



Assessment of tattoos in dermatology

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ABSTRACT

Introduction: Over the past decades, tattoos have become increasingly popular probably in most European countries. This study aimed to find out people's motivations for getting tattoos and when they decide to get them.

Material and methods: This was a cross-sectional questionnaire study developed through the cooperation of a psychiatrist and a dermatologist. More than 400 volunteers with tattoos were assessed. The majority of analyzed subjects started tattooing in their twenties (mean age \pm SD: 21.6 \pm 5.9 years).

Results: The majority of subjects indicated aesthetic reasons as the main reason for tattooing (44.5% women vs. 29.6% men; $p < 0.05$). The most popular tattoo motifs were animal motifs (18.9% women vs. 10.4% men; $p < 0.001$), plant motifs (18.0% women vs. 1.8% men; $p > 0.05$) and lettering (18.0% women vs. 15.3% men; $p > 0.05$). A total of 423 (91.5%) respondents planned to get more tattoos in the future.

Conclusions: Based on the study results, it can be concluded that tattooing is currently mainly done to mostly performed to beautify the human body. If tattooing should be assessed in terms of its medical significance, the Tattoo Severity Scale can be used, given its good reproducibility and relevance.

Forum Derm. 2023; 9: 3, 112–116

Keywords: tattoos, epidemiology, body ornamentation

INTRODUCTION

The word 'tattoo', or 'tattow' in the 18th century is a borrowing from the Polynesian word *tatau* which means "to write" [1]. A tattoo is done by inserting ink or pigments into the dermis layer of the skin to create a permanent pattern. The oldest human tattoos were discovered with the discovery of Ötzi the Iceman [2]. This mummified man covered with 61 tattoos was found in the Alps and was dated to 3250 BC [2]. Tattooing has historically been done for many reasons, such as to stigmatize criminals or expressing membership in a particular community. However, the current motivations for tattoos are less clear, although tattoos have become very popular in most European countries. The authors, therefore, conducted a study to find out more about people's motivations for getting tattoos and when they decide to get them.

MATERIAL AND METHODS

The present cross-sectional study was conducted on a group of 462 people with tattoos living in Poland according to a self-administered questionnaire, which was developed through the collaboration of a psychiatrist (PP

and a dermatologist (AR). Participants were asked about the age at which they had their first and last tattoos, the number of tattoos they had, their location and their motives. Additionally, respondents were asked about their motivation for getting a tattoo and their choice of specific motif. Finally, volunteers were asked to say whether they regret getting tattoos and whether they plan to get more tattoos in the future or whether they want to remove them.

Statistical analysis was performed using Microsoft Excel and XLMiner Analysis ToolPak software. The mean and standard deviation (SD) were calculated. Differences between groups were determined using Student's t-test. Statistical significance was set at $p < 0.05$. Data were collected and analyzed anonymously.

RESULTS

The age of the first tattoo ranged from 12 to 47 years, and the mean age \pm SD was 21.6 \pm 5.9 years. Meanwhile, the age of the last tattoo ranged from 15 to 49 years, and the mean age \pm SD was 25.0 \pm 7.1 years. The number of tattoos ranged from 1 to 13, with a mean number (\pm SD)

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Received: 9.03.2023

Accepted: 22.05.2023

Early publication date: 20.06.2023

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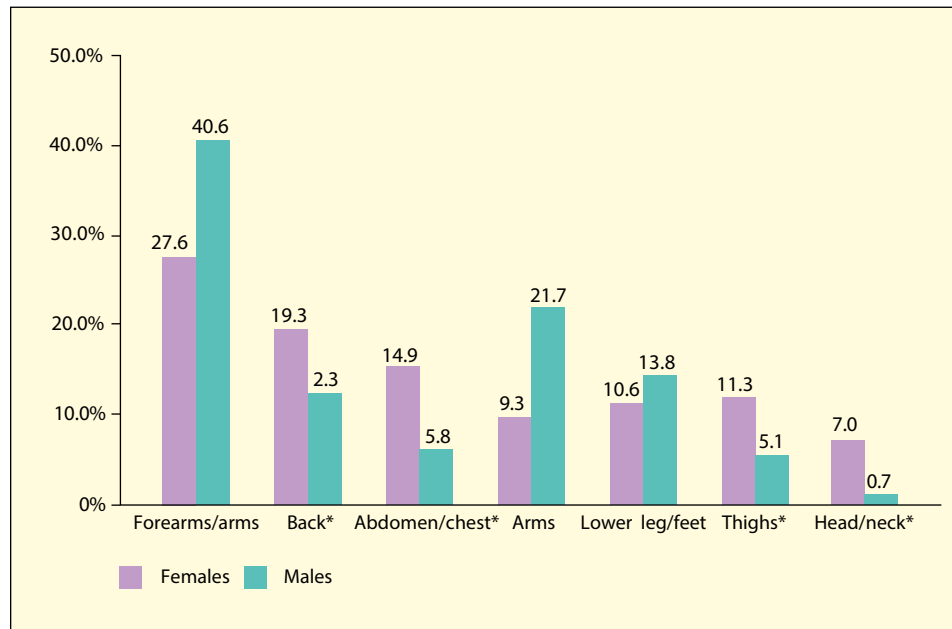


Figure 1. The localization of tattoos; * $p < 0.05$

of 3 (± 3.1) tattoos: 174 (37.7%) respondents had one tattoo, 120 (25.9%) respondents had two tattoos, 141 (30.5%) respondents had three to six tattoos, 22 (4.8%) had seven to ten tattoos and 5 (1.1%) had 11 to 13 tattoos.

Tattoos were most commonly located among women ($n = 207$; 27.6%) and men ($n = 56$; 40.6%) on the forearms and hands ($p > 0.05$); 145 (19.3%) tattoos among women were located on the back in comparison to 17 (12.3%) tattoos among men ($p < 0.001$), 112 (14.9%) female tattoos were located on abdomen and chest contrary to only 8 (5.8%) male tattoos ($p < 0.001$) and 70 (9.3%) women tattooed their arms compared to 30 (21.7%) male counterparts ($p < 0.001$). Respondents had their tattoos also on their lower legs and feet ($n = 80$; 10.6% women vs. $n = 19$; 13.8% men; $p > 0.05$), on thighs ($n = 85$; 11.3% women vs. $n = 7$; 5.1% men; $p < 0.001$) and on head and neck ($n = 51$; 7% women vs. $n = 1$; 0.7% men; $p < 0.001$) (Fig. 1).

The majority ($n = 140$; 18.9% of women vs. $n = 17$; 10.4% of men; $p < 0.001$) of tattoos had animal motifs. Tattoos were also inscriptions ($n = 133$; 18% women vs. $n = 25$; 15.3% men; $p > 0.05$), had floral motifs ($n = 133$; 18% women vs. $n = 3$; 1.8% men; $p > 0.05$), were objects ($n = 94$; 12.7% women vs. $n = 15$; 9.2% men; $p > 0.05$), were symbols ($n = 50$; 6.8% of women vs. $n = 11$; 6.7% of men; $p > 0.05$), had fantasy themes ($n = 38$; 5.1% of women vs. $n = 18$; 11% of men; $p < 0.05$), were names ($n = 27$; 3.7% of women vs. $n = 8$; 4.9% of men; $p > 0.05$), were hearts ($n = 25$; 3.4% of women vs. $n = 0$; 0% of men; $p < 0.001$), had geometric motifs ($n = 17$; 2.3% of women vs. $n = 7$; 4.3% of men; $p > 0.05$), were tribal ($n = 16$; 2.2% of women vs. $n = 7$; 4.3% of men; $p > 0.05$), had religious motives ($n = 13$; 1.8% of women vs. $n = 6$; 3.7% of men;

$p > 0.05$), were dates ($n = 13$; 1.8% of women vs. $n = 3$; 1.8% of men; $p > 0.05$), had death motives ($n = 11$; 1.5% of women vs. $n = 10$; 6.1% of men; $p < 0.05$), depicted loved ones ($n = 9$; 1.2% of women vs. $n = 5$; 3.1% of men; $p > 0.05$), represented women ($n = 6$; 0.8% women vs. $n = 4$; 2.5% men; $p > 0.05$), had ethnic themes ($n = 4$; 0.5% women vs. $n = 5$; 3.1% men; $p > 0.05$), represented a specific place ($n = 4$; 0.5% women vs. $n = 2$; 1.2% men; $p > 0.05$), had musical themes ($n = 3$; 0.4% of women vs. $n = 3$; 1.8% of men; $p > 0.05$), represented respondents' blood groups ($n = 3$; 0.4% of women vs. $n = 0$; 0% of men; $p > 0.05$) and depicted a movie star ($n = 0$; 0% of women vs. $n = 14$; 8.6% of men; $p < 0.001$) (Fig. 2).

The motivation for getting a tattoo was mainly aesthetic ($n = 196$; 44.5% women vs. $n = 32$; 29.6% men; $p < 0.05$). Other motivations for getting a tattoo were to commemorate important events in life ($n = 56$; 12.7% of women vs. $n = 0$; 0% of men; $p > 0.05$), to realise a dream ($n = 52$; 11.8% of women vs. $n = 4$; 3.7% of men; $p < 0.05$), some respondents admitted that the motive for their tattoo was important for their life ($n = 42$; 9.5% of women vs. $n = 2$; 1.9% of men; $p < 0.05$), some respondents wanted to express themselves ($n = 37$; 8.4% of women vs. $n = 25$; 23.1% of men; $p < 0.001$), and for some, the tattoo was a wish ($n = 17$; 3.9% of women vs. $n = 6$; 5.6% of men; $p > 0.05$). Some volunteers wanted to commemorate a deceased relative ($n = 12$; 2.7% of women vs. $n = 3$; 2.8% of men; $p > 0.05$), some reported that the tattoo gave them power and strength ($n = 8$; 1.8% of women vs. $n = 2$; 1.9% of men; $p > 0.05$), for some the tattoo was a gift ($n = 6$; 1.4% of women vs. $n = 0$; 0% of men; $p < 0.05$), some wanted to cover scars with them ($n = 5$; 1.1% of women vs. $n = 1$; 0.9% of men; $p > 0.05$), some acquired them

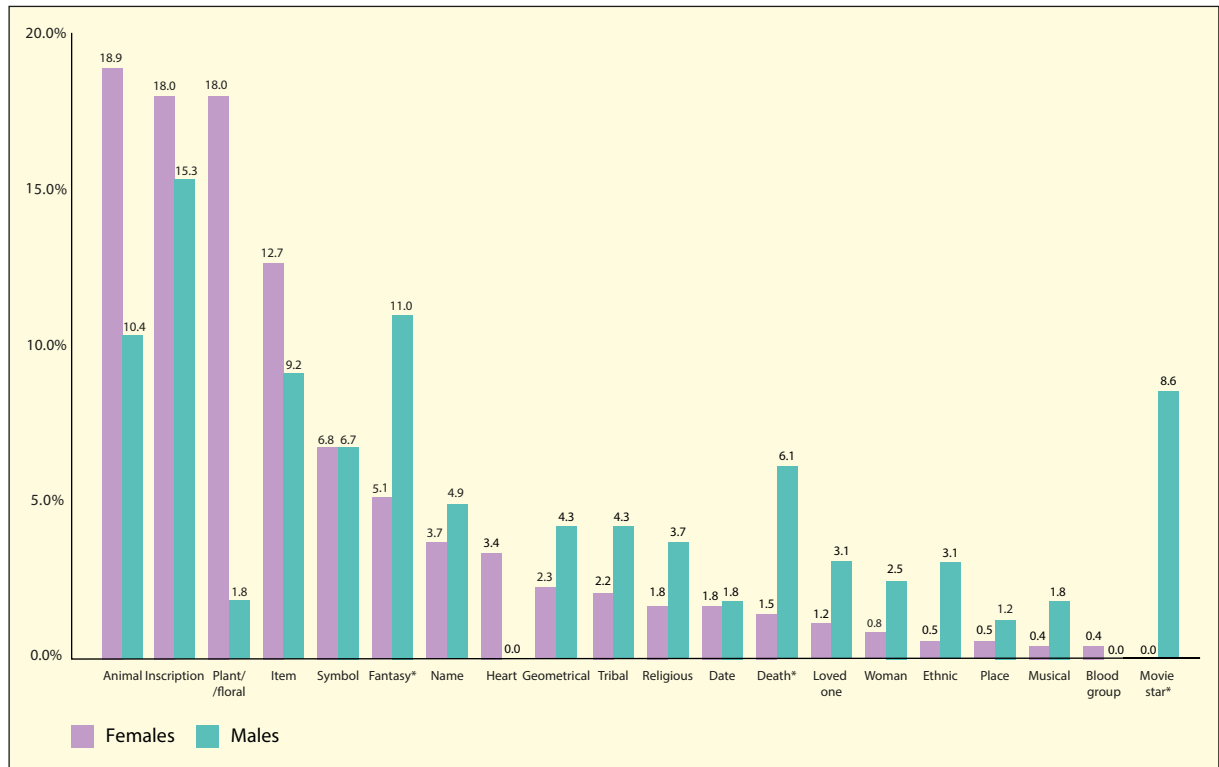


Figure 2. Motifs of tattoos; *p < 0.05

due to a fashion trend (n = 4; 0.9% of women vs. n = 6; 5.6% of men; p > 0.05), some wanted to experience something new (n = 2; 0.5% of women vs. n = 0; 0% of men; p > 0.05), some did so for religious reasons (n = 1; 0.2% of women vs. n = 1; 3.7% of men; p > 0.05), 1 (0.2%) woman wanted to share a tattoo with another person (vs. n = 0; 0% of men; p > 0.05), 1 (0.2%) woman wanted to do it to spite her parents (vs. n = 0; 0% of men; p > 0.05) and three (2.8%) men wanted to express membership in a certain group (vs. n = 0; 0% women; p > 0.05) (Fig. 3).

The most popular reason for choosing a particular tattoo motif was the response "I liked it" among 136 respondents (n = 116; 26.4% women vs. n = 20; 20.2% men; p > 0.05). Some respondents chose the tattoo motif because the symbol was important to them (n = 91; 20.7% women vs. n = 32; 32.3% men; p < 0.05), some wanted to evoke memories (n = 82; 18.6% women vs. n = 16; 16.2% men; p > 0.05), some wanted to express their feelings (n = 44; 10% of women vs. n = 3; 3% of men; p < 0.05), some wanted to express themselves (n = 33; 7.5% of women vs. n = 4; 4.0% of men; p > 0.05), for some people the choice of a particular motif was a matter of chance (n = 23; 5.2% of women vs. n = 23; 5.1% men; p > 0.05), for some people their tattoo is also their life motto (n = 10; 2.3% women vs. n = 3; 3% men; p > 0.05), some respondents wanted to commemorate a deceased person (n = 10; 2.3% women vs. n = 0; 0% men;

p < 0.05), some wanted something feminine (n = 9; 2% women vs. n = 1; 1% men; p > 0.05), some wanted to emphasise their beliefs (n = 8; 1.8% women vs. n = 4; 4% men; p > 0.05), some chose a motif because of a fashion trend (n = 6; 1.4% women vs. n = 3; 3% men; p > 0.05), some chose a motif because of the shape of their scars (n = 3; 0.7% women vs. n = 1; 1% men; p > 0.05), for some people the opinion of others was important (n = 2; 0.5% women vs. n = 2; 2% men; p > 0.05), some wanted to emphasize their nationality (n = 1; 0.5% women vs. n = 3; 3% men; p > 0.05), 1 (0.2%) woman wanted her motif to stand out (vs. n = 0; 0% men; p > 0.05), 1 (0.2%) woman wanted to show her blood type (vs. n = 0; 0% men; p > 0.05), 1 (1%) man wanted to please women with his tattoo (vs. n = 0; 0% women; p > 0.05) and 1 (1%) man got a tattoo for professional reasons (vs. n = 0; 0% women; p > 0.05) (Fig. 4). Overall 423 (91.5%) respondents plan to conduct next tattoos in the future, 11 (2.4%) subjects regret doing them and 10 (2.2%) individuals removed or plan to remove their tattoo.

DISCUSSION

In the past, tattoos were not well perceived by society and were usually associated with soldiers, criminals, gang members and others belonging to marginalized groups [3,4]. Today, this trend is changing and the overall prevalence of tattoos is increasing across all social groups and is up to

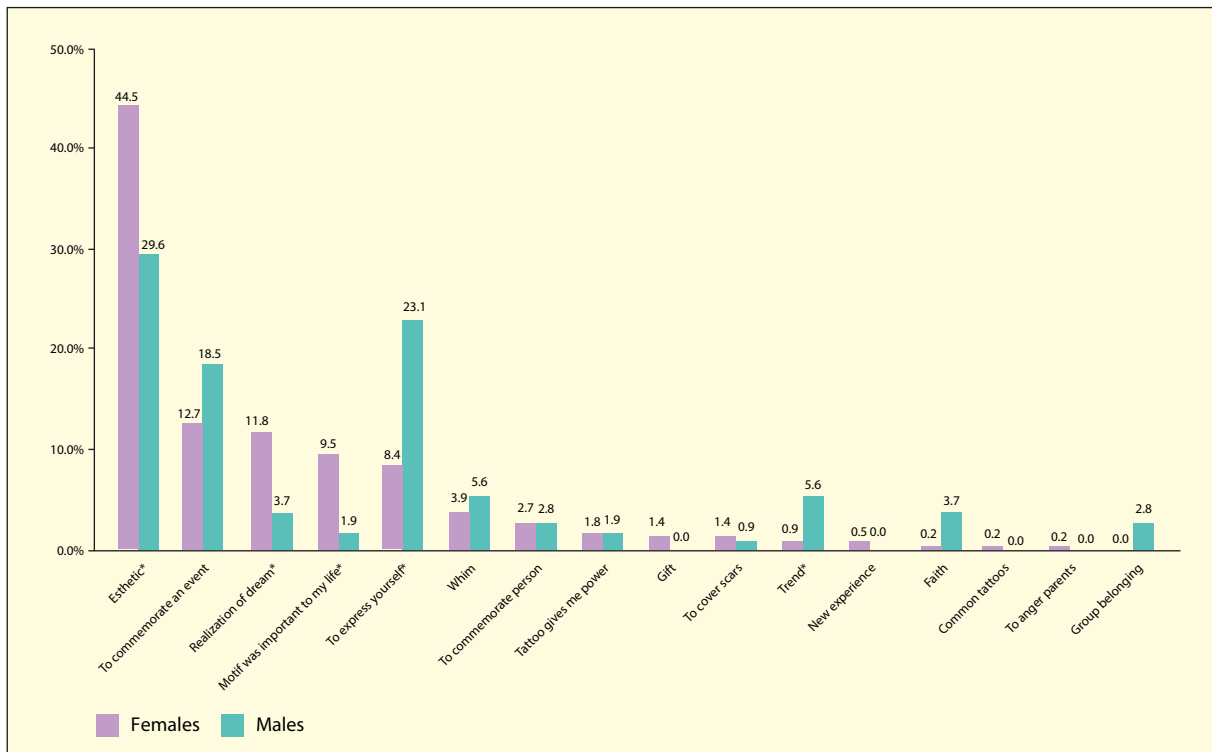


Figure 3. Motivations for getting a tattoo; *p < 0.05

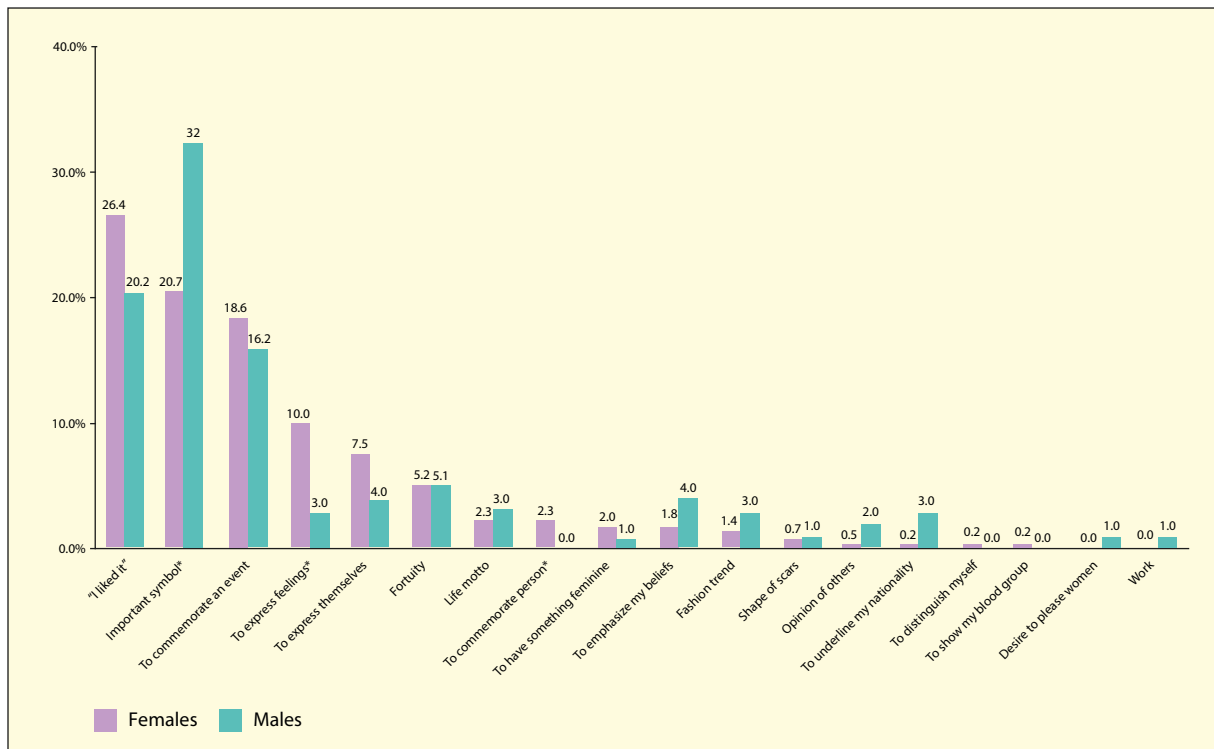


Figure 4. Reasons for choosing a particular tattoo motives; *p < 0.05

20% worldwide [5, 6]. In the present study, most respondents got their first tattoo mainly in their twenties. In the literature, it is possible to find information that people have tattoos even earlier. For example, in an article by Bicca et al [6], 168 (80.77%) people reported getting their first tattoo before the age of 18. This means that tattoos are becoming increasingly popular also among younger generations.

There are many reasons why people choose to get a tattoo. The most popular in the present study was aesthetic reasons and therefore tattoos can be seen as an art form to decorate the body, similar to piercing. However, according to Wohlrab et al [3], tattoos require painful tattooing sessions, are mostly permanent and therefore cannot be considered just a fashion accessory, but have a deeper personal meaning. Some respondents in the study also answered that tattoos help them express their feelings (10% of women and 3% of men; $p < 0.05$) or themselves (7.5% of women and 4% of men; $p > 0.05$). The results of a survey of 432 respondents [7] seem to confirm these observations. The authors in this article concluded that respondents acquire tattoos to express their individuality and demonstrate their autonomy [7]. Furthermore, in a study by Kertzman et al [8], women with tattoos compared to women without them showed significantly lower self-esteem. This probably explains why people get tattoos to enhance their self-awareness. Furthermore, in an article by Ernst et al [9], the authors confirmed that tattoos and piercings were more common among people who reported abuse and neglect in childhood. According to Kluger [10], tattoos for these individuals may be an attempt to overcome their experiences and reclaim their bodies.

In the present study, 11 (2.4 per cent) of the respondents regretted acquiring tattoos and 10 (2.2 per cent) had removed or were planning to remove their tattoos, showing that the majority of people are satisfied with their tattoos. In an article by Armstrong et al [11], who analysed 196 people wanting to remove their tattoos, the most common reasons for removing a tattoo were "shame", "tiredness" or "just decided to remove it". In addition, a third of respondents wishing to remove their tattoos were interested in

getting more tattoos in the future [11]. This reflects the fact that most respondents are satisfied with their tattoo art and simply want to change their design or location [12].

CONCLUSIONS

The prevalence of tattoos is rising which means that clinicians would see such patients more often and should be aware of the reasons why people perform them.

Conflict of interests

The authors have no conflicts of interest to declare.

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