

Full Length Research Paper

Knowledge of effect of exercise on HIV infected persons among physiotherapy students in Nigeria

Maduagwu, S. M.^{1*}, Sokunbi G. O.¹, Jaiyeola, O. A.¹, Shuaibu, I.¹, Maduagwu, B. C.² and Ojiakor, A. C.³

¹Department of Physiotherapy, University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria.

²Department of Education, University of Maiduguri, Borno State, Nigeria.

³Department of Nursing Services, University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria.

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Despite the recognition and knowledge of the beneficial effects of exercise on persons living with HIV and AIDS in the developed world, there is global paucity of published studies on knowledge of effect of exercise on HIV infected persons. This study was therefore designed to determine whether physiotherapy students in Nigeria have the basic knowledge on the effect of exercise on HIV infected persons. Simple random sampling was employed to select four out of seven universities in Nigeria that already have existing and established Physiotherapy Departments. The instrument for this study was a validated and reliable 20 item questionnaire on knowledge of effects of exercise on HIV infected persons used in a previous study to investigate knowledge of effect of exercise on HIV infected persons among health care professionals in North eastern Nigeria. This questionnaire was administered to 346 respondents with a response rate of 74%. The mean and age range of the participants were 24.27 ± 2.68 and 20 to 39 years, respectively with majority (97.7%) between the ages of 20 and 31 years. More than one-quarter (29%) of the respondents lacked good knowledge on effect of exercise on HIV infected persons. Overwhelming (80%) Physiotherapy students in Nigeria lacked very good knowledge on effect of exercise on HIV infected persons.

Key words: Persons living with HIV and AIDS, physiotherapy students in Nigeria, existing and established physiotherapy departments, validated and reliable 20 item questionnaire, very good knowledge.

INTRODUCTION

The dawn of highly active antiretroviral therapy (HAART) in 1996 transformed human immunodeficiency virus (HIV) infection, a previously lethal condition to a manageable chronic illness. The implication of this medical

advancement is increase in number of infected persons who now live longer by overcoming the health related consequences and challenges posed by HIV (Cade et al., 2004). According to Fido and Kazemi (2002),

*Corresponding author. E-mail: stmanofpeace@gmail.com.

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this augmented population has sequentially escalated the societal burden of the disease, and placed high demand on health care services and resources. Notwithstanding the health benefits of HAART, some known and previously unrecognized adverse reactions that were not detected at the early clinical trials are now present. Thus, apart from several health problems associated with HIV infection itself, Boufassa et al. (2001) observed that affected individuals also experience adverse effects arising from HAART that could affect the physical, physiological and psychosocial components of health of this population, similar to those caused by HIV itself.

Consequently, persons living with HIV face a lot of health challenges that arise from the infection itself; knowledge of the fact that one is infected, the therapy used in the treatment of the disease, the accessibility of this therapy, pill burden or a combination of all these factors. While many of these health challenges are manageable with pharmacological agents, Ciccolo et al. (2004) advised that it is not practicable or wise to rely on additional medications to achieve this effect. The authors therefore advocated for the use of non-pharmacological methods as adjunct to HIV management to reduce the adverse effects of drugs, pill burden and possible drug interactions. Ciccolo et al. (2004) argued that adding other pills to treat these adverse effects of HIV and HAART is likely to further compromise the benefits of HAART and also increase pill burden. Standish et al. (2001) reported that exercise is consistently listed as the most common, most effective, non-toxic and the least expensive complementary therapy utilized by HIV infected persons in the United States (US). This report was subsequently corroborated by various studies (Djordjevic et al., 2007; Hand et al., 2009; O'Brien et al., 2006; Tiozzo et al., 2013).

It is therefore plausible to expect HIV infected persons all over the world to utilize exercise as a strategy to cope with the health problems imposed by HIV and its drug therapy. Despite the recognition and knowledge of the beneficial effects of exercise on persons living with HIV and AIDS in the developed world, there is global paucity of published studies on knowledge of effect of exercise on HIV infected persons. In most parts of the developing world, including Nigeria, in spite of the burden and complications of HIV infection and its treatment, there is dearth of data on the effect of exercise on HIV infected individuals, let alone on the knowledge of effect of exercise on this population apart from a recent study by Maduagwu et al. (2014) on the knowledge of effect of exercise on HIV infected persons among health care professionals in North eastern Nigeria. In that study, Maduagwu et al. (2014) posited that the lack of knowledge on the effect of exercise on HIV infected persons among Nigerian health care professionals might be the reason for the dearth of literature on the effect of

exercise on the overwhelming population living with HIV and AIDS in the country, notwithstanding the country's ranking as one of the countries with the highest inhabitants of HIV infected persons in the world.

In this present study, we hypothesize that for exercise (the bed rock of physiotherapy practice) to be utilized as an effective strategy in managing complications posed by HIV and its drug therapy, it is imperative for physiotherapy students (who are indeed the future physiotherapists) to have knowledge of effect of exercise on HIV infected persons right from the period of training. The aim of the study was therefore to determine whether physiotherapy students in Nigeria have the basic knowledge on the effect of exercise on HIV infected persons.

MATERIALS AND METHODS

Settings, participants and design

Nigeria is divided into six geographical zones. Each zone has at least one university that offers physiotherapy program. In all, there are currently nine universities that offer physiotherapy courses in the country. Two of these were newly established, hence were not part of this study. Physiotherapy training in Nigeria presently lasts for five years. Students that participated in the study were those in the 4th and 5th years of study. The remaining seven universities and their locations are as follows: The Universities of Ibadan and Lagos, and Obafemi Awolowo University located in the South west; University of Nigeria, Nsukka and Nnamdi Azikiwe University in the South east; Bayero University, Kano in the North west and University of Maiduguri in the North east. Simple random sampling was used to select one university each from the universities in the South west (University of Lagos {Unilag}) and South east (University of Nigeria, Nsukka {UNN}). Bayero University, Kano (BUK) being the only university in the North west that offers physiotherapy was automatically selected, so also the University of Maiduguri (Unimaid) in the North east.

In essence, the study comprised two universities offering physiotherapy from the southern Nigeria and two from the northern part of the country. Every 4th and 5th year students in each of these selected universities were implored to participate in the study. This comprehensive recruitment was to enhance the number of participants as well as reduce rate of attrition. The study employed cross-sectional design with data collection through self-administered questionnaire. Ethical approval for the study was granted by the Research and Ethical Committee of the University of Maiduguri Teaching Hospital, Maiduguri, Nigeria. The researchers explained the purpose of the study to each participant on a sheet of paper attached to the questionnaire. Consent to participate was implied by signing informed consent form which was also attached to each questionnaire, completing the questionnaire and returning it.

Questionnaire

The instrument for this study was a 20 item questionnaire on knowledge of effect of exercise on HIV infected persons. Maduagwu et al. (2014) developed and used this questionnaire to investigate knowledge of effect of exercise on HIV infected persons

among health care professionals in North eastern Nigeria. Two experts in cardiopulmonary physiotherapy and an exercise physiology professor studied the instrument at the stage of development for face and content validity.

The developers also subjected the tool for test-retest reliability and found r as 0.82. It consists of two sections. Section A comprises questions on participants' socio-demographic characteristics. This section was modified by the investigators to suit the purpose of this present study which was conducted on students. Section B contains 20 item closed - ended questions, each with three domains (Agree, Disagree or Undecided responses) for assessing the knowledge of effect of exercise on HIV infected persons. Some of the item questions on the questionnaire are on what the students thought were the impact of exercise on CD4 cell count, immune status, and patients' well being and resistance to diseases.

Scoring of the questionnaire

A correct answer to each question scored 1. Hence the maximum score was 20 and minimum 0. An "agree" and "disagree" responses to a correct and wrong statement respectively scored 1 each, while an "undecided" response was disregarded. Based on these, the higher the score, the higher the knowledge of the student(s) on effect of exercise on HIV infected persons. For simplicity and descriptive purposes only, the developers ranked scores as follows; 0 to 5 indicates poor knowledge of effect of exercise on HIV infected persons, 6 to 10 implies fair knowledge, 11 to 15 connotes good knowledge and 16 to 20 signifies very good knowledge. In other words, this ranking was not meant for inferential statistics.

Distribution of the questionnaire

The researchers were all residents of Maiduguri, North eastern Nigeria at the time of the study. They contacted the physiotherapy departmental secretaries of the four selected universities who gave the numbers of 4th and 5th year physiotherapy students at each of the universities. Based on these numbers, the researchers sent equivalent number of copies of questionnaire by courier to each secretary at Unilag, UNN and BUK, while those for Unimaid were issued to the secretary by hand. The researchers then implored each of the secretaries to assist in distributing the questionnaire to all the 4th and 5th year students willing to participate in the study. The researchers instructed each secretary not to receive the completed questionnaire by hand, but informed the students to drop the questionnaire in an enclosed carton which had an opening just enough to enter the completed questionnaire. This distribution method and the adopted comprehensive recruitment of every willing 4th and 5th year students guaranteed anonymity and aimed to increase the response rate, respectively.

Data analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0 software (SPSS Inc. Chicago, Illinois, USA). Descriptive statistics summarized the sociodemographic characteristics of the participants. Independent Student t-test analyzed the difference in the mean score of knowledge of effect of exercise on HIV infected persons between male and female participants, 4th and 5th year students, and geographical location of universities of training in terms of Northern

and Southern Nigeria.

One way analysis of variance (ANOVA) analyzed difference in the mean score of knowledge of effect of exercise on HIV infected persons among the participants at different universities. Least of square difference (LSD) post hoc test was employed to determine where any significant difference existed. An alpha value of $p < 0.05$ was considered significant.

RESULTS

Two hundred and fifty five (138 males and 117 females) out of the 346 participants, returned their questionnaire duly completed, translating to 74% response rate. The age of the participants ranged from 20 to 39 years with a mean age of 24.27 ± 2.68 and majority (97.7%) were in the age group of 20 to 31 years. Male participants accounted for 54.1% and most (88.2%) were unmarried. Students from BUK constituted the majority (33.3%). Fourth year students accounted for 51.8% and the participants from Northern Nigeria comprised 53.3%.

Table 1 depicts details of the sociodemographic characteristics of the participants. Table 2 displays the ranking of scores on knowledge of effect of exercise on HIV infected persons. Substantial number (51%) of the participants exhibited good knowledge on the effect of exercise on HIV infected persons. Table 3 presents the mean scores and significant level on knowledge of effect of exercise on HIV infected persons among the participants. Table 4 shows the post hoc test to determine where significant difference exists among the participants' universities of training.

DISCUSSION

This study on knowledge of effect of exercise on HIV infected persons among physiotherapy students in Nigeria may seem to be the first published data among students population on this subject, but ranks second to a recent similar study (Maduagwu et al., 2014) pioneered by the principal author. In essence, the authors attempt to fill the obvious gap on knowledge of effect of exercise on HIV infected persons, despite substantial studies by several scholars, especially in the developed nations on effect of exercise on HIV and AIDS. Male participants accounted for 54.1% as against their female counterparts. This can be attributed to the fact that most health care professions in Nigeria (except nursing) are dominated by males right from training periods. This male preponderance is similar to the findings of Maduagwu et al. (2014) in a study conducted on knowledge of effect of exercise on HIV infected persons among health care professionals in north eastern Nigeria. This male preponderance can also be attributed to the fact that the north which accounts for 53.3% of the participants faces

Table 1. Sociodemographic characteristics of the participants.

Variables	Frequency (%)	Percentage
Age Group		
20 - 23	102	40.0
24 - 27	131	51.3
28 - 31	16	6.3
32 - 35	4	1.6
36 - 39	2	0.8
Gender		
Male	138	54.1
Female	117	45.9
Marital Status		
Single	225	88.2
Married	28	11.0
Divorced	2	0.8
Year of study		
4th	132	51.8
5th	123	48.2
Universities of training		
Buk	85	33.3
Unilag	46	18.1
Unimaid	51	20.0
Unn	73	28.6
Region		
North	136	53.3
South	119	46.7

socio-cultural and religious factors that restrict females to public or work life as corroborated by a previous study (Akinpelu et al., 2011) in the north eastern Nigeria.

Overwhelming number of the participants was between the ages of 20 and 27 years. This is not surprising, because this age bracket constitutes the age of graduation or near graduation for most students in Nigeria studying professional courses that last for five to six years. Also for a Nigerian student to qualify for National Youth Service in Nigeria, a pride of every Nigerian student, he/she must be less than 30 years at the year of graduation. In view of this, every concerned post secondary student looks forward to enter the university and graduate before the age of 30 years. Most participants were unmarried, this is expected, because most Nigerian undergraduate students either because of age, lack of finance (for male students who have to pay bride price and provide for the family), inexperience as regards marital life or busy academic schedules, or combination of these, remain unmarried until after graduation and employed. More than 50% of the participants were in the fourth year of study. This may be as a result of busy schedules of the 5th year student who

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

Categories of score	Frequency (n)	Percentage
0 - 5 (poor knowledge)	12	4.7
6 - 10 (fair knowledge)	62	24.3
11 - 15 (good knowledge)	130	51.0
16 - 20 (very good knowledge)	51	20.0

were in their final year; hence some might not had participated in the study. It could also be that the 4th year students were more in number. Also the students from the universities situated in northern Nigeria participated more in the study. The reason for this may not be far-fetched, since the study was conducted in Maiduguri, a northern city, hence most if not all eligible students in Unimaid might had participated in the study.

Data from this study showed that sizeable number of the participants had good knowledge of effect of exercise on HIV infected persons. This is similar to the findings of Maduagwu et al. (2014) in a study on knowledge of effect of exercise on HIV infected persons among healthcare professionals in northeastern Nigeria in which substantial number of the participants demonstrated good knowledge. This good knowledge demonstrated by the participants could be attributed to the fact that exercise therapy is part of the curriculum of physiotherapy training in Nigeria and is continuously used as means of intervention not only for HIV infected persons but also for those having other conditions in which exercise is not contraindicated. In addition, exercise therapy is the pedestal of physiotherapy profession. However, only one-fifth of the physiotherapy students had very good knowledge, while more than a quarter lacked good knowledge on the subject. This discovery is not astounding because earlier related studies in Nigeria had reported similar findings. Oyeyemi et al. (2008) reported that Nigerian physiotherapists were not comfortable and not willing to manage persons living with HIV and AIDS. Also, Oyeyemi et al. (2011) concluded that Nigerian physiotherapists exhibited unsatisfactory knowledge of universal precautions and AIDS pathophysiology, and most of them did not feel comfortable and showed low ethical disposition when it comes to caring for persons infected with HIV and AIDS.

Maduagwu et al. (2014) reported that more than a quarter of the health care professionals in their study lacked good knowledge on the beneficial effect of exercise on persons living with HIV. This observation is not limited to Nigerian physiotherapists alone. In Canada, O'Brien et al. (2006) reported that few physiotherapists work with persons living with HIV. Worthington et al. (2005) also in Canada had earlier observed that most

Table 3. Mean scores and significant levels on knowledge of effect of exercise on HIV-infected persons.

Variable	N-score	Mean	Test statistic	P- value
Gender				
Male	138	2.35 ± 3.768	0.058 ¶	0.811
Female	117	12.40 ± 3.674	-	-
Years of study				
4th	132	12.45 ± 3.751	0.010 ¶	0.989
5th	123	12.28 ± 3.697	-	-
Region				
North	136	3.10 ± 3.642	0.424 ¶	0.516
South	119	1.54 ± 3.642	-	-
Universities				
Buk	85	13.19 ± 3.844	4.467 §	0.004*
Unilag	46	12.07 ± 3.235	-	-
Unimaid	51	12.96 ± 3.310	-	-
Unn	73	11.21 ± 3.862	-	-

¶ = independent T-test; § = one way ANOVA; * = the mean difference is significant at 0.05.

Table 4. LSD Post hoc test for knowledge of effect of exercise on HIV infected persons among participants at various universities.

Comparison among universities	Mean difference	Significance	
Buk vs.	UniLag	1.123	0.094
	UniMaid	0.227	0.725
	UNN	-1.983	0.001*
Unilag vs.	BUK	-1.123	0.094
	UniMaid	0.896	0.228
	UNN	0.860	0.211
Unimaid vs.	BUK	-0.227	0.725
	UniLag	0.896	0.228
	UNN	1.755	0.009*
Unn vs.	BUK	-1.983	0.001*
	UniLag	-0.860	0.211
	UniMaid	-1.755	0.009

Key: * = the mean difference is significant at 0.05 level.

physiotherapists never managed persons living with HIV, were uncomfortable with the idea and reported not receiving HIV training in their rehabilitation degree program. Findings from this study revealed no statistical significant difference ($p > 0.05$) in terms of gender, years of study and region in which university of training is located. However based on gender, females, regardless of their lower number, displayed higher mean score

compared to the males, which means they had better knowledge of effect of exercise on HIV infected persons. This non significant but higher mean score demonstrated by females in this study somehow disagreed with the findings of Tsuda et al. (1982) and Maduagwu et al. (2014) in which male participants had significant higher knowledge than females. This however, should be interpreted with caution because the populations used by

Tsuda et al. (1982) and Maduagwu et al. (2014) were different from that of the present study.

The non significant but higher mean scores by the participants from the universities situated in northern Nigeria and those in the 4th year of training may be difficult to ascertain. It could be probably as a result of their larger numbers in the study compared to their counterparts. The result on knowledge of effect of exercise on HIV infected persons based on universities of training revealed a statistical significant difference ($p < 0.05$) with participants from Bayero University Kano (BUK) having the highest mean score (13.19). This can be attributed to their preponderance over other institutions of training that participated in this study. It may also be as a result of their existent knowledge on the subject, since participants from University of Nigeria Nsukka (UNN), the second to BUK in terms of number of participants had the least mean score. Moreover, the mean scores of the participants from other universities in this study, except that of the participants from University of Lagos (probably due to their number, which was the least) were significantly higher than that of the participants from UNN.

LIMITATIONS

As a result of dearth of studies on this subject, the findings of this study seemed to form the bedrock of the discussion. Based on this, scholars should endeavour to conduct studies on the knowledge of effect of exercise on HIV infected persons. Hence, the findings of this present study and those of Maduagwu et al. (2014) may form the bases and precursors to achieve this purpose.

In addition, the discrepancy in the proportions of the participants from each university selected for this study might have somehow skewed the result of the study and its findings. Further studies may attenuate this effect (if feasible) during recruitment process.

KEY POINTS

- 1). One hundred and thirty (51%) participants had good knowledge of effect of exercise on HIV infected persons.
- 2). One-fifth of the physiotherapy students had good knowledge, while more than 25% lacked good knowledge on the subject.
- 3). There was no statistical significant difference in knowledge of effect of exercise on HIV infected persons between male and female participants.

CONCLUSION

Substantial number of the respondents had good

knowledge on the subject, while 80% of the Physiotherapy students in Nigeria lacked very good knowledge on the effect of exercise on HIV infected persons. This revelation calls for urgent need to incorporate HIV and exercise related courses in the syllabus of every Physiotherapy training institution in Nigeria. This in the long run may produce future scholars in the country who may be interested in conducting HIV and exercise studies, since HIV has transmuted to a chronic manageable disease.

Conflicts of interest

Authors have none to declare.

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