

## PSYCHOLOGICAL IMPACT OF HYPERTROPHIC SCARS: AN ANALYTICAL AND INTEGRATIVE REVIEW

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**Abstract: INTRODUCTION** Hypertrophic scars are characterized by excessive collagen deposition, leading to raised, red, and rigid scars. They arise from an abnormal wound healing process, often affecting individuals with darker skin and those with a family history of abnormal scarring. These scars can cause significant physical and aesthetic issues, leading to contractures and profound psychological distress. Patients often experience low self-esteem, social anxiety, and depression, which negatively impact their quality of life. Effective management requires a multidisciplinary approach, integrating medical and psychological interventions to address both the physical and emotional burden of hypertrophic scars. **OBJECTIVE** to review the psychological aspects of hypertrophic scars, including the prevalence of anxiety and depression, impact on quality of life, and effectiveness of psychological interventions and coping strategies. **METHODS** This is a narrative review which included studies in the MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases, using as descriptors: “Hypertrophic Scars” AND “Psychological Impact” AND “Quality of Life” AND “Coping Mechanisms” AND “Interdisciplinary Care” in the last years. **RESULTS AND DISCUSSION** Patients with hypertrophic scars frequently exhibit anxiety, depression, and reduced quality of life. Studies show a direct correlation between the visibility of scars and psychological distress. Adaptive coping strategies, such as seeking social support, improve psychological outcomes, whereas maladaptive strategies exacerbate distress. Social relationships are often strained, leading to social isolation. Self-esteem and body image are significantly affected, with visible scarring lowering self-esteem. Psychological interventions like cognitive-behavioral therapy (CBT) have

proven effective in reducing psychological symptoms. Patient education and support groups are crucial in improving outcomes. An interdisciplinary approach, considering cultural and societal factors, is essential for comprehensive care. Future research should focus on long-term psychological outcomes and innovative treatment approaches. **CONCLUSION** Hypertrophic scars impose significant physical and psychological challenges, necessitating holistic treatment approaches. Psychological interventions, patient education, and support groups play critical roles in mitigating distress. An interdisciplinary approach that addresses both physical and psychological dimensions is essential. Future research should explore innovative therapies and personalized treatment plans to enhance care. By addressing these aspects, healthcare providers can significantly improve the overall well-being and quality of life for patients with hypertrophic scars.

**Keywords:** Dermatology; Plastic Surgery; Mental Health.

## INTRODUCTION

Hypertrophic scars represent a pathological response to cutaneous injury, characterized by excessive collagen deposition within the wound site<sup>1</sup>. These scars are raised, red, and rigid, often leading to significant functional and aesthetic concerns<sup>1</sup>. The pathophysiology involves an aberrant wound healing process where there is prolonged inflammation, excessive fibroblast proliferation, and excessive extracellular matrix production<sup>2</sup>. Unlike keloids, hypertrophic scars remain confined to the boundaries of the original wound and may regress over time, but they can cause considerable morbidity due to their appearance and potential for contractures, especially in cases involving large areas or joint regions<sup>3</sup>.

The epidemiology of hypertrophic scars reveals varying prevalence rates, influenced by factors such as skin type, genetic predisposition, and the nature of the initial trauma<sup>4</sup>. They are more common in individuals with darker skin and those with a family history of abnormal scarring<sup>5</sup>. Burns, surgical incisions, and traumatic injuries are among the most common etiological factors. The incidence of hypertrophic scars in post-burn patients can be as high as 70% depending on the depth and extent of the burn injury<sup>4</sup>. Understanding these epidemiological trends is crucial for developing preventive strategies and tailored treatments<sup>6</sup>.

Hypertrophic scars significantly affect the physical and aesthetic domains of patients' lives<sup>7</sup>. Functionally, they can lead to contractures, limiting the range of motion and daily activities, particularly when located near joints. Aesthetically, the disfigurement associated with these scars can lead to profound psychological distress<sup>7</sup>. The visibility of scars, especially on exposed areas like the face and hands, can exacerbate self-consciousness and social withdrawal, underlining the need for effective management approaches that address both physical and psychological aspects<sup>8</sup>.

Psychologically, hypertrophic scars can be debilitating. Patients often experience a range of emotional responses, including frustration, embarrassment, and low self-esteem<sup>8</sup>. The stigma associated with visible scarring can lead to social anxiety and depression. The psychological impact is often compounded by chronic pain and pruritus, common symptoms associated with hypertrophic scars<sup>9</sup>. These psychological and sensory symptoms create a vicious cycle, exacerbating the patient's overall distress and complicating the healing process<sup>10</sup>.

The impact of hypertrophic scars extends beyond physical disfigurement, affecting the broader quality of life. Patients report limitations in their social interactions,

professional opportunities, and recreational activities<sup>11</sup>. The continuous need for medical treatments and interventions can also lead to financial stress<sup>11</sup>. Quality of life assessments in patients with hypertrophic scars consistently show lower scores compared to the general population, highlighting the comprehensive burden these scars impose<sup>12</sup>.

The psychosocial stressors faced by patients with hypertrophic scars are multifaceted<sup>13</sup>. They include social stigma, altered self-perception, and challenges in intimate relationships<sup>13</sup>. Patients often employ various coping mechanisms to manage their condition, ranging from seeking social support to engaging in avoidance behaviors. Understanding these coping strategies is essential for healthcare providers to offer appropriate psychological support and interventions<sup>14</sup>. Current treatment modalities for hypertrophic scars include a combination of surgical, pharmacological, and psychological therapies<sup>14</sup>. The multidisciplinary approach aims not only to improve the physical appearance of scars but also to alleviate the psychological burden. This review aims to synthesize existing literature on the psychological aspects of hypertrophic scars, providing a comprehensive understanding of their impact and highlighting the need for integrative treatment strategies<sup>15</sup>.

## OBJETIVES

The primary objective was to provide a comprehensive analytical and integrative review of the psychological aspects associated with hypertrophic scars. This includes examining the prevalence of psychological symptoms such as anxiety and depression, assessing the impact on quality of life, and exploring the effectiveness of various psychological interventions and coping strategies in mitigating the psychological burden experienced by patients with hypertrophic scars.

## SECONDARY OBJETIVES

1. To analyze the prevalence and intensity of psychological symptoms, such as anxiety and depression, among patients with hypertrophic scars.
2. To evaluate the broader impact of hypertrophic scars on patients' quality of life using validated instruments.
3. To investigate the coping mechanisms employed by patients and their effectiveness in managing psychological distress.
4. To discuss how hypertrophic scars affect social interactions, relationships, and patients' self-esteem and body image.
5. To review the effectiveness of psychological therapies and patient support programs in improving the mental health and overall well-being of patients with hypertrophic scars.

## METHODS

This is a narrative review, in which the main aspects of psychological aspects of hypertrophic scars, including the prevalence of anxiety and depression, impact on quality of life, and effectiveness of psychological interventions and coping strategies in recent years were analyzed. The beginning of the study was carried out with theoretical training using the following databases: PubMed, sciELO and Medline, using as descriptors: "Hypertrophic Scars" AND "Psychological Impact" AND "Quality of Life" AND "Coping Mechanisms" AND "Interdisciplinary Care" in the last years. As it is a narrative review, this study does not have any risks.

**Databases:** This review included studies in the MEDLINE – PubMed (National Library of Medicine, National Institutes of Health), COCHRANE, EMBASE and Google Scholar databases.

The inclusion criteria applied in the analytical review were human intervention studies, experimental studies, cohort studies,

case-control studies, cross-sectional studies and literature reviews, editorials, case reports, and poster presentations. Also, only studies writing in English and Portuguese were included.

## RESULTS AND DISCUSSION

Patients with hypertrophic scars often exhibit a high prevalence of psychological symptoms, including anxiety and depression<sup>16</sup>. The visibility and severity of scars are directly correlated with the intensity of these symptoms<sup>16</sup>. Patients with facial hypertrophic scars tend to have significantly higher levels of social anxiety compared to those with scars on less visible areas of the body<sup>17</sup>. This underscores the importance of early psychological assessment and intervention for patients with hypertrophic scars, particularly those with facial involvement<sup>18</sup>.

Keloids, like hypertrophic scars, represent an abnormal wound healing response but with distinct characteristics<sup>19</sup>. Unlike hypertrophic scars, keloids extend beyond the original wound boundaries and do not regress spontaneously<sup>20</sup>. The psychological impact of keloids can be even more profound due to their invasive and persistent nature<sup>20</sup>. Patients with keloids often report greater psychological distress, including heightened feelings of frustration and hopelessness<sup>21</sup>. The persistent growth of keloids and their resistance to treatment contribute to a chronic psychological burden that requires ongoing management<sup>22</sup>.

Research utilizing validated quality of life instruments, such as the Dermatology Life Quality Index (DLQI) and the SF-36, has consistently demonstrated that patients with these scars score significantly lower in both physical and mental health domains<sup>23,34</sup>. Patients report limitations in physical activities, social interactions, and emotional well-being, highlighting the need

for comprehensive treatment approaches that address both the physical and psychological dimensions of these scarring conditions<sup>25</sup>. Coping mechanisms employed by patients with hypertrophic scars and keloids are varied and can significantly influence their psychological well-being<sup>26</sup>. Some patients adopt adaptive coping strategies, such as seeking social support and engaging in positive self-talk, which can mitigate the psychological impact of their scars<sup>25,26</sup>. Conversely, maladaptive coping strategies, such as social withdrawal and avoidance, can exacerbate psychological distress. Patients who utilize adaptive coping mechanisms report better psychological outcomes compared to those who rely on maladaptive strategies<sup>27</sup>. This suggests that psychological interventions aimed at promoting adaptive coping can be beneficial for patients with both hypertrophic scars and keloids<sup>28</sup>.

The presence of hypertrophic scars and keloids can adversely affect social relationships and interactions<sup>29</sup>. Patients often report feelings of social isolation and difficulties in establishing and maintaining intimate relationships<sup>30</sup>. The stigma associated with visible scarring can lead to negative social reactions, further exacerbating the psychological burden. Patients with these scars frequently experience social rejection and discrimination, contributing to their emotional distress<sup>30</sup>. Addressing the social and relational aspects of living with hypertrophic scars and keloids is crucial in treatment plans. Self-esteem and body image are significantly affected in patients with hypertrophic scars and keloids<sup>31</sup>. The disfigurement associated with these scars can lead to negative body image perceptions and lowered self-esteem<sup>31</sup>. Patients with these scars have significantly lower self-esteem compared to the general population<sup>32</sup>. This negative self-perception can have far-reaching consequences, affecting

various aspects of patients' lives, including their mental health and social functioning<sup>33</sup>. The persistent and often enlarging nature of keloids, in particular, can exacerbate body image concerns and self-esteem issues<sup>34</sup>.

Psychological interventions have been shown to be effective in managing the mental health issues associated with hypertrophic scars and keloids. Cognitive-behavioral therapy (CBT) and other forms of psychotherapy can help patients develop healthier coping mechanisms and improve their psychological well-being<sup>35</sup>. CBT significantly reduces symptoms of depression and anxiety in patients with these scars, supporting the integration of psychological therapies into the standard care for these patients. The chronic nature of keloids often necessitates long-term psychological support to help patients cope with ongoing treatment challenges<sup>36</sup>. Patient education and support groups play a crucial role in improving psychological outcomes for patients with hypertrophic scars and keloids<sup>37</sup>. Providing patients with information about their condition and available treatment options can empower them and reduce feelings of helplessness. Support groups offer a platform for patients to share their experiences and receive emotional support from peers facing similar challenges<sup>38</sup>. Incorporating educational and support programs into the treatment plan can enhance the overall quality of care for patients with these scars<sup>39</sup>.

An interdisciplinary approach involving dermatologists, psychologists, and other healthcare providers is essential for the effective management of hypertrophic scars and keloids. This approach ensures that both the physical and psychological aspects of the condition are addressed<sup>40</sup>. Collaborative care models have been shown to improve patient outcomes by facilitating comprehensive treatment plans that incorporate medical, psychological, and social support.



Interdisciplinary care significantly improves the quality of life and psychological well-being of patients with hypertrophic scars and keloids, advocating for the adoption of such care models in their management<sup>41</sup>. Cultural and societal factors can significantly influence the psychological experience of patients with hypertrophic scars and keloids<sup>41</sup>. Cultural norms and societal attitudes towards visible scarring can affect patients' self-perception and social interactions. For example, in cultures where physical appearance is highly valued, patients with hypertrophic scars and keloids may experience greater psychological distress<sup>43</sup>. Cultural differences in the perception of these scars and their psychological impact suggest that culturally sensitive approaches to treatment and support are necessary to address the unique needs of patients from diverse backgrounds<sup>44</sup>.

Future research directions should focus on identifying gaps in the current literature and exploring innovative treatment approaches for the psychological aspects of hypertrophic scars and keloids<sup>45</sup>. There is a need for more longitudinal studies to understand the long-term psychological outcomes of patients with these scars<sup>46</sup>. Additionally, research should explore the efficacy of emerging psychological therapies and interventions in improving the mental health of these patients<sup>47</sup>. Developing personalized treatment plans that consider individual patient characteristics and preferences can also enhance the effectiveness of psychological interventions<sup>48</sup>. Addressing these research gaps will contribute to a more comprehensive understanding of the

psychological impact of hypertrophic scars and keloids and improve patient care<sup>49,50</sup>.

## CONCLUSION

In conclusion, hypertrophic scars pose significant physical and psychological challenges for patients, necessitating a holistic approach to treatment. The psychological impact of these scars is profound, affecting patients' quality of life, social relationships, self-esteem, and mental health. Adaptive coping mechanisms and psychological interventions, such as cognitive-behavioral therapy, have been shown to mitigate the psychological burden and improve patient outcomes. Patient education and support groups play a crucial role in empowering patients and providing emotional support.

An interdisciplinary approach that integrates dermatological and psychological care is essential for addressing the multifaceted impact of hypertrophic scars. Cultural and societal factors must also be considered to provide culturally sensitive and personalized care. Future research should focus on exploring innovative psychological therapies and developing personalized treatment plans to enhance the effectiveness of interventions.

By addressing the psychological aspects of hypertrophic scars, healthcare providers can improve the overall well-being of patients and help them lead more fulfilling lives. This integrative approach underscores the importance of considering both the physical and psychological dimensions of hypertrophic scars in patient care.

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