

THE PSYCHOLOGY OF SCARS: A MINI-REVIEW

Mildred Ngaage¹ & Mark Agius²

¹Clinical Research Fellow University of Maryland / R Adams Cowley Shock Trauma Center, Maryland, USA

²Department of Psychiatry, University of Cambridge, Clare College Cambridge, Cambridge, UK

SUMMARY

Scars can result from a range of causes: accidents, surgery, and even acne. The resultant change in appearance can negatively affect body image and self-confidence. Scarring is stigmatised in society because of the premium placed on beauty - disfigurement or unsightly features are still used to portray evil in horror films, comic strips, and fairy tales. Patients describe scars as living with the trauma and sufferers can feel devalued by society. Scars are inflexible and cause functional impairment which may prompt a change in career and have financial repercussions. Those with scars undergo a remodelling of their emotional state and are more prone to the development of depression and anxiety; feelings of shame and aggression can follow. This creates strain in social interactions, resulting in stunted communication, reduced intimacy, and avoidant behaviours. There is limited treatment available to address the psychological burden in this subset of patients. Additionally, doctors often lack training in recognition and management of psychosocial issues. Steps must be taken to relieve the physical, emotional, and psychological marks caused by scars.

Key words: scar - adaptation - social psychology - emotional adjustment - body image

* * * * *

INTRODUCTION

"Is it going to leave a scar?" This panicked question feels familiar, and is often heard in a doctor's office; concern for the long term impact can often trump interest in current treatment risks. Scars, and certainly, any permanent mark on our complexion, remain a fear amongst many, not for the physical impairment the inflexible tissue causes, but rather the aesthetic change that results (Fukunishi 1999). This fear can occur for a range of severities, from blemishes to disfigurement (Fukunishi 1999, Dyer et al. 2013, Hazarika & Archana 2016, Fried & Wechsler 2006).

In a world where the "beautiful" are given many advantages, it is easy to understand why appearance is weighted so highly. The old adage, "What is beautiful is good" is still true today, when being perceived as attractive creates a halo effect (Dion et al. 1972). Attractive people are treated more positively (Langlois et al. 1972), judged more favourably (Thombs et al. 2008), are more likely to receive help from strangers (Thombs et al. 2008), and receive better job performance evaluations (Hosoda et al. 2003). Indeed, the rise of laparoscopic surgery may be an indication of the negative public opinion on scars. "Scarless surgery" is lauded as a major advance with multiple benefits, particularly increased self-esteem and positive body image (Rafiq & Khan 2016, Iyigun et al. 2017).

Measuring quality of life is an important aspect of delivering holistic dermatological care (APPG 2013). Psychological impact on patients results from a combination of distorted self-image, fall in social standing, and economic backlash. In addition to the emotional wounds inflicted, scars cause a physical impairment consisting of pain, itch, and immobility, all of which carry their own psychological burden. With the rise of

acid attacks, which result in great disfigurement and impaired psychosocial functioning, knowledge of the psychological consequences of scars has never been more relevant (Morgan 2017). Although some individuals adapt to the change in appearance and ability, others react negatively and have decreased psychosocial performance (functioning of emotional, social, mental well-being). This mini-review will explore the extent to which scarring causes psychological injury.

WHAT IS BODY IMAGE?

Internal factors

Identity is constructed through social interactions, interpersonal relationships, and perception of one's self-worth. It has a fine interplay with body image: the impression one forms of one's physical self and any feelings that result from this view (Moss & Rosser 2012). Identity and body image affect behaviours and inform actions, as well as how individuals perceive each other.

Following a critical incident, previously held beliefs about one's self are called into question and reevaluated. One theory by Moss & Rosser 2012, describes the skin as a protective barrier separating self from the environment. A scar can be viewed as an intrusion - the barrier is no longer whole and one is left exposed. The change in appearance threatens sense of self and personhood. Patients must grieve for what has been lost and often there is a lack of continuity between the two self-images. For example, MacLeod et al. 2016, found that the pre-burn self is idealised and the post-burn self devalued, demonstrating the decline in self-image.

External factors

The World Health Organisation (WHO) defines quality of life as “the individual's’ perception of their position in life, in the context of the cultural and value system in which they live and in relation to their goals, expectations, standards, and concerns” (WHOQL Group 1995). Context is everything - society influences the worth placed on individuals. The media bombard the public with images of the “perfect body”, fuelling society’s current preoccupation with elevated beauty standards. This pressure can lead to anxiety and negatively impact quality of life, and its burden is particularly felt by young women. Anxiety and depression following scarring are more likely in those under 50 years old (Chahed et al. 2016, Hassan et al. 2009), and female (Thombs et al. 2008). This is not unexpected in a “modern” society that attaches great importance to outward appearance and equates attractiveness with femininity. However, men are quickly catching up (Dryer et al. 2016, Dyer et al. 2014). The rise of gym culture and increasing social pressures may play a role in the decreased self-esteem and distorted body image now notable in this group.

LOCATION, LOCATION, LOCATION

Visibility

The most important characteristic that causes patients to judge scar aesthetic as poor is high visibility (Hoeller et al. 2003). Visibility, and not the size of the scar, is associated with a more negative body image (Fukunishi 1999, Dyer et al. 2013). Being easily identifiable as “different” can be intimidating and isolating. Back acne and scarring can be hidden by clothing but were significantly associated with increased sexual self-consciousness of appearance in both men and women (Hassan et al. 2009). Hand injuries act twofold to cause mental distress; they difficult to conceal, and can result in loss of self-sufficiency and cause vocation impairment (Solnit & Priel 1975). Although when the functional impairment becomes too great, cosmesis, although still mentally disturbing, can be seen as a luxury healthcare option (Bijlard et al. 2017). This rule remains the same for younger generations; children with visible scarring struggle more socially than those with non-visible scarring (Maskell et al. 2014).

Taking things at face-value

Perhaps, the most psychologically significant location for a scar is the face. It is highly visible and difficult to hide from view; its features confer “attractiveness” and play a role in human bonding. Face perception has a crucial function in communication and patients may suffer a decline in social skills when difficulties occur (Macgregor 1990); for example, when others focus on the scar instead of maintaining eye contact. Faces act as unique identifiers for each individual and

contribute greatly to our self-image. Acne scarring on the face causes a reduction in self-confidence and social activities due to embarrassment and low self-esteem (Hazarika & Archana 2016). Facial scars, regardless of size or percentage of body surface affected, have been linked to higher levels of post-traumatic stress disorder (PTSD) symptoms, in particular, avoidance and emotional numbing (Fukunishi 1999).

IS IT ONLY VANITY?

Bias in scar origin

There is an expectation of psychological trauma with certain forms of scarring, for example, burns, where scars can act as a permanent reminder of the incident and trigger negative emotions (Macleod et al. 2016). When a scar originates from deliberate attack it can be viewed as a mark of the attacker - an intrusion - so becomes difficult to accept as part of self (Macleod et al. 2016). The other mechanisms of injury are often broadly grouped into surgical, disfigurement, and acne (Clarke 1999). This means there is a risk of neglecting other types of scarring, such as self-inflicted, for which little information exists. Dyer et al. 2013, compared those with self-inflicted scars to those with accidental or traumatic scars. They found that self-inflicted scars were linked to a greater negative body image, regardless of gender, and were more visible than surgical or accidental scars. There is an underlying social stigma associated with such scars, which may further exacerbate the psychological burden.

There has also been a disparity in how others perceive congenital and acquired scars (Rumsey & Harcourt 2004). Although, both groups possess a greater dissatisfaction with appearance and lower self-esteem than controls (Versnel et al. 2010); this distress stems from contrasting experiences. People with congenital scars often do not have a normal social development - adults stare at them instead of smile (Bradbury & Hewison 1994); whereas those with acquired scars encounter a loss of self and change in social status.

Functional impairment

Scars can impede physical functioning; burns create an abundance of inflexible scar tissue and keloids distort appearance and compromise functionality. For example, scars located across joints restrict movement, thus imposing physical limitations with a reduced ability to perform activities of daily living,

The reduced functionality can be life-changing, warranting a change in career and re-training. The profound impact on employment can be divided into three aspects: reduced work opportunities, prejudice and interpersonal problems in the workplace, and psychological and financial impact of job loss. Although disability and/or disfigurement are protected characteristics under the Equality Act 2010, discrimination

may still occur (Scope 2012). Those with scars have increased unemployment rates (Levine et al. 2005), and are less likely to be successful at job interviews (Brown et al. 2008). An inconsistent ability to access disability benefits adds to the financial burden (APPG 2013). Scarring is associated with emotional suppression and many patients have difficulties in face-to-face interactions with the public. This creates a challenge to their role in the workplace where colleagues can find them withdrawn or unfriendly (Connell et al. 2014).

FALLING OFF THE SOCIAL LADDER

Social stigma

We are programmed to be averse to visible imperfections. Perception of an unusual feature may suggest a connection to contagious diseases or a lack of hygiene and thus initiate avoidance and social stigmatisation of the individual (Oaten et al. 2011). Disfigurement or unsightly features are still used to portray evil in horror films, religious imagery, and fairy tales. Stigma is a constant social threat to a person's life experience whereby society creates a new identity for these poor souls and foists it upon them.

The perception of stigma can change one's identity to that of a devalued individual. Some may argue that this stigma is merely an unconscious bias that does not escalate to actions. However, individuals experience intrusive questions, stares (Connell et al. 2014), and strangers maintaining a greater distance from them (Furr 2014). This continuous hostile reaction and the unwanted attention make the injured acutely aware of their difference, and conditions them to anticipate negative reactions. Those with scars often adopt behaviours of preemptive avoidance or aggression (Chahed et al. 2016), thus fulfilling the villain stereotype.

Family and loved ones

Reactions from family and friends to scars, both positive and negative, can detrimentally affect patients' emotions. Lack of sympathy forces the patient to minimise their feelings, whereas concern evokes feelings of guilt for causing unnecessary distress in their loved ones (Brown et al. 2008). The loss of independence from functional disability may mean reliance on a family member or carer. The frustration and emotional distress in the patient can lead to tension and in rare cases, abuse of the carer, further isolating the individual. The carers, themselves may be juggling care with work and family life, and have to reduce working hours, leading to a drop in household income (Carers UK 2014). Carers may also experience poor mental health due to this new role (Carers UK 2015) which compounds this unfortunate situation.

Intimacy and love

The common assumption is that scarring is unattractive to others. Unfortunately, the evidence supports this claim; scars can lead to interpersonal rejection with a negative effect on intimacy (Fried & Wechsler 2006). Robust evidence shows decreased frequency of sexual activity, adopting unnatural positions to hide scars, and difficulty initiating new relationships (Hassan et al. 2009, Connell et al. 2014). Initial meetings are awkward due to answering questions and recalling memories (Brown et al. 2008), making the search for love more daunting.

FACING THE MIRROR: EMOTIONAL TURMOIL

Disrupted identity

When one thinks of oneself, a mental picture forms based on reflections, photographs, and comments from others. Scars cause a permanent identity change, and adjustment to the new outward and inner self-image is needed. The mismatch between appearance and identity can trigger a psychological shift and invoke feelings of anxiety and shame (Thombs et al. 2008). Scarred patients often describe their new appearance as living with this trauma. This can trigger a cascade of feelings: shame, self-rejection, and self-consciousness (Macleod et al. 2016).

Distorted body image is reflected in everyday interactions. Those with a history of acne scarring exhibit enhanced fixation on acne lesions and judged scarred faces more harshly (Lee et al. 2014) whilst also taking pains to hide scars and avoid reflective surfaces or conversely become obsessed with their reflection (Brown et al. 2008). It is a patient's subjective experience and perceived severity of scarring, rather than objective clinical severity, that predicts the level of distress (Chouliara & Affleck 2014, Kleve & Robinson 1999). The heightened awareness of scars can also manifest as various mental disorder symptomatology: anger, anxiety, and frustration; ultimately leading to aggression (Chahed et al. 2016).

Social disturbance

The anticipation of rejection leads to concealment and avoidance (Thompson & Kent 2002). The resultant social disability can be characterised by these coping strategies: avoidance of eye contact, closed body language, and shutting down conversations. There is an association between appearance concern and PTSD symptoms after burn injury (Shepherd 2015). Depression (Thombs et al. 2007) and anxiety are also common (Fried & Wechsler 2006). These mood disorders may also translate into increased alcohol abuse, and significantly decreased satisfaction with life (Levine et al. 2005). People with scars also expressed a strong desire

to be alone and avoid activities where they can be observed; this behavioural change had been described on multiple occasions (Macleod et al. 2016, Levine et al. 2005, Thompson & Kent 2002) and highlights the need for peer and family support, education, and social skills training (Martin et al. 2016).

CURRENT MEDICAL PRACTICE

Medical failings

Healthcare professionals' time is limited; they may not have enough resources or adequate training to do psychosocial assessments or simply do not believe it is their responsibility (Changing Faces 2016). With current provision for mental health lacking we are far from a solution. Evidence strongly suggests that there is still a long way to go to improve integration between physical and mental health (Department of Health England 2014).

Patients can experience a loss of control when injured due to a reduction in physical capabilities and limited treatment options (Abdel Hay et al. 2016). Scar revision treatment consists of steroid treatment, laser therapy, and surgical excision, but is not widely available via the public health system (NHS Choices 2014). Physical symptoms, such as pain, itch, and restricted movement are part of the eligibility criteria to receive treatment but there is little guidance on psychological impairment as a qualifying condition. Instead, affected individuals must turn to the private sector. Additionally, none of these treatments eradicate the scar completely and the improvements offered take months or years. They also carry their own risks, for example, surgical excision leaves a scar.

In addition to costs of private healthcare, there is a further economic backlash on those who spend exorbitant amounts on "miracle cures" (Fried & Wechsler 2006). These patients represent a vulnerable group who we are failing to protect. Attention-grabbing advertisements make unrealistic promises on the benefits of these over-the-counter solutions, although the evidence remains murky yet spending remains high (Shih et al. 2007).

Looking to the future

Cognitive behavioural therapy (CBT) has been shown to improve psychological symptoms associated with scarring so presents a possible future solution (Kleve et al. 2002). The therapy aims to facilitate decision-making, assist in coming to terms with the condition, and gain insight into the factors that maintain difficulties; group therapy provides social skills and assertiveness training. Self-perception of physical appearance is also significantly improved with the use of camouflage makeup, and this benefit extended to better socialisation, as evidenced by reduced negative social experiences, and better family functioning (Hazarika &

Archana 2016, Maskell et al. 2014). Unfortunately, many individuals currently rely on charities, such as Restore or Changing faces, to close the research gap and deliver these interventions.

CONCLUSIONS

Scarring may be skin deep but their psychological impact goes deeper still. The evidence is decisive; the presence of scars can result in clear markers of mental disturbance in patients with associated symptoms of depression, anger, anxiety, and post-traumatic stress. A scar creates physical, emotional and psychological marks. Identity is called into question and individuals must integrate the scar with their sense of self in order to achieve psychological acceptance. This process causes a change of behaviour and reduced functioning, socially and psychologically, driven by a fear of being singled out. This is supported by the theory that scar visibility acts as a mediator of psychological distress; thus, hiding the scars relieves maladaptive behaviour and often leads to a return to normal functioning. Leaving us with hope that these psychological scars can be managed and even reversed.

Acknowledgements: None.

Conflict of interest: None to declare.

Contribution of individual authors:

Mildred Ngaage drafted text.

Mark Agius advice and supervision.

References

1. Abdel Hay R, Shalaby K, Zaher H, Hafez V, Chi CC, Dimitri S et al.: *Interventions for acne scars*. *Cochrane Database Syst Rev* 2016; 4:CD011946
2. All Party Parliamentary Group (APPG) on Skin: *The Psychological and Social Impact of Skin Diseases on People's Lives, a report by the All Party Parliamentary Group on Skin*. England, 2013
3. Bijlard E, Kouwenberg CA, Timman R, Hovius SE, Busschbach JJ & Mureau MA: *Burden of Keloid Disease: A Cross-sectional Health-related Quality of Life Assessment*. *Acta Derm Venereol* 2017; 97:225–229
4. Bradbury ET & Hewison J: *Early parental adjustment to visible congenital disfigurement*. *Child Care Health Dev* 1994; 20:251–66
5. Brown BC, McKenna SP, Siddhi K, McGrouthera DA & Bayata A: *The hidden cost of skin scars: quality of life after skin scarring*. *J Plast Reconstr Aesthet Surg* 2008; 61:1049–58
6. *Carers UK: Caring & Family Finances Inquiry UK Report*. Carers UK, 2014
7. *Carers UK: State of Caring*. Carers UK, 2015
8. Lee IS, Lee AR, Lee H, Park HJ, Chung SY, Wallraven C et al.: *Psychological distress and attentional bias toward*

- acne lesions in patients with acne. *Psychol Health Med* 2014; 19:680–686
9. Chahed MK, Bellali H, Ben Jemaa S & Bellaj T: Psychological and Psychosocial Consequences of Zoonotic Cutaneous Leishmaniasis among Women in Tunisia: Preliminary Findings from an Exploratory Study. *PLoS Neglected Trop Dis* 2016; 10:10
 10. Changing Faces: Look at Me Campaign - Integrated care for people with skin conditions. Changing Faces, England, 2016
 11. Chouliara Z & Affleck A: Psychological Adjustment to Disfiguring Skin Conditions. *Derm Practice* 2014; 20:16-20
 12. Clarke A: Psychosocial aspects of facial disfigurement: problems, management and the role of a lay-led organization. *Psych, Health & Med* 1999; 4:2
 13. Connell KM, Phillips M, Coates R, Doherty-Poirier M & Wood FM: Sexuality, body image and relationships following burns: Analysis of BSHS-B outcome measures. *Burns* 2014; 40:1329-37
 14. Department of Health: Closing the Gap, Priorities for Essential Change in Mental Health. Department of Health, England, 2014
 15. Dion K, Berscheid E & Walster E: What is beautiful is good. *J Pers Soc Psychol* 1972; 24:285–290
 16. Dryer R, Farr M, Hiramatsu I & Quinton S: The Role of Sociocultural Influences on Symptoms of Muscle Dysmorphia and Eating Disorders in Men, and the Mediating Effects of Perfectionism. *Behav Med* 2016; 42:174-82
 17. Dyer A, Hennrich L, Borgmann E, White AJ & Alpers GW: Body image and noticeable self-inflicted scars. *J Nerv Ment Dis* 2013; 201:1080–1084
 18. Dyer A, Mayer-Eckhard L, White AJ & Alpers GW: The role of scar origin in shaping men's body image. *Am J Men's Health*, 2014; 9:115–123
 19. Fried RG & Wechsler A: Psychological problems in the acne patient. *Dermatol Ther* 2006; 19:237–40
 20. Fukunishi I: Relationship of cosmetic disfigurement to the severity of posttraumatic stress disorder in burn injury or digital amputation. *Psychother Psychosom* 1999; 68:82–6
 21. Furr LA: Facial disfigurement stigma: a study of victims of domestic assaults with fire in India. *Viol Against Women* 2014; 20:783-98
 22. Hassan J, Grogan S, Clark-Carter D, Richards H & Yates VM: The individual health burden of acne: appearance-related distress in male and female adolescents and adults with back, chest and facial acne. *J Health Psychol* 2009; 14:1105–1118
 23. Hazarika N & Archana M: The Psychosocial Impact of Acne Vulgaris. *Ind J Derm* 2016; 61:515-520
 24. Hoeller U, Kuhimey A, Bajrovic A, Grader K, Berger J, Tribius S et al.: Cosmesis from the patient's and the doctor's view. *Int J Radiat Oncol Biol Phys* 2003; 57:345–54
 25. Hosoda M, Stone-romero EF & Coats G: The Effects Of Physical Attractiveness On Job-related Outcomes: A Meta-analysis Of Experimental Studies. *Pers Psych* 2003; 56:431–462
 26. İyigün T, Kaya M, Gülbeyaz SÖ, Fıstıkçı N, Uyanık G, Yılmaz B et al.: Patient body image, self-esteem, and cosmetic results of minimally invasive robotic cardiac surgery. *Int J Surg* 2017; 39:88-94
 27. Kleve L & Robinson E: A survey of psychological needs in adult burn-injured patients. *Burns* 1999; 25:575–579
 28. Kleve L, Rumsey N, Wyn-Williams M & White P: The effectiveness of cognitive behavioural interventions provided at Outlook: a disfigurement support unit. *J Eval Clin Pract* 2002; 8:387-395
 29. Langlois JH, Kalakanis L, Rubenstein AJ, Larson A, Hallam M & Smoot M: Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychol Bull* 2000; 126:390–423
 30. Levine E, Degutis L, Pruzinsky T, Shin J & Persing JA: Quality of life and facial trauma: Psychological and body image effects. *Ann Plast Surg* 2005; 54:502–10
 31. Macgregor F: Facial disfigurement: problems and management of social interaction and implications for mental health. *Aesthet Plast Surg* 1990; 14:249-257
 32. Macleod R, Shepherd L & Thompson AR: Posttraumatic stress symptomatology and appearance distress following burn injury: An interpretative phenomenological analysis. *Health Psychol* 2016; 35:1197-1204
 33. Martin L, Byrnes M, McGarry S, Rea S & Wood F: Social challenges of visible scarring after severe burn: a qualitative analysis. *Burns* 2016; S0305-4179:30263–30267
 34. Maskell J, Newcombe P, Martin G & Kimble R: Psychological and psychosocial functioning of children with burn scarring using cosmetic camouflage: a multi-centre prospective randomised controlled trial. *Burns*. 2014; 40:135–149
 35. Morgan B: Plastic surgeons facing 'epidemic of acid attacks' in London, expert says. *Evening Standard*, 2017
 36. Moss TP & Rosser BA: The Moderated Relationship of Appearance Valence on Appearance Self Consciousness: Development and Testing of New Measures of Appearance Schema Components. *PLoS ONE* 2012; 7: e50605
 37. National Health Service (NHS) Choices: Scars – Treatment. NHS Choices, 2014
 38. Oaten M, Stevenson RJ & Case TI: Disease avoidance as a functional basis for stigmatization. *Biolog Sci* 2011; 366:3433-3452
 39. Rafiq MS & Khan MM: Scar Pain, Cosmesis and Patient Satisfaction in Laparoscopic and Open Cholecystectomy. *J Coll Physicians Surg Pak* 2016; 26: 216-9
 40. Rumsey N & Harcourt D: Body image and disfigurement: issues and interventions. *Body Image* 2004; 1:83-97
 41. Scope: Discrimination increases on back of 'benefit scroungers' rhetoric. *Scope*, 2012
 42. Shepherd L: A pilot study exploring the relationship between trauma symptoms and appearance concerns following burns. *Burns* 2015; 41:345-51
 43. Shih R, Waltzman J & Evans GR: Plastic Surgery Educational Foundation Technology Assessment Committee: Review of over-the-counter topical scar treatment products. *Plast Reconstr Surg* 2007; 119:1091–1095
 44. Solnit AJ & Priel B: Psychological reactions to facial and hand burns in young men. Can I see myself through your eyes? *Psychoanal Study Child* 1975; 30:549-66
 45. Thombs B, Haines J, Bresnick M, Magyar-Russell G, Fauerbach JA & Spence RJ: Depression in burn reconstruction patients; symptom prevalence and association with body image dissatisfaction and physical function. *Gen Hosp Psychiat* 2007; 29:14-20
 46. Thombs B, Notes L, Lawrence J, Magyar-Russell G, Bresnick MG & Fauerbach JA: From survival to socialization: a longitudinal study of body image in survivors of severe burn injury. *J Psychosom Res* 2008; 64:205-12

47. Thompson A & Kent G: *Adjusting to disfigurement: processes involved in dealing with being visibly different.* *Clin Psych Rev* 2002; 21:663-682
48. Versnel SL, Duivenvoorden HJ, Passchier J & Mathijssen IM: *Satisfaction with facial appearance and its determinants in adults with severe congenital facial disfigurement: a case-referent study.* *J Plast Reconstr Aesthet Surg* 2010; 63:1642-9
49. WHOQOL Group: *The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization.* *Soc Sci Med* 1995; 41:1403

Correspondence:

Mildred Ngaage, MA Cantab. MB BChir.
University of Maryland / R Adams Cowley Shock Trauma Center
Maryland, USA
E-mail: milliengaage@msn.com