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Attachment style and children and young people with chronic dermatological conditions

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Abstract

Background: Dermatological conditions are common in childhood and, in their more severe forms, can cause pain, disability and social marginalisation. Despite attachment being a known factor contributing to psychological and physiological development in childhood and several adult studies showing associations between attachment and dermatology outcomes (Tomas-Aragones, 2018), attachment in young dermatology patients has not been investigated.

Objectives: This study examined if (1) 8-16-year-olds with chronic dermatological conditions were more likely to show attachment insecurity than general population peers; (2) attachment style was linked to psychological functioning; and (3) facial involvement was associated with attachment insecurity.

Method: One hundred and twenty-two 8-16-year-olds attending a specialist paediatric dermatological service were compared on the Child Attachment Interview (CAI) to general population data. The Strengths and Difficulties Questionnaire (SDQ) was used to measure psychosocial functioning.

Results: The dermatology group was significantly more likely to be insecurely attached than their general population peers ($\chi^2[1] = 4.76$, p < .05). The secure group self-reported significantly better psychological functioning on all indices compared with the insecure group (Total Difficulties: F[1,89] = 15.30, p < .001). There were no significant differences between secure and insecure groups on parent-reported psychological measures (Total Difficulties: F[1,94] = 0.67, p = .42). Children with facial involvement were not significantly more likely to be insecurely attached.

Conclusions: Increased risk of attachment insecurity, particularly in the anxious preoccupied category, as well as an association between attachment and psychosocial functioning resonated with adult studies suggesting that further research about the role of attachment with young dermatology patients is warranted.

KEYWORDS

adolescent, attachment, child, dermatology, psychology

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1 | INTRODUCTION

Paediatric dermatological conditions such as eczema, acne and birthmarks are so ubiquitous that they are often seen as normative childhood experiences with prevalence estimates as high as 90% (Tempark et al., 2022). However, even the most common skin conditions can vary greatly in severity becoming, for some young people, chronic, complex and distressing. Eczema, for example, can be a mildly itchy, transient patch of dry skin for some, but in others, it can be persistent, painful, appearance-altering and requiring lengthy, complex, daily treatment and, sometimes, hospital care. A smaller number of complex skin conditions, such as genodermatoses, can be debilitating and lifelimiting. Ablett and Thompson (2016) reported that chronic childhood dermatological conditions can have significant psychosocial effects on the patient and their family, with the young patients particularly concerned about social consequences such as bullying and stigmatisation. They also pointed out that outcomes were mixed and that further research into the influence of psychological processes, including attachment style, was required in order to understand the range of outcomes and opportunities for psychological psychosocial intervention.

Coined by John Bowlby (1988), attachment refers to the emotional bond that humans form with one another. Attachment style refers to different patterns of interaction that individuals use to form and maintain these emotional bonds. Attachment styles are said to be formed in infancy as the baby learns what behaviours elicit the desired reaction from their caregivers and have been categorised into four main types: secure, insecure-avoidant, insecure-pre-occupied and disorganised (Ainsworth et al., 2015).

Attachment style has been consistently linked with better and worse outcomes on a range of variables in children and adults. These include specific clinical problems such as anxiety disorders (e.g., Warren et al., 1997), depression (e.g., Bifulco et al., 2002) and anti-social behaviour (e.g., Pasalich et al., 2012) with insecure and disorganised attachment associated with increased risk of pathology. Secure attachment style has been associated with psychosocial processes that contribute to positive adjustment such as emotion regulation (Thompson & Meyer, 2007), self-esteem (Cassidy, 1988), coping (Kerns et al., 2007) and amygdala development (Moutsiana et al., 2014).

A number of large-scale studies with adults with chronic dermatological conditions have indicated an association between attachment style (Tomas-Aragones, 2018) and a range of illness variables such as stress (Szabó et al., 2017) and appearance-related distress (Krasuska et al., 2018). Picardi et al. (2005) reported a significantly increased rate of insecure-avoidant attachment style in adults with psoriasis, which was associated with lower social support and lower emotional selfawareness. Studies have also described the psychophysiological pathways by which attachment insecurity may influence dermatological conditions such as the hypothalamus-pituitary-adrenal (HPA) and sympatho-adrenomedullary (SAM) axes and immune responses through poorer regulation of stress (Pietromonaco & Powers, 2015; Jafferany & Patel, 2020). Similar studies with children who have skin conditions have, so far, not been reported.

Key Messages

- Despite its known influence on psychological and physiological development in the general population and its role in adult dermatology patients, attachment style has not been widely researched in the paediatric dermatology population.
- Children with chronic dermatological conditions were found to be more likely to be insecurely attached than their peers in the general population with the greatest increase in the insecure-pre-occupied category.
- 3. Secure attachment style was associated with better selfreported psychosocial functioning.
- Attachment style should be monitored in clinical contexts because of its association with differential psychological adjustment and dermatological presentation.
- Attachment-focused interventions are known to be effective and relatively brief making them a good option for improving overall developmental outcomes.

Researchers have hypothesised that chronic illness in childhood can have a negative impact on attachment formation. For example, parental stress resulting from caring for an unwell infant may disrupt the attachment formation process leading to increased risk of insecure attachment (Clements & Barnett, 2002). Infant irritability, lethargy or lack of responsiveness could similarly act as an obstacle to adaptive attachment interactions (Ward et al., 1993). The ongoing stresses on the relationship between caregiver and child due to the burden of adhering to daily medical treatments have also been reported to impact negatively on parent–child interactions (Waters et al., 2000). Researchers have further speculated that the altered appearance of an infant with a serious medical condition may have a negative impact on the parent's gaze and their interactions with their baby because of the negative emotions the baby's appearance might elicit (Barden et al., 1989).

A small number of studies have reported increased attachment insecurity in children with medical conditions (Goldberg et al., 1995; Marvin & Pianta, 1996). In contrast, the largest UK study on attachment style in infants with chronic illness did not find any enduring differences in attachment security in the cleft lip and palate population compared to the UK general population (Murray et al., 2008).

In the face of such limited child-focused literature, this study set out to answer the following questions:

- 1. Are children and young people with chronic dermatological conditions more likely to be insecurely attached than the general population?
- 2. Is attachment categorisation related to psychological functioning in young people with chronic dermatological conditions?
- 3. Does facial involvement increase the likelihood of insecure attachment compared with children whose faces are not visibly affected by their dermatological condition?

2 | METHOD

2.1 | Design

A cross-sectional investigation measured psychological functioning and attachment style in 8–16-year-olds with dermatological conditions that had been present since the first 2 years of life.

2.2 | Analyses

A Goodness-of-fit Chi-Square Test for unequal expected values was used to determine if children with dermatological conditions differed from the general population in attachment security. Attachment data were compared between the dermatology group and existing UK general population data. A MANOVA was used to investigate psychological differences between attachment categorisations. A chi-square analysis was used to determine differences in attachment style across facial-involvement and nofacial-involvement groups.

A sample size calculation using G*Power, based on the analysis of attachment style and psychological functioning, with a standard alpha level of 0.05 and power of 90%, estimated a sample size of 86 for sufficient statistical power.

2.3 | Sample population

Dermatology participants were 8–16-year-olds of all genders and their parents who were identified from outpatient clinic lists at a UK paediatric dermatology service. Naturalistic sampling was used to reduce selection biases.

Patients were invited to participate if they had developed their skin condition before the age of 2 years as this is the age when attachment formation is hypothesised to begin. Patients were excluded if they were acutely unwell, had been diagnosed with significant specific or global developmental delay or were unable to read and speak English sufficiently well to complete the questionnaires and interview independently.

Comparison general population data of attachment security, as measured by the same measurement tool used in this study, were reported by the measure authors based on a community sample of 1617–12-year-olds (Shmueli-Goetz et al., 2008).

2.4 | Procedure

Patients and parents were invited to participate prior to their upcoming appointment. Those who consented were met by a researcher on the day of their hospital appointment who conducted the attachment interview and supported the completion of the questionnaire measures.

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2.5 | Measures

2.5.1 | Background questionnaire

A brief questionnaire eliciting demographic and medical information was completed by the accompanying parent, which identified the age and ethnicity of the child, the employment classification of the primary income earner (International Labour Organisation [ILO], 2008) and the patient's dermatological diagnosis and age of onset. To determine the extent of skin affected, the parent/guardian was asked to mark affected areas on a simple line drawing of a human body (front and back).

2.5.2 | Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997)

The SDQ is a widely used standardised measure of child and adolescent psychological functioning. Parent- and self-report versions were used in the current study to determine functioning in a range of psychosocial domains. There are 25 items that are divided into five sub-scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour. Items are statements such as *Nervous or clingy in new situations, easily loses confidence*. The respondent rates each item on a three-point scale ranging from very true to not at all true. Both forms of the SDQ are considered to have excellent psychometric properties (Goodman, 2001).

2.5.3 | Child Attachment Interview (CAI; Shmueli-Goetz et al., 2008)

The CAI is an interview-based assessment of attachment in middle childhood and adolescence (8-15 years) based on Ainsworth's Strange Situation (Ainsworth et al., 2015) and the Adult Attachment Interview (AAI; (George et al., 1984). Construct validity, internal consistency, test-retest reliability and inter-rater reliability were all reported to be high (Shmueli-Goetz et al., 2008; Target et al., 2003) and are generally considered the best measures of attachment in young people (Jewell et al., 2019). The guestionnaire items were adapted in collaboration with the CAI authors to create a 12-item version that included questions such as 'What happens when someone is mean to you about the way that you look?'. The questions are designed to elicit attachment behaviour by asking the participant to recall stressful relational events. The transcript and video-recording of the participants' accounts of these events are coded by accredited coders on nine domains of attachment-related behaviours that yield classifications of secure, insecure-dismissing, insecure-pre-occupied and disorganised for attachment to a primary and secondary attachment figure. In this study, each interview was coded by at least two researchers. Interrater reliability was satisfactory (classifications with respect to mother, kappa = 0.80; classifications with respect to father, kappa = 0.78).

3 | RESULTS

3.1 | Sample characteristics

Three hundred and ninety-four families were contacted; 91 did not participate because of scheduling difficulties, 79 declined because they were not interested or because they were concerned about potential negative consequences of participating, 49 did not meet inclusion/exclusion criteria and, in 46 cases, no reason for non-

TABLE 1Demographics.

Age/schooling

Mean age in years	12.2
Age range in years	8.0-16.1
Primary school n (%)	50 (42.3%)
Secondary school n (%)	68 (57.6%)
Gender n (%)	
Female	74 (60.7)
Male	48 (39.3)
Ethnicity n (%)	
White British	90 (73.8)
White other	15 (12.3)
Mixed race	6 (4.9)
Asian	4 (3.2)
Black	2 (1.6)
Other	O (O)
Unknown	5 (4.2)
Occupational category n (%)	
Higher professional/management	36 (29.6)
Lower professional/management	30 (24.6)
Technical/craft	12 (9.8)
Lower supervisory	11 (9.0)
Semi routine	10 (8.2)
Intermediate	4 (3.3)
Routine	6 (5.0)
Unemployed/on benefits	7 (5.7)
Unknown	4.8

TABLE 2 Dermatological condition.

Grouped condition	n (%)
Vascular birthmarks	53 (43.4)
Eczema	22 (18)
Bullous disorder	13 (10.7)
Overgrowth syndrome	8 (6.6)
Naevii	11 (9.0)
Other	8 (6.6)
Mastocytoses	7 (5.7)
Age of onset	
Birth	98 (80.3)
Birth-24 months	24 (19.7)

	Secure n (%)		Insecure n (%)		
	Dermatology	UK	Dermatology	UK	
Mother	58 (58)	106 (66)	42 (42)	56 (35)	
Father	55 (56.7)	97 (63)	42 (43.3)	57 (37)	

participation was recorded. Seven participants were excluded after meeting with the researcher because they did not meet the inclusion criteria. A total of 122 patients and their parents were included in this study. Nearly all participants were accompanied by their biological mother who completed the parent-reported measures. The demographic profile of the participants is shown in Table 1. Types of dermatological conditions and age of onset are shown in Table 2. There were no consistent, significant differences in any dependent variables on the basis of demographic factors.

3.2 | Attachment in/security in children with chronic dermatological conditions

On the two-way attachment classification of secure and insecure attachment style, there was a significant difference in attachment classification between the current sample and community data (χ^2 [1] = 4.76, *p* < .05). See Table 3 for frequency data. Based on the odds ratio, the dermatology group was 1.56 times more likely to be insecurely attached than the general population group.

Using a three-way attachment classification (see Table 4 for frequency data), there was a significant difference in attachment security to mother between the community and dermatology samples $\chi^2(2) = 13.23$, p = .001. The proportionate residual values indicated that the biggest difference between the two samples was in the higher proportion of insecure-pre-occupied attachment in the dermatology sample. Cell chi-squared analyses confirmed that children with dermatological conditions were more likely than expected to have insecure-pre-occupied attachment style $\chi^2(2) = 23.21$, p = .001.

The three-way classification for attachment to father showed no significant difference between the dermatological sample and the non-clinical sample $\chi^2(2) = 3.01$, NS, despite a similar pattern of distribution to attachment to mother.

3.3 | Attachment and psychological functioning

The mean scores on the psychological functioning measures are shown in Table 5 by attachment classification.

The secure group reported significantly better scores than the insecure group on self-reported Total Difficulties, Emotional Symptoms, Conduct, Hyperactivity and Peer Relationship Problems. There were no significant differences between secure and insecure groups on parentreported measures. However, there was a consistent trend for the

TABLE 4 Three-way distribution of attachment classifications in dermatology and general population samples.

	Secure				Insecure					
	N		n (%)		Dismissing n (%)		Pre-Occ n (%)		Disorganised n (%)	
	Derm	UK	Derm	UK	Derm	UK	Derm	UK	Derm	UK
Mo	100	168	58 (58)	106 (66)	32 (32)	45 (28)	9 (9)**	5 (3)	1 (1.0)	6 (4.0)
Fa	97	154	55 (56.7)	97 (63)	34 (35.1)	43 (28)	7 (7.2)	8 (5)	1 (1.0)	6 (4.0)

TABLE 5 Attachment and psychological functioning.

Self-report	Secure M (SD)	Insecure M (SD)	F	df	p
Total difficultion	9 42 (5 17)	12 29 (4 24)	15 20	1 00	
Total difficulties	0.02 (0.17)	13.27 (0.24)	15.50	1.07	.000
Emotional symptoms	2.56 (2.12)	3.56 (2.51)	4.07	1.89	.047*
Conduct	1.49 (1.37)	2.80 (1.82)	15.26	1.89	.000***
Hyperactivity	3.04 (2.05)	4.61 (2.40)	11.20	1.89	.001**
Peer problems	1.54 (1.66)	2.32 (1.93)	5.21	1.89	.025*
Prosocial behaviour	8.57 (1.38)	8.07 (1.29)	3.07	1.89	.083
Parent report					
Total difficulties	8.41 (5.48)	9.49 (6.48)	0.67	1.94	.42
Emotional symptoms	2.83 (2.54)	2.86 (2.65)	.002	1.94	.96
Conduct	1.13 (1.28)	1.49 (1.96)	1.25	1.94	.27
Hyperactivity	3.02 (2.42)	3.58 (2.27)	1.35	1.94	.25
Peer problems	1.44 (1.72)	1.86 (1.95)	1.17	1.94	.28
Prosocial behaviour	8.96 (1.33)	8.98 (1.34)	.003	1.94	.96

p < .05. p < .01. p < .001.

secure group to show better parent-rated functioning on all measures than the insecure group, despite not reaching statistical significance.

Analysis of psychological functioning across a three-way attachment categorisation found that there was a main effect of attachment classification that was significant on self-rated Total Difficulties (F[2,87] = 9.263, p < .001), self-rated Behavioural Conduct (F [2,87] = 13.010, p < .001) and self-rated Hyperactivity (F[2,87] = 10.995, p < .001). Post hoc analyses using Bonferroni's correction determined that there were no significant differences between the insecure-dismissing and insecure-pre-occupied groups.

3.4 | Attachment security and facial involvement

A chi-square analysis found no difference in attachment security between children with no change to their facial appearance and those whose face was affected by their dermatological condition ($\chi^2 = .39$, p = .824).

4 | DISCUSSION

This was the first study to investigate the role of attachment in children and young people with chronic dermatological conditions. Findings suggest that this group is significantly more likely to be insecurely attached than the general population. These findings are consistent with the paediatric studies of Marvin and Pianta (1996) and Goldberg et al. (1995) and adult dermatology studies (Picardi et al., 2005). This finding is particularly important in relation to dermatological conditions as attachment insecurity is associated with higher stress, which is a known contributing factor to dermatological morbidity (Pietromonaco & Powers, 2015) and poorer coping with relational stressors common in this group such as bullying (Ablett & Thompson, 2016).

One key difference between the cleft lip and palate study that found no attachment differences (Murray et al., 2008) and the dermatology group is that, in the former, the child's medical needs typically reduce significantly after surgical repair in the first 2 years of life, whereas chronic dermatological conditions persist throughout childhood and sometimes into adulthood. This might link to the more recent conceptualisation of attachment style as a dynamic construct, adapting to contemporaneous relational stressors as opposed to forming in the first few years of life and remaining stable across the lifespan (McConnell & Moss, 2011).

Comparison across the three-way classification showed that the between-group difference was significant with the insecurepre-occupied classification and not the insecure-avoidant. Theorists explain that insecure-pre-occupied attachment style results from inconsistent parenting responses (Weinfield et al., 2008). It is thought that the attachment figure is sometimes attuned and responsive to the child's needs but, at other times, mis-attuned or their response experienced as unhelpful or absent. As a result, the child becomes anxious and watchful because they cannot predict their caregiver's response and their distress and appeals for help can be heightened. This relational picture fits with the experience of parenting a sick child where the parent might be more attuned to typical needs of their child, such as hunger or a wet nappy, but find it more challenging to identify less familiar, illness-related needs such as pain. Communica-

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tion of illness experience is complex and nuanced and may be beyond the communicative ability of a young person resulting in challenges for the parent in understanding the source of their child's distress. Furthermore, daily care of dermatological conditions can be painful and distressing, such as changing dressings on open wounds or bathing areas of broken skin. Certain symptoms, such as itch, can also be difficult to resolve. As such, even the most responsive parent may be unable to respond to their child's distress. Studies have reported parental concerns that inflicting pain as part of daily treatments and forcing their child to submit to distressing treatments would have a negative impact on the parent-child relationship (Santer et al., 2013; Waters et al., 2000).

This study also suggests that attachment to mother was more likely to be insecure, whereas attachment to father differed less. As mothers are typically the primary caregiver (Chung, 2021) and also tend to bear the responsibility for most medical care, this finding may link to the hypotheses above that attachment insecurity is related to the delivery of unpleasant daily care by the primary caregiver or to the difficulty in communicating needs to the parent.

A significant association between attachment categorisation and concurrent psychological functioning was found across all self-reported problem sub-scales. Although relationships between attachment style and parent-reported psychological functioning did not reach significance on any sub-scale, there was a trend for securely attached participants to have better parent-reported psychological functioning. This pattern is consistent with the study of Pinquart and Shen (2011) in which differences between parent and self-reported measures were also significant in the relationship between psychological factors.

The association between self-reported measures and attachment scores resulting from shared method variance was considered. However, this was thought unlikely as the CAI is considered an observational measure rather than a self-reported measure. As such, children may be more accurate reporters of their own psychological functioning than their parents. Parental perspectives on their child's mental health may be influenced by factors such as parental mental health or a conflation of physical and mental health status (Östberg & Hagekull, 2013), reducing the relationship between child attachment style and parental reports.

This study found no support for the hypothesis that facial involvement of the skin condition would have a negative impact on attachment formation (Barden et al., 1989), which might account for the cleft lip/palate studies that found no attachment differences (Murray et al., 2008). Facial involvement in dermatological conditions is not a clear-cut distinction as conditions may flare and resolve at different times. However, the results indicate that there may be other factors that influence attachment formation.

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4.1 | Limitations

As is the case with many studies on attachment style in clinical samples, uneven proportionate spread across sub-categories may have impacted on statistical power resulting in some important findings being missed, such as an association between attachment style and parent-reported psychological measures.

A notable proportion of families declined to participate in the study for different reasons. Participants were also drawn from a specialist paediatric hospital. As such, the generalisability of these findings is unclear.

Finally, the causal direction in the relationships between attachment, psychological functioning and dermatological morbidity could not be tested using the current design.

4.2 | Implications

Clinically, these findings suggest that child attachment style be considered in order to optimise psychosocial and medical outcomes. Addressing attachment insecurity has been shown, in several studies, to be associated with better coping with relationship stress including bullying (Seiffge-Krenke, 2011; Worsley et al., 2019), a known concern for young people with skin conditions. Improvement in relational stress and stress-coping might also reduce the activation of stress-linked neurophysiological processes that can worsen dermatological symptoms (Jafferany & Patel, 2020; Pietromonaco & Powers, 2015). There is a strong evidence base for the efficacy of attachment-focused psychological interventions (Bakermans-Kranenburg et al., 2003), which means that psychological intervention could have a significant, positive impact on the patient in the short and longer term.

The broad associations found in the current study indicate that further research in attachment style and paediatric dermatological conditions is warranted, but that greater specificity in attachmentrelated process and illness variables is needed to properly understand causal relationships.

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CONFLICT OF INTEREST STATEMENT

All authors confirm that there are no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available because of privacy or ethical restrictions.

ETHICS STATEMENT

Ethical approval was given by the London–Bloomsbury Committee for the NHS Health Research Authority (09/H0713/19).

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