

ORIGINAL RESEARCH ARTICLE

Evaluation of anxiety, depression, and sleep quality in patients following traumatic finger amputation surgery

Kenan Guvenc^a  and Sebnem Eker Guvenc^b 

^aDepartment of Hand Surgery, Eskişehir City Hospital, Eskişehir, Turkey; ^bDepartment of Family Physician, Eskişehir City Hospital, Eskişehir, Turkey

ABSTRACT

Objective: The hand, as one of the most utilized body parts, is particularly vulnerable to trauma. Finger amputations can lead to significant emotional, social, and physical distress.

Methods: This cross-sectional questionnaire study included patients aged 18–75 who underwent surgery following traumatic finger amputation performed by a single surgeon between 2021 and 2022 in a hospital hand surgery clinic. Patients were grouped as follows: Group 1 underwent successful replantation; Group 2 included patients whose fingers were shortened and closed, reconstructed with local flaps, or required secondary surgery due to failed replantation. Evaluations included the Visual Analogue Scale (VAS), Quick Disabilities of the Arm, Shoulder and Hand (QDASH), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), and Pittsburgh Sleep Quality Index (PSQI).

Results: The study included 95 patients, 26 in Group 1 and 69 in Group 2. No significant differences were found between the groups in terms of age or sex ($P = 0.570$ and $P = 0.941$, respectively). Group 1 exhibited significantly better pain and functional outcomes based on VAS and QDASH scores (both $P < 0.001$). Additionally, lower anxiety and depression scores (BAI, BDI) and improved sleep quality (PSQI) were observed in Group 1 (all $P < 0.001$).

Conclusion: Patients with finger loss due to failed replantation or closure with local flaps should not be regarded as experiencing minor trauma. These patients require comprehensive rehabilitation, pain management, and psychological and social support.

ARTICLE HISTORY

Received 22 March 2025
Accepted 9 June 2025
Published 8 August 2025

KEYWORDS

Finger amputation; sleep quality; depression; anxiety; replantation

Introduction

Amputation refers to the removal of a limb or part of a limb due to various causes. The hand, being essential in daily function, is especially prone to traumatic injury [1]. When tissue viability and patient condition permit, microsurgical replantation can be performed [2, 3]. However, the patient's response and adaptation are influenced by a complex interplay of medical, psychological, and social factors, including the nature of the trauma, patient expectations, social support, personality traits, and cultural context [4]. Finger amputation, although smaller in scale compared to major limb loss, can have profound psychosocial effects. In distal fingertip injuries, treatment options include replantation, primary closure after shortening, flap reconstruction, and skin grafting [5, 6]. These may lead to altered sensation, cold intolerance, and aesthetic concerns. Regardless of size, body integrity loss can negatively impact well-being [7]. Traumatic finger amputation is a significant psychological stressor due to its abrupt and threatening nature [8, 9].

Methods

This study was approved by the institutional ethics committee. It included patients aged 18–75 who underwent surgery after traumatic finger amputation at a single tertiary hospital between 2021 and 2022. Patients were divided into two groups:

- **Group 1:** Patients who underwent successful replantation
- **Group 2:** Patients whose fingers were shortened and closed, reconstructed with local flaps, or required secondary procedures after failed replantation

All participants completed standardized questionnaires: VAS for pain, QDASH for function, BAI and BDI for mood assessment, and PSQI for sleep quality.

Results

Ninety-five patients were included, with a mean age of 42.1 ± 14.1 years. Group 1 included 26 patients with successful replantation; Group 2 consisted of 69 patients with finger loss. No significant differences were observed between groups in terms of age or sex. However, Group 1 showed significantly better outcomes across all scales:

- Lower pain (VAS) and improved function (QDASH) (both $P < 0.001$)
- Lower anxiety and depression scores (BAI, BDI) (both $P < 0.001$)
- Better sleep quality (PSQI) ($P < 0.001$) (Table 1)

CONTACT Kenan Guvenc  guvenckenan@gmail.com  Eskişehir City Hospital, Odunpazarı, 26080, Eskişehir

© 2025 The Author(s). Published by MJS Publishing on behalf of Acta Chirurgica Scandinavica. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material, with the condition of proper attribution to the original work.

Table 1. Finger amputation effect on mood and sleep quality.

	Number	Mean	P
PSQI			
Group 1	26	0,962 ± 1,2159	0.000
Group 2	69	6,826 ± 1,5239	
BAI			
Group 1	26	4,308 ± 2,2049	0.000
Group 2	69	13,000 ± 4,1124	
BDI			
Group 1	26	5,077 ± 1,5981	0.000
Group 2	69	15,594 ± 4,9149	
Qdash			
Group 1	26	1,319 ± 1,9477	0.000
Group 2	69	4,129 ± 5,6534	
VAS			
Group 1	26	0,692 ± 5,491	0.000
Group 2	69	2,319 ± 0,9624	

VAS: Visual Analog Scale; Qdash: Quickdash score; BAI: Beck Anxiety Inventory; BDI: Beck Depresyon Inventory; PSQI: Pittsburgh Sleep Quality Index.

Discussion

This study demonstrates that successful replantation leads to improved pain, function, mood, and sleep compared to outcomes in patients with permanent finger loss.

It is important to collect preoperative data regarding patients scheduled for planned amputation; such data facilitate the provision of effective nursing care. Patients with comorbidities require more care because of the high risk of postoperative complications [10]. Nurses can assess body image alterations; pain; the risks of falling, bleeding, and infection; nutritional imbalance; deterioration in physical mobility; lack of self-care syndrome; deterioration in social interactions; and social isolation [11]. While all our patients had traumatic rather than elective amputations, this unexpected loss likely exacerbated psychological distress [3]. Supportive care and rehabilitation are essential for recovery. The perceived presence of social support plays a key role in psychological resilience [12]. Multidisciplinary rehabilitation – including physicians, therapists, nurses, psychologists, and family – is vital to optimize recovery [8, 12].

Our findings highlight the necessity of expanding access to replantation services and addressing the psychological burden in patients unable to undergo successful replantation.

Conclusion

Finger amputation due to trauma can lead to lasting psychological and functional consequences. Patients who cannot retain their digits due to surgical failure or alternative closure methods should not be

overlooked. Comprehensive care involving physical rehabilitation and psychosocial support should be prioritized for these individuals.

Disclosure statement

The authors declare no conflicts of interest related to this publication.

References

- [1] Samantaray SA, Oommen J, Thamunni CV, et al. Fingertip injury epidemiology: an Indian perspective. *J Plast Surg Hand Surg.* 2022;56(4):224–228. <https://doi.org/10.1080/2000656X.2021.1962332>
- [2] Sümer A, Onur E, Altınlı E, et al. Alt Ekstremitte Amputasyonlarında Klinik Deneyimlerimiz. *İnönü Üniversitesi Tıp Fakültesi Dergisi.* 2008;15:187–190.
- [3] Anderson M, Deighan F. Coping strategies in conjunction with amputation. Thesis. Division for Health and Caring Sciences, Karlstads University; 2006.
- [4] Özkan S. Psychiatric and psychosocial support for patients with colorectal cancer. In: Baykan A, Zorluoğlu A, editors. *Kolon ve Rektum Kanseri.* Türk Kolon ve Rektum Cerrahisi Derneği; 2010. p. 787–799.
- [5] Kiuchi T, Shimizu Y, Nagasao T, et al. Composite grafting for distal digital amputation with respect to injury type and amputation level. *J Plast Surg Hand Surg.* 2015;49(4):224–228. <https://doi.org/10.3109/2000656X.2015.1020314>
- [6] Mizutani Y, Tamai S, Nakamura T, et al. Conservative treatment of traumatic finger amputations using negative-pressure wound therapy. *J Plastic Surg Hand Surg.* 2023;58:115–118. <https://doi.org/10.2340/jphs.v58.18351>
- [7] Çelikdelen P, Özçelik İB, Mersa B, et al. Rehabilitation and functional results after finger replantations. *El ve Mikrocerrahi.* 2012;1(1):3–6. <https://doi.org/10.2399/emd.12.65375>
- [8] Oğul M, Erden G. The psychosocial dimension of amputation. *Ankara Univ J Health Serv Vocat Sch.* 2005;7(1):27–33.
- [9] Bhuvaneshwar CG, Epstein LA, Stern TA. Reactions to amputation: recognition and treatment. *Prim Care Companion J Clin Psychiatry.* 2007;9(4):303–308. <https://doi.org/10.4088/PCC.v09n0408>
- [10] Virani A, Werunga J, Ewashen C, et al. Caring for patients with limb amputation. *Nurs Stand.* 2015;30(6):51–60. <https://doi.org/10.7748/ns.30.6.51.s47>
- [11] Carpenito-Moyet LJ, ed. *Handbook of nursing diagnosis.* Erdemir F, trans. 13th ed. Istanbul: Nobel Medical Publishing; 2010.
- [12] Özsoy İ, Okyayuz ÜH. Coping skills of people with amputation: case presentation. *Klinik Psikiyatri.* 2016;19:45–51. <https://doi.org/10.5505/kpd.2016.30074>