



# The Role of Obsessive-Compulsive Disorder in Predicting Skin-Picking Disorder Among Primary School Children

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## Abstract

**Background:** Devoting a chapter in the DSM-5 to the obsessive-compulsive disorder and the correlation of this disorder with a wide range of related disorders, including skin picking, suggest the importance of carrying out studies to investigate this disorder among children and adolescents. Therefore, this study aimed to investigate this relationship and determine the role of obsessive-compulsive disorder in predicting the skin-picking disorder among primary school children.

**Methods:** This descriptive study followed by a correlational-predictive design. The current study had a statistical population including all first-grade to fifth-grade primary school students aged 7 to 11 years old who were studying in both districts of Zahedan. A multistage cluster sampling method was used and 381 questionnaires were distributed to boy and girl students. The data collection tools were Foa et al. obsessive-compulsive inventory-child version (OCI-CV; 2010) and skin-picking reward scale (2015).

**Results:** The results of a Pearson correlation coefficient indicated that the subscales of obsessive-compulsive disorder significantly and directly related to the skin-picking disorder at a 99% confidence level. Moreover, the results obtained from a stepwise regression analysis demonstrated that obsessive thoughts predicted 0.05 of the variance of the skin-picking disorder among the children.

**Conclusions:** The obsessive thoughts are among the main causes of the incidence of the skin-picking disorder among children and adolescents.

**Keywords:** Obsessive-Compulsive Disorder, Skin-Picking, Child

## 1. Background

According to the latest changes made in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, due to having some overlaps, a new cluster of disorders, consisting of obsessive-compulsive disorder (hereafter referred to as OCD), trichotillomania (hair-pulling disorder; HPD), body dysmorphic disorder (BDD), hoarding, and skin-picking disorder (SPD), was considered. This cluster has been called obsessive-compulsive and related disorders (OCRDs) (1). OCD may create disabling conditions for children, adolescents, and their families (2). This disorder is regarded as early-onset disorders among children (3). Based on the American Psychiatric Association, OCD is mainly characterized by the presence of a series of obsessions and compulsions. Obsessions include recurrent thoughts, images, and/or impulses and compulsions are frequent mental acts that a person feels driven to perform in response to an obsession (4). OCD initiates from childhood and adolescence and can last as a long-lasting chronic disorder in humans (5). In childhood and adolescence, the prevalence rate of OCD is nearly 1 to 4 percent. This is while the prevalence of this disorder at older ages is between 2.7 and 19 percent, which can lead to dysfunctions in humans (6, 7). In most cases, OCD, hair-pulling disorder, and skin-picking disorder develop simultaneously (8).

The skin-picking disorder is similar to OCD and these two are classified in the same cluster in the DSM-5 (9). By definition, the skin-picking disorder is an excessive manipulation and a skin recurrence that results in tissue damage and impaired social function (10). The skin-picking disorder is a prevalent mental disorder that includes symptoms such as scratching the skin (11). The skin-picking disorder was documented in the 19th-century medical texts and it has been seriously investigated in the DSM-5. According to the latest reports, its prevalence is estimated to be 1.4% to 5.4% (12). Additionally, a very limited number of studies have been conducted to investigate the physical consequences of and disorders related to this disorder among children and adolescents (13). Accordingly, considering the importance of investigating OCD and skin-picking disorder in childhood, the present study sought to answer the following research question:

Is OCD a significant predictor of the skin-picking disorder among primary school children?

## 2. Objectives

The aim of this study was to determine the role of OCD in predicting the skin-picking disorder among primary school children.

### 3. Methods

This descriptive study followed by a correlational design. The current study had a statistical population constituting of all primary school students aged 7 to 11 years old (first-grade to fifth-grade) in the school year 2016 - 2017. According to the statistics provided by the General Office of the Department of Education in Zahedan, the number of primary school students studying in both districts of the Department of Education was 61012 students (30843 boy students and 30169 girl students). A corpus of 381 students (191 boy students and 190 girl students) was considered as a sample.

A multistage cluster sampling method was applied, such that from among these two districts, district 2 was randomly selected. Afterward, a list of all schools for girls and boys in district 2, including 38 schools for boys and 40 schools for girls, was prepared. From among these schools, four schools for boys and four schools for girls were randomly selected. Then, from each school, five classes were randomly chosen. Finally, 10 students from each class were selected from the attendance list using a simple random sampling (sortation) and 400 questionnaires were distributed to these students. After eliminating incomplete questionnaires, 381 questionnaires were analyzed. Additionally, to determine the sample size, the Cochran's formula with a given margin error ( $d = 0.05$ ) was used.

#### 3.1. Data Collection Tools

To analyze the obtained data, IBM SPSS statistics 23 was used. The data collection tools were the obsessive-compulsive inventory-child version (OCI-CV) and the skin picking reward scale.

#### 3.2. The Obsessive-Compulsive Inventory-Child Version

The obsessive-compulsive inventory-child version was developed in 2010 by Foa et al. (14) and the revised version of the Foa et al. Adults' obsessive-compulsive inventory was developed in 2002 (15). This inventory is an approaching well-established collective self-report tool used to assess the common dimensions or domains of OCD symptoms both in clinical and in nonclinical samples (16). The OCI-CV has shown to be valid in evaluating OCD in clinical and nonclinical populations (17). This self-report inventory can be used for people aged between 7 and 17 years old. The obsessive-compulsive inventory-child version includes 21 items and 6 subscales: doubting (five items), obsessing (four items), hoarding (three items), washing (three items), ordering (three items), and neutralizing (three items). Subjects should determine the extent of

their agreement or disagreement with each item of this inventory on a three-point Likert type scale (never = 0, sometimes = 1, and always = 2). To obtain an overall score, all scores related to these 21 items should be summed up. The scores range from 0 to 42. The greater a subject's score is, the more symptoms of OCD he/she experiences. In the current study, three cutoff points were considered, such that scores ranging from 0 to 14 indicated mild obsession, scores ranging from 15 to 28 demonstrated moderate obsession, and scores ranging from 29 to 42 showed severe obsession in the subjects. Moreover, to obtain a score related to each subscale, the scores of the items related to each subscale need to be summed up. The internal consistency reliability was 0.85 for the whole scale and it ranged from 0.81 to 0.83 for the subscales of this inventory. The test-retest reliability of this inventory for all the items was 0.77 (14).

#### 3.3. The Skin Picking Reward Scale (SPRS)

Validation of this scale was carried out in 2015 by Snorason et al. (18). This scale has been conducted on large samples of students and its main objective is to evaluate the extent to which subjects like and want to pick their skin. This scale includes 12 items that are answered using one of the following responses: never, rarely, sometimes, often, and always. The items are scored from 1 to 5. The SPRS has two subscales, i.e. liking and wanting skin picking. Items 1, 3, 5, 7, and 9 measure the liking subscale and items 2, 4, 6, 8, and 10 assess the wanting subscale. The reliability of the SPRS was examined using a test-retest method, which was obtained as 0.78 (18).

### 4. Results

In total, the data were obtained from 381 students aged 7 to 11 years old (191 boy students and 190 girl students) with the mean age of  $9 \pm 1.46$  who were studying in the first grade to fifth grade of primary school. The students' descriptive information including their gender, age, and level of education is presented in Table 1.

The Pearson correlation coefficient indicated that the subscales of OCD, including doubting (0.17), obsessing (0.22), washing (0.15), ordering (0.19), and neutralizing (0.14), have direct significant relationships with the skin-picking disorder among the children at a 99% confidence level (Table 2).

The stepwise regression analysis conducted to predict the skin-picking disorder among the children via the subscales of OCD showed that only obsessive thoughts entered into the equation and it could predict 0.05 of the variance of the skin-picking disorder among the children (Table 3).

**Table 1.** The Descriptive Information of Students Aged 7 to 11 Years Old

Variables	No. (%)
<b>Gender</b>	
Boy	190 (50.1)
Girl	191 (49.9)
<b>Age, y</b>	
7	76 (19.9)
8	87 (22.8)
9	59 (15.5)
10	71 (18.6)
11	88 (23.1)
<b>Level of education</b>	
First grade	76 (19.9)
Second grade	76 (19.9)
Third grade	76 (19.9)
Fourth grade	76 (19.9)
Fifth grade	77 (20.2)

**Table 2.** Correlation Matrix of the Subscales of OCD Among Children with the Skin-Picking Disorder

Variables	1	2	3	4	5	6	7
<b>Doubting</b>	1						
<b>Obsessing</b>	0.56 <sup>a</sup>	1					
<b>Hoarding</b>	0.48 <sup>a</sup>	0.49 <sup>a</sup>	1				
<b>Washing</b>	0.36 <sup>a</sup>	0.31 <sup>a</sup>	0.43 <sup>b</sup>	1			
<b>Ordering</b>	0.35 <sup>a</sup>	0.60 <sup>a</sup>	0.39 <sup>a</sup>	0.36 <sup>a</sup>	1		
<b>Neutralizing</b>	0.40 <sup>a</sup>	0.33 <sup>a</sup>	0.25 <sup>a</sup>	0.29 <sup>a</sup>	0.27 <sup>a</sup>	1	
<b>Skin-picking disorder</b>	0.17 <sup>a</sup>	0.22 <sup>a</sup>	0.11 <sup>b</sup>	0.15 <sup>a</sup>	0.19 <sup>a</sup>	0.14 <sup>a</sup>	1

<sup>a</sup>The correlation is significant at  $P \leq 0.01$ .<sup>b</sup>The correlation is significant at  $P \leq 0.05$ .**Table 3.** The Results of the Stepwise Regression Analysis Conducted to Predict the Skin-Picking Disorder Among Children via the Subscales of OCD

Step	OCD	R	R <sup>2</sup>	Adjusted R-Square	F	P Value	B	$\beta$	T	P Value
First step	Obsessing	0.22	0.05	0.04	19.765	0.00	1.455	0.223	4.446	0.00

## 5. Discussion

Research has demonstrated that OCD is highly prevalent among children and adolescents (19), such that the prevalence rate of this disorder was reported 1 in every 100 children in 2010 (14). Most children and adolescents with OCD have a relatively poor academic performance and, in most of them, this disorder is not likely to be diagnosed (2). Furthermore, OCD among children can pave the ground for a number of disorders including skin-picking and hair-pulling disorders. The results of the current study showed significant relationships between the subscales of OCD and the skin-picking disorder among the children, such that obsessive thoughts, with the strongest relationship, was a significant predictor of the skin-picking disorder among the children. Several studies have indicated that hair-pulling and skin-picking disorders are associated with OCD (1, 20, 21). Although some researchers believe that the etiologies and main causes of the skin-picking disorder are unclear (22), paying attention to causes together with finding the best method to treat this disorder in childhood is essential since the skin-picking disorder is among disorders that last until adolescence and even adulthood. Cognitive-behavioral therapy is the first step in the treatment of the skin-picking disorder and, if necessary, it can be useful in the second step of the treatment (23, 24). Moreover, given that the skin-picking disorder is a subclass of OCD, trying to treat OCD is a proper way to deal with its underlying disorders, including the skin-picking disorder. Therefore, applying psychological training on

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children with OCD can be considered as an effective way (25) since the lack of cognitive flexibility is one of the important factors of OCD (26).

### 5.1. Limitations

Although the skin-picking disorder is one of the most prevalent disorders among primary school children and it continues until adulthood, very limited studies have been conducted to examine this disorder in different parts of Iran.

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## Footnote

**Authors' Contribution:** Mohammad Ali Fardin and Mahmoud Shirazi conceived and designed the evaluation, interpreted the data and revised the manuscript critically for important intellectual content. Mohammad Ali Fardin performed the statistical analysis and revised the manuscript critically for important intellectual content. Mahmoud Shirazi and Ali Arab participated in interpretation of the data and revised the manuscript critically for important intellectual content and Mohammad Ali Fardin collected the data and drafted the manuscript. All authors read and approved the final manuscript.

## References

- Murphy YE, Flessner CA. Family functioning in paediatric obsessive compulsive and related disorders. *Br J Clin Psychol*. 2015;**54**(4):414-34. doi: [10.1111/bjc.12088](#). [PubMed: [26017183](#)].
- Tobin V. Obsessive-compulsive disorder in children and adolescents. *J Psychosoc Nurs Ment Health Serv*. 2018;**56**(3):15-8. doi: [10.3928/02793695-20180219-02](#). [PubMed: [29505086](#)].
- Gillett CB, Bilek EL, Hanna GL, Fitzgerald KD. Intolerance of uncertainty in youth with obsessive-compulsive disorder and generalized anxiety disorder: A transdiagnostic construct with implications for phenomenology and treatment. *Clin Psychol Rev*. 2018;**60**:100-8. doi: [10.1016/j.cpr.2018.01.007](#). [PubMed: [29426573](#)].
- American Psychiatric Association. [Diagnostic and statistical manual of mental disorders]. In: Yans HA, Minabad HH, HaGhahestaninna DA, translator and editor. 5th ed. Tehran: Roshd press; 2015. Persian.
- Micali N, Heyman I, Perez M, Hilton K, Nakatani E, Turner C, et al. Long-term outcomes of obsessive-compulsive disorder: follow-up of 142 children and adolescents. *Br J Psychiatry*. 2010;**197**(2):128-34. doi: [10.1192/bjp.109.075317](#). [PubMed: [20679265](#)].
- Voltas N, Hernandez-Martinez C, Arijia V, Aparicio E, Canals J. A prospective study of paediatric obsessive-compulsive symptomatology in a Spanish community sample. *Child Psychiatry Hum Dev*. 2014;**45**(4):377-87. doi: [10.1007/s10578-013-0408-4](#). [PubMed: [24077908](#)].
- Coles ME, Wolters LH, Sochting I, de Haan E, Pietrefesa AS, Whiteside SP. Development and initial validation of the obsessive belief questionnaire-child version (OBQ-CV). *Depress Anxiety*. 2010;**27**(10):982-91. doi: [10.1002/da.20702](#). [PubMed: [20577988](#)].
- Keuthen NJ, Curley EE, Scharf JM, Woods DW, Lochner C, Stein DJ, et al. Predictors of comorbid obsessive-compulsive disorder and skin-picking disorder in trichotillomania. *Ann Clin Psychiatry*. 2016;**28**(4):280-8. [PubMed: [27901519](#)].
- Blum AW, Chamberlain SR, Harries MD, Odlaug BL, Redden SA, Grant JE. Neuroanatomical correlates of impulsive action in excoriation (skin-picking) disorder. *J Neuropsychiatry Clin Neurosci*. 2018;**30**(3):236-41. doi: [10.1176/appi.neuropsych.17050090](#). [PubMed: [29685064](#)]. [PubMed Central: [PMC6076997](#)].
- Schienze A, Potthoff J, Wabnegger A. Voxel-based morphometry analysis of structural brain scans in skin-picking disorder. *Compr Psychiatry*. 2018;**84**:82-6. doi: [10.1016/j.comppsych.2018.04.010](#). [PubMed: [29727807](#)].
- Schienze A, Ubel S, Wabnegger A. Neuronal responses to the scratching and caressing of one's own skin in patients with skin-picking disorder. *Hum Brain Mapp*. 2018;**39**(3):1263-9. doi: [10.1002/hbm.23914](#). [PubMed: [29218753](#)].
- Grant JE, Odlaug BL, Chamberlain SR, Keuthen NJ, Lochner C, Stein DJ. Skin picking disorder. *Am J Psychiatry*. 2012;**169**(11):1143-9. doi: [10.1176/appi.ajp.2012.12040508](#). [PubMed: [23128921](#)].
- Brennan E, Woods DW, Franklin ME, Keuthen NJ, Piacentini J, Flessner CA. The role body-esteem plays in impairment associated with hair-pulling and skin picking in adolescents. *J Obsessive Compuls Relat Disord*. 2017;**12**:46-51. doi: [10.1016/j.jocrd.2016.12.003](#).
- Foa EB, Coles M, Huppert JD, Pasupuleti RV, Franklin ME, March J. Development and validation of a child version of the obsessive compulsive inventory. *Behav Ther*. 2010;**41**(1):121-32. doi: [10.1016/j.beth.2009.02.001](#). [PubMed: [2017333](#)].
- Foa EB, Huppert JD, Leiberg S, Langner R, Kichic R, Hajcak G, et al. The obsessive-compulsive inventory: Development and validation of a short version. *Psychol Assess*. 2002;**14**(4):485-96. doi: [10.1037/1040-3590.14.4.485](#). [PubMed: [12501574](#)].
- Martinez-Gonzalez AE, Rodriguez-Jimenez T, Piqueras JA, Vera-Villarreal P, Godoy A. Psychometric properties of the obsessive-compulsive inventory-child version (OCI-CV) in Chilean children and adolescents. *PLoS One*. 2015;**10**(8):e0136842. doi: [10.1371/journal.pone.0136842](#). [PubMed: [26317404](#)]. [PubMed Central: [PMC4552748](#)].
- Rosa-Alcazar AI, Ruiz-Garcia B, Iñiesta-Sepulveda M, Lopez-Pina JA, Rosa-Alcazar A, Parada-Navas JL. Obsessive Compulsive Inventory-Child Version (OCI-CV) in a Spanish community sample of children and adolescents. *Psicothema*. 2014;**26**(2):174-9. doi: [10.7334/psicothema2013.210](#). [PubMed: [24755017](#)].
- Snorrason I, Olafsson RP, Houghton DC, Woods DW, Lee HJ. 'Wanting' and 'liking' skin picking: A validation of the skin picking reward scale. *J Behav Addict*. 2015;**4**(4):250-62. doi: [10.1556/2006.4.2015.033](#). [PubMed: [26690620](#)]. [PubMed Central: [PMC4712759](#)].
- Geller DA. Obsessive-compulsive and spectrum disorders in children and adolescents. *Psychiatr Clin North Am*. 2006;**29**(2):353-70. doi: [10.1016/j.psc.2006.02.012](#). [PubMed: [16650713](#)].
- Lovato L, Ferrao YA, Stein DJ, Shavitt RG, Fontenelle LF, Vivan A, et al. Skin picking and trichotillomania in adults with obsessive-compulsive disorder. *Compr Psychiatry*. 2012;**53**(5):562-8. doi: [10.1016/j.comppsych.2011.06.008](#). [PubMed: [22014580](#)].

21. Richter MA, Summerfeldt LJ, Antony MM, Swinson RP. Obsessive-compulsive spectrum conditions in obsessive-compulsive disorder and other anxiety disorders. *Depress Anxiety*. 2003;**18**(3):118–27. doi: [10.1002/da.10126](https://doi.org/10.1002/da.10126). [PubMed: [14625876](https://pubmed.ncbi.nlm.nih.gov/14625876/)].
22. Fried RG, Kroumpouzos G. Skin excoriations: picking apart the picker. *G Ital Dermatol Venereol*. 2018;**153**(4):516–24. doi: [10.23736/S0392-0488.18.05980-1](https://doi.org/10.23736/S0392-0488.18.05980-1). [PubMed: [29667797](https://pubmed.ncbi.nlm.nih.gov/29667797/)].
23. Craig-Muller SA, Reichenberg JS. The other itch that rashes: A clinical and therapeutic approach to pruritus and skin picking disorders. *Curr Allergy Asthma Rep*. 2015;**15**(6):31. doi: [10.1007/s11882-015-0532-2](https://doi.org/10.1007/s11882-015-0532-2). [PubMed: [26141577](https://pubmed.ncbi.nlm.nih.gov/26141577/)].
24. Reggente N, Moody TD, Morfini F, Sheen C, Rissman J, O'Neill J, et al. Multivariate resting-state functional connectivity predicts response to cognitive behavioral therapy in obsessive-compulsive disorder. *Proc Natl Acad Sci USA*. 2018;**115**(9):2222–7. doi: [10.1073/pnas.1716686115](https://doi.org/10.1073/pnas.1716686115). [PubMed: [29440404](https://pubmed.ncbi.nlm.nih.gov/29440404/)]. [PubMed Central: [PMC5834692](https://pubmed.ncbi.nlm.nih.gov/PMC5834692/)].
25. Butlin B, Wilson C. Children's naive concepts of OCD and how they are affected by biomedical versus cognitive behavioural psychoeducation. *Behav Cogn Psychother*. 2018;**46**(4):405–20. doi: [10.1017/S1352465818000115](https://doi.org/10.1017/S1352465818000115). [PubMed: [29615141](https://pubmed.ncbi.nlm.nih.gov/29615141/)].
26. Wolff N, Giller F, Buse J, Roessner V, Beste C. When repetitive mental sets increase cognitive flexibility in adolescent obsessive-compulsive disorder. *J Child Psychol Psychiatry*. 2018. doi: [10.1111/jcpp.12901](https://doi.org/10.1111/jcpp.12901). [PubMed: [29603217](https://pubmed.ncbi.nlm.nih.gov/29603217/)].