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An education based ergonomic intervention programme for Gauteng call centre workers with upper extremity repetitive strain injuries

Eliot, Sancha

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CHAPTER 1

INTRODUCTION

By virtue of their nature Repetitive Strain Injuries (RSI) are difficult to describe and diagnose. Literature cannot agree on terminology let alone diagnostic criteria (Sanders, 2004). The National Institute for Occupational Safety and Health (NIOSH 1997) offered the term “Musculoskeletal disorders” as a generic cover term; Australia uses “RSI’’ whilst Japan, Germany and Scandinavia agree on “Occupational cervico brachial disorders”. If such dissent abounds regarding the name of a disorder, it is not surprising that working definitions differ. Section 65 (1) (a) of the Compensation for Occupational Injuries and Diseases Act, (No. 130 of 1993) in South Africa refers to them as Work Related Upper Limb Disorders (WRULDS) which is an umbrella term that includes RSI, overuse syndrome and cumulative trauma disorder (CTD), limiting RSI to the upper limb only (Department of Labour, 2007).

These risk factors apply in several types of occupations that have been identified as being at high risk for the development of RSI. These include individuals who are computer users, telecommunicators and cashiers with prevalence for RSI of 31% in secretaries and typists and 23% in general administrative staff (Blatter and Bongers, 2002). A distinctive form of work organization emerged in the late 1990 in the form of call centres, which incorporate the prolonged use of telephone and computer technologies. Computer users in call centres are of particular interest in the study as according to Taylor, Baldry, Bain and Ellis (2003) occupational ill-health in these workers is related to the degree of fit between the environment in terms of workstation design and the worker. This coupled with repetitive short cycle work results in strain experienced by the worker as physical discomfort or repetitive strain injury (RSI). Jepson and Thomsen (2006) report that symptoms of RSI related to long periods of computer use are related to the non neutral, mostly static posture adopted. Previous research by Pascarelli and Kella (1993) also indicates a reduction in muscle strength and decreased passive range of motion (PROM) in the wrist, as well as painful forearms of their participants who were computer operators. Thus research on prolonged computer use identifies related risk criteria of repetitive

movements, static muscle loading and awkwardly sustained posture, warranting more investigation (Sanders, 2004). Although RSI may occur in any body part subject to repetitive motion, in computer users they occur most frequently in the upper extremity. This repetitive physical activity involves the repeated recruitment of several muscles, nerves, tendons, joints and other soft tissues. They all exhibit changes related to this repetitive movement. Neuropathies (e.g. Carpal tunnel) and tenosynovitis (e.g. De Quervain's) are amongst the resulting disorders (Nathan and Meadows, 2002).

In fact, a direct causative link between computer work and the development of RSI has also been shown in several epidemiological studies, results of which are unanimous (Blatter and Bongers, 2002). Ijmker *et al*., (2006), report that hand/arm (head and neck) symptoms increase proportionally to time spent using the computer. There is a direct causative link between the development of RSI and computer use of six hours per day (Blatter and Bongers, 2002).

For an intervention for RSI to be successful, it must consider: the individual, the psycho-social work place risks as well as the physical work place risks (Sanders, 2004). Ergonomics must therefore play a role in the rehabilitation and prevention of RSI in the workplace. Interventions that address work style, improvement in work capacity and lifestyle factors are thought to have more of an effect on reduction and prevention of RSI (Bernaards *et al*., 2006). There is also proof that in-chair stretches and exercises improve the symptoms of UE RSI (Bernaards *et al*., 2006, Fenety and Walker, 2002, Galinsky, Swanson, Sauter, Dunkin, Hurrell and Schleifer, 2007).

Despite all the literature detailing different treatment or intervention options, little is known about the long term compliance and hence efficacy of these intervention models (Fenety and Walker, 2002). This can be attributed in part to the insidious nature of the disease and the poor reporting and follow up associated with the condition (Campbell, Evans, Tucker, Quilty, Dieppe and Donovan, 2001).

A possible contributing factor to the lack of information is the cost of actual intervention and research on intervention to the companies involved. Perhaps the potential 'gain' does not warrant the initial cost outlay for ergonomic assessments

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and specialist consultants to implement the intervention programmes (Attaran and Wargo, 1999). Thus the need for an institutional response to RSI that is not incidence based but broader and pro active cannot be denied.

1.1 STATEMENT OF THE PROBLEM

Despite several studies showing a link between repetitive work, work duration and the ergonomic environment in call centres, in South Africa the prevalence of RSI in call centres is unknown. Reported figures may be low there is also difficultly in reporting of RSI within Workman's Compensation Act (WCA) in South Africa where very stringent criteria exist for WRULD recognition.

Very little research has been done in terms of intervention in call centres in relation to the effect of lifestyle as well as or in place of ergonomic changes when dealing with RSI (Bernaards *et al*., 2006). This is particularly true in South Africa where as RSI are not readily recognised as work related, so time taken off work by the individual seeking intervention and loss of income (to the individual and the employer) as well as the cost of medical care, among others, is not compensated (Department of Labour, 2007). Treatment options for call centre workers need to be cost effective, duration sensitive, multi disciplinary and concentrate on preventative measures.

1.2 PURPOSE OF THE STUDY

This study thus aimed to address the deficit in knowledge regarding the prevalence of UE RSI in call centre workers in a Gauteng based call centre.

This study also attempted to develop an intervention for use in the call centre where workers are involved in computer work for the majority of the work day. The intervention included: warnings, education, ergonomic changes, computer software and assessment of four primary outcome measures (pain, ROM, grip strength, pinch strength) along with research subject self reported change in attitude to ergonomics and lifestyle factors experienced were used in the evaluation of UERSI symptoms.

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1.3 RESEARCH QUESTION

The two research questions were:

- What is the point (one month) prevalence of upper extremity (UE) Repetitive Strain Injuries (RSI) in Gauteng based call centre workers?
- What is the effect of an education-based-ergonomic intervention programme on the reduction of symptoms of upper extremity RSI?

1.4 RESEARCH OBJECTIVES

- To establish the point (one month) prevalence of UE RSI in Gauteng call centre workers.(Phase One)
- To develop and implement an education-based-ergonomic programme that takes into account occupational performance in work and lifestyle; to assist with the reduction of symptoms of UE RSI in these workers.(Phase Two)
- To evaluate the effect of an occupational therapy interactive education-based-ergonomic programme on UE RSI by assessing changes in pain, ROM, grip strength, pinch strength before, during and after implementation of the programme.(Phase Three)
- To establish any change in attitude to ergonomics and lifestyle factors as recorded on a “working conditions” questionnaire before and after the implementation of an interactive education based ergonomic programme. (Phase Three)

1.5 NULL HYPOTHESIS

The implementation of the independent variable, an education-based-ergonomic intervention programme will not

- Decrease the symptoms of the dependent variables, pain, ROM, grip strength, pinch strength in call centre workers with UE RSI in an experimental group or a control group, when they are compared with each other.
- Change pain, ROM, grip strength, pinch strength in call centre workers of the independent variable the attitudes of call centre workers to ergonomics and

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lifestyle factors in the experimental group or the control group, nor when they are compared with each other.

1.7 JUSTIFICATION FOR THE STUDY

The call centre environment is one in which demands are very high and there are limits on time. All calls are monitored and logged. Employees are rewarded on the basis of the number of calls dealt with per day and thus the shorter the call duration the better call to time ratio for the employee. This poses a huge demand on the employees as they are required to be efficient in the manner in which calls are handled as well as in the time taken to handle said calls.

The time allocated to the call centre workers for breaks is also limited and dictated by the employer. This further compounds the above demands and stressors. Thus, the time taken out of the work day for attendance at regular occupational therapy to assist in the management of an UL RSI is problematic for the call centre workers and negatively impacts on their incentives and call to time ratio.

Treatment options for RSI thus need to be cost effective, duration sensitive, multi disciplinary and concentrate on preventative measures. Several studies have reported on the effectiveness of intervention methods. Each focuses on an aspect of intervention. For any intervention to be successful, at least in the short term, they must be holistic (Kasch, 2002). Treatment may be conservative (therapy based) or involve medically invasive procedures (injections or possible surgical releases) (Palmer, 2003, Kasch, 2002). The latter options only treat the symptoms and not the underlying cause.

This study will investigate whether in a low cost intervention where workers themselves address ergonomic factors, symptoms of RSI can be alleviated.

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