Prevalence of tattooing and body piercing in the Australian community

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Abstract

Tattooing and body piercing are now worldwide fashion crazes. The health risks associated with these procedures are as yet unclear. This article examines the prevalence of body decoration and the associated health risks within the Australian population using a random sample survey of individuals aged 14 years and over, collected between June and September 1998 (n = 10,030). The results show that one in 10 people have had a tattoo at some point in their lives and 8 per cent some form of body piercing, excluding ear piercing. Men are more likely than women to report tattooing, while females are more likely to report body and ear piercing. Some 10 per cent of respondents report drinking alcohol or using other drugs when the procedures were undertaken. The prevalence of tattooing and body piercing is considerably higher among injecting drug users. Although the rates of transmission of bloodborne disease due to body decoration are believed to be low, the strong association with youth and with injecting drug use suggests considerable potential for transmission. Commun Dis Intell 2001;25:67-72.

Keywords: tattooing; body piercing; hepatitis C; HIV/AIDS; injecting drug use; prevalence

Tattooing and body piercing are the worldwide fashion craze of the 1990s. Body piercing, in particular, has become the fastest growing form of body decoration in the modern world, and is widely practised among the young.1,2 The body decoration craze, however, has occurred following the emergence of bloodborne viruses (BBVs), notably hepatitis B, HIV, and the hepatitis C virus (HCV). Tattooing and body piercing have become potential routes of BBV transmission.

Widespread tattooing and body piercing has also coincided with an unprecedented rise in injecting drug use (IDU) in Australia. Record numbers of deaths have occurred due to overdoses,3 while those who have injected illicit drugs in Australia. Record numbers of deaths have occurred due to overdose,4 while those who have injected illicit drugs in the previous year have trebled compared with a decade ago.5 There is a strong association between tattooing and body piercing and injecting drug use, partly due to youth but also to cultural values. While health promotion campaigns have much reduced the risk of infection due to shared needles, tattooing and body piercing remain a major potential source of infection for this group.

Health risks from body piercing

In western countries, HIV has spread primarily through sexual contact, and specifically homosexual contact, and secondarily through injecting drug use. In Australia, 90 per cent of AIDS cases in 1994 occurred among men with a history of homosexual contact.6 The spread of HIV through the sharing of contaminated needles has been much less prevalent. Reliable estimates are problematic, but about 2 to 5 per cent of injecting drug users are HIV positive compared to up to 27 per cent in parts of the United States of America. The risk of contracting HIV through tattooing or body piercing exists, but it is not believed to be high. In contrast to HIV, the risks of contracting HCV through some form of skin penetration are probably much greater. It has been estimated that there are 210,000 people in Australia with hepatitis C.7

The most important risk factor for contracting HCV is injecting drug use. Less common routes of transmission may include receipt of blood or blood products (although blood donor screening has vastly reduced this risk), needle stick injury, tattooing, body piercing, sexual activity and household contact such as blood contact and the sharing of toothbrushes and razors.8 The epidemiological support for some of these routes of transmission remains inconclusive and it is therefore difficult to provide estimates of the risk of transmission.

Information on recent patterns of HCV transmission in Australia can be gained by examining the data on incident HCV notifications reported to the National Notifiable Diseases Surveillance System. Most incident hepatitis C notifications in 1999 were in the 15 to 29 year age range. Notifications among males outnumbered females by 1.8 to 1 in 1999.9

Particular subgroups have a higher risk of BBV infection, notably the prison population. The prevalence of widespread tattooing and body piercing among prison inmates using non-sterile equipment, coupled with high rates of IDU and high turnover among inmates, makes prisons a major area of potential infection.10,11 Estimates of the prevalence of tattooing among the prison population vary from 51 per cent of males and 57 per cent of males in New South Wales in 199610 to 58 per cent of prisoners in Western Australia.12 In Victoria virtually all male injecting drug users in prison have been found to possess tattoos, with 60 per cent reporting that they acquired a tattoo while in prison.13 Studies show that the cleaning of tattooing equipment is less common than for injecting equipment, and that tattoo needles are often shared.12

Whether tattooing in prison is associated with acquiring HCV remains controversial, due to the overwhelming association of HCV with intravenous drug use. On
Table 1. Legal restrictions on tattooing in Australia

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Age of consent</th>
<th>Maximum penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Capital Territory</td>
<td>18 or written parental consent</td>
<td>$1,000 fine</td>
</tr>
<tr>
<td>New South Wales</td>
<td>16 or written parental consent</td>
<td>$22,000 fine</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>No specific legislation</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Queensland</td>
<td>17</td>
<td>$3,000 fine or 6 months imprisonment</td>
</tr>
<tr>
<td>South Australia</td>
<td>18</td>
<td>$1,000 fine or 3 months imprisonment</td>
</tr>
<tr>
<td>Tasmania</td>
<td>18</td>
<td>$500 fine or 6 months imprisonment</td>
</tr>
<tr>
<td>Victoria</td>
<td>18</td>
<td>$1,200 fine</td>
</tr>
<tr>
<td>Western Australia</td>
<td>18 or parental consent based on long standing cultural or religious belief</td>
<td>$400 fine, 6 months imprisonment or both</td>
</tr>
</tbody>
</table>

Method

The National Drug Strategy Household Survey is the sixth in a series of surveys conducted by the Department of Health and Aged Care since 1985. The survey is designed to examine awareness, attitudes and behaviour relating to drug use and drug problems, and to assess changes in these attitudes and behaviours. The 1998 survey was conducted between June and September by the Roy Morgan Research Centre and was based on a stratified multi-stage sample. The sample was designed to provide a random sample of households within each geographical stratum.14,15

The survey had three separate but related samples. The first sample was a national random sample, stratified by region, of persons aged 14 years and over living in households. The second sample was collected from households included in the first sample where there was more than 1 person over the age of 14 years; respondents were the youngest persons in the household, other than the respondent included in the first sample. The third sample was collected from different, randomly selected households in the same areas as households in the first sample, but in capital cities only; these respondents were aged between 14 and 39.

The first sample used a personal interview schedule with a self-administered questionnaire for the sensitive drug use sections. The second and third samples used a self-administered questionnaire only. In total, 4,012, 1,983 and 4,035 people participated, representing effective response rates of 54.5 per cent, 48.2 per cent, and 33.5 per cent, respectively.

Analyses indicated few statistically significant differences between the samples which allowed them to be pooled for analysis.15 The samples were weighted to adjust for age, gender, stratum, and household size and type.13 Of the total sample of 10,340 respondents, 1,200 were aged between 40 and 49 years, 806 between 50 and 59 years, and 1,134 were aged over 60 years.

Statistical tests and confidence intervals were adjusted to take account of the ‘effective sample size’ by dividing the total number of respondents by a ‘mean design effect’.15 Standard chi square tests were based on the assumption that the dataset was reasonably large, and that the tables were densely populated and well balanced (i.e. has asymptotic properties). When these assumptions were not met exact tests were calculated using Monte Carlo approximation.16 The exact significance was always reliable, regardless of the size, distribution, sparseness, or balance of the data.
Patterns of body decoration in the population

The most common form of body decoration is ear piercing. Table 2 shows that nearly 1 in 3 of the population aged 14 years and over reported having had their ears pierced at some point in their lives. The prevalence is much higher among women than men; in 1998, 44.4 per cent of women reported having had their ears pierced, compared to less than half that proportion for men. Around 1 in 10 people have had a tattoo at some point in their lives, with more men (11.9%) than women (8.5%) falling into this category. Body piercing is the least common form of body decoration; 6.7 per cent reported undergoing this procedure at some stage in their lives.

The estimates for those who had undergone these procedures in the past year show that nearly 5 per cent of women had their ears pierced, which represents 349,564 women (95% CI: 273,848-425,675). Just under 3 per cent of men reported having acquired a tattoo in the previous 12 months, representing a population estimate of 180,974 men (95% CI: 125,856-236,245). It is also notable that nearly 2 per cent of women reported acquiring a tattoo during that period. Overall, nearly 1 in 3 Australians possess some form of body decoration, with twice as many women falling into the category as men. About 1 in every 16 people undergo some form of body piercing procedure each year.

In addition to marked gender differences in the use of body decoration, there are also significant age variations. The current popularity of tattoos means that the prevalence is much higher among the young (Figure 1). Among young men aged about 20, around 25 per cent reported having a tattoo, compared with 20 per cent of women of the same age. Thereafter, the prevalence of tattooing in the population declines significantly, particularly among those aged in their 50s and 60s, where only around 5 per cent reported a tattoo. Reflecting the prevalence of tattooing among the young, about 1 in 8 younger men said that they had acquired a tattoo in the previous 12 months, compared to 1 in 16 women. Interestingly, there is an upward trend in recent tattooing among older women.

Ear piercing is more common among women than men, but again the age trends suggest that it is becoming increasingly prevalent among younger men. Unlike tattoos, however, Figure 2 shows that ear piercing is widespread among men aged in their late 20s and 30s, as well as among those in their late teens and early 20s. Prevalence is highest among men aged in their mid-20s, where 30 per cent have had their ears pierced. Among younger women, nearly 70 per cent report having undergone the procedure, although the figures are much less for older women.

As with tattooing and ear piercing, body piercing shows the same concentration among the young, notably among younger women. Around 1 in 5 women aged about 20 report

<table>
<thead>
<tr>
<th>Table 2. Prevalence of body decoration, 1998, by sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent undergoing</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Tattoo</td>
</tr>
<tr>
<td>Pierced ears</td>
</tr>
<tr>
<td>Pierced body</td>
</tr>
<tr>
<td>At least one of above)</td>
</tr>
<tr>
<td>(n)</td>
</tr>
</tbody>
</table>

* Males statistically significantly different from females at p < .01, two-tailed test.

Figure 1. Lifetime prevalence of tattooing, Australia, 1998, by age and sex

Figure 2. Lifetime prevalence of ear piercing, Australia, 1998, by age and sex
having had their bodies pierced, a figure that declines to half
that proportion among those just 10 years older. Body
piercing is less common among younger men, although it is
notable that about 1 in 8 younger men reported having
undergone the procedure and among men aged in their late
40s and early 50s, the prevalence of body piercing actually
exceeded that of women. This may reflect its popularity
among older homosexual men.

During the 12 months prior to the survey, more young
women than men said that they had engaged in body
piercing. About 7 per cent of younger women reported
having had their bodies pierced in the past 12 months, as
compared to around 3 per cent of males. As with tattooing,
the prevalence of this activity declines with age, the major
exception being older women, where a small percentage
report recent body piercing.

**Body decoration and drug use**

The survey respondents who reported having a tattoo or
having had their bodies pierced were asked if they were
under the influence of alcohol or drugs while undergoing the
procedure. Table 3 shows that alcohol or drugs affected
significant proportions of those acquiring a tattoo at the time
of the procedure. Among those who were tattooed in the
past 12 months, the figure least likely to be subject to recall
bias, about 10 per cent, reported having been influenced by
drugs at the time. The same estimate for those undergoing
body piercing is slightly less at 7 per cent.

There are significant gender patterns in these findings, with
men being much more likely to report being influenced by
drugs than women. For example, of those aged in their 20s
who said that they were tattooed in the previous 12 months,
7 per cent of women reported being affected by alcohol or
drugs at the time, compared to 19 per cent of men. Similarly,
among those of the same age group who reported body
piercing in the previous 12 months, 2 per cent of women said
they were influenced by drugs compared to 26 per cent of
men. Although self-regulation among tattooists and body
piercers normally precludes a procedure being conducted
on a person who is obviously intoxicated or affected by
drugs, the evidence suggests that in the case of men this
rule is frequently breached.

The survey included measures of whether or not the respon-
dent reported having injected illicit drugs at any point in their
lifetime and in the previous 12 months. A total of 2.1 per cent
(sample n = 198) reported lifetime injecting drug use, and
0.8 per cent (sample n = 72) said that they had injected an
illicit drug in the previous 12 months. Injecting drug users
had substantially higher proportions that had undergone
tattoo or body piercing compared to the rest of the pop-
ulation, and a significant minority had undergone these
procedures in the past year.

Table 4 shows that lifetime injecting drug users record four
times the rate of tattooing compared to the general pop-
ulation, and among those who have injected in the past
12 months, more than five times the population rate. Current
injecting drug users are also more likely to have engaged in
ear and body piercing; nine times more injecting drug users
reported having had their bodies pierced in the previous
year compared to the general population. The data suggest
that recent experience of body decoration may be increas-
ing, particularly in regard to body piercing among
injecting drug users. For example, 16 per cent of such users
said that they had had their body pierced in the previous
12 months compared with 11 per cent of lifetime injecting
drug users and 2 per cent of the general population.

**Discussion**

Throughout history and across numerous cultures, body
decoration has been used for many purposes. Western
societies have often viewed it as unhealthy and have usually
defined people who adopt it as deviant. Yet body decoration
is ‘perhaps the oldest art known to human beings, and the
most ancient method of expressing personal and communal
spiritual beliefs’. In the past 20 years tattooing has experi-
enced a social renaissance, embracing a better educated,
more affluent population. By contrast, body piercing pract-
ices remain virtually undocumented but like tattooing there
has been a noticeable shift in the demographic profile, from
being a largely homosexual practice to adoption by middle
class heterosexuals of both sexes. This change is
reflected in Australia with significantly more young people
engaging in body piercing.

**Table 3. Alcohol or drug influence during body procedure, 1998**

<table>
<thead>
<tr>
<th></th>
<th>Drinking alcohol/taking drugs</th>
<th></th>
<th></th>
<th>Sample (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Don't know/ can't recall</td>
<td></td>
</tr>
<tr>
<td><strong>Tattoo</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td>10.9</td>
<td>52.8</td>
<td>36.3</td>
<td>963</td>
</tr>
<tr>
<td>Past 12 months</td>
<td>10.1</td>
<td>78.3</td>
<td>11.6</td>
<td>206</td>
</tr>
<tr>
<td><strong>Ear piercing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td>3.6</td>
<td>69.7</td>
<td>26.6</td>
<td>2990</td>
</tr>
<tr>
<td>Past 12 months</td>
<td>5.0</td>
<td>75.6</td>
<td>19.3</td>
<td>357</td>
</tr>
<tr>
<td><strong>Body piercing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td>5.2</td>
<td>45.8</td>
<td>49.1</td>
<td>638</td>
</tr>
<tr>
<td>Past 12 months</td>
<td>7.1</td>
<td>71.4</td>
<td>21.4</td>
<td>168</td>
</tr>
</tbody>
</table>

All associations statistically significant at p <.01, two-tailed test.
Although the reasons currently advanced for body decoration vary, three common themes emerge: the importance of pain; the confirmation of identity; and self-stigmatisation. Withstanding pain is important to gender constructions and is seen as a rite of passage into adulthood, particularly for young males. It may signal initiation into a particular gang or social group and demonstrate loyalty. Higher rates of participation in risk behaviours, including criminal behaviour, may partly account for the higher rates of body decoration among men. These activities can be social events and may explain the link between intoxication and body decoration noted above. Body decoration has also been recognised as a major concern in prisons, where self-mutilation is common.

For women, body decoration can symbolise gender rebellion, blurring the boundaries between male and female roles. This may account for its increasing prevalence among younger women, particularly with respect to body piercing. As body decoration is often frowned upon in Western societies, women tend to choose adornments that are not publicly visible which probably accounts for a slightly lower rate of overall participation in body modification practices. Women do exceed men in the rates of ear piercing, but this practice has been widely accepted for women and only recently for men.

Regulatory control of those who provide tattooing and body piercing services is essential to the control of infectious diseases. Infections can occur when needles and other sharp instruments are not thoroughly cleaned and sterilised. But infections can also be transmitted when other materials are not clean or handled and used unhygienically, and when operators, their premises and their sterilisation equipment are not clean. Given that these data indicate increasing prevalence of body decoration practices, particularly among the young, the regulation of the industry is necessary to ensure that body modification does not become a major source of the transmission of bloodborne viruses.

A 1998 review of Australia’s response to HCV found that the implementation of infection control programs was not fully developed in even a majority of states and territories. More importantly, few jurisdictions reported that their current programs were fully effective.¹ The necessity for training skin penetration practitioners is exemplified by the 10 per cent of respondents who reported being influenced by alcohol or drugs when they obtained a tattoo and the 8 per cent who reported being under their influence when they engaged in body piercing in the past 12 months. As some of these activities are social events, it is also important that individuals and friends make informed decisions. Education strategies informing young people about the risks in body modification should be a high priority.

References


1. Communicable Disease Control Branch, Department of Human Services South Australia.

2. Environmental Health Officer, Corporation of the City of Adelaide, South Australia.

3. Institute of Medical and Veterinary Science, South Australia.