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Picking and Nibbling in Children and Adolescents with Eating Disorders

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Abstract

Objective—Picking and nibbling (P&N), defined as eating in an unplanned and repetitious way between meals and snacks, is prevalent among adults with eating disorders (EDs), but unexamined among youth with EDs. This study sought to assess the prevalence of P&N in youth with EDs and its association with ED and comorbid pathology.

Method—Youth ($N = 515$; ages 7–18) who presented to one outpatient ED research-clinical program were assessed for ED and comorbid pathology.

Results—Two-fifths ($n = 214$, 41.6%) of youth endorsed P&N. These individuals were older ($p < .001$) and had a higher percent expected body weight ($p = .006$) than those who denied P&N. Controlling for age and percent expected body weight, P&N was only associated with global ED pathology in youth with anorexia nervosa (AN) or atypical AN ($p = .007$). P&N was not associated with ED diagnosis, ED pathology in youth with bulimia nervosa or subclinical bulimia nervosa, binge eating, compensatory behaviors, secret eating, or the presence of a mood or anxiety disorder (p's > .05).

Discussion—Consistent with research in adults, P&N is prevalent but not significantly associated with ED pathology, except for global ED pathology in youth with AN/atypical AN, or comorbid disorders.

Keywords

picking and nibbling; eating disorders; children and adolescents

Introduction

Picking and nibbling (P&N) refers to eating in an unplanned and repetitious way between meals and snacks. Sometimes termed grazing, P&N is prevalent among community adults (i.e., 91% endorsed   1 P&N episode in the past month[1]), adults before and after bariatric

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surgery (i.e., 29.5%[2] and 32.2%–47.3%,[2,3] respectively), and adults with eating disorders (EDs; i.e., 30%–90%[4,5]). P&N is more common in patients with EDs than in community controls,[6] and findings conflict regarding differences between ED diagnoses in adults.[5,6] P&N is included in the gold-standard assessment of ED pathology,[7] but may not be a clinically meaningful ED behavior.[4–6] Indeed, P&N is not associated with body mass index, binge eating, restraint, purging, or ED pathology among adults with EDs.[4–6] However, no study has evaluated P&N in youth with EDs, whose eating profiles may differ from adults based on living with parents or guardians and differential access to food. Youth who endorse P&N may also endorse other ED behaviors or pathology. Moreover, P&N has not been evaluated in relation to depression and anxiety, despite associations between disordered eating and negative affect.[8–11] Understanding P&N in youth may inform whether P&N is clinically meaningful to assess in patients with EDs, which is particularly relevant for youth who benefit from streamlined assessments that reduce burden. Thus, this study reports on the prevalence of P&N in youth and examines its association with ED and comorbid psychopathology. Despite findings showing no association between P&N and ED pathology in adults, we hypothesized P&N would be related to ED and comorbid pathology in youth, given their potentially different eating profiles and associations between disordered eating and negative effect. Given conflicting findings in adults, no specific hypotheses were made regarding differences between ED diagnoses.

Method

Participants and Procedure

Participants were 515 youth up to age 18 (mean age = 15.4 ± 2.0 years; range: 7–18 years) presenting to one outpatient ED research-clinical program for a baseline assessment. For these analyses, included patients met Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria[12] for atypical anorexia nervosa or anorexia nervosa (herein referred to as "AN," $n = 308$) or subclinical bulimia nervosa or bulimia nervosa (herein referred to as "BN," $n = 207$). Excluded youth were individuals with other ED diagnoses ($n = 59$), as small numbers presented in this category, or no ED.

Measures

Demographics and Anthropometric Data—Demographics were reported by youth or their parents. Height and weight were objectively measured by trained assessors using a calibrated digital scale and stadiometer and used to calculate percent expected body weight (%EBW) for age and sex. Individuals were weighed without shoes and wearing light indoor clothing.

The Eating Disorder Examination—The Eating Disorder Examination (EDE) is a semi-structured interview used to assess ED pathology,[7] via standardized administration by trained clinic staff. Participants reported the number of meals and snacks eaten in the past 28 days, as well as episodes of P&N, objective binge episodes (OBEs; range: 0–156), subjective binge episodes (SBEs; range: 0–112), compensatory behaviors (i.e., vomiting, laxative misuse, or diuretic misuse; range: 0–156), and secret eating. Responses were scored on a 0–6 scale, with higher scores indicating increased episode numbers or severity. P&N

was assessed by, "Over the past four weeks have you picked at (or nibbled) food between meals and snacks. By 'picking' I mean eating in an unplanned and repetitious way." The range of days in which P&N occurred was assessed; the response was dichotomized for analyses because the 0–6 rating scale does not represent a true continuous frequency rating. The EDE yields four subscales and a global score, none of which include P&N in calculations. The EDE has demonstrated good reliability and validity[13] and has been used in studies of youth with EDs.[9,14–16] Sample internal consistency was 0.79 (Restraint), 0.74 (Eating Concern), 0.91 (Shape Concern), and 0.82 (Weight Concern).

Comorbid Pathology—A semi-structured interview[a] was used to assess *DSM-IV-TR* psychiatric disorders, via standardized administration by trained clinic staff.[17–19] For this study, "mood disorders" included current major depression, bipolar 1, bipolar 2, dysthymia, cyclothymia, and depressive disorder not otherwise specified. "Anxiety disorders" included current obsessive-compulsive disorder, panic, specific phobia, post-traumatic stress disorder, social anxiety, generalized anxiety, separation anxiety, and anxiety disorder not otherwise specified.

Analysis Plan

χ^2 and *t*-tests were used to evaluate differences in demographics between those who endorsed versus denied P&N. Subsequent analyses were adjusted for significant demographic variables. Univariate analyses of covariance were used to examine the relations between P&N and EDE global score and frequency of OBEs, SBEs, and secret eating. Multivariate analysis of covariance was used to evaluate the relations between P&N and EDE subscale scores, compensatory behavior frequency, and meal and snack frequency. Logistic regression was used to evaluate the relations between P&N and ED, mood disorder, and anxiety disorder diagnoses. *p*-values <.05 were considered statistically significant.

Results

Two hundred fourteen (41.6%) patients endorsed P&N. **Table 1** shows demographic differences between those who endorsed versus denied P&N. **Table 2** presents frequency of P&N for the full sample and by ED diagnosis.

Controlling for age and %EBW, P&N was associated with EDE global score in patients with AN ($F(1, 296) = 7.27$; $p = .007$) but not with BN ($F(1, 203) = 3.33$; $p = .07$). However, controlling for age and %EBW, P&N was not associated with EDE subscale scores (AN: $F(4, 293) = 2.35$; $p = .054$ and BN: $F(4, 200) = 1.06$; $p = .38$), OBEs (AN: $F(1, 294) = 1.08$; $p = .30$ and BN: $F(1, 203) = 0.17$; $p = .68$), SBEs (AN: $F(1, 292) = 0.94$; $p = .33$ and BN: $F(1, 199) = 1.35$; $p = .25$), compensatory behaviors (AN: $F(3, 292) = 1.07$; $p = .36$ and BN: $F(3, 197) = 0.96$; $p = .42$), secret eating (AN: $F(1, 296) = 0.55$; $p = .46$ and BN: $F(1, 202) = 0.35$; $p = .56$), or frequency of meals or snacks (AN: $F(6, 290) = 1.41$; $p = .21$ and BN: $F(6, 198) = 0.87$; $p = .52$). P&N was not associated with ED diagnosis (Exp(B) = 1.46; 95%

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[a]Structured clinical interviews were used across all participants. Prior to 2013, the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) was used to assess comorbid pathology. However, in 2013, clinic protocol was changed to use the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID). Both assessments have good validity for assessing comorbid psychopathology in youth, with comparable psychometric properties.[18,19]

confidence interval (CI = 0.90–2.37; p = .12), mood disorders (AN: Exp(B) = 0.70; 95% CI = 0.40–1.24; p = .23 and BN: Exp(B) = 1.04; 95% CI = 0.58–1.85; p = .90), or anxiety disorders (AN: Exp(B) = 0.69; 95% CI = 0.38–1.25; p = .22 and BN: Exp(B) = 0.93; 95% CI = 0.47–1.85; p = .84), controlling for age and %EBW.

Discussion

This is the first evaluation of P&N in youth with EDs. Consistent with research in adults with EDs,[4,5] P&N was prevalent but not associated with ED pathology, except for global ED pathology in patients with AN, or with mood or anxiety disorders.

The significant association between global ED pathology and P&N in AN is inconsistent with past research showing no correlation between these constructs in adults with AN.[5] ED pathology may be heightened due to concerns of engaging in P&N; alternatively, engaging in P&N—a behavior distinct from eating meals or snacks—may facilitate maintenance of restrictive eating patterns, leading to heightened pathology. However, because P&N was unrelated to EDE subscale scores in this subgroup, results should be interpreted with caution. Youth who endorsed P&N also had a higher %EBW than youth who denied P&N, suggesting that P&N may be more common among youth at higher weights; however, the lower weight group was still within the healthy weight range.[20] Future research evaluating the function and consequences of P&N in youth may inform whether P&N represents a mal-adaptive ED behavior and highlight potential intervention targets.

Youth who endorsed P&N were older, which may be explained by the increased accessibility of food as youth age and gain greater independence over food choices. Unlike studies showing an association between P&N and snacking frequency in adults with binge eating disorder[4] or an association between eating pathology, increased snacking, and decreased meal consumption in youth with loss of control eating,[14] P&N was not associated with eating meals or snacks in this sample. However, sample differences (e.g., AN/BN versus binge eating disorder) may explain this discrepancy. Expanding evaluations to youth with other ED pathology may yield different findings.

Study strengths include the large sample size and use of semi-structured interviews. However, limitations include use of only youth with AN or BN, lack of a nonclinical comparison group, use of the adult and not child EDE, lack of inter-rater reliability checks on EDE administration, and change in measures assessing comorbid pathology. Additionally, results may not generalize to non-treatment–seeking samples.

In summary, results support past research showing no association between P&N and ED pathology, except for global ED pathology in patients with AN, despite being prevalent in patients with EDs. Results continue to call into question whether P&N is clinically relevant for gold-standard ED assessments. Nevertheless, prospective studies are needed to evaluate the prognostic utility of P&N among ED patients and whether targeting P&N improves ED treatment outcomes.

Acknowledgement

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TABLE 1

Demographic comparisons between individuals who endorsed versus denied picking and nibbling

	Full Sample (*n* = 515)	Endorsed Picking and Nibbling (*n* = 214)	Denied Pickingand Nibbling (*n* = 301)	Statistic	*p*-Values
Age (in years)[a]	15.4 (2.0)	15.8 (1.9)	15.1 (2.0)	$t(513) = -3.70$	<.001 [*]
Family income (in US dollars)[a]	117,200.71 (102,186.03)	129,435.24 (125,718.26)	107,235.48 (77,094.85)	$t(159) = -1.55$	.12
Duration of illness (in months)[a]	90.3 (262.7)	119.5 (304.9)	71.9 (231.2)	$t(240) = -1.59$	.11
Percent of expected body weight[a]	96.3 (20.3)	100.1 (24.9)	93.6 (15.8)	$t(328) = -3.36$	.001 [**]
Female[b]	475 (92.2)	198 (92.5)	277 (92.0)	$\chi^2(1) = 0.043$	.84
White (versus non-White)[b]	463 (89.9)	189 (88.7)	274 (91.3)	$\chi^2(1) = 0.958$	.33
Hispanic ethnicity[b]	65 (12.6)	27 (12.7)	38 (12.7)	$\chi^2(1) = 0.001$	.98
Age ranges[b]				—	—
7–11 years	11 (2.1)	2 (18.2)	9 (81.8)		
12–14 years	174 (33.8)	58 (33.3)	116 (66.7)		
15–16 years	184 (35.7)	79 (42.9)	105 (57.1)		
17–18 years	135 (26.2)	72 (53.3)	63 (46.7)		
Eating disorder diagnosis[b]				—	—
Anorexia nervosa[b]	197 (38.3)	75 (38.1)	122 (61.9)		
Atypical anorexia nervosa[b]	111 (21.6)	31 (27.9)	80 (72.1)		
Bulimia nervosa[b]	100 (19.4)	55 (55.0)	45 (45.0)		
Subclinical bulimia nervosa[b]	107 (20.8)	53 (49.5)	54 (50.5)		
Any mood disorder[b]	181 (35.1)	76 (37.4)	105 (36.7)	$\chi^2(1) = 0.027$	.87
Any anxiety disorder[b]	116 (22.5)	44 (21.7)	72 (25.2)	$\chi^2(1) = 0.804$	.37

[a] Values given are mean (SD) values.

[b] Values given are *n* (%) values.

[*] $p < 0.001$

[**] $p < 0.01$.

TABLE 2

Number and percentage of participants reporting P&N across the different frequency categories over the past 28 days by eating disorder diagnostic group

Frequency Category	Full Sample (n = 515)	Anorexia Nervosa and Atypical Anorexia Nervosa (n = 308)	Bulimia Nervosa and Subclinical Bulimia Nervosa (n = 207)
Not present	301 (58.4)	202 (65.6)	99 (47.8)
1–5 days	93 (18.1)	52 (16.9)	41 (19.8)
6–12 days	50 (9.7)	20 (6.5)	30 (14.5)
13–15 days	24 (4.7)	9 (2.9)	15 (7.2)
16–22 days	28 (5.4)	14 (4.5)	14 (6.8)
23–27 days	4 (0.8)	2 (0.6)	2 (1.0)
Everyday	15 (2.9)	9 (2.9)	6 (2.9)

Values given are n (%) values.