



Assessment of knowledge, attitude and perception of Nigerian physiotherapists on manual handling techniques

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ABSTRACT

Background and objective: Manual handling is an integral part of physiotherapy education and training. Still, Work-Related Musculoskeletal Disorders (WRMSDs) associated with manual handling are common among physiotherapists. This study investigated the level and determinants of knowledge, attitude and perception of Nigerian physiotherapists on manual handling techniques. **Materials and Methods:** Ninety-eight physiotherapists participated in this cross-sectional study. An adapted self-administered questionnaire pilot tested for its content validity was used as the survey instrument. The questionnaire sought information on socio-demographics, knowledge, attitude and perception on manual handling techniques, and WRMSDs associated with manual handling. Descriptive statistics of mean, frequency and percentages; and inferential statistic of Chi-square test were used for the analysis. Alpha level was set at $p < 0.05$. **Results:** A majority (72.4%) of the respondents had average to good knowledge of manual handling techniques. 52.0% of the respondents had negative attitude towards manual handling techniques. The lifetime prevalence of manual handling associated WRMSDs was 24.5%. The low back was the most affected by manual handling associated WRMSD (14.3%) while the upper back was rarely affected (2.0%). Demographic variables had no significant association with each of knowledge and attitude towards manual handling techniques ($p > 0.05$). Lack of equipment was the most implicated reason (90.4%) for not using recommended techniques of manual handling in practice. **Conclusion:** There was a high prevalence of manual handling associated WRMSDs among Nigerian physiotherapists. Majority of the physiotherapists had good knowledge of manual handling techniques but demonstrated negative attitude toward its use in clinical practice owing to non-availability of needed equipment. The finding of this study reveals a theory-practice gap of manual handling techniques among Nigerian physiotherapists

KEY WORDS: Manual handling; Physiotherapy; Nigeria; Knowledge; Attitude

INTRODUCTION

Manual handling is defined as the use of force by a person to push, pull, lift up, lower down, carry, move, hold or restrain something [1]. Manual handling as a skilled activity involves good understanding of theoretical knowledge in addition to practical experience [2]. Work-Related Musculoskeletal Disorders (WRMSDs) associated with manual handling seems to be a main cause of pain and disability among some professionals [3, 4]. Luís et al [5] submits that WRMSDs associated with manual handling has ousted other occupational diseases such as deafness or respiratory pathology, with respect to its effect on productivity and socio-economic wellbeing. As a result, manual handling training/education and provision of manual handling equipment/aids are major preventive interventions for WRMSDs [6, 7].

Certain health care professionals such as nursing, dentistry, surgery and physiotherapy are at high risks of manual handling associated WRMSDs [3, 8-10]. According to the Health and Safety Authority [11], manual handling is the

most commonly reported accident trigger in the healthcare sector. Trinkoff et al [12] concurs that manual handling injuries among health care workers are disturbingly common and lead to high rates of musculoskeletal disorders.

There is substantial literature on rates and consequences of manual handling injuries among nursing staff [8, 13-15]. Also, emerging studies indicate that WRMSDs are on the rise among physiotherapists [16, 17]. Manual handling related to physical exertion exposures, patient handling, and manual therapy has been implicated to increase the risks of WRMSDs among physiotherapists [9, 16-18].

Reports indicate that physiotherapists frequently use manual handling and at times awkward postures in the course of their work [9, 19]. Therefore, incorrect manual handling techniques increases the risks of WRMSDs among physiotherapists [18]. In addition, WRMSDs can occur or be aggravated by repetitive movements or actions, high forces or pressures, and awkward prolonged postures [19]. In sum, the nature and demands of physiotherapy practice increases the risk of developing WRMSDs [20].

Consequent to the foregoing, manual handling education and training is a vital requirement for physiotherapists to be able to perform their professional tasks safely [21, 22]. It was argued that physiotherapists have a greater understanding of ergonomics and biomechanics compared to other health care professionals [23]. Therefore, it is thought that this knowledge should translate into decreased likelihood of suffering WRMSDs [24]. Conversely, evidence still show that manual handling associated WRMSDs are common among physiotherapists [9, 18, 25, 26]. Hence, assessment of knowledge, attitude and use of manual handling technique has become imperative. Some studies have been conducted on knowledge about manual handling among health care workers, especially nurses [8, 27], however, there are few of such studies among physiotherapists [9, 18, 25]. Presently, there seems to be no available study on manual handling among Nigerian physiotherapists. This study investigated the level and determinants of knowledge, attitude and perception of Nigerian physiotherapists on manual handling techniques. The objective of this study was to assess knowledge, attitude and perception of Nigerian physiotherapists on manual handling techniques. Also, the study investigated the correlates of the respondents' knowledge, attitude and perception on manual handling techniques.

MATERIALS AND METHODS

A total of 98 physiotherapists participated in this cross-sectional study. The respondents were drawn from six purposively selected hospital facilities in South-Western, Nigeria. One facility was selected from each of the six states in South-Western, Nigeria. Criteria for selection of facility in each state was based on availability of a physiotherapy department and the size of employed physiotherapists in the facility. The selected institutions were the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State; University College Hospital, Ibadan, Oyo State; Lagos University Teaching Hospital, Idi-Araba, Lagos State; Federal Medical Center, Abeokuta, Ogun State; Federal Medical Center, Owo, Ondo State; and Federal Medical Center, Ido, Ekiti State respectively. Eligible respondents were physiotherapists in full time employment in the respective institutions. Interns and physiotherapists on National Youth Corps Schemes were excluded from participation in the study.

A two-section questionnaire was used as the survey instrument in this study. The questionnaire was adapted from a study by Kristin et al [28] and was pilot tested for content validity. The section 'A' of the questionnaire sought information on socio-demographics of the respondent. Section 'B' contains questions on the knowledge, attitude and perception of physiotherapists towards manual handling techniques, as well as questions on WRMSDs associated with manual handling. The questionnaires contains both open and close ended items. Some of the

items were rated on a 5-point Likert scale format where '1' represented 'strongly disagree' and '5' was 'strongly agree'. The questionnaires were applied on self-administered mode. In order to maintain anonymity, respondents' names and addresses were not requested in the questionnaire.

Ethical approval for the study was obtained from the Health Research Ethics Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria. Each respondent gave informed consent to participate in this study. The permission of the respective Heads of Departments of the selected clinics was also obtained.

Data analysis

Descriptive statistics of mean, frequency and percentages were used to summarize data. Inferential statistic of Chi-square test was used to determine the association between each of respondents' knowledge and attitude towards manual handling techniques and socio-demographic characteristics. SPSS version 16.0 was used to analyze data. Alpha level was set at < 0.05 .

RESULTS

One hundred and twelve physiotherapists were invited into the study. However, only 98 participated in the survey, yielding a response rate of 87.5%. All the returned questionnaires were found valid and were used in the analysis. The respondents comprised of 58 males (59.2%) and 40 females (40.8%) respectively. The mean age, number of years of experience and number of hours spent per week in direct patient care was 30.7 ± 6.6 years, 5.9 ± 5.6 years and 33.2 ± 14.3 hours per week respectively. Table 1 shows the socio-demographic characteristics of the respondents. A majority (78.6%) of the respondents had basic BPT/BMR qualification.

Table 1. Socio-demographic characteristics of the respondents

Variable	Frequency	Percentage
Sex		
Male	58	59.2
Female	40	40.8
Qualification		
BPT/BMR	77	78.6
MSc	21	21.4
Work Setting		
Secondary	11	11.2
Tertiary	87	88.8
Rank		
PT	59	60.2
SPT/ PPT	27	27.6
CPT/ADPT	12	12.2

Key: BPT – Bachelor of Physiotherapy; BMR – Bachelor of Medical Rehabilitation; PT – Physiotherapist; MSc – Master of Science; SPT – Senior Physiotherapist; PPT – Principal Physiotherapist; CPT – Chief Physiotherapist; ADPT – Assistant Director of Physiotherapy

Table 2 shows the prevalence of manual handling associated WRMSDs among the respondents. A lifetime prevalence of manual handling associated WRMSDs of 24.5% was reported. Low-back pain (14.3%) was the most reported type of WRMSDs. Table 3 shows the frequency distribution of correct responses to knowledge about manual handling techniques. 93.9% of the respondents supported that moving and handling techniques were essential aspects of physiotherapy training and practice. 77.6% agreed that physiotherapy practice can predispose to injury. 95.9% of respondents opined that bed/plinth must be adjusted to suit the therapist's height to aid patient's transfer. 28.1% of the respondents agreed that 'bear hug' to facilitate standing was appropriate.

Table 2. Prevalence of manual handling associated work-related musculoskeletal disorders

Variable	Frequency	Percentage
Lifetime Prevalence		
Yes	24	24.5
No	74	75.5
Pattern of WRMSD		
Nil	74	75.5
Low Back Pain	14	14.3
Neck and shoulder	3	3.1
Hand	5	5.1
Upper Back Pain	2	2.0

Table 4 and 5 show respondents' perception about manual handling techniques. 94.8% of the respondents agreed that teaching on manual handling was essential. 91.9% of the respondents agreed that competence in manual handling increases with professional experience. 50.5% of the respondents did not support the perception that physiotherapy practice has higher risk of injury than other health professions, while 59.2% felt they needed guidance to carry out manual handling in practice. Table 5 shows that 90.4% of the respondents avers that lack of equipment affects manual handling techniques. As a result, to slide patient up using the bed sheets was a common practice (54.8%).

Table 6 shows the Chi-square test of association between socio-demographic characteristics and each of knowledge level and attitude towards manual handling techniques. There was no significant association between respondents' knowledge levels of manual handling techniques and socio-demographic characteristics ($p>0.05$). Also, there was no significant association between attitude toward manual handling techniques and socio-demographic characteristics ($p>0.05$). Table 6 shows knowledge levels and attitude types of the respondents. About half (52.0%) of the respondents had negative attitude toward manual handling techniques. Knowledge levels of manual handling techniques, categorized as poor, average and good was 27.6%, 16.35 and 56.1% respectively.

Table 3. Frequency distribution of correct responses to knowledge questions on manual handling techniques (N=98)

SN	Physiotherapists' knowledge of manual handling techniques	n	%
1	MH is any activity used whilst treating a patient	54	55.1
2	MH force required when moving or lifting a patient or equipment	58	59.2
3	MH is moving or lifting an object	58	59.2
4	MH is activity requiring a force by a person to move an object	65	66.3
5	Moving and handling techniques are part of my physiotherapy training	92	93.9
6	Health and Safety at Work is an Act in Nigeria	51	52.0
7	Physiotherapy practice can predispose to injury	76	77.6
8	Ability to carry out MH is affected by many factors	85	87.7
9	Underarm lift is unsafe	29	29.9
10	Bear hug to facilitate standing is appropriate	27	28.1
11	Sliding patients up the bed without sliding sheets is a safe technique	61	67.1
12	Plinth must be adjusted to suit PT's height to aid transfer	94	95.9
13	It is useful for the physiotherapist to hold patient's clothes in transfer	54	55.6

MH – Manual Handling; PT - Physiotherapy

DISCUSSION

This study investigated the level and correlates of Nigerian physiotherapists' knowledge, attitude and perception of manual handling techniques. From this study, more than 70% of the physiotherapists had 'above average' to 'good' knowledge of manual handling techniques. This finding is consistent with some previous reports that physiotherapists have cutting-edge knowledge of manual handling, ergonomics and biomechanics compared to other health care professionals [9, 23]. Having more than casual knowledge of manual handling among physiotherapists can be associated with manual handling component of the training curricula of most baccalaureate programmes [25, 26] and also the hand-on job learning and experience [9, 29]. Therefore, experience in manual handling technique in physiotherapy is a continuous learning and dynamic process between class and clinic [30].

From this study, assessment of knowledge on manual handling techniques elicited varying responses. A majority of the respondents acceded to the fact that physiotherapy practice often require moving and handling procedures and as such are potential risk factors for musculoskeletal disorders. Also, most of the physiotherapists seem to have adequate knowledge about work postures/positions and plinth or bed height level needed for patient's transfer and treatment. Previous investigators have documented that knowledge on bed height adjustments during transfer and treatment is an important component of manual handling of patients in bed [31, 32].

Table 4. Physiotherapists' perception towards manual handling techniques

Physiotherapists' perception of manual handling techniques	Frequency	Percentage
PT practice involves much of manual handling		
Yes	90	91.8
No	8	8.2
PT practice has higher risk of injury than other health professions		
Yes	48	49.5
No	49	50.5
I received sufficient MH training at university		
Disagree	20	20.4
No Opinion	3	3.1
Agree	75	76.6
University prepared me for MH of patients		
Disagree	16	16.4
No Opinion	3	3.1
Agree	79	79.6
I feel I need guidance to carry out MH in practice		
Disagree	32	32.7
No Opinion	8	8.2
Agree	58	59.2
MH teaching is as important as other teachings		
Disagree	2	2.0
No Opinion	3	3.1
Agree	72	94.8
My MH training was at par with other teaching		
Disagree	35	35.7
No Opinion	12	12.2
Agree	51	52.1
MH training at university was engaging and interesting		
Disagree	24	24.4
No Opinion	20	20.4
Agree	54	55.1
My MH training was interesting and relevant to my practice		
Disagree	3	3.0
No Opinion	4	4.1
Agree	91	92.9
Competence in MH increases with professional experience		
Disagree	6	6.1
No Opinion	2	2.0
Agree	90	91.9
MH training must be carried out once a year		
Disagree	44	45.8
No Opinion	12	12.5
Agree	40	41.6

MH – Manual Handling; PT - Physiotherapy

Furthermore, physiotherapists in this study did not consider it safe to slide patients up the bed without the use of sliding sheets. This finding is in tandem with the findings of Hignett [33] and Pain et al [34] who considered the use of sliding sheets in moving patients up the bed as a safe practice. Similarly, more than half of the physiotherapists did not agree that holding the clothes of the therapist by the patient is useful in transfer corroborating an earlier

report by Kristin et al [28] that holding the therapist's clothes by the patient is not useful in transfer. The use of 'underarm lift' and 'bear hug' to facilitate standing was considered an unsafe practice among the respondents. Earlier reports by Nelson and Fragala [35] and Waters [36] stated that underarm lift was biomechanically unsound for handlers and potentially harmful for patient which may lead to musculoskeletal injuries.

Table 5. Physiotherapists' attitude towards manual handling techniques

Physiotherapists' attitude towards MH	Frequency	Percentage
MH should be avoided as much as possible		
Yes	24	24.5
No	74	75.5
I must use recommended techniques		
Disagree	10	10.2
No Opinion	10	10.2
Agree	78	79.6
To ambulate a patient who requires more assistance		
Wait and continue later	6	6.2
Find a commode	50	52.1
Attempt to walk patient alone	8	8.3
Ask ward clerk for help	32	33.3
To transfer 50kg partial weight bearing patient from chair to bed		
I will do it alone, even if it's unsafe	13	14.6
Nothing wrong with lifting underarm	27	30.3
Tell patient it is unsafe and wait for assistance	49	55.1
Patient slipped down the bed and needs re-positioning		
Slide up using bed sheets	51	54.8
Slide up with underarm grip	38	40.9
Leave patient and try to locate a sliding sheet	4	4.3
Patient begins to fall during a mobility session		
Step away so I don't injure myself	0	0.0
Attempt to catch patient	46	47.9
Try to guide patient in fall to the floor	50	52.
Why I don't use recommended techniques in practice		
I don't feel confident		
Yes	3	5.5
No	52	94.5
Not enough time		
Yes	33	47.1
No	37	52.9
Lack of equipment		
Yes	66	90.4
No	7	9.6
Patients don't like recommended techniques		
Yes	8	14.8
No	46	85.2

MH – Manual Handling

From this study, about half of the physiotherapists had negative attitude toward manual handling techniques. The respondents implicated lack of equipment as a major reason for negative attitude towards manual handling techniques. In addition, lack of equipment/aids was implicated as a reason why most physiotherapists do not use recommended techniques in practice in this study. Swain et al [14] in a study among nurses affirm that lack of manual handling equipment and time as reasons for the theory-practice gap in manual handling practice. However, a lot of factors may be responsible for having negative attitude towards the use of appropriate manual handling techniques. For example, there is a variety of diverse resources or guide on manual handling which may lead to confusion and also

account for theory-practice gap in manual handling [2, 14, 26]. A systematic review by Clemen [24] submits that the large quantity of manual handling training delivered in university was not being carried over by health care professionals when they reached the clinical environment. As a result, therapists frequently use awkward postures in the course of their work [9, 19, 29]. However, it is believed that taking manual handling training out of the classroom and into the actual workplace may help to validate the effectiveness of training as well as reduce the risk of injury [14]. Furthermore, this study did not find any significant association between socio-demographic characteristics and each of knowledge and attitude toward manual handling techniques.

Table 6. Chi-square test of association between socio-demographic characteristics and each of the knowledge level and attitude about manual handling techniques

		Knowledge level			X²	p-value
		Poor n(%)	Average n(%)	Good n(%)		
Sex						
Female	Male	14(51.9)	8(50)	36(65.5)	2.055	0.358
	Female	13(48.1)	8(50)	19(34.5)		
Qualification						
	BPT/BMR	22(81.5)	11(68.8)	44(80)	2.439	0.656
	MSc/PhD	5(18.5)	5(31.2)	11(20)		
Work Setting						
Rank	Secondary	4(14.8)	2(12.5)	5(9.1)	0.627	0.731
	Tertiary	23(85.2)	14(87.5)	50(90.9)		
Rank	PT	17(63)	11(68.8)	31	6.039	0.643
	SPT/PPT	6(22.2)	4(25)	17		
	CPT/ADPT	4(14.8)	1(6.2)	7		
Total		27(27.6)	16(16.3)	55(56.1)		
		Type of Attitude			X²	p-value
		Negative n(%)		Positive n(%)		
Sex						
	Male	34(66.7)		24(64.9)	0.794	0.373
	Female	27(33.3)		13(35.1)		
Qualification						
	BPT/BMR	46(75.4)		31(83.8)	1.727	0.422
	MSc/PhD	15(24.6)		6(16.2)		
Work Setting						
	Secondary	7(11.5)		4(10.8)	0.010	0.920
	Tertiary	54(88.5)		33(89.2)		
Rank						
	PT	33(54.1)		26(70.3)	3.566	0.468
	SPT/PPT	18(29.5)		9(24.3)		
	CPT/ADPT	10(16.4)		2(5.4)		
Total		51(52.0)		37(48.0)		

Key: BPT – Bachelor of Physiotherapy; BMR – Bachelor of Medical Rehabilitation; PT – Physiotherapist; MSc – Master of Science; SPT – Senior Physiotherapist; PPT – Principal Physiotherapist; CPT – Chief Physiotherapist; ADPT – Assistant Director of Physiotherapy

The prevalence of manual handling associated WRMSDs in this study was 24.5%. The low-back was the most affected body region by manual handling related musculoskeletal disorders while the upper back was reported to be rarely affected. This findings of this study on the prevalence of manual handling associated WRMSDs corroborates earlier reports that manual handling increases the risks of WRMSDs among physical therapists [9, 18, 25, 37]. Clemes et al [24] found a significant link between the implementation of incorrect manual handling techniques and musculoskeletal disorders with the low-back as the worst hit part of the body.

More than 90% of the physiotherapists in this study reported that manual handling lecture was as important as other lectures thereby affirming the reports of Health Services Advisory Committee [21] and the Chartered

Society of Physiotherapists [22] that manual handling education and training is a vital requirement for physiotherapists to be able to perform their professional tasks safely. However, the finding of this study reveals a theory-practice gap of manual handling techniques among Nigerian physiotherapists. Physiotherapy practice involves a high level of contact between therapists and patients and physical exertion during assessments and treatments. As a result, the physiotherapy job demands seem to predispose to high risk of WRMSDs. However, it is presumed that physiotherapists have a better knowledge of ergonomics and occupational health than most other health professionals, yet, it has not translated to reduction in the rates of WRMSDs among them. Therefore, the finding of this study may be useful in advocacy and policy for safety at work place for physiotherapists in Nigeria.

CONCLUSION

There was a high prevalence of manual handling associated WRMSDs among Nigerian physiotherapists. Majority of the physiotherapists had good knowledge of manual handling techniques but demonstrated negative attitude toward its use in clinical practice owing to non-availability of needed equipment. The finding of this study reveals a theory-practice gap of manual handling techniques among Nigerian physiotherapists.

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