

Original article

A study of skin diseases in children with obsessive-compulsive behaviour and learning disability

M R F Shireen¹, S Samaraweera², J Senevirathne³

Sri Lanka Journal of Dermatology, 2024-2025, **24**: 22-28

Abstract

Psychodermatology is an emerging subspecialty that addresses skin diseases linked to obsessive-compulsive behaviours (OCB) driven by intrusive thoughts. This study examined the characteristics of skin diseases associated with OCB, learning difficulties, and childhood stressors using the Strengths and Difficulties Questionnaire (SDQ) for behavioural assessment. The findings indicate a strong link between OCB-related skin diseases, learning difficulties, and behavioural issues in Sri Lankan children, underscoring the need for early psychological intervention and a multidisciplinary approach to care.

Key words: skin diseases, obsessive-compulsive behaviour, learning difficulty, behavioural and emotional disorders, stress, stressors

Introduction

Psychodermatology explores the connection between the mind and skin, focusing on interactions among the brain, cutaneous nerves, the immune system, and skin health.

This field addresses:

1. Skin disorders influenced by psychological factors
2. Psychiatric disorders with dermatological presentations
3. Psychiatric issues stemming from skin disease
4. Co-morbidities between skin conditions and psychiatric disorders

OCB symptoms, including obsessions and compulsions, can disrupt daily life and lead to significant regret¹. Learning disabilities, influenced by various factors, require recognition from teachers and parents for effective intervention. Dermatologists must

establish strong relationships with patients to diagnose and treat psychodermatological conditions effectively. Self-inflicted skin injuries often have distinct patterns and histories, particularly in visible areas like the face. The prevalence of skin diseases associated with OCB ranges from 1.2% to 5.4% in different studies². Cooperation between dermatologists, psychologists and psychiatrists is crucial for managing these conditions in children.

The SDQ was developed in 1997 and is commonly used to screen behavioural issues in children, with validated norms across different translations³. Despite the critical need for early identification and intervention, research on the link between skin diseases and learning disabilities remains limited. This paper emphasises the distinct skin lesions associated with psychiatric disorders and advocates for a collaborative interdisciplinary approach involving dermatologists, psychiatrists, and paediatricians to enhance patient-centred care and promote further research.

Objectives and methodology

The study explores the link between skin diseases, OCB, and learning disabilities among children attending the dermatology clinic at Lady Ridgeway Hospital for Children. Key objectives include examining the relationship between skin diseases and OCB, assessing the prevalence of learning difficulties and behavioural/emotional issues, and evaluating emotional/behavioural problems using SDQ. Over six months in 2021, the descriptive study involved 100 children aged 4 to 16 with skin diseases and suspected OCB and learning disabilities. Data regarding mental health and learning disabilities was collected using a structured tool and the SDQ, with input from parents, children, and teachers.

¹Senior Registrar in Dermatology, ²Consultant Dermatologist, ³Consultant Dermatologist, Lady Ridgeway Hospital for Children, Colombo, Sri Lanka.

Results

The study included 100 participants – 52 males (52%) and 48 females (48%) – reflecting the gender distribution for this age group in Sri Lanka. The participants, aged 5-15, had a mean age of 9.96 years (SD=2.59). The duration of skin diseases with OCB ranged from 2 to 15 months, with a mean duration of 8 months (SD=4).

Chart 1 illustrates various skin conditions observed in the study linked to OCB. Chart 2 highlights the prevalence of precipitating factors: 23% had one, 32% had two, 27% had three factors, and 14% had none. Time spent on OCB revealed that 15% engaged consistently, 36% most of the day, and 49% occasionally.

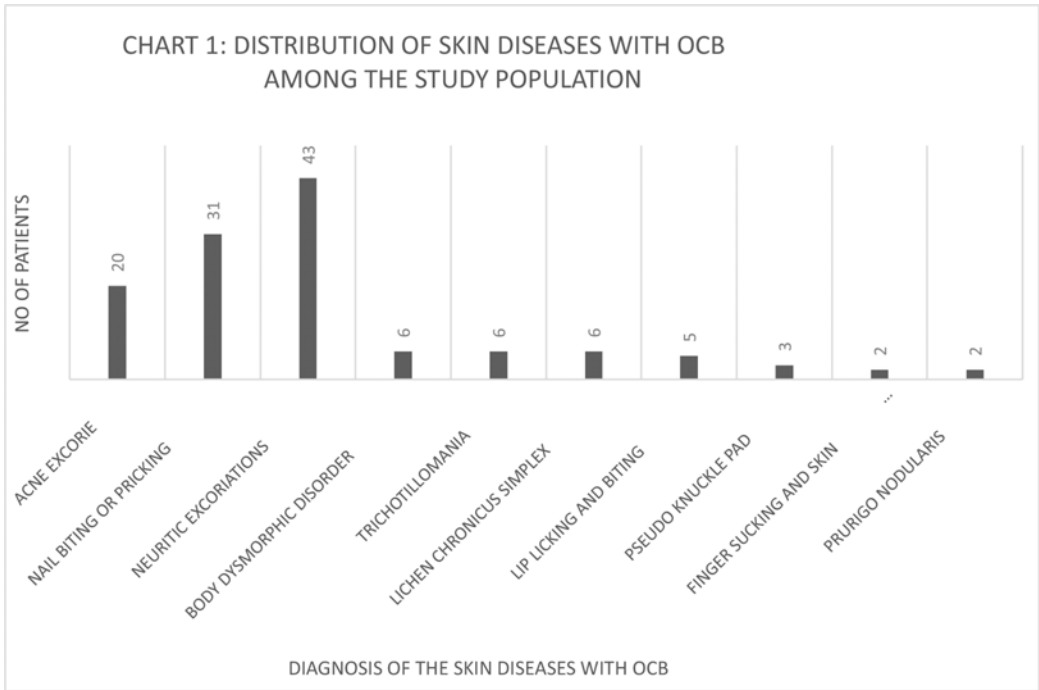


Chart 1.

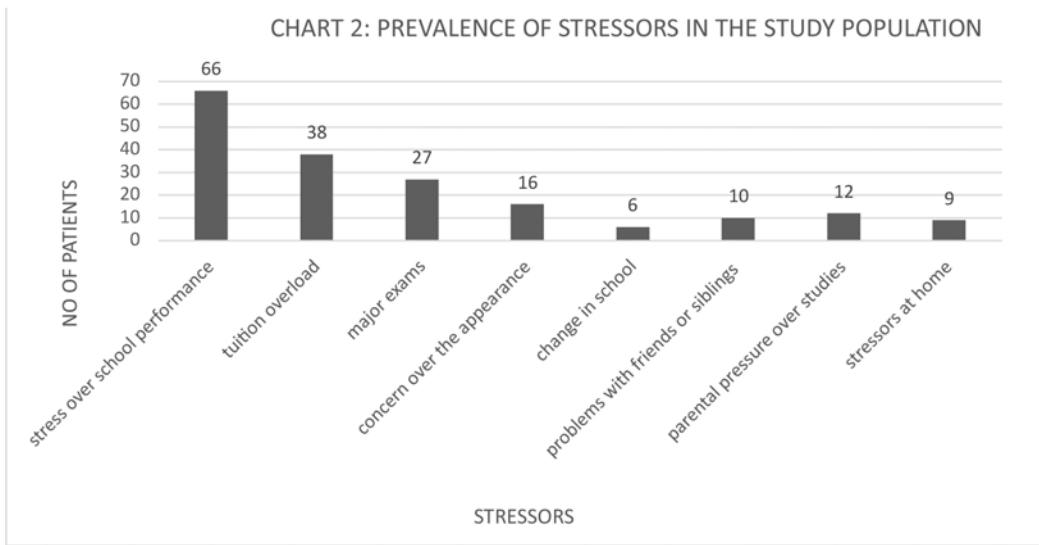


Chart 2.

A study analysing SDQ across ages and languages found a mean score of 10.5 (SD=1.5). 29% of patients had one or more learning difficulties, with struggles noted in reading (4%), writing (5%), and mathematics (26%). Gender did not significantly affect learning difficulties.

Table 1 summarises all Chi-square tests conducted in our study. Table 2 summarises all the Fisher's exact tests conducted in our study.

Table 1.

Variable 1	Variable 2	Chi square score χ^2	df	p value	Effect size	Interpretation
Stress over school performance	Neurotic excoriation	7.96	1	0.005	0.282	Significant association with small to medium effect
Stress over Major exams	Neurotic excoriation	0.136	1	0.712		Not significant
Stress over school performance	Nail biting and pricking	27.36	1	0.0001	0.52	Significant association with large effect
Tuition overload	Nail biting and pricking	4.53	1	0.033	0.21	Significant association with small effect
Major exams	Nail biting and pricking	2.70	1	0.1		Not significant
Stress over school performance	Acne excoriee	2.852	1	0.091		Not significant
Difficulty in learning mathematics	Gender	1.281	1	0.258		Not significant
Presence of one or more learning difficulties	Gender	0.718	1	0.397		Not significant
Presence of one or more learning difficulties	Nail biting and pricking	2.029	1	0.154		Not significant
Presence of one or more learning difficulties	Acne excoriee	0.194	1	0.660		Not significant
Presence of one or more learning difficulties	Higher than scores average SDQ	12.17	1	0.0005	0.349	Significant association With medium effect

Table 2.

Association	Odd ratio	Fisher’s exact test (p-value)	Interpretation
Higher-than-average total SDQ scores vs. male gender	7.0	0.018	Significant association
Acne excoríee vs. concerns over the appearance	91.0	0.0000000011	Significant association

Discussion

Demographic features

The gender distribution of the study population is compatible with the gender distribution of Sri Lanka’s total population in the same age group. The 0-14 age group comprises 24% of the total population of Sri Lanka with a 0.93 male-to-female ratio¹⁴. The study population represented the age group of 5-15 with a male-to-female ratio of 1.08. It is compatible with the geographic features of the total population. There was a higher percentage of parents of patients with higher education and more stable financial status. The serving population of the hospital where the study was done is primarily from the western province, where easy access to education and resources is abundant. The possible reasons for the representation of families with higher income in our study could be the high education levels of the parents, the urban study population, and the health-seeking behaviour of financially stable families. Recent studies have discovered that children from affluent or upper-middle-class backgrounds experience higher levels of psychosocial risks, including depression, anxiety, and substance abuse, compared to their peers. Contributing factors include intense pressure to achieve high standards and a lack of emotional and physical connection with their parents¹⁶.

Neurotic excoriation

43 (43%) of the study population were affected by neurotic excoriations (dermatillomania), 22 of them were female, and 21 were male. Neurotic excoriation represents 2% of dermatological consultations worldwide⁴. According to previous studies, this behaviour is more prevalent in females and young adults. However, our study had similar involvement of both genders. All six patients with lichen chronicus simplex and two patients with prurigo nodularis had

neurotic excoriations as well. Eight patients with acne excoríee had neurotic excoriations as well. 2 patients with trichotillomania had neurotic excoriation.

Out of 43 patients, only 4 denied any form of stress. The study tested several associations between stress and neurotic excoriations. Stress over school performance and neurotic excoriations showed a significant association with small to medium effect.

Our study found that stress is a key precipitating factor of neurotic excoriations, with 90% of affected patients reporting distress due to multiple stressors, such as academic pressure and family problems. Several studies have been performed to test the association between academic stress and neurotic excoriations in universities. A study done at the University of Minnesota with 6000 cases revealed that the prevalence of neurotic excoriation was 4.2%, and it was associated with significant distress, poor self-esteem, poor body image and poor overall mental health⁵. Our study has again confirmed the association between academic stress and neurotic excoriations. The association between neurotic excoriation and stress over major exams was not significant. No similar studies were found in the literature. Only 10 patients in our study had neurotic excoriation and stress over significant exams. A small sample size contributed to this study’s lack of association.

Acne excoríee

Acne excoríee is picking the skin off the face. It is commonly seen in females. The study population had 20 patients with acne excoríee, and 15 (75%) were females. Patients pick on acne or skin irregularities over the face. Most patients spend hours in front of the mirror, stressing themselves over their appearance and manipulating the irregularities to eliminate them.

Acne excoriee is associated with body dysmorphic disorder. Four patients of the study population had both body dysmorphic disorder and acne excoriee. A study investigating body dysmorphic disorder found that, out of 8295 participants, symptoms of body dysmorphic disorder were five times higher in people with skin conditions than healthy controls¹⁵. The study revealed a strong association between acne and concerns over the appearance.

Acne impacts not just physical health but also psychological well-being, particularly in children and adolescents facing unrealistic beauty standards. 19 out of 20 patients in our study population stated that they are distressed over various life factors. A study of 2,166 acne patients revealed that only 6.9% reported no adverse effects, with 60% experiencing low confidence and 44.2% facing bullying⁷. Stress and anxiety levels in acne patients reach up to 68.3%, and 18.5% develop depressive symptoms compared to 12% in the general population⁶. Individuals with acne are also at a higher risk for body dysmorphic disorder (BDD), with symptoms occurring five times more frequently⁸. The findings of our study reproduce similar results to those of previous studies.

Nail biting and pricking

Chronic nail biting is known as Onychophagia, while chronic picking or manicuring of nails is termed Onychotillomania. Our study had 31 patients with nail biting. Twenty-one of them were male, and 10 of them were female. Most studies have revealed that males are more prone to nail biting or pricking, while few studies found equal prevalence in both genders. Nail biting in young children and infants is equal in both genders, while more males are affected in adolescence. Our study has a high male prevalence, and our study population also included adolescents. Nail biting is a common behavioural issue often linked to stress, frustration, or boredom, particularly in children and teenagers. It affects 20-33% of children and 45% of teens¹⁰. Our study highlighted a significant link between nail biting and stress related to school performance and tuition overload.

Stress and OCB

86 (86%) out of 100 children with skin diseases with OCB stated that they were stressed during the interview. Children with OCB often link their symptoms to psychosocial stress, particularly from stressful life events or trauma. However, the relationship between stress and OCB is not fully understood. It is unclear if stress is a direct cause, a triggering factor, or exacerbates existing symptoms. Research suggests that stress might influence the

development and maintenance of OCB by disrupting the balance between goal-directed and habitual behaviour, specifically concerning limbic and corticostriatal circuits⁹. Many individuals with OCB report stressful life events before symptom onset. One study found that high school students under stress had a 21% increased risk of developing OCB within a year¹⁷. Our study has confirmed that stress is a contributing factor for OCB.

Sri Lankan context

Sri Lanka has made strides in providing education for all since the Universal Free Education Policy in 1945, achieving a 99.7% net enrolment rate despite challenges like civil war, the COVID epidemic, and economic crises. In Northeastern Sri Lanka, a three-decade armed conflict ended in 2009, and a 2014 study showed a 13.8% prevalence of emotional and behavioural issues among primary school children¹¹. Stress from events like the Easter Sunday Bombings, COVID-19, and economic challenges has intensified the psychological impact on children. The education system focuses heavily on exams, leading to intense competition and pressure. A separate Study revealed that 69% of students feel overwhelmed, and 67% seek extra tuition, often neglecting holistic learning¹². Teachers face pressure to achieve high pass rates, further affecting student well-being.

This study identified a high prevalence of stress among students preparing for major examinations in the study population. Preparing for a major exam can cause moderate to severe stress, driven by high self-expectations, heavy workloads, insufficient review time, parental pressure, and difficulty understanding the material. A study indicated that many students face psychological challenges, including phobia and anxiety, worsened by learning difficulties. The quality of school life is crucial for children's well-being, influencing academic success and health. Strong connections with peers and teachers can boost self-esteem and reduce anxiety. Immediate measures, like professional counselling and psychological awareness training, are necessary to improve student well-being. In our study, 86% of participants reported experiencing stress, with anxiety mainly related to school performance, pressure from tuition classes, and preparation for major exams.

Learning difficulty and OCB

Patients with OCB often experience significant learning difficulties, as intrusive thoughts and actions hinder their ability to focus on studies, leading to

low school performance and avoidance of learning activities. The study population has a higher prevalence of patients with one or more specific learning difficulties 29 (29%). Patients with learning difficulties are also at a higher risk of developing OCB. They are 2-3 times more vulnerable to developing obsessive-compulsive traits than the general population. It might explain the high prevalence of learning difficulty in the study population.

Children with disabilities face significant educational barriers, as many teachers view them as misfits and often punish them for perceived failures, misunderstanding their learning difficulties. Parents may also struggle to recognise these issues. Around 10.6% of school-age children in Sri Lanka require special needs assistance, yet many cases go misdiagnosed due to insufficient support¹³. This lack of recognition impacts education and self-esteem, and bullying can further exacerbate their challenges.

Behavioural and emotional problems

There were 15 patients with at least one higher-than-average SDQ score, 13 of whom were males and 2 of whom were females. Our study found a strong link between higher SDQ scores and the male gender, aligning with prior studies that suggest boys are more at risk for behavioural problems. The mean SDQ score in our study was 10.5, comparable to 10.3 in a previous Sri Lankan study. In contrast, a Gampaha study reported a mean of 12.0 for younger children, indicating that age influences SDQ scores.

OCB is linked to emotional regulation deficits and behavioural issues, with patients often suppressing emotions, which increases distress and intrusive thoughts. Research by Moore et al. connects these deficits to anxiety and depression, highlighting OCB-related suppression strategies. Learning disabilities also contribute to behavioural challenges, with about 30% of affected children facing emotional and behavioural problems, significantly more than their peers¹⁴.

Conclusion and recommendations

Our study reveals a higher prevalence of skin diseases linked to OCB, highlighting the need for comprehensive dermatological assessments for patients with psychological symptoms. A dermatologist should know subtle symptoms and signs of skin diseases related to OCB, learning disabilities, and behavioural problems. They must identify these issues and intervene as soon as possible, as early intervention can lead to positive

outcomes. A multidisciplinary approach involving dermatologic and psychiatric care can enhance outcomes by addressing physical and psychological factors. Dermatologists should screen for psychological conditions in patients with chronic skin issues and consider joint consultations in Integrated Dermatologic-Psychiatric Clinics to identify exacerbating factors. Modern stressors are impacting children, leading to psychological issues and highlighting the need for awareness programs and school-based interventions. Future research should focus on longitudinal studies linking skin diseases, OCB, learning difficulties, and emotional disorders.

Limitation

The study focused on patients with OCB from dermatology clinics, relying on parent-reported behaviour. It lacked a severity assessment of OCB. Selection bias may have occurred as concerned parents were more likely to participate. While learning disabilities were evaluated through a teachers' questionnaire, a thorough assessment by a child psychiatrist would have been preferable, possibly overlooking mild difficulties. Additionally, the study, conducted during and shortly after COVID-19, did not address the significant social adjustments children faced.

References

1. Cullen BA, Samuels JF, Bienvenu OJ, *et al.* The Relationship of Pathologic Skin Picking to Obsessive-Compulsive Disorder. *The Journal of Nervous and Mental Disease*. 2001; **189**: 193-5.
2. Mavrogiorgou P, Bader A, Stockfleth E, Juckel G. Obsessive-compulsive disorder in dermatology. *J Dtsch Dermatol Ges*. 2015; **13**(10): 991-9.
3. Perera S, Thalagala E, Chandrarathna SH, Agampodi TC, Nugegoda DB, Agampodi SB. Factor structure and normative data of the Sinhalese version of self reported Strength and Difficulties Questionnaire (SDQ) for adolescents. *Ceylon Med J*. 2013; **58**(2): 66-71.
4. Lochner C, Roos A, Stein DJ. Excoriation (skin-picking) disorder: a systematic review of treatment options. *Neuropsychiatr Dis Treat*. 2017; **13**: 1867-72.
5. Odlaug BL, Lust K, Schreiber LR, Christenson G, Derbyshire K, Grant JE. Skin picking disorder in university students: health correlates and gender differences. *Gen Hosp Psychiatry*. 2013; **35**(2): 168-73.
6. Vallerand IA, Lewinson RT, Parsons LM, *et al.* Risk of depression among patients with acne in the U.K.: a

- population-based cohort study. *Br J Dermatol.* 2018; **178**(3): e194e195.
7. Golchai J, Khani SH, Heidarzadeh A, Eshkevari SS, Alizade N, Eftekhari H. Comparison of anxiety and depression in patients with acne vulgaris and healthy individuals. *Indian Journal of Dermatology* 2010; **55**(4): 352-4.
 8. Li V, Frasier K, Woolhiser E, *et al.* Exploring the Intersection of Body Dysmorphic Disorder (BDD) and Dermatological Conditions: A Narrative Review. *Dermatology and Therapy* 2024; **14**(10): 2693-2708.
 9. Murayama K, Nakao T, Ohno A, *et al.* Impacts of Stressful Life Events and Traumatic Experiences on Onset of Obsessive-Compulsive Disorder. *Front. Psychiatry* 2020; **11**: 561266.
 10. Ghanizadeh A. Association of nail biting and psychiatric disorders in children and their parents in a psychiatrically referred sample of children. *Child and Adolescent Psychiatry and Mental Health* 2008; **2**(1): 13.
 11. Shoib S, Chandradasa M, Rathnayake L, Usmani S, Saeed F. Children, adolescent, and youth mental health in Sri Lanka in the context of recent violence, COVID-19, and economic crisis: A call for action. *The Lancet Regional Health. Southeast Asia* 2022; **2**: 100021.
 12. Senarath S. (2020). Examination Stress, Stress Management Strategies, and Counseling Needs of College Level Students in Sri Lanka. *Journal of Psychology and Behavioral Science.* 8. 10.15640/jpbs.v8n2a3.
 13. <https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability>.
 14. Sahoo MK, Biswas H, Padhy SK. Psychological Comorbidity in Children with Specific Learning Disorders. *Journal of Family Medicine and Primary Care* 2015; **4**(1): 21-5.
 15. Morita MM, Merlotto MR, Dantas CL, Olivetti FH, Miot HA. Prevalence and factors associated with body dysmorphic disorder in women under dermatological care at a Brazilian public institution. *Anais Brasileiros de Dermatologia* 2021; **96**(1): 40-6.
 16. Luthar SS, Latendresse SJ. Children of the Affluent: Challenges to Well-Being. *Curr Dir Psychol Sci.* 2005; **14**(1): 49-53. doi: 10.1111/j.0963-7214.2005.00333.x. PMID: 17710193; PMCID: PMC1948879.
 17. Adams TG, Kelmendi B, Brake CA, Gruner P, Badour CL, Pittenger C. The role of stress in the pathogenesis and maintenance of obsessive-compulsive disorder. *Chronic stress (Thousand Oaks, Calif.)* 2018; **2**: 2470547018758043