

## THE IMPORTANCE OF EDUCATION TO REDUCE SELF-DESTRUCTIVE NAIL HABITS

**Ilze Upeniece**

Rīga Stradiņš University Department of Dermatology and Venerology,  
Rīga 1st Hospital, Latvia

**Monta Beltiņa**

Rīga Stradins University, Latvia

**Abstract.** *Onychophagia and onychotillomania are rarely seen in clinical practice and are considered undervalued. The study aims were to determine the prevalence of onychophagia and onychotillomania habit in the patient group with hand nail damage and control group, to determine which would be the target population to educate. Patients were interviewed about self-destructive habits. Excel and SPSS were used for data analysis. In the nail damage group, 28.6% of the respondents showed self-destructive habits and past habits – 31.4%. In the control group, the result was 22.9% and 31.4%. For 74.3% of patients the cause of nail damage was skin disease (including 61.54% of respondents with nail damage who have psoriasis), for 5.7% it was age-related nail changes, for 20% traumatic damage and for 57.14% of them it was a result of self-destructive habit. In the nail damage group both – present and past self-destructive habits are higher than in the control group, but it has no statistical significance ( $p=0.785$ ). 1) The prevalence of onychophagia and onychotillomania does not differ between patients and control group. 2) General education of the population is necessary to actualize this problem, which can worsen nail changes.*

**Keywords:** *onychophagia, onychotillomania.*

### Introduction

Self-destructive behavior with own nails includes onychophagia, onychotillomania, and other less common conditions, for example, onychodaknomania (Haneke, 2013).

Onychophagia is a repetitive behavior characterized by chewing or biting the free margin of the nail (Kang, Amagai, & Bruckner, 2019). The term onychotillomania was coined by Alkiewicz in 1934. Onychotillomania is chronic nail and cuticle picking, manicuring, or pulling (Alkiewicz, 1934). Exact prevalence and incidence is not known, but onychophagia and onychotillomania are probably underrecognized. A recent study (Wu, Lin, & Cooley, 2021; Houghtona, Alexandera, Bauera, & Woodsa, 2018) found significant increase in incidence of self-destructive behavior.

Due to potential nail damage, it is important to update this topic. Furthermore, it is important to use questions to define self-destructive behavior, recognizing mental illness or predisposition for other diseases. The aim of our study was to determine the incidence of onychophagia and onychotillomania among patients with nail damage in a dermatologist's practice and in healthy patients, to identify the population group in need of education about self-destructive behavior and potential consequences.

### **Classification**

In the literature, these habits are mentioned under various terms, for example, self-destructive habits, psychodermatosis, pathological grooming, autoaggressive nail disease, or body-focused repetitive behavior (BFRB). (Kang, 2019; Houghtona, 2018; Maraz, Hende, Urban, & Demetrovics, 2017). BFRB is a term often used in recent years and its behavior is divided into two groups: subclinical BFRB and pathological or clinical BFRB. They are distinguished from each other by the duration and frequency of the habit. A subclinical habit is defined when a habit is performed less than 5 times a day and for less than 1 year, but a pathology is at least 5 times a day and for more than 1 year. Pathological BFRB are associated with functional impairment (Houghtona, 2018).

### **Prevalence**

The prevalence of onychophagia is not known. However, according to the literature, it could be from 45% to 60% (Houghton, 2018). According to the results published by several leading researchers (Pacan, Grzesiak, Reich, Kantorska-Janiec, & Szepietowski, 2014), the lifetime prevalence of onychophagia is not constant - in childhood nail biting is more common. This study shows that the mean age of onychophagia onset was  $8.0 \pm 3.5$  years with an age range of 3–20 years and the majority of participants started nail biting before the age of 13. Furthermore, past nail biters stopped nail biting averagely at 13 years of age. However, in another study (Houghton, 2018) with students (at least 18 years of age), the prevalence of onychophagia was 33.5%. It is known that nail biting harshly decreases after 18 years of age (Shetty & Munshi, 1988).

Onychotillomania is less common and almost exclusively seen in adults (Haneke, 2013). Previous studies (Pacan, 2014) have shown that onychotillomania presented in 0,9% of participants, and more common in students aged from 18 to 45 years, 46.4% respectively (Wu, 2021). The factors influencing the data could be different, including responders age, diagnostic

method, and possible patient openness. This data supported the distribution and grouping of patients in this study.

### **Etiology**

Onychophagia and onychotillomania sometimes are associated with psychiatric disorders (Winebrake, Grover, Halteh, & Lipner, 2018; Solley & Turner, 2018; Gupta, 2019). The presence of self-destructive behavior in one family may indicate genetic predisposition (Bakwin, 1971).

### **Self-destructive Habit Impact on Health**

Nail biting and picking are associated with several other health disturbances, including parasite infestation (Gras-Ozimek, Ozimek, Kozińska, Gras-Graupera, & Kozińska, 2019), teeth damage (Marouane, Ghorbel, Nahdi, Necibi, & Douki, 2016), temporomandibular joint disorders (Fernandes, Franco-Micheloni, Siqueira, & Camparis, 2016), enterobacterial carriage (Reddy, Sanjai, Kumaraswamy, Papaiah, & Jeevan, 2013) (and onychomycosis (Zisova, Chokoeva, Sotiriou, Valtchev, & Gospodinov, 2015). Self-destructive behavior is common and has a detrimental effect on quality of life (Pacan, Reich, Grzesiak & Szepietowski, 2014). Shame and feeling of guilt could result in significant mental distress (Maraz, 2017).

### **Materials and Methods**

The study is prospective in time. Patients of Riga 1<sup>st</sup> Hospital Clinical Centre of Skin and Sexually Transmitted Diseases with clinical hand nail damage were enrolled in this study. To increase the objectivization and reliability of the study results, one control group was created. Volunteers with no existing visual changes of hand nails were used for control. Patient demographic data, including gender and age, was collected. Clinical data included the nail plate, nail bed, and nail fold characteristics. A questionnaire consisting of two parts was developed. The first part inquired onychophagia and onychotillomania behavior. The second part inquired whether respondents have any organ or system disorders. The clinical picture was photodocumented in the first appointment, previously, eliminating any identification features of a natural person (jewelry, tattoos, piercings and profile image).

## Research Aim

- Determine the prevalence of onychophagia and onychotillomania in dermatologist's practice.
- Determine which group of people needs to be educated about onychotillomania and onychophagia habits.

## Ethics

Study was approved by The Research Ethics Committee of Riga Stradiņš University and The Research Ethics Committee of Riga 1<sup>st</sup> hospital.

## Statistical Analysis

Descriptive statistics were composed, including mean and standard deviations. Chi-square test and Fisher's exact test were used to determine differences between groups and associations with habits. SPSS 23.0 version program was used for statistical analysis. A 95% confidence interval was used for statistical analysis, values of  $p < 0.05$  were considered as significant.

## Results

Both gender participants were included in the study from the age of 12 years. In this study, 70 participants were analyzed - 35 were in the control group and 35 in the nail damage group. The mean age of the control group was 49.7 (SD 19.7) years and the median was 51 years. In the nail damage group, it was 58.8 (SD 16.6) years and the median was 60 years (Figure 1).

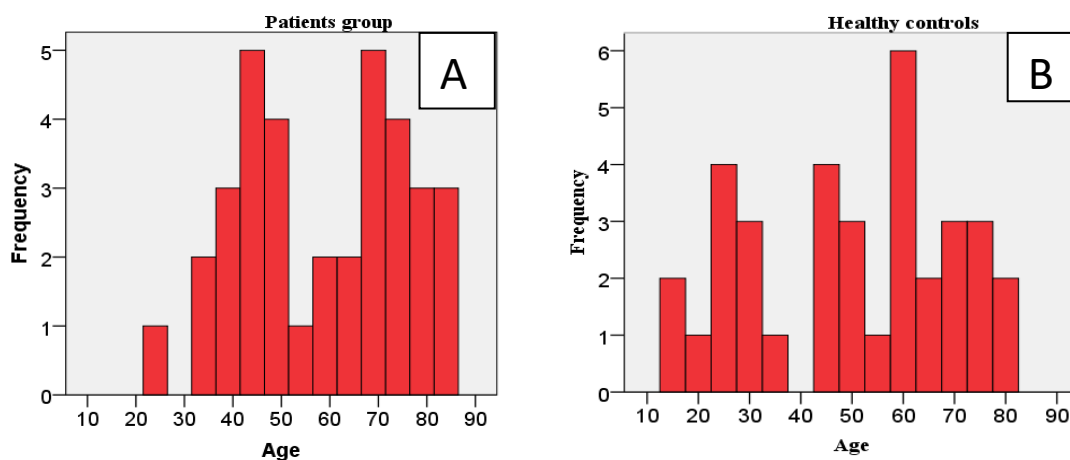


Figure 1 Age Distribution in the Patient Group (A), Age Distribution in the Healthy Controls (B)

Self-destructive habits were observed in minority of the respondents (25.7 %, n=18). Onychotillomania and onychophagia were equally common in the nail damage group and control, 28.6% and 22.9%, respectively, and no statistical difference was found.–The distribution of habits is summarized in Figure 2. No statistical differences in habit prevalence and gender were observed. However, self-destructive habits were observed in 1 (10%) cases of the elderly (age > 65 years) in the nail damage group. There are statistically significant differences between the elderly and other cases (middle-age and young adults) ( $p = 0.022$ ) where the second group shows higher prevalence. Moreover, a similar statistical difference was observed in the total study population, where the prevalence among elderly were less common than in patients under 65 years, 2 (11.1%%) and 16 (88.9%) cases respectively ( $p = 0.023$ ). The most frequent habit was onychotillomania in the study population and patient group under 65 years, 15 (88.2%) ( $p = 0.033$ ) and 8 (88.9%) ( $p = 0.048$ ) respectively.

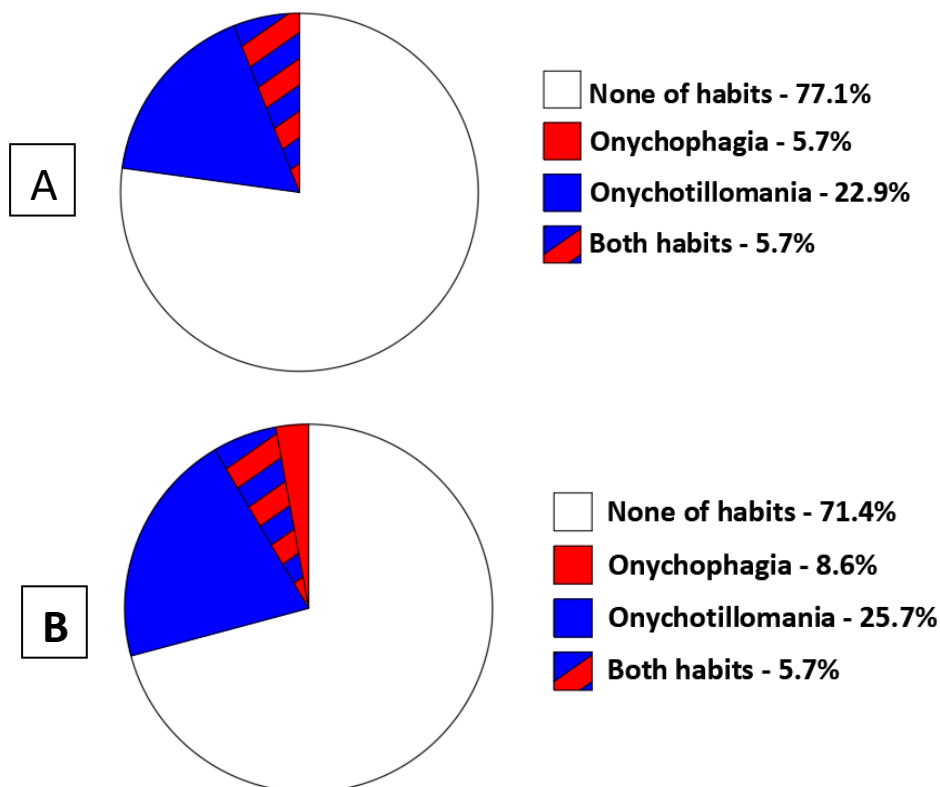


Figure 2 Prevalence of Habits in Patients' Group (A) and Healthy Controls (B)



*Figure 3 The Patient with Clinical Nail Damage and Self-destructive Habits*

The study included patients with a variety of nail damage (Figure 3). In 74.3% of patients, nail damage was caused by underlying skin disease, more often psoriasis - 61.5%, followed by onychomycosis 19.23%, systemic scleroderma 7.69%, and lichen ruber planus 3.85%. Participants with psoriasis and any of the self-destructive habits clinically showed more severe nail damage than without. Only one patient had self-destructive habits and psychiatric disease in the patient group and no one in the healthy controls.

### **Discussion and Recommendations for Education**

The exact incidence of onychophagia and onychotillomania are unknown. Onychophagia and onychotillomania were more common in children and young adults (Pacan, 2014; Houghton, 2018; Shetty, 1988), however, our study included patients from 15 to 83 (mean age 54.2) years of age. Extending the age of the subjects in our study provided an opportunity to expand knowledge about onychophagia and onychotillomania incidence. From the dermatologists point of view, this problem is especially relevant.

Onychotillomania was the most common self-destructive behaviour, and this data did not match with the results of studies by other authors (Pacan, 2014), where onychophagia is the most common one. It is possible that these differences were determined by the age of the study population. We can only speculate whether young people more commonly have onychophagia but middle-aged and old people onychotillomania. We determined that self-destructive behavior decreases after 45 years of age. Our study data shows that the prevalence of self-destructive habits does not differ between patients and the control group. This means that it is important to educate both – patients who visit the dermatologist and the general population. Directions of education can be divided into two groups: mass approaches and individual-centered approach.

Patients with damaged nails or skin disorders associated with nail damage should have an individual educational approach during a dermatologist's consult. This study reflects that 45.7% of all possible nail damages were caused by psoriasis. The formation of new skin or nail psoriatic lesions secondary to trauma, called Koebner phenomenon was also previously reported (Sagi & Trau, 2011). This data emphasize the importance of education for psoriasis patients. Determining habits, informing about possible impacts and treatment options could be limited during a doctor's visit, indicating the impersonal or mass approach importance. The advantage of mass methods is the ability to reach a large number of people who may not have direct contact with health workers. Since it is known that onychophagia is most common in school-age children (Ergun, Toprak, & Sisman, 2013), attention should be paid to parental education. Finally, nail biting is a major risk factor for onychomycosis (Zisova, 2015) and in this study onychomycosis caused nail damage was 14.3% of all cases. However, the smallest number of cases in these groups answered positively to questions about self-destructive habits. In our opinion, patient openness may be challengeable during the study survey as this topic is sensitive.

### **Conclusion**

To our knowledge, this is the first study with the aim to determine the prevalence of onychophagia and onychotillomania in dermatologists' practice in Latvia. Our findings indicate that self-destructive habits could be seen in a wide diversity of ages. Despite the fact that the study groups were not large, we highlight the importance of patient education in dermatologist's practice and population education, about self-destructive behavior and potential damage of nails or nail folds, with a special focus on the under-65 age group. Health education, frequent monitoring, and conducting interventional programs among parents and caregivers would be vital so that the prevalence of self-destructive nail habits can be minimized. The use of patient-centered and mass education is important to reduce stigmatization of the problem and to promote overall public health. There are many methods that could be implemented, for example, health magazines, television, radio, adverts in public transport, and others. The literature summarized in this study suggests that education about these habits is also important in psychiatry, dentistry, and orthodontics.

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