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Review

Occupational hand injuries: a current review of the prevalence and proposed prevention strategies for physical therapists and similar healthcare professionals

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ABSTRACT

Hand injury is the second most common work-related musculoskeletal injury among physical therapists (PTs) and other manual therapy professionals such as osteopaths, physiotherapists, chiropractors, acupuncturists and massage therapists. However, the nature and extent of this problem have not been fully explored yet. Therefore, the objective of this study was to review the existing literature published on the prevalence, risk factors, consequences, and prevention of hand injuries among PTs and similar healthcare professionals. The lifetime prevalence of hand injuries was about 15%–46%, and the annual prevalence was reported as 5%–30%. Thumb injuries were found to be the most prevalent of all injuries, accounting more than 50% of all hand-related problems. The most significant risk factors for job-related hand injuries were performing manual therapy techniques, repetitive workloads, treating many patients per day, continued work while injured or hurt, weakness of the thumb muscles, thumb hypermobility, and instability at the thumb joints. PTs reported modifying treatment technique, taking time off on sick leave, seeking intervention, shifting the specialty area, and decreasing patient contact hours as the major consequences of these injuries. The authors recommend that PTs should develop specific preventive strategies and put more emphasis on the use of aids and equipment to reduce the risk of an unnecessary injury.

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1. Introduction

Occupational injuries affect professionals from almost every industry. Workers in the healthcare and social-assistance sectors, however, are injured more often than any other group, with 5.2 cases per 100 full-time workers [1]. These injuries can severely damage various body parts, including the hands, head, eyes, neck, shoulder, spine and feet. A full review of all the body parts affected by occupational injuries is beyond the scope of this paper. The focus of this review is occupational hand injuries among healthcare workers as a result of using professional manipulation and similar techniques on patients.

Work-related hand injuries are the most frequent bodily trauma that professionals from various industries sustain at work [2–4]. These injuries can be disabling and have an enormous impact on the overall quality of life, as they often lead to serious social and economic consequences for not just workers but also their families [5,6]. In prior studies, it has been reported that these injuries lead to work restriction, prolonged sick time, changing of work settings, and even a career shift [7–10].

Hand injuries are common among healthcare workers involved in direct patient handling activities. In general, nursing assistants, physical therapists (PTs), and similar healthcare professionals are more prone to these injuries [11,12]. According to the Bureau of Labour Statistics [1], nursing professionals are at the highest risk of work-related nonfatal musculoskeletal injuries. On the other hand, PTs are at moderately high risk of nonfatal musculoskeletal disorders, hand injuries being one of these significant health problems [2,7]. PTs and their assistants are at greater risk for these injuries due to their physically demanding job duties and labour-intensive tasks. The practice involves prolonged constrained postures, patient transfers and lifting, repetitive tasks, application of high-velocity forces, and bending/twisting postures during certain manoeuvres [12,13].

Existing studies on PTs have identified the job tasks that might lead to hand injuries. Some organisations are already addressing this issue with institutional policies and programs as well as industry education. These policies and programs provide health care workers with standard procedures to move patients and clients in a way that does not cause strain or injury. However, since the severity and extent of these injuries among PTs are not fully explored yet, the best practice guidelines may not yet be sufficient. Therefore, the aim of this paper is twofold. The first purpose is to review the literature relating to the prevalence, risk factors, and consequences of hand injuries among PTs and similar healthcare professionals. The second purpose is to describe preventive strategies that could be used by PTs to reduce the risks of developing hand injuries.

2. Prevalence

The prevalence of hand injuries among PTs and similar healthcare providers varies between studies (Table 1). In general, the estimated lifetime prevalence of wrist and hand injuries is approximately 15%–46% [12,14–17], and the 12-month prevalence is reported to be between 5% and 30% [12,14,18–22]. The differences from study to study, however, could be due to the considerable variations in the designs and methodologies of these studies. The variations also exist in the way occupational hand injury is defined in these papers. For example, some studies considered thumb injury as a part of hand injury, while others described them separately. Hence, some authors have found hand injury as the second most common work-related injury [7,9,16,18], whereas others reported it as less frequent than low back, neck, shoulder, and upper-back injuries [12,19,22,27].

The prevalence of hand injuries is high among chiropractors. A survey conducted by Holm and Rose [23] reported that wrist/hand/finger injury was one of the three most serious injuries sustained by doctors of chiropractic in their overall career. In fact, the authors found injuries to the hand, wrist, and fingers (42.9%) to have the highest prevalence, followed by shoulder (25.8%), and low back (24.6%). Similar findings were reported by two earlier studies on work-related injuries of chiropractors [28,29], although Homack

Table 1
Prevalence of hand injuries among PTs and similar professionals.

Study	Population	Subjects (*n*)	Body part	Prevalence (%) (profession, duration)
Holder et al. [7]	PTs and PTAs	623	Wrist and hand	23.0 (PTs, 2-year); 15.0 (PTAs, 2-year)
Campo et al. [9]	PTs	882	Wrist and hand	5.3 (1-year)
Glover et al. [12]	PTs, PTAs, and PT students	2688	Thumb	23.0 (lifetime); 17.8 (1-year)
			Wrist/hand	17.0 (lifetime); 12.5 (1-year)
West et al. [14]	PTs	217	Hand	25.0 (lifetime); 14.0 (1-year)
Rugelj et al. [15]	PTs	133	Wrist/hand	15.0 (lifetime)
Salik et al. [16]	PTs	120	Wrist/hand	18.0 (lifetime)
Rozenfeld et al. [17]	PTs	112	Wrist and thumb	46.2 (lifetime)
Bork et al. [18]	PTs	928	Wrist/hand	29.6 (1-year)
Cromie et al. [19]	PTs	536	Thumb	33.6 (1-year)
			Wrist/hand	21.8 (1-year)
Adegoke et al. [20]	PTs	126	Thumb	11.1 (1-year)
			Wrist/hand	20.6 (1-year)
Darragh et al. [21]	OTs and PTs	3297	Hand	21.0 (OTs, 1-year); 20.0 (PTs, 1-year)
Alrowayeh et al. [22]	PTs	212	Wrist/hand	11.0 (1-year)
Holm et al. [23]	Chiropractors	1000	Wrist/hand/finger	42.9 (lifetime)
Wajon et al. [24]	PTs	155	Thumb	83.0 (1-year)
McMahon et al. [25]	PTs	961	Thumb	65.0 (lifetime)
Jenkins et al. [26]	PTs	395	Thumb	65.3 (lifetime)

PTs: physical therapists; PTAs: physical therapy assistants; OTs: occupational therapists.