

Biopsychosocial Factors that Interfere in the Rehabilitation of Burn Victims: Integrative Literature Review

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This study aimed to identify the biopsychosocial factors that influence the rehabilitation of burn victims, through an integrative literature review, from January 1987 to January 2007. Articles were searched in databases Scielo, Pubmed and Lilacs, resulting in 982 articles, of which 45 were selected, after the analysis and categorization processes. Most studies were descriptive and qualitative. The most frequently associated factors to the rehabilitation process were: mental health state before the accident, coping strategies and family support, besides the severity of the burn and the total body surface area burned. The quality of the selected studies, most classified as evidence level VI, shows the scarce production of strong evidences in this knowledge area, which needs more investment, considering the important implications of the sequelae of burns in the social reintegration of these people.

Descriptors: Rehabilitation; Burns; Social Support.

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Fatores biopsicossociais que interferem na reabilitação de vítimas de queimaduras: revisão integrativa da literatura

Este estudo teve como objetivo identificar os fatores biopsicossociais que influenciam a reabilitação de vítimas de queimadura, por meio de revisão integrativa de literatura, no período de janeiro de 1987 a janeiro de 2007. A partir da busca dos artigos nas bases de dados SciELO, PubMed e LILACS, obtiveram-se 982 artigos, dos quais 45 foram selecionados. A maior parte dos estudos era do tipo descritivo e qualitativo. Os fatores mais frequentemente associados ao processo de reabilitação foram: estado de saúde mental prévio ao acidente, estratégias de enfrentamento e apoio da família, além da gravidade da queimadura e da superfície corporal queimada. A qualidade dos estudos, na maioria classificados com nível de evidência VI, chama a atenção para a escassa produção de evidências fortes nessa área do conhecimento, necessitando maiores investimentos, considerando-se as importantes implicações das sequelas da queimadura na reintegração social dessas pessoas.

Descritores: Reabilitação; Queimaduras; Apoio Social.

Factores biopsicosociales que interfieren en la rehabilitación de víctimas de quemaduras: revisión integradora de la literatura

Este estudio tuvo como objetivo identificar los factores biopsicosociales que influyen en la rehabilitación de víctimas de quemaduras, por medio de una revisión integradora de la literatura, en el período de enero de 1.987 a enero de 2.007. A partir de la búsqueda de los artículos en las bases de datos Scielo, Pubmed y Lilacs, se obtuvieron 982 artículos, de los cuales 45 fueron seleccionados. La mayor parte de los estudios era del tipo descriptivo y cualitativo. Los factores más frecuentemente asociados al proceso de rehabilitación fueron: estado de salud mental previo al accidente, estrategias de enfrentamiento y apoyo de la familia, además de la gravedad de la quemadura y de la superficie corporal quemada. La calidad de los estudios, en la mayoría clasificados con nivel de evidencia VI, llaman la atención para la escasa producción de evidencias fuertes en esta área del conocimiento, que necesita mayores inversiones, considerando las importantes implicaciones de las secuelas de la quemadura en la reintegración social de esas personas.

Descriptores: Rehabilitación; Quemaduras; Apoyo Social.

Introduction

Thousands of people suffer the physical, psychological and social consequences a burn causes, which can continue over time or be permanent⁽¹⁾.

The biological factors the burn affects need to be treated and managed with a view to the burn victim's adaptation after discharge from hospital. It should not be forgotten, however, that we live in a dynamic and sociable environment, where we influence and are influenced by other people's behavior.

Rehabilitation, defined as a process that serves to enable people to maintain or reach satisfactory

intellectual, sensory, physical, psychological and social health levels, should offer tools to re-enable them to gain independence and reassume their role in society⁽²⁾. Health professionals play a fundamental role in supporting burn victims' adaptation⁽²⁾, keeping in mind their maximum existing capacity, instead of just focusing on the disability. The interdisciplinary team should work with the principles of the rehabilitation philosophy, which are independence, integration, sense of justice, equality and equity and people's inclusion⁽²⁾.

Literature shows that the total body surface area (TBSA) burned, age, gender, ethnic origin, burn depth, injury site and pain can predispose to bad physical, social and psychological rehabilitation and worsening of the general health condition⁽³⁻⁶⁾. The burn, mainly in exposed body parts, provokes decreased self-esteem and turbulent emotions. Burns victims feel exposed due to the skin injury, which exposes them to pathogens, deformations, fluid loss and risk of death, as well as due to the feeling of powerlessness and guilt for the accident⁽⁷⁻⁸⁾. The following have been described as feelings associated with burn trauma: anguish, stress, fear, anxiety, which can hamper coping with the situation, that is, rehabilitation⁽⁹⁻¹²⁾.

After hospital discharge, survivors of severe burns start to experience a chronic condition that demands permanent care, mainly skin care. This study aimed to identify, through an integrative literature review, biopsychosocial factors interfering in the rehabilitation of burns victims.

Theoretical-methodological framework

The integrative literature review is an important method for evidence-based practice, as it permits analyzing various studies with different (quantitative and qualitative) methods in the same research, as well as to join trials and theoretical studies, constructing a new conception on a given topic. Nursing professionals frequently use this method, as it is strongly related with evidence-based practice, and mainly with patient care improvements⁽¹³⁾. Evidence can be ranked, depending on the methodological approach used in the studies⁽¹⁴⁾. In this review, the following evidence level ranking was used: I – evidence from systematic review or meta-analysis of all randomized controlled clinical trials or deriving from clinical guidelines based on systematic review of randomized controlled clinical trials; II- evidences deriving from at least one well-designed randomized controlled clinical trial; III- evidence obtained from well-designed clinical trials without randomization; IV – evidence from well-designed cohort and case-control studies; V – evidence from a systematic review of descriptive and qualitative research; VI – evidence from a single descriptive or qualitative study; VII – evidence based on authoritative opinions and/or expert committee reports⁽¹⁵⁾.

The development of this integrative review involved the following phases: 1. establishment of guiding question; 2. selection of articles and inclusion criteria; 3. extraction of articles included in the Integrative Review; 4. assessment of studies included in the Integrative

Review; 5. interpretations of Results and; 6. presentation of Integrative Review⁽¹³⁾.

With a view to answering the guiding question: "What biopsychosocial factors interfere in the rehabilitation process of burns victims?", a search was carried out in Pubmed, LILACS and Scielo, between October 2007 and January 2008. The following controlled descriptors were defined: rehabilitation, burns, culture and social support, as well as the non-controlled descriptors: psychological, biopsychosocial rehabilitation and social. The search limits were: humans, adults and publication period from 1987 to 2007. Also, the inclusion criteria were: complete studies related to rehabilitation themes in the biological, psychological and sociocultural spheres, and papers in English, Portuguese and Spanish.

In PubMed, 905 papers were located, 79 of which were selected. For Scielo, the descriptors were defined as "key words" and "abstract", resulting in 54 papers, 10 of which were selected. In LILACS, 23 papers were located, four of which were included. After analyzing the full texts of all articles under analysis, in view of inclusion criteria and repetitions, 48 papers were excluded. In the final sample, 45 articles were obtained. One of the researchers selected the papers and received confirmation from two others.

To rank and facilitate analysis of the papers, an instrument was adapted from literature⁽¹⁶⁻¹⁷⁾, which two researchers experienced in this type of review and in the theme area assessed for content adequacy.

The analysis of the study designs included in this integrative review was based on concepts presented in literature⁽¹⁸⁻¹⁹⁾, which classifies them as studies with a quantitative approach (experimental, quasi-experimental and non-experimental design), qualitative approach (ethnographic, phenomenology, grounded theory, case study, biography, narrative analysis, history, meta-synthesis) and reviews (integrative, systematic and literature)⁽¹⁸⁻¹⁹⁾.

The analysis process attempted to identify the biopsychosocial factors associated with the rehabilitation process, resulting in the identification of three categories: 1- Factors related with social and emotional support, 2- Psychological factors and 3- Factors associated with burn trauma and severity.

Results

The final sample included 45 papers (four from Lilacs, three from Scielo and 39 from Pubmed). Forty-one papers were classified as evidence level VI (non-

experimental and qualitative); three as level VII (expert opinion); and one as level V (systematic review). Numbers were used to refer to the papers included in this review: 3 and 4; 6 to 12 and 20 to 55.

Next, the three identified categories are presented.

Factors related with social and emotional support

The factors associated with this group were identified in 20 papers, 18 of which were classified as evidence level VI.

According to two studies with a correlation design (evidence level VI), emotional support is associated with better rehabilitation and quality of life⁽³⁷⁻³⁸⁾ but, at the same time, one study mentions that living alone is

related with better integration in domestic and social activities, as burns victims would perform their activities independently⁽³⁹⁾.

Psychological factors

These factors were found in 22 papers and organized in three sub-categories: factors related with mental health condition and individual characteristics before the accident; related with treatment experience and with post-trauma adaptation mechanisms. Factors related with mental health condition and individual characteristics before the accident include aspects related to negative experiences before the accident, drugs abuse, organic brain syndromes, psychological development, coping strategies and self-esteem (Figure 2).

Evidence Level	Factors related with social and emotional support
E-VI	Team support ^(12,20-21) , family ^(7,12,20,22-24) , friends ^(7,20,22) , significant relationships ^(9,24-27) ; religion ⁽²³⁾ ; spirituality ^(7,20,28) , psychological ⁽²⁹⁻³⁰⁾ ; community ^(26,31-33) ; economic ^(27,34)
E-VII	family ⁽³⁵⁻³⁶⁾ ; friends ⁽³⁵⁾

Figure 1 – Distribution of papers according to evidence level and factors associated with social and emotional support

Evidence Level	Factors related with mental health condition and individual characteristics before the accident
E-V	Mental health condition before the accident ⁽⁴⁰⁾ ; coping strategies ⁽⁴⁰⁾
E-VI	Mental health condition before the accident ^(24-25,27,34,37,41-42) ; previous negative experiences ^(31,43) ; drugs abuse ⁽²⁵⁻²⁶⁾ ; previous organic brain syndromes ⁽²⁵⁾ ; psychological development ^(25,30) ; coping strategies ^(7,9,12,25,28,30-31,44) ; self-esteem ^(8,32)
E-VII	Mental health condition before the accident ⁽⁴⁵⁾ ; previous organic brain syndromes ⁽⁴⁵⁾ ; coping strategies ⁽³⁶⁾ ; self-esteem ⁽³⁵⁾

Figure 2 - Distribution of papers according to evidence level and factors related with mental health condition and individual characteristics before the accident

The results of some descriptive correlation studies show a statistically significant association between worse mental health condition before the accident and impaired psychosocial adaptation in the rehabilitation phase^(24,37,41). Factors related with the treatment

experience, including painful procedures experienced while in hospital, involvement in self-care and unreal expectations in the rehabilitation phase, are shown in Figure 3 and were mentioned in four studies.

Evidence Level	Factors related with treatment experience
E-VI	Meanings attributed to procedure experience during hospitalization ^(9,29) ; self-care encouragement ⁽³¹⁾
E-VII	Unreal expectations during rehabilitation ⁽⁴⁵⁾

Figure 3 – Distribution of papers according to evidence level and factors related with treatment experience

Figure 4 displays the factors related with post-trauma adaptation mechanisms: post-traumatic stress, anguish, psychological vulnerability and feelings of

threat, anxiety, dissatisfaction with body image and depression. These factors were appointed as associated with the rehabilitation process in 14 studies.

Evidence Level	Factors related with post-trauma adaptation mechanisms
E-V	Depression ⁽⁴⁰⁾
E-VI	Post-traumatic stress ^(6,10,46) anguish ^(30,33,47) ; psychological vulnerability and feelings of threat ⁽³⁰⁾ ; anxiety ^(12,31) ; dissatisfaction with body image ⁽⁴⁸⁻⁴⁹⁾ ; depress�o ^(25,34)
E-VII	Post-traumatic stress ⁽⁴⁵⁾

Figure 4 – Distribution of papers according to evidence level and factors related with post-trauma adaptation mechanisms

Factors related with burn trauma and severity

Regarding the factors related with the burn trauma and severity, 31 papers were identified, shown in Figure 5.

Evidence Level	Factors related with burn trauma and severity
E-V	Burn location ⁽⁴⁰⁾
E-VI	Burned body surface ^(3-4,6,30,34,38,42,48,50-53) ; burns on hands ^(27,34,38) , on feet ⁽²⁷⁾ , in the face ^(27,34,48) ; burn location ^(8,42) ; burn severity ^(3-4,6,11,20,22,24,42) ; scars ⁽³⁹⁾ ; facial disfigurement ⁽⁴⁶⁾ ; limb amputation ^(11,46) ; time after injury ^(30,54) ; intolerance to cold ⁽⁵⁵⁾ ; to heat ^(49,55) ; to sunlight ^(12,55) ; itching ⁽⁵⁵⁾ ; numbness ⁽⁵⁵⁾ ; disfigurement ^(21,55) ; sleeping problems ⁽⁵⁵⁾ ; care dependence ⁽⁵⁵⁾ ; pain ^(24,27-28,33) ; weakness ^(12,39) ; number of burns in different body parts ⁽⁸⁾ ; decreased physical mobility ^(34,39,55) ; need for graft ⁽³⁸⁾ and type of burn ⁽³⁰⁾
E-VII	Hand burns ⁽³⁵⁾ ; scars ⁽³⁸⁾ ; pain ⁽⁴⁵⁾

Figure 5 – Distribution of papers according to evidence level and factors associated with burns trauma and severity

As for the factors associated with the burn trauma and severity, greater TBSA burned was associated with worse adaptation after hospital discharge in different studies^(3-4,6).

Discussion

It is known that the rehabilitation process of burn patients is complex, needs a multidisciplinary team, with a holistic care focus, and should aim to enhance adaptation, including physical, psychological and social recovery. Therefore, knowledge is needed about the different (internal and external) factors that can influence these people's rehabilitation. TBSA burned was appointed as a sign of worse adjustment and quality of life in some descriptive studies in this review (level VI)⁽⁵⁰⁻⁵³⁾ as, the larger the TBSA burned, the greater difficulties will be to perform domestic chores, body care, mobility, social integration and, mainly, return to work. Burn severity was also appointed as a factor that hampers rehabilitation and functional recovery, as it can lead to contractures, numbness and itching skin^(27,40,42).

In this review, besides burn severity and TBSA burned, mental health status before the accident (psychiatric pre-morbidities, mood disorders, chemical addiction), ineffective coping strategies and family support (lack of support from relatives or friends) were identified as factors that are frequently associated with

the rehabilitation process. It should be highlighted that greater extent of TBSA burned is associated with longer hospitalization and greater visibility of injuries. A recently published review found similar results, despite distinct inclusion criteria⁽⁵⁶⁾.

One of the factors that hampers the rehabilitation process is related with the patients' stress coping abilities and the strategies they use, which can be related with several other emotional, psychological or psychiatric disorders (low self-esteem, depression, trait anxiety, personality disorder, among others). As identified in a recent study⁽⁵⁷⁾, not included in this review, the pre-burn mental health condition can interfere in the rehabilitation process, as it can lead to worse psychosocial adjustment and can also influence improvements in physical functions. That research, which included 64 burn patients, found that 24 had depression and post-traumatic stress after 12 months of follow-up, 20 of whom had a previous psychiatric history. It was also verified that most patients had severe depression before the injury, while only two participants did not experience any previous episode of psychiatric disorder⁽⁵⁷⁾. In this review, studies showed that depression was more present in patients after the burn and that greater TBSA burned and hand and face burn visibility can increase the chance of developing depression, besides being related with limitations in social and occupational activities⁽³⁴⁾. In literature,

another study calls attention to the fact that even burn victims without previous mental health diagnoses were more vulnerable than the general population, which can be a factor that contributed to the accident⁽⁵⁸⁾.

As identified in the results, previous negative experiences and patients' personality are predisposing factors regarding emotional condition in the long term. The previous identification of these problems delays possible complications during hospitalization and rehabilitation, besides helping care planning^(41,53). Personality can also influence the appearance of post-traumatic stress and is related with individual coping⁽⁵⁾. It can delay return to work⁽³⁹⁾ and this return, when hampered or absent, can lead to cases of post-traumatic stress⁽⁶⁾. Post-traumatic stress can be defined as an anxiety disorder, characterized by the occurrence of a traumatic event the person experienced or witnessed, manifesting intense feelings of fear, impotence or horror⁽⁵⁹⁾. The burn is a traumatizing event since, as reported, it exposes victims to pathogens, due to the loss of skin integrity, as well as to perceptions, feelings and psychological reactions related to the fact of being burned, which victims are not always ready to cope with. The appearance of post-traumatic stress in burn patients is the main psychiatric illness. Health professionals should pay attention to identify its signs and symptoms, demanding competence, sensitivity and specialization to deal with this situation.

Besides affecting the victim, the burn affects the entire family, which should also receive attention and be included in care planning, with a view to a better return to activities for all members and to achieve better outcomes, mainly in terms of quality of life. Social support from relatives, friends and significant persons was another important factor found in this review. In a study involving relatives of burn victims, it was observed that they try to help the victim through stimuli and support, such as listening, calming down and talking, so that the person does not feel inferior; through the demonstration of feelings of love and happiness⁽⁷⁾. The family also takes charge of responsibilities, involving healthy members as well as care delivery for the relative with a health problem, until complete recovery is achieved. Family members experience the disease and its consequences together, entailing weakness and vulnerability, due to the disease itself as well as the financial conditions it entails⁽⁶⁰⁾. Support sources are maintained as a result of interpersonal relationships, culture or belief. For the patient, family members and the team, a significant relation⁽²⁵⁾ and the establishment of a strong bond are important to restore balance in the family dynamics⁽²⁶⁾.

Another important support source found in the reviewed studies includes friends, community and health professionals. Relatives consider the social network, friends, community people and even health professionals as very important for patients with chronic conditions. The main contributions this support source offers are proximity, care delivery and financial help⁽⁶⁰⁾.

Hence, it is important to highlight that, although less studies included in this review identify it, the team is also appointed as a social and emotional support source in some level VI studies^(23,29-30) and considered an important support for the accomplishment of physical care as well as the creation of an emotionally safe place in institutions⁽²¹⁾. The characteristics of this team appointed in the studies were: multifactorial and interdisciplinary work⁽³⁵⁾; identification of previous history of interaction with significant people and patients' individual aspects, helping with rehabilitation⁽⁹⁾, gentle and attentive care delivery, enhancement of psychological support and greater sensitivity to identify patients' real needs⁽²⁹⁾. Also related with the team and its activities, in this study, adequate analgesics were identified as a determining factor for rehabilitation^(5,27-29).

The pain the burn provokes was appointed in this review as a factor that hampers rehabilitation in four studies classified as evidence level VI, with three descriptive correlation designs^(24,27,33), one qualitative⁽²⁸⁾ and one level VII study (expert opinion)⁽⁴⁵⁾. Caused by cell destruction in the site as well as the inflammatory reaction that stimulates nerve endings even further, pain in burn patients is frequently associated with anxiety and the performance of painful procedures. Despite the loss of nerve endings in third-degree burns and, thus, absence of pain, there are always adjunct regions where burns can be second-degree⁽⁶¹⁾. Consequently, these areas should also be handled carefully to cause as little pain as possible. Health professionals can underestimate pain, mainly in children, as neither a consensus nor effective pain assessment methods exist so far⁽⁶¹⁾. Pain treatment should take into account patients' individuality.

Hence, it is important for health professionals to perform rehabilitation programs focusing on the burn victim's individuality, considering both physical recovery and full psychosocial rehabilitation.

Conclusions

The studies analyzed in this review are mostly descriptive and, despite limitations, they show that the main factors influencing the rehabilitation process are the

mental health condition before the accident (psychiatric pre-morbidities, mood disorders, chemical addiction), ineffective coping strategies and family support (lack of support from relatives or friends), besides the burn severity (extreme ages, TBSA burned and full thickness burns). Patients with problems related to one or more of these factors should receive appropriate follow-up. Knowledge on these factors can support intervention planning to facilitate the rehabilitation process, as well as further studies to test interventions or care models in the rehabilitation phase.

The quality of the identified research calls attention to the scarce production of strong evidence in this knowledge area, demanding further research, as burns mainly affect men of productive age and their sequelae entail important implications for these people's return to work and social reintegration.

Psychosocial rehabilitation trials are recommended with a view to testing interventions in multicenter studies, so as to expand the sample size, and producing reliable scientific evidence to improve care quality for burn victims.

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