

A SURVEY OF DISPOSITION OF PHYSICIANS TOWARDS PHYSICAL ACTIVITY PROMOTION AT TWO TERTIARY HOSPITALS IN NORTH-EASTERN NIGERIA

A.Y Oyeyemi¹, R.B Usman² and A.L Oyeyemi^{1,3}

1. Department of Medical Rehabilitation (Physiotherapy), College of Medical Sciences, University of Maiduguri, Maiduguri, Nigeria
2. Department of Physiotherapy, University of Maiduguri Teaching Hospital, Maiduguri, Nigeria
3. Physical Activity, Sport and Recreation Research Center, Faculty of Health Sciences, North-West University, Potchefstroom, South Africa

Correspondence:

Dr. A.Y. Oyeyemi

Associate Professor

Department of Medical Rehabilitation,
(Physiotherapy),
College of Medical Sciences,
University of Maiduguri,
Maiduguri, Nigeria.
Email: adeoyeyemi@aol.com

ABSTRACT

Background: A general presumption is that any advice from physicians would likely be taken seriously by patients, and patients are more likely to see their doctors in the event of any health complaints than any other health professionals. The perceptions and practice of Nigerian physicians on their role in physical activity promotion are not well known. This study aimed to determine the knowledge of physical activity message, confidence, role perceptions, barriers and feasibility of physical activity promotion among physicians in two tertiary health institutions in North-Eastern Nigeria.

Methods: A total of 153 (84.5% response) physicians at the University of Maiduguri Teaching Hospital and Federal Medical Center Yola completed a previously developed questionnaire that elicited information on their knowledge, barrier, feasibility, role and confidence in physical activity promotion.

Results: Physicians in this study reported fairly good knowledge (mean score= $14.7 \pm 2.2/20$), minimal or little barrier to physical activity promotion (mean score= $24.4 \pm 3.5/30$), perceived physical activity promotion as their role (mean score= $12.9 \pm 1.6/15$), were confident in their ability to discuss and recommend exercises for physical activity promotion (mean score= $7.9 \pm 1.3/10$) and believed promoting physical activity was feasible for them (mean score= $15.0 \pm 2.5/20$). The physicians had good disposition to physical activity promotion (Mean score= $78.5 \pm 6.7/100$), but male physicians showed better disposition than their female counterparts.

Conclusions: Overall these cohorts of physicians are somewhat knowledgeable on physical activity promotion and are positively disposed to promoting physical activity among their patients. These findings can be leveraged upon to optimize outcome of campaigns or interventions to change physical activity behaviour in Nigerian populace.

Keywords: Physical activity, Exercise promotion, Medical doctors, Disposition, Active lifestyle

INTRODUCTION

Physical activity is defined as any bodily movement that is produced by skeletal muscles requiring energy expenditure.¹ The term connotes movements that enhance health and is mostly used interchangeably with exercise which is a subset of physical activity that is planned, structured and repetitive with a long or short term objective of improving or maintaining physical fitness.² Physical activity can be occupational, sports, or activities of daily living functions and others activities which are often done with little regard to physical fitness but which confers health benefits just as exercise. Physical inactivity has been identified as the fourth leading risk factor for global mortality and global

estimate shows that physical inactivity causes 6% of the burden of disease from coronary heart disease, 7% of type-2 diabetes, 10% of breast cancer, 10% of colon cancer and 9% of premature mortality.³ An estimate of 0.68 years of life expectancy increase for the world population has been projected if physical inactivity is eliminated.³

Promotion of physical activity is important because there is ample scientific evidence on its benefits in the prevention, treatment, and rehabilitation of major public health diseases.⁴⁻⁸ Traditionally, physicians are the gatekeepers to health care and are more likely to

be seen by their patients regularly than other health professional.⁹⁻¹¹ Furthermore, a general presumption is that advice from physicians would likely be taken seriously by patients.¹¹ Despite the benefits of physical activity and presumable advice by physicians and health professionals, adherence to it among populations is still low.¹² Consequently, engaging the physicians and other health care providers in physical activity promotion has been advocated as a promising strategy to improve populations physical activity and health promotion in some developed countries.¹³

Previous reports exist on the belief of physicians about the importance of physical activity,¹⁴⁻¹⁸ and some of these show that doctors more often than not do not discuss physical activity with more than half of their patients.^{14,17} Physicians in the United Kingdom have good knowledge of the benefits of regular physical activity and the required level for good health, they identified lack of time as possible barriers to promoting physical activity, and they also believed that physical activity was not pertinent to patients' complaint and is not a cogent reason for consultation and that patients would not adhere to their advice on physical activity.¹⁷ However, Australian physicians reported promoting physical activity is important and would be enacted as part of the patient's plan of management.¹⁹

Physicians in Switzerland reported that counseling will be provided if other cardiovascular risk factors were present,²⁰ and overwhelming majority of Canadians physicians reported asking their patients about physical activity and counseling them on physical activity.¹⁸ Conversely, less than half (43%) of US physicians counseled more than half of their patients about physical activity and only 14% prescribed exercise for more than half of their patients, and cited lack of time and effective counseling skills as barriers to effective promotion of physical activity.¹⁶ Presently there is paucity of published data on physical activity promotion and prescription by physicians and other health professional groups in sub-Sahara Africa including Nigeria, and it is unclear whether physicians in Nigeria give their patients the necessary advice on exercises and physical activity or not.

The disposition of physicians to promote and recommend physical activity and exercises to their clients is an indication of their awareness of the menace of non-communicable diseases and solution to mitigating the menace. Initiating a positive behavioural change or influencing the level of adherence to exercise and physical activity, it can be argued, hinges on the disposition of physicians and other health experts to promoting and recommending physical activity to

patients and clients. The aims of the study were to determine the knowledge of physical activity message, confidence, role perceptions, barriers and feasibility of physical activity promotion among physicians at two tertiary hospitals in North Eastern Nigeria. It was also to identify any socio-demographic variables that could influence the knowledge of physical activity message, confidence, role perceptions, barriers and feasibility of physical activity promotion among physicians in the two hospitals.

METHODOLOGY

Participants and Instrument

Using a convenience sample, a total of 153 physicians with not less than one year of working experience at the University of Maiduguri Teaching Hospital and Federal Medical Center Yola, participated in this study. Out of the 181 physicians surveyed, a total of 153 returned a completed and usable questionnaire, giving a response rate of 84.5%. The instrument used for data collection was adopted from a previous survey questionnaire used in a study of primary care physicians in Australia,¹⁹ that was designed based on focus groups with primary care physicians and initial pilot testing.²¹ The instrument consists of domains on knowledge of physical activity message, role perception on physical activity promotion, confidence in giving physical activity message, perceived barriers to physical activity promotion and feasibility of physical activity promotion strategies. Possible response to items on the scales ranges from a minimum score of 1 (strongly disagree) to 5 (strongly agree), giving a total maximum composite physical activity promotion score of 100 and a minimum score of 20. The higher the score, the better the disposition for physical activity promotion.

One item on the knowledge of physical activity domain is "Half an hour of walking on most days is all the exercises that is needed for good health", while an item on role perception on physical activity was "Discussing the benefits of a physically active lifestyle with patients is part of the physician's role". Other domains such as confidence in giving physical activity message have item like "I feel confident in giving general advice to patients on a physically active lifestyle" while the domain on barriers to physical activity promotion have item like "Lack of time". An example of what is feasible for physical activity promotion for their patients in the feasibility of physical activity promotion domain is "Separate one-on-one consultations". Some of the questionnaire items were negatively worded while others were positively worded.

One item in the knowledge of physical activity domain that was negatively worded is "Exercise that is good

for health must make you puff and pant”. For this item a Strongly Disagree response was most accurate and was scored 5, while a Strongly Agree response was incorrect and was assigned 1. An example of a positively worded item is “Several short walks of 10 minutes each on most days is better than one round of golf per week for good health”. The most accurate response was Strongly Agree and was scored 5 while the least accurate response is Strongly Disagree and was scored 1. The participants’ response (score) on the entire scales were summed to give the composite physical activity promotion score, which is the score on all the domains. The minimum and maximum possible physical activity promotion score is 20 and 100, respectively. To ascertain the reliability of the adopted instrument among the Nigerian physicians in the present study, its test-retest evaluation was done by administering the questionnaire to 10 physicians within a two-week interval, and a good reliability coefficient (r) of 0.98 was obtained before the commencement of data collection for this study.

In addition, self-reported information on respondents’ socio-demographic characteristics such as age, gender, and rank were also collected.

Procedure

Ethical approval was sought and obtained from the Research and Ethical Committee of the University of Maiduguri Teaching Hospital, and permission was also

obtained from the Chief Medical Directors of both hospitals where the study was conducted before the commencement of the study. One of the researcher (RBU) who administered the questionnaire approached each participant, introduced herself and then explained the purpose of the research to them and anonymity of the participants was assured. Upon obtaining written consent, questionnaires were distributed to the participants at the tertiary hospitals and were collected by the researcher after completion.

Data analysis

Descriptive statistics of mean, standard deviation, frequency and percentage were used to summarize the participants’ scores on knowledge, role perception, confidence, barrier and feasibility and composite physical activity promotion score, and their socio-demographic characteristics as appropriate. Mean group differences for continuous variables by sociodemographic characteristics were examined by independent t-test and One-Way ANOVA, and for dichotomous variables by chi-square statistics. Level of significance was set at $P \leq 0.05$.

RESULTS

Socio-demographic characteristics of the participants

Out of a total of 180 questionnaires given to participants at the two tertiary hospitals, 153 were returned completed. Fifty-nine (38.6) participants were

Table 1: Socio-demographic characteristic of the participants (N=153)

Characteristics	Frequency	Percentage
Age (years)		
20-39	126	82.4
40 or >	27	17.6
Gender		
Male	108	70.6
Female	45	29.4
Years of Working Experience		
1-10	128	83.7
11 or >	25	16.3
Department		
Pediatrics	32	20.9
Medicine	42	27.5
Surgery	31	20.2
General Practitioners	20	13.1
Others	28	18.3
Rank		
Medical Officer/SMO	60	39.2
PMO/Registrar	66	43.1
CMO/SR/Consultant	27	17.7
Hospital		
Federal Medical Center, Yola	59	38.6
University of Maiduguri Teaching Hospital	94	61.4

SMO denotes Senior Medical Officer; PMO denotes Principal Medical officer and SR denotes Senior Registrar

from Federal Medical Centre Yola while 94 (61.4%) were from the University of Maiduguri Teaching Hospital. More males (n=108, 70.6%) than females (n= 45, 29.4%) participated in this study and 82.4% (n= 126) were in the age group of 20-39 years and 25 (16.3%) had spent 11 years and above in practice. Few (n=12, 7.8%) were consultants and 42 (27.5%) were physicians in medicine and neurology department. Summary of information on the socio-demographic characteristics of the participants is shown in Table 1.

Table 2: Physicians' knowledge, role perception, confidence, barriers, and feasibility of physical activity promotion

Variable	Mean	SD
Knowledge of PA promotion message	14.7	2.2
Confidence in giving PA promotion message	12.9	1.6
Role perception in PA promotion	7.9	1.3
Barriers to PA promotion	24.4	3.5
Feasibilities of PA promotion strategies	15.0	2.0
Overall composite score (disposition) to PA promotion	78.5	6.7

SD= Standard Deviation

PA= Physical Activity

Participants score on knowledge, role perception, confidence, barrier and feasibility of physical activity promotion

Participants mean score on knowledge was 14.7±2.2 out of the possible score of 20 which indicates that the participants had good knowledge on physical

activity promotion. The mean score on role perception was 12.9±1.6 out of the possible score of 15 indicating that the participants perceived physical activity promotion as their role. Also the mean score on confidence was 7.9±1.3 out of the possible score of 10 and is an indication that participants were confident of their skill in promoting physical activity. A mean barrier score of 24.4±3.5 out of the possible score of 30 shows that the participants perceived little or minimum barrier to physical activity promotion, whereas a mean score of 15.0± 2.5 on feasibility out of a possible score of 20 shows that physical activity advice or counseling will more likely be provided to patients by the physicians than not. A mean composite score of 78.5±6.7 out of a possible score of 100 shows that the participants overall had good disposition to physical activity promotion (Table 2).

Overwhelming majority (78.4%) responded 'Yes' when asked whether they were aware of physical activity recommendation for adults. Ninety respondents (58.8%) chose 30 minutes of moderately intense exercise or physical activity 4-5 times a week, while only 9.8% (n=15) chose 15 minutes of moderately intense exercise or physical activity 5-6 times a week, when asked which exercise prescription they would recommend and how many times a week. This result indicates that although majority of the physicians chose optimal physical activity recommendation, many (n= 63, 41.2%) chose less than optimal duration of physical activity per session (Not shown in Table).

Table 3: Difference in composite physical activity score by socio-demographics

Variables		Satisfactory PAP n (%)	Not satisfactory PAP n (%)	Chi-square value	P-value
Age group	20-39	57 (45.2)	69 (54.8)	3.44	0.33
	40 or >	16 (59.3)	11 (40.7)		
Gender	Male	58(53.7)	50(46.3)	5.28	0.02*
	Female	15(33.3)	30(66.7)		
YWE	1-10	46 (48.4)	49 (51.6)	4.57	0.33
	11 or >	26 (56.5)	20 (43.5)		
Department	Pediatrics	14(43.8)	18(56.2)	5.12	0.40
	Medicine	25(59.5)	17(40.5)		
	Surgery	15(48.4)	16(51.6)		
	G/Ps	8(40.0)	12(60.0)		
	Others	11(28.6)	17(71.4)		
Rank	MO/SMO	28 (46.7)	32 (53.3)	4.69	0.32
	JR/PMO	28(42.4)	38(57.6)		
	SR/CMO	8(53.3)	7(46.7)		
	Consultant	9(75.0)	3(25.0)		

PAP = Physical activity promotion

YWE = Years of working experience

MO= Medical Officer

SMO= Senior Medical Officer

JR/PMO= Junior Registrar/ Principal Medical Officer

SR/CMO= Senior Registrar/ Chief Medical Officer

*= Significant difference at pd" 0.05

Differences by socio-demographic characteristics

The data was analyzed to ascertain whether there were differences by socio-demographic characteristics. The results showed no significant difference ($P>0.05$) in knowledge, role perception, confidence, barrier and feasibility of physical activity promotion by age, years of working experience, department and rank of the participants. However, a significant difference ($P=0.028$) in composite score by gender was observed indicating that males show better disposition to physical activity promotion by recommending physical activity, than their female counterparts (Not shown in Table).

Furthermore, physicians' composite physical activity promotion score was dichotomized into satisfactory and unsatisfactory score. With 80% correct score set as the threshold, a simple majority of the physicians (52.3%) had unsatisfactory composite score. The dichotomized data was analyzed for differences by socio-demographic characteristics. Physicians that had the highest satisfactory score were in the age group of 40-49 (60.9%), in medicine (including neurology) departments (59.5%) while more male physicians (53.7%) as compared with their female counterparts (33.3%) had satisfactory score. Detailed information on the differences in composite physical activity score by socio-demographic characteristics of the participants is shown in Table 3.

DISCUSSION

Recommending physical activity is as important for overall prevention of non-communicable diseases just as recommending tobacco cessation, moderate alcohol consumption or as treating hypertension, hypercholesterolaemia and obesity.^{3,22} A general belief is that physicians are more likely than other health professionals to be involved in policy decision making on population health and in the prevention of diseases and particularly non-communicable disease. Due to their traditional leadership role in the health team and as gate keepers in health care, they are more likely to see patients who need health services than any other health professionals. Overall good disposition of this cohort of physicians to promoting physical activity is an important finding with possible implications on physical activity promotion in Nigeria.

The present study shows that physicians had good knowledge of physical activity message and they also have good disposition to physical activity promotion. This finding is similar to that of Lawlor *et al.*¹⁷ which showed that physicians in the United Kingdom had a good knowledge of the benefits of regular physical activity to health, and that of van der Ploeg *et al.*¹⁹ which reported that physicians in New South Wales Australia had good knowledge of physical activity

message. Physicians in the present study perceived physical activity promotion as their role, similar to a report by van der Ploeg *et al.*¹⁹ which show physicians in Australia had a good perception of physical activity as their role.

The cohort of physicians in this study were confident in giving physical activity counseling, consistent with findings among their colleagues in Canada, UK and Australia,^{17,19,23} which show most physicians provide counseling on physical activity to their patients. The Nigerian physicians cited minimal barrier to physical activity promotion, in contrast to American physicians in a previous study who reported substantial barriers to giving physical activity advice to their patients.¹⁶ Although the later study also shows that incorporating physical activity counseling or message into physicians' practice is highly feasible for the physicians, just as physicians in the present study.

The present study shows no significant difference in the physical activity promotion disposition by age group. This finding is at variance with that of Petrella *et al.*²³ which showed that physicians in Canada who were 55 years or over tended to ask and counsel their patients on physical activity more than those of lower age groups. Our findings may also not be comparable to that of Walsh *et al.*¹⁶ who reported that physicians in San Francisco who were 35 years or above asked and counselled their patient on physical activity more frequently than those below 35 years of age. Our finding that male physicians have better disposition to physical activity promotion than their female counterparts is contrary to the finding in the study of Petrella *et al.*²³ which showed that female physicians make recommendations on physical activity to their patients or clients more frequently than their male counterparts.

Although we set 80% correct score as the threshold for satisfactory composite physical activity promotion disposition, and a simple majority of the physicians (52.3%) had unsatisfactory composite score, we argue that overall the physicians in the present study may not be regarded as having negative disposition. This is because based on their average physical activity promotion composite score of 78.5 ± 6.7 which correspond to an 'Agree' response on a continuum between 'Strongly Agree' and 'Agree', the physicians can be regarded as having a somewhat positive disposition to promoting physical activity.

However, the present study has some limitations, and the findings should be interpreted with some cautions. The cross-sectional nature of this study makes it difficult to determine cause and effect relationships.

Physician in this study may have responded to the items on physical activity promotion in ways that was perceived to be socially desirable.²⁴ In addition, the physicians in this study practice in tertiary institutions where students and residency training takes place, and in centers presumed to be better exposed to current best practices than most other hospitals or clinics in Nigeria. Therefore, some selection bias may have occurred. Also, while the study findings may be generalized to tertiary health institutions and centers, such generalizations may not be applicable to physicians practicing in general and non tertiary institutes and private clinics or hospitals in Nigeria.

CONCLUSION

Physicians in this study were knowledgeable on physical activity promotion, reported minimal or little barrier to physical activity promotion, perceived physical activity promotion as their role, were confident in their ability to discuss and recommend exercises for physical activity promotion and believed promoting physical activity was feasible for them. This study shows that overall the physicians are somewhat positively disposed to promoting physical activity among their patients and clients. Female physicians however were less positively disposed to promoting physical activity in their practice than their male counterparts, and may therefore need special focus on any intervention to enable physicians take on leadership role in any policy formulation, campaign or intervention to change physical activity behavior among patients and clients in Nigeria.

Conflict of Interest: None

Funding source: None

REFERENCES

1. **Prince SA**, Adamo KB, Hamel ME, *et al.* A comparison of direct versus self report measures for assessing physical activity in adult. A systemic review. *Int. J. Behav. Nutr. Phys. Act.* 2008; 5: 56-80.
2. **Okely AD**, Patterson J, Boothet, M. Rationale and guidelines for promoting physical activity in schools. *J. Phys. Ed. N.Z.* 1998; 31: 3-5.
3. **Lee IM**, Shiroma EJ, Lobelo F, *et al.* Effects of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. *Lancet.* 2012; 380: 219-229.
4. **Pate RR**, Pratt M, Blair SN. Physical activity and public health: A recommendation from the centers for disease control and prevention and the American College of Sports Medicine. *JAMA.* 1995;273:402-407.
5. **Kesaniemi A**, Danforth E, Jensen MD, *et al.* Dose-response issues concerning physical activity

and health: An evidence-based symposium. *Med. Sci. Sports Exerc.* 2001; 33: 351-358.

6. **Bauman AE**. Updating the evidence that physical activity is good for health: An epidemiological review 2000-2003. *J. Sci. Med. Sport.* 2004;7: 6-19.
7. **Dietz WH**. Overweight in childhood and adolescence. *New Eng. J. Med.* 2004; 350: 855-857.
8. **Daniels S**, Arnett D, Eckel R. Overweight in children and adolescents Pathophysiology, consequences, prevention, and treatment. *Circulation.* 2005; 111:1999-2012.
9. **Macera CA**, Croft JB, Brown DR, *et al.* Predictors of adopting leisure time physical activity among a biracial community cohort. *Am. J. Epidemiol.* 1995;142: 629-635.
10. **Booth ML**, Bauman A, Owen N, Gore CJ. Physical activity preferences, preferred sources of assistance, and perceived barriers to increased activity among physically inactive Australians. *Preventive Medicine.* 1997;26: 131-137.
11. **Eakin EG**, Smith BJ, Bauman AE. Evaluating the population health impact of physical activity interventions in primary care: Are we asking the right questions? *J Phys Act Health* 2005; 2: 197-215.
12. **Spence J**, Lee R. Towards a comprehensive model of physical activity. *Psychol Sport Exerc.* 2003; 4(1): 7-24.
13. **Bauman A**, Bellew B, Vita P, *et al.* Getting Australia Active: Towards Better Practice for the Promotion of Physical Activity. Melbourne, Victoria, National Public Health Partnership; 2002.
14. **Bull FC**, Schipper EC, Jamrozik K, Blanksby BA. Beliefs and behavior of general practitioners regarding promotion of physical activity. *Aust J Public Health.* 1995; 19:300-304.
15. **Yeager KK**, Donehoo RS, Macera CA, *et al.* Health promotion practices among physicians. *Am J Prev Med.* 1996; 12: 238-241.
16. **Walsh JME**, Swangard DM, Davis T, McPhee SJ. Exercise counseling by primary care physicians in the era of managed care. *Am J Prev Med.* 1999; 16: 307-313.
17. **Lawlor DA**, Keen S, Neal RD. Increasing population levels of physical activity through primary care: GPs' knowledge, attitudes and self reported practice. *Family Practice.* 1999; 16: 250-254.
18. **Kennedy MF**, Meeuwisse WH. Exercise counseling by family physicians in Canada. *Preventive Medicine.* 2003; 37:226-232.
19. **van der Ploeg HP**, Smith JB, Stubbs T, *et al.* Physical activity promotion: Are GPs getting the message? *Aust. Fam. Physician.* 2007;36 (10): 871-874.

20. **Schmid M**, Egli K, Martin BW, Bauer G. Health promotion in primary care: evaluation of a systematic procedure and stage specific information for physical activity counseling. *Swiss Med Wkly.* 2009;139(45-46):665-671.
21. **Mark A**, Miners A, Bauman, Wallner F. Illawarra physical activity project. Wollongong: University of Wollongong, 1999.
22. **Mathers C**, Vos T, Stevenson C. Burden of disease and injury in Australia, AIHW Catalogue PHE 17. Canberra: *AIHW*; 1999.
23. **Petrella JR**, Lattanzio NC, Overend JT. Physical activity counseling and prescription among Canadian primary care physicians. *Arch Intern Med.* 2007; 167(16): 1774-1781.
24. **Anastasi A**. Psychological Testing. 5th ed. New York, NY: Macmillan Publishing Co; 1982.