

# The Incidence of Work-related Low Back Pain among Currently Practicing Physiotherapists in Bloemfontein

**ABSTRACT:** *Physiotherapy practice involves the performance of strenuous physical activities related to the delivery of patient rehabilitation. No evidence of studies relating to physiotherapy work-related low back pain (WRLBP) in South Africa could be found. The aims of this study were to retrospectively investigate the incidence of work related low back pain among currently practicing physiotherapists in Bloemfontein, to determine the contributing risk factors, and to determine the responses of the physiotherapists to injury. Eighty four physiotherapists participated in this descriptive study. The results indicated that 67% of respondents had experienced work related low back pain and the 95% confidence interval for the incidence of WRLBP among physiotherapists in Bloemfontein is [56.8%; 76.6%]. Therapists performing cardio-thoracic related tasks had the most significant confidence interval of WRLBP [2.2%; 35.1%]. Fifty eight percent of respondents who had WRLBP reported that their symptoms were exacerbated by clinical practice. The results of the study suggest that it is the nature of the job design which predisposes physiotherapists to injury and not a lack of kinetic handling knowledge. Further research is needed to develop methods to reduce the risks of WRLBP which are inherently part of physiotherapy practice.*

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**KEY WORDS:** *INCIDENCE, WORK RELATED LOWER BACK PAIN, SOUTH AFRICA.*

## INTRODUCTION

“We tend to think that we’re not going to get hurt because we have all this knowledge about on the job injuries. Our knowledge of ergonomics might help us avoid injury, but we’re still forced into bad postures, and we’re lifting more than we should.” Glover (2002)

International research studies suggest that musculoskeletal injuries among healthcare workers are common and physiotherapists are no exception, despite their specialist knowledge of body mechanics and injury prevention. The term “work-related musculoskeletal disorders” describes a wide range of inflammatory and degenerative diseases and disorders that result in pain and functional impairment. They arise when individuals are exposed to work activities and conditions that significantly contribute to their development or exacerbation of symptoms, but which may not be the sole cause of the musculoskeletal disorders (World Health Organisation,

1985). 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, reaching, performing manual therapy, and maintaining awkward positions for a prolonged period of time. Therefore, physiotherapists in certain working environments are exposed to occupational risk factors which may predispose them to work-related low back pain (Holder et al, 1999).

Ninety one percent of physiotherapists in Australia experienced work related musculoskeletal disorders (WRMSD) at some time during their career and one in six physiotherapists moved within, or left the profession as a result of this (Cromie et.al. 2000). Research done among physiotherapists in Zimbabwe, Australia and the USA revealed that 56%-63% suffered from work related low back pain (WRLBP) (Cromie et.al. 2001; Holder et.al. 1999, Igumbor et.al.

2003). No evidence of studies relating to physiotherapy work related low back pain in South Africa could be found and as a starting point in determining this incidence, the aims of this research study were to retrospectively investigate the incidence of work related low back pain among currently practicing physiotherapists in Bloemfontein, to determine the contributing risk factors and to determine the response of the physiotherapists to injury.

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## METHODOLOGY

A descriptive study was used. Previous studies were used to compile the questionnaire. The study population included all qualified and currently practicing physiotherapists in Bloemfontein.

### Data Collection

Afrikaans and English copies of the questionnaire were hand delivered to 115 participants. A high response rate of 72,17% was achieved. A pilot study was conducted to enhance the face and content validity of the questionnaire and the results were not included in the final outcome of the study.

### Statistical analysis

Statistical analysis was done by the Department of Biostatistics at the University of the Free State using the 95% confidence interval, percentiles, means and percentages. The statistical significance accepted as  $p < 0.05$ .

## RESULTS

The total number of participants were eighty three ( $n=83$ ), seventy five respondents were female and eight were male. The age range of respondents was between 23 - 64 years with the median age of respondents being 32 years. The median number of years that respondents had been practicing physiotherapy was 8.5 years.

The results showed that 67.5% of respondents had experienced work related low back pain and that the 95% confidence interval for the incidence of WRLBP among physiotherapists in Bloemfontein is [56.8%; 76.6%]. These values compare to studies done in Zimbabwe (Igumbor et al. 2003), North and Central Queensland, Australia (Gardner, D. and West, D. 2001) and in the U.S.A (Holder et al. 1999) where the incidence was 56%, 22% and 62% respectively. Twenty two (26.5%) respondents reported a work related lower

back injury. Twenty seven (32.6%) of the respondents had a lower back injury/pain caused by factors outside of physiotherapy. **Table 1** shows the comparison of respondents with and without back pain in relation to place of work.

Physiotherapists working in the cardio thoracic area had the most statistically significant 95% confidence interval [2, 2%; 35,1%] when comparing respondents with and without work related low back pain. Therapists working in private practice, manipulative therapy and orthopaedic settings showed a high occurrence of work related low back pain.

The type of tasks showing a statistically significant confidence interval for work related low back pain were mobilisations/manipulations. Tasks showing a tendency towards the development of work related low back pain included chest physiotherapy and rehabilitation. Coincidentally a high percentage of

**Table 1: Comparison of respondents with and without back pain in relation to place of work.**

	RESPONDENTS WITH BACK PAIN	RESPONDENTS WITHOUT BACK PAIN	95% CONFIDENCE INTERVAL FOR % DIFFERENCE
Place of work	Percentage	Percentage	
General Hospital	19.2%	80.8%	[-26.6% ; 7.1%]
Cardio thoracic*	28.6%	7.4%	[2.2% ; 35.1%]
Paediatrics	37.5%	22.2%	[-6.5% ; 32.8%]
Academia	16.1%	29.6%	[-38.8% ; 4.5%]
Administration	7.1%	18.5%	[-30.1% ; 2.9%]
Rehabilitation#	41.1%	25.9%	[-7.1% ; 33.4%]
Nursing Home	10.7%	0%	[-3.0% ; 21.5%]
School system	10.7%	18.5%	[-26.9% ; 7.1%]
Orthopaedics#	41.1%	25.9%	[-7.1% ; 33.4%]
Manipulative therapy#	50%	29.6%	[-2.3% ; 39.1%]
Neurology	30.4%	14.8%	[-5% ; 31.3%]
Sport	39.3%	25.9%	[-8.7% ; 31.6%]
Community Health	12.5%	3.7%	[-7.1% ; 20.3%]
Private practice#	62.5%	37.5%	[-14.4% ; 28.5%]
Spinal	16.1%	18.5%	[-22.1% ; 13.2%]
Home care	10.7%	3.7%	[-8.6% ; 18.2%]
Gerontology	8.9%	3.8%	[-10.2% ; 16.0%]
Other	8.9%	7.4%	[-15.2% ; 13.2%]

\* Significant # Tendency

physiotherapists who perform mobilisations/manipulations, chest physiotherapy and rehabilitation were also indicated that they have low back pain.

**Refer to Table 2:**

Mobilisations/manipulations as well as chest physiotherapy force therapists to work in cramped or awkward positions, in the same position for long periods of time and to reach away from their bodies. Spinal rehabilitation usually requires lifting or transferring of dependant patients, as well as bending or twisting one's back in an awkward way. Unanticipated sudden movements or falls of a patient can also occur.

It was surprising from the results that electrotherapy was included in the group of settings showing a tendency towards WRLBP, as it is not generally regarded as a strenuous task. It is however possible that because electrotherapy is often used in combination with mobilisations/manipulations that it is related to WRLBP. Only 1.8% of therapists suffering from WRLBP indicated that they substitute manual techniques with electrotherapy to reduce strain on their bodies when treating patients.

There seems to be a relationship

between the cardio thoracic work setting and the task of chest physiotherapy due to the fact that a large proportion of the work in this area is chest physiotherapy. Work in the hospital setting also includes a fair portion of chest physiotherapy and 42.9% of the respondents' injuries occurred in a hospital setting.

Interestingly 87.5% of respondents indicated that they experienced low back pain during the performing of administration tasks. This could be attributed to the position in which the administration tasks are performed or the ergonomics of the working stations/computers.

The highest occurrence of the initial episode of WRLBP was within the first five years after graduation. This correlates with other studies (Igumbor et al. 2003), (Holder et al. 1999), (Cromie et al. 2001) and (Bork et.al.1996). Further research needs to be performed in order to establish possible reasons. Seventy five percent of respondents with WRLBP indicated that the onset of symptoms were predominantly gradual.

**Refer to Table 3:**

In the opinion of respondents, major contributors to work related low back

discomfort or injury were: working in awkward or cramped positions, working in a position for long periods of time, bending or twisting one's back in an awkward way, unanticipated sudden movements or falls of a patient and lifting or transferring dependent patients. 56.9% of respondents indicated that inadequate training in injury prevention was not a contributing factor to the development of work related low back pain in physiotherapists.

**Refer to Table 4:**

On the question how participants responded to injury 71.4% of respondents consulted another physiotherapist and 71.4% undertook a posture and exercise programme. Fifty percent of respondents indicated that they modified their techniques in order to prevent their low back pain and 50% of physiotherapists with low back pain took medication to alleviate their symptoms. Only 7.1% of respondents elected to change the type of patients predominantly treated or took time off on sick leave and 38.2% stated that their symptoms prevented them from doing normal activities of daily life or leisure activities. A study including retired physiothera-

**Table 2: Comparison between the percentiles of respondents with and without low back pain in correlation with task.**

	RESPONDENTS WITH BACK PAIN	RESPONDENTS WITHOUT BACK PAIN	95% CONFIDENCE INTERVAL FOR % DIFFERENCE
Type of task	Percentage	Percentage	
Manipulation/Mobilisation*	83.9%	16.1%	[17.8% ; 7.9%]
Administration	87.5%	12.5%	[-9.2% ; 25.3%]
Cardio thoracic	16.1%	11.1%	[-13.5% ; 18.8%]
Neurology	41.1%	25.9%	[-7.1% ; 33.4%]
Electrotherapy#	62.5%	37.5.7%	[-0.9% ; 41.6%]
Rehabilitation#	67.9%	32.1%	[-2.4% ; 40.2%]
Education/Training of clients or students	41.1%	55.6%	[-35.1% ; 7.9%]
Sports physiotherapy#	48.2%	29.2%	[-4.1% ; 37.4%]
Paediatrics	25.0%	33.3%	[-29.4% ; 11.1%]
Orthopaedics	53.6%	37.0%	[-6.2% ; 36.4%]
Spinal#	19.6%	3.7%	[-0.8% ; 28.5%]
Chest physiotherapy#	69.6%	30.4%	[-0.6% ; 41.8%]

\* Significant # Tendency

**Table 3: Identified job-related risk factors and their relative contributions to the development of WRLBP in physiotherapists.**

	Major	Moderate\	Mild	Not at all
Performing the same task over and over	38.5%	38.5%	15.4%	7.6%
Treating a large number of patients in one day	43.6%	38.2%	12.7%	5.5%
Not enough rest breaks during the day	26.9%	34.6%	26.9%	11.5%
Performing manual orthopaedic techniques	4.0%	36.0%	40.0%	20.0%
Working in awkward or cramped positions*	51.9%	35.2%	11.1%	1.9%
Working in the same position for long periods*	52.7%	34.6%	10.9%	1.8%
Bending or twisting your back in an awkward way*	50.0%	18.5%	24.1%	7.4%
Reaching or working away from your body	44.4%	25.9%	25.9%	3.7%
Unanticipated sudden movement or falls of patient*	46.3%	14.8%	25.9%	12.9%
Assisting patient during gait activities	15.4%	23.1%	36.5%	25.0%
Lifting or transferring dependant patients*	46.3%	37.0%	14.8%	1.9%
Working with confused or agitated patients	17.3%	26.9%	36.5%	19.2%
Carrying, lifting or moving heavy materials/equipment	15.1%	35.9%	30.2%	18.9%
Working at or near your physical limits	27.3%	32.7%	27.3%	12.7%
Continuing to work when injured or hurt	34.6%	40.0%	18.2%	7.3%
Work scheduling (overtime, irregular shifts, length)	17.6%	31.4%	31.4%	19.6%
Inadequate training in injury prevention*	5.9%	11.8%	25.5%	56.9%

**Table 4: Physiotherapists' response to injury.**

RESPONSE TO INJURY	
Sought physiotherapy treatment*	71.4%
Exercise or posture program*	71.4%
Modified their physiotherapy techniques*	50%
Took medication*	50%
Consulted a doctor	19.6%
Had diagnostic imaging (X-rays, MRI, CT etc.)	16.1%
Changed their work settings	12.5%
Nothing	8.9%
Officially reported the injury	8.9%
Changed type of patient predominantly treating	7.1%
Sought alternative treatments	7.1%
Time off on sick leave	7.1%
Used braces, splints or other orthosis	7.1%
Decreased patient contact hours	5.4%
Plan to retire early	5.4%
Changed your work duties	3.7%
Lodged a claim to workers compensation or PPS	1.8%
Taken time off on workers compensation or PPS	1.8%
Other consequences	0.0%
Undergone surgery	0.0%

pists might give a more correct representation of work related low back pain in the profession because 5.4% of respondents indicated that they plan to retire early due to pain or injury.

The self protective behaviour most commonly used by respondents to reduce strain on their body when working is getting someone to help them handle a heavy patient (40%), modify their position or the position of the patient (58.2%), or adjust the height of the plinth or bed (50%). A large number of respondents indicated that they never stop a treatment if it causes or aggravates their discomfort (46.3%).

Although 92.7% of the respondents received training in kinetic handling, the high incidence of WRLBP suggests that it is rather the nature of the job design which predisposes physiotherapists to injury and not a lack of education. Only 6% of respondents stated that inadequate training had an influence on their work related low back discomfort or injury. This is consistent with Gardner et al. (2001) who also had a 6% result. A fair comment was made by one of the respondents that “physiotherapists do

not always practice what they preach" about back care and therefore there may be a discrepancy between knowledge and the actual application of the knowledge. Further investigation regarding therapists' own application of back care could be done.

## CONCLUSION

The results obtained in the study showed that WRLBP is a prevalent problem within the physiotherapy profession in Bloemfontein. The unacceptable irony is that physiotherapists are primarily involved in the treatment of back pain and yet they themselves suffer from this affliction, despite knowledge and extensive training in kinetic handling principles. It is however apparent that the inherent nature of physiotherapy practice predisposes therapists to WRLBP. Further research could be conducted to determine how effectively physiotherapists apply kinetic handling principles in practice and to determine the incidence of pain and injury to other areas of the body for example neck, thoracic area, wrist, fingers and thumbs. Deyo, Loeser, and Bigos (1990) determined that 80% of the general population experience back pain at some stage. It would be interesting to compare low back pain among physiotherapists and members of the general population in the same age bracket to conclusively determine whether it is the design of the job that predisposes physiotherapists to low back pain.

Research to determine the incidence of pain and injury to other areas of the body for example neck, thoracic area,

wrist, fingers and thumbs could also be conducted in South Africa and a study including retired physiotherapists might give a more correct representation of work related low back pain in the profession.

## ACKNOWLEDGEMENTS

The researchers would like to thank the participants.

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