

Comparison of risk-taking behaviour and frequency of piercing and tattooing among university students

Serap Balci,¹ Emine Sari,² Birsen Mutlu³

Abstract

Objective: To assess the frequency of piercing and tattooing among university students and to determine the extent of risk-taking behaviour in this age group.

Method: The descriptive cross-sectional study was conducted at a university in Istanbul, Turkey, from December 2009 to February 2010. Data was obtained from students through a questionnaire. SPSS 20 was used for statistical analysis.

Result: Of the 1303 subjects, 838(64.3%) were girls. The overall mean age of the sample was 21.7±1.9 years. A total of 107 (8.2%) had piercings and 56(4.3%) had tattoos. It was seen that young people who had piercings and tattoos were significantly more likely ($p<0.05$) to exhibit certain types of risk behaviour including smoking, alcohol, substance abuse, extreme sports, carrying switchblades/knives, unprotected sexuality and having multiple sex partners.

Conclusion: In the face of the steadily increasing fads of piercing and tattooing among the youth, families, teachers and health professionals need to be constantly on the alert.

Keywords: Piercing, Tattooing, Risk behaviour. (JPMA 65: 587; 2015)

Introduction

Piercing is the process of creating a hole in the skin, subcutaneous tissue or cartilage in order to be able to insert jewellery.^{1,2} A tattoo is a form of body modification done by inserting indelible ink into the dermis layer of the skin to change the pigment.³

In today's world, piercing and tattoos have steadily become more popular, particularly among young people as a means of self-expression or being different, and new social and cultural movements continue to support the popularity of such practices.^{1,4-7} In developed countries, the prevalence of body piercing is reported to be between 4.3%-51%.⁸ Piercing and tattooing that is performed under unhygienic conditions, however, can cause certain complications. Some of these are nerve injuries, allergic reactions, infections, bleeding, aspiration, Hepatitis B, C and D, human immunodeficiency virus (HIV), syphilis and tetanus.^{1,2,4,6,7,9}

It has been suggested that there might be an association between risk behaviours and piercing and tattooing practices.^{2,4,6,7,10,11} It is for this reason that health professionals must be aware of the issues that are caused

by piercing and tattoos, which are fads that are steadily increasing among young people today, and also of their association with risk-taking behaviour. They must provide young people, families and teachers education and guidance.^{8,9,12-14}

The current study was planned to assess the frequency of piercing and tattooing among university students and to determine the extent of risk-taking behaviour in this age group.

Subjects and Methods

This descriptive cross-sectional study was conducted at a university in Istanbul, Turkey, from December 2009 to February 2010. The study universe comprised 55,900 undergraduate students enrolled at the study site. The sample size was determined using the formula $[n=N.t^2.pq/d^2(N-1)+t^2.pq]$ for the main cluster cut-off.¹⁵ The average prevalence of piercing and tattoo (p) at a confidence interval (CI) of 95% ($\alpha=0.05$) and a deviation (d) of 0.02 was 20% (4.5%-23% for tattoos, 27% for piercing).⁶ Acceptable sample size was thus determined to be 1484.

After obtaining permission from the university administration and written consent from the students, a questionnaire was used as the data-collection instrument. Developed on the basis of literature,^{9,16} it consisted of 5 open-ended and 55 multiple-choice questions.

^{1,3}Department of Pediatric Nursing, Istanbul University, Florence Nightingale Nursing Faculty, Istanbul, ²Department of Public Health Nursing, Selçuk University, Faculty of Health Sciences, Alaeddin Keykubat Campus, Konya, Turkey.

Correspondence: Birsen Mutlu. Email: bdonmez@istanbul.edu.tr

The data was evaluated using SPSS 20. Descriptive statistics (frequency, percentage, mean and standard deviation) and chi-square test were used to determine the association between the variables. Results were evaluated assuming a 95% CI and a significance threshold of 0.05.

Results

To meet the sample size requirements, 1484 subjects were enrolled, but 181(12%) students returned incomplete questionnaires and the final study sample stood at 1303(88%) students.

The mean age of the students was 21.69±1.55 years and there were 838(64.3%) girls. Overall, 442(34%) students had mothers who were elementary school graduates; 407(31%) had fathers with university degrees; 1049(80.5%) were part of a nuclear family type; 1133(87%) had health insurance; 449(34.5%) were living with their families; 433(33.2%) in a dormitory; 338(25.9%) with

Table-1: Socio-demographic Characteristics (N=1303).

Characteristics	n	%
Year		
2nd	140	10,7
3rd	658	50,5
4th	505	38,8
Gender		
Females	838	64,3
Males	465	35,7
Family Type		
Nuclear	1049	80,5
Expanded	168	12,9
Broken home	86	6,6
Mother's Education		
Literate	148	11,3
Elementary School	442	33,9
Middle School	151	11,6
High School	352	27,0
University	210	16,1
Father's Education		
Literate	58	4,5
Elementary School	304	23,3
Middle School	163	12,5
High School	371	28,5
University	407	31,2
Health Insurance		
Yes	1133	87,0
No	170	13,0
Residing		
With Family	449	34,5
In dormitory	433	33,2
A friend	338	25,9
With relatives	83	6,4
Mean age (years)	Mean ± SS 21.69 ± 1.55	

Table-2: Piercing Practices (N=1303).

Students' Piercing Practices	n	%
Pierced	107	8.2
Pierced Body Parts*		
Ear	59	55.1
Nose	35	32.7
Eyebrows	24	22.4
Lips	18	16.8
Navel	14	13.1
Tongue	9	8.4
Nipples	4	3.7
Do you have a role model? (n=107)		
Yes	21	19.6
If you have a role model, who is it? (n=21)		
A friend	15	71.4
A family member	4	19
An entertainer	2	9.6
Is there anyone in the family with piercing? (n=107)		
Yes	20	18.7
Did you have any problems after getting your tattoo? (n=107)		
Yes	36	33.6
What kind of problems did you have?		
Infection, bleeding	24	66.7
Difficulty in hearing/loss of sensation	4	11.1
Rash, Bruising	5	13.9
Allergy	2	5.6
Hepatitis	1	2.8
Did you tell your family about wanting to get a piercing before you actually had it done? (n=107)		
Yes	53	49.5
What was your family's reaction? (n=53)		
They were OK with it	17	32.1
They were opposed to it	8	15.1
They were first opposed but then they gave me their approval	28	52.8
Do you know the risks of piercing? (n=107)		
Yes	83	77.6
Did you have it done by professionals? (n=107)		
Yes	80	74.8
Was a sterile needle used for piercing? (n=107)		
Yes	91	85
Would you think of having piercing done again? (n=107)		
No	62	57.9

*Because a group of students had more than one piercing, although there were 107 pierced students, the actual number of piercings was 163.

friends; and 83(6.4%) with relatives (Table-1).

Among the subjects, 107(8.2%) had piercings. The parts of the body involved were ears 59(55.1%), nose 35(32.7%), eyebrows 24(22.4%), lips 18(16.8%), navel 14(13.1%), tongue 9(8.4%), and nipples 4(3.7%). Among those who said that they had followed a role model, were 15(71.4%) named a friend. In 28(53%) cases, the families first opposed the idea and then accepted it, while 83(77.6%) said they knew the risks involved in piercing and

Table-3: Tattooing Practices (N=1303).

Students' Tattooing Practices	n	%
Tattooed	56	4.3
Tattooed Body Parts*		
Face	1	1.9
Neck	6	11.5
Shoulder	23	44.2
Back	18	34.6
Hips	3	5.8
Arms	14	26.9
Feet	3	5.8
Pelvis	3	5.8
Do you have a role model?		
Yes	10	17.9
If you have a role model, who is it? (n=10)		
A friend	7	70
A family member	1	10
An artist	2	20
Is there anyone in the family with a tattoo? (n=56)		
Yes	12	21.4
Did you have any problems after getting your tattoo?		
Yes	13	23.2
What kind of problems did you have? (n=13)		
Infection, bleeding	6	46.2
Pain	3	23.1
Rash, Bruising	2	15.4
Allergy	2	15.4
Did you tell your family about wanting to get a tattoo before you actually had it done? (n=56)		
Yes	28	50
What was your family's reaction? (n=28)		
They were OK with it	5	17.8
They were opposed to it	17	60.8
They were first opposed but then they gave me their approval	6	21.4
Did you have it done at a professional establishment? (n=56)		
Yes	45	80.4
Would you think of getting a tattoo again? (n=56)		
No	44	78.6

*Because a group of students had more than one tattoo, although there were 56 tattooed students, the actual number of tattoos was 71.

62(57.9%) stated that they did not think they would have it done again (Table-2).

As for the tattoos, 56(4.3%) students had them. The parts of the body involved were predominantly the shoulders 23(44.2%), back 18(34.6%), and the arms 14(26.9%). Among those who said they had followed a role model, 7(70%) named a friend, while 44(78.6%) stated that they were not interested in having it done again (Table-3).

The number of students who had both piercings and tattoos was 18 (1.38%).

There was a statistically significant association between

Table-4: Risk Behaviour and Piercing Status (N=1303).

Risk Behaviour	Pierced (n=107)		Unpierced (n=1196)		χ^2 p
	N	%	N	%	
Smoking					
Yes	54	18.2	243	81.8	50.73
No	53	5.3	953	94.7	<0.001
Alcohol use					
Yes	72	19.7	294	80.3	88.68
No	35	3.7	902	96.3	<0.001
Addictive substance use					
Yes	5	33.3	10	66.7	12.7
No	102	7.9	1186	92.1	<0.05
Use of stimulant substances/pills					
Yes	7	18.9	30	81.1	79
No	100	7.9	1166	92.1	<0.05
Extreme sports					
Yes	32	32.7	66	67.3	83.98
No	75	6.2	1130	93.8	<0.001
Getting into fights, frequent injuries					
Yes	10	16.4	51	83.6	5.68
No	97	7.8	1145	92.2	<0.05
Carrying sticks, switch blades, gas sprays					
Yes	40	20.4	156	79.6	45.52
No	67	6.1	1040	93.9	<0.001
Frequent bouts of depression					
Yes	46	13	308	87	14.74
No	61	6.4	888	93.6	<0.001
Unprotected sex					
Yes	37	20.1	147	79.9	40.23
No	70	6.3	1049	93.7	<0.001
Frequent change of sexual partner					
Yes	19	20.7	73	79.3	20.32
No	88	7.3	1123	92.7	<0.001

having piercing done and the students' risk-taking habits of smoking ($p<0.001$), drinking alcoholic beverages ($p<0.001$), addictive substance use ($p<0.05$), taking stimulant substances/pills ($p<0.05$), engaging in extreme sports ($p<0.001$), getting into fights and frequently sustaining injuries ($p<0.05$), carrying sticks/switchblades/gas sprays ($p<0.001$), suffering frequent bouts of depression and engaging in unprotected sex ($p<0.001$) (Table-4).

There was a significant association between getting tattoos and the students' risk-taking habits of smoking ($p<0.01$), taking alcohol ($p<0.01$), addictive substance use ($p<0.01$), use of stimulant substances/pills ($p<0.01$), engaging in extreme sports ($p<0.01$), carrying sticks/switchblades/gas sprays ($p<0.01$), engaging in unprotected sex ($p<0.01$), and frequently changing sexual partners ($p<0.05$) (Table-5).

Table-5: Risk Behaviour and Tattoo Status (N=1303).

Risk Behaviour	Tattooed (n=56)		Not Tattooed (n=1247)		χ^2 p
	N	%	N	%	
Smoking					
Yes	27	9.1	270	90.9	21.48
No	29	2.9	977	97.1	<0.01
Alcohol use					
Yes	36	9.8	330	90.2	37.95
No	20	2.1	917	97.9	<0.01
Addictive substance use					
Yes	4	26.7	11	73.3	18.46
No	52	4	1236	96	<0.01
Use of stimulant substances/pills					
Yes	7	18.9	30	81.1	19.79
No	49	3.9	1217	96.1	<0.01
Extreme sports					
Yes	19	19.4	79	80.6	58.66
No	37	3.1	1168	96.9	<0.01
Getting into fights, frequent injuries					
Yes	5	8.2	56	91.8	2.36
No	51	4.1	1191	95.9	0.124
Carrying sticks, switchblades, gas sprays					
Yes	18	9.2	178	90.8	13.39
No	38	3.4	1069	96.6	<0.01
Unprotected sex					
Yes	16	8.7	168	91.3	10.07
No	40	3.6	1079	96.4	<0.01
Frequent change of sexual partner					
Yes	8	8.7	84	91.3	4.65
No	48	4	1163	96	<0.05

Discussion

The practice of piercing is steadily becoming more widespread in Western societies.^{11,12,14} Studies have indicated differing prevalence rates of 26.1%,¹⁰ 32%,¹⁷ 53%,¹⁶ 56%,⁶ 63%,¹³ and 33%,¹⁸ for piercing, and 13.2%,¹⁰ 22%,¹⁷ 23%,¹⁶ 73%,¹³ 24.5%,¹⁸ for tattooing among the young population. The rates found in the present study, however, were lower: 8.2% for piercing, and 4.3% for tattoos.

An observation of the parts of the body which the students had pierced showed that the majority had their piercings in the ear cartilage (55.1%), on the nose (32.7%) and eyebrows (22.4%) and that tattoos were mostly found on the shoulders (44.2%), back (34.6%) and arms (26.9%). Other studies too have reported similar results,^{12,16,19} indicating that piercing is predominantly done in the facial area (e.g., ears, eyebrows, nose, tongue, lips) and that tattoos are mostly seen on the back, shoulders, arms and legs.^{12,16,19,20}

In this study, the students' friends were the primary persons they modelled themselves after in deciding to get a piercing (70%) or tattoo (50%). A study stated that friends were an important factor in the decision to have piercing or tattoos done.¹⁷ A study with 536 university students, found that 98% of the students had at least one friend with piercings.⁹

Particularly in adolescence, friends/peers are very important for young people. While friendships help young people in their search to understand and better express themselves and also provide benefits in terms of developing positive feelings of self-esteem and empathy, they can at the same time have adverse effects in terms of stimulating young people to adopt risk-taking behaviours.²¹ This is why families need to be careful about the friends their children make and why it is important that they guide them in the right direction.

Half of the young people in the study group admitted that they had not told their families that they would be getting body piercing (50%) or tattoos (50.5%). Most of the students said that their families first objected to the piercing, but that they had finally resigned themselves to accepting it in the end; young people who got tattoos said that their families were completely against it. This might be because tattoos are more permanent compared to piercing. In addition, the reason why half of the young people did not share their intention with their family members may have stemmed from the fact that these were university students and therefore were adults.

Most of the young people in the study said that they had gotten their piercing (85%) and tattoos (80.4%) at a reliable establishment. One study reported that 73.8% of the young people had gotten their tattoos from trained professionals, but that 18% said that they had gone to non-professionals; 7.7% said they were not sure about whether or not they had been served by professionals.¹⁰ Another study reported that young people have piercing and tattoos done with sterile or new needles.¹² A study²² on adolescents reported that the subjects had their piercings and tattoos executed by professionals, and another study found that 88% of the students had piercings and tattoos done by professionals and that these persons complied with the universal precautions.¹³ One study reported that 53.6% of the students had their piercings and tattoos done at professional establishments and also that sterile and disposable instruments were used in the procedures in the case of 70.6%.¹⁸ These findings are a positive indication that young people generally contact reliable establishments to get their piercings and tattoos. It must not be forgotten, however,

that young people who do not have their piercings and tattoos performed under suitable conditions are at risk.

The present study showed that the students who experienced problems after piercing generally suffered from infection/bleeding, difficulty in hearing, localized loss of sensation, rash, echymosis (Table-2); while students who complained of problems after getting their tattoos generally experienced infection, bleeding, pain, allergies and similar complications (Table-3).

A study has reported post-piercing complications such as septic arthritis, glomerulonephritis, endocarditis, Hepatitis B-C, jewellery aspiration, speech disorders, dental injuries, and sometimes occurrences of osteomyelitis, bacteraemia, and toxic shock syndrome.⁶ Another study found prevalence of problems such as skin irritations, infections, bleeding, allergies, swelling and other side effects following piercing and tattooing;¹¹ Infective endocarditis and dental problems, particularly in tongue piercings, have been reported¹⁴ and the development of complications such as infection, scar tissue, allergic reactions, HIV, Hepatitis B-C, tetanus and tuberculosis in young people with piercings have also been noted in literature.⁹

Complications after tattooing are reported as, among others, infections (e.g., bullae, rashes, pain) and skin irritations (rashes, dry skin, sensitivity).^{8,11,13}

The complications observed in the young people in the present study were similar to the complications reported in literature. The fact that more serious problems were not seen in the study group (Hepatitis B-C, HIV, osteomyelitis, etc.) may have been because the students chose less risky body parts such as the vicinity of the ear for their piercings, and also because they had applied to reliable establishments for both the piercing and tattooing procedures.

It was observed that most of the students in the study who had gotten piercings or tattoos were thinking of having more done (Tables-2-3). A study found that 63% of the students had the intention of getting another piercing and that 64% were thinking of getting another tattoo.¹⁷ Under the circumstances, it is imperative that young people receive education about the risks of piercing and tattooing and that the importance of having these performed by professionally trained people under sterile conditions is impressed upon them. Under the circumstances, it is imperative that young people receive education about the risks of both piercing and tattooing and if they decide to have these done, the importance of having these performed by professionally trained people

under sterile conditions should be impressed upon them. It is also of importance that professionals who perform these procedures are educated in infection control and universal precautions.

It has been seen that young people with piercings and tattoos are more likely to exhibit certain types of risk behaviour and that this association is significant ($p < 0.05$) (Tables-4-5).

Studies have reported that the prevalence of unprotected sex, smoking, drinking and the use of stimulant substances and pills was more prevalent among young people with tattoos and piercings.^{4,17} One study reported that harmful behaviour such as eating disorders, substance/drug abuse, unprotected sex and suicide attempts were more frequently seen among youth with piercings and tattoos and that the association between these practices and risk behaviour was significant.¹⁰ Another study pointed at a more frequent and significant incidence of sexual intercourse, running away from home, suicide attempts, smoking, drinking and drug use among young people with piercings and tattoos; the same study, however, found no association between these practices and acts of violence.⁵

One research reported that among the risk behaviour exhibited by young people with piercings and tattoos, the use of alcohol and drugs has been seen to be 3.1 times more prevalent than other behaviour.¹²

One study stated that more than half of the students (53%) were using alcohol, 39% took drugs, and 40% had from 1-5, 24% from 6-10, and 26% had 11 or more sexual partners.¹³

One study reported that there was evidence pointing to an association between risk behaviours and piercing and tattoos among the youth. It is asserted that tattoos and piercings may be considered markers for such risk behaviour as unprotected sexual intercourse, alcohol and drug use, eating disorders and suicide.¹⁴

Our results were generally similar to those of prior studies, supporting the observation that risk behaviour is more frequently seen in young people with piercings and tattoos. It is for this reason that it is important that young people with piercings and tattoos are watched closely and that support should be provided to youth at risk.

Conclusion

An effort should be made to reduce the frequency of piercing and tattooing and awareness should be raised among the community and among teachers and parents about the health problems that these practices may be

responsible for. Young people who have piercings and tattoos should be informed about the health issues that such practices may cause and should be directed to youth centres where they can be tracked in terms of risk-taking behaviour. Whenever necessary, they should be provided assistance in learning to cope with their own risk-taking behaviour.

Acknowledgements

We are grateful to Sevim Savaser, Saniye Cimen and university students for their support.

References

- Huxley C, Grogan S. Tattooing, piercing, healthy behaviours and health value. *J Health Psychol* 2005; 10: 831-41.
- Pereira PA. Attitudes of nurses and nursing students toward various groups of people with body piercings [dissertation]. USA: The Graduate Faculty of Texas Tech University Health Sciences Center, 2004.
- Tattoo. [online] 2014 March 19 last update. [cited 2014 March 19]. Available from: URL: <http://en.wikipedia.org/wiki/Tattoo>
- Oliveria SM, Matos MA, Martins R, Araujo T. Tattooing and body piercing as lifestyle indicator of risk behaviors in Brazilian adolescents. *Eur J Epidemiol* 2006; 21: 559-60.
- Roberts TA, Auinger P, Ryan SA. Body piercing and high-risk behavior in adolescents. *J Adolesc Health* 2004; 34: 224-9.
- Schorzman CM, Gold MA, Downs JS. Body Art: attitudes and practices regarding body piercing among urban undergraduates. *J Am Osteopath Assoc* 2007; 107: 432-8.
- Sweeney SM. Dövmeler: dövmeuygulamalarivesilinmesiiçin potansiyeltedaviseçenekleriüzerinebirinceleme. [A review on Tattoos:tattoo practicesanddeletingfor potentialtreatment options] TürkçeBaski [Turkish edition]. *Curr Opin Pediatr* 2006; 1: 187-92.
- 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.
- King KA, Vidourek RA. University students's involvement in body piercing and adherence to safe piercing practices: Do males and females differ? *Am J Health Educ* 2007; 38: 346-55.
- Carroll ST, Riffenburgh RH, Roberts TA, Myhre EB. Tattoos and body piercings as indicators of adolescent risk-taking behaviors. *Pediatrics* 2002; 109: 1021-7.
- Deschesnes M, Demers S, FinèsP. Prevalence and characteristics of body piercing and tattooing among high school students. *Can J Public Health* 2006; 97: 325-9.
- Brooks TL, Woods ER, Knight JR, Shrier LA. Body modification and substance use in adolescents: is there a link? *J Adolesc Health* 2003; 32:44-9.
- Greif J, Hewitt W, Armstrong ML. Tattooing and body piercing. Body art practices among college students. *Clin Nurs Res*1999; 8: 368-85.
- Nicoletti A. Perspectives on pediatric and adolescent gynecology from the Allied Health Care Professional. *J Pediatr Adolesc Gynecol* 2004; 17: 215-6.
- Ural A, Kiliç ?. Process of Scientific Research and Data Analysis with SPSS. Ankara: Detay Publications, 2005; pp 28-54.
- Mayers LB, Chiffrieller SH. Body art (body piercing and tattooing) among undergraduate university students: "Then and Now". *J Adolesc Health* 2008; 42: 201-3.
- Armstrong ML, Roberts AE, Owen DC, Koch JR. Contemporary college students and body piercing. *J Adolesc Health* 2004; 35: 58-61.
- Gallè F, Mancusi C, Onofrio V, Visciano A, Alfano V, Mastronuzzi R, et al. Awareness of health risks related to body art practices among youth in Naples, Italy: a descriptive convenience sample study. *BMC Public Health* 2011; 11: 625.
- Millner VS, Eichold BH. Body piercing and tattooing perspectives. *Clin Nurs Res* 2001; 10: 424-41.
- Lauman AE, Derick AJ. Tattoos and body piercing in the United States: a national data set. *J Am Acad Dermatol* 2006; 55: 413-21.
- Oksal A. Ergenlikdönemindekiruhsaldegisiklikler. [Psychological changesin period adolescent]. In: Fincancioglu N, Bulut A, eds. CinselSaglikBilgileriEgitimiÖğretmen El Kitabı [Sexual Health EducationTeacher's Handbook] (in Turkish), İstanbul; Elma BilgisayarBasim-Yayim, 2008; pp 49-53.
- Braithwaite R, Robillard A, Woodring T, Stephens T, Arriola KJ. Tattooing and body piercing among adolescent detainees: association to alcohol and other drug use. *J Subst Abuse* 2001; 13: 5-16.