**INTRODUCTION**

A tattoo is defined as a form of body modification where a design is made by inserting ink, dyes and pigments, either indelible or temporary, into the dermis layer of the skin to change the pigment. A permanent tattoo is created by inserting a pigment just below the dermal–epidermal junction of the skin with a needle or a similar implement. The pigment is attacked by the immune system and sits in macrophages and fibroblast cells, producing permanent coloration of the skin. (Vivek, Verghese, & Harvey, 2010).

There is a consensus that the word tattoo originated from the Polynesian word “tatau” meaning artistic (Ferguson-Rayport, Griffith, & Straus, 1955) although other references quote the meaning as “to write”. The first use of the word is attributed to Captain Cook, the British explorer and cartographer, and his men, when they first visited the Hawaiian Islands and Eastern Australia and encountered and became fascinated by locals who wore tattoos and had some on themselves (1768-1780). But mankind has practiced tattooing for thousands of years before that encounter and the following is a timeline of the often quoted dates in scientific literature:

- 12 000 BC. Among early nomadic tribes. (Palermo, 2004).
- 6000 BC. Evidence of the practice found in caves in Portugal and France. (Levy, Sewell, & Goldstein, 1979).
- 3,250 BC. Two oldest known tattooed mummies, found embedded in glacial ice in the Alps. (Deter-Wolf, Robitaille, Krutak, & Galliot, 2016).
- 2000 BC. Egyptian Middle Kingdom (Malloy, 1989).
- 1100 A. D. South American Incan civilization. (Ferguson-Rayport, Griffith, & Straus, 1955).

The earliest attempt to classify tattoos can be found in an attempt by Ferguson-Rayport, where 7 groups were identified:

- Identification tattoos (service emblems; personal information; key life events).
- Love tattoos (Idealized, sentimental or maternal love; pornographic images).
- Bombastic and pseudo-heroic tattoos (Skull and crossbones, ‘Death before Dishonour’, powerful animals).
- Inveighing fate (e.g. Horseshoe with ‘Good Luck’).
- Religious and commemorative.
- Private symbols (Of significance only to the individual).
- Miscellaneous (Animals, birds, flowers. (Ferguson-Rayport, Griffith, & Straus, 1955).

More recently, The American Academy of Dermatology distinguishes five types of tattoos:
• Traumatic tattoos, resulting from injuries;
• Amateur tattoos;
• Professional tattoos, with two subtypes cultural and modern.
• Cosmetic tattoos: these can be used to replace a nipple after breast surgery, for example, or camouflage skin conditions like vitiligo, or to cover an undesired tattoo.
• Medical tattoos: commonly used to delineate permanent landmarks for radiation therapy and is placed by a physician. (Cronin, Jr, 2001).

It is worth differentiating between tattoos, mentioned above and two other body modifications types, namely body piercing and scarification. Body piercing, where usually jewelry is worn through the skin, commonly involves the ears and navel but can also be on the eye brows, nipples, lips, tongue and genitals. Scarification on the other hand, involves designs placed on the skin by permanent scars. These can be made by burning or cutting the skin, or inserting inert material under the skin for example for sexual enhancement. (Cronin, Jr, 2001).

Motivations for Body Modification by Tattoos

The motivation for acquiring a tattoo could have tracked Homo sapiens evolution from hunter- gatherer, forager, and farmer to the present day humans, to meet the need of each stage. So as we evolved we could have used tattoos as a mark of identity or belonging to a group and the tattooed marks, such as animals, snakes, birds, were usually totemic in nature (Palermo, 2004). One has to wonder if the high prevalence among criminal gangs in prison populations is a mark of a retreat to an earlier evolutionary stage. Tattoos were used as a social status statement and a sign of royalty. Along the way they were used as a sign of beauty, an alarm to turn away invaders, an initiation rite and a rite of passage, a kind of conversion experience, a mark of independence from parents and conformity.

They could have been very useful during religious ceremonies, practicing magic and for the superstitious man. Some insightful analysis suggest they are used as means of non-verbal communication and a window to the inner world. Skin is a media for communicating with the outside world. It defines self-territory and its modification is a statement to others. In the same line of thought it could be an exoskeletal defense and a defense mechanism against negative emotions.

An often quoted reason in females, is the use of tattoos to enhance the feminine image, a fashion statement, or intended as social resistance. (Atkinson, 2002). In the former case, the tattoos were generally subtle and hidden, whereas they were generally bold and on exposed parts of the body in the latter. Association with sexual immaturity, rebellion problems with identity and need to assert independence.

One possible explanation for a teenager’s decision to get tattoos is explained by the psychological terms ‘individuation’ and ‘identity formation’, which is referred to as ‘identity versus role confusion’ by Erik Erikson. Finally, emotional processing deficits, such as Facial Emotion recognition (FER) has been reported in Alcohol & Substance Use Disorders (AUDs/SUDs) and would be interesting to study the association with tattoos.
6. (Lander 1943; Ferguson-Rayport 1955; Gittleson 1969, 1973; Williams 1998) all found a higher prevalence of tattoos in psychiatric populations than in general populations and ranges from 15 to 39%.

7. Ferguson-Rayport et al (1955) found that tattooed individuals in psychiatric settings have a high prevalence of personality disorders up to 57 %, and 10% of those with tattoos had schizophrenia.

8. Gittleson and colleagues (1969) 48% of male psychiatric admissions to an acute ward reported prevalence of personality disorder among tattooed patients.

9. Buhrich & Morris (1982), in a study of in-patient admissions, reported a prevalence of more than 30% for both schizophrenia and personality disorders among those with tattoos.


11. Inch & Huws (1993) found an association between psychiatric symptoms, borderline personality characteristics as well as increased alcohol use, childhood sexual abuse, reported more often in women with tattoos.


13. Perrin, 2017 recommended that in a forensic setting, antisocial personality disorder must be carefully ruled out in those forensic patients who possess large numbers of crudely applied or self-made tattoos or who have a large area of their body covered by tattoos.

14. Cardasis, 2008 in a study of 36 male forensic patients conducted by revealed that significantly more patients with tattoos had a diagnosis of antisocial personality disorder compared with patients without tattoos.

CONCLUSIONS

The classic teaching in medicine trains physicians to inspect first before proceeding to examination. The fact that corporal paintings and other forms of body modification are non-invasive and could be a window to the mind is great opportunity for clinicians to register the signs and make use of them together with other findings later. This is an important area of study and research and we are bound to have more publications dedicated to it. A warning is necessary though, none of the findings so far exempts us from disciplined neutrality and being unprejudiced when examining a tattooed individual. The only use of the associations found so far is to meticulously rule out certain disorders.

REFERENCES


