A Preliminary Survey of Rhinotillexomania in an Adolescent Sample

Chittaranjan Andrade, M.D., and B. S. Srihari, M.B.B.S.

Background: *Rhinotillexomania* is a recent term coined to describe compulsive nose picking. There is little world literature on nose-picking behavior in the general population.

Method: We studied nose-picking behavior in a sample of 200 adolescents from 4 urban schools.

Results: Almost the entire sample admitted to nose picking, with a median frequency of 4 times per day; the frequency was > 20 times per day in 7.6% of the sample. Nearly 17% of subjects considered that they had a serious nose-picking problem. Other somatic habits such as nail biting, scratching in a specific spot, or pulling out of hair were also common; 3 or more such behaviors were simultaneously present in 14.2% of the sample, only in males. Occasional nose bleeds complicating nose picking occurred in 25% of subjects. Several interesting findings in specific categories of nose pickers were identified.

Conclusion: Nose picking is common in adolescents. It is often associated with other habitual behaviors. Nose picking may merit closer epidemiologic and nosologic scrutiny.

(J Clin Psychiatry 2001;62:426–431)

Received April 11, 2000; accepted Sept. 12, 2000. *From the Department of Psychopharmacology, National Institute of Mental Health and Neurosciences, Bangalore, India.*

Reprint requests to: Chittaranjan Andrade, M.D., Department of Psychopharmacology, National Institute of Mental Health and Neurosciences, Bangalore 560 029, India (e-mail: andrade@nimhans.kar.nic.in).

Somatic habits amounting to psychiatric disorders have long been recognized; these include onychophagia and trichotillomania. Both behaviors are considered to have a compulsive element and are more common in younger than in older individuals.[1] Recently, rhinotillexomania, or compulsive nose picking, was suggested as another such disorder.[2]

Habitual behaviors amount to psychiatric disorders when they occasion clinically significant distress or impairment in social, occupational, or other important areas of functioning; when they are present for a clinically significant duration of time; and when they are not primarily caused or accounted for by another medical or psychiatric disorder. Individuals with habitual behaviors that amount to psychiatric disorders seldom present to psychiatrists. One reason is that such behaviors evoke embarrassment and are frequently concealed. Another reason is that certain of these behaviors are common in the population to some extent; hence, if an individual exhibits an exaggeration of one such behavior, it is often not recognized to amount to a disorder. Epidemiologic studies have now established that obsessive-compulsive disorder, trichotillomania, and related conditions are much more common than earlier believed. There is therefore a need for epidemiologic studies of other putative disorders of habitual behavior. Rhinotillexomania is one such inadequately studied condition.

Jefferson and Thompson[2] conducted a survey by mail of 1000 residents of Dane County, Wisconsin (U.S.A.); there were 254 respondents. The authors observed that 91% of the subjects in the sample were current nose pickers and that 1.2% picked at least once an hour. In 2 subjects, nose picking interfered moderately to markedly with daily functioning, and in 2 others perforation of the nasal septum occurred as a complication. Two subjects reported picking their nose for 15 to 30 minutes per day, and 1 more subject reported picking behavior lasting > 2 hours per day. This study had some weaknesses. The response rate was just 25.4%, and individuals with habitual nose picking, or an interest in this behavior, may have been overrepresented because of self-selection into the sample. It was not clear how well or clearly defined each of the variables were. Subjects who picked their nose for medical reasons, or who experienced complications as a result of medical treatment, were not identified. These shortcomings, and the possibility that social mores and other factors may result in cultural variations in nose-picking behavior, justify further epidemiologic research on the subject. Since habitual behaviors are more common in younger populations,[1] we examined nose-picking behavior in an adolescent sample obtained from selected schools in Bangalore, a large city in India.

METHOD

We selected 4 schools located within Bangalore city limits. These schools catered to roughly lower (1 school), middle (2 schools), and upper (1 school) socioeconomic strata. We sampled all students studying in the ninth stan-

Table 1. Sociodemographic Characteristics of the Sample

School	Socioeconomic Status	Age of Students, y Mean	SD	% Male	N
1	Lower	14.5	0.8	54.4	103
2	Middle	14.6	0.6	64.9	37
3	Middle	15.0	1.1	80.0	20
4	Upper	15.6	0.7	62.5	40

dard in these 4 schools. In each school, a printed questionnaire on nose-picking behavior (Appendix 1) was mass-administered. A brief explanation about the study was provided, and questions about the study, if any, were answered. The students were exhorted to answer the questions responsibly and honestly. Confidentiality was assured. Doubts about the meaning of any question, if raised, were clarified.

In our experience, every institution has students who are pranksters; therefore, a question deliberately inserted into the questionnaire was, "Do you occasionally eat the nasal matter that you have picked?" We considered that students who complete the questionnaire with mischievous responses would be likely to respond positively to this question. We thus believed that unreliable answer sheets could be identified through this item. However, we kept in mind the possibility that some persons may indeed eat their nasal debris.[2]

Statistical Analysis

Categorical data were compared between groups using the chi-square test (with Yates continuity correction for 2 × 2 contingency tables) or the Fisher exact probability test. Continuous data were compared between 2 groups using the independent sample Student t test, and between more than 2 groups using 1-way analysis of variance. Correlations were examined using the Pearson product moment procedure. All tests of significance, wherever applicable, were 2-tailed, and alpha was set at 0.05.

RESULTS

A total of 200 students participated in the study. The sociodemographic characteristics of the sample are presented in Table 1. Response data were compared across the 4 centers to ascertain whether the samples differed significantly from each other. While statistically significant differences were observed for a very few variables, these were not systematically distributed. The data were therefore pooled for further analysis.

The sample reported nose picking with a mean ± SD of 8.4 ± 13.6 occasions per day. Median and modal nose picking were 4 and 2 occasions per day, respectively. Nose-picking behavior at a frequency of > 5 times per day was reported by 31.8% of the sample, at a frequency of > 10 times per day by 15.3%, and at a frequency of > 20 times per day by 7.6%. Thirty-six percent of subjects reported that they occasionally picked their nose in public. Only 7 subjects reported that they did not pick their nose at all.

Table 2. Reasons for Nose Picking[a]

Reason	% of Sample in the Current Study (N = 200)	% of Sample in the Study by Jefferson and Thompson[2] (N = 254)
To unclog nasal passages	28.6	82.8
To relieve discomfort/itch	31.2	66.4
For cosmetic reasons	10.5	35.7
For personal hygiene	34.0	34.0
Out of habit	22.5	17.2
For pleasure	12.0	2.5

[a]Many subjects picked for more than one reason, which is why the percentages add up to more than 100%.

Table 3. Methods Used to Pick the Nose[a]

Method	% of Sample (N = 200)
Using fingers	80.5
Using tweezers	6.5
Using a pencil	4.5

[a]In the study by Jefferson and Thompson,[2] 65.1% of respondents used the index finger to pick the nose, 20.2% used the fifth finger, and 16.4% used the thumb; 11.8% used an object such as tweezers or a pencil.

Subjects varied widely in their response to the question that sought their opinion on the percentage of nose pickers in the population; the mean was found to be 46.7%. Subjects' opinions on the prevalence of nose picking showed no correlation with the frequency with which they themselves indulged in nose picking (r = 0.01, NS).

Subjects indicated several explanations for nose picking; the most common was related to personal hygiene, followed by a desire to relieve discomfort or itch and a desire to unclog nasal passages (Table 2). Subjects used different methods to pick their nose, most commonly with fingers (Table 3). Surprisingly, 9 subjects (4.5%) reported that they ate the nasal debris obtained from nose picking; these eaters are discussed further later in this section. Bleeding as an occasional complication of nose picking was reported by 25% of subjects; other medical and social complications are presented in Table 4.

As many as 59.7% of the subjects considered that nose picking is a bad habit; 16.8% thought that they had a serious nose-picking problem. Additional habitual behavior reported included biting nails (47%), scratching in a specific spot anywhere on the body (23%), and pulling out hair (12.5%). Of these 4 habitual behaviors, 2 were simultaneously present in 54.5% of subjects, 3 in 11.4%, and all 4 in 2.8%. Eleven percent of subjects thought or had been told by significant others in their environment that they had a psychiatric problem.

Table 4. Medical and Social Accompaniments of Nose Picking

Accompaniment	% of Sample in the Current Study (N = 200)	% of Sample in the Study by Jefferson and Thompson[2] (N = 254)
Nose bleeds	25.0	18.0
Nasal infection	17.0	1.3
Damage to nose that is more serious than a bleed	2.0	0.8
Social embarrassment	27.5	12.2

Subjects who had 2 or fewer of these habitual behaviors were compared with those who had 3 or all 4. Several findings emerged: those who had greater habit coexistence were all male ($p < .001$), were more likely to pick their nose in public ($p < .03$), were more likely to have experienced nose bleeds ($p < .004$), and were more likely to consider that they had a serious nose-picking problem ($p < .007$).

Boys and girls differed in nose-picking behavior only to the extent that the former were more likely to do so to unclog nasal passages while the latter were more likely to consider it a bad habit; greater habit coexistence in boys has already been mentioned. Subjects who considered that they had a serious nose-picking problem surprisingly did not differ from the rest on any variable except the (higher) degree of habit coexistence. Subjects who picked their nose twice or less frequently a day were compared with those who picked 20 or more times daily; the latter group were more likely to do so in public ($p < .02$), to use tweezers ($p < .007$), to experience nose bleeds ($p < .001$), and to suffer social embarrassment as a result of their picking ($p < .005$). Frequency of picking was surprisingly unrelated to habit coexistence or to concerns about bad habits and psychiatric disorders. Also surprisingly, subjects who reported eating their nasal debris after picking did not differ from the rest of the group on any variables, suggesting that their responses to the questionnaire were not motivated by mischief. For this reason, their responses were not screened out of the data reported earlier.

DISCUSSION

Somatic habits such as onychophagia, trichotillomania, and skin picking are well recognized and discussed in standard texts; however, nose picking, although a well-known behavior and a common cause of epistaxis,[3] is discussed neither in Western (e.g., Kaplan and Sadock[4]) nor in Indian (e.g., Bhatia[5]) texts. Few discussions on nose picking exist. Kanner[6] mentioned in passing that nose picking can in a few children be chronic, violent, and associated with nose bleeds. Gigliotti and Waring[7] and Akhtar and Hastings[8] presented case reports of psychotic patients in whom chronic nose picking was associated with serious self-mutilation of the nose. Henderson et al.[9] observed that late-onset Alzheimer's disease was associated with nose picking. Mina and Downar-Zapolski[10] described their inability to achieve complete surgical closure of a nasal septal perforation in 1 of 14 subjects because this subject exhibited continuous nose-picking behavior. Caruso et al.[11] described a 53-year-old woman whose chronic, compulsive nose picking led to a large, self-inflicted nasal septal perforation and right-sided penetration of the ethmoidal sinus. Stein et al.[12] described one patient with excessive nose picking present in isolation, and another with excessive nose picking, frequently associated with bleeding, as part of obsessive-compulsive disorder; both patients experienced a degree of benefit with citalopram.

Epidemiologic data are sparse. Bhatia et al.[13] observed that nose picking, along with several other minor habits, was present in 12% of children being examined for nail biting. Habitual nose picking without further description was reported in 6% of bulimics and 12.5% of controls in one study,[14] and in 49.1% of male and 21.3% of female psychology students at a university in another study.[15] A survey of 200 members of the Obsessive-Compulsive Disorder Association of South Africa referred to nose-picking behavior in passing.[16] An examination of 27 subjects with hair pulling found that 7 subjects (26%) showed nose picking as an associated stereotypic symptom.[17]

With the exception of the study by Jefferson and Thompson,[2] no epidemiologic investigation on the topic was identified through a MEDLINE search that used the index term *nose pick**. This, therefore, is the first epidemiologic study of its kind in an adolescent sample, and also the first in India. The unique 100% response rate in this study may have minimized sampling bias. In the Jefferson and Thompson study,[2] the response rate was only 25.4%; it is possible that individuals who had an interest in or problem with nose picking were overrepresented among the responders.

We chose to study students because habitual and obsessive-compulsive behaviors are most common in young populations.[1] We selected adolescents rather than children because adolescents are more likely to understand and cooperate with screening through a mass-administered questionnaire. While it was not feasible for us to conduct a demographic survey in the general adolescent population, we considered that a systematic bias in subject selection would be minimized through cluster sampling of students from schools selected on the basis of differing socioeconomic strata; in this regard, our stance was vindicated by the absence of systematic bias in responses across sampling sites.

A need in this study was to identify and eliminate mischievous responses, such as might be expected from adolescent school children who are invited to complete a questionnaire on an offbeat subject. We used the question

"Do you occasionally eat the nasal matter that you have picked?" to identify mischievous responses with the expectation that students who answer affirmatively to this question are likely to respond mischievously to other questions as well. Nine subjects (4.5%) admitted to eating their nasal debris; however, these subjects did not differ from the rest of the group on any of the variables studied. This finding suggests that our expectation may have been wrong; that is, the responses of "eaters" may have been valid and not motivationally distorted. We therefore did not exclude these responses from the data set. The interesting conclusion is that, perhaps, a small percentage of nose pickers do, indeed, eat their nasal debris. In this context, it is worth observing that Tarachow[18] reported that persons do eat nasal debris, and find it tasty, too.

Only 3.5% of respondents reported that they never picked their nose; this figure was 9% in the adults studied by Jefferson and Thompson.[2] We found that the median nose-picking frequency was 4 times per day, but that a third of the sample picked more than 5 times a day, and that 7.6% of subjects picked more than 20 times a day. These prevalences must be kept in mind when considering the diagnostic significance of nose-picking behavior in an individual adolescent. Frequent pickers were understandably more likely to experience epistaxis: turgid blood vessels vulnerable to traumatic bleeds are located just a finger's breadth away from the external boundary of the nostril.[3]

Interestingly, the frequency of nose-picking behavior (in an individual) did not correlate significantly with the perception of the commonness of the behavior in the population. This suggests the hypothesis that the frequency of nose picking is intrinsically driven, or at least that it is influenced by factors other than similar behavior in others.

Surprisingly, subjects who considered that they had a serious nose-picking problem (16.8%), and those who considered or had been told that they had a psychiatric disorder (11%), differed little from the rest of the group. While the general prevalence of minor and major psychiatric disturbances in adolescents does lie in the 10% to 15% range,[19] it appears either that the variables addressed in our study did not have sufficient discriminative power, or that these subjects overestimated the pathologic significance of their habits, and that their habits were unrelated to general, self-reported psychiatric disturbance.

Comorbidity in psychiatry is well known,[20] especially in the obsessive-compulsive spectrum of disorders; for example, nail biting, scratching, gnawing, and excoriation have often been associated with trichotillomania.[21] The findings that two thirds of our sample showed habit coexistence is therefore in line with the literature on the subject; Jefferson and Thompson[2] also found that nose picking coexisted in 6.3% to 25.2% of subjects with somatic habits such as nail biting, cuticle picking, hair pulling, and skin picking. Interestingly, in our study, subjects with high habit coexistence (defined as those who reported at least 3 of the following: nose picking, nail biting, scratching in a specific spot, and pulling of hair) were all boys; this is in line with literature that describes an overrepresentation of boys in child and adolescent psychiatric clinics. A point is made here that *habit coexistence* in this study is used as a term of convenience because we did not establish the pathologic significance of the somatic habits listed.

There are 3 final points of interest. The first point is that nose picking as a habitual behavior, unlike certain psychiatric disorders, does not appear to vary in prevalence and characteristics across socioeconomic strata; we found that there were virtually no differences in nose-picking behavior across schools despite the fact that these schools catered to different socioeconomic segments of society. The second point is that the 96.5% prevalence of nose picking in our study was substantially higher than the 12% prevalence reported by another Indian study[13]; this is surprising, considering that the sample (N = 160) in the latter study comprised children preselected for a habitual behavior (nail biting). The use of a higher diagnostic threshold in the latter study may explain the discrepant results. Different diagnostic thresholds may explain the differing prevalences observed in other studies,[14,15,17] especially since these studies did not primarily examine nose-picking behavior.

The third point is that many differences exist between our findings and those of the Wisconsin study.[2] Nearly a third of our subjects picked their nose more than 5 times a day, as contrasted with fewer than 5% in the Wisconsin study. Only 3.5% of our subjects, in contrast with 9% of the Wisconsin subjects, denied nose picking. Only 4.5% of our subjects, in contrast with 8% of the Wisconsin subjects, reported eating their nasal debris. A sixth of our sample, in contrast with <1% of the Wisconsin sample, considered that they had a nose-picking problem. Eleven percent of our sample considered or had been told that they had a psychiatric problem, while only 4.6% of the Wisconsin sample had received a psychiatric diagnosis previously. Other differences between the 2 studies are presented in Tables 2 through 4. Clearly, in most regards nose picking showed greater dimensions in our study than in the Wisconsin study despite the latter's (as already mentioned) possibly being overrepresented for individuals with an interest in nose picking. A possible explanation is the cultural difference between the 2 samples, but the more likely explanation is that our subjects were adolescents; as we have already noted, habitual behaviors tend to show greater prominence in young samples.[1]

Our study suffered from some limitations. We depended on self-report; the information may not have been accurate even if it was provided in good faith. We did not assess medical antecedents of nose-picking behavior.

Scope for further research includes the identification and study of subjects who pick their nose frequently, of those with coexistent habitual behaviors, of those who consider that they have a serious nose-picking problem, of those who experience serious complications of nose picking, and of those who consider or have been told that they have a psychiatric disorder. The overlap between these categories also requires study. While nose-picking behavior in general appears to be a common and normal habit, it is necessary to determine the extent to which rhinotillexomania amounting to a disorder exists in the adolescent population; in this context, it is interesting to note that a recommendation exists for the inclusion of rhinotillexomania as one of the cutaneous expressions of obsessive-compulsive pathology.[22] It is also necessary to examine the relationship between repetitive nose picking and other habitual behaviors on the one hand and obsessive-compulsive personality and disorder on the other hand. Finally, it would be interesting to evaluate the relationship between nose picking and medical conditions and to assess the prevalence and sequelae of nose picking, and its relationship to other habitual behaviors, in a sample obtained from an otorhinolaryngology facility. Although desirable, an examination of all these issues was out of the scope of the present study.

For the present, we have provided a general epidemiologic description of nose-picking behavior in adolescents and of certain correlates thereof. We hope that our findings will both provoke and guide future research in the field.

Drug name: citalopram (Celexa).

REFERENCES

1. Ayd FJ. Lexicon of Psychiatry, Neurology, and the Neurosciences. New Delhi, India: BI Waverly Pvt Ltd; 1995
2. Jefferson JW, Thompson TD. Rhinotillexomania: psychiatric disorder or habit? J Clin Psychiatry 1995;56:56–59
3. Watkinson JC. Epistaxis. In: Rhinology. 6th ed. Indian ed. Bombay, India: KM Verghese Company; 1997:4/18/1–4/18/19 Mackey IS, Bull TR, eds. Scott-Brown's Otorhinolaryngology; vol 4
4. Kaplan HI, Sadock BJ. Comprehensive Textbook of Psychiatry. 6th ed. Baltimore, Md: Williams & Wilkins; 1995
5. Bhatia MS. Essentials of Psychiatry. 2nd ed. New Delhi, India: CBS Publishers; 1996
6. Kanner L. Habitual manipulation of the body. In: Kanner L, ed. Child Psychiatry. 2nd ed. Springfield, Mo: Thomas; 1953:525–540
7. Gigliotti R, Waring HG. Self-inflicted destruction of nose and palate: report of case. J Am Dent Assoc 1968;76:593–596
8. Akhtar S, Hastings BW. Life threatening self-mutilation of the nose. J Clin Psychiatry 1978;39:676–677
9. Henderson AS, Jorm AF, Korten AE, et al. Environmental risk factors for Alzheimer's disease: their relationship to age of onset and to familial or sporadic types. Psychol Med 1992;22:429–436
10. Mina MM, Downar-Zapolski Z. Closure of nasal septal perforations. J Otolaryngol 1994;23:165–168.
11. Caruso RD, Sherry RG, Rosenbaum AE, et al. Self-induced ethmoidectomy from rhinotillexomania. AJNR Am J Neuroradiol 1997; 18:1949–1950
12. Stein DJ, Bouwer C, Niehaus DJ. Stereotypic movement disorder [letter with reply]. J Clin Psychiatry 1997;58:177–178
13. Bhatia MS, Singhal PK, Nigam VR, et al. Nail biting: an analysis of 160 children. Indian Med Gazette 1989:188–191
14. Christensen GA, Mitchell JE. Trichotillomania and repetitive behaviour in bulimia nervosa. Int J Eat Disord 1991;10:593–598
15. Joubert CE. Incidence of some oral-based habits among college students and their correlations with use of oral stimulations. Psychol Rep 1993;72: 735–738
16. Stein DJ, Roberts M, Hollander E, et al. Quality of life and pharmacoeconomic aspects of obsessive-compulsive disorder: a South African survey. S Afr Med J 1996;86(12 suppl):1579, 1582–1585
17. Seedat S, Stein DJ. Psychosocial and economic implications of trichotillomania: a pilot study in a South African sample. CNS Spectrums 1998;3: 40–42
18. Tarachow S. Coprophagia and allied phenomena. J Am Psychoanal Assoc 1966;14:685–699
19. Bhatia MS, Dhar NK. A Comprehensive Textbook of Child and Adolescent Psychiatry. New Delhi, India: CBS Publishers; 1996
20. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Arch Gen Psychiatry 1994;51:8–19
21. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
22. Monti M, Sambvani N, Sacrini F. Obsessive-compulsive disorders in dermatology. J Eur Acad Dermatol Venereol 1998;11:103–108

Editor's Note: Appendix 1 appears on p. 431.

Appendix 1. A Survey of Nose-Picking Behavior

Nose picking frequently leads to medical problems such as nose bleeds. In order to understand the frequency and gravity of the problem, and in order to be able to make recommendations thereon, we need to have an idea of the nose-picking behavior in the general population.

The purpose of this questionnaire is to ascertain nose-picking behavior in normal groups of individuals. Please fill in this questionnaire with utmost honesty. The information that you fill in will be kept confidential.

01. Please indicate your age:	____ years
02. Please indicate your sex:	Male / Female
03. In your opinion, what percentage of persons in the population pick their noses?	____ percent
04. On average, how often in a day do you pick your nose?	____ times
05. Do you sometimes pick your nose in public?	Yes / No

Why do you pick your nose (please check as many as are applicable to you)?

06. To unclog your nasal passages.
07. To relieve discomfort or itch.
08. For cosmetic reasons.
09. For personal hygiene.
10. Out of habit.
11. For pleasure.

How do you pick your nose (please check as many as are applicable to you)?

12. Using your fingers.
13. Using an object such as tweezers.
14. Using an object such as a pencil.
15. Do you occasionally eat the nasal matter that you have picked (circle one)? Yes / No

Has your nasal picking ever resulted in problems such as (please check as many as are applicable to you):

16. Nose bleeds?
17. Social embarrassment?
18. Nasal infection?
19. Nasal damage that is more serious than a transient bleed?
20. Do you believe that nose picking is a bad habit (circle one)? Yes / No
21. Do you consider that you have a serious nose-picking problem (circle one)? Yes / No

Are you in the habit of (please check as many as are applicable to you)

22. Biting your nails?
23. Scratching yourself in a specific spot?
24. Pulling out your hair?
25. Has anybody (including you, yourself) considered that you have a psychiatric disorder? Yes / No

Thank You.