
UNILORIN/UITH=University of Ilorin/ University of Ilorin Teaching Hospital. UNIMAID/UMTH= University of Maiduguri/ University of Maiduguri Teaching Hospital				
‡= independent t-test statistics, ‡‡= One way ANOVA statistics *= statistically significant				

**Table 3:** Independent t-test and one way ANOVA analysis of mean scores of Physiotherapist's knowledge of effect of exercise on HIV-infected persons.

This report is at variance with studies [16,20] which showed that males had significant higher knowledge than females. Similarly, physiotherapists at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri had higher but insignificant mean score on the subject compared to their counter parts at other institution. The reason for this observation may not be far fetched in that UMTH has a well-established antiretroviral clinic (ARV) that caters for about 6000 HIV infected persons monthly and the institution was designated as a center of excellence in immunology and infectious diseases by the Nigerian Federal Government in 1986. More importantly, the physiotherapists at the UMTH collaborate with the physicians at the ARV clinic on areas of research on HIV and AIDS. This collaboration might have developed their interest and knowledge advancement on HIV and AIDS, and the effect of exercise on physiological and psychological parameters of persons living with these disease conditions. Rank was however identified as a factor that can influence physiotherapists' knowledge on the subject. A rational explanation for this finding may be due to the fact that in the Nigerian civil service, workers at the senior cadre are preferentially selected over their junior counterparts for specialty training in form of government funded workshops, seminars or short refresher courses. Hence, physiotherapists at the senior cadre have more knowledge and exposure in contemporary evidence based trend and techniques by using global best practice in the management of challenging emerging medical conditions which ultimately include HIV and AIDS amongst others.

## Conclusion

The current survey concluded that only 55.9% of physical therapist has good knowledge on the effect of exercise on HIV infected persons. Further enlightenment campaign on the effect of exercise on HIV infected persons should be encouraged among physiotherapists in our region to further equip them with the knowledge and necessary skills needed for the overall management of persons infected with HIV and AIDS. Courses on exercise, and HIV and AIDS should be incorporated in curriculum of every physiotherapy school in Nigeria to aid the fresh graduates have first-hand information and knowledge on this field of study.

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