

Pekar Joanna, Skolarczyk Justyna, Łabądz Dawid, Chrobok Katarzyna, Nieradko-Iwanicka Barbara. Popularity of body modifications and knowledge about their complications among young adults. *Journal of Education, Health and Sport*. 2017;7(4):694-700. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.569252>  
<http://ojs.ukw.edu.pl/index.php/johs/article/view/4428>

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26.01.2017).  
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

© The Author (s) 2017;

This article is published with open access at Licensee Open Journal Systems of Kazimierz Wielki University in Bydgoszcz, Poland  
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.  
This is an open access article licensed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.  
The authors declare that there is no conflict of interests regarding the publication of this paper.  
Received: 02.04.2017. Revised: 18.03.2017. Accepted: 25.04.2017.

## **Popularność modyfikacji ciała i wiedza na temat ich powikłań wśród młodych dorosłych**

### **Popularity of body modifications and knowledge about their complications among young adults**

**Joanna Pekar<sup>1</sup>, Justyna Skolarczyk<sup>1</sup>, Dawid Łabądz<sup>1</sup>, Katarzyna Chrobok<sup>1</sup>,  
Barbara Nieradko-Iwanicka<sup>2</sup>**

**<sup>1</sup>Students' Scientific Association at the Chair and Department of Hygiene, Medical University of Lublin,**

**<sup>2</sup>Chair and Department of Hygiene, Medical University of Lublin**

#### **Streszczenie**

Wprowadzenie i cel pracy. Modyfikacje ciała są praktykami prowadzącymi do przejściowego lub trwałego „udekorowania” różnych części ludzkiego ciała. Najpopularniejszymi formami modyfikacji ciała są: tatuowanie się i zakładanie kolczyków. Celem pracy jest określenie częstości występowania najbardziej popularnych modyfikacji ciała (tatauaże i kolczyki) wśród młodych dorosłych osób w wieku 18-32 lat, a także poznanie opinii badanych na temat modyfikacji ciała i określenie ich wiedzy na temat powikłań możliwych wskutek zabiegów.

Materiał i metody. Badanie przeprowadzono w lutym 2017 r. wśród 251 uczestników: 146 kobiet (58,17 %) i 105 mężczyzn (41,83%). W badaniu zastosowano autorską ankietę dotyczącą opinii badanych na temat modyfikacji ciała, opisano również występujące u uczestników badania modyfikacje ciała. Udział w badaniu był dobrowolny i anonimowy. Dobór uczestników był losowy. Wyniki analizowano w programie STATISTICA 12,5 i ANOVA;  $p < 0.05$  uznawano za istotne statystycznie.

Wyniki. 23 badane osoby (10 mężczyzn oraz 13 kobiet) miały tatauaże (9,16%). Średnia ilość tatauaży wynosiła  $1,6 \pm 0,6$  dla kobiet oraz  $2 \pm 1,1$  dla mężczyzn. 128 badanych osób miało kolczyki w uszach (51%), w tym 6 mężczyzn oraz 122 kobiety. 13 osób (5,18%) miało

kolczyki w miejscach innych niż uszy. Kolczyki są istotnie częstszą modyfikacją ciała niż tatuaże. 109 badanych (43,43%) nie miało ani tatuaży, ani kolczyków. Tatuaże podobają się 106 ankietowanym (42,23%), kolczyki w uszach 168 (66,93%), natomiast kolczyki poza uszami podobają się 41 osobom (16,33%), a inne modyfikacje ciała 8 badanym (3,19%). 221 badanych (88,05%) twierdziło, że zna powikłania związane z zabiegami modyfikacji ciała. Wnioski. Modyfikacje ciała są popularne w grupie młodych dorosłych, zwłaszcza wśród kobiet. Najwięcej pozytywnych opinii mają kolczyki w uszach oraz tatuaże, co koreluje z ich występowaniem w tej grupie osób. Zdecydowana większość badanych uważa, że zna powikłania zabiegów modyfikacji ciała.

Słowa kluczowe. tatuowanie, kolczykowanie, młodzi dorośli

### Summary

Background and objectives. Body modifications are practices leading to transient or permanent change of various parts of human body. The most popular forms of body modifications are: tattooing and piercing. The aim of the study is to determine the frequency of the most popular body modifications (tattoos and piercing) among young adults aged 18-32 years and to collect and analyze the opinion about body modifications and to determine their knowledge about the complications possible after these procedures.

Material and methods. The study was conducted in February 2017 among 251 individuals: 146 females (58.17%) and 105 males (41.83%). An original questionnaire was used. It consisted of questions about body modifications. Researchers recorded body modifications the respondents have had. Participation in the study was voluntary and anonymous. Participants were randomly selected. Results were analyzed with STATISTICA 12.5 and ANOVA program;  $p < 0.05$  was considered statistically significant.

Results. 23 examined individuals (10 men and 13 women) had tattoos (9.16%). The mean number of tattoos was  $1.6 \pm 0.6$  in women and  $2 \pm 1.1$  in men. 128 individuals had ear piercing (51%), including 6 males and 122 females. 13 people (5.18%) had piercing in places other than ears. Piercing is significantly more common than tattooing. 109 individuals (43.43%) did not have tattoos or body piercing. 106 respondents (42.23%) liked tattoos, ear piercing 168 (66.93%), piercing of other parts of the body 41 (16.33%), and other body modifications 8 (3.19%). 221 (88.05%) individuals claimed that they knew the complications of body modifications.

Conclusion. Body modifications are popular among young adults, especially among females. The most positively the respondents assessed earrings and tattoos, which correlates with their occurrence in this group of people. Vast majority of respondents declared that they knew possible complications of body modifications.

Key words. tattooing, piercing, young adults

## Background

Body modifications are practices leading to transient or permanent ‘decorating’ of various parts of human body. These modifications are not just hair styling, clothing, makeup, nail art, body piercing, tattoos, but also scarification, bone deformation, subcutaneous implants with protruding spikes, cutting or amputation of parts of organs, silicone components, subcutaneous implants, and split tongues. The most popular forms of body modification are tattoos and piercing [1,2].

Within last twenty years, the prevalence of individuals with tattoos in the general population has increased in Europe, Australia and the United States (US) [1]. A tattoo is done by inserting indelible ink into the dermis in order to change its’ pigmentation. Tattoos are done for cultural, social, and religious purposes [3].

Piercing has become popular amongst young adults and teenagers as a method of self-expression. Common sites for body piercing are ear lobes, eyebrows, noses, tongue, navels, nipples, and the genitals [4].

## Objectives

The study aimed to assess the frequency of the most popular body modifications (tattoos and piercing) among young adults aged 18-32 years in Lublin, Poland and to collect and analyze the respondents’ opinions about body modifications.

## Material and methods

The study was conducted in February 2017 among 251 individuals: 146 females (58.17%) and 105 males (41.83%). An original questionnaire with questions about individuals’ opinions about body modifications was used in the study.

The questionnaire consisted of 4 major parts:

1. What is your opinion about tattoos?
2. What is your opinion about ear piercing?
3. What is your opinion about body piercing in places different than ears?
4. What is your opinion about other body modifications such as subcutaneous implants, split tongue?

Individuals selected one answer to each item. They could select one of the following: “I definitely like it”, “I like it”, “I do not know”, “I do not like it”, “I definitely do not like it”.

The next questions were:

1. Do you know any negative health effects or possible infections during body modifications? – Individuals selected one answer: “yes” or “no”.
2. What negative health effects or infections can occur during body modification? You can mark more than one answer. – Individuals selected from 8 answers: “These interventions are always safe”, “These interventions are safe if they are performed by a capable person”, “HBV infection”, “HCV infection”, “HIV infection”, “CMV infection”, “Bacterial infection in place of body modification”, “Sepsis”.

There were also questions about body modifications the respondents have had. Participation in the study was voluntary and anonymous. Participants were randomly selected. Selection criteria were: age 18-32 and living on the territory of voivodship Lubelskie. Results were analyzed with STATISTICA 12.5 and ANOVA program;  $p < 0.05$  was considered statistically significant.

## Results

The mean age ( $\pm$  SD) of participants was  $22.1 \pm 2.2$  years (min. 18, max 32 years). 23 of the interviewed individuals had tattoos (9.16%) including 10 males (9.52%) and 13 females (8.9%). The mean number of tattoos was  $1.6 \pm 0.6$  for females and  $2 \pm 1.1$  for males. 7 males (70%) and 6 (46%) females had tattoos in visible places.

128 individuals had ear piercing (51%), including 6 males and 122 females. Among them 6 individuals (2,39%) had 1 earring in one ear, 8 individuals (3,19%) had in one ear more than 1 earring and none in another one, 26 individuals (10,36%) had in their ears more than one earring in each ear, while 88 individuals (35,06%) had one earring in each ear. The number of women with ear piercing (82.88%) was significantly higher than that of men (5.71%)  $p < 0.05$ .

The mean number of earrings in one ear was  $1.17 \pm 0.41$  in males (min. 1, max. 2) and  $2.53 \pm 0.96$  in females (min. 1, max. 5). 13 women (5.18%) had piercing in other parts of the body. 3 women had nose piercing (2.05%) and 7 (4.79%) had navel piercing. 6 individuals (2.39%) - 5 men (4.76%) and 1 women (0.68%) had piercing in different place than ears, nose, lips, tongue, navel and eyebrows. 109 individuals (43.43%) did not have tattoos or body piercing. Piercing was significantly more common than tattoos ( $p < 0.05$ ).

Tattoos are accepted by 106 respondents (42.23%) and are not accepted by 53 (21,12%). 168 (66.93%) participants like earrings and 11 (4.38%) are not, body piercing in places other than ears 41 people (16.33%) and 109 (43.43%), respectively. Other body modifications are accepted by 8 (3.19%) individuals and are not by 205 (81.67%) (Fig 1.).

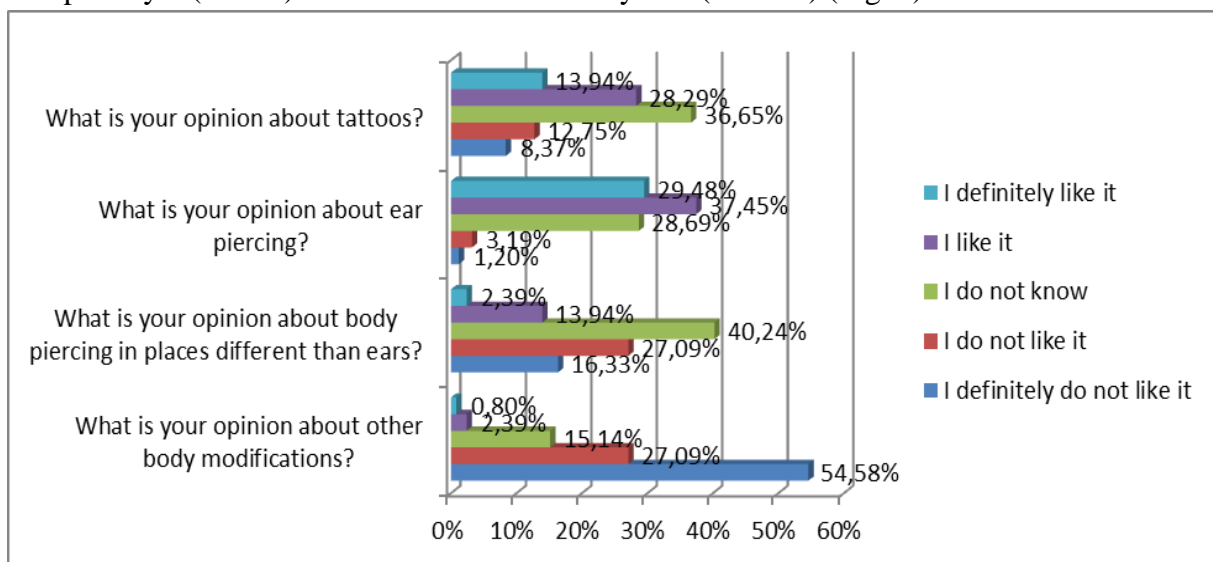


Fig 1. Opinions of surveyed individuals about body modifications.

Significantly higher number of male participants did not like tatoos (24.26%) than women (18.49%). 123 women (84.25%) liked earring and only 45 men (42.45%) did. Only men had negative opinion about ear piercing.

Body piercing in other but ear parts of the body was not accepted by many men (49.52%). They statistically significantly more often chose the answer „Idefinitely do not like it” (24.76%), women’s opinion was alike in 10.27% of cases. However, women were significantly more critical to other body modifications 82.88% vs 80%. Men were more likely to choose „I definitely do not like it”: 57.14% vs 52.74%.

221 (88.05%) individuals claimed that they knew the complications of body modifications. 100% respondents knew that body modifications procedures were not always safe. 118 (47.01%) young adults believed that these interventions were safe if performed by a capable person. Only every fifth one knew that he could go down with *Cytomegalovirus* infections during body modifications procedures and 56.57% of respondents did not know that after these procedures one can come down with sepsis. More than half of respondents knew that after these interventions they could acquire HBV, HCV and HIV infections, and bacterial infection in place of the body modification (Fig 2.).

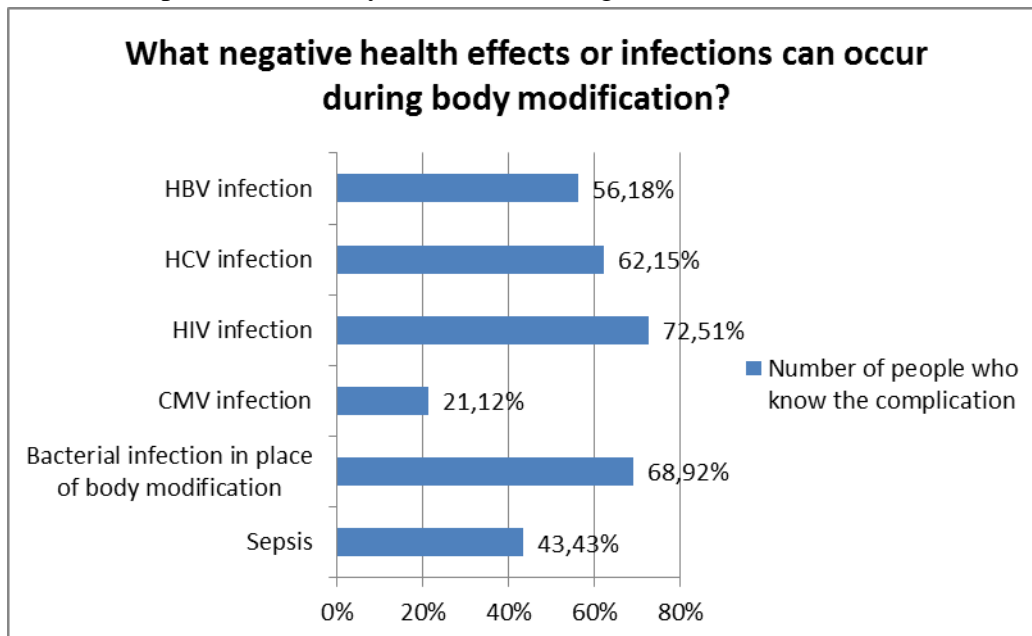


Fig 2. Number of young adults who knew negative health effects or infections which can occur during body modification.

### Discussion

Authors collected data about body modifications done by the participants. In the present study the rates were 52.99% for body piercing and 9.16% for tattooing. In developed countries, the prevalence of body piercing is reported to be between 4.3%-51% [5]. Studies have indicated differing prevalence rates of 26.1% [6], 63% [7], and 8.2%, for piercing, and 13.2% [6], 73% [7], 4.3% [8] for tattooing among the young adults population. Our results show that the rates of piercing among young adults in Lublin are higher than those reported by other authors and are average as for tattooing.

An observation of the parts of the body which individuals had piercing showed that the majority had their earrings in the ear (51%). Other authors had similar observations [8,9]. Tattoos are mostly seen on the shoulders, back, arms and legs [9].

The reasons why people are getting pierced and tattooed are: striving to be up to date with fashion trends, the desire to beautify their body to make certain impression or create a new image, mimicking their idols, overcoming their complexes, the desire to stand out, or to express spirituality and cultural tradition [10,11]. Our study shows what are young adults' opinions about that form of body modifications.

The majority of medical literature on tattooing and body piercing has focused on the risks and complications of these procedures. Tattooing can cause important dermatological complications, for example various forms of hypersensitivity reactions, allergic contact dermatitis, lichenoid, granulomatous skin disease, and also formation of hypertrophic scars and keloid [1,3]. Cutaneous infections usually develop within days to weeks after the procedure of tattooing. Infectious complications include different viral infections (verruca vulgaris, molluscum contagiosum, hepatitis B and C, herpes simplex or infection with human immunodeficiency virus), bacterial infections (*Streptococcus*, *Staphylococcus*, *Pseudomonas aeruginosa*, cutaneous tuberculosis, syphilis, pyoderma, mycobacteriosis), and fungal infections (dermatophytosis, sporotrichosis) [1,12,13]. Complications of piercing vary depending on the hygiene regimens, materials used in the body-piercing site, experience of the practitioner, and aftercare by the recipient. Local infections are a common problem too. Systemic complications include allergic contact dermatitis (from nickel, gold or silver, latex), bleeding, nerve damage, and scarring [2]. What is important, body piercing carried out in unhygienic conditions can cause hepatitis B or C virus infection, or HIV infection [14]. Our study confirmed that not all young adults knew the negative effects of body modification procedures. That is why, effective programs have to be established to make body piercing and tattooing a safe practice.

## Conclusions

Body modifications are becoming more and more popular among young adults. The most positive opinions among young adults have ear piercing and tattoos, which correlates with their occurrence in this group. However, such modifications can result in bacterial, viral or fungal infections of the skin, allergic reactions, systemic reactions of the organism. Majority of respondents considered that they knew the complications of body modifications but our study showed that there are a great needs for public education about the health effects of improper modifications of the body.

## References

- [1] Oanță A, Irimie M. Tinea on a Tattoo. Acta Dermatovenerol Croat. 2016; 24 (3): 223-224.
- [2] Holbrook J, Minocha J, Laumann A . Body piercing: complications and prevention of health risks. Am J Clin Dermatol. 2012; 13(1): 1-17.
- [3] Ayanlowo OO, Gold-Olufadi SA, Akinkugbe AO, Otrofanowei E, Nga CN, Olumide YM. Growing trend of tattooing and its complications in Nigeria. Int J Dermatol. 2017. doi: 10.1111/ijd.13521.

- [4] Randall JA, Sheffield D. Just a personal thing? A qualitative account of health behaviours and values associated with body piercing. *Perspect Public Health*. 2013;133:110–5.
- [5] Bone A, Ncube F, Nichols T, Noah ND. Body piercing in England: A survey of piercing at sites other than earlobe. *BMJ* 2008; 336:1426-8.
- [6] Carroll ST, Riffenburgh RH, Roberts TA, Myhre EB. Tattoos and body piercings as indicators of adolescent risk-taking behaviors. *Pediatrics* 2002; 109: 1021-7.
- [7] Greif J, Hewitt W, Armstrong ML. Tattooing and body piercing. *Body art practices among college students*. *Clin Nurs Res* 1999; 8: 368-85.
- [8] Balci S, Sari E, Mutlu B. Comparison of risk-taking behaviour and frequency of piercing and tattooing among university students. *J Pak Med Assoc*. 2015; 65(6): 587-92.
- [9] Mayers LB, Chiffrieller SH. Body art (body piercing and tattooing) among undergraduate university students: "Then and Now". *J Adolesc Health* 2008; 42: 201-3.
- [10] Wohlrab S, Stahl J, Kappeler PM. Modifying the body: motivations for getting tattooed and pierced. *Body Image*. 2007; 4(1):87-95.
- [11] Szewczyk Kazimierz. Body piercing as a form of escape into the body. *Fam. Med. Prim. Care Rev*. 2005; 7(2): 110-115.
- [12] Kluger N. Cutaneous infections related to permanent tattooing. *Med Mal Infect*. 2011; 41(3): 115-122.
- [13] Alimohamadi Y, Tabatabaee H, AfsarKazerooni P, Vahedi S, Enaami M, Teimourizad A. Epidemiologic characteristics of HIV-positive patients referring to behavioral diseases consultation center in Shiraz, Iran. *Med J Islam Repub Iran*. 2014; 28: 147.
- [14] Guiard-Schmid JB, Picard H, Slama L, Maslo C, Amiel C, Pialoux G, et al. Piercing and its infectious complications. A public health issue in France. *Presse Med*. 2000 ; 29 (35): 1948-1956.

Address for correspondence: Barbara Nieradko- Iwanicka, Chair and Department of Hygiene, Medical University of Lublin, Radziwiłłowska 11 str., 20-080 Lublin, Poland, telephone: +48 81448 6130, e-mail: bnieradkoiwanicka@wp.pl