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Systematic review: Predicting adverse psychological outcomes after hand trauma

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ABSTRACT

Study Design: Systematic review.*Introduction and Purpose of the Study:* After traumatic hand injury, extensive physical and psychological adaptation is required following surgical reconstruction. Recovery from injury can understandably be emotionally challenging, which may result in impaired quality of life and delayed physical recovery. However, the evidence base for identifying high-risk patients is limited.*Methods:* A PROSPERO-registered literature search of MEDLINE (1946-present), EMBASE (1980-present), PsychInfo, and CINAHL electronic databases identified 5156 results for studies reporting psychological outcomes after acute hand trauma. Subsequent review and selection by 2 independent reviewers identified 19 studies for inclusion. These were poor quality level 2 prognostic studies, cross sectional or cohort in design, and varied widely in methodology, sample sizes, diagnostic methods, and cutoff values used to identify psychological symptoms. Data regarding symptoms, predisposing factors, and questionnaires used to identify them were extracted and analyzed.*Results:* Patients with amputations or a tendency to catastrophize suffered highest pain ratings. Persisting symptom presence at 3 months was the best predictor of chronicity. Many different questionnaires were used for symptom detection, but none had been specifically validated in a hand trauma population of patients. Few studies assessed the ability of selection tools to predict patients at high risk of developing adverse psychological outcomes.*Discussion and Conclusion:* Despite a limited evidence base, screening at 3 months may detect post-traumatic stress disorder, anxiety, depression, and chronic pain, potentially allowing for early intervention and improved treatment outcomes.*Level of evidence:* Level 4.

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Introduction

After a traumatic hand injury, the focus of treatment in the acute phase is on surgical reconstruction and subsequent physical rehabilitation. It is also important to recognize that due to the important social and functional roles that hands play, traumatic hand injuries are understandably often psychologically distressing for a patient, impacting on psychological well-being, physical recovery, and potentially contributing to long-term morbidity.

Acute stress reactions, characterized by excessive anxiety, flashbacks, avoidance, and hyperarousal symptoms, are frequently

reported after a variety of traumatic events, including physical injury, with incidence rates varying between 5% and 20% depending on the type of trauma experienced and tool used to assess symptoms.¹ These generally subside within a month² but may persist and become known as post-traumatic stress disorder (PTSD). Impaired function, pain, cosmetic deficits, and trauma-related distress may contribute to PTSD symptoms, which exist on a continuum of severity.^{3,4} Known risk factors include dissociation during trauma, an acute stress disorder, and emotional reactions of shame or anger.⁵ Such factors are common peri- and post-trauma, highlighting the value of psychoeducation in normalizing these for an individual. Symptoms of PTSD may be aggravated by, or lead to depression, anxiety, and chronic pain,^{6,7} thus negatively impacting on the quality of life. Physical rehabilitation may also be impaired, delaying a return to normal activities, and potentially exacerbating a reduction in psychological well-being. Although all patients suffer an emotional response to injury, a variety of systemic, cognitive,

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behavioral, or physical factors mean that particular individuals may find it less easy to adapt to this impact and thus suffer greater psychological distress and possible functional impairment.

There is some evidence to suggest that early interventions to address psychological symptoms that develop in the acute phase after hand trauma may be beneficial.^{8–10} However, acute stress reactions do generally resolve without intervention. Moreover, a Cochrane review concluded that early interventions should not be offered to all those exposed to a traumatic event, demonstrating that some early psychological therapies even had a detrimental impact in some individuals.¹¹ As the hospital stay after a traumatic hand injury is relatively short,¹² an individual's response to the psychological impact of the injury is usually not assessed in the acute episode. Subsequent follow-up can be variable. Many patients are discharged to hand therapy within a few months, whereas others require ongoing follow-up and further surgery. Identifying patients at risk of developing or manifesting persistent PTSD symptoms, anxiety, depression, or chronic pain, who may benefit from psychological support, presents a challenge and is perhaps a neglected aspect of hand trauma management. After a traumatic injury, patients usually require intensive hand therapy. To facilitate an effective assessment of psychological distress in this setting, there is a requirement for easy to administer and accurate tools to detect and monitor psychological symptoms in individuals,¹³ with access to support from a clinical psychology team.

This aim of this study is to review the existing literature relating to the psychological impact of hand trauma: to evaluate the incidence of PTSD symptoms, depression, anxiety, and chronic pain; identify patient or injury factors that may contribute to the impact

these emotional responses exert on an individual; and evaluate the available screening tools that may be useful in clinical practice to identify patients experiencing or at risk of developing psychological morbidity.

Materials and methods

Literature search

A PROSPERO-registered literature search of the MEDLINE (1946-present), EMBASE (1980-present), PsychInfo, and CINAHL electronic databases was conducted to identify studies reporting psychological outcomes after acute hand trauma (Supplementary Fig. 1). Non-English language articles were excluded.

Inclusion and exclusion criteria

For inclusion, studies needed to report any combination or duration of the following adverse psychological outcomes: depression/anxiety, PTSD, and chronic pain, in patients older than 18 years presenting in any health care setting after acute hand trauma. The hand was defined as any anatomic region distal to the carpus and acute trauma as that causing immediate injury. Articles dealing exclusively with long-standing carpal tunnel syndrome and complex regional pain syndrome were excluded. Case reports, letters, and general topic reviews were not included but were mined for references.

Study screening and selection

The search strategy returned 5156 results. Screening by 1 reviewer resulted in 90 studies, for which the full text was

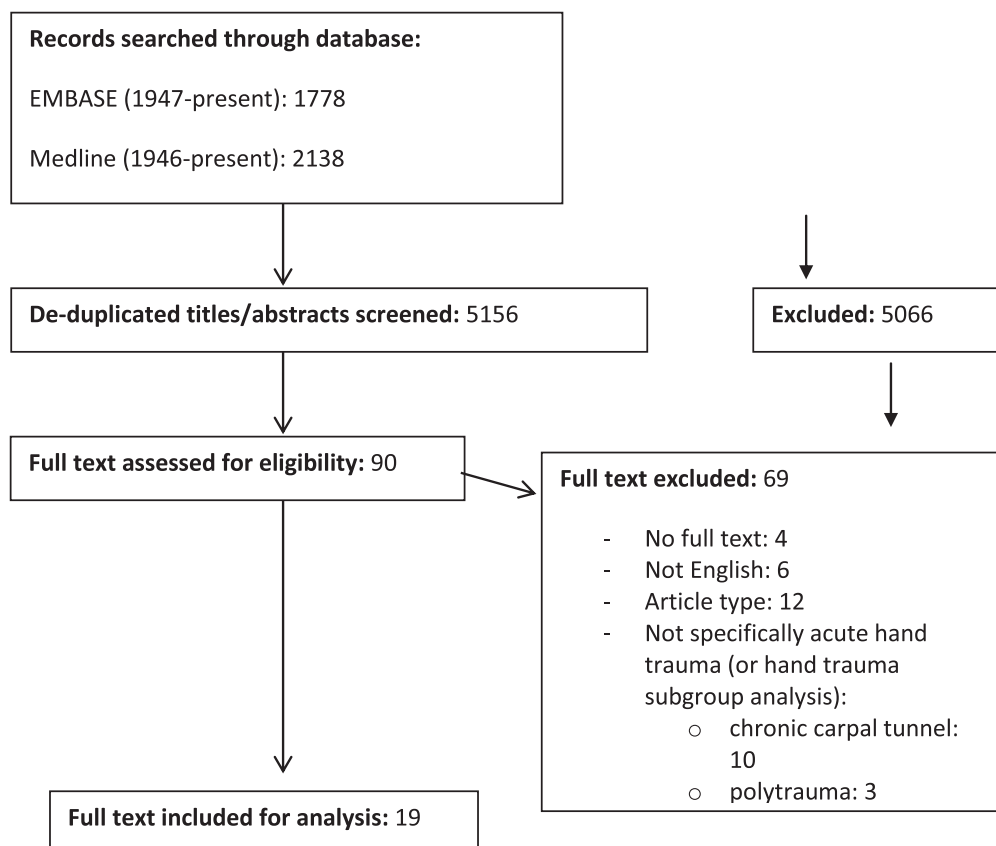


Fig. 1. PRISMA flow diagram for study selection.

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