

Complications of body piercing

Powikłania po zabiegach przekłuwania ciała

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Słowa kluczowe: powikłania, *body piercing*, przekłuwanie.

Abstract

Introduction: Body piercing requires interruption of the continuity of the skin or mucous membranes, which creates a risk of serious complications. The most common complications of piercing include: bleeding, inflammation, cysts, keloids, bacterial infections, allergic reactions, and scars caused by long-lasting wound healing. If procedures involving skin penetration are not performed properly, customers and staff of piercing studios are subject to certain risks of bacterial, fungal, and viral infections.

Aim of the research: To evaluate complications of body piercing.

Material and methods: The study group consisted of persons who had more than one ear piercing. Piercing in both earlobes was regarded as a single piercing, while one earlobe with more than two punctures is considered as multiple, and such persons were included in the study. Additionally, a control group of 500 people aged 20 to 23 years without pierced ears were subjected to the same tests.

Results and conclusions: 40.6% of subjects who used the procedure would change their decision on piercing, and 26.6% of subjects would change their choice about all punctures. Clients who had the procedure performed by professionals were often aware of the health risks. Piercing procedures are carried out with proper care for hygiene, disinfection, and sterilisation. Complications of body piercing are relatively rare – they appeared in 14.4% of the total. 89.2% of the study group and 60.4% of the control group would recommend the body piercing procedure.

Streszczenie

Wprowadzenie: W ostatnich latach przekłuwanie ciała stało się bardzo popularne. Zabieg ten wiąże się z uszkodzeniem ciągłości skóry lub błon śluzowych, powoduje ryzyko powstania poważnych powikłań, takich jak krwawienia, stany zapalne, torbiele, bliznowce, infekcje bakteryjne, reakcje alergiczne, blizny. Przy nieodpowiedniej higienie i dezynfekcji personel oraz klienci gabinetów kosmetycznych są narażeni na zakażenia bakteryjne, grzybicze oraz wirusowe.

Cel pracy: Ocena powikłań występujących po zabiegach przekłuwania ciała.

Materiał i metody: Grupę badaną stanowiły osoby w wieku 20–23 lat, które poddały się kolczykowaniu. Przekłucie jednej z małżowin usznych w więcej niż jednym miejscu uznaje się za przekłucie wielokrotne i osoby z takim przekłuciem były również uwzględnione w badaniu. Dodatkowo w badaniu wzięła udział grupa kontrolna licząca 500 osób w wieku 20–23 lat nieposiadająca kolczyków.

Wyniki i wnioski: Decyzję dotyczącą przekłuwania zmieniłoby łącznie 40,6% badanych, a 26,6% z nich zmieniłoby zdanie na temat wszystkich posiadanych przekłuć. Klienci, którzy wykonali zabieg w profesjonalnym salonie, byli częściej świadomi ryzyka wystąpienia powikłań. Przekłucia ciała są wykonywane z należytą dbałością o higienę, dezynfekcję i sterylizację. Powikłania po zabiegach występują stosunkowo rzadko – pojawiły się łącznie u 14,4% osób. W grupie badanej przekłucie ciała poleci 89,2%, a w grupie kontrolnej 60,4%. Osoby, u których wystąpiły komplikacje pozabiegowe, nie będą go polecać.

Introduction

In recent years, body piercing (also known as body modification) has increased in popularity. In body piercing, almost any part of the body can be pierced. Body decoration has a centuries-old tradition and was refined by many cultures around the world. Puncturing the skin and inserting a piece of bone, shell, metal, or wood into the opening is interfering with the nature of the human body. Piercing allowed the beautification not only women but also of men and children [1].

Body piercing can be carried out in a professional studio or at home. However, it requires interrupting the continuity of the skin or mucous membranes and creates a risk of serious complications. The most common of these include bleeding, inflammation, cysts, keloids, bacterial infections, allergic reactions, granuloma, and scars caused by long-lasting wound healing [2].

Skin lesions, skin inflammation, allergic reactions, erythema, fungal infections, and cutaneous tuberculosis, as well as cancerous lesions, are strict contraindications to body piercing. Permanent jewellery should not be inserted in the body if viral infections, including herpes, *molluscum contagiosum*, or shingles, are diagnosed. If inflammatory changes are detected, body piercing may spread the infection and inflammation further into the body and can result in abscesses, scars, and even fistulas. In the case of psoriasis, irritation of skin lesions may cause a disease outbreak and may occur in other places. Body piercing is strongly contraindicated with heart disease, valvular heart disease in particular, because there is a risk of bacterial infection, infective endocarditis, and myocarditis as a consequence [3, 4]. Piercing complications depend on the body area pathologically changed. According to this criterion, there are two types of complications: local and systemic.

Complications of body piercing include local infections (especially in the area of natural openings), abscesses, mastitis, scars, keloids, fistulas, hard-to-heal wounds, granulomas (reaction to foreign bodies), viral and fungal skin diseases, allergic reactions, phlegmon of the bottom of the oral cavity, hypersalivation, tumour growth, exacerbation of already existing lesions, speech disorders, and uncontrolled movement of ornaments into the soft tissues [5–9].

On the other hand, complications of body piercing include systemic infections, such as toxic shock syndrome or sepsis, which are often the leading causes of death. Generalised allergic reactions such as prolonged bleeding, pelvic inflammatory disease, or intestinal obstruction may occur. With genital piercings, there is a greater chance of damage to the condom, which can lead to an increased risk of sexually transmitted infections. Regardless of the place of piercing, it is usually recommended that piercing be carried out at least a year before a planned pregnancy. People with a tendency to create keloids should defi-

nately not have earrings [10–15]. Diabetes is a contraindication to body piercing because it can be troublesome and lead to delayed wound healing [16, 17].

Inadequate hygiene and disinfection is associated with an increased risk of acquiring bacterial, fungal, and viral infections for staff and cosmetic-surgery clients, including body piercing. The cosmetic industry is a high-risk group because many of the beauty treatments are associated with disruption of skin integrity. The most dangerous infections include HIV (AIDS), hepatitis C virus (HCV), hepatitis B virus (HBV), staphylococci, tuberculosis, fungi, and parasites [18–21].

Hepatitis C has been recognised by the World Health Organisation (WHO) as one of the greatest epidemiological threats. Due to the long-term asymptomatic course of HCV, the disease has been called a “viral time-bomb” or “silent epidemic”. Nationwide programs are aimed at people working in the cosmetic industry to educate them in the field of infection prevention [22]. The speed of action of the disinfectant is especially important for treatments where the epidermis is broken, such as: body piercing, tattooing, or needle mesotherapy. Agents that are used as disinfectants should dry automatically and should not be wiped off. The antimicrobial effectiveness is equally important; therefore, disinfectants should contain between 75% and 85% ethanol, n-propanol, isopropanol, or a mixture of them [23, 24].

Aim of the research

The aim of this study was to evaluate complications of body piercing.

Material and methods

The following research tool was used in the study: a self administered questionnaire containing both open-ended and closed-ended questions. Two homogeneous groups of 500 people aged 20–23 years were included in the study. The study group consisted of those who had more than one ear piercing (97.2% women and 2.8% men). Piercing in both earlobes was regarded as a single piercing, while when one earlobe had more than two punctures the piercing was considered as multiple and such persons were included in the study. 49.9% of the control group lived in rural areas and 50.6% in cities. 89.2% of the respondents had a secondary education.

Additionally, the control group of 500 people aged 20 to 23 years (76.2% women, 23.8% men) without pierced ears were subjected to the same test, and piercing in both ears was regarded as a single piercing as in the previous group. 53.4% of the control group lived in rural areas and 46.6% in cities. 92.8% of the respondents had a secondary education. Participation in the study was voluntary, combined with the assurance of anonymity in accordance with the Data Protection Act dated 29.08.1997 (Journal of Laws No. 133 item 883).

Statistical analysis

The data were analysed by statistical description supported by graphical presentation. The χ^2 test was used to determine differences between the study and control groups. Rejection of the null hypothesis or lack of the basis to reject the null hypothesis was the result of comparison of value α with p . The data were collected in Microsoft Excel, in which a some of the analysis and graphs were created. The rest were created with the use of Statistica by Statsoft ver. 13.1.

Results

Number of earrings

Respondents were asked about their number of earrings. In this study group the quantities were very different, while in the control group they did not exceed two units ($n_p = 500, n_k = 500, \chi^2 = 93.7; p < 0.001$) (Figure 1).

The record-holder in the study group declared having 33 earrings. However, most people had three

or four earrings – in total 68.2%. The average number of piercings was four ($n_p = 500, n_k = 500, \chi^2 = 943.4; p < 0.001$) (Figure 2).

Verification of piercing decisions

Taking any decision entails minor or major consequences, and in practice it is also subject to automatic verification. Therefore, the respondents were asked whether or not, if they had the opportunity to re-make the decision to perform the piercing, they would make a different decision. The chart below shows only the answers from the control group, those who did not choose the answer “not applicable” (Figure 3).

In total 40.6% of people who were making body piercing said they would change their decision, and 26.8% of them would change the decision about all piercing locations. In the control group the decision would be changed by 39.2%, including 29% on all earrings ($n_p = 500, n_k = 314, \chi^2 = 2.7; p = 0.256$) (Figure 4).

Beneficiaries of body piercing and those who had only pierced the ear could have different preferences

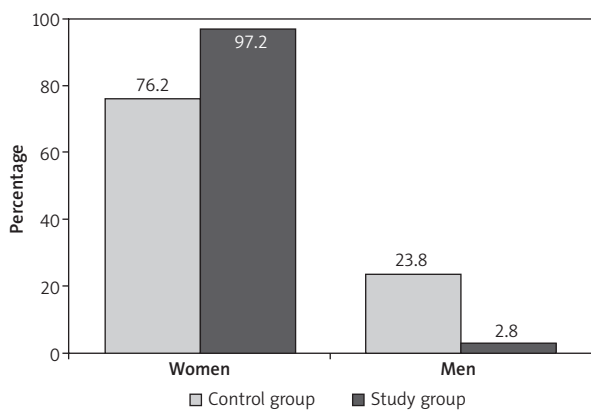


Figure 1. Sex distribution of people using and not using body piercing

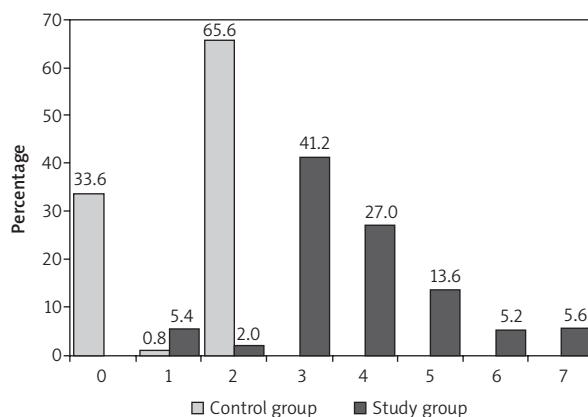


Figure 2. Number of earrings worn by people getting body piercing and people from the control group

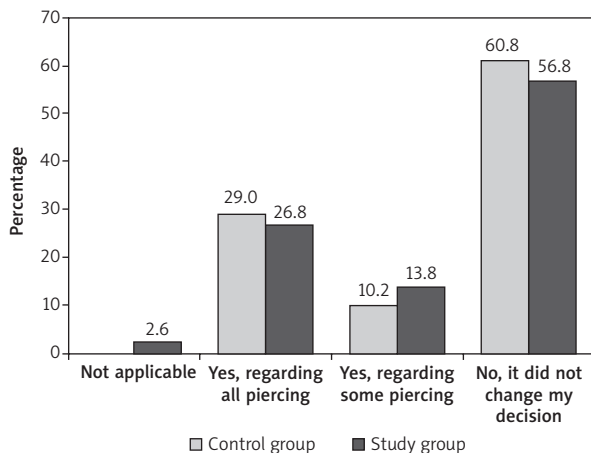


Figure 3. If there was the possibility of making a decision about the procedure one more time, would you change your decision?

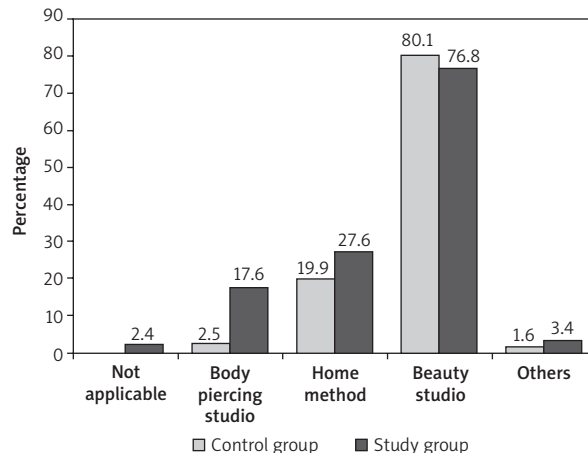


Figure 4. The place of puncture made in people having a body piercing and people from the control group

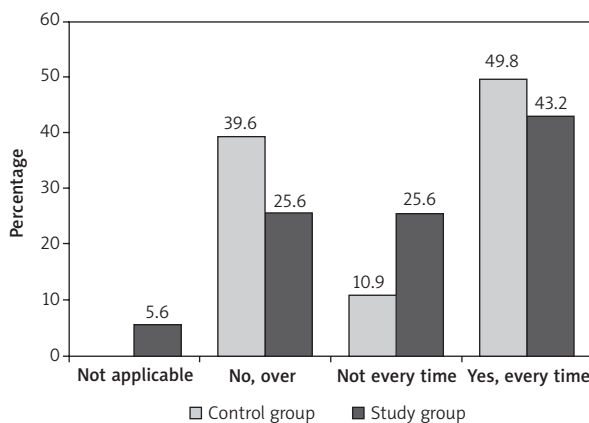


Figure 5. Have you ever received information about the health risks associated with piercing?

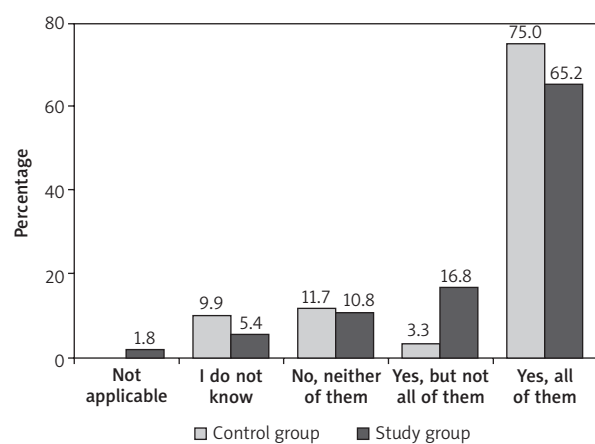


Figure 6. Do you think the procedure/procedures have been carried out in accordance with the principles of sterilisation and disinfection?

for the location of such procedures. The control group were more likely to go to a beauty studio (80.1%) than were the study group (76.8%) ($n_p = 500$, $n_k = 321$, $\chi^2 = 1.0$, $p = 0.310$). People with only one pair of earrings used the “home method” about 2/3 less often ($n_p = 500$, $n_k = 321$, $\chi^2 = 5.8$, $p = 0.016$). Only eight people from the control group (2.5%) went seven times more often to a professional body piercing studio ($n_p = 500$, $n_k = 321$, $\chi^2 = 41.8$, $p < 0.001$). As many as 50 of the followers of body piercing chose to perform only the “home method”. This represents 10% of the whole group. By contrast, 335 people were confined to professional venues such as beauty salons and body piercing studios, which accounts for 2/3 of all respondents.

In addition to the place where the body is pierced, it is important that the body artist has the appropriate skills and abilities.

Piercing procedures

Body piercing is an invasive procedure that can lead to complications. Therefore, it should be carried out according to the procedure. A person who wants to have body piercing must be over 18 or have legal guardian consent, be aware of possible complications of piercing, and be taught proper hygiene habits (Figure 5).

As you can see, the answers to the question about health risks associated with piercing are similar to those in the question about age and contraindications. There were also differences in the answers in the study and control group ($n_p = 500$, $n_k = 303$, $\chi^2 = 50.1$; $p < 0.001$).

Customers of beauty salons, tattoo and body piercing studios, and clients who ordered the procedure for people entitled to it, could more often count on better service, and they were more often informed about the health risks involved with piercing.

Complications of body piercing

Piercing, like any other invasive procedures that require interrupting the continuity of the skin or mucous membranes, can lead to complications. Because this part of the study did not apply to subjects without piercing, the answers “not applicable” were excluded from the control group. In the control group, there were also seemingly conflicting answers when a person without earrings responded to questions about the complications. This is possible if the person had removed their earrings previously. Of course, such answers are included in the analysis.

Evaluation of the hygiene procedure and later complications

First of all, the subjects were asked to evaluate if the procedures had been carried out using sterilisation and disinfection (Figure 6).

With the exception of the answers saying that none of the procedures were performed in accordance with the principles of sterilisation and disinfection, answers in both groups differed statistically ($n_p = 500$, $n_k = 332$, $\chi^2 = 46.4$; $p < 0.001$).

The vast majority of piercing procedures in both groups was performed with due care about hygiene. The advantage of almost 10 percentage points in the control sample might be caused by the fact that subjects took more care of professional conduct and they had much less chance of being in the group answering the question: “Yes, but not all of them”. For this reason, in the group declaring that not all of the procedures were performed under the right conditions, there were just over five times more people undergoing multiple piercing procedures than those who did it only once. The subjects were asked if they had complications after body piercing (Figure 7).

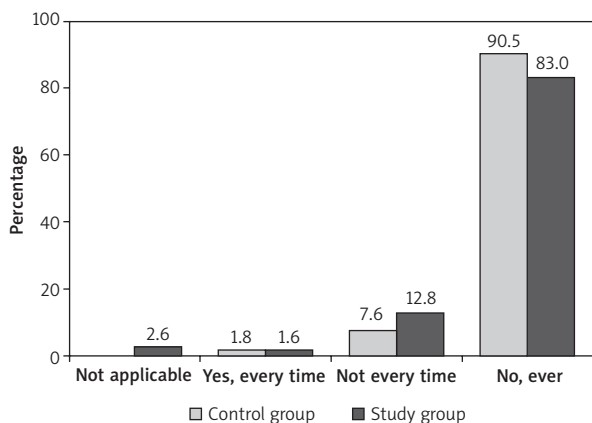


Figure 7. Did complications occur after piercing?

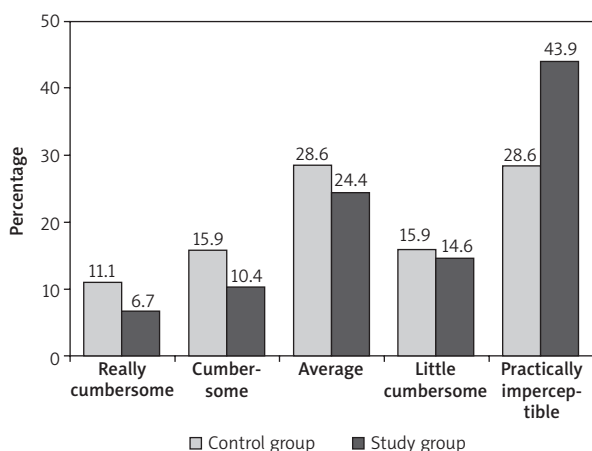


Figure 8. If complications have occurred, how do you assess their inconvenience?

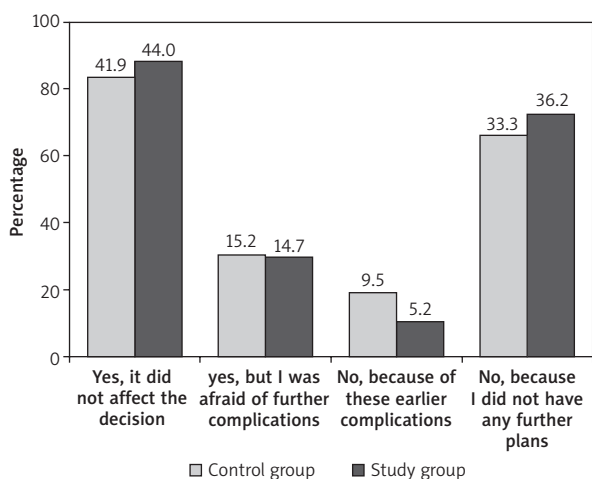


Figure 9. If complications occurred, did you still choose any further piercing procedures?

Complications of skin piercing are relatively rare and concern a total of 14.4% of people using piercing procedures and just 9.4% of people who made an earlobe piercing only once. The most frequently indicat-

ed complications by the subjects were: inflammation, swelling of the skin, and difficult healing of wounds. Although the difference is statistically significant, it should be noted that by performing more than one piercing procedure, the probability of complications is increased, as in a game of chance – the more we play, the more likely we are to win. In general, piercing can be considered relatively safe. 90.5% of people did not experience any complications after a single procedure. In the group of people performing piercing, the answer “not applicable” should be treated as a refusal to answer or no complications – the subject may think that, since there were no complications, the question does not concern him/her. In addition, both those using piercing and the control group who experienced postoperative complications were asked about their severity ($n_p = 500, n_k = 328, \chi^2 = 19.4; p < 0.001$).

In the case of the study group, people who considered that this question was not included in the study were excluded. It is synonymous with the absence of complications after the procedure (Figure 8).

It can be seen that the number of indications in the control group increases with increased nuisance. There is no statistically significant difference between the study and the control group for mild complications only. This can be explained by the fact that people who pierce ears more often are “immune” to them in some way, and even if complications occur, they evaluate them lower than those who pierced only once. However, complications evaluated as cumbersome and as very cumbersome are relatively low, at 17.1% for people who are more prone to ear piercing and 17% for the control group. It is interesting to note that people experiencing post-procedural complications, despite these inconveniences, continued to undergo body piercing ($n_p = 164, n_k = 63, \chi^2 = 7.3; p = 0.202$).

In the case of the study group, people who thought that this question was not applicable were omitted in the analysis. This is equivalent to the absence of complications after piercing (Figure 9).

Making decisions about another procedure after previous complications was similar in both groups, and they did not differ statistically apart from the decision to resign from previous complications. Two times more often people from the control group decided against further procedures after previous complications. This may provide proof of the determinants of people who are more prone to piercings or their greater resistance to complications ($n_p = 232, n_k = 105, \chi^2 = 2.4; p = 0.5$).

Recommendation body piercing to other people

The subjects were asked if they recommended body piercing to other people (Figure 10).

There is a statistically significant difference in the tendency to recommend body piercing between those who got it and the control group. In the control group

only 60.4% of the subjects would recommend piercing to other people. By contrast, 90% (precisely 89.2%) of the people who supported body piercing would recommend it to others. 22.8% of people who do not get body piercing would not recommend it to others. In the group of supporters of body piercing, people who would not recommend piercing were 10 times fewer, at just 2%, and the answer “certainly not” was given by only two people ($n_p = 500$, $n_k = 500$, $\chi^2 = 134.2$; $p < 0.001$). It can also be assumed that people who experienced post-procedure complications are less likely to recommend body piercing to other people.

Discussion

The professionalism of the tattoo and piercing studios and staff qualifications are very important for people who enjoy body piercing. According to the research described in the study, clients are generally informed about health risks and methods of home care as well as the conditions of the pierced place. In professional body piercing studios most of the procedures are performed with great care about hygiene. On the other hand, domestic disinfection is often not carried out properly. Due to lack of autoclave, sterilisation is also rarely done. Complications that have resulted from body piercing are rare, but they are the main reason for giving up on further procedures.

The location and number of earrings may have different consequences in the future. It may lessen the chance of getting a job or even stop employers from employing a pierced person. Nowadays people put great emphasis on the professionalism of the service provided and on the image of the employee who represents the company. The higher the position held, the more emphasis is placed on the appearance [25]. The results of the study confirmed the hypothesis that having earnings also affects the subjects personal life because it limits the potential for optimal partner choice. Men wearing visible earrings can have little chance to form a partnership.

Women are more likely to opt for piercing than are men, and each subsequent piercing increases the risk of viral infections such as hepatitis B, hepatitis C, and HIV. The auricle is the most frequently pierced place. People choosing this procedure had complications (35%) such as infections, allergies, atopy, and keloid formation. Such complications may also be caused by unauthorised persons performing procedures, which is associated with low awareness of the absolute need for disinfection and sterilisation [26, 27].

With the increasing popularity of body piercing, people need to be better informed about the potential risks and complications associated with this procedure. Cosmetologists should also be more involved in raising public awareness of the risks associated with piercing. In the western world, the popularity of piercing, especially within the mouth, is increasing.

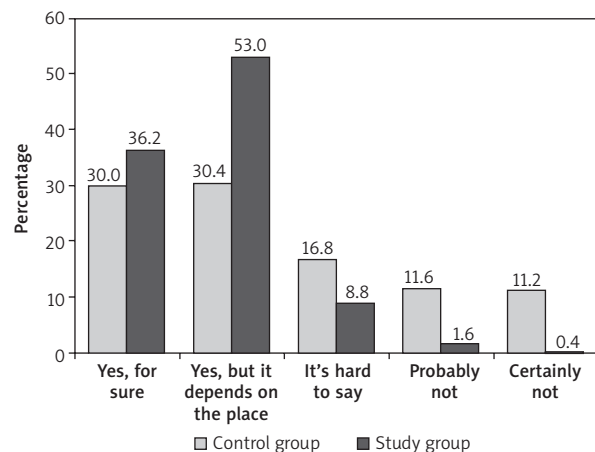


Figure 10. Would you recommend piercing to another person?

However, the presence of jewellery in the mouth disrupts the assessment of oral health and also blocks the transmission of X-rays, so abnormalities such as cysts, abscesses, or tumours may not be revealed. There is a danger that if the jewellery comes loose, it may cause choking or serious damage to the respiratory tract or digestive tract [26–28].

Piercing should be performed using hygienic practices, and it is necessary to use only disinfected, disposable devices to prevent infectious diseases [28].

Conclusions

40.6% of the total number of people who used the procedure would change their decision on piercing, and 26.6% of the subjects would change their decision on all piercings. Clients who had the procedure performed by body piercing technicians were more often informed about health risks. Body piercing treatments are performed with proper care for hygiene, disinfection, and sterilisation. Complications of body piercing are relatively rare – they occurred in 14.4% of the total. 89.2% of the study group and 60.4% of the control group would recommend the body piercing procedure. People who experienced post-operative complications would not recommend the procedure.

Conflict of interest

The authors declare no conflict of interest.

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