



The impact of pediatric skin disease on self-esteem[☆]



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ABSTRACT

Background: Pediatric skin disorders can affect children's self-esteem, relationships with caregivers and peers, and performance in school and activities.

Objective: This review describes common pediatric congenital and acquired dermatologic disorders and the impact that these disorders can have on children's self-esteem.

Methods: A review of current, English-language literature was conducted with use of the PubMed database. Search terms included atopic dermatitis, acne, infantile hemangiomas, port wine stains, congenital melanocytic nevi, hidradenitis suppurativa, and self-esteem.

Results: During infancy and toddlerhood, skin disorders such as infantile hemangiomas primarily affect the attachment between child and caregiver. School-aged children with port wine stains and atopic dermatitis report increased bullying, teasing, and social isolation. Acne and hidradenitis typically affect older children and teens and these conditions are associated with increased risks of depression and suicidal ideation. Effective management of these conditions has been shown to increase patients' self-esteem.

Conclusion: Pediatric dermatologic disorders impact self-esteem throughout childhood. In addition to the surgical and medical management of these disorders, clinicians can also take an active role in the assessment and improvement of the psychosocial impact of these skin disorders.

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Introduction

Infancy, childhood, and adolescence each have their respective neuropsychological developmental stages that can be uniquely impacted by differences in cutaneous physical appearance. From early infancy until 3 years of age, self-image is shaped by the strength of the attachment between the child and his or her caregivers (Chernyshov, 2016). The bond between infants and caregivers can be affected by the emotions parents have about having a child with a skin disorder (Dweck, 2009). Caregivers of children with congenital malformations have described reactions that are similar to the grieving process including shock, denial, sadness, anger, adaptation, and reorganization (Drotar et al., 1975).

From 2 to 10 years of age, relationships with peers increase in importance and children may encounter teasing and bullying (Chernyshov, 2016). During this critical time, children develop their

body image and by 7 years of age, children are able to recognize esthetic differences between themselves and their peers (Williams et al., 2003). This recognition of physical differences can influence self-esteem (Dweck, 2009) but even so, the early school-age years are marked generally by positive self-perception and optimism (Eccles, 1999). After 10 years of age and into the teenage years, children generally have lower self-esteem and are more pessimistic and self-critical (Chernyshov, 2016). During these school-age years and beyond, self-esteem manifests outwardly through children's motivation, confidence, and resilience (Dweck, 2009).

The majority of the literature indicates that acquired skin disorders have a more profound impact on self-esteem than congenital skin disorders. In a study of adolescents ages 11 to 18 years, subjects with acquired facial conditions endorsed a more negative self-image than those with congenital facial conditions (Patrick et al., 2007). In another study of patients ages 11 to 18 years including 148 patients with congenital facial differences and 32 patients with acquired facial differences, those with acquired facial differences were more likely to report experiences of stigmatization such as noticing others staring at their face (Strauss et al., 2007). This study describes the impact of common skin disorders on the self-esteem of pediatric patients and

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focuses first on common congenital lesions and subsequently on acquired dermatoses with an emphasis on disorders that are not addressed in other articles in this series.

Congenital disorders

Port wine stains

Port wine stains (PWS) are congenital capillary malformations that affect 3 in 1000 births (McCafferty et al., 1997). The face is the most common location and approximately 80% of PWS involve the face (Mills et al., 1997). In a questionnaire-based study of 231 patients with PWS who presented for laser therapy, 18% of patients ages 0 to 9 years were disturbed by their PWS with the highest rate of disturbance between the ages of 6 and 8 years. The psychosocial disturbance increased during the adolescent years with 73% of patients ages 10 to 20 years who reported that they were negatively affected by their PWS with the highest scores for patients ages 14 to 16 years (Troilius et al., 1998).

Without treatment, PWS persist into adulthood and may darken and/or thicken over many years. Laser therapy is available for patients with PWS but complete clearance is uncommon and many PWS partially recur after therapy (Klein et al., 2011). Because of the persistence of PWS, the psychosocial effects of these birthmarks continue into adolescence and adulthood. Adolescents and young adults with PWS ages 13 to 31 years have lower scores for mental health and self-perceived health and also report a higher impact of their PWS in social situations compared with children without chronic medical conditions (van der Horst et al., 1997). In a study of 71 patients with PWS who were age 15 years or older, more than half of the respondents felt embarrassed, anxious, or depressed because of their PWS. Seventy-three percent answered that they have been hurt by comments about their birthmark and 71% reported that their birthmark has affected their self-confidence (Lanigan and Cotterill, 1989).

The psychosocial effects of PWS can be alleviated partially by treatment with a pulsed dye laser (PDL) and also by a strong social support network that encourages coping skills. A 1981 study of 82 patients ages 7 to 66 years found no significant difference in emotional disturbance between patients with PWS compared with normal controls. The patients in this study "received extraordinary support from family members in coping with their affliction" (Kalick et al., 1981).

The advent of PDL therapy has provided further relief. In a 1998 study of 231 patients with PWS, 47% of respondents reported low self-esteem compared with their peers. After therapy with PDL, only 8% of these patients reported persistently low self-esteem. In this same study, 28% of patients reported having difficulties at school prior to treatment but after therapy, this decreased to 0% (Troilius et al., 1998).

Infantile hemangiomas

Infantile hemangiomas are the most common tumors of infancy and female patients are affected three times more often than male patients (Hemangioma Investigator Group et al., 2007). Most hemangiomas arise during the first 2 to 3 weeks of life. Hemangiomas most frequently involve the head and neck and the majority of facial hemangiomas lie within the central face (Haggstrom et al., 2006). Facial hemangiomas can interfere with vision, feeding, or respiration and pose a risk of potentially permanent disfigurement and psychosocial compromise (Haggstrom et al., 2006). Hemangiomas typically proliferate during the first 5 to 12 months of life with subsequent spontaneous involution over many years (Chang et al., 2008). However, even after involution, hemangiomas may leave residual telangiectasia, atrophy, scarring, or fibrofatty masses that can be persistently disfiguring (Couto et al., 2012).

Hemangiomas are frequently located in highly visible areas; therefore, they may impact patients' self-concept and self-esteem. In a 1992 study of 38 patients ages 3 to 5 years, children with hemangiomas were more likely than the controls to identify themselves as the child playing alone and the child without toys. The children with hemangiomas less often identified themselves as the child their parents liked, which suggests that children with hemangiomas perceived themselves less positively (Dieterich-Miller et al., 1992).

However, more recent studies have not found similar impacts on self-perception, which is likely due to both the propensity of hemangiomas to involute and the use of beta blockers to prevent proliferation. For example, in a study of 21 subject ages 5 to 8 years, patients with hemangiomas reported no significant difference in reported quality of life or self-perception compared with the controls (Cohen-Barak et al., 2013). Notably, the patients in this report were treated prior to propranolol being widely used (Cohen-Barak et al., 2013). Nine of 21 patients were treated medically (four with systemic steroid medications, two with intralesional steroid medications), surgically, or both, and only one patient in the post-proliferative stage was treated with propranolol (Cohen-Barak et al., 2013). This minimal impact on self-esteem reflects the natural history of hemangiomas as they typically involute prior to the development of recognizing physical differences between self and others around 7 years of age (Williams et al., 2003). Additionally, the lack of demonstrated impact on self-perception in patients with infantile hemangiomas is likely linked to the widespread use of beta blockers such as propranolol as an effective therapy to prevent proliferation (and therefore also prevent the subsequent disfigurement) of hemangiomas.

Congenital melanocytic nevi

Approximately 1% of neonates are born with a congenital melanocytic nevus (CMN). The trunk is the most common site of CMNs, followed by the face and limbs (Kinsler et al., 2009a). CMNs are associated with a 0.7% to 2.9% risk of transformation to melanoma and large and giant CMNs portend the highest risk (Bett, 2005; Krengel et al., 2013). Large and giant CMNs also pose additional risks including neurocutaneous melanosis, undesirable cosmesis, and a higher complexity of surgical excision.

In a study of 29 Dutch children (mean age, 8.7 years) with giant CMNs, 20% of the mothers did not feel that they had accepted their child's CMN. The children in the study had 2.5 times higher rates of behavioral and emotional problems than the Dutch norms with difficulties such as anxiety, depression, and aggressive and isolating behavior. Families reported that the children avoided public exposure of their CMNs and there was no difference in psychosocial scores between children with highly visible nevi compared with those with less visible nevi (Koot et al., 2000).

In a study of 150 subjects that sampled infants who were born with congenital nevi of all sizes and all body locations in Sweden between 1973 and 1993, 8% reported that their skin lesion caused taunting and changed their social activity (Berg and Lindelof, 2002). In a study of 87 children ages 9 months to 16 years who had facial differences including burn scars, infantile hemangiomas, PWS, and CMN, larger lesions were associated with greater experiences of stigmatization (Masnari et al., 2012). Parents reported higher rates of stigmatization of the child in older school aged children (Masnari et al., 2012). Additionally, perceived stigmatization was associated with impaired psychological adjustment with higher rates of anxiety (Masnari et al., 2013).

In the Dutch study of children with giant CMNs, 17 of 29 patients underwent an excision at a mean age of 3.6 years including four patients who had dermabrasion and three patients who had laser treatment. Two-thirds of the subjects were satisfied with the procedural

outcome despite some patients who experienced hypertrophic scars, keloids, and repigmentation. The children reported preferring a burn-like scar over the CMN itself (Koot et al., 2000). In a larger study from London, patients with a CMN on the head and neck were most likely to report that surgery was worthwhile (95%–96% at ages 5 and 10 years) compared with patients who had lesions on other locations (Kinsler et al., 2009b). Conversely, 11% to 14% of patients with large and giant CMNs felt that their appearance had been worsened by treatment (Kinsler et al., 2009b). Thus, patients and families should carefully consider that some surgical interventions may result in undesirable esthetic outcomes; therefore, excision may have little impact on the patient's self-esteem.

Acquired disorders

Atopic dermatitis

Atopic dermatitis (AD) is one of the most common pediatric skin disorders. The prevalence of AD in industrialized countries is estimated at 15% to 30% in children (Eichenfield et al., 2014a; Eichenfield et al., 2014b; Williams and Flohr, 2006). In affected individuals, AD manifests in 45% of children during the first 6 months of life and at least 85% by the age of 5 years (Kay et al., 1994).

AD has classic, age-specific distributions. Infants typically have severely pruritic, papulovesicular, erythematous plaques with oozing or crusting on the cheeks and forehead as well as the trunk and extensor extremities (Silverberg, 2017). Even this earliest manifestation of AD may disturb the caregiver-infant relationship and lead to parental fatigue and stress (Chernyshov, 2016). Parental fatigue and stress due to AD has been demonstrated to lead to sleep disruption in all family members as well as increased dependency, clinginess, fearfulness, and behavioral problems in affected children (Daud et al., 1993). Even though skin-to-skin contact between infants and caregivers can be interrupted by AD, attachment between infants and caregivers has not been shown to be weakened due to this alone (Daud et al., 1993).

Older children with AD typically have lichenified, dry plaques on the flexor surfaces of extremities and many also continue to have facial involvement (Silverberg, 2017). One study of children with skin diseases including AD as well as psoriasis and acne demonstrated that bullying and even light-hearted teasing negatively affect self-perception and self-esteem (Magin et al., 2008). Parents of patients with AD often express concern over changes in their child's mood during early childhood (Chernyshov, 2016). During the school-age years, peers may avoid playing with children with these skin disorders due to misconceptions that the rash may be infectious and this social exclusion has been linked to low self-esteem (Magin et al., 2008). Exacerbating this social isolation, children with severe AD are less likely to participate in sports and outdoor activities (Paller et al., 2002). Notably, pre-adolescent girls with AD more frequently reported impaired self-perceived health than their male counterparts (Ballardini et al., 2014).

Fortunately, approximately 80% of children with AD are clear of their disorder by puberty (Kim et al., 2016). However, for those in whom AD does persist, the pre-teenage and teenage years can be psychosocially challenging, especially during a stage of life when even unaffected children become more self-critical and struggle with low self-esteem (Chernyshov, 2016). Older children with severe AD reportedly have fewer friends, less frequently participate in social events and sports teams, and miss more classes than unaffected classmates (Brenninkmeijer et al., 2009). Moreover, patients who develop AD later during childhood or adolescence are at a higher risk to have persistent AD into adulthood, which can impact their work productivity and psychological well-being in adulthood (Eckert et al., 2017; Kim et al., 2016).

Despite the significant impact of AD on patients' quality of life and self-esteem, undertreatment and poor adherence to treatment regimens are unfortunately common in patients with AD (Eichenfield et al., 2014a; Eichenfield et al., 2014b). Both topical and systemic medications have been shown to improve patients' quality of life (Drake et al., 2001; Dvorakova et al., 2017). Future research is warranted to further investigate the impact of treatment on the self-esteem of patients with AD.

Acne

Acne affects approximately 80% of individuals during the adolescent years (White, 1998). The onset of acne during an already psychologically vulnerable developmental stage makes this a particularly challenging disorder for adolescents (Misery, 2011). In a study of 39 adolescent patients ages 13 to 19 years with varying acne severities, patients' subjective perception of severity correlated more strongly with their dissatisfaction with their appearance rather than the objective clinical severity ratings (Krowchuk et al., 1991).

For children with an earlier onset of acne, the development of acne prior to their peers can be socially isolating and lead to early stigmatization (Fried et al., 2010). Furthermore, in a study of 1531 high school students, subjects reported altering everyday decisions and actions because of their acne such as changing their clothing and hobby choices (Tasoula et al., 2012).

In qualitative interviews of patients with acne, patients reported that teasing and bullying lead to significant negative emotional and psychological effects (Magin et al., 2008). A study of 72 patients with noncystic, mild-to-moderate, facial acne found that the mean score for the Carroll Rating Scale for Depression for patients with acne as a group was within the range for clinical depression (Gupta and Gupta, 1998). In a prospective cohort study of patients ages 13 to 19 years, more than half of patients felt embarrassed or socially prohibited by their acne. Female patients reported greater levels of embarrassment than male patients. Importantly, statistically significant improvements in the self-concept and anxiety scores were observed after treatment. After therapy, 50% of patients with acne who were treated reported feeling less embarrassed and 58% were less socially inhibited (Krowchuk et al., 1991).

Hidradenitis suppurativa

Hidradenitis suppurativa (HS) is a chronic disorder of recurrent inflammation of the hair follicles that are associated with apocrine glands and is prominent in the axillary, groin, and anogenital locations (Liy-Wong et al., 2015; van der Zee and Jemec, 2015). HS is characterized by deep and painful nodules, abscesses, sinus tracts, multiheaded comedones, and scarring (Liy-Wong et al., 2015; van der Zee and Jemec, 2015). HS is more common in female than male patients. In children, HS is frequently associated with hormonal disorders such as metabolic syndrome, precocious puberty, adrenal hyperplasia, and premature adrenarche (Liy-Wong et al., 2015; Scheinfeld, 2015). HS is typically diagnosed in patients around 20 to 24 years of age (Scheinfeld, 2015); however, with the mean age at puberty moving earlier in industrialized countries, HS symptoms may start around 11 to 13 years old (Scheinfeld, 2015).

HS can be both physically and emotionally disturbing, particularly for young patients. The lesions can be painful, have malodorous drainage, and limit activities and interactions with others. In qualitative interviews with 12 patients ages 27 to 48 years who had HS, the majority reported sadness and depression that started during adolescence when the HS first began. Two patients also disclosed suicidal ideation due to HS boils in late adolescence to young adulthood. Patients described having low self-esteem and feeling ugly, impure, and unworthy during periods of active disease (Esmann and Jemec,

2011). Thus, even though historically HS in children has been reported to be rare, the incidence appears to be increasing and the psychosocial effects of the disorder can be devastating.

HS management includes a wide range of both medical and surgical modalities such as intralesional steroid medications, topical or systemic antibiotic medications, systemic antibiotic medications, anti-androgen therapy, systemic retinoid medications, biologic treatments, laser therapy, and local or wide surgical excisions (Alavi et al., 2017). The impact of these therapies on the self-esteem of patients with HS is an area that is prime for future research.

Conclusion

Both congenital anomalies and acquired skin disorders impact the self-esteem of pediatric patients. In general, the appearance of birthmarks and acquired skin disorders such as AD that have onset before the age of 3 years primarily affect the parent-child attachment (Chernyshov, 2016; Dweck, 2009). Older children (i.e., school age and adolescents) tend to be more negatively affected by visible differences at a time when peer relationships gain importance and self-concept matures (Chernyshov, 2016; Dweck, 2009). Early and effective management of both congenital and acquired conditions can improve a child's self-esteem (Chernyshov, 2016; Krowchuk et al., 1991; Troilius et al., 1998).

To assist in minimizing the impact of these dermatologic disorders on self-esteem, clinicians should be equipped to assess and discuss patients' self-esteem in a clinical practice. To open a conversation about the psychosocial effects of skin disease, physicians may ask children or their parents to rate their satisfaction with their skin on a scale from 1 to 10 with 10 being very satisfied and 1 not at all (Nguyen et al., 2016). Physicians should also ask school-age children if peers make fun of, bother, or hurt them (Glew et al., 2005).

After assessment of the impact of the skin disorder on self-esteem and psychosocial function, physicians can support healthy psychosocial development by providing educational materials regarding the skin disorder to dispel any misconceptions about the skin disease for the patient, family, school, and community (Dieterich-Miller and Safford, 1992). Physicians can aid in equipping children with responses that reframe the skin disorder in a positive light such as referring to a CMN as a beauty mark and with responses that diffuse attempts at teasing or bullying patients by redirecting peer attention to a different subject (Nguyen et al., 2016). Parents should nurture their child's strengths and emphasize his or her achievement of normal development to foster a well-rounded sense of self (Dieterich-Miller and Safford, 1992; Marik and Hoag, 2012). Physicians can also connect patients and families with advocacy groups, support groups, and specialized summer camps for children with skin disorders (Marik and Hoag, 2012; Nguyen et al., 2016). Finally, professional support from counselors, psychologists, or psychiatrists may be necessary for patients with poor psychosocial functioning (Marik and Hoag, 2012).

Using these tools, clinicians can assess self-concept, monitor social and behavioral development, and help patients and families cope with skin disorders. These steps can help proactively guide families to bolster positive self-concept and self-esteem (Dieterich-Miller and Safford, 1992; Nguyen et al., 2016). Addressing the psychosocial impact of skin disorders can set the stage for healthy mental and emotional development for the rest of children's lives.

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