

THE PSYCHOLOGICAL EFFECTS OF WORK-RELATED HAND INJURIES

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To the Dean of the Graduate School:

I am submitting herewith a thesis written by Jaymie C. Clack entitled "The Psychological Effects of Work-related Hand Injuries." I have examined this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts with a major in Occupational Therapy.


Josephine Chan, PhD, OTR, Major Professor

We have read this thesis and recommend its acceptance:



Interim Director

Accepted:


Dean of the Graduate School

ABSTRACT

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Study Design: Quantitative

Purpose of the Study: To identify the psychological symptoms associated with work related injuries and evaluate the relationship between the symptoms and the time returning to work.

Method: Participants were sixteen patients receiving hand therapy for work-related hand injuries. An Injured Worker Survey was given prior to the initial hand therapy assessment. The participants' medical charts were reviewed to obtain medical history, demographic information and the "yes" responses for the psychological symptoms were charted.

Results: All of the participants reported psychological complaints¹ and the correlation between the symptoms and time off work was statistically significant (Pearson coefficient = .66 at .01 level).

Conclusion: The study suggests that hand injured workers do experience psychological symptoms after their injuries and delayed return to work.

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CHAPTER I

INTRODUCTION

Patients with severe acute hand injuries have to face physical, psychological, social and economic problems. Patients with severe work-related hand injuries such as amputations, crush injuries or severe lacerations, often suffer psychological difficulties arising from the traumatic nature of their accidents. The most characteristic symptoms associated with these difficulties are those commonly classified as post traumatic stress disorder (PTSD): -intrusive flashbacks and nightmares, uncharacteristic hypervigilance, startle reactions, and deliberate avoidance of accident reminders (Chan and LaStayo, 2003). A study was performed by Schier and Chan in 2007 examining how acute hand injuries affect patients in their roles as spouse, caregiver and/or worker. The results of the qualitative study showed that the participants expressed profound degrees of change in their ability to perform satisfactorily in their various life roles. The psychological impact caused by these changes can affect the patients' progress and may cause a delay in returning back to work. Patients dealing with work related injuries have many obstacles including difficulty understanding worker's compensation policies and procedures, adjustment to changes in their life roles, loss or decrease of income, lack of sympathy and understanding from employer and loved ones, and fear of what the future holds(Nicholson, Bunn, and Costich, 2008).

Workers compensation insurance is carried by employers for their employees injured on the job. The employer is reimbursed for damages that must be paid to an employee for injury occurring in the course of employment (Merriam-Webster, 2009). Most employees are unfamiliar with the policy of worker's compensation insurance and are also financially affected by receiving a percentage of their normal wages if they are unable to work. Some insurance companies have rules that affect patient care such as requiring medical providers to preauthorize all treatments and implementing a waiting period for approval that may delay treatment and return to work (Nicholson, Bunn, and Costich, 2008).

Some hand injuries, especially repetitive injuries, are sometimes difficult to prove and understand by loved ones and others. Patient reports feeling depressed due to not being able to contribute to not only their job but their home and family. Depression, lack of support and other symptoms that arise may discourage an injured worker causing a delay in rehabilitation success (Pelmear, 2002).

Some employees with hand injuries may take several weeks, months or indefinitely before they are able to return to work. If the employee is released for light duty, the company may not have a job that will follow the restrictions given by the treating physician. Pressure may be put on the employee to return to work faster or increase productivity even when full effort is given (Nichol, Bunn, and Costich, 2008). A qualitative study using a phenomenological approach by Russell, Brown and Stewart

(2005) was performed to understand family physicians' experiences in managing patients within the worker's compensation system. During an interview, one physician of patients with work-related injuries commented that some employers manipulated the return-to-work process by blackballing the employee if they were off on compensation.

Injured workers may experience anger, guilt or other symptoms after their injury. Studies of both Hennigar et al. (2001) and Gustafsson and Ahstrom (2006) agreed that patients with hand injuries report psychological difficulties. Gustafsson et al. used a questionnaire survey of 112 patients with acute traumatic hand injuries. The survey assessed emotional distress by using a depression and anxiety scale and focused on how patient coping strategies such as "trying to keep the situation under control" and "trying to look at the problems objectively and see all sides" however they did not go into detail on the patients' symptoms.

In 2008, Grob, Papadopoulos, Zimmermann, Biemer and Kovacs studied the psychological impact of severe hand injuries and concluded that motivated and psychologically stable patients have successful recoveries after severe hand injuries. Many studies have reported psychological effects after a hand injury and as well as identified screening tools that would identify a need for further assessment of the patients but these studies did not report a percentage of workers with hand injuries that experienced these symptoms. Hennigar et al. (2001) and her colleagues developed a

helpful and brief screening tool for therapists to screen for psychological distress, the Injured Workers Survey (IWS). The IWS was used with hand injured patients by Hennigar and colleagues for three years at Trillium Health Centre in Toronto and became part of a larger investigation that proving that the first eight items of the IWS can provide an effective screening tool for psychological impairments associated with PTSD.

Work-related hand injuries have an impact on patients both physically and psychological causing a need for rehabilitation and time away from work. During the rehabilitation process, we have identified a need for a quick assessment for psychological symptoms. The purpose is to identify these common psychological symptoms and their relationship with the time the injured person returns to work so that the hand therapist can be effective in facilitation of the recovery processes.

Patients with psychological difficulties due to their injuries continue to go unrecognized or even untreated. This lack of treatment may seriously limit the patient's success of rehabilitation and severely interfere with or completely disrupt even motivated patients' intention to return to work (Hennigar, Saunder, & Efendov, 2001). Hand therapists need to quickly recognize the common psychological symptoms of these patients to prevent delays in successful recovery.

CHAPTER II

LITERATURE REVIEW

The U.S. Department of Labor (2001) describes an injury or illness as work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. The impact of these injuries includes changes in employment and earnings for injured workers, adverse effects on productivity and competitiveness as well as other economic costs (Pelmeur, 2002; Williams, Westmorland, Schmuck, & MacDermid, 2004). Frequently these work-related injuries affect the hand and upper extremity. Sixty-five percent of the 333, 800 newly reported cases of occupational illness in 2001 were attributed to repeated trauma. Work-related musculoskeletal disorders (WMSDs) account for approximately one third of all lost work day illnesses. WMSDs of the hand and wrist are associated with the longest absences from work and are, therefore, associated with greater loss of productivity and wages than those of other anatomical regions of the body (Barr, Barbe & Clark, 2004). Most patients with moderate to severe hand injuries require therapy to assist them in returning to work in a timely manner. However, this rehabilitation process may become difficult due to the psychological symptoms such as restricted emotional responses, uncharacteristic irritability and anger, impaired memory and concentration, sleep disruption and intense feelings of guilt, anxiety and depression that may arise as a

result of the injury and consequently, negatively affect the patient's motivation to improve and return to normal activities such as work (Hennigar, et al, 2001).

Hand injuries are often accompanied by a variety of perceived psychological reactions related to the function of the extremity and social acceptance of the individual, particularly if the patient has sustained a mutilating type of injury. The hands and the face are the most socially visible portions of any person's body (Chan and LaStayo, 2003). Because the hand is often used as a medium of nonverbal communication, disfigurement to the hand often results in loss of positive self-image and perceptions of impaired social competence (Hunter, et al, 2002). Even for the patients who have no mutilating injury to the upper extremity, psychological factors can still exert a profound influence over the course of recovery when chronic pain and/or chronically debilitating conditions such as in cumulative trauma disorders. Some of the diagnoses that accompany a hand injury include depression, anxiety disorder and post traumatic stress disorder (Pelmeier, 2002). Post traumatic Stress Disorder (PTSD) is defined as a psychological reaction that occurs after experiencing a highly stressful event that is usually characterized by depression, anxiety, flashbacks, recurrent nightmares, and avoidance of reminders of the event (Merriam-Webster, 2009; Lohman and Royeen, 2002).

The purpose of this research study is to identify the psychological symptoms associated with work-related hand injuries. In addition, this study will evaluate the relationship of the symptoms with the time returning to work.

The specific research questions of this study are:

1. What are the common psychological symptoms experienced by the workers after hand injuries?
2. Do workers who report experiencing psychological impairments require longer treatment before returning to work?

CHAPTER III

METHOD

Participants

The participants consisted of sixteen patients receiving occupational therapy for a work-related hand injury including distal radius fracture, wrist sprain, trigger finger, carpal tunnel syndrome, crush injury and other various conditions. The participants' ages range from 21-56 years old that work full-time and have been employed with their company for at least six months at the time of injury. The participants were referred by surgeons who specialize in hand injuries to an outpatient clinic (at Star Therapy Services) and received hand therapy by an occupational therapist who is a certified in hand therapist. Participants were invited to complete the Injured Workers Survey (IWS) as part of their initial paperwork prior to their hand therapy evaluation. Table one presents the demographic information for the sample.

Injured Worker Survey

The instrument used in the study was the Injured Workers Survey (IWS) and was given prior to the participant's initial evaluation. The survey includes 17 questions about the injury, changes in sleep, appetite, memory, mood, and leisure activities (see Appendix A). Other questions will include feelings of guilt and medication required for pain, anxiety, depression and sleep. The IWS was developed by an Occupational

Therapist at the Trillium Health Centre after recognizing the need for an effective instrument that could screen patients requiring more specialized treatment and obtain clinically relevant information about psychological issues.

The IWS has been used for three years at the Trillium Health Centre and has proved to be clinically useful and time efficient. The survey helped therapists become increasingly aware of psychological concerns and have seen the benefit of early identification and treatment. For some patients, these discussions provided the first opportunity to talk with someone about their accidents and post-injury experiences especially the complications and disruptions to their lives that had occurred as a result of their injuries (Hennigar et al., 2001).

The Injured Workers Survey (IWS) was constructed by combining items referring to characteristic symptoms of PTSD with questions about other factors that clinical experience had indicated were frequently important influences on therapy. In the study performed by Hennigar (2001), the findings indicated the IWS can effectively screen for psychological impairments related to PTSD and provide clinically relevant information about other important psychological issues that affect therapy.

Procedure

Patients referred and scheduled for an appointment at an outpatient occupational therapy clinic for an initial hand therapy assessment for a work related hand injury were invited to participate in this research project. When the patients agreed, a thorough explanation of the study was given, consent form signed and survey completed. The survey was brief and took less than five minutes to complete prior to the patients' initial occupational hand therapy evaluation. Participants were given the opportunity to ask questions before and after completion of the survey.

CHAPTER IV

RESULTS

This study used descriptive statistics to analyze the demographic data and explored the relationship between psychological symptoms and duration before returning to work using the Pearson correlation. The goal was to use the Injured Workers Survey (IWS) to identify the common psychological effects of work-related hand injuries on patients. During the chart review, information from the survey and initial evaluation were calculated into percentages to determine the most common psychological complaints. The survey allowed for a quick assessment to determine each participant's psychological symptoms. The percentage of "yes" responses on each survey was calculated and the most commonly reported symptoms were charted. The study focused on determining the most common psychological symptoms identified by participants in the survey.

All patients who were asked to participate in the study agreed to complete the survey. Fifty percent of the participants were male and the other half were female with a largest proportion of the group between the ages of 47-56 and all work-related hand injured participants were receiving treatment for injuries that occurred in 2009. Ten (60%) participants were married and six (40%) were single. Three of the participant had

past work-related injuries. All past injuries reported occurred within the past three years. None of the participants identified a psychiatric history. Seven of the sixteen participants were currently working without restrictions- one on light duty and eight were off work due to their injuries and had been for more than 120 days. The diagnoses of the participants included (31%) distal radius fractures, (6%) tendon repair, (12.5%) crush injury, (19%) Dequervain release, (19%) wrist sprain, (12.5%) carpal tunnel releases.

Table 1 represents the percentage of participants that answered “yes” to the psychological symptoms. As can be seen from this table, the five most common complaints were “having trouble falling asleep” (62.5%), “feelings of worry and irritability” (62.5%), “family and friends noticing changes” (50%), “appetite changes” (37.5%) and “changes in memory and concentration” (37.5%). Nine out of the sixteen participants marked “yes” for four or more symptoms and seven out of these nine patients had been off work for 120 days or more. All three participants who reported past work related injuries marked four or more psychological symptoms.

Table 2 shows the Pearson correlations between the two variables “psychological symptoms” and “time off work”. The “yes” responses were identified as number one and the “no” responses as number two. The relationship between the

symptoms and time off work was statistically significant and moderately strong (Pearson correlation = .66; at .01 level).

CHAPTER V

DISCUSSION

The findings from this study suggested that patients experience psychological symptoms during the rehab process after a work related hand injury. The results showed that all of the participants have complaints of psychological symptoms after a work related hand injury. Fifty percent of the participants reported four or more symptoms at the time of their initial assessment and eighty-eight percent of patients with more than four symptoms were off work for 120 or more days after their injury. The symptoms reported most frequently were both difficulty sleeping and irritability. Both symptoms were reported at 62.5 percent. The least reported symptom included dreaming about the accident at 18.7 percent. The top four psychological symptoms included changes in sleep patterns, irritability, changes in appetite and reports of changes recognized by friends and family.

The data revealed that a large proportion of injured workers experiencing psychological symptoms were also off work for a longer period of time. It was difficult to determine which diagnoses were considered more severe, and if the severity of the injury caused a delay in return to work or increase in psychological complaints. The participants not returned to work included those who had a variety of diagnoses ranging from carpal tunnel releases, crush injuries and distal radius fractures. The results

matched the researcher's expectation that patients with work related injuries have complaints of psychological symptoms; however, it is difficult to determine if the reason is due to the severity of the injury or the psychological effects that resulted from the injury. None of the participants reported a psychiatric history; however, that information was collected from the medical history form. The participant could have been withholding information due to being embarrassed or determining that it was not relevant information to report for treatment of a physical problem.

The results of this study concurs with the previous findings that a psychological assessment be given during the hand therapy process gives the patient an opportunity to discuss their symptoms with another person; otherwise, they may keep their thoughts and feelings to themselves (Hennigar et al., 2001). Fifty percent of the participants reported their families said they had changed since the accident. A majority of the patients who did not return to work reported a high percentage of symptoms possibly due to not being able to work. Related disciplines have reported that helping the patient find enjoyment from other activities during the rehab process will create fulfillment and relieve stress (Grob et al., 2008). To conclude, the results of this study suggest that hand injured workers do experience psychological symptoms after their injuries and the correlation between "psychological symptoms" and "time off work" was moderately significant.

CHAPTER IV

RECOMMENDATIONS

1. To obtain more information from the workers. The researcher could have assessed the injured workers more than once during the rehab process, such as during the initial assessment, re-evaluation and discharge to determine changes in symptoms.
2. A larger number of participants would determine if the severity of the injury was a factor.
3. A qualitative study that includes interviewing the participants is recommended for future research to obtain more detailed information about symptoms and past history.

REFERENCES

- Barbe, M.B Barr, A. E. & Clark, B.D. (2004). Work-Related Musculoskeletal Disorders of the Hand and Wrist: Epidemiology, Pathophysiology, and Sensorimotor Changes. *Journal of Orthopedic Sports and Physical Therapy*, 34(10), 610-627
- Bureau of Labor Statistics News, United States Department of Labor (2001). *Lost time injuries and illnesses characteristic and resulting days away from work*. Retrieved March 27, 2009, from <http://www.bls.gov/iif/home.htm>
- Chan, S.C & LaStayo, P. (2003). Hand therapy management following mutilating hand injuries. *Hand Clinic*, 19, 133-148. Doi: 10.1016/s0749-0712(02)00140.3
- Grob, M., Papadopoulos, N. A., Zimmermann, A., Biemer, E., & Kovacs L. (2008). The psychological impact of severe hand injury. *The Journal of Hand Surgery*, 33 (3), 358-62
- Gustafsson, M. & Ahlström, G. (2006) Emotional distress and coping in the early stage of recovery following acute traumatic hand injury: A Questionnaire Survey. *International Journal of Nursing Studies*. 43 (5), 557-65. DO: <http://dx.doi.org.ezproxyhost.library.tmc.edu/10.1016/j.ijnurstu.2005.07.006>.

- Hennigar, C, Saunder, D., & Efendov, A. (2001). The Injured Workers Survey: Development and Clinical Use of a Psychological Screening Tool for Patients with Hand Injuries. *The Journal of Hand Therapy*, 14(1), 122-127.
- Hunter, J.M., E.J. (2002). Psychologic Effects of Upper Extremity Disorders. In J.M. Hunter et al. (Ed.), *Rehabilitation of the Hand and Upper Extremity* (pp.1088-1096). St Louis, MO: Mosby.
- Lohman, H. & Royeen, C. (2002). Posttraumatic stress disorder and traumatic hand injuries: A neuro-occupational view. *American Journal of Occupational Therapy*, 56(6), 527-537.
- Nicholson, V.J., Bunn, T.L. & Costich, J.F.(2008). Disparities in work related injuries associated with worker compensation coverage status. *American Journal of Industrial Medicine*, 51(6), 393-398.
- Russell, G., Brown, J.B., & Stewart, M., (2005). Managing injured workers. *Canadian Family Physician*. 51, 78-78-79.
- Pelmeur, P.L, (2002). The clinical assessment of hand-arm vibration syndrome. *Occupational Medicine*. 53(5), 337-341.

Post-traumatic Stress Disorder. (2009). In Merriam-Webster Online Dictionary.

Retrieved May 2, 2009, from [http://www.merriam-webster.com/dictionary/post-traumatic stress disorder](http://www.merriam-webster.com/dictionary/post-traumatic%20stress%20disorder)

Schier J.S. & Chan J., (2007) Changes in Life Roles after Hand Injury. *Journal of Hand Therapy*. Volume 20(1), 57-69

Williams, R. M., Westmorland, M. G., Schmuck, G. & MacDermid, J. C., (2004).

Effectiveness of Workplace Rehabilitation Intervention in the Treatment of Work-related Upper Extremity Disorders: A Systematic Review. *Journal of Hand Therapy*. 17(2), 267-273.

Workers' Compensation. (2009). In Merriam-Webster Online Dictionary. Retrieved May

2, 2009, from [http://www.merriam-webster.com/dictionary/workers' compensation](http://www.merriam-webster.com/dictionary/workers%27compensation)