



Self-efficacy, outcome expectation and health promotion practice among Nigerian physiotherapists

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Abstract

Background Health-promotion (HP) practice among African physiotherapists has not previously been assessed despite the central role that physiotherapists play in HP. This survey therefore explored HP practice, self-efficacy and outcome expectation (OE) among Nigerian physiotherapists, regarding arthritis and low-back pain (LBP), nutrition and overweight, physical fitness and activity (PF-PA), and heart disease (HD) and stroke.

Methods This survey involved 110 physiotherapists from 12 randomly selected tertiary hospitals across Nigeria. Information on demographics, practice characteristics, HP practice, self-efficacy and OE from HP was collected using a pilot-tested questionnaire.

Results The physiotherapists reported that during the last month, half of the cases they had assisted in concerned arthritis and LBP, PF-PA, and HD and stroke. The number of cases concerning nutrition and overweight issues was somewhat lower. However, they only listened to, educated, developed and set goals for, and referred patients to HP in less than half of the cases for all health areas. Significant associations were found between time spent listening to patients, and self-efficacy ($r=0.27$; $p=0.004$) and OE ($r=0.20$; $p=0.03$) in HD and stroke cases, as well as for self-efficacy and OE in cases concerning nutrition and overweight ($r=0.20$; $p=0.02$), PF-PA ($r=0.77$; $p<0.001$), arthritis and LBP ($r=0.58$; $p<0.001$) and HD and stroke ($r=0.71$; $p<0.001$).

Conclusion There are needs to improve self-efficacy and OE regarding HP practice among Nigerian physiotherapists when handling patients with multiple health issues.

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Introduction

Health is a dynamic state of well-being characterized by a physical and mental potential, which satisfies the demands of life commensurate with age, culture, and personal responsibility (1). Health promotion (HP) is the process of enabling individuals and communities to increase their own control over the determinants of health, and thereby improve their health and quality of life (2;3). The physical dimensions of health comprise nutrition and bodyweight, disease and injury, exercise, rest and relaxation, stress, sports and fitness, and recreation, which are areas usually addressed during a physiotherapy consultation (4). A combination of different approaches to HP programmes is now becoming the norm (5).

Despite the central role which physiotherapists play in HP, reports on the practice of HP among African physiotherapists are sparse. This is also the case in Nigeria even though guidelines for

physiotherapists' education and practice emphasize HP. This emphasis is in a bid to strengthen physiotherapists' professional role in prevention, diagnosis, and treatment of physical and functional disabilities for patients and communities (6). Indeed, an important part of physiotherapists' practice is to help individuals prevent diseases and promote health, wellness and fitness (7), which suggests that physiotherapists should be involved in primary, secondary, and tertiary care. This was demonstrated in the inclusion of American Physical Therapy Association in the Healthy People Consortium that assisted in creating the Healthy People 2010 goals for disability and its secondary psychosocial problems, nutrition and overweight, physical fitness and activity (PF-PA), tobacco use, arthritis, osteoporosis, and chronic low-back pain (LBP), heart disease (HD) and stroke among others (8). For the purpose of this study, four of these health areas were explored; LBP and arthritis, nutrition and overweight, PF-PA, and HD and stroke,



Research and Best Practice

which are all common problems related to physiotherapy in Nigeria.

Social cognitive theory (SCT) refers to a psychological model of behaviour that emphasizes acquisition of social behaviours and learning through observation (9). SCT describes a multifaceted causal structure in which self-efficacy beliefs operate with outcome expectation (OE) in the regulation of human motivation (10). The theory has been applied broadly to areas such as career choice, organizational behaviour and motivation (11-13). In SCT, a person's on-going functioning is a product of a continuous interaction between cognitive, behavioural and contextual factors. In addition, learning and the demonstration of what has been learnt are distinct processes (14). This suggests that an individual may have acquired knowledge in an area of practice but may not be able or willing to apply it. This could be due to low self-efficacy in the skills and expertise required, or to perceived negative OE from the application of the knowledge. For example in school nurses' practice to prevent childhood obesity, perceived barriers was found to partially mediate the influence of self-efficacy (15). Thus, the SCT model can provide an understanding of the of HP practices among physiotherapists, and for developing strategies to manage any possible barriers.

According to Bandura (16), self-efficacy is the confidence in being able to make the behaviour changes necessary to reach a desired goal. It influences the likelihood of a behaviour being initiated and sustained despite poor outcomes (17). For instance, a physiotherapist with high self-efficacy in prescribing exercises for osteoarthritis or low-back pain may be more consistent in making the prescription. Contrary, low self-efficacy due to lack of confidence or preparation may lead to withdrawal from the practice (17). Poor self-efficacy has been found to be a common barrier to adherence to practice guidelines among physicians (17). OE is the extent to which a health professional believes that a particular task or behaviour change will result in a specific outcome (16). For example, many smokers are not counselled to quit during a physician visit (18) despite the fact that most physicians agree with the recommendation to provide smoking cessation counselling (19;20). An important reason for this non-adherence is a belief that the intervention will not have an effect (21). This negative OE may hinder health professionals in following the recommended practice even when self-efficacy is high.

The aim of this study was therefore to explore HP practice, self-efficacy and OE among Nigerian physiotherapists in addressing arthritis and LBP, nutrition and overweight, PF-PA, and HD and stroke.

Methods

Design and Participants

This cross-sectional survey involved 110 physiotherapists out of about 200 clinical physiotherapists who had practised for at least two years in 12 randomly selected Nigerian federal teaching hospitals across the six geographical zones of the country. The hospitals were selected out of a total of 20 federal teaching hospitals using a proportionate stratified random sampling method. All the participants gave informed consent to participate in the study.

The Yaro Yamane formula (22) was used for estimating the sample size for the study (0.05 level of significance). This resulted in a total of 133 participants, so unfortunately the study fell short in reaching the required sample size.

Procedures

An adapted questionnaire originally developed by Rea et al (23) was used in this study. Initially, the questionnaire was pilot-tested among 10 Nigerian physiotherapists, who gave feedback regarding ease of understanding and answering the items in the questionnaire, and their suitability for the Nigerian setting. A second administration of the same questionnaire was carried out to ascertain the consistency of the questionnaire sum scores. A total of 150 questionnaires were sent out to physiotherapists in the selected hospitals through identified contacts, who were also physiotherapists in the hospitals. A cover letter was included explaining the purpose, procedures, risks and benefits, and the voluntary nature of involvement in the study. The questionnaires were also accompanied with addressed and stamped envelopes to facilitate the return of the questionnaires. Out of the 150 questionnaires, 110 were returned (73% response rate).

The questionnaire included four sections: demographic and practice characteristics, HP practice, self-efficacy for HP and OE from HP. The questionnaire was adapted to the four health areas (nutrition and overweight, PF-PA, arthritis and LBP and HD and stroke) examined in this study. The demographic and practice details included age, sex, qualifications, area of interest and years of practice.

The Ethics Committee of the Nnamdi Azikiwe University Teaching hospital Nnewi approved the procedures employed in this study.

HP Practice

The HP practice section encompassed the percentage of patients that, in the last month, had a particular problem (e.g. what percentage of your patients do you assess



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to have low PF-PA?), percentages of time the patient with such a problem was assisted (e.g. what percentage of time do you assist patients with low PF-PA to get more physically active?), listened to (e.g. what percentage of time do you listen to patients with low PF-PA?), referred (e.g. what percentage of time do you refer patients with low PF-PA to appropriate experts?), educated (e.g. what percentage of time do you educate patient with low PF-PA on being physically active?), and goals were developed and set for them (e.g. what percentage of time do you develop and set goals for patients with low PF-PA?).

Self-Efficacy

The self-efficacy section covered 12 items including the level of confidence the physiotherapist had in assisting the patient: 1) when the patient was aware of the problem, 2) when the spouse or partner was not supportive of the patient, 3) when more time was allotted per patient than currently available, 4) when the physiotherapist was adequately educated to address the problem, 5) when the physiotherapist had observed another colleague helping the patient for the problem, 6) when the physiotherapist did not have the support of the referring clinician, 7) when the physiotherapist had the proper supportive materials to assist the patient, 8) when the problem interfered with a physiotherapy goal, 9) when the patient was already seeing a professional for the problem, 10) when the physiotherapist had an appropriate source to refer the patient to for assistance, 11) when the patient had low socioeconomic status and 12) when there was a language barrier. The self-efficacy score was measured on a four-point-likert scale with the highest score indicating that the physiotherapist was very sure he or she could assist. Self-efficacy items that were inherently negative such as “when partner/family is not supportive” were conversely coded.

Outcome Expectation

The OE section included four items. These items were likely perceived outcomes of intervention that might influence the extent to which the physiotherapist would be ready to assist the patient for HP: 1) the patient develops more positive feelings and increased satisfaction with life, 2) the patient is able to address and achieve physiotherapy goals more readily, 3) the physiotherapist feels he addresses an issue that is beyond the normal scope of practice 4) the patient’s rapport with the physiotherapist is weakened or hindered. The OE score was measured on a five-point-likert scale with the higher score indicating a good outcome and the lower score indicating a bad outcome. Scores for negative outcomes such as “patient rapport is hindered/weakened” were conversely coded to indicate a higher sum as a positive or “good” outcome.

Statistical Analysis

The data were summarized using mean and standard deviation (SD) or frequency and proportion. The percentage scores for self-efficacy and OE were measured on the total item scores contra the total score by the maximum obtainable score for each. Relationships between each of the components of HP practice in the four health areas, and each of self-efficacy and OE scores, were tested using the Spearman-rank order correlation. Similarly, relationships between self-efficacy and corresponding OE were tested using the Spearman-rank order correlation. A p-value < 0.05 was considered significant. All analyses were carried out in SPSS version 20.

Results

Table 1 shows the characteristics of the 110 physiotherapists included in the study. The mean age was 34.9 years ($SD \pm 6.47$ years). About half of the physiotherapists (53%) had practised for less than 10 years. 53% of the physiotherapists were men and had interest in orthopaedic conditions (38%). A vast majority had the basic degree (84%).

Table 2 shows the mean percentage of the different health problems which the patients who the physiotherapists had seen in the last month were referred with; nutrition and overweight ($32.6 \pm 21.9\%$), PF-PA ($59.5 \pm 23.6\%$), arthritis and LBP ($56.7 \pm 21.8\%$), and HD

Table 1 Demographic and Practice Characteristics of Participants

Age (Mean \pm SD)	34.90 \pm 6.47	
Sex	n	%
Men	59	53.6
Women	51	46.4
Years of Practice (Mode)		2
Years of Practice	n	%
<10	58	52.7
≥ 10	46	41.8
Missing Data	6	5.5
Qualification		n
Basic Degree	92	83.6
Higher Degree	13	11.8
Missing Data	5	4.5
Area of Interest		n
Paediatrics	13	11.8
Orthopaedics	42	33.2
Neurology	14	12.7
General Practice	26	23.6
Missing Data	15	13.6



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Table 2 Mean percentage of patients seen by the physiotherapists in the four health areas

Health Areas	Mean	± SD
Nutrition/Overweight		
% of time the patient was assisted	39.38	± 26.42
% of time the patient was listened to	43.87	± 26.39
% of time the patient was educated	41.38	± 28.17
% of time goals were developed and set	33.74	± 26.04
% of time the patient was referred	27.30	± 27.11
Physical Fitness/Activity		
% of time the patient was assisted	58.33	± 25.15
% of time the patient was listened to	43.44	± 25.91
% of time the patient was educated	45.57	± 24.60
% of time goals were developed and set	38.58	± 25.97
% of time the patient was referred	18.66	± 21.61
Arthritis/Low-Back Pain		
% of time the patient was assisted	65.94	± 24.30
% of time the patient was listened to	46.26	± 27.80
% of time the patient was educated	48.65	± 29.47
% of time goals were developed and set	47.10	± 29.02
% of time the patient was referred	20.42	± 23.05
Heart Disease/Stroke		
% of time the patient was assisted	61.86	± 27.86
% of time the patient was listened to	46.77	± 28.43
% of time the patient was educated	46.78	± 27.25
% of time goals were developed and set	44.26	± 25.30
% of time the patient was referred	23.10	± 26.47

and stroke ($41.5 \pm 25.9\%$). The physiotherapists reported that they had assisted the patients in more than 50% of the cases for all health areas except for nutrition and overweight ($39.4 \pm 26.4\%$). However, the proportion of times the physiotherapist listened to, educated, developed or set goals for and referred patients when assisting them was below 50% in all the areas (Table 2).

Table 3 shows that the physiotherapists' self-efficacy and OE were about 70% for all health areas. Significant relationships were only found between the percentage of time the patient was listened to on HD and stroke issues, and self-efficacy ($r=0.27$; $p=0.004$) and OE ($r=0.20$; $p=0.03$) scores in assisting the patient in such issues (Table 4). Significant relationships were also found between self-efficacy and corresponding OE in cases concerning nutrition and overweight ($r=0.20$; $p=0.02$), PF-PA ($r=0.77$; $p<0.001$), arthritis and LBP ($r=0.58$; $p<0.001$) and HD and stroke ($r=0.71$; $p<0.001$) (Table 5).

Table 3 Scores on self-efficacy and OE of physiotherapists in the four health areas

Characteristics	Mean	± SD
Self-Efficacy (%)		
Nutrition/Overweight	71.36	± 9.22
Physical Fitness/Activity	70.13	± 14.57
Arthritis/Low-Back Pain	71.51	± 13.28
Heart Disease/Stroke	69.96	± 14.83
OE (%)		
Nutrition/Overweight	72.36	± 10.06
Physical Fitness/Activity	71.36	± 15.37
Arthritis/Low-Back Pain	72.50	± 13.37
Heart Disease/Stroke	71.32	± 15.69

After adjusting for area of interest and OE, years of practice was inversely correlated with only SE for nutrition and overweight ($r= -0.22$; $p= 0.02$) (Table 6). Although the relationship between year of practice and SE in the other health areas was not significant, they showed tendency towards inverse relationships (PF-PA: $r= -0.08$; arthritis and LBP: $r= -0.10$; HD and stroke: $r= -0.09$) (Table 6).

Discussion

This study examined the relationships between HP practice behaviour, self-efficacy and OE in patient cases concerning overweight and nutrition, PF-PA, arthritis and LBP, HD and stroke in a population of Nigerian physiotherapists. The physiotherapists assisted patients in the different health areas more than half of the times with the exception for issues regarding nutrition and overweight. However, the proportion of times the physiotherapists educated, listened to, developed and set goals for the patients, and referred patients in of the other areas was below 50%. The reported self-efficacy and OE scores on issues concerning all the health areas were about 70%. However, only the proportion of times the physiotherapist listened to the patient's issues concerning HD and stroke was significantly related to both self-efficacy and OE scores. Contrary, self-efficacy was significantly related with the corresponding OE for issues concerning all the health areas. Finally, the results showed an inverse relationship between self-efficacy for nutrition and overweight issues and years of practice.

Demographic and Practice Characteristics

The dearth of similar studies makes comparison of the findings in this study difficult. In this study the majority of the physiotherapists only had a basic degree. This could be explained by the fact that post-graduate studies in physiotherapy have only been offered in the last de-



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Table 4 Relationships between scores on percentage of time physiotherapists assisted in a problem and each of the scores on self-efficacy and OE

	NUT/OW		PF/PA		ART/LBP		HD/STR	
Self-Efficacy (%)	r	(p-value)	r	(p-value)	r	(p-value)	r	(p-value)
% of time the patient was assisted	-0.04	(0.36)	0.08	(0.22)	1.00	(-)	0.07	(0.24)
% of time the patient was listened to	0.15	(0.08)	0.14	(0.10)	0.14	(0.09)	0.27	(0.004)*
% of time the patient was educated	-0.03	(0.38)	0.10	(0.17)	-0.04	(0.36)	0.15	(0.08)
% of time goals were developed and set	0.02	(0.44)	0.15	(0.07)	-0.06	(0.28)	-0.01	(0.48)
% of time the patient was referred	-0.13	(0.10)	0.15	(0.08)	0.07	(0.25)	0.16	(0.06)
OE (%)								
% of time the patient was assisted	-0.09	(0.47)	0.07	(0.26)	0.06	(0.30)	0.09	(0.19)
% of time the patient was listened to	-0.01	(0.47)	0.12	(0.13)	0.10	(0.17)	0.20	(0.03)*
% of time the patient was educated	-0.15	(0.07)	0.04	(0.34)	0.10	(0.17)	0.16	(0.06)
% of time goals were developed and set	0.02	(0.44)	0.11	(0.14)	-0.08	(0.23)	0.03	(0.40)
% of time the patient was referred	-0.08	(0.22)	0.13	(0.11)	0.16	(0.07)	0.15	(0.08)

* p < 0,05

Table 5 Relationships between self-efficacy and OE of physio-therapists' on the four health areas

Focus Areas	r	(p-value)
Nutrition/Overweight	0.20	(0.02)*
Physical Fitness/Activity	0.77	(<0.001)**
Arthritis/Low-Back Pain	0.58	(<0.001)**
Heart Disease/Stroke	0.71	(<0.001)**

* p < 0.05, ** p < 0.001

cade in Nigeria, although a current increase in the number of schools that are offering this education. In addition, the health area in which the physiotherapists in this study most often assisted patients was arthritis and LBP, which relates to orthopaedics being the most commonly practised specialty where physiotherapy is included in the treatment and prevention of arthritis and LBP.

Health Promotion Practice, Self-Efficacy and Outcome Expectation

The physiotherapists rarely assisted in referring patients in any of the health areas, probably because the practice of physiotherapy on a first-contact basis is not common in Nigeria (24). As the Nigerian physiotherapists depend largely on referrals from medical doctors from different areas of medical practice, the seldom second-contact referral practice, usually necessitated by the need for the patient to consult another professional, can explain the low proportion of referrals seen in this study.

Furthermore, as most of the health conditions managed by the physiotherapists are preventable, HP should constitute a large proportion of the physiotherapy practice. The findings that HP practice in all health areas was generally low during physiotherapy visits may have a negative impact on patient and population well-being and

Table 6 Relationships between Self-Efficacy and Year of Practice of the Physiotherapist

Focus Areas	r	(p-value)
Self-Efficacy for Nutrition/Overweight	-0.22	(0.02)*
Self-Efficacy for Physical Fitness/Activity	-0.08	(0.22)
Self-Efficacy for Arthritis/Low-Back Pain	-0.10	(0.17)
Self-Efficacy for Heart Disease/Stroke	-0.09	(0.20)

* p < 0,05

health in Nigeria. If HP practice is more fully integrated in physiotherapy management this may in turn help to reduce the cost and burden of treatment. The physiotherapists displayed reasonably high levels of self-efficacy and OE across all the four health areas, which was a positive finding of this study.

Relationships between HP Practice Behaviour, Self-Efficacy and Outcome Expectation

Contrary to the findings in this study, Rea et al (23) found significant relationships between assistance rates and self-efficacy in the same health areas in a population of American physiotherapists, but just as in our study no relationship was found between the assistance rate and OE within any of the health areas. These findings somewhat contradicts the social cognitive theory of Bandura (25), where high levels of self-efficacy and OE should enhance productive and aspiring behaviours that result in personal satisfaction and vice versa. Although, this study did not examine levels of satisfaction and aspiration among the physiotherapists, their productivity, examined in terms of their assistance rate, might be influenced by a number of factors. Firstly, the organization characteristics of the work setting such as the motivational and staff-friendly nature of the setting may influence self-efficacy and OE. For example, when



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a physiotherapist has more patients to attend to than he or she can manage, a result may be a compromise in the standard of services delivered in terms of time spent with each patient and the accuracy of treatment. Secondly, despite that appropriate knowledge and attitudes are necessary for practice they are not all-sufficient (17). For example a physiotherapist may be confident about his HP practice skills, but may be influenced by external barriers such as time limitations that prevent him from adhering to professional practice guidelines. Under such circumstances even though initial levels of self-efficacy and OE are high, the persistence of these barriers may eventually reduce self-efficacy, OE and even motivation required to carry out the practice (17). Still, with adequate resources the physiotherapist may be able to compensate for possible external barriers. Thirdly, self-efficacy and OE may wane with more years of practice if continued education is not available to ensure adherence with the current standard practice. Although nutrition/overweight was the only area where a significant inverse relation between self-efficacy and years of practice was observed; there were tendencies for similar relationships in the other three areas.

Strengths and Limitations of the Study

The questionnaire used in this study had not been subjected to validity or reliability tests and this may have limited the findings in this study. However, the instrument was pilot-tested and verified to be applicable to Nigerian physiotherapists. The sample in this study was considered representative of the Nigerian physiotherapist as members from the six geographical zones of the country were involved. Further, the high response rate was adequate to detect actual HP practice. However, the number of participants involved in this study fell short of the estimated sample size, and this may limit the findings in this study. In addition, no causal inferences about self-efficacy, OE scores and HP practice can be made as this study was a cross-sectional design. Another limitation could be that the responses varied according to the physiotherapists' interests in a particular health area. Finally, there could be a risk of recall bias in terms of self-reported HP practice in the last month.

Conclusions and perspectives

Physiotherapy practice in Nigerian hospitals is characterised by patients with problems concerning PF-PA, and arthritis and LBP, and to a lesser extent nutrition and overweight, and HD and stroke. In all health areas except for nutrition and overweight the physiotherapists spent an adequate amount of time assisting the patients. However, little time was spent listening to, educating, developing and setting goals for, and referring patients

in all the health areas and here is much room for improvement. Self-efficacy was directly related to OE in all the areas. Both self-efficacy and OE was very high in all the areas, and it is important that this is sustained. Future research should examine HP practice behaviour in relation to self-efficacy and OE.

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Contributions details

Conception and design: FA

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