

Prevalence, knowledge, attitudes and practices towards body art in university students: body art as an indicator of risk taking behaviours?

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Abstract

Background: Young people are attracted by body art and consider it as a way of being "different". Body art (tattoos, piercing, etc.) represents an important socio-cultural phenomenon which is not risk free for health. Existing literature, moreover, points out that deviant behaviours and unhealthy lifestyles are significantly associated with body art.

Objective and methods: The research was aimed to describe the knowledge, attitudes, and practices of university students towards body art, highlighting the association between body art and some demographic variables, deviant behaviours, unhealthy lifestyles, knowledge of health risks and medical complications potentially involved. Data came from a cross-sectional study conducted on a sample, selected at random, of 1.200 undergraduate university students, (570, human sciences; 630, scientific areas). The instrument for the survey was a 21 item multiple choice questionnaire. Data was codified and statistical analysis was computed through *Epi-Info* and *Openstat* software.

Results: Students from a scientific background showed a higher rate of interest, ($p < 0.01$) for the argument of body art. About one third of the surveyed individuals had at least one body art. Cultural choice and gender was associated with body art. Males, especially from the scientific area, were more attracted by temporary body art, while females preferred permanent tattoos. Students from humanistic backgrounds were associated with one body art and those from a scientific area with more than one ($p < 0.01$). Unemployment, lack of partnership and family attitude towards body art, were positively associated with students' body art. Body art was strictly associated with different unhealthy lifestyles, such as drug, alcohol and tobacco consumption, problem gambling and sexual activity before 18 years of age. A relevant part of students considered piercing and tattooing as having no consequences for infections and/or disease.

Conclusions: Body art was associated with unhealthy lifestyles and may be considered an indicator of risk taking behaviours. Individuals had no accurate idea of the consequences for their health and body, apart from a generic risk of infections. Education is a necessary tool for the modification of lifestyles and as a form of prevention ensuring the correct understanding and assessment of the health risk involved.

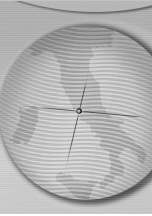
Key words: body piercing, tattooing, body art, health risk, risk-taking behaviours

Introduction

Tattooing was an eurasian practice at least since neolithic times and was largely practiced [1]. It is still popular in many parts of the world and in different cultures, serving as a rite of passage, a mark of status or rank, a symbol of religious and spiritual devotion, a decoration for bravery, a sexual lure, a mark of fertility, a pledge of love, a punishment, a protection and as a mark of outcasts, (slaves and convicts) [2]. Nowadays people choose to be tattooed for cosmetic, sentimental/memorial/religious reasons, to symbolize their belonging to particular groups, including criminal gangs, ethnic groups

or specific subcultures [3]. Approximately 14.0% of adults in the United States have at least one tattoo. According to a 2004 survey of 500 people between the ages of 18 and 50, 24.0% reported having a tattoo: the highest incidence of tattoos was found among Americans aged from 25 to 29 years (32.0%) and from 30 to 39 years (25.0%) [4].

Piercings are holes put in parts of the body for the purpose of placing jewelry. Piercing has become a widespread fashion trend in western industrialized nations in recent years. In the USA, 34.0% of people have ear lobe piercings and about 14.0% have a body piercing in a location other than the ear lobe [4].



Since tattooing and piercings require to break the skin barrier, they may carry health risks [5] especially when body art is performed without necessary means of prevention [6]. Body art has been associated with oral and facial complications [7], allergic reactions, anaphylactic shock [8], endocarditis [9], bacterial infections [10], contact dermatitis [11], breast abscess and cancer [12], auricular chondritis [13], hepatitis [14], carcinoma [15,16], malignant melanoma [17] and transfusion transmitted diseases [18]. It seems necessary to activate a health alert and call for ongoing education which is essential for the well-being of college students who may become attracted to body art. Overall, friends, identity, and image seem to be the major influences for obtaining tattoos [19]. Recently, tattooing was reported to be associated with unhealthy lifestyles and deviant behaviours [20]. Tattooed individuals, moreover, were sexually active earlier than non-tattooed ones [21], and specific tattoo images were correlated with specific youth deviancies (i.e. drug and alcohol consumption) [22].

Objective and methods

The research aimed to describe knowledge, attitudes and practices of university students towards body art. Specific objectives of the study were:

1. to evaluate the interest, prevalence, type of practiced body art (temporary or permanent, number, site) and motivation for body art practice;
2. to highlight the association among body art practice and some demographic variables, such as age, gender, weight, height, BMI, cultural choice, unemployment, lack of partnership, and family attitude toward body art practice;
3. to highlight the awareness of medical complications potentially associated to body art practices;
4. to highlight the association between body art practice and some unhealthy lifestyles and deviant behaviours, such as drug, alcohol and tobacco consumption, problem gambling and earlier and unsafe sexual activity.

The survey was carried out in the period of February/April 2009.

The questionnaire

The research was conducted through the administration of a 21-item questionnaire with multiple choice answers, refined through a pilot study to test its effectiveness, reliability and simplicity. The interviewers were all well trained to have no influence on the surveyed individuals

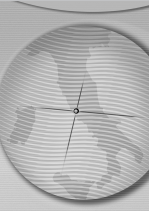
and to explain the proposed items in the easiest way. Individuals were formerly asked about their interest on the topic and their willingness to cooperate. The absolute respect of privacy was assured to those interviewed. Data, in fact, was proposed in an aggregate form thus eliminating the possibility to trace the providers of the information. Participants were told that there were no right or wrong answers and that their participation in the investigation was voluntary. Participants, assured of the confidentiality of their response, provided informed consent.

The sample

Two groups of university students were selected, one from humanistic and one from scientific curricula, to evaluate if cultural choices influenced the practices and attitudes towards body art. To develop a robust database for the subsequent statistical analysis, a minimum sample size of 564 students was calculated by using Epi-Info software version 3.3. This sample, was determined assuming a conservative prevalence of 50% of subjects having each investigated characteristic, with a precision of 4% and a 95% confidence level. The individuals in the survey, statistically predetermined, were recruited drawing at random from the list available in the administration office, using the matriculation number to ensure a good representation of the corresponding statistical universe and this granted a percentage of about 10,0% with respect to the reference population. The surveyed sample comprised of 570 students from humanistic sciences, (Law, Science of Education, Arts) and 630 from scientific areas, (Chemistry, Mathematics, Physics, Architecture). Students of medicine were excluded. Ethical permission for the study was obtained prior to collecting data and after perusal of the results by the University Authority. From now on, except if differently expressed, the term "subgroups" will indicate the humanistic and scientific groups. For the purposes of this survey, female students were asked not to report having a piercing if they normally wore earrings. In Italy, in fact, it is a common practice for newborn females to have the ear lobe pierced.

Statistical analysis

The answers to questionnaires were codified and the results were analyzed using *Epi-Info* and *OpenStat* software for the whole population and for subgroups. Descriptive analysis (percentages, means, standard deviation) were computed to describe the collected data. Chi square tests were performed to evaluate the association between



the variables under investigation. The law of large numbers assured a Gaussian distribution. The relative consistency of the sample, made the estimation of confidence intervals at a 95% possible, considering the observed data as a normal distribution to zero mean and unitary variance. A $p < 0.05$ was considered significant.

Results

Survey respondents were 655 males, (55.0%) and 545 females (45.0%). In Table 1 the demographic characteristics of the surveyed participants are shown.

Table 2 crossed interest expressed in body art versus gender and cultural choice. A significant different rate of interest versus gender was highlighted by the X^2 test, both for humanist and scientific groups ($p < 0.01$). Within the humanistic group, in fact, females showed more “high interest” with respect to males (47.3% versus 7.6%). An opposite trend was observed in the scientific group (69.1% versus 17.9%). Concerning overall data, males were more interested than females, (53.1% vs 39.4%). The X^2 test applied to

evaluate the statistical association between rate of interest and cultural choice gave a significant result, ($p < 0.01$). Humanistic students showed a lower interest for body art than scientific ones.

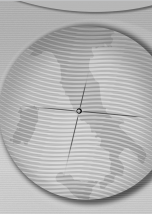
Individuals were asked to indicate if they had a tattoo and/or a piercing, (first part of Table 3). We found that 33% of students from the humanistic area had at least one body art and 53.2% of scientific students had at least one body art. The X^2 test highlighted a significant association between gender and body art practice in both subgroups ($p < 0.05$). The same test applied to evaluate the association between having body art and cultural choice was also significant ($p < 0.01$). The second and third part of table 3 crossed the same data with respect to having piercing and tattoo. The X^2 test showed that females were significantly more attracted by piercing (24.7% and 57.9%) than males, in both of the two depicted subgroups ($p < 0.05$ and $p < 0.01$). An opposite conclusion was reached when considering tattoo practice. In the humanistic and scientific group respectively, 31.8% and 47.6% of males had a tattoo, significantly more than females, 14.3%

Table 1. Demographic characteristics of the surveyed students.

Demographics	Humanistic areas				Scientific areas			
	Males		Females		Males		Females	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	21.3	3.5	21.4	4.3	21.2	3.6	21.1	4.1
Height	174.2	7.5	161.3	6.8	175.1	7.8	160.9	7.1
Weight	74.4	12.3	66.3	9.3	78.2	13.2	66.6	9.6
BMI	26.2	3.2	22.3	2.7	26.1	3.5	22.6	2.4

Table 2. Interest in body art according to gender and cultural choice.

Interest toward body art	Humanistic areas				Scientific areas				Total				Test X^2
	Males		Females		Males		Females		Males		Females		
	n	%	n	%	n	%	n	%	n	%	n	%	
No	49	28.8	40	10.0	22	4.5	13	9.0	71	10.8	53	9.7	<0.01
Low	52	30.6	67	16.8	65	13.4	46	31.7	117	17.9	113	20.7	
Sufficient	56	32.9	104	26.0	63	13.0	60	41.4	119	18.2	164	30.1	
High	13	7.6	189	47.3	335	69.1	26	17.9	348	53.1	215	39.4	
Total	170	100.0	400	100.0	485	100.0	145	100.0	655	100.0	545	100.0	
Test X^2	<0.01				<0.01				<0.01				



and 26.9% ($p < 0.05$ and $p < 0.01$). Cultural choice was significantly associated with having a piercing and/or a tattoo, ($p < 0.01$): scientific area students were more attracted than humanistic ones both to piercing and tattoo practices.

Students were also asked to indicate if they had tattoo and piercing, (fourth part of table 3). In the humanistic areas, gender was not associated to these practices ($p = ns$), but a significant result was found in the scientific group, ($p < 0.05$). In

this second subgroup, males were significantly more likely than females to undergo these practices (33.0% vs 23.4%). Students with tattoo and piercing were significantly higher in the scientific groups than in the humanistic one (30.8% vs 8.4%, $p < 0.01$).

In the first part of Table 4, individuals were asked to express their preference for having a temporary or permanent tattoo. Males were more oriented towards temporary body art (78.3% and

Table 3. Students with body art (piercing, tattoo).

	Humanistic areas				Scientific areas				Total			
	Male		Female		Male		Female		Humanistic areas		Scientific areas	
At least one tattoo or piercing	n	%	n	%	n	%	n	%	n	%	n	%
Have	69	40.6	119	29.8	246	50.7	89	61.4	188	33.0	335	53.2
Haven't	101	59.4	281	70.3	239	49.3	56	38.6	382	67.0	295	46.8
Total	170	100.0	400	100.0	485	100.0	145	100.0	570	100.0	630	100.0
Test χ^2	<0.05				<0.05				<0.01			
Piercing	n	%	n	%	n	%	n	%	n	%	n	%
Have	27	15.9	98	24.5	175	36.1	84	57.9	125	21.9	259	41.1
Haven't	143	84.1	302	75.5	310	63.9	61	42.1	445	78.1	371	58.9
Total	170	100.0	400	100.0	485	100.0	145	100.0	570	100.0	630	100.0
Test χ^2	<0.05				<0.05				<0.01			
Tattoo	n	%	n	%	n	%	n	%	n	%	n	%
Have	54	31.8	57	14.3	231	47.6	39	26.9	111	19.0	270	42.9
Haven't	116	68.2	343	85.8	254	52.4	106	73.1	459	80.5	360	57.1
Total	170	100.0	400	100.0	485	100.0	145	100.0	570	100.0	630	100.0
Test χ^2	<0.01				<0.01				<0.01			
Tattoo and piercing	n	%	n	%	n	%	n	%	n	%	n	%
Have	12	7.1	36	9.0	160	33.0	34	23.4	48	8.4	194	30.8
Don't have	158	92.9	364	91.0	325	67.0	111	76.6	522	91.6	436	69.2
Total	170	100.0	400	100.0	485	100.0	145	100.0	570	100.0	630	100.0
Test χ^2	ns				<0.05				<0.01			

72.0%), while females showed a higher interest for permanent body art (84.9% and 70.8%). These differences were significant, ($p < 0.01$), in both of the subgroups. Scientific students were more attracted by temporary body art in a significant way ($p < 0.01$).

The second part of Table 4 shows whether individuals had one or more body art. In the humanistic group, there was no significant difference according to gender: both males and females preferred having one body art. In the scientific group, males showed a stronger attitude for more than one body art (65.0%) while females seemed to prefer only one body art (61.8%). In this case, gender was significantly associated with the dependent variable ($p < 0.01$). Concerning the overall sample, cultural choice was associated with the number of body art, ($p < 0.01$): one body art was significantly preferred by humanistic students with respect to the scientific area students.

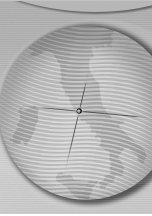
All the individuals were asked about the reason for

having had body art and what tattoo and piercing represents for them. The results are presented in the third and fourth part of table 4. Body art is a choice of fashion for 37.2% of students and in the subgroups, there was a female prevalence for this reason (48.3% versus 38.8% and 36.6% versus 27.6%). Only a small group did not have a clear attitude (5.4% and 6.3%). The two groups view body art as an artistic leit motiv (59.7%), and no significant differences were highlighted between humanistic and scientific students (55.9% - 62.3% and 61.2% - 51.7%). A very small group did not thought that body art should have a specific motivation (2.4% and 4.8%).

Body sites for piercing and tattooing were reported differently in the two groups of students. Scientific students had more ear piercing than humanistic ones (49.8% versus 38.4%). An opposite conclusion could be drawn if referring to eye-brow piercing, (17.4% versus 24.8%). The

Table 4. Type, number and reason for tattooing or piercing.

	Humanistic				Scientific				Total			
	Male		Female		Male		Female		Humanistic		Scientific	
Type	n	%	n	%	n	%	n	%	n	%	n	%
Temporary	54	78.3	18	15.1	177	72.0	26	29.2	72	38.3	203	60.6
Permanent	15	21.7	101	84.9	69	28.0	63	70.8	116	61.7	132	39.4
Total	69	100.0	119	100.0	246	100.0	89	100.0	188	100.0	335	100.0
Test χ^2	<0.01				<0.01				<0.01			
Have 1	57	82.6	83	69.7	86	35.0	55	61.8	140	74.5	141	42.1
Have >1	12	17.4	36	30.3	160	65.0	34	38.2	48	25.5	194	57.9
Total	69	100.0	119	100.0	246	100.0	89	100.0	188	100.0	335	100.0
Test χ^2	ns				<0.01				<0.01			
Why												
beauty	15	8.8	57	14.3	133	27.4	33	22.8	72	12.6	166	19.8
fashion	66	38.8	193	48.3	134	27.6	53	36.6	259	45.4	187	37.2
imitation	35	20.6	39	9.8	86	17.7	15	10.3	74	13.0	101	14.6
belong to...	46	27.1	88	22	95	19.6	36	24.8	134	23.5	131	22.1
do not know	8	4.7	23	5.8	37	7.6	8	5.5	31	5.4	45	6.3
Total	170	100.0	400	100.0	485	100.0	145	100.0	570	100.0	630	100.0
body art is												
cultural	72	42.4	138	34.5	163	33.6	54	37.2	210	36.8	217	35.6
artistic	95	55.9	249	62.3	297	61.2	75	51.7	344	60.4	372	59.7
nothing	3	1.8	13	3.3	25	5.2	16	11.0	16	2.8	41	4.8
Total	170	100	400	100	485	100	145	100	570	100.0	630	100



two subgroups presented the same percentage (10.4%) when considering nose piercing. The percentage of lip piercing was 16.8% (humanistic) versus 10.4% (scientific). Scientific females preferred tattooing of the hand (13.3%), breast (8.1%), arm (23.3%), shoulder (13.3%) and back (8.9%). Humanistic females preferred tattooing of the neck (13.5%), leg (20.7%), foot (14.4%). Statistical tests were not applied because of the presence of "0" in some of the proposed items.

Some demographic variables were crossed with piercing and tattooing practice. Age, height, weight and BMI were not associated with body art ($p=ns$). Other variables, however, were significantly associated with body art. Unemployment seemed to be associated with body art ($p<0.05$). A similar trend was observed when the lack of partnership (being single) was considered ($p<0.05$ piercing and $p<0.01$ tattoo). Finally, students' body art was strongly associated with parents having some body art or having a positive attitude toward this topic, ($p<0.01$).

Table 5 crossed individuals having body art versus some "externalized risk behaviours". Students were asked to report if they usually used drugs, (\geq once a week), alcohol, (≥ 3 times per week) and tobacco, (≥ 10 cigarettes per day). Both in humanistic and in scientific areas, the association of unhealthy lifestyles with body art was statistically significant ($p<0.05$ and $p<0.01$), the same association being observed for the overall sample. Students were asked whether they were attracted to gambling (≥ 2 times per week): χ^2 test showed a significant association. Students who had at least one body art seemed to have some compulsive gambling problems ($p<0.05$, $p<0.01$ for the overall). Finally, students with somebody art reported whether they became sexually active before 18 years. The applied test gave a significant association, ($p<0.01$).

Table 6 crossed perceived consequences of the overall of individuals with piercings and tattoos. Piercing was thought not to provoke any consequences for 37.5% of individuals, (35.9% - 36.0% and 36.7% - 46.2%). Individuals considered piercing as responsible for local infections more than for diseases (36.5% versus 26.0%). There was no significant difference between males and females on this point of view (statistical tests not reported). Similar considerations could be drawn for tattoo practices. 43.7% of humanistic students considered tattoo practices as posing no consequences while in the scientific group the percentage for this view was 54.0%. In both of the subgroups, students considered tattoos more responsible for local infections than diseases

(36.0% versus 20.4% in humanistic areas; 34.2% versus 22.9% in scientific areas).

Discussion

In a recent survey among US university students, the prevalence of tattooing was 22% and of body piercing 51% [23]. In the surveyed sample of 1200 Italian university students, the overall prevalence was high as well, but quite similar between piercing and tattooing (32,0% for piercing and 31,7% for tattooing). Large differences, instead, were associated with gender and cultural choice. The interest towards and the prevalence of body art were quite relevant if considering the overall group of students. Females seemed to be more attracted by piercing and males by tattoos. Males preferred having piercing in "traditional" parts of the body in both of the examined subgroups, while females tried some less traditional body parts, such as breast and eye-brows. Concerning tattoos, females more often had them placed in breast and back areas (perhaps serving as a sexual icon), while males preferred arm, hand, leg, shoulder and foot locations (perhaps serving as a sign of strength and character). Humanistic students showed less attraction to body art, both in type and number, but the overall group embraced the idea of a temporary tattoo. Scientific students more often presented more than one body art. Individuals who had some piercing, (or tattoo) were more inclined to have tattoos (or piercing). The obtained results allowed us to trace the figure of a student who was strongly involved in body art practice.

The phenomenon did not seem to be associated with physical characteristics such as age, height, weight and BMI. Individuals in the sample seemed to have the reasons why someone might desire to have body art clear in their minds, and only a very small percentage had "no idea" why to have one. Moreover, students who did not consider body art as a consequence of a specific reason were very few. Fashion, artistic and cultural reasons were the principal answers for the reasons why someone should have a tattoo or body piercing. In that vein, females prevailed slightly over males. The evidence showed a strong association with personal and familial variables. In fact, the way a students' family perceived body art played a significant positive role for the students. This aspect suggests the need for deeper investigation about some other variables such as the cultural level of families and the profession of parents.

Unemployment and lack of partnership (being single) were associated with body art, highlighting that students are involved in body art not only

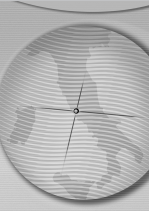


Table 5. Externalized risk-taking behaviours.

Drug	Humanistic				Test χ^2	Scientific				Test χ^2	Total				Test χ^2
	YES		NO			YES		NO			YES		NO		
	n	%	n	%		n	%	n	%		n	%	n	%	
Body art															
Have	157	70.7	31	8.9	<0.01	276	90.5	59	18.2	<0.01	433	82.2	90	13.4	<0.01
Haven't	65	29.3	317	91.1		29	9.5	266	81.8		94	17.8	583	86.6	
Total	222	100.0	348	100.0		305	100.0	325	100.0		527	100.0	673	100.0	
Alcohol	YES		NO			YES		NO			YES		NO		
Body art	n	%	n	%		n	%	n	%		n	%	n	%	
Have	164	83.2	24	6.4	<0.01	321	95.0	14	4.8	<0.01	485	90.7	38	5.7	<0.01
Haven't	33	16.8	349	93.6		17	5.0	278	95.2		50	9.3	627	94.3	
Total	197	100.0	373	100.0		338	100.0	292	100.0		535	100.0	665	100.0	
Tobacco	YES		NO			YES		NO			YES		NO		
Body art	n	%	n	%		n	%	n	%		n	%	n	%	
Have	181	73.0	7	2.2	<0.01	291	89.3	44	14.5	<0.01	472	82.2	51	8.1	<0.01
Haven't	67	27.0	315	97.8		35	10.7	260	85.5		102	17.8	575	91.9	
Total	248	100.0	322	100.0		326	100.0	304	100.0		574	100.0	626	100.0	
Gambling	YES		NO			YES		NO			YES		NO		
Body art	n	%	n	%		n	%	n	%		n	%	n	%	
Have	133	67.9	55	14.7	<0.05	289	78.1	46	17.7	<0.05	422	74.6	101	15.9	<0.01
Haven't	63	32.1	319	85.3		81	21.9	214	82.3		144	25.4	533	84.1	
Total	196	100.0	374	100.0		370	100.0	260	100.0		566	100.0	634	100.0	
Sexual activity	<18		≥18			<18		≥18			<18		≥18		
Body art	n	%	n	%		n	%	n	%		n	%	n	%	
Have	114	71.7	74	18,0	<0.01	209	80,4	126	34.1	<0.01	323	77.1	200	25.6	<0.01
Haven't	45	28.3	337	82.0		51	19,6	244	65.9		96	22.9	581	74.4	
Total	159	100.0	411	100.0		260	100.0	370	100.0		419	100.0	781	100.0	

for image, fashion and cultural reasons, but also use it as a way to respond to some existing troubles in their lives. In Germany, in fact, in a sample of 14-44 year old individuals, the major reasons for body modification, aside from being motivated by fashion, were reported to be a negatively perceived condition of life and reduced social integration. Tattooing and piercing were significantly correlated with unemployment and non affiliation to a church [24].

These findings were confirmed in the current sample of university students by the significant association between body art and tobacco, drug and alcohol consumption, problem gambling and earlier sexual activity. Body art, in fact, could

represent an indicator of risk-taking behaviour and, possibly, deviant behaviours among young adults too. Tattooed and body pierced adolescents, referring to the Adolescent Medicine Division in S. Diego California, were more likely to have engaged in risk-taking behaviours or to a greater degree involved in them than those without body modification [25]. Body modification was associated with self reported alcohol problems and other drug use among adolescents aged 14-18 years presenting to an urban clinic for health care in Boston, Ma [26]. Early sexual experience, illicit drug and alcohol consumption, anti-HBc positivity were found to be associated with tattooing and body piercing in a sample

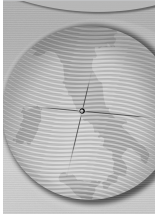


Table 6. Perceived consequences for piercings and tattooing.

Piercing' consequences	Humanistic				Total		Scientific				Total	
	Male	%	Female	%	n	%	Male	%	Female	%	n	%
infections	65	38.2	142	35.5	207	36.3	185	38.1	46	31.7	231	36.7
disease	44	25.9	114	28.5	158	27.7	122	25.2	32	22.1	154	24.4
nothing	61	35.9	144	36.0	205	36.0	178	36.7	67	46.2	245	38.9
Total	170	100.0	400	100.0	570	100.0	485	100.0	145	100.0	630	100.0
Tattooing' consequences	Male	%	Female	%	n	%	Male	%	Female	%	n	%
infections	74	43.5	131	32.8	205	36.0	166	34.2	37	25.5	167	26.5
disease	24	14.1	92	23.0	116	20.4	111	22.9	23	15.9	123	19.5
nothing	72	42.4	177	44.3	249	43.7	208	42.9	85	58.6	340	54.0
Total	170	100.0	400	100.0	570	100.0	485	100.0	145	100.0	630	100.0

of adolescents in Goiás, Brazil. [27]. A survey on a cohort of 550 military recruits reported that tattooed individuals were associated with predictable adverse health- risk behaviours such as smoking, heavy drinking and riding in a vehicle with someone who had been drinking as well, than non-tattooed individuals [28]. Consumption of alcohol, marijuana, antidepressants and sedatives were significantly correlated to having tattoos among a sample of adolescent detainees [29] and risk-taking behaviours were evidenced in tattooed pregnant adolescents. All pregnant adolescents were impregnated by tattooed males. Pregnant adolescents, therefore, who are dating a tattooed male may be at high risk for deciding to become tattooed [30].

The associations reported in the literature, some of which observed in the present survey too, highlight a dangerous attitude which requires immediate intervention. Specific educational programs should be implemented to reduce the negative effects of those risk-taking behaviours.

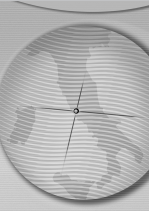
Risk reduction messages should consistently focus on these behaviours as they seem to be associated to substance abuse. Practitioners should be alerted to the possibility of risk-taking behaviours in tattooed adolescents, and activate preventive

measures accordingly. Proactive health education, moreover regarding maternal/fetal risks related to tattooing during pregnancy, is also needed.

The character or the personality of an individual as perceived by others is in continuous negotiation through social interaction. For some participants, their skin art was an attempt to portray a particular image. Body art carries health risk problems, especially when tattooing is practiced without adequate precautions, and/or is conducted by an unauthorized artist. The prevalence of students who do not consider this act as a potential cause of infections and diseases was too high. Students, in fact, believe that body art can provoke local infections more than diseases, and this conclusion represents a faulty reasoning due to lack of correct knowledge.

Students, parents and health officials should be alerted to the need for continuing education on these matters. Body art should be considered, in fact, a risk behaviour warranting health education [31].

Because of the growth of such practices, information should be accompanied by a specific campaign of monitoring those young adults who have already performed a body art. The validation of body art practice among young adults requires a more effective effort in two directions: medical education and information based campaigns.



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