Children's utilisation of allied health treatment to manage ICT-related pain
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1. Introduction

Many children use information and communication technologies (ICT) on a daily basis for a range of educational, leisure and social activities. In 2012, 90 per cent of Australian children aged 5-14 years accessed the Internet (ABS 2012) via computers or smart phones, and 88 per cent of Australians engaged in social networking and online gaming were young people aged 15-17 years (ABS 2011).

Exposure to ICT in schools is beginning earlier, with tablet technologies routinely used by children as young as four years of age in pre-school classrooms, and technology use increasing with age. Concurrent with increased exposure, is growing evidence that children experience ICT-related musculoskeletal complaints (MSC) requiring treatment (Katz et al. 2000, Straker 2001, Jacobs and Baker 2002, Breen et al. 2007). What is not yet known is the nature of allied health treatments of ICT-related MSC among children.

The primary aim of this study was to describe the utilisation of allied health care treatment for MSC associated with ICT use among school-aged children in a Western Australian population. Specifically, we investigated common diagnoses, and types of treatment provided, frequency, duration and total number of treatments in order to estimate the associated healthcare costs. A secondary aim was to identify the type of education provided to children and their parents about healthy ways of using ICT.

2. Methods

2.1 Study Design

This inductive study utilised a mixed methods design, including an online survey and semi-structured interviews.

2.2 Sample

Chiropractors, physiotherapists, and occupational therapists in Perth, Western Australia who had a clinical focus on the management of MSC in the 12 months prior to the study, were invited to participate in the study. Participants were recruited by the second author the clinic/facility manager of allied health practices listed in the Yellow Pages in the Perth, Western Australia metropolitan area.

A total of 108 allied health professionals (comprised of 46 chiropractors; 43 physiotherapists and 19 occupational therapists) responded to the survey, and 11 survey respondents also participated in a 1:1 semi-structured interview.

2.3 Instruments

An anonymous 11 item online survey was developed containing items related to the study aims. Survey items were piloted with an expert panel comprised of university academic staff from each allied health field in the sample, who was also a recent or current practitioner in the management of musculoskeletal complaints. Minor amendments to items were made based on the panel feedback.

Guiding questions for the interviews were drawn from responses to the online survey so that further in-depth exploration of the summary statistics data could be undertaken. Specifically the interviews provided participants to give more detail about the type of ergonomics advice or educational resources provided to the children and/or their families about healthy use of technologies. Interviews were conducted at the participants’ place of work at a time that was convenient to them and were audio-recorded for later analysis.

2.4 Data Analysis

The dependent variables included: 1) diagnosis; 2) the nature of allied health treatment (including frequency, duration and total duration of treatments); and 3) the type of recommendations and advice allied health professionals provided regarding healthy ICT use. The independent variable was the allied health discipline. Data were analysed using descriptive summary statistics on common diagnoses and the nature of
treatments provided, and Pearson’s chi-square test for differences or Fisher’s Exact Test were used to compare treatments between professions.

Transcripts of audio recordings of interviews, and free text responses from survey data were coded and categorised into main themes by the researcher and moderated by a peer researcher. Themes that arose were compared with available research literature, including evidence-based guidelines for the wise use of computers by children (Straker et al. 2010).

3. Results

Overall, the participants perceived an increase in the prevalence and severity of ICT-related MSC in young people, with an increase in referrals from paediatricians. Most common diagnoses by chiropractors and physiotherapists were postural conditions including non-specific neck pain (reported by 84.2% of respondents); thoracic postural pain disorder (76.2%); non-specific low back pain (69.3%); and, lumbar postural pain disorder (69.3%); whereas, the occupational therapists most commonly treated ICT-related upper extremity complaints including acute tendinopathy (46.7%); carpal tunnel syndrome (40%); and De Quervain’s Syndrome (33.3%).

Chiropractors treated the most number of children, with 30% of respondents seeing 30+ children in the prior 12 months. Occupational therapists typically provided treatments once per week or less, compared to physiotherapists and chiropractors who treated twice per week. Chiropractors typically treated in 15 minute sessions, compared to occupational therapists and physiotherapists who more commonly treated for 30 minutes (p = <0.001). Physiotherapists typically treated for a total of four weeks, which was less than occupational therapists (5-8 weeks), and chiropractors (9-12 weeks) (p = 0.015). The treatment for ICT-related MSC of the reported 1445 children seen by the 108 study participants in the prior 12 months cost the Western Australian health service and the children’s families an estimated $1,057,715.

Passive treatments were typically used to treat the symptoms by all disciplines, but also education and advice around posture and ergonomics; however, the participants were generally unaware of the availability of any child-friendly educational resources regarding healthy ICT use and usually only provided verbal advice during one of the treatment sessions.

4. Discussion

These findings provide preliminary evidence of the musculoskeletal complaints that young people experience as a consequence of their ICT use, and the nature and cost of subsequent allied health treatment. MSC have been associated with a decline in productivity in adults, and a subsequent economic impact borne by health care systems, employers, insurance companies, and the workers themselves (Lotters et al. 2005; Stewart et al 2003). This is concerning if the same pattern of musculoskeletal discomfort and subsequent impact on performance in important daily activities is associated with children’s use of ICT. The projected financial health care costs to the community from childhood through to adulthood are likely to be significant and require strategies for injury prevention and injury management.

In addition to soft tissue management of MSC, a child-friendly information resource is needed for allied health practitioners to communicate evidence-based strategies for healthy use of ICT so as to promote the health and occupational performance of children now, and into their future working life.

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References


