

ORIGINAL ARTICLE

The Relationship between Onychophagia and Behavioral Disorders in Primary School Students

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ABSTRACT

Objective: This study had two primary objectives: to determine the prevalence of onychophagia among primary school students in Türkiye and to examine the relationship between onychophagia and sociodemographic variables as well as behavioral disorders.

Study Design: This research was designed as a descriptive cross-sectional study.

Place and Duration of Study: The study was conducted during the fall semester of the 2021–2022 academic year in a district located in the Central Anatolia region of Türkiye. The study population consisted of 709 parents of first-grade students aged 5–9 years attending 12 primary schools.

Material and Methods: Participants were selected through convenience sampling. Data were collected using a sociodemographic characteristics form and the Strength and Difficulties Questionnaire. Analytical procedures were executed to identify predictors and correlates of onychophagia.

Results: The findings demonstrated that onychophagia was associated with family structure, paternal educational level, employment status, and higher socioeconomic status. Children exhibiting onychophagia showed significantly increased difficulties in attention, hyperactivity, peer interactions, and prosocial behaviors when compared to their peers.

Conclusions: The study underscores the need for early identification and integrated intervention strategies targeting onychophagia. Educational authorities, healthcare professionals, and families should collaborate to enhance awareness, strengthen preventive practices, and promote early behavioral support. A multidisciplinary approach incorporating school health services, mental health professionals, and parental guidance is critical to addressing underlying behavioral challenges and mitigating the long-term impacts of onychophagia on child well-being.

Key Words: *Nail biting, Onychophagia, Children, Behavioral disorders.*

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INTRODUCTION

Nail-biting, medically called "onychophagia," is a condition where one constantly places fingernails near the mouth, peels off the top layer of the skin

above the nails, and bites the nails too.¹⁻³ Onychophagia is not a life-threatening condition, but it can indirectly cause the transmission of some parasitic infections (nail-biting, poor hand hygiene, etc.).^{3,4}

Onychophagia usually begins after the age of 3-4 and may continue into adulthood.^{2,3,5} The etiology of onychophagia is unknown and likely multifactorial (genetic, familial, and psychiatric).⁶ According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), onychophagia is an obsessive-compulsive and related disorder together with other body-focused repetitive behaviors.^{3,7} Onychophagia, an impulse common in both sexes, is often stress-related and linked to insecurity, with parental guidance focusing on identifying and addressing underlying causes rather than intervening before age 3-4.^{4,5} The child may be biting their nails to get the attention of others. Sometimes parents think that it is just a habit. However, onychophagia has other complications. Nail, cuticle, gum, tooth, and jaw joint problems and infections are more common in children with onychophagia.^{1,8} Parents and healthcare professionals should evaluate children with onychophagia in detail because it can damage the teeth and the alveolar structure.² Most research on onychophagia focuses on children.^{2,5,9} Research shows onychophagia primarily affects children, often linked to emotional symptoms, early childhood behaviors, and higher prevalence in girls and those from high socioeconomic backgrounds.^{2,6,10} Studies also indicate associations with health issues like intestinal infections.¹¹⁻¹³ This study assessed the prevalence of onychophagia in Turkish first-grade students and its links to sociodemographic and behavioral factors. In the present study, behavioral problems were conceptualized within the framework of the Strengths and Difficulties Questionnaire (SDQ), a widely used screening tool for emotional and behavioral difficulties in children. Accordingly, behavioral problems included symptoms related to hyperactivity/inattention, conduct problems, peer relationship problems, and prosocial behavior. These domains reflect both internalizing and externalizing behavioral patterns that may co-occur with body-focused repetitive behaviors such as onychophagia. Clarifying these behavioral dimensions is essential for understanding the potential psychosocial correlates of nail-biting behavior in early childhood.

MATERIAL AND METHODS

Data and Sample: This descriptive cross-sectional study was conducted in the 2021-2022 fall semester among parents of first-grade students aged 5-9 in Central Anatolia, Türkiye.

Using convenience sampling, 709 parents from eight schools participated, exceeding the required sample size of 456 for sufficient statistical power. Data were collected via online or paper surveys between December 2021 and February 2022, and participation was voluntary.

Data collection tools: The data were collected using a sociodemographic characteristics questionnaire and the Strength and Difficulties Questionnaire.

Sociodemographic characteristics questionnaire: The sociodemographic characteristics questionnaire was based on a literature review conducted by the researchers.^{1,11,14} The questionnaire consisted of two parts. The first part consisted of 12 items (1-12) on sociodemographic characteristics. The second part consisted of 12 items (13-24) on onychophagia.

Strength and difficulties questionnaire: The Strength and Difficulties Questionnaire (SDQ) screens behavioral and emotional symptoms in children, consisting of 25 items across five subscales rated on a three-point Likert scale.¹⁵⁻¹⁶ Scores indicate the likelihood of clinically significant problems, with the Turkish version showing a Cronbach's alpha of 0.84, and 0.73 in this study.

Research method: A voluntary survey, distributed online or by hand, was used to assess onychophagia prevalence and its links to sociodemographic factors and behavioral disorders among Turkish primary school students.

Ethical considerations: The study was approved by the local ethics committee of the faculty of medicine of xxx University (02.11.2021-2021/xxxx). Written permission was obtained from the xx Provincial Directorate of National Education (12/11/2021xxxx).

Statistical analysis: Data were analyzed using IBM SPSS 22.0, with significance levels of 0.05 and 0.001, using percentages for categorical data and mean \pm SD for continuous data. Normality was tested with Shapiro-Wilk, and parametric analyses included t-tests, One-Way ANOVA, and Scheffe posthoc comparisons.

RESULTS

Most participants were seven-year-old girls from nuclear families with average income, and most children had one or two siblings and nail clippers (table 1).

TABLE 1: The effect of sociodemographic characteristics on SDQ Scores (n=709)

	n (%)	Subscales				Total SDQ
		Hyperactivity /inattention	Conduct problems	Peer relationship problems	Prosocial behavior	
Child's age						
5	15(2.1)	6.47±1.77	5.73±1.62	5.87±.83	8.33±1.63	32.33±5.94
6	288(40.6)	9.92±1.86	7.49±1.49	7.32±1.99	12.37±2.08	46.46±4.43
7	406(57.3)	9.85±1.92	7.47±1.44	7.37±1.92	12.41±2.21	46.58±4.59
<i>p-value*</i>		<.001	<.001	.013	<.001	<.001
Child's sex						
Girl	372(52.5)	9.71±2.00	7.36±1.41	7.23±2.02	12.41±2.26	45.95±5.26
Boy	337(47.5)	9.92±1.89	7.53±1.56	7.41±1.87	12.19±2.17	46.54±4.65
<i>p-value**</i>		.147	.122	.216	.179	.115
Mother's age						
17-25	4(0.6)	9.50±.58	6.50±.578	5.75±.96	14.25±.50	45.00±1.41
26-34	322(45.4)	9.99±1.92	7.31±1.47	7.26±1.87	12.39±2.30	46.19±5.17
35-44	295(41.6)	9.55±1.97	7.51±1.5Ç2	7.47±2.01	12.13±2.18	45.99±4.85
≥45	88(12.4)	10.01±1.97	7.77±1.43	7.08±1.99	12.50±2.06	47.22±4.76
<i>p-value*</i>		.024	.027	.111	.114	.222
Father's age						
17-25	3(0.4)	9.00±1.00	6.00±.00	5.67±1.15	14.33±.58	44.00±1.73
26-34	169(23.8)	9.97±2.04	7.25±1.42	7.24±1.92	12.43±2.53	46.05±5.69
35-44	404(57.0)	9.71±1.95	7.46±1.54	7.36±1.92	12.19±2.15	46.03±4.85
≥45	133(18.8)	9.92±1.85	7.67±1.38	7.32±2.07	12.44±2.02	47.11±4.37
<i>p-value*</i>		.395	.031	.449	.217	.129
Mother's education (degree)						
Literate	11(1.6)	8.73±1.62	6.64±1.29	7.18±1.72	12.55±2.46	43.91±3.11
Primary school	340(48.0)	10.04±1.96	7.59±1.46	7.58±2.05	12.22±2.23	46.88±4.91
High school	235(33.1)	9.81±1.94	7.32±1.48	7.22±1.95	12.38±2.17	45.86±5.15
Bachelor's	113(15.9)	9.30±1.85	7.35±1.51	6.77±1.51	12.39±2.21	45.34±4.46
Master's	10(1.4)	8.80±1.81	7.20±1.99	6.90±1.45	12.30±3.27	45.30±7.93
<i>p-value*</i>		.001	.069	.002	.888	.009
Father's education (degree)						
Literate	6(0.8)	9.33±1.21	7.17±1.33	6.83±1.47	13.00±2.45	45.83±4.02
Primary school	198(27.9)	10.17±1.85	7.49±1.44	7.60±1.92	12.25±2.29	46.89±4.68
High school	311(43.9)	9.77±2.05	7.56±1.55	7.36±2.02	12.33±2.16	46.25±5.15
Bachelor's	173(24.4)	9.54±1.84	7.27±1.41	6.98±1.83	12.32±2.12	45.58±4.913
Master's	21(3.0)	9.38±1.99	6.86±1.49	7.00±1.84	12.05±3.14	45.00±5.63
<i>p-value*</i>		.021	.094	.032	.905	.101
Mother's occupation						
Civil servant	104(14.7)	9.29±1.91	7.34±1.49	6.93±1.63	12.22±2.38	45.49±5.08
Worker	46(6.5)	9.57±1.71	7.33±1.28	6.96±1.79	12.26±2.44	45.50±4.34
Self-employment	50(7.1)	9.74±2.28	7.56±1.57	7.44±1.96	12.22±2.19	46.46±5.68
Retired	1(.1)	10.00	6.00	7.00	15.00	49.00
Unemployed	508(71.7)	9.94±1.93	7.47±1.49	7.42±2.01	12.3287±2.17	46.42±4.95
<i>p-value*</i>		.036	.700	.125	.779	.356
Father's occupation						
Civil servant	132(18.6)	9.29±1.87	7.18±1.54	7.15±2.04	12.38±2.23	45.42±4.99
Worker	251(35.4)	9.81±1.96	7.51±1.39	7.34±1.95	12.29±2.28	46.17±5.36
Self-employment	282(39.8)	10.08±1.97	7.51±1.54	7.33±1.89	12.27±2.23	46.54±4.79
Retired	18(2.5)	8.78±2.02	7.72±1.32	7.61±2.38	12.39±1.65	46.11±3.68
Unemployed	26(3.7)	10.19±1.06	7.19±1.58	7.62±1.61	12.42±2.04	47.58±3.57
<i>p-value*</i>		<.001	.161	.734	.988	.168
Number of siblings						
None	104(14.6)	9.70±2.15	7.31±1.28	7.00±1.78	12.39±2.33	45.92±5.39
One	251(35.4)	9.64±1.98	7.55±1.61	7.17±2.01	12.31±2.32	45.98±5.17
Two	216(30.5)	9.89±1.91	7.40±1.47	7.59±2.03	12.19±2.16	46.25±5.13
≥3	138(19.5)	10.07±1.78	7.41±1.42	7.39±1.78	12.42±2.05	46.87±3.96
<i>p-value*</i>		.178	.476	.032	.769	.348
Family type						
Nuclear	566(79.8)	9.76±1.94	7.41±1.46	7.28±1.89	12.35±2.23	46.15±4.84

Extended	111(15.7)	9.84±2.02	7.52±1.67	7.39±2.12	11.84±2.19	45.76±5.57
Broken	32(4.5)	10.53±1.72	7.72±1.30	7.78±2.25	13.22±1.81	49.25±4.56
<i>p-value*</i>		.093	.434	.334	.005	.002
Family income						
Negative income (income < expense)	251(35.4)	10.08±1.99	7.49±1.47	7.41±1.96	12.36±2.14	46.71±5.04
Neutral income (income = expense)	384(54.2)	9.69±1.92	7.41±1.49	7.25±1.98	12.23±2.23	45.91±4.91
Positive income (income > expense)	74(10.4)	9.46±1.83	7.45±1.53	7.35±1.76	12.51±2.42	46.24±5.14
<i>p-value*</i>		.014	.837	.566	.537	.146
School Socioeconomic status						
High ¹	393(55.4)	9.58±1.95	7.46±1.55	7.27±1.91	12.23±2.27	45.85±5.53
Middle ²	162(22.8)	10.08±1.92	7.44±1.36	7.31±1.82	12.43±2.16	46.93±3.98
Low ³	154(21.6)	10.12±1.919	7.39±1.47	7.46±2.17	12.35±2.16	46.44±4.36
<i>p-value*</i>		.002	.901	.598	.608	.056

*OneWayAnova Test, **Independent t Test

Note:¹High: Two schools (1 Cumhuriyet Primary School, 5 Yıldırım Primary School), ²Middle : Two schools (2Tarık Buğra-6 Nasrettin Primary School)

³Low: Four schools (3 Doğrugöz Primary School, 4 Nihat Dayanık Primary School, 7 Mehmet Türkmen Primary School, 8 Haydar Tuna Primary School)

Onychophagia prevalence was not significantly related to most child and maternal factors, including age, sex, and maternal education (**table 2**).

TABLE 2: The effect of sociodemographic characteristics on the prevalence of onychophagia (n=709)

	Onychophagia		P
	Yes n(%)	No n(%)	
Child's age			
5	8(53.3)	7(46.7)	.272
6	98(34.0)	190(66.0)	
7	135(33.3)	271(66.7)	
Child's sex			
Girl	127(34.1)	245(65.9)	.497
Boy	114(33.8)	223(66.2)	
Mother's age			
17-34	121(37.1)	205(62.9)	.251
35-44	91(30.8)	204(69.2)	
≥45	29(33.0)	59(67.0)	
Father's age			
17-34	72(41.9)	100(58.1)	.042
35-44	126(31.2)	278(68.8)	
≥45	43(32.3)	90(67.7)	
Mother's education (degree)			
Primary school or lower	128(36.5)	223(63.5)	.204
High school	79(33.6)	156(66.4)	
Bachelor's or higher	34(27.6)	89(72.4)	
Father's education (degree)			
Primary school or lower	84(41.2)	120(58.8)	.007
High school	106(34.1)	205(65.9)	
Bachelor's or higher	51 (26.3)	143(73.7)	
Mother's occupation			
Civil servant	29(27.9)	75(72.1)	.462
Worker	18(39.1)	28(60.9)	
Self-employment	16(32.0)	34(68.0)	

Retired/ Unemployed	178(35.0)	331(65.0)	
Father's occupation			
Civil servant	31(23.5)	101(76.5)	.018
Worker	93(37.1)	158(62.9)	
Self-employment	100(35.5)	182(64.5)	
Retired	4(22.2)	14(77.8)	
Unemployed	13(50.0)	13(50.0)	
Number of siblings			
None	34(32.7)	70(67.3)	.624
One	92(36.7)	159(63.3)	
Two	67(31.0)	149(69.0)	
≥3	48(34.8)	90(65.2)	
Family type			
Nuclear	180(31.8)	386(68.2)	.042
Extended	46(41.4)	65(58.6)	
Broken	15(46.9)	17(53.1)	
Family income			
Negative income (income < expense)	93(37.1)	158(62.9)	.244
Neutral income (income = expense)	120(31.2)	264(68.8)	
Positive income (income > expense)	28(37.8)	46(62.2)	
School			
¹ High	155(39.4)	238(60.6)	.003
² Middle	45(27.8)	117(72.2)	
³ Low	41(26.6)	113(73.4)	

Note:¹High: Two schools (1 Cumhuriyet Primary School, 5 Yıldırım Primary School), ²Middle: Two schools (2 Tarık Buğra-6 Nasrettin Primary School)

³Low: Four schools (3 Doğrugöz Primary School, 4 Nihat Dayanık Primary School, 7 Mehmet Türkmen Primary School, 8 Haydar Tuna Primary School)

Children had a mean SDQ score of 46.23±4.98 (min: 27.00 – max: 65.00) (table 3).

TABLE 3: SDQ Scores

	Min.-Max.	M±SD
Hyperactivity/inattention	5.00-15.00	9.81±1.95
Conduct problems	5.00-13.00	7.44±1.49
Peer relationship problems	5.00-14.00	7.32±1.95
Prosocial behavior	5.00-15.00	12.31±2.22
TotalSDQ	27.00-65.00	46.23±4.98

Table 4 compares onychophagia and SDQ scores.

TABLE 4: Onychophagia and SDQ scores (n=709)

	n(%)	Subscales				Total SDQ
		Hyperactivity/inattention	Conduct problems	Peer relationship problems	Prosocial behavior	
Onychophagia						
Yes	241(34.0)	9.94±2.08	7.44±1.55	7.94±2.12	12.22±2.36	46.85±5.99
No	468(66.0)	9.74±1.88	7.44±1.45	6.99±1.77	12.35±2.15	45.91±4.35
<i>p-value**</i>		.190	.989	<.001	.466	.017
Harms of nail-biting						
Yes	612(86.3)	9.84±1.96	7.43±1.48	7.27±1.97	12.39±2.21	46.31±4.94
No	97(13.7)	9.59±1.86	7.56±1.51	7.59±1.77	11.76±2.23	45.70±5.28
<i>p-value**</i>		.231	.417	.127	.010	.264
Onychophagia						
No	465(65.6)	9.76±1.85	7.47±1.46	6.99±1.78	12.37±2.09	45.99±4.09

Angry	21(3.0)	10.14±1.53	7.86±1.46	7.95±2.27	12.57±2.14	47.71±5.09
Scared	30(4.2)	10.13±1.94	7.57±1.22	7.93±1.57	12.87±2.66	48.30±5.57
Worried	38(5.4)	9.71±2.30	7.37±1.68	8.03±2.01	11.74±2.59	45.21±8.23
Bored	43(6.1)	9.69±1.77	7.02±1.83	8.35±2.66	11.95±2.27	45.81±5.96
Unaware	77(10.9)	10.46±2.20	7.49±1.49	7.86±2.07	12.38±2.11	47.95±5.17
Getting attention	6(.8)	9.50±4.18	7.00±1.41	7.50±2.81	11.83±2.79	44.67±13.17
Embarrassed	18(2.5)	7.89±1.49	7.22±1.48	7.61±1.33	11.28±3.74	43.06±6.87
Imitating	11(1.5)	10.09±1.64	7.18±1.25	7.46±1.81	12.46±2.07	46.64±2.20
<i>p-value*</i>		<.001	.547	<.001	.239	.001
Number of nails bitten						
None	470(66.3)	9.73±1.88	7.45±1.46	6.98±1.78	12.34±2.11	45.89±4.28
1-2	176(24.8)	9.97±2.03	7.39±1.52	7.98±2.04	12.32±2.39	47.05±5.55
3-4	29(4.1)	9.17±2.58	7.45±1.81	7.55±2.28	10.89±2.57	43.00±9.05
≥5	34(4.8)	10.56±1.74	7.56±1.39	8.38±2.19	12.94±2.06	49.41±3.85
<i>p-value*</i>		.018	.944	<.001	.002	<.001
Nail beds						
No problem	523(73.8)	9.74±1.88	7.45±1.45	7.07±1.81	12.33±2.14	45.99±4.49
Only nail-biting	162(22.8)	10.03±2.04	7.41±1.49	8.07±2.08	12.36±2.37	47.19±5.32
Biting nails and cuticles	16(2.3)	9.25±2.93	7.13±2.19	7.31±2.27	11.06±2.72	43.19±9.98
Biting nails and cuticles plus bleeding sores around the nail	8(1.1)	11.13±1.89	8.13±2.03	8.50±2.73	11.88±2.75	47.75±9.53
<i>p-value*</i>		.050	.476	<.001	.139	.003
Nail biting day						
None	467(65.9)	9.77±1.85	7.47±1.47	6.99±1.78	12.38±2.08	46.01±4.09
1-2	194(27.4)	9.64±2.02	7.40±1.57	7.89±2.06	12.07±2.48	46.22±6.29
3-4	16(2.3)	9.19±2.46	7.06±1.69	8.00±2.45	10.75±3.04	43.75±6.77
5-6	24(3.4)	11.96±1.76	7.46±1.10	8.08±1.99	13.54±1.06	50.63±5.24
Every day	8(1.0)	11.13±1.64	7.38±1.30	8.75±2.55	13.25±1.83	50.63±3.54
<i>p-value*</i>		<.001	.843	<.001	.001	<.001
Family member with onychophagia						
Yes	123(17.3)	10.00±1.98	7.47±1.53	7.71±2.14	12.16±2.49	46.76±6.32
No	586(82.7)	9.77±1.94	7.44±1.48	7.24±1.89	12.34±2.16	46.11±4.65
<i>p-value**</i>		.230	.814	.014	.453	.282
Relief after biting nails						
Yes	72(10.2)	9.54±2.35	7.17±1.89	8.31±2.69	11.54±2.51	45.31±8.39
No	637(89.8)	9.84±1.89	7.47±1.43	7.21±1.81	12.39±2.17	46.33±4.44
<i>p-value**</i>		.221	.096	<.001	.002	.098
Onychophagia-related health problem						
Yes	17(2.4)	8.47±2.40	7.59±2.39	7.82±2.48	10.71±2.20	42.88±8.72
No	692(97.6)	9.84±1.93	7.44±1.46	7.31±1.93	12.34±2.21	46.31±4.84
<i>p-value**</i>		.004	.802	.404	.003	.126
Hiding while biting nails						
Yes	76(10.7)	10.21±2.31	7.63±1.71	8.58±2.41	12.00±2.16	47.65±6.79
No	633(89.3)	9.76±1.89	7.42±1.46	7.17±1.83	12.34±2.23	46.06±4.69
<i>p-value**</i>		.105	.242	<.001	.206	.051
Behavior that accompanies onychophagia						
No	682(96.2)	9.83±1.92	7.45±1.46	7.29±1.90	12.36±2.17	46.35±4.69
Skin picking	11(1.6)	10.82±1.94	7.82±2.09	8.18±2.04	11.27±2.97	47.36±5.29
Hair pulling	3(0.4)	10.00±1.73	6.33±1.53	9.00±3.00	10.00±2.00	43.67±10.21
Lip and cheek biting	9(1.3)	6.89±2.03	5.89±1.45	5.78±1.09	9.33±2.78	33.78±7.17
Multiple behaviors	4(0.6)	9.50±2.89	9.00±2.31	12.50±.58	13.50±.58	52.50±5.19
<i>p-value*</i>		<.001	.002	<.001	<.001	<.001

*One-WayAnova Test, **Independent t-test

Table 5 answered whether children with onychophagia had any other behavioral difficulties. There was no

statistically significant relationship between onychophagia and other behavioral difficulties ($p>0.05$).

TABLE 5: Participants' responses to behavioral difficulties in their children

Thinking that the child has difficulties	n(%)	Behaviors other than onychophagia		p
		Yes	None	
No	441(62.2)	114(25.9)	327(74.1)	<.001
Yes, a little	216(30.5)	102(47.2)	114(52.8)	
Yes, pretty serious	37(5.2)	18(48.6)	19(51.4)	
Yes, very serious	15(2.1)	7(46.7)	8(53.3)	
Total	709(100)			
If the child is believed to have difficulties (month)				.271
<1 month	50(18.7)	19(38.0)	31(62.0)	
1-5 months	68(25.4)	33(48.5)	35(51.5)	
6-12 months	39(14.5)	16(41.0)	23(59.0)	
>1 year	111(41.4)	59(53.2)	52(46.8)	
Bothering the child				.777
Never	80(29.9)	37(46.2)	43(53.8)	
A little	166(61.9)	78(47.0)	88(53.0)	
Quite a lot/Too much	22(8.2)	12(54.5)	10(45.5)	
Affecting daily life				.757
Never	87(32.5)	44(50.6)	43(49.4)	
A little	165(61.6)	76(46.1)	89(53.9)	
Quite a lot/Too much	16(6.0)	7(43.8)	9(56.2)	
Causing difficulties for the family				.256
Never	103(38.4)	49(47.6)	54(52.4)	
A little	143(53.4)	64(44.8)	79(55.2)	
Quite a lot/Too much	22(8.2)	14(63.6)	8(36.4)	
Total	268(100)			

DISCUSSION

Onychophagia is a multifactorial childhood health problem with variable prevalence, partly due to underreporting by children and parents.^{3,6} Its prevalence ranges globally from 5.8% to 48%, with 34% observed in this study, aligning with existing literature.^{2,6,9,11,17}

There was no significant difference in the prevalence of onychophagia between girls and boys, which is consistent with the literature.^{2,6,9} Onychophagia was more frequent among five-year-olds and children from broken families, with family disruption and stress contributing to its occurrence and associated developmental and mental health issues^{18,19}. Children's onychophagia was influenced by paternal education and employment, and was more common in students from high socioeconomic status schools, likely due to family dynamics and relational issues.¹²

Onychophagia and peer relationship problems emerged as one of the most prominent behavioral findings of this study. Children with onychophagia had significantly higher peer relationship problem

scores compared to those without this behavior, suggesting a potential link between nail-biting and difficulties in social functioning. Similar associations have been reported in previous studies, indicating that onychophagia may be related to peer rejection, impaired interpersonal interactions, and reduced social adjustment. Body-focused repetitive behaviors have been conceptualized as maladaptive emotion regulation strategies and have been associated with emotional dysregulation and social anxiety, particularly during early school years. Supporting this interpretation, Oh et al. (2020) reported that children who engaged in nail-biting exhibited more severe behavioral problems, with the highest levels observed among those with frequent nail-biting behavior.²⁰ Likewise, Sisman et al. (2017) found that adolescents with onychophagia had significantly lower perceived social support, especially from mothers and classmates, highlighting the interpersonal dimension of this behavior.²¹ Furthermore, Roberts et al. (2013) emphasized that body-focused repetitive behaviors, including nail-biting, may reflect underlying psychological vulnerabilities rather

than simple habits.²² Taken together, these findings support the view that onychophagia should not be regarded merely as a benign habit, but rather as a potential behavioral marker of broader psychosocial and emotional difficulties in children and adolescents.

Children with onychophagia showed more hyperactivity, peer, and prosocial difficulties than peers, though overall SDQ scores were normal, possibly due to parent-reported bias.^{2,6} This pattern suggests that nail-biting may be linked to specific social domains rather than to generalized behavioral maladjustment. Consistent with these findings, Mansoori et al. (2023) reported that children who engage in nail-biting show more pronounced peer relationship and prosocial difficulties, despite having SDQ total scores that do not exceed clinical thresholds.²³ In contrast to peer relationship problems, hyperactivity/inattention and conduct problems were not significantly associated with onychophagia in this study. Contrary to some previous studies reporting associations between onychophagia and hyperactivity or conduct problems^{2,4}, no significant differences were observed in these domains in the present study. This discrepancy may be explained by the reliance on parent-reported data, which may underestimate externalizing behaviors, or by the relatively young age group of the sample, in whom behavioral symptoms may not yet be fully differentiated. Similar methodological explanations have been discussed in earlier population-based studies using parental questionnaires.

Stressors may contribute to onychophagia, and underreporting by parents may lead to lower observed diagnosis rates.^{8,9} Parents often underestimated co-occurring behaviors, but children and family members with onychophagia should be monitored and included in psychological evaluations and interventions. Parental perceptions regarding onychophagia and accompanying behavioral difficulties also warrant consideration. Although most parents reported that their children did not have additional behavioral difficulties beyond onychophagia, previous research suggests that parents may perceive nail-biting as a benign habit rather than a potential sign of emotional distress. This perception may delay professional evaluation and contribute to underrecognition of co-occurring emotional or social problems. The literature

clearly demonstrates that nail-biting is not merely a simple or benign habit. Lipner et al. (2018) reported that the prevalence of psychiatric diagnoses was significantly higher among individuals with nail-biting behavior (18%) compared with those without nail-biting (6%).²⁴ Similarly, Halteh et al. (2017) emphasized that onychophagia can lead to substantial psychosocial problems and negatively affect quality of life.³ Ellington et al. (2017) further highlighted that when nail-biting persists over time, it may result in both physical and emotional consequences.

Taken together, this body of evidence underscores the critical need to increase parental awareness of the potential psychological dimensions of onychophagia. Enhancing such awareness may encourage earlier and more proactive professional evaluation and support, thereby contributing to the protection and promotion of children's emotional and social well-being. Onychophagia is a stress-related impulse behavior, often triggered by boredom, worry, or tension, providing relief or pleasure.^{1,6,7,25}

Onychophagia can cause nail, cuticle, and oral complications, with prevalence influenced by nail-biting frequency and related behaviors like lip and cheek biting.^{1,8,17}

Limitations: This study had three limitations. First, the results are sample-specific. Second, the data is based on self-report. Third, children did not undergo psychiatric, dermatological, or dental examinations.

CONCLUSION

Onychophagia was observed in 34% of first-grade students, highlighting its relevance to children's physical and mental health. Educators, parents, and healthcare professionals should collaborate through training and multidisciplinary approaches to identify, prevent, and manage onychophagia, with further research needed on its causes and effects.

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Author's Contribution

BM: Proposed topic, basic study design, material and methods and manuscript writing

FO: Data collection, statistical analysis and interpretation of result etc.

MTB: Literature review & referencing and quality insurer

All the authors have approved the final manuscript draft and accept the responsibility of research integrity.