

OCCUPATIONAL INJURIES AMONG PHYSICAL THERAPISTS IN SOUTH-WEST, NIGERIA.

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SUMMARY

Background: Bureau of Labour Statistics (BLS) has identified on-the-job injuries as a major problem facing health care workers. There is little data available on injuries sustained by physical therapists in Nigeria.

Objective: This study was carried out to determine the nature, prevalence, job risk factors and consequences of occupational injuries with particular focus on musculoskeletal injuries experienced by physical therapists in the south western part of Nigeria.

Methods: A hundred copies, self administered questionnaire composed of thirty (30) close-ended questions were administered to physical therapists working in hospitals and private clinics. Questions included occupational history of the physical therapists; duration of injury; body parts affected; activities that aggravate symptoms; patients predominantly treated; management and preventive strategies. The data were analysed using descriptive analysis.

Results: Seventy-eight percent (78%) of the physical therapists had past histories of occupational injuries. The most prevalent injured body parts were the lower back (45.2%), wrist and hand (26%) mid back (10.6%) and neck (6.7%). The highest job risk factors were manual therapy techniques (20.9%), transferring patients (13.8%) and static position (12.2%). Stroke (31.7%) and low back (28.2%) patients were predominantly treated. Activities that cause re-injury include manual technique and repetitive tasks. Muscle strain was the commonest type of injury (55%), while fracture was the least (1%).

Conclusion: This study concluded that occupational injury was high among selected physical therapists in the South West of Nigeria. It also concluded that the low back and hands were the most common sites susceptible to injury, while muscle strain was the most common type of injury.

KEYWORDS: Occupational injury, Musculoskeletal injury, Physical therapists

INTRODUCTION

Injury is defined as a damage, wound or trauma caused by an outside force or agent which may be physical, chemical or psychic (William and Wilkin, 2000). An occupational injury is an injury that results from a work-related event or from a single instantaneous exposure in the work environment leading to death, loss of consciousness, work restriction or transfer to other job (US Department of Labour, 1992). Occupational injury or work related musculoskeletal injury is also an injury that results from a work related event. This may result in lost time work, work restriction or transfer to other job (Aptel, 2002; Nyland and Grimmer, 2003; and Harwood, 2005).

A work-related musculoskeletal injury in physical therapy is defined as pain that has its origin from muscles, tendon, ligaments, joint capsules and bone lasting more than three days felt by the physical therapists as a result of their work (West and Gardner, 2001). Evidence in Western world suggested that physical therapists are highly susceptible to work-related conditions including musculoskeletal injuries and neurovascular disorder (Holder et al, 1999; CSP, 2001; West and Gardner, 2001; APA, 2005). Occupational hazard in health care settings showed that injury rates among health care workers are high (USA Department of Labour, 1992). Bureau for Labour Statistics (BLS) has identified on-job-injuries as a major problem facing health care workers (BLS, 1996). The injury rate among hospital workers for example has been stimulated to be twice that of other service industries (Stellman, 1982). Activities involving patient contact are highly correlated with occupational injuries among health care workers (Nelson and Olson, 1996). High levels of patient contact as well as other variables in the health care environment that are thought to cause injuries are common in the field of physical therapy. (Bork et al, 1996; Holder et

al, 1999; Cromie et al, 2002; Rygelj, 2003).

The practice of physical therapy requires the performance of many labour-intensive tasks related to the delivery of patient care. Such activities include lifting, bending, twisting, reading, performing manual therapy, maintaining awkward position for a prolonged period of time, assisting with activities on the exercise mat, transferring patient and lifting and using cumbersome equipments (Mierzejewski and Kumar, 1997; Holder et al, 1999; West and Gardener, 2001) These work tasks put therapists at risk for both acute and cumulative musculoskeletal pain (Salik and Ozcan, 2004).

According to Australian Physiotherapists Association (2003), the major contributing factors to work-related conditions in physical therapy include:

- 1 The nature of delivery of physical therapy including the hand-on application of therapeutic techniques and the physical handling of live and inanimate loads.
- 2 A culture of under reporting and receiving treatment "in house" which makes it difficult to accurately assess and monitor the work-related conditions.
- 3 Different levels of education of physical therapists regarding risk management and the legislation governing health and safety and manual handling.
- 4 Inadequate application of the physical therapists' knowledge and skill of injury prevention to their own situation resulting in poor self protection strategies.
- 5 Work load pressures inducing stress and physical consequences.

A number of researchers had investigated occupational injuries within health care setting and their studies indicated that a large percentage of health care workers have experienced a work-related injury at one time or the other (Myers et al, 1993; Smith and White, 1993; and Bork et al, 1996,). But it is note-worthy that the work environment might be different when compared to Nigeria.

The most common occupational injury among physical therapists is low back pain (Mierzejewski and Kumar, 1997; Nyland and Grimmer, 2003; Rugelj, 2003). Other body parts that may be injured include wrist and hand, mid back and neck (Bork et al, 1996).The various types of musculoskeletal injuries include tenosynovitis, bursitis, ligamentous tear, or rapture, avulsion, laceration, fracture subluxation dislocation, contusion, concussion, sprain and strain among others (Cailliet, 1988).

A previous study by Cromie et al, (2000), found that lifetime prevalence of work related Musculoskeletal disorders among physical therapists is as high as 91%, with younger physical therapists (i.e. those below the age of 30) more at risk. According to Holder et al (1999), low back pain accounts for about 62% of occupational injuries among physical therapists in US followed by injury to the upper back, wrist and hand (23%). West and Gardner (2001) reported that about 35% of physical therapists in Australia experience low back pain.

There are currently few data available on the injury rate among physical therapists in Nigeria (Akinbo, 2006). Similarly, there is dearth of adequate data in job risk factors and injured body parts. This study was aimed at determining types, risk factors and prevalence of musculoskeletal injuries exist among practicing physical therapists in the south west of Nigeria.

MATERIALS AND METHODS

A total number of 100 purposively selected physical therapists in the Southwest of Nigeria participated in the study without gender discrimination and religion or ethnic bias

INSTRUMENTATION

A 4-page self administered questionnaire composed of thirty close-ended, questions, which was a modified questionnaire of Holder et al, (1999) was adopted for this study. The questionnaire was divided into three sections.

Section A: Section A was designed to obtain socio-demographic data of the respondents like sex, age, marital status, educational qualifications, status in the clinical setting, years of experience and place of work.

Section B: This was designed to obtain information on occupational injuries. It had questions like, duration of injury, body part affected, types of injury, predisposing activities that bring about the injury, and settings where the injury occurred. It also asked about the types of patients predominantly treated, activities that caused recurrence, whether the respondents reported their injuries officially and if they lost a day or more when they were injured.

Section C: This asked about the medical and physical therapy management of these injuries; if hazard allowances were given, if workers' Compensation System was in existence and ways of preventing these injuries.

PROCEDURE

This study was approved by the Ethics and Research Committee of ObafemiAwolowo University Teaching Hospitals Complex, Ile-Ife. One hundred and twenty copies of the questionnaire were distributed by hand to clinical physical therapists in teaching hospitals, state hospitals, private physical therapy clinics and those who are self-employed or who engage in private (home visits) practice. One hundred copies of questionnaire were filled correctly and returned.

The selected hospitals were:

- * State Hospital, Akure
- * Wesley Guild Hospital, Ilesa , Osun State
- * ObafemiAwolowo University Teaching Hospitals Complex, Ile-Ife , Osun State
- * Ladoke Akintola University Teaching Hospital, Osogbo, Osun State
- * State Hospital, Asubiaro, Osogbo, Osun State

- * University Teaching Hospital, Ibadan, Oyo State
- * State Hospital, Ring road, Ibadan, Oyo State
- * State Hospital, Yemetu, Ibadan, Oyo State
- * Oni Memorial Hospital, Ring road, Ibadan, Oyo State
- * Oluwaseun Physiotherapy Clinic Molete, Ibadan, Oyo State
- * M-Phasis Physiotherapy Clinic, Bodija, Ibadan, Oyo State
- * Lagos State University Teaching Hospital, Ikeja, Lagos State
- * National Orthopaedic Hospital, Igbobi, Lagos State

DATA ANALYSIS

Descriptive statistics (means, frequencies and percentages) were used to analyse the data.

RESULTS

The 100 respondents included 55 males (55%) and 45 females (45%) with mean age 34.8±5.8 years (range, 25-56 years) (Table 1). The result indicated that 41% of the physical therapists that participated in this study had clinical experiences of 2-5 years, while those with more than 20 years experience were the least (2%) (Table 2). The result also showed that 57 (57%) respondents were working in teaching hospitals, 24(24%) worked in state government hospitals, 14 (14%) at private clinics, 4(4%) were involved in private practice (home visits) while 1(1%) worked at a primary health centre (Table 3).

Work related musculoskeletal injuries and their duration

Seventy eight respondents (78%) reported they had experienced work-related injuries at one time or the other on their job. Twenty two respondents (22%) had never experienced any musculoskeletal injury in their occupation.

Out of 78 respondents that had experienced occupational injuries, 27 (34.6%) of them had the injury less than a year ago, 17 (21.8%) had the injury between 1-2 years back, 14 (17.9%) had injuries of between 2-3 years duration. 17 respondents (9.0%) had 3-4 years history of injuries while 13 respondents (16.7%) had injuries of more

Table 1: Age and Sex Distribution

		Number of Respondents	Percentage (%)
SEX	MALE	55	55
	FEMALE	45	45
TOTAL		100	100
AGE	25-29	16	16
	30-34	34	34
	35-39	32	32
	40-44	12	12
	45-49	4	4
	50-54	1	1
	>55	1	1
Total		100	100

Table 2: Years of clinical experience

Years	Number of Respondents	Percentage (%)
2-5	41	41
6-10	35	35
11-15	13	13
16-20	9	9
>20	2	2

Table 3: Places of work

Place of Work	Number of Respondents	Percentage (%)
Teaching Hospitals	57	57
State Hospitals	24	24
Private Clinics	14	14
Self employed/ Home visits	4	4
Primary Health care	1	1
Total	100	100

than 4 years duration (Table 4).

Types of Musculoskeletal injury

The types of musculoskeletal injuries common among physiotherapists were muscle strain (55%), followed by ligamentous sprain (18%), vertebral disc involvement (6%), tendinitis (4%), dislocation (2%) and fracture (1%) (Table 5).

The parts of the body affected

The result showed that multiple injuries are experienced by each physical therapist making some respondents to choose more than one body part. Most respondents {47(45%)} chose lower back, making lower back the most frequently affected body part. Hand and wrist followed with 27 (26%), then mid back 11(10.6%), neck 7(6.7%), shoulder (4.8%). Both hip and thigh; and knee had 3(2.9%) each, elbow had 1(0.9%). No respondent reported injuries at the ankle, foot and abdomen (Table 6).

Table 4: Work-Related Musculoskeletal injuries and their duration

		Number of Respondents	Percentage (%)
Occupational Injury	Yes	78	78
	No	22	22
TOTAL		100	100
Duration (Years)	<1	27	34.6
	1-2	17	21.8
	2-3	14	17.5
	3-4	7	9.0
	>4	13	16.7
		78	100

Table 5: Types of musculoskeletal injuries

Type of Injury	Number of Respondents	Percentage (%)
Dislocation	2	2.3
Fracture	1	1.2
Muscle strain	55	64
Synovitis	0	0
Tendinitis	4	4.5
Ligamentous sprain	18	21
Neuropathy	0	0
Vertebral disc involvement	6	7.0
Total	100	100

Table 6: The Body Parts that are mostly affected

Type of Injury	Number of Respondents	Percentage (%)
Neck	7	6.7
Low Back (lumbosacral)	47	45.2
Elbow	1	0.9
Hip and thigh	3	2.9
Ankle and foot	0	0
Mid back (thoracic)	11	10.6
Shoulder	5	4.8
Wrist and hand	27	26.0
Knee	3	2.9
Abdomen	0	0
Total	100	100

Job-risk activities

A larger number {41(20.9%)} of respondents reported that they were performing manual therapy techniques when the injury occurred. This was followed by those who were transferring patients {27(13.8%)}. Maintaining a position for a prolonged period of time was 24(12.2%), bending and twisting 21(10.7%), applying modalities and lifting were 18(9.2%) each, those that performed repetitive task were 12(6.1%), physical fatigue 14(7.1%), response to anticipated movements by the patients 9(4.6%), slipping, tripping or falling had 7(3.6%), while working in awkward positions and other activities had 2(1.0%) each. Those that sustained injury when instructing patients had the least number 1(0.5 %) (Table 7).

Patients predominantly treated

The kinds of patients predominantly treated by the respondents were stroke patients 45(31.7%), followed by low back pain patients 40(28.2%). Other orthopaedic patients treated were 16(11.3%). Fifteen (15) physical therapists (10.6%) chose paraplegic and quadriplegic patients, while 2(1.4%) chose other clinical conditions. Only 14(9.9%) of the physical therapists chose paediatrics (Table 8).

Activities that caused symptoms to recur

The respondents who had experienced a work-related musculoskeletal injury indicated that performing

manual therapy techniques {18(18.2%)}, transferring patients {17(17.2%)}, performing repetitive tasks {16(16.3%)}, bending and twisting {15(15.2%)} and maintaining a position for a prolonged period of time {13(13.1%)} were the activities that most often exacerbated their symptoms during clinical practice (Table 9).

Table 7: Job-risk Activities

Activities	Number of Respondents	Percentage (%)
Applying modalities	18	9.2
Bending or twisting	21	10.7
Instructing a patient	1	0.5
Lifting	18	9.2
Long Time Position	24	12.2
Manual therapy	41	20.9
Performing repetitive task	12	6.1
Patients' unanticipated movement	9	4.6
Slipping or falling	7	3.6
Transferring a patient	27	13.8
Awkward or cramped position	2	1.0
Physical fatigue	14	7.1
Others	2	1.0
Total	196	100

Table 8: Kind of Patients Predominantly Treated

Kind of Patient	Number of Respondents	Percentage (%)
Stroke	45	31.7
Low back pain	40	28.2
Paraplegia/quadriplegia	15	10.6
Paediatrics	14	9.9
Other neurological conditions	10	7.0
Other orthopaedics conditions	16	11.3
Other conditions	2	1.4
Total	142	100

Table 9: Activities that causes Symptoms to Reoccur

Activities	Number of Respondents	Percentage (%)
Bending or twisting	15	15.2
Lifting	10	10.1
Prolonged Static position	13	13.1
Overhead activities	1	1.0
Manual therapy	18	18.2
Repetitive task	16	16.2
Out-stretching	0	0
Climbing stairs	2	2.0
Squatting	0	0
Transferring patients	17	17.2
Walking	1	1.0
Awkward/cramped position	3	3.0
Others	3	3.0
Total	99	100

DISCUSSION

This study was aimed at determining the prevalence of occupational injuries among physical therapists in the south west of Nigeria. Occupational injuries are common among health care workers (Evanoff et al, 1999). The costs of these are substantial, both in terms of money and in terms of work time lost. The average age of the physical therapists in this study was 34.8 years and the highest number of injury occurrence fell between the age range of 30 – 34 years. The result supported the work of Cromie et al, (2000) that younger physical therapists have a higher prevalence of musculoskeletal problems related to occupational conditions. Nyland and Grimmer (2003) also revealed that the 20 – 31 years age group had highest frequency of low back pain among physical therapist in Australia. Rugej (2003), discovered, in line with the above findings that there was incidence of 66% injuries among physical therapists between the ages of 20 and 40 years. Physical therapists tend to experience work related injuries at younger age, which may be as a result of poor ergonomics and assuming poor posture when treating or that the older ones were not actively involved in patients' care. A previous study has shown that musculoskeletal problems are particularly common in health care workers who are in direct contact with patients (Akinbo, 2006), and past studies have revealed that physical therapists have a high prevalence of occupational injuries compared to other health workers (Holder et al, 1999; Bork et al, 1996; Cromie et al, 2000; Rugej, 2003; Cromie et al, 2001; Galinsky et al, 2001). This study found that most of the physical therapists experienced work related musculoskeletal disorder; this supported a previous study by Salik and Ozcan (2004) in Turkey who reported a high prevalence (85%) of work related injuries among physical therapists. The result also supported Cromie et al, (2000) who reported that the life time prevalence of work-related MSDs among physical therapists was as high as 91%. West and Gardner (2001) also reported high prevalence (55%) of occupational injuries among physiotherapists in the North and Central Queensland Australia.

Furthermore, this study found that the highest incidence of injuries was at the low back region. In a study that covered 25% of all physical therapists working in Australia, Cromie et al (2001) found that the rate of work-related low-back pain was 48%. Previous studies revealed various rates of this problem among physical therapists {Bork et al (1996) 45%, Holder et al, (1999) 62%, Rugej (2003) 73.7%, and Salik and Ozcan (2004) 25.5%}. Biomechanical studies have shown that physical loading factors such as body flexion, rotation and weight loading play a role in this (Galinsky et al, 2001). The use of good body biomechanics, employing physical therapy assistants and avoiding bad posture, are suggested ways of preventing occupational injuries (Akinbo, 2006).

Other regions most commonly involved in

musculoskeletal disorders from this study were wrist and hand, upper back, and neck. This work supported West and Gardner (2001) finding that 25% of the physical therapists had experienced a hand injury during their career. Bork et al, (1996) and Holder et al (1999), also reported that, wrist and hand, neck and shoulder were the parts mostly injured after the low-back region.

In addition, this study revealed that majority of physical therapists worked in government hospitals, and it supported the work of Salik and Ozcan (2004), which reported that majority of physical therapists in Turkey work in General hospitals. This may be a contributing factor to the high prevalence of occupational injuries, because the number of patients they see appears to exceed that of private physical therapy clinics and rehabilitation centres.

The work-related activities that most commonly cause injuries among physical therapists according to this study, was performing manual therapy techniques; transferring patients and maintaining a position for a prolonged period. West and Gardner (2004) highlighted working in the same position for long periods, working in static postures with flexion or rotation; continuing to work while injured and performing manual therapy techniques as the activities that commonly lead to injuries. Bork et al (1996) identified the causes of work related injuries in physical therapy as staying in the same position for a long time and continuing to work when fatigued; Salik and Ozcan (2004) also reported patients transfer; repeated movement, lifting heavy equipment, patient; and working when physically fatigued as causative factors.

Furthermore, this study showed that performing repetitive tasks, bending and twisting are the activities that aggravated existing injuries. This was in support of Holder et al (1999) who identified three activities that aggravate the symptoms of already existing work-related musculoskeletal disorders among physical therapists and physical therapist assistants as staying in the same position for a long time, lifting and transferring patients.

The patients predominantly treated by physical therapists as shown in this survey were stroke patients, low back pain patients, patients with other orthopaedic conditions and paraplegia and quadriplegia. This might be that physical therapists expend energy and assume different awkward positions when treating these categories of patients, hence there might be high risk of occupational musculoskeletal injuries.

Observation revealed that almost all the physical therapists were not operating Workers Compensation System, hence, this may affect their dedication to their job and satisfaction. This was in contrast to the system in other countries. In Australia for instance, West and Gardner (2001) reported that workers' compensation system was the official body that deals with occupational injury and rehabilitation, and that a longer percentage of injured physical therapists lodged a workers' compensation claim.

CONCLUSION

This study concluded that occupational injury was high among selected physical therapists in the South West of Nigeria. It also concluded that the low back and hands were the most common sites susceptible to injury, while muscle strain was the most common type of injury.

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