COMMENTARY

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Workplace-based Rehabilitation for Upper Limb Conditions in the South African context

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ABSTRACT

Workplace-based rehabilitation is a growing field of practice internationally and locally. This commentary discusses the current barriers and facilitators facing South African occupational therapists wanting to implement workplace-based rehabilitation with upper limb conditions. An overview is provided of current international practice in the field and relevant factors in the South African context. Recommendations are made for development in this field in clinical practice, research and education in South Africa.

Key words: Workplace-based rehabilitation, occupational health, upper limb, workplace health, disability

INTRODUCTION

Work rehabilitation refers to a structured therapeutic programme facilitating improvement in work performance for workers whose participation in work has been compromised by ill-health or disability, whether related or unrelated to work. Where this programme occurs at least partly at the place of employment, it can be referred to as *workplace-based rehabilitation* (WBR). WBR is often multidisciplinary in nature, but may also be practiced by occupational therapists or other rehabilitation practitioners in isolation.

WBR may have inherent benefits over traditional rehabilitation based at clinics, hospitals or work rehabilitation centres. These include:

- Early identification of loss of function related to ill-health/disability.
- Inclusion of workplace supervisors and managers in the therapeutic process.
- Collaboration with on-site occupational health doctors and nurses.
- Reduced travel time and costs for workers, with resultant reductions in loss of work time.
- Use of the worker's actual job tasks in rehabilitation.
- Customisation of rehabilitation programme to the industry.
- Early return to work with reduction in sick leave[1].

Upper limb conditions are amongst the most common causes of ill-health and disability in the workplace, both internationally[2,3] and locally[4]. A cross-sectional field survey of South African employees (n=15663) in 2012 found that 47% of employees experienced repetitive strain injury (RSI)-related symptoms in their neck, shoulder and upper back[5]. While all provinces and races were represented, the sample consisted of educated participants, ranging from a Grade 8 to a doctoral degree. This is unlikely to be fully representative of the South African workforce. The incidence of upper limb pain amongst South African workers with lower educational levels could possibly be higher, particularly for those involved with manual labour or highly repetitive unskilled or semi-skilled work. The impact of upper limb dysfunction on the South African workforce includes: direct costs of compensation for work-related injuries by the Compensation Fund, loss of productivity and work quality, absenteeism, worker retraining and replacement[5]. Costs to the injured worker may include medical costs, loss of income and loss of amenities of life.

Due to the high prevalence and cost of upper limb dysfunction in the workplace, there is a growing focus on workplace-based preventative interventions, particularly in international literature[2]. Upper limb injury prevention is an area that requires further exploration by occupational therapists and other practitioners in South Africa. This commentary deals specifically with occupational therapy practice in rehabilitative interventions based at the workplace.

Aim

The aim of this commentary is to describe international practice in WBR for upper limb conditions; to discuss barriers and facilitators in the current South African context; and to make recommendations for the growth of the field for South African occupational therapists.

INTERNATIONAL APPROACHES TO WORKPLACE-BASED REHABILITATION

A systematic review of WBR for upper limb conditions was conducted in 2018[6]. Seventeen unique studies were reviewed and grouped into the following intervention categories:

1. Ergonomic controls (n=3);
2. Ergonomic training and workstation adjustments (n=4);
3. Exercise and resistance training (n=6);
4. Clinic-based vs workplace-based work hardening (n=1);
5. Nurse case manager training (n=1);
6. Physiotherapy vs Feldenkrais (n=1);
7. Ambulant myo-feedback training (n=1).

The review concluded that exercise programmes were found to have positive effects on pain, muscle strength, endurance, work ability and upper limb function. These findings were consistent across a variety of programme formats, including video-based instruction, strength vs endurance training and short (2-minute), frequent training sessions. Studies on ergonomic controls were found to have mixed results. An adapted mouse using neutral forearm and wrist postures was found to have positive effects on pain, headache and musculoskeletal sick leave; an adjustable keyboard-mouse tray with touch pad in the non-dominant hand was found to have mixed effects; and the use of Microsoft Naturals keyboards was found to have positive effects, with no significant added effect for reduced force keyboards. Positive effects were also found for workplace adjustments, ergonomic training, and work style behaviour counselling. Ambulant myo-feedback training showed no effect. The remaining three categories showed positive effects, but had only one study per category.

Similar to other related reviews[2,7], individual or group-based workplace exercise programmes were strongly supported by high quality research. Importantly, this does not mean that this type of rehabilitation is more effective than other rehabilitation programmes; it rather indicates that workplace exercise programmes have been better researched. This may be because studies on group-based exercise programmes are easier to conduct than more individualised interventions, such as workstation and job task adjustments, splinting, job rotation, alternate placement, and other reasonable accommodations where participant numbers might be lower. It is also noted that four of the six studies on workplace exercise programmes included in this review[6] were conducted by researchers from the National Research Centre for the Working Environment in Copenhagen, Denmark, who are likely to have resources and support to aid them in conducting high quality research. This may have introduced bias towards exercise programmes. Furthermore, the vast majority of studies included in this review (15 out of 17) were conducted in high income countries, with only two studies from low to upper middle income countries similar to South Africa (Turkey and Brazil). There is therefore a need for more evidence on the impact of WBR in low to middle income countries.

While this review provided useful information about the effectiveness of current international WBR practices, it also raised several questions pertaining to the role and practice of occupational therapy in occupational health internationally. Only one of the studies included in the review was clearly undertaken by occupational therapists[8], while several of the intervention programmes were conducted by physiotherapists and other practitioners. One study indicated that physiotherapists employed in occupational health services in Finland received advanced training in occupational health and ergonomics[9]. Are physiotherapists more likely to be employed in occupational health settings internationally? Is this true for Western European or high income countries only? Are occupational therapists as active in occupational health and WBR but less likely to conduct and publish research?

THE SOUTH AFRICAN CONTEXT

Workplace ill-health and disability continues to be a significant challenge in South Africa, as is evidenced by the 747 525 medical claims registered by the Compensation Fund in the 2016/17 financial year[10]. According to the Compensation Fund Annual Report 2016/17[11], a significant increase of 20.4% was seen in the number of claims registered in the 2016/17 financial year, compared to the 2015/16 year, suggesting that this is a growing problem in South Africa. Work related disability creates a considerable burden to injured workers, as well as a financial burden in South Africa, with payments for permanent disablement totalling R123 million, and medical claims totalling R2,6 billion in the 2016/17 financial year alone[11]. Distribution of injuries and medical claims across labour sectors was not disclosed in this report. It is also unclear how much of work related disability in South Africa is related to the upper limb, although the proportion is expected to be high[12].

South African policy documents recognise the need for improvement of support services for injured workers. The Compensation Fund names "…strengthening of social security through compensating for occupational injuries and diseases" as one of its key strategic outcomes[11:21], in line with the Department of Labour's Strategic Objective 3: "Protecting vulnerable workers" and 5: "Strengthening social protection" in the 5-year Strategic Plan 2015/16-2019/20. This in turn speaks to the National Development Plan's envisioned milestone of entrenching "…a social security system covering all working people", which specifically also mentions people with disabilities[13:34].

Despite the need and legislative support for work rehabilitation services, a recent descriptive cross-sectional study (n=109)[14] found that 72% of South African occupational therapists in the field of work practice offered no treatment or rehabilitation services, but focussed on once-off evaluations. Furthermore, only 1% of practitioners were based at industrial settings, with the overwhelming majority practicing at hospitals, work assessment units or work rehabilitation units. However, it was found that a small percentage of practitioners (35% or less) occasionally offered some services at workplaces. These included supported employment, job coaching and support, wellness/fitness programmes and symptom/discomfort screenings. When offered, work rehabilitation services were more commonly situated at clinics or therapists' practices, and these included work conditioning and job modification, joint protection and energy conservation programmes, and re-integration programmes[14].

Rehabilitation of upper limb conditions in South Africa has traditionally been based at hospitals and clinics[15], often with inadequate resources and support[16]. While occupational therapy's goal is to enhance participation in occupational performance, practitioners working with upper limb conditions typically focus on occupational enablers, such as range of motion and strength[17]. Transition to work may therefore not be regarded as a key component of therapy to the upper limb. Work transition is sometimes regarded as a completely separate process. However, maintenance of employment or return to work after upper limb injury is a growing field of practice and research for South African occupational therapists[18].

Barriers and Facilitators in South Africa

WBR is currently in its infancy in South Africa. Based on our clinical and research experience in this field, we suggest that the following barriers face South African occupational therapists:

- The majority of occupational therapists in government services continue to be employed by the Department of Health. To our knowledge, there are currently **no rehabilitation professionals employed by the Department of Labour** in South Africa, while internationally the Department of Labour has been involved in the development of health resources for work environments[19].
- Managers and supervisors often have a **negative attitude towards health and rehabilitation professionals**. There may be an inaccurate perception that health staff merely book workers on sick leave, thereby reducing the workforce, rather than understanding the common goal of improving productive work function.
- This perception may be coupled with a **lack of appreciation of the importance of managing health and wellness** in the workplace, and the potential benefits to worker morale, retention and productivity.
- The **high rate of unemployment** (27.6% in 2019) in South Africa[20] may have negative implications for the rehabilitation of injured or disabled workers, as unskilled workers in particular could easily be replaced.
- The **physiotherapy role is often more clearly understood** and more highly valued in the workplace - amongst occupational health staff, workers and workplace supervisors – than the role of the occupational therapist.

- Occupational therapy intervention sometimes involves a **lengthy assessment process** prior to implementation of treatment, particularly in work practice. If the intervention goals and processes are not clearly understood by all parties, this could reinforce negative attitudes towards occupational therapy.
- Workers have **limited understanding of the mechanisms and rules of provident funds**. This leads to premature resignation during periods of ill-health or disability, resulting in workers being left without employment or disability benefits, while also limiting access to work rehabilitation.
- In many South African communities, there appears to be an **expectation of needing to be cared for** by family members in case of disability or ill-health. This may affect the worker's motivation to improve their own level of function and regain independence. The impact of this on maintenance of work or return to work may complicate WBR.

In light of these considerable barriers, there are nonetheless several facilitators which could aid implementation of WBR in South Africa:

- South African and international **legislation clearly promote work rehabilitation**[21], specifically where this is based at the workplace. This could be a valuable asset in motivating the implementation of WBR services.
- Occupational health services may be the **ideal point of entry** for occupational therapists offering WBR, despite their scarcity within workplaces in South Africa. Occupational health doctors and nurses have better appreciation of the benefits of rehabilitation and may be more accommodating of the intervention process. Previously established relationships with key role players in the work environment could benefit a new practitioner in the area.
- Occupational therapists are **well equipped with the necessary skills** for WBR. These include community development, interpersonal, therapeutic and management skills; all of which are included in the exit level competencies of undergraduate occupational therapy training[22].
- WBR provides a platform for collaboration between disciplines. In order to communicate common goals for workers and rehabilitation outcomes, the International Classification of Functioning, Disability and Health (ICF) is a useful **common language** amongst occupational health doctors, nurses, physiotherapists and occupational therapists.

RECOMMENDATIONS

We recommend the following for practice in South Africa:

1. **Collaboration with the Department of Labour** to build health resources for work environments, such as those described in the Lincoln et al's study[19], is encouraged. It is acknowledged that this is not without challenges in the South African context, but this process is critical to bridging the gap between legislation and practice.
2. Interventions should be designed and implemented through **partnership with workers and workplace supervisors**, as in studies by Martimo et al[9] and Lincoln et al[19]. This aligns with occupational therapy values, as well as the South African National Development Plan 2030, which aims to make citizens active in their own development[12].
3. Workplace-based rehabilitation programmes should consider **including an exercise/resistance training component**, possibly through collaboration with physiotherapists.
4. Programmes should be designed with **anticipated outcomes in mind**. Ergonomic controls or training may be more suitable in work environments or with workers requiring reduction in ergonomic risk, while strengthening programmes may be more suitable if considerable muscle strength is an inherent requirement of the job.
5. Practitioners should take care to select and **use appropriate outcome measures** to document the outcomes of interventions, considering the psychometric properties of these measures, particularly as these apply in the South African context. This will facilitate communication of rehabilitation outcomes across disciplines as well as future research.
6. **Long term follow-up** should be included in rehabilitation programmes, to determine lasting effects of intervention. Reassessment of outcomes at three to six months after cessation of intervention is recommended.

Recommendations for future research

1. Research institutions should endeavour to diversify staff by employing rehabilitation professionals with a variety of areas of expertise. This will aid in reducing bias in the types of research conducted and published, as seen in the multitude of research on exercise programmes conducted in the review discussed earlier.
2. Researchers at research institutions and universities should build partnerships with clinicians in practice. This will enable the design and publishing of more high quality research in "real-life" rehabilitation contexts, while also developing clinical research capacity.
3. More research needs to be conducted and published on individualised rehabilitation (e.g. reasonable accommodations, workstation and job task adjustments, splinting, job rotation and alternate placement), which may be reflective of current occupational therapy practice. Study protocols could potentially be designed by professional interest groups, such as OTOH (Occupational Therapy in Occupational Health) or WPG (Work Practice Group) in South Africa, in order to collate data from several practitioners or institutions.
4. The gap between research in high income and middle to low income countries needs to be addressed. This is a difficult problem to overcome, as high income countries would inevitably have more resources for conducting and publishing research. Partnerships through international organisations such as the World Federation of Occupational Therapists (WFOT), the International Labour Office (ILO) or the World Health Organisation (WHO) may be beneficial to this end. Collaboration between universities from high income and middle to low income countries could also be beneficial.

Recommendations for education

1. Undergraduate curricula should include training on international and South African legislation and policies related to work disability and rehabilitation, along with exposure to current multidisciplinary practices in workplace-based rehabilitation. Students should be aware of the growing role of occupational therapy in occupational health as a specialty area; along with the unique needs and opportunities in this area of practice.
2. Postgraduate training should include education on the setup and provision of workplace-based rehabilitation services; collaboration with key role players such as managers and supervisors, as well as other occupational health staff; addressing challenges specific to the workplace; selecting workplace-specific, responsive outcomes; development of evidence-based intervention programmes suitable to the workplace; and collection of suitable data for future research.

CONCLUSION

WBR is a growing field of practice for occupational therapists and other practitioners. It is well supported by legislation. There is a clear need for intervention situated in and tailored to the workplace. Occupational therapists need to be sensitive and responsive to this need in order to keep occupational therapy work rehabilitation relevant and efficient, and fulfil our invaluable role in this expanding multidisciplinary field. While barriers persist in the provision of WBR services in South Africa, it is hoped that the issues highlighted and

recommendations made in this commentary will assist development in this field. It will enable work rehabilitation services to be more accessible, relevant and effective; meeting the changing needs of the workers we serve.

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