



Original Research Article

## Knowledge, Attitude and Practice of Principles of Exercise Prescription among Physiotherapists in Nigeria

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### ABSTRACT

**Background:** A significant growth has been associated with the awareness and acceptability of physiotherapy and therapeutic exercise techniques in the past few decades, yet so little is reported in the literature about the Knowledge, Attitude and Practice of Exercise Prescription among Physiotherapists. This study was therefore aimed at assessing the Knowledge, Attitude and Practice of the Principles of Exercise Prescription among Physiotherapists in Nigeria.

**Methods:** A total of 300 practicing physiotherapists completed a 31-item questionnaire data on socio-demographics, knowledge, attitude and practice of the principles of exercise prescription. Data was represented using pie charts, frequency and percentages while Chi –Square was used to determine the association between the variables.

**Results:** Knowledge, attitude and practice of the principles of exercise prescription among Physiotherapists in Nigeria were high and no significant relationship was found between their level of education and knowledge of exercise prescription. Similarly, there was no significant relationship between their years of experience and knowledge of exercise prescription.

**Conclusion:** Majority of physiotherapists in Nigeria have good knowledge, attitude and practice of the principles of exercise prescription. Years of practice experience and level of physiotherapy education did not affect their knowledge of exercise prescription.

**Keywords:** Exercise prescription, Physiotherapists, Nigeria.

### INTRODUCTION

Therapeutic exercise is a systematic, planned performance of bodily movements, postures or physical activities intended to provide a patient or client with the means to remediate or prevent impairments, improve, restore, or enhance physical function,

prevent or reduce health risk factors and optimize overall health status, fitness or sense of well-being. <sup>[1]</sup> Its benefits include enabling ambulation, release of contracted muscles, tendons and fascia, mobilizing joints, improving circulatory and respiratory capacity, coordination, balance, muscle

strength, exercise performance and functional capacity (endurance), as well as achieve and maintain maximal voluntary contractile force and reduce rigidity. [2]

Exercise prescription entails embarking on a structured exercise programme on the recommendation and supervision of a qualified healthcare professional and commonly refers to specific plan of fitness-related activities that are designed for specified purposes, which is often developed by a fitness specialist for clients or patients. [3] The process of exercise prescription involves: assessing health and fitness information, interpreting the information and formulating an exercise plan based on the interpreted information and the patient/ client's goals. Therefore, exercise prescription, like any other prescription, has a type, dose and duration of treatment, a therapeutic goal, and anticipated adverse effects. Exercise type prescribed is determined by the individual's needs, goals, and ability level. [4] It must be carefully applied, continually assessed and re-assessed, and modified accordingly. The type, intensity and duration of an exercise an individual is able to perform will depend on the individual's medical or physical concerns, as well as other lifestyle and socioeconomic reasons such as motivation, personal goals, preferences, stage of change and cultural influences. [5-7] The availability of exercise facilities and exercise professionals is also of enormous importance. [8]

Exercise prescription is hinged on four key pivots of Frequency, Intensity, Type and Time (the FITT principle). Frequency: The optimal training frequency appears to be three to four sessions per week as improvement in VO<sub>2</sub> max tends to plateau when frequency of training is greater than three times weekly<sup>9</sup>. Although improvement in cardio-respiratory fitness can occur in de-conditioned individuals who exercise only

once or twice weekly, such regimens evoke little weight loss, stamina or endurance. For conditioned individuals, training less than two days per week will result in minimal improvement in cardio-respiratory fitness. [9] Intensity is the most difficult aspect of exercise prescription and should be specifically tailored towards the patient's performance goals. [9] The most considered approaches in exercise intensity are the utilization of the target heart rate, calculated VO<sub>2</sub>max, or category-ratio scales for rating of perceived exertion. [9] The type of exercise prescribed varies and is determined by the individual's needs, goals, and ability level. [4] The more debilitated and untrained an individual is, the shorter the duration of exercise session. Therefore, where a patient is unable to exercise continuously for fifteen minutes, the exercise bouts may be broken up into shorter sessions such as three five-minute sessions or five three-minute sessions daily thereby allowing the patient to accumulate fifteen minutes of physical training sessions interspersed throughout the day. In some cases, it may not be feasible to directly measure oxygen uptake in patients. Heart rate and oxygen uptake have been shown to be linearly related during peak exercise [10] therefore, heart rate monitoring has become widely accepted as an indicator of exercise intensity with the recommended target heart rate (THR) of between 65% - 90% of maximum heart rate. [9] Although a significant growth has been associated with awareness and acceptability of physiotherapy and therapeutic exercise techniques in the past few decades, [10-12] so little is reported in the literature about the Knowledge, Attitude and Practice of Exercise Prescription among Physiotherapists in Nigeria.

## **MATERIALS AND METHODS**

Study participants consisted of three hundred (300) qualified male and female

physiotherapists selected within Nigeria irrespective of their practice experience.

The study was a cross-sectional analytical survey and a non-probability sampling technique was used. The instrument used in this study was a questionnaire. The initial draft was adopted from articles on exercise prescription from which the final questionnaire draft was developed by a five-man focus group. Prior to the distribution, the questionnaire was sent to two physiotherapy educators in the College of Medicine University of Lagos (who are experts in questionnaire design and were not members of the focus group) to determine its content validity. Final corrections on the questionnaire were then made based on their input. The questionnaire titled “**Principle of Exercise Prescription Questionnaire (PEP-Q)**” comprised four sections: A consists of questions on the socio-demographic data of the respondents; B tested the knowledge of physiotherapists on the principles of exercise prescription; C tested the attitude of the physiotherapists towards the principles of exercise prescription while D tested the practice of exercise prescription by Physiotherapists.

Ethical approval was sought and obtained from the Health Research and Ethics Committee of the Lagos University Teaching Hospital, Idi Araba, Lagos. Three hundred (300) out of the four hundred (400) self-administered questionnaires were duly completed and returned by physiotherapists in twelve of the thirty six states including the Federal Capital Territory covering the six geo political zones that make up Nigeria

**Data Analysis:** Data obtained were analysed using Software Package for Windows and summarized using descriptive statistics of Frequency, Mean, Standard deviation, Percentages, Pie chart, Range tables and inferential statistics of Chi-square analysis

was used to test association between variables. Significance was set at  $P < 0.05$ .

## RESULTS

A response rate of 75% was reported among the respondents. One hundred and seventy one respondents (58.4%) had practice experience of 1-5 years (Table 1). The professional cadres of the respondents are also presented in Table 1, with 187 (63%) practicing as basic grade physiotherapists. The Chi-square analysis of the relationship between knowledge of exercise prescription and years of experience as well as the relationship between knowledge of exercise prescription and level of education is presented in table 2. Figure 1 shows the frequency distribution of the highest educational status attained by the respondents. While most (68%) of the respondents held a Bachelor of Science/ Bachelor of Physiotherapy degree, only 2% had a Ph.D degree. Figure 2 shows the frequency distribution of respondents' knowledge of the principles of exercise prescription. Figure 3 shows the frequency distribution of attitude of the respondents towards the principles of exercise prescription whereas the frequency distribution of the practice of the principles of exercise prescription is presented in figure 4.

Ninety four percent (94%) of the respondents had good knowledge of, 87.5% had good attitude towards while 84.5% had good practice of the principles of exercise prescription. There was no statistically significant relationship between the level of education of physiotherapists and their knowledge of the principles of exercise prescription. There was also no statistically significant relationship between the years of experience of the respondents and their level of knowledge of the principles of exercise prescription.

**Table 1: Respondents' Professional Cadre and Practice Experience**

Current Status	Frequency	Percentage
Physiotherapist	187	63.0
Senior Physiotherapist	27	9.1
Principal Physiotherapist	34	11.4
Chief Physiotherapist	21	7.1
Assistant Director of Physiotherapy	6	2.0
Director of Physiotherapy	4	1.3
Lecturer/Consultant Physiotherapist	8	2.4
Others	12	3.7
<b>Total</b>	<b>300</b>	<b>100.0</b>

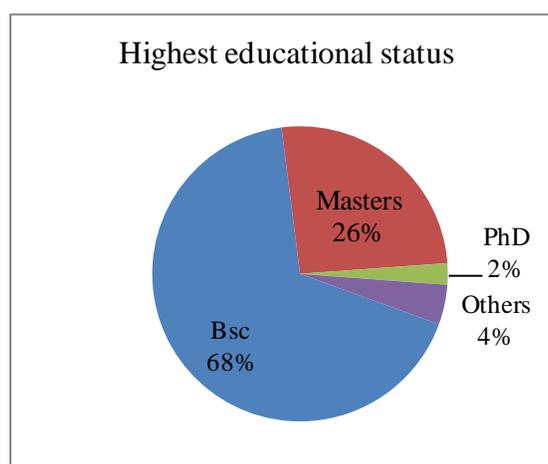
Practice Experience	Frequency	Percentage
1 – 5 years	171	58.4
6 – 10 years	48	16.2
11 – 15 years	38	12.7
16 – 20 years	22	7.2
>20 years	17	5.5
<b>Total</b>	<b>300</b>	<b>100.0</b>

**Table 2: Chi-Square Analysis of the Relationship between Knowledge of Exercise Prescription, Level of Education and Years of Experience.**

Years of Experience	Knowledge of Exercise Prescription		
	GOOD	POOR	TOTAL
1 – 5 years	156	14	170
6 – 10 years	46	2	48
11 – 15 years	35	1	36
16 – 20 years	19	2	21
> 20 years	16	-	16
<b>TOTAL</b>	<b>283</b>	<b>17</b>	<b>300</b>
$\chi^2 = 21.57, p = 0.8961$			

Level of Education	Knowledge of Exercise Prescription		
	GOOD	POOR	TOTAL
B.Sc/B.Physio	188	13	201
Masters	72	4	76
Ph.D	7	-	7
Others	13	-	13
<b>TOTAL</b>	<b>283</b>	<b>17</b>	<b>300</b>
$\chi^2 = 1.45, p = 0.6938$			

**Figure 1: Respondents' Highest Educational Status**

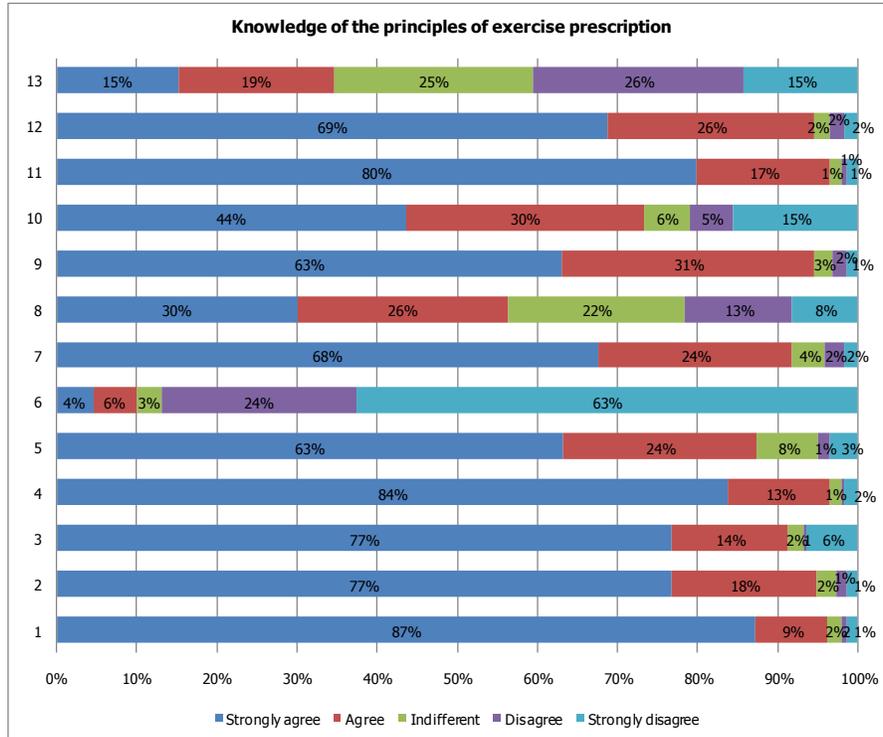


Figure 2: Knowledge of Principles of Exercise Prescription.

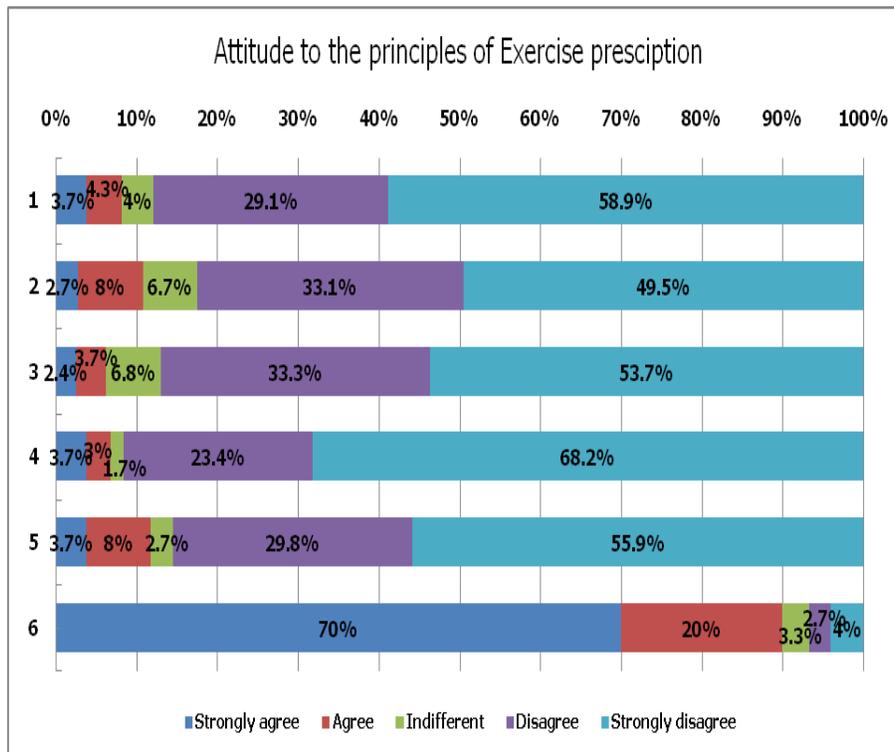


Figure 3: Attitude of the Principles of Exercise Prescription.

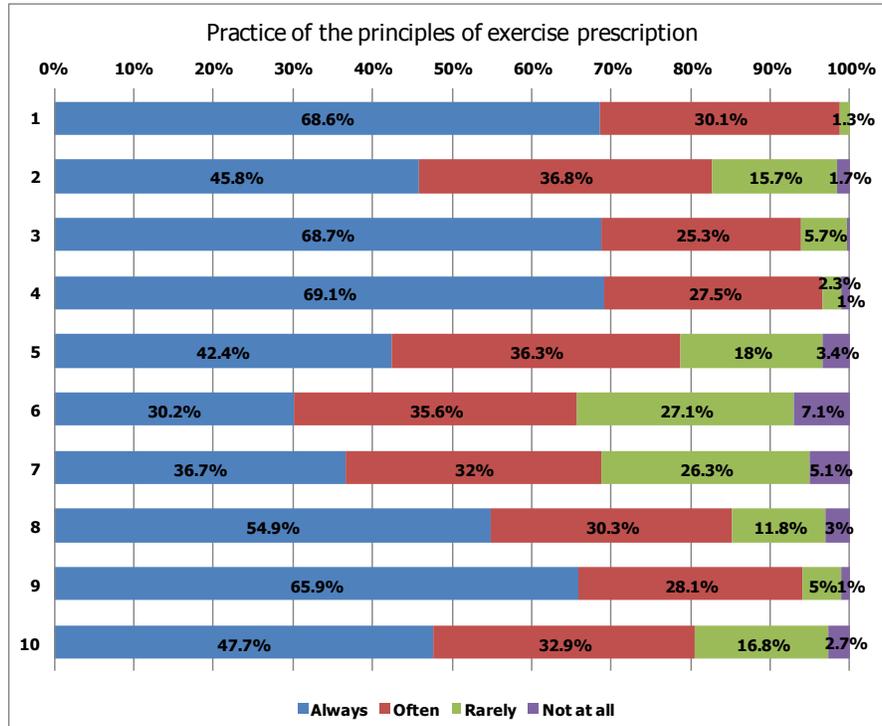


Figure 4: Respondents' Practice of the Principles of Exercise Prescription.

## DISCUSSION

The finding that ninety four percent (94%) of physiotherapists in Nigeria have good knowledge of exercise prescription agrees with the statement by the Australian Physiotherapy Association [12] that physiotherapists are experts in exercise prescription. However, this disagrees with a previous finding that there is a lack of confidence, knowledge and skills among students and qualified physiotherapists regarding the prescription of physical activity for health. [4] The findings also disagrees with that by Moore et al [4] that most health care providers have very little knowledge on the art of prescribing exercise, and that they even make the matter worse by referring their patients to fitness instructors who have very limited knowledge of the pathophysiology of diseases.

Furthermore, the observation that majority of the respondents claim to prescribe exercise is contrary to the findings

of Cooper and Hancock [13] in 2003 that 50% of physiotherapists actually prescribe exercise to patients while suggesting the need for further training in exercise prescription among physiotherapists. Similarly, O'Donoghue and Doody [14] in their study carried out in Ireland in 2004 suggested a strong need for re-evaluation of physical activity and exercise education in the physiotherapy curriculum. However, a possible reason for the present finding may be that there exists a good foundation of exercise knowledge at the undergraduate levels of physiotherapy training curriculum in most Nigerian physiotherapy training institutions.

Although it was observed that the knowledge and practice of the principles of exercise prescription among physiotherapists in Nigeria was good, there was a slight decrease in the percentage of respondents who are considered to be of good practice. This may be due to lack of adequate equipment and enabling

environment to enhance the practice of the principles of exercise prescription. Furthermore, poor funding and inadequate infrastructure in the Nigerian health sector may be a contributing factor.

The finding that there was no significant relationship between knowledge of exercise prescription and years of experience as well as the Physiotherapists' level of education in Nigeria may be due to the fact that there are no specialised training modules or advanced courses available to Physiotherapists in Nigeria after graduation, either in the academic or clinical practice environments.

## CONCLUSION

Majority of physiotherapists in Nigeria have good knowledge, attitude and practice of exercise prescription. Years of practice experience and level of physiotherapy education did not affect their knowledge of exercise prescription. Therefore, the following may be recommended from the study: Physiotherapists should strive to increased relevance through developing, influencing and tailoring government policies that will regulate the prescription of exercise by non-clinicians with little or no knowledge of exercise prescription. Also, exercise prescription guidelines should be drawn up for various conditions which would improve patients' care and enhance physiotherapy practice.

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