Trichotillomania Prevalence in an Arab Middle Eastern Population

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Abstract

Aim: Trichotillomania (TTM) (hair-pulling disorder) is a relatively rare psychiatric condition. We are aware of no studies of this disorder in Arab Middle Eastern populations. We examine the prevalence and correlates of TTM in a community sample of individuals living in a large port city in western Saudi Arabia. Methods: An observational cross-sectional study of 511 adults aged 18 years or over living in Jeddah, Saudi Arabia, was conducted. After inquiring about demographic information and self-reported psychiatric disorders, the Massachusetts General Hospital Hair-Pulling Scale (MGH-HPS) was administered to assess symptoms of TMM. Results: A total of 9 of 511 participants (1.8%) scored above the cutoff for suspected TTM on the MGH-HPS, whereas 203 (39.7%) had a history of hair-pulling. Those with suspected TTM were more likely to be female (2.8% vs 0.4% in males, \(P = 0.047\)) and somewhat more likely to have a history of obsessive-compulsive disorder (OCD) (6.7% vs 1.5%, \(P = 0.093\)). Hair pulling was also more common in unmarried, not living with family, and unemployed. Among those with a history of hair-pulling, the most frequent locations were from the face (62.7%), head (55.7%), and legs (15.3%). Conclusions: While a history of hair-pulling is common in this community sample (40%), suspected TTM is much less prevalent (<2%), although not rare by any means. When present, the condition is more common in women and possibly in those with OCD.

Keywords: Hair-pulling disorder, Massachusetts general hospital hair-pulling scale, obsessive-compulsive disorder, trichotillomania

Introduction

Trichotillomania (TTM) is a chronic psychiatric disorder where a person has constant and intolerable urges to pull out their hair, most commonly from their scalp and eyebrows, resulting in a noticeable loss of hair in affected areas.¹ The disorder is often accompanied by certain hair rituals, such as biting, chewing, swallowing, or playing with the hair.² Studies indicate that 5% to 20% of cases have trichophagia, which is the compulsive eating of hair.³ This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.
of hair.[5–8] In instances of severe trichophagia, the affected person may feel compelled to eat the hair of others: humans, animals, or even hair found in the environment. Eventually, this behavior often leads to impairment in social, occupational, and other aspects of the patient’s life. In addition, the condition may progress to the point when the person’s general health is affected.[11]

The lifetime prevalence of TTM as defined by the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised (DSM-III-R) was found to be approximately 0.6% among college students,[8] and the prevalence in the general population is thought to be much higher than this.[6,7]

Such a disorder can be devastating, yet despite this, the condition has not received much attention in the medical world. The number of studies examining the prevalence and risk factors for TTM is quite limited, and there are no published studies, to our knowledge, investigating this condition in Saudi Arabia or the Middle East, except for a study of Jewish adolescents in Israel.[9] Our paper seeks to determine the prevalence of suspected TTM and to identify associated demographic and psychiatric risk factors in a community population in Jeddah, Saudi Arabia.

Methods

Study design

This is an observational cross-sectional study.

Setting

Jeddah is the second-largest city in Saudi Arabia, located in the western part of the country on the Red Sea, with a population of approximately four million (12% of the total population of Saudi Arabia).

Participants

A convenience sample of 544 community-dwelling adults aged 18 years or older were approached, and 511 completed the questionnaire (response rate 93.9%).

Measurements

The self-administered questionnaire included 25 questions divided into two parts. The first part had questions about demographic information such as gender, age, nationality, education level, marital status, occupation, income, living status, and self-reported diagnoses of depression or obsessive-compulsive disorder (OCD). In addition, the location of hair-pulling was also assessed among those who indicated they pulled hair.

The second part of the questionnaire consisted of the Massachusetts General Hospital Hair-Pulling Scale (MGH-HPS), which includes seven questions assessing TTM behaviors/symptoms divided into three sections: urges to pull out hair, the actual pulling out of hair, and the consequence of hair pulling.[10] The first and second sections contain three questions, each assessing the frequency, intensity, and ability to control the urges and frequency of hair pulling in the past week. The seventh question asks about the consequence of hair pulling in terms of how much distress this causes. Each question has a score ranging from 0 to 4, resulting in a total score of 0 to 28. Higher scores indicate greater symptom severity. The psychometric properties of the MGH-HPS in adults based on the DSM-IV criteria for TTM have been demonstrated.[9]

Scores are strongly correlated with TTM diagnostic interviews and are not correlated with measures of alopecia, an indication of discriminant validity.[9] Therefore, scores of 17 or higher are considered necessary for the diagnosis. Since the questionnaire was not available in the Arabic language, two independent native Arabic physicians fluent in English translated the original scale into Arabic. This translated version was then translated back into English by two separate native English speakers who were also fluent in Arabic. No significant differences were found between the original and the newly translated version. The Cronbach’s alpha of the Arabic version of the scale administered here was 0.92, indicating excellent internal consistency.

Sample size

Sample size calculation showed that a sample of 385 would be adequate for determining a stable estimate of the prevalence of TTM in a city of 4 million people with a confidence level of 95% and a margin of error of 5%. Thus, our final sample of 511 more than met this criterion.

Ethical approval

All identifying characteristics of participants were removed to ensure the confidentiality of responses in this anonymous questionnaire. The study was approved by the Institutional Review Board of King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia (reference#375-17). In addition, the nature of the study and the reason for conducting it were explained to participants, and both verbal and written consents were obtained.

Statistical analyses

Descriptive statistics were calculated for categorical (frequency and percent) and continuous variables (mean and standard deviation) [Table 1]. Fischer's Exact Test was used to compare demographic and psychiatric factors between those with and without TTM [Table 2]. Next, the single sample K-S test was used to test the normality of MGH-HPS scores. Then, the two-tailed Mann-Whitney two-sample rank-sum test and the Kruskal-Wallis rank sum test were conducted to determine if there were differences in MGH-HPS score across demographic and psychiatric factors [Table 3]. Finally, multiple linear regression was used to identify independent demographic and psychiatric correlates of TTM score [Table 4].

Results

Characteristics of the sample are presented in Table 1. The average age of participants was 29.4 years (SD = 10.1), ranging from 15 to 69 years. The most frequent nationality was Saudi (n = 457, 89%), the majority were female (n = 282, 55%), and approximately half...
were single (n = 265, 52%). The education level for two-thirds of the participants was at the bachelor's degree level (n = 327, 64%), and more than three-quarters were employed (n = 210, 41%) or students (n = 181, 35%). Most participants lived with family members (n = 481, 94%). Only 6.5% (n = 33) had a self-reported diagnosis of depression and 5.9% (n = 30) had a diagnosis of OCD. Based on the MGH-HPS, 1.8% (n = 9) met the criteria for TTM and 39.7% (n = 203) had a history of hair-pulling. Among those with a history of hair-pulling, the most common locations were the face (62.7%), head (55.7%), and legs (15.3%).

Table 2 presents demographic and psychiatric differences between those with and without TTM. The only statistically significant difference between the two groups was gender; females were more common than males among those with the disorder (8 females vs 1 male, \( P = 0.047 \)). However, there was also a weak trend indicating that those with TTM were more likely to have OCD (6.7% vs 1.5%, \( P = 0.093 \)).

Table 3 examines demographic and psychiatric correlates of the total MGH-HPS symptom score (in contrast to the diagnosis of TTM)
Table 3: Association of demographic and psychiatric characteristics with total MGH-HPS score

| Variable          | Level           | Mean rank | Test statistic | P     |
|-------------------|-----------------|-----------|----------------|-------|
| Nationality       | Saudi           | 256.83    | -0.45<sup>a</sup> | 0.652 |
|                   | Non-Saudi       | 248.96    |                |       |
| Gender            | Female          | 259.58    | -0.74<sup>a</sup> | 0.46  |
|                   | Male            | 251.6     |                |       |
| Education         | Secondary       | 246.3     | 2.16<sup>b</sup> | 0.54  |
|                   | Bachelor        | 256.32    |               |       |
|                   | High degree     | 277.36    |               |       |
|                   | Intermediate    | 265.5     |               |       |
| Marital Status    | Single          | 267.74    | 8.43<sup>b</sup> | 0.038 |
|                   | Married         | 240.39    |               |       |
|                   | Divorced        | 315.31    |               |       |
|                   | Widowed         | 283.0     |               |       |
| Living Status     | With family     | 253.79    | 3.11<sup>b</sup> | 0.211 |
|                   | With friends    | 265.93    |               |       |
|                   | Alone           | 299.13    |               |       |
| Job Status        | Student         | 264.8     | 5.97<sup>b</sup> | 0.051 |
|                   | Employee        | 240.47    |               |       |
|                   | I do not work now | 260.9  |          |       |
| Income            | <5000 SR        | 262.04    | 2.11<sup>b</sup> | 0.549 |
|                   | 5000-10,000     | 260.3     |               |       |
|                   | 11,000-15,000   | 247.34    |               |       |
|                   | >15,000         | 242.03    |               |       |
| Depression diagnosis | No        | 255.27    | -0.52<sup>a</sup> | 0.603 |
|                   | Yes             | 266.64    |               |       |
| OCD diagnosis     | No              | 254.31    | -1.26<sup>a</sup> | 0.207 |
|                   | Yes             | 283.15    |               |       |
| Ever pulled hair  | No              | 200.59    | -12.71<sup>a</sup> | <0.001|
|                   | Yes             | 340.07    |               |       |

<sup>a</sup>Two-tailed Mann-Whitney two-sample rank-sum test. <sup>b</sup>Kruskal-Wallis rank sum test. MGH-HPS: Massachusetts General Hospital Hair-Pulling Scale.

Table 4: Regression analyses examining correlates of total MGH-HPS score

| Variable                 | B    | SE  | CI   | β    | t    | P     |
|--------------------------|------|-----|------|------|------|-------|
| Intercept                | 6.03 | 1.05| [3.97, 8.09] | 0.00 | 5.75 | <.001 |
| Age                      | 0.05 | 0.02| [0.01, 0.09] | 0.13 | 2.43 | 0.016 |
| Marital status (Married) | -0.83| 0.41| [-1.64, -0.01] | -0.10| -1.99| 0.047 |
| Living Status (with Family)| -1.40| 0.67| [-2.71, -0.08] | -0.08| -2.09| 0.037 |
| Job Status (Employee)    | -0.73| 0.36| [-1.44, -0.02] | -0.09| -2.02| 0.044 |
| Dx with OCD (No)         | -1.20| 0.67| [-2.51, 0.12]  | -0.07| -1.79| 0.074 |
| Ever pulled hair (No)    | -3.99| 0.32| [-4.63, -3.36] | -0.48| -12.38| <0.001|

Regression Model F(6,304)=30.01, P<.001; R²=0.34; MGH-HPS: Massachusetts General Hospital Hair-Pulling Scale; B: Unstandardized beta; SE: Standard error; CI: 95% confidence interval; β: Standardized beta.

Discussion

Key findings

Given the psychological and physical consequences of TTM and the existence of effective treatments for this disorder, [11] clinicians need to identify this condition, particularly when treating patients with OCD. The present study demonstrated that TTM is not uncommon in this community sample of relatively young, well-educated adults in Jeddah, Saudi Arabia. Furthermore, the prevalence reported here (1.8%) is similar to that reported in other community populations from different parts of the world.

Although some studies have shown rates in the U.S. ranging from 0.6% in college students to 1.2% in young adults, [5,10] other studies have reported a prevalence of significant hair-pulling of 2% or higher in non-clinical community populations [12,13] and up to 5% or higher in outpatients with OCD. [8] For example, in a survey of 1378 college students and other young adults in Australia, of average age 33 years, where hair-pulling cases were determined by a score of 17 or higher on the MGH-HPS, the prevalence of TTM was 2.8% (39 of 1378). [12] Likewise, a survey of 339 medical students in Poland, ages 22 to 27, reported a prevalence of 2.4% (6 females, 2 males) using the CIDI Interview Schedule (ICD-10 criteria). [13] However, among a multi-national clinical sample of 457 patients with OCD, Lochner et al. [14] found a prevalence of TTM (DSM-IV criteria based on the MINI Neuropsychiatric Interview) of 5.3%. We also found a trend for those with OCD in this study to be more likely to have TTM (6.7%) than those without OCD (1.5%).

In the only other study from the Middle East that we are aware of, King and colleagues reported that the lifetime prevalence of hair-pulling among 794 Israeli 17-year-old adolescents was 1% (5 males and 3 females), and current hair-pulling was present in 0.5% (3 males, 1 female), although none met DSM-III-R criteria for TTM. [8] In contrast to the current study, King et al. [8] assessed hairpulling by only a single question (“Have you ever or do you now pull out hair from your scalp, eyebrows, or elsewhere?”).

The correlation between hair pulling behavior and gender is unclear; while we found no significant correlation between gender and overall hair-pulling symptoms on the MGH-HPS, a gender difference was present for TTM diagnoses. Although some studies have found no correlation, [8,15] others have reported a higher prevalence in women. For example, Grant et al. [16] estimate a 4:1 female to male ratio. Our study revealed a female to male ratio of 8:1, similar to the findings of Snorrason et al., who estimated that 90% of those with hair-pulling disorder are female. [17] Likewise, in a study of 122 persons (average age 31) in...
Italy responding to advertisements for a study on TTM, 22 were female and 2 were male (14:1 ratio). While it has been suggested that the gender difference is due to men being reluctant to seek treatment for such a behavior, our participants were from the general population and not from a clinical setting. Unfortunately, the Lochner et al. study of a clinical sample did not break down TTM prevalence rates by gender.

Hair-pulling behavior has been associated with other body-focused repetitive behavior disorders, as suggested by the Lochner et al. and the present study's findings. The overlap in symptoms and associated comorbidities is significant enough for the DSM-5 to group TTM under the umbrella term of compulsive-obsessive and related disorders. A similar trend has been found among individuals with other body-focused repetitive behaviors (including skin-picking disorder) who have high levels of OCD symptoms and anxiety. Thus, it is crucial for persons exhibiting symptoms of one disorder to be screened for other disorders in the OCD spectrum. Bear in mind, however, that TTM has also been reported in patients with other non-OCD spectrum disorders, including schizophrenia.

Although power is low in the present study due to the small number of persons with significant TTM symptoms, nine respondents reported behavior consistent with a diagnosis of TTM. These individuals tended to be younger than those without the diagnosis (8 of 9 were 20 to 30 years old vs 1 of 9 over age 30 years) (despite a positive correlation between age and hair-pulling symptoms on the MGH-HPS). Unfortunately, as noted in the research reviewed above, few studies have examined prevalence rates in middle-aged or older adults. Body-focused repetitive behavior disorders are known to start manifesting in persons as young as 10 years of age.

Suppose we cautiously extrapolate our results to the entire population of Saudi Arabia, in that case, it is possible that more than half a million people in this Middle Eastern country exhibit behavior consistent with a diagnosis of TTM. This is a significant number, especially considering the association with OCD and, more importantly, the adverse effects that TTM has on psycho-social, occupational, mental, and physical health status.

We did not ask if treatment had been sought for this behavior. Some participants may have received treatment as part of the management of their self-reported diagnosis of OCD, although this is pure speculation. Future studies should assess help-seeking behaviors and the resulting benefits. Cognitive behavior therapy is considered as the most effective treatment for TTM.

**Limitations**

This study has several limitations affecting the generalizability and interpretation of the results. First, this was a convenience sample of relatively young (average age 29) and well-educated (64% completing college) participants, making generalization to less educated, middle-aged, or older populations difficult. Second, the full criteria for a diagnosis of TTM were not assessed. The presence of TTM is currently based on specific DSM-5 criteria: recurrent pulling out of one's hair, resulting in hair loss; repeated attempts to decrease or stop hairpulling; the hair-pulling causing clinically significant distress or impairment in social, occupational, or other important areas of functioning; the hairpulling, or hair loss not attributable to another medical condition (e.g., a dermatological condition); and hairpulling is not better explained by the symptoms of another mental disorder (e.g., attempts to improve a perceived defect or flaw in body appearance as in body dysmorphic disorder). The MGH-HPS does not assess for all these criteria that would allow it to establish a formal diagnosis of TTM. We did not ask whether respondents had hair loss related to hair-pulling or suffered from another skin or mental disorder that could explain the behavior. Thus, the prevalence results reported here may overestimate the true prevalence of this condition in the population. However, the MGH-HPS has been found to correlate well with a clinical diagnosis of TTM. Thus, the results here provide at least a rough estimate of prevalence in an Arab community sample (in what may be the first study to examine this condition in the Middle East outside of Israel).

**Conclusions and Implications for Primary Care Physicians**

TTM is one of the body-focused compulsive disorders in DSM-5. This disorder is known to negatively impact the social, mental, and physical health of those who have it. The impact of such a disorder should not be underestimated, especially when more than half a million people in Saudi Arabia (and millions outside of Saudi Arabia) may be exhibiting many behaviors consistent with this diagnosis. Since primary care physicians are more likely than any other healthcare professional to encounter such patients (who may not seek specialty care for this problem), they (PCPs) should be alert for TTM when encountering patients with OCD or other OCD-related disorders. Because women, the unmarried, those living with family, and the unemployed may be at high risk, PCPs should be particularly vigilant for such symptoms in these demographic groups.

**Key points**

1. Although a relatively small percentage (1.8%) scored above the cutoff for suspected TTM on the MGH-HPS, nearly 40% had a history of hair-pulling.
2. Risk factors for TTM were female gender, history of OCD, marital status (unmarried), living situation (not living with family), and unemployment status (unemployed).
3. For those with a history of hair-pulling, the most frequent locations were from the face (63%), head (56%), and legs (15%).
4. Primary care physicians should be alert for TTM (and subthreshold TTM) when encountering patients with OCD or other OCD-related disorders in Saudi Arabia.
Availability of data and materials
Data will be made available upon reasonable request from the corresponding author.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Ethical approval and consent to participate
The authors obtained ethical approval before conducting this study. Written consent was taken from all participants.

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Conflicts of interest
There are no conflicts of interest.

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