

# A Review of Psychological Outcomes in Patients with Complex Hand Trauma: A Multidisciplinary Approach

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**ABSTRACT:** This systematic review aimed to assess the psychological outcomes in patients with complex hand trauma and explore the importance of a multidisciplinary approach in addressing both physical and mental health needs. The study employed a rigorous methodology, including a comprehensive search of relevant databases, strict inclusion and exclusion criteria, and data synthesis from the included studies. The results demonstrated the significant negative psychological impact of complex hand trauma on patients' overall health and quality of life. This trauma affected patients emotionally, psychologically, and physically, highlighting the essential role of hand function in performing daily activities. The findings emphasize the need for continued research aimed at identifying effective psychological interventions to support the rehabilitation of patients with complex hand trauma. Providing these patients with multidisciplinary care, addressing both the physical and mental health components of recovery, can result in a more favorable long-term outcome.

**KEYWORDS:** Hand trauma, psychological outcomes, multidisciplinary care.

## Introduction

Assessing psychological outcomes in patients with complex hand trauma is of paramount importance due to the significant detrimental impact it can have on their overall health and quality of life.

The hand is an essential part of the body that plays a crucial role in carrying out day-to-day activities and is a vital tool for communication, expression, and creativity.

Any hand trauma, therefore, can have a profound impact on a patient's physical, emotional, and psychological well-being.

Patients suffering from complex hand trauma not only face physical challenges but also emotional distress due to the potential loss of their ability to perform basic functions such as grooming, feeding, and using the restroom.

The emotional burden of this trauma can often lead to depression, anxiety, post-traumatic stress disorder (PTSD), and other significant mental health issues.

Therefore, assessing psychological outcomes for these patients is essential for improving their overall quality of life.

A multidisciplinary approach to addressing the physical and mental health needs of patients with complex hand trauma is increasingly becoming the standard of care.

Such an approach involves a team of specialists, including orthopedic surgeons, plastic surgeons, hand therapists, and psychiatrists among others working collaboratively to provide comprehensive care.

Plastic surgeons and orthopedic surgeons play a vital role in restoring the patient's physical function by repairing bones, tendons, and nerves.

Hand therapists help the patient regain their grip strength, fine motor skills, and range of motion.

Psychiatrists provide crucial emotional and mental support to help patients manage the psychological effects of their trauma. This multidisciplinary approach ensures that patients' physical and mental health needs are met, promoting optimal outcomes.

Recent research has shed light on the importance of addressing the psychological outcomes of patients with complex hand trauma.

A study conducted by Schmocker et al. (2020) found that patients with hand trauma had a higher likelihood of developing symptoms of post-traumatic stress disorder (PTSD) than those with other types of injuries [1].

Furthermore, they found that the severity of hand trauma was positively correlated with PTSD symptoms.

These findings underscore the importance of assessing and addressing the psychological needs of patients with complex hand trauma.

A systematic review conducted by Torres-López (2020) aims to explore the psychological burden associated with hand and wrist injuries [2].

The authors searched multiple electronic databases for relevant studies and identified 17 studies that met their inclusion criteria.

The results of the review indicate that hand and wrist injuries can result in significant psychological distress, including anxiety, depression, and reduced quality of life.

The review also suggests that the severity of the injury and the level of disability may impact the psychological burden experienced by patients.

In addition, the review highlights the need for adequate psychological support for patients with hand and wrist injuries, as well as the potential benefits of early psychological intervention.

Another recent study by Butcher et al. (2021) focused on the role of occupational therapy in the recovery of hand trauma patients [3].

They found that occupational therapy interventions not only improved physical outcomes for patients but also had a positive impact on their mental health and overall quality of life.

This study highlights the potential benefits of a multidisciplinary approach to treating complex hand trauma patients.

In addition to occupational therapy, other healthcare professionals such as psychologists, psychiatrists, and social workers may also play a role in the multidisciplinary treatment of complex hand trauma patients.

Mental health professionals can provide support for patients struggling with PTSD, depression, anxiety, or other psychological issues that may arise as a result of their injury.

Social workers can assist with navigating the complex healthcare system and accessing resources that may be necessary for the patient's recovery.

Overall, assessing psychological outcomes in patients with complex hand trauma is a critical component of their overall treatment and recovery process.

To provide comprehensive care, a multidisciplinary approach that incorporates both physical and mental health interventions is often necessary.

## Objective

The objective of this study was to review the psychological outcomes in patients with complex hand trauma and to explore the importance of a multidisciplinary approach to address both the physical and mental health needs of these patients.

## Methods

To achieve this objective, a research question was formulated, and a set of inclusion criteria were established.

The inclusion criteria required studies to have evaluated psychological outcomes, be published in English, and have a sample size of more than 10.

A comprehensive search was conducted in three major databases, namely PubMed, Scopus, and Web of Science, using relevant search terms such as "complex hand trauma," "psychological outcomes," "anxiety," "depression," and "PTSD."

Following the search, all articles were screened for eligibility based on the established criteria.

After a thorough review, 13 studies were deemed eligible and included in the review.

Factors that contributed to distress included pain, limited functional ability, disfigurement, and social isolation.

The findings were synthesized to provide an overall interpretation that patients with psychological distress had poorer outcomes in hand function and overall quality of life compared to those without distress.

## Discussion

This comprehensive table highlights the various risk factors associated with complex hand trauma and their direct impact on psychological outcomes, supporting the need for a multidisciplinary approach in addressing these challenges (Table 1).

**Table 1. Comparative Table of Risk Factors and Psychological Outcomes in Patients with Complex Hand Trauma**

Risk Factors	Psychological Outcomes
Severity of injuries	Posttraumatic stress
Degree of functional recovery	Depression
Duration of rehabilitation	Anxiety
Age of the patient	Cognitive dysfunction
Available social support	Sleep disorders

This review highlights the importance of addressing both physical and mental health needs in patients with complex hand trauma.

The multidisciplinary approach ensures that patients receive the best possible treatment and care that addresses their overall well-being, leading to better outcomes.

The studies included in this review provide valuable insights into the impact of complex hand trauma on psychological outcomes and underscore the need for an integrated approach to treatment.

Raman and Subramanian (2018) examined the psychological impact of hand injuries on industrial workers [4].

The sample size was 327 industrial workers who had sustained hand injuries.

According to Raman and Subramanian hand injuries in industrial workers can have a significant impact on their psychological well-being.

The study found that the participants reported experiencing anxiety, depression, and fear regarding returning to work after their injury.

The study also found that providing psychological support and education about hand injuries and their recovery could improve psychological outcomes and return-to-work rates.

The authors suggest that employers should implement interventions such as counseling and education for their employees who have sustained hand injuries to support their psychological well-being and facilitate a smoother transition back to work.

Wosnitzer and Wilson (2019) performed a longitudinal study in which they examined the impact of chronic pain on the psychological and emotional well-being of patients with complex hand trauma [5].

The sample size was 180 patients with complex hand trauma.

According to Wosnitzer and Wilson, chronic pain in patients with complex hand trauma can have a significant negative impact on their psychological and emotional well-being.

The study found that many patients experience anxiety, depression, and decreased quality of life as a result of their chronic pain.

However, the article also discusses various management techniques for addressing chronic pain, including physical therapy, pain medication, and psychological interventions such as cognitive behavioral therapy.

The authors suggest that a comprehensive approach that addresses both the physical and

psychological aspects of chronic pain may be most effective.

Overall, the study highlights the importance of recognizing and addressing the psychological impact of chronic pain in patients with complex hand trauma.

Moqori and Nazari (2020) conducted a longitudinal study on the psychosocial outcomes of patients with complex hand trauma and published their findings in the *Journal of Hand Surgery* [6].

The study aimed to examine the emotional and psychological effects of injury over time and identify factors that contribute to successful rehabilitation and recovery.

The study had a sample size of 196 patients who were monitored for one year.

The researchers used surveys and interviews to gather data and analyzed it using statistical methods.

The study found that patients with complex hand trauma experience a range of psychosocial issues such as anxiety, depression, social isolation, and reduced quality of life.

However, the severity and duration of these issues varied among patients.

The study also identified factors such as age, gender, employment status, and level of satisfaction with treatment that influenced psychosocial outcomes.

The study highlights the need for healthcare providers to consider the emotional and psychological impact of the injury on patients with complex hand trauma.

It also emphasizes the importance of tailored rehabilitation programs that address the unique needs of each patient.

The findings have implications for improving patient outcomes and enhancing the quality of care in this population.

According to Battiston and Gasperini (2017), the prevalence of depression and anxiety in 338 patients with chronic hand pain resulting from trauma is high [7].

Early intervention and management of these emotional distress symptoms should be prioritized to improve patient outcomes.

The study also suggests that a multidisciplinary approach to treatment, including psychological support and pain management, may be effective in addressing both the physical and emotional aspects of chronic hand pain resulting from trauma.

The study shows that depression and anxiety are prevalent in patients with chronic hand pain

resulting from trauma, and early intervention is critical in managing these symptoms.

While traditional pain treatments may be effective in managing the physical aspect of the pain, a multidisciplinary approach tailoring psychological support to the patient's needs is also essential to manage their emotional distress effectively.

The psychological outcomes of patients with complex hand trauma can have far-reaching consequences, impacting their physical functioning, social relationships, and overall quality of life.

As such, it is imperative to understand the factors that contribute to these psychological outcomes and develop effective interventions to help patients cope with their injuries.

The literature on this topic is extensive and includes various studies that have explored the relationship between complex hand trauma and psychological outcomes.

Researchers have investigated factors such as the severity of the injury, the type of treatment

received, as well as the demographic and psychosocial characteristics of patients.

By identifying and analyzing articles that address this research question, we gain new insights into the psychological outcomes of patients with complex hand trauma, which can assist in developing more targeted treatments and interventions.

Ultimately, this can lead to improved patient outcomes and better long-term quality of life for those who have suffered from complex hand trauma.

These are just a few medical specialties that can be involved in a multidisciplinary team for the treatment of complex hand traumas.

Depending on the case and individual needs of the patient, other healthcare professionals may be involved in the team to ensure the best possible care and recovery.

**The Role of Psychiatrist** in assessing and treating psychological issues in patients with complex hand trauma (Table 2).

**Table 2. Multidisciplinary Team Involved in the Treatment of Complex Hand Traumas.**

Medical Specialty	Role in the Treatment of Complex Hand Traumas
Orthopedic Surgery	Assessment and treatment of bone and joint injuries in the hand
Plastic Surgery	Restoration and reconstruction of skin and soft tissue structures in the hand
Hand Therapists	Functional rehabilitation of the hand through physical and occupational
Psychiatry	Evaluation and treatment of psychological disorders, including anxiety, depression and PTSD
Physical Medicine and Rehabilitation	Management of the rehabilitation and recovery process, including physiotherapy and occupational therapy

Psychiatrists play an important role in assessing and treating psychological issues in patients with complex hand trauma.

The psychological effects of hand trauma can include anxiety, depression, post-traumatic stress disorder (PTSD), and adjustment disorders.

These psychological issues can arise due to the traumatic event itself, as well as the challenges that come with recovering from hand trauma, such as a loss of independence and inability to perform activities of daily living.

Assessment of psychological issues begins with a comprehensive evaluation of the patient's mental health history and current symptoms.

Additionally, psychologists can use various psychological tests and assessments to identify specific psychological issues that may be present.

This information helps to guide treatment planning and identify the most effective methods for addressing a patient's psychological needs.

Treatment of psychological issues in patients with complex hand trauma may include cognitive-behavioral therapy (CBT), which helps

patients manage their emotions and thoughts related to their trauma.

CBT may also help patients identify and change negative thought patterns that may be contributing to their psychological symptoms.

Other treatments may include exposure therapy, relaxation techniques, and medication management.

In addition to direct patient care, psychiatrists may work with other healthcare professionals, such as occupational therapists and surgeons, to ensure a coordinated and comprehensive approach to patient care.

Psychiatrist can also provide support to families and caregivers who may be struggling to cope with the demands of caring for a loved one with hand trauma.

Recent studies have shown the effectiveness of psychological interventions in treating the psychological effects of hand trauma.

A study by Faber et al. (2018) found that CBT was effective in reducing symptoms of anxiety

and depression in patients with complex upper limb trauma [8].

Another study by Kim et al. (2020) found that trauma-focused CBT was effective in reducing symptoms of PTSD in patients with hand injuries [9].

The role of psychiatrists in assessing and treating psychological issues in patients with complex hand trauma is critical to ensuring the best possible outcomes for these patients.

By addressing psychological issues in addition to physical challenges, patients can achieve improved quality of life and better long-term outcomes.

### Rehabilitation Protocols

Highlighting the importance of a multidisciplinary team approach in developing a comprehensive treatment plan that addresses the physical, emotional, and psychological needs of patients.

Rehabilitation protocols for patients with complex hand trauma require a multifaceted approach to address the physical, emotional, and psychological needs of the individual.

This approach involves a multidisciplinary team, including occupational therapists, physical therapists, and psychotherapists working together to develop individualized treatment plans.

Occupational therapy plays a vital role in helping patients regain their ability to perform daily activities such as dressing, grooming, and eating.

A customized treatment plan is developed that may include exercises to strengthen fine motor skills, assistive devices to compensate for hand weakness or loss, and education on energy conservation techniques to help patients manage their daily activities [10].

Physical therapy is essential in restoring the strength, flexibility, and functional movement of the hand and upper limb muscles.

Treatment may include exercises to improve range of motion, muscle strength, and endurance.

Physical therapy interventions may also include using splints and other assistive devices to improve hand function and prevent deformities.

In addition, physical therapists may work with patients to develop strategies for managing pain and coping with the physical limitations that come with hand trauma [11].

Psychotherapy is crucial in addressing the psychological issues that are common among patients with complex hand trauma.

Psychotherapy helps patients develop coping strategies and learn skills to manage symptoms of anxiety and depression.

The multidisciplinary team approach helps to address psychological factors that may interfere with a patient's physical rehabilitation.

Furthermore, the team collaborates closely to develop appropriate treatment goals and prioritize interventions, ensuring that the patient receives individualized care that addresses their specific needs [12].

A multidisciplinary team approach is essential in developing comprehensive rehabilitation protocols for patients with complex hand trauma.

Occupational therapy, physical therapy, and psychotherapy are crucial components of this approach.

This comprehensive approach ensures that the patient receives individualized care that addresses their specific needs and helps to enhance their overall recovery.

### Coping with Disability

Highlighting the importance of providing emotional support, counseling, and psychotherapy to help patients cope with these challenges.

Complex hand trauma can have a significant impact on a patient's mental health, leading to various psychological challenges such as coping with disability, anxiety, depression, and post-traumatic stress disorder (PTSD).

Patients with hand trauma may experience a range of negative emotions and psychological distress as they adjust to the physical limitations imposed by their injury [13].

Coping with a disability can be particularly challenging for patients who may struggle with self-esteem, body image, and social isolation.

These challenges can impact their quality of life, leading to feelings of frustration, anger, and despair.

Furthermore, social stigma and discrimination can exacerbate these feelings, leaving patients feeling excluded from society [14].

Anxiety and depression are common psychological challenges associated with complex hand trauma.

Patients may struggle with fear and worry about their recovery, returning to work, and maintaining their independence.

They may also become overwhelmed by the physical and emotional demands of rehabilitation, leading to anxiety and depression [15].

Furthermore, patients may experience PTSD, which can arise from traumatic events related to

their injuries such as accidents, surgery, or harsh treatment by healthcare professionals.

Providing emotional support, counseling, and psychotherapy is essential in helping patients cope with these psychological challenges.

Psychologists, social workers, and other mental health professionals can provide patient-centered interventions tailored to individual needs, addressing the challenges of coping with disability, anxiety, depression, and PTSD.

These interventions may include cognitive-behavioral therapy, stress management techniques, relaxation techniques, and psychoeducation [16].

In conclusion, individuals with complex hand trauma face numerous psychological challenges that impact their overall well-being.

The provision of emotional support, counseling, and psychotherapy is vital in helping these individuals cope with these challenges, evaluate their adjustment to their disability, and re-integrate into society.

Healthcare professionals should aim to provide a holistic approach to care to ensure that patients receive the necessary psychological treatment and support to maximize their recovery.

### **Collaborative Care**

The importance of collaborative care in assessing and treating psychological outcomes in patients with complex hand trauma.

Collaborative care involves bringing together various healthcare providers to provide comprehensive and integrated care to patients with complex health conditions [17].

In the case of patients with complex hand trauma, collaborative care is crucial to assess and treat the psychological outcomes that may arise from the injury.

The physical and functional aspects of hand trauma are often the focus of treatment, but psychological factors such as pain, anxiety, depression, and post-traumatic stress disorder (PTSD) can greatly impact a patient's recovery and quality of life.

Physicians play a key role in the collaborative care team for hand trauma patients [18].

They are responsible for diagnosing and treating the physical injury, prescribing medications as needed, and monitoring the patient's progress.

In addition to physical treatment, physicians may refer patients to other healthcare professionals for psychological assessment and treatment [19].

Occupational therapists (OTs) are also crucial members of the collaborative care team.

They work with patients to restore hand function and promote independence in activities of daily living [20].

They may also address the psychological aspects of hand trauma by providing coping strategies and interventions to manage pain, anxiety, and depression.

Physical therapists (PTs) also play a role in the collaborative care team.

They work with patients to improve the range of motion, strength, and flexibility in the injured hand, as well as address any other physical impairments resulting from the injury [21].

PTs may also incorporate psychological interventions into their treatment, such as relaxation techniques and stress management strategies.

Psychologists are important members of the collaborative care team for hand trauma patients, as they can help to address the psychological impact of the injury.

They may provide psychological assessments to determine if the patient is experiencing anxiety, depression, PTSD, or other psychological conditions.

They may also provide psychotherapy to help patients cope with the emotional aspects of the injury, such as grief, anger, or fear.

Collaborative care is essential for assessing and treating the psychological outcomes of patients with complex hand trauma

A multidisciplinary team consisting of physicians, occupational therapists, physical therapists, and psychologists can provide comprehensive care, addressing both the physical and psychological aspects of the injury.

This approach can help to optimize patient outcomes and improve their quality of life.

### **Results**

Thirteen studies met the inclusion criteria and were included in the systematic review.

The studies assessed the psychological outcomes of patients with complex hand trauma and provided valuable insights into the negative impact on patients' mental well-being.

The results revealed that the experience of complex hand trauma had a profound psychological effect on patients.

Pain was consistently reported as a significant factor contributing to psychological distress.

Patients reported high levels of pain, which in turn led to feelings of frustration, helplessness, and anxiety.

The constant presence of pain limited their ability to perform daily activities and impacted their overall quality of life.

Another significant psychological impact identified was the limited functional ability resulting from the hand trauma.

Patients experienced difficulties in using their hands and fingers, which affected their independence and ability to perform simple tasks.

This loss of functionality caused frustration, anger, and feelings of being inadequate, leading to depression and a reduced sense of self-worth.

Disfigurement resulting from complex hand trauma also had a substantial negative impact on patients' mental well-being.

Patients reported feelings of shame, embarrassment, and self-consciousness due to visible scars, amputations, or deformities.

This disfigurement affected their self-esteem and body image, leading to social anxiety and isolation.

Patients often faced difficulties in social interactions and felt uncomfortable in public settings.

The review also identified a strong link between psychological distress and poorer outcomes in hand function and overall quality of life.

Patients with higher levels of psychological distress experienced greater difficulties in hand function, leading to increased disability and decreased independence.

The negative psychological effects also manifested in other aspects of patients' lives, such as work productivity, personal relationships, and overall life satisfaction.

Overall, the results of this systematic review emphasize the significant negative psychological impact of complex hand trauma on patients' well-being and quality of life.

Pain, limited functional ability, disfigurement and social isolation were identified as key factors contributing to psychological distress.

These findings highlight the importance of addressing both the physical and mental health components in the rehabilitation process for patients with complex hand trauma.

A multidisciplinary approach that includes psychological interventions and support can play a crucial role in promoting better psychological outcomes and enhancing overall patient well-being.

### Future Directions

Upon analyzing these articles, several key themes emerged.

Firstly, patients with complex hand trauma experience a range of psychological symptoms, including anxiety, depression, post-traumatic stress disorder (PTSD), and impaired sleep quality.

Secondly, the severity of the injury and the resulting disability have a significant impact on the psychological outcomes, with more severe injuries being associated with worse mental health outcomes.

Thirdly, there is evidence that social support and rehabilitation interventions may improve psychological well-being in patients with complex hand trauma.

Additionally, several gaps in knowledge and areas for future research were identified.

For example, there is limited research on the long-term psychological outcomes of patients with complex hand trauma.

Furthermore, few studies have investigated the role of cultural or social factors in shaping these outcomes, highlighting the need for more diverse and inclusive research.

### Conclusion

This systematic review was conducted following a rigorous methodology, including a comprehensive search of relevant databases, strict inclusion and exclusion criteria, and data synthesis from the included studies.

The findings of this systematic review demonstrated the negative psychological outcomes of patients with complex hand trauma and highlighted the need for continued research and improve psychological interventions to support patients with complex hand trauma.

Assessing psychological outcomes in patients with complex hand trauma is of paramount importance due to the significant detrimental impact it can have on their overall health and quality of life.

The hand is an essential part of the body that plays a crucial role in carrying out day-to-day activities and is a vital tool for communication, expression, and creativity.

Any hand trauma, therefore, can have a profound impact on a patient's physical, emotional, and psychological well-being.

Evaluating psychological outcomes in patients with complex hand trauma is vital in ensuring patients receive comprehensive care for their physical and mental well-being.

A multidisciplinary approach to addressing the physical and mental health needs of these patients is essential for promoting their overall recovery and improving their quality of life.

Healthcare professionals must adopt this approach in their care practice to provide the best possible care to their patients.

### Conflict of interests

None to declare.

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