

## Medical tattoos: a literature review

Tatuajes Médicos: Una revisión de la literatura

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### Abstract

This article aims to describe the extent of an innovative practice for information in emergency situations, the use of medical alert tattoos. In order to do so, an extensive literature review has been carried out in the main medical and sociological databases. The results show that the practice of tattooing is present as a body-text representation. In the field of medicine there are multiple applications of this practice, including medical alert tattoos located in visible parts of the body. There is a lack of legislative framework on this practice, which creates uncertainty about whether health practitioners must meet the tattooed instructions. Among the different applications of medical alert tattoo in the literature the “not resuscitate order” and the diabetic status are the more widespread. The first one creates conflicts with regard to medical action, while in the second one problems related to the recognition by emergency staff arise. More research on the subject involving patients and health personnel is required.

**Keywords:** Medical Tattoos; Body-text; Informed Consent.

### Resumen

El objetivo de este artículo es describir la extensión de una práctica innovadora para proporcionar información en situaciones de emergencia, el uso de tatuajes médicos de alerta. Para ello, una extensiva búsqueda de literatura fue llevada a cabo en las principales bases de datos de contenido sociológico. Los resultados muestran que la práctica del tatuaje se corresponde con lo que actualmente se conoce como una representación texto-cuerpo. En el campo de la medicina existen múltiples aplicaciones de esta práctica, incluyendo el uso de tatuajes de alerta médica en diferentes partes del cuerpo. Existe un vacío legislativo que produce incertidumbres sobre la obligación de los profesionales de la salud de adherirse a las instrucciones tatuadas. Entre las diferentes aplicaciones de los tatuajes médicos, las más extendidas son la orden de no resucitar y el status como diabético del paciente. La primera de ellas plantea problemas en lo concerniente a la acción médica, mientras que en el caso de la segunda las dificultades de su reconocimiento y visibilidad son considerables. Debe llevarse a cabo un mayor número de investigaciones poniendo en el punto central de las mismas tanto a investigadores como pacientes.

**Palabras claves:** Tatuajes Médicos; Cuerpo-texto; Consentimiento informado.

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## Medical tattoos: a literature review

### Introduction

The development of Sociology of the body has been described, especially in England, as linked to the development of Sociology of Medicine, developing a distinctive core of Research taking distance with the traditional anthropological approach to these issues (Turner, 2000). Later, most research has focused on the body as a social construct, paying attention especially to the body as a tool for the building of identities by the articulation of gender and sexuality with the body itself, being the work of Joanne Entwistle (2015) the cornerstone of a wide range of research on body representation. Modern social theory has been based on this later paradigm in order to approach tattooing with works linked to tattooing and sexual identity-activity (Swami, 2012), religious identity (Koch et al, 2004) and more recently on corporate logo tattoos (Orend & Gagné, 2009). It is surprising, in this sense, the scarce attention pay to a popular phenomenon as it is the sports team crest tattooing, particularly among Argentinian and Brazilian football fans (Zambaglione, 2008).

The intersection of the identity function with an instrumental function based on the transformation of the body has been the center of attention of recent debates, specially after the development of technology which point on the direction of the bionic body-digital cyborg (e.g. health monitoring micro-ships, on-body devices, invasive procedures for communication and location), being discussed the implications of this new technological advances (Lupton, 2012). The instrumental use of Tattoos has been ignored in Social Sciences and in the Sociologies of Body and Medicine.

In the case of health professionals, it is very important to get familiar with different signs and symptoms of illnesses, but also with the expressive language used by the patient in an emergency situation, since this is the first step in order to provide with a good assistance in the Emergency Room. The second step, after this, will be to make the proper

diagnosis and take the first therapeutic measures in the place where the patient is placed. In this sense, it is extremely important to assess the severity of the disease in order to implement the proper resources to provide with the better healing and the less consequences (Abreu, *et al*, 2003).

In the case of patients who require emergency room attention the protocols of identification are very important in order to provide with enough information to help the practitioner and improve the medical attention and the treatment length. In that sense, medical doctors advise patients to use a medical alert identification for several health condition, such as diabetes, allergies and epilepsy. In an emergency situation, the personnel will look for badges, bracelets or wristbands to facilitate a prompt reaction (Kluger and Alsaouqui, 2013).

Recently, a quite innovative practice has emerged with the same purpose of the previously referred devices, the use of tattoos as a method for medical alert in emergency situations.

From a statistical point of view, little attention has been paid to the phenomenon of medical tattoos from the academia. Taking into account that around one third of the population aged 18 to 25 and 40% of the population 25 to 40 years old wear a tattoo (Collier, 2012), we may speculate that since tattoos are most popular among young people, medical alert tattoos will be also more popular for them. The previous figures don not take into account population over 64 years old, but previous evidence suggested that the not resurrection order, tattooed, is common also among older population (Collier, 2012). Since there is not institutions tracking the use of medical tattoos, or more academic literature on the topic, is hard to offer more figures attending to the specific sociodemographic features of the individuals, making hard to take an approach taking into account gender or age differences.

One key question is to know the reasons that lead to the performance of tattoos with such a

particular use. The symbology given to tattoos by the society and the individuals has been studied from the point of view of sciences, which approach mankind from a holistic point of view, such as Sociology (Schilling, 2012), paying particular attention to the germination of Sociology of Body.

In the pristine theoretical sociology the scope was limited to the understanding of social order and social change. In most works the fracture between “the social” and “the biological” was wide and, generally speaking little attention were paid either to genetics or psychology. Pioneer works on sociology focuses on the features of industrial urban societies, social order, individual (rational) actions, social structures or economic issues. The study of body was marginalized (Martínez Barreiro, 2004; Soley-Beltran, 2007; Planella 2006).

This view is not totally share by scholars worldwide. In this sense, literature shows how in some geographical areas, such as Latinamerica topics like bodies and emotions have a solid tradition, bases on a critical perspective and in a plural approach (Ferreira y Scribano, 2011; Cervio, 2012; Citro, 2010).

From the social Darwinism, the body was taken into account to study racial differences, to the extent that by the end of XIX century social evolutionism theory, by Spencer, established an analogy between body an society. On the other hand, Karl Marx also gave a particular place to human body in the analysis of the needs and demands of industrial capitalism and its consequences. (Soley-Beltran, 2007).

The germination of Sociology of Body can be placed in the verge of the changes occurred after the second world war, which led to the increasing importance of the study of human body due to several changes, such as (Soley-Beltran, 2007):

- The spreading of mass consumption. Work ethics are replace gradually by the ethics of leisure and sport. As a consequence the popular culture became more hedonistic, whit an emphasis on the important of aesthetics mores and corporal pleasure.
- The integration of countercultures, subcultures and transgressive cultures into mainstreaming consumption caused a mercantilization of sexuality and erotism and the exacerbation of the healthy, young and beauty body.
- The feminist movements leads to important changes in inter-sex relationships, giving new theoretical considerations to the political and analytical status of the body as oppose to the privileged dominant male culture.
- Bio politics issued arose, such as population ageing, the HIV pandemics or the so called

“anxiety politics” or “Status anxiety”, which regularly identifies threats in order to terrify population, such as nuclear war, chemist war or worldly spread lethal flu pandemics.

The Sociology of Body can find a seminal work in the book *The Body an Society*, by Bryan Turner (1984), which can be considered as the cornerstone of the wide net of research on this topic all across Europe and some other parts of the world. From this important work Turner advocates for the key position of body in the development of Modern social Theory due to the theoretical and medical advances that took place since the second half of the twenty century. Those changes made necessary to rethink the status of health and the relationship of health with the body (Planella, 2006).

The French counter-partner of Turner, giving also a prominent role to the body in contemporary social theory can be found on David Le Breton and the Symbolique du Corps group. Since the publishing of *Corps and Society* (1985) an extensive body of research has created a Sociology of the body which has advanced towards the comprehension of the new social uses of body, specially since modern times till current times.

The latest development of Sociology of the body has considered the body as the space of memory, performance and action, as the stage where experience set foot. Regarding the understanding of the social use of the body nowadays, there are two main trends (Chomnalez, 2013, 82):

-The “evidence-body”. The skin is deliberately scared to show the apprehension of experience by the use of tattoos.

- The “veiled-body”. The purpose is to remove the traces in the body, which could identify tribulations or stories.

In postindustrial societies, body took a key position in everyday life, leading to a scenario where specific features are continuously changing, making bigger the consumption spiral. This phenomenon is not random, but a consequence of the human being relationship with the social environment, structured by cultural patterns.

### **State of the art**

To the author better understanding there are not previous studies liking medical alert tattoos with sociological theories in an strict sense, but some previous research related to this issue will be exposed next.

For instance, Glassy, *et al*, (2012) deal with the different medical uses of tattoos and the problems that can emerge from different applications. They refer to the use of tattoos to alert the first physicians to attend a medical condition, with a variety of uses

ranging from displays about not resuscitate orders to information on suffering a type of diabetes or organ donors. According to those authors, tattoos do not fulfill legal requirements and they just have to be considered as a guide in order to make decisions on treatments.

Klugler and Aldasouqui (2013) deal with the development, use, continuation and ethical dilemmas of this practice. The main conclusion of this work is the lack of awareness of health professionals with these procedures and the need of establishing a legal character for them. In a second work, the same authors surveyed individuals, which carry a tattoo and concluded (Klugler, *et al*, (2013) :

- Tattoos should be obtained only in authorized saloons adhered to strict asepsis and hygiene rules.
- Diabetes must be optimally controlled previously to the tattooing.
- Emergency room staff must be respectful facing the increasing prevalence of this practice.
- Guidelines regarding the format and location of tattoos to make them easily visible to the sanitary staff should be provided.

**Data and methods**

This article aims to know the scientific publications of medical tattoos in emergency situations and, furthermore, to analyze this phenomenon using social theory. The specific objectives of this article are:

1. To expose the relationship between the conception of body-text and the use of medical alert tattoos.
2. To detail the diverse applications of medical alert tattoos.
3. To identify ethical and legal issues related with the application of health procedures involving information transmitted by medical tattoos.

Literature review procedures are intimately linked to Grounded theory as an approach to develop social theory as an inference from the data. In the case of this particular technique, this literature review aims to offer insights into epistemological bias in the analysis of medical tattoos. Grounded theory has been probed to be a robust theoretical background in the case of qualitative research (Merlino & Martínez, 2006)

In order to perform the literature review the following databases were used: Medline, Ebsco, Cuiden, Lilacs and Proquest from January to April 2016, obtaining the preliminary results detailed in table 1.

**Table 1. Database preliminary results.**  
(Ver anexo al final del artículo)

Using the thesaurus advance quest the following words were examined: tattooing, emergency identification, alert, human body, sociology, medical care, medical assistance and non-therapeutic body modification. The Boolean keys AND and OR were used. In this specific stage of the literature review, referred to the diverse applications of medical alert tattoos and the legal and ethical dilemmas arose by them, the following keywords were added: cardiopulmonary resuscitation (CPR), diabetes mellitus, ethics and health legislation.

The search period ranged from January 1990 to June 2016, giving priority to those studies published in the last 4 years. In addition, the practice of tracking-back references was used in order to find relevant publications in the reference list of the articles previously found. To complete the search, Google Scholar was used to locate articles which could be potentially excluded from the previous journal platforms.

In order to select the articles to be included in the current literature review, both abstracts and titles were reviewed. Inclusive criteria used were language (Spanish and English), publication period (1990 to 2016) and the type of study (descriptive studies, clinical trial and literature review, whereas Conference publications were excluded).

A total of 66 articles were found, but only 23 fulfilled all the eligibility criteria. Cynical trials and systematic literature review were also chosen. After analyzing the full text, only 17 articles show clearly the concept body-text and the application of medical tattoos as medical alert procedures. The results were group into 3 different categories:

- Those exposing the relationship among the concept body text and the medical alert tattoos.
- Those detailing the different applications of medical alert tattoos.
- Those, which identify the ethical and legal issues linked with the application of medical procedures when medical alert tattoos are involved.

**Findings**

After an exhaustive literature review, can be first stated that in a general sense, the concept body-text has been widely discussed from the point of view of non-verbal communication theories, being the body recognized as a source for messages derived from cultural learning. Even though bodies are socially constructed, there is a exchange with the natural environment, understanding “nature” as a set of dynamic interactions. This way, the body could be understood as a text constantly written and rewritten, coerced, however, by a diverse range of regulations and devices (Chomnalez, 2013).

Furthermore, the concept body-text emerges as a narrative of the lifetime of individuals. A clear, probably the best, example of this kind of representation will be the practice of tattooing. Nowadays, tattoos are not considered a ritual or solely linked to social class, sex or age, but as an indelible performance on the body in a time where the beauty canon tries to escape from the ideal of plane body. The relevance of tattoo lies on the body as the base of a text that provides the skin with a own meaning (Chomnalez, 2013; Castañeda, 2014).

Even more, in societies where youngness is key in the idea of beauty, tattoo is perceived as a sign of the past, a narrative of the biography and identity of the individual. A symbol provided with meaning (Turner, 1967). Together with the individualism as a dominant social structure, tattoos are a technique varnished with individualism, distinguishing individuals that want to stand over standardization. Tattoos are a way to speak "by yourself", allowing to identify the most salient and worth features of identities and making them visible. Thus, they represent affective links and values by going explicit on the skin providing individuals with autoaffirmation, both by differentiation as by belonging to a specific group (Chonmzalez, 2013, Catañeda, 2014; Turner, 1980).

Tatoos act as the witness of the evolution and transformation of the subject, his/her personal biography, so the meanings of the tattooed figures are deeply personal. The tattooed body-text speaks on the memories and life project of the individual.

#### **Different applications for medical tattoos**

Kluger and Aldasouqi (2013) describe tattoo's great popularity during the last twenty years and how this has made its way through the field of medicine. Body modifications made with tattoos are done with different aims and motivations. One of them is medical identification when facing an emergency situation.

Glassy et al (2012) define medical alert tattoo as a tool of identification similar to medical alert jewellery, that is, bracelets and necklaces used to notify the first responders in a medical situation or an intention for specific care, such as non-resuscitation orders.

These tattoos are not only used to alert in the case of an emergency, they appear to be used by some patients as a confrontation strategy to reach an active dominion of their disease; to get back their own body and also to obtain others' interest about their disease.

The incidence of these types of tattoos is still not known. Collier (2012) describes this technic as "infrequent", taking into account tattooist statements;

although he equally points out that gradually there are more willing subjects to adopt this kind of procedure.

Kluger and Aldasouqi (2013) make evident the advantages and disadvantages of this new technique. Among the main disadvantages of the technique can be highlighted that there are no guidelines for the place where the tattoo should be located. Its design can face emergency healthcare staff with searches for the plates, bracelets, or necklaces of medical alerts and not a tattooed guideline under the skin. Also, due to the inability to recognize a tattoo as an alert symbol in medical situations, in the case of multitattooed people, it is much more difficult to find an alert signal in an important medical situation.

Among the various manifestations of this recent application we find indelible tattooed texts that warn of diseases such as diabetes, allergies, blood type, organ donation, or health guidelines. The ultimate goal of this practice would ensure adequate health care, but in contrast can be found the refusal of resuscitation (Figure 1); whose aim is to dispend with a specific health technique that could save the life of the person (Kluger and Aldasouqi, 2013b).

**Figure 1: Do not resuscitate Tatoo.**



Source: Cooper and Aronowitz (2012:1)

This latter use of the ink as a manifestation of desires at the end of life leads to the controversial concept of dying with dignity (*euthanasia*). This requires consideration of the patient as a human being until the moment of death, respect for their beliefs

and values as well as their participation in decision-making through a close and honest relationship with the healthcare team. Another important factors must be taken into account, like the presence of their loved ones and a pleasant environment.

Facing this controversy, it is interesting to note that “the respect of one’s beliefs and values as well as their participation in the decision making protocols”, given that a non-resuscitation tattoo would be a way to express a personal decision (Gómez-Sancho, *et al*, 2010).

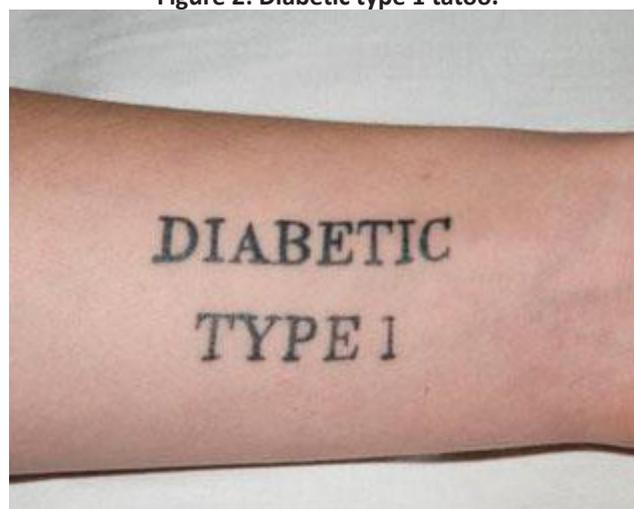
Even though the majority of people who decide to get the non-resuscitation message tattoo are elderly, a loss of consciousness might not always be caused by a heart condition, and the fact of carrying a message with this symbolism can delay actions carried out by medical staff and may have serious consequences for the health of the subject.

For those who have a strong desire of not being resuscitated, the idea of getting this tattoo is very attractive. This has its explanation given that the tattoo is permanently fixed to the body unlike clinical documentation or medical alert bracelets, this mark on the skin can not be lost or removed easily. In addition, when facing a situation requiring resuscitation it is very difficult for the medical staff not to see the tattoo before starting the resuscitation procedure.

Physicians are morally and legally compelled to respect the preferences of patients of giving up vital treatment. The notion of a tattoo derives, partially, from fear that these preferences will not be respected. This fear is based on a fact, doctors take into account only 46% of the preferences of patients when renouncing to cardiopulmonary resuscitation (Wenger, *et al*, 2000). Also, qualitative studies describe the emotional and moral stress experienced by physicians when resuscitating a patient knowing later that the patient had a signed order of no resuscitation. This situation occurs given the lack of accessibility to medical files in emergency situations (Soto, *et al*, 2009; Smith, 2012; Monzón, *et al*, 2010).

Medical alert tattoos are becoming more common in people with diabetes (Example in figure 2). The lack of recognition of hypoglycaemia in diabetic patients can be fatal if it is confused with drugs or alcohol intoxication, and can pose a serious danger to the individual (Kluger and Aldasouqi, 2013b; Chadwick and Shah, 2013).

Figure 2: Diabetic type 1 tatoo.



Source: Chadwick and Shah (2013:995).

A qualitative study on these types of tattoos in patients with mellitus diabetes shows that all tattoos were obtained on the right or the left wrist and were obtained in a professional salon tattoo, tattooing sessions were uneventful and no complications were reported (Kluger and Aldasouqui, 2013b). The causes for the acquisition of this type of tattoo, which are often multiple and generally similar among respondents were:

1. Raising awareness in the case of emergency.
2. Comfort regarding daily activities (Getting ride of the concern for using necklaces or bracelets at all times and the interference of jewellery pendants when practicing sports).
3. The fear caused by fading words, forgetfulness of jewellery and metal adverse reactions.
4. To popularize the acquisition of tattoos in order to alert others about their diabetes (especially coworkers).

Patients often exhibit the same reasons to get tattooed, mostly medical reasons and the economic cost of repeatedly replace the medical bracelet once lost or broken.

These reasons are convincing, but health professionals should submit diabetic patients undergoing this procedure to an education process, a situation that cannot be reached given that medical services are not usually consulted on the procedure or precautions to be taken into account in these situations.

Diabetic patients consulting their family doctor about getting a diabetic alert tattoo must be aware about the dangers of tattoos in diabetes. Diabetes must be controlled optimally, so therefore it is convenient to measure haemoglobin and average glucose in blood at the time of getting the tattoo in order to promote healing of the tattooed area and

prevent wound infection. It is also useful to advise diabetic patients that the tattoo should not be done in the lower limbs due to the risk associated with neurovascular disease that could impair healing or benefit infection.

Ethical and legal values in relation to the implementation of health actions related to the information transmitted by medical alert tattoos must be considered. As noted by Collier (2012), tattooing has no legal value and in the case of an emergency medical staff are not required to comply with the no CPR order drawn on the chest of the patient. This situation of legal validity is also present in European countries like Spain, where the Law 41/2002 of November 14th, is the basic regulator of patient's autonomy and rights and obligations regarding clinical information and documentation. This law refers in chapter IV, article 11 to previous instructions, but tattoo is not mentioned in any case with legal meaning.

On the other hand, the 141/2010 Law of October 27th establishes the regulation on health and hygiene requirements of the activities of tattooing, micro pigmentation, piercing or other similar techniques of body decoration, and in chapter IV article 10 states the requirements of information and consent of the users, referring to contraindications of these techniques, noting diabetes as one of the situations mentioned where, without medical supervision, it is not advisable to carry out certain body decoration techniques. In Chapter IV, the article 13 states that minors who are not emancipated need permission from their legal guardian to undergo this type of activities.

This last situation is not always similar in other European countries, in the United Kingdom; the practice of tattooing is illegal in minors, with or without consent of guardians, unless the tattoo is done due to a medical condition. Some authors raises the question of this practice in legal terms, since there is no law that guarantees the following of the recommendations of a tattoo, and also this could be misinterpreted by emergency services (Smith, 2012).

Reviewing the press, it is found that in all documented cases, the carriers of an indicative tattoo refusing to receive cardiopulmonary resuscitation had previously signed a legal document by which they refused to receive intervention, and had marked their skin with the intention for this to be fulfilled even in an emergency situation in which assistants had no health documentation available (BBC.com, 2003, 2011; El Pais.com, 2012). Smith (2012) also suggests that one can not rely on this practice analysing the cost of removing a tattoo compared to the cost of dispensing a medical alert bracelet or the correction

of legal documents in the case the person changes his/her mind regarding their wills.

### **Conclusion and recommendations**

Tattoos are a representation of the body-text concept, regarded as an account of the history and identity of the subject. As some authors already pointed out (Chomnalez, 2013), the Body takes a central place in everyday life since it becomes part of a communication process, to communicate identity and emotions (Butler, 2002; Sibilida, 2005; Schmucler, 1997).

One application of this technique, which greatly shows the history of the individual, is the use of this procedure as a form of medical identification. We can find different uses for medical alert tattoos, but those who have opened a gap in the literature are not-resuscitate order and diabetic condition alert. The former one causes major conflicts regarding medical performance. Thus, the absence of legislative approaches on the legitimacy of medical alert tattoos makes it difficult to know whether medical personnel must comply tattooed instructions, especially those that indicate the DNR. Although it is worth mentioning this is a recent practice that has not had enough impact to be considered in the current legislation.

One of the main impediments to establish a legal framework in this situation is the permanence of this technique as opposed to a versatile human mind. An individual can change their mind before the DNR order, and in the case of being a carrier of medical alert jewellery or having completed the legal documents, that could be modified, but removing a tattoo is a more complex procedure

This fact is exemplified by Kluger and Aldasouqui (2013b) when in the case of a patient in conditions of social isolation and a heart condition had a DNR tattooed, but after receiving effective treatment for his condition changed his mind and now carries an indelible mark that does not represent any preferences in case of a cardiorespiratory failure.

The lack of recognition by the medical staff, offer the following recommendations:

- Patients should not have multiple tattoos in order to be immediately recognized by the medical team.

- To be useful, tattoos must be done in parts of the body where can be quickly identified by nurses and doctors (the underside of the forearm or the chest).

- A universal symbol must be promoted for the entire medical community to recognize it.

In relation to the possible complications for diabetic patients, tattooing is safe if it is done in an

official establishment and is the wound is later cared. In addition, these individuals must have optimal glycaemic control and avoid micro vascular risk areas and common areas of insulin injection.

Legislation regarding tattoos in diabetics finds this disease as a contraindication to be solved with medical supervision during the process of tattooing. While in some countries the medical condition of being diabetic allows a minor getting a tattoo for identification purposes in emergencies without the consent of their legal guardian made, the regulations in other countries (like Spain) do not consider that possibility.

Summarizing, the practice of tattooing as a form of medical alert is mostly observed in diabetic patients and in those who choose to mark their body with a do not resuscitate order. In diabetic patients it is a practice that when properly executed could offer a solution to save lives. Although users must first know the risks and appropriate measures to carry it out. Tattoos have no legal validity, but in cases representing no resuscitation preferences may help health physicians in search of a legal and binding DNR document. Further research on the subject involving patients and health personnel is need, to observe the different perspectives of this new technique. Although this kind of research seems difficult to undergo, considering that to carry out this work first was attempted to contact medical alert tattoos carriers through various means but no response was obtained.

The results of this study are conditioned by the restricted information available on medical alert tattoos, being a new and emerging phenomenon that has not yet been studied in depth, which is a major constraint for its revision. Another limitation is the fact that most of the articles are written by the same circle of authors, which might bias the achieved results.

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**Table 1. Database preliminary results**

Database	Keywords	Inclusion criteria	Articles (n)
MEDLINE	Tattoo [AND] Emergency identification	Humans 2005-2015 English	102
	Tattoo [AND] Non-therapeutic	Humans 2005-2015 English	64
LILACS	Tattoo [AND] Medical Alert	Humans English 2005-2015	7
PROQUEST	(tattoo OR tatuaje) AND (alert OR alerta) AND (medical OR medico)	Spanish-English 2005-2015 Academic Journals Full Text	89
G O O - G L E SCHOL- AR	Human Body [AND] Sociology	2005-2015	15.300
	Tattoo[AND] Emergency identification	2011-2015	7.760

Source: prepared by the autor.

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