

Who Gets Tattoos? Demographic and Behavioral Correlates of Ever Being Tattooed in a Representative Sample of Men and Women

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PURPOSE: Despite recent increases in the popularity of tattooing, little is known about the prevalence and characteristics of adults who have ever been tattooed. We investigated demographic and behavioral correlates of ever getting tattooed in an adult population.

METHODS: Computer-assisted telephone interviews were completed by a representative sample of 8656 men and women ages 16–64 years in Australia.

RESULTS: A total of 14.5% of respondents had ever been tattooed, and 2.4% of respondents had been tattooed in the year before the interview. Men were more likely than women to report a tattoo, but the highest rates of tattooing were found among women in their 20s (29.4%). Men and women ages 20–39 were most likely to have been tattooed, as were men with lower levels of education, tradesmen, and women with liveout partners. Tattooing was also associated with risk-taking behaviours, including smoking, greater numbers of lifetime sexual partners, cannabis use (women only) and ever having depression (men only).

CONCLUSIONS: Tattooing has increased in popularity during the past decade. Yet tattoos still appear to be a marker for risk-taking behavior in adults.

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INTRODUCTION

In recent years, tattooing has dramatically increased in popularity among both men and women. Once the domain of gangs, prisoners, and specific subcultures, tattoos are now regularly seen on celebrities, athletes, and middle-class young people. Given this growth in popularity, it is likely the prevalence and characteristics of those who have been tattooed have changed in the past decade.

Most empirical research on tattooing to date has focused on either adolescents or prisoners. Studies in these populations have mainly reported the prevalence of tattoos (1–13) and motivations for getting them (14). In a number of studies authors have also reported tattooing and body piercing to be associated with risk-taking behavior. Among

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adolescents, tattooing has been associated with drug (4, 12, 15–17) and alcohol use (4, 17, 18), increased levels of sexual activity (12, 15, 17), suicide ideation (15), and illegal/violent behaviour (12, 16). It has even been suggested that clinicians should use tattooing as an indicator for further investigation into risk-taking behavior in adolescents (12, 15–18).

Surprisingly, little research in the recent past has focused on tattooing in adults. A study using random digit dialling in the United States in 2004 surveyed 500 men and women ages 18–50 years (response rate 33%). Overall, 24% of respondents had tattoos, with those who were younger, lower paid, had spent time in prison, used alcohol or drugs, and had achieved lower levels of education reporting the highest levels of tattooing (19).

Two large national studies have previously reported on the prevalence of tattooing in Australian adults. In 1998 a random survey of more than 10,000 Australian subjects aged 14 years and older found that 10.1% had ever been tattooed and 2.2% had been tattooed in the past 12 months (response rate 34%–55%). The authors also reported greater rates of tattooing among younger men and women and among injecting drug users (20). The Australian Study of Health and Relationships surveyed more than 19,000 men and women ages 16–59 years in 2001–2002 and found 12.6% of respondents had ever been tattooed, with 2.5% of the sample being tattooed in the year before the survey

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AOR CI =

| Selected Abbreviations and Acronyms |
|-------------------------------------|
| = adjusted odds ratio |
| confidence interval |

(response rate 73%) (21). Both Australian studies reported greater rates of tattooing among men.

Despite recent increases in the profile and popularity of tattooing, little is known about characteristics of individuals who get tattoos. Furthermore, it is not known whether tattooing is still a marker for risk-taking behavior in adults. The current study used a representative sample of Australian men and women ages 16-64 years to report demographic and behavioral differences between those who have and have not been tattooed, with particular interest in risk-taking behaviors. In Australia, restrictions and regulations for tattooing and other forms of skin penetration are the responsibility of each State and Territory. Age of consent for tattooing varies from 16 years in New South Wales to 18 years in most other States; the Northern Territory has no specific legislation regarding age of consent. States also differ on whether tattoo premises need to be registered, standards of care and infection control and training requirements (22).

METHODS

Recruitment

The present study was a component of the Australian Longitudinal Study of Health and Relationships (23). This study surveyed 4290 men and 4366 women in all states and territories of Australia in 2004–2005.

Survey

Respondents were asked a range of sociodemographic questions, including age, education, occupation, partner status, residential location, country of birth, and sexual identity. Participants were next asked a series of behavioral questions, including use of tobacco, alcohol, and cannabis; ever been told by a doctor you have depression; and ever had a sexually transmitted infection (self-reported diagnosis of chlamydia, genital herpes, genital warts, syphilis, gonorrhoea, pelvic inflammatory disease, bacterial vaginosis, trichomoniasis. or pubic lice). Questions about lifetime numbers of sexual partners (any form of sexual experience) were also asked about opposite and same-sex partners. These responses were combined to calculate total lifetime sexual partners.

Finally, participants were asked "have you ever been tattooed?" Those who said yes were then asked, "were any of your tattoos done in the last 12 months?" Respondents who indicated they had a tattoo done in the last 12 months were asked "where did you go to have the last tattoo done?" Possible responses included at a parlor/professional in Australia, chemist/beauty salon/hairdresser in Australia, at home/friend's, in prison, overseas, and overseas in prison.

Procedure

The survey was conducted during 2004 and 2005 by the use of computer-assisted telephone interviewing. Stratified by sex, a sample of households was drawn by the use of random digit dialling, as described previously (24). After having the study explained to them, participants either gave their verbal consent to be interviewed or refused. Of those contacted, 56.0% agreed to participate. Age was the only selection criterion used in this study, with participants interviewed only if aged between 16 and 64 years. Where two or more eligible respondents lived in a household, a computer-generated algorithm randomly chose one to be interviewed by birthday. All interviews were conducted in English. Approval for this study was granted by the human research ethics committees of La Trobe University, the University of New South Wales, and Deakin University.

Data Analysis

All frequencies were weighted by household size and rounded to the nearest integer. Because a test for interaction between age and sex with the use of logistic regression showed that the effect of age differed significantly by sex, correlates of tattooing were examined separately for men and women by the use of logistic regression. Chi-squared tests were first used to assess bivariate associations between ever been tattooed and variables of interest for each sex. Variables were only included in the initial multivariate logistic regression models if bivariate analysis produced a p value less than .25. The least significant variables were sequentially removed from the models until all remaining variables were statistically significant at p < .05. Removed variables were then checked one at a time to ensure they were not significant in the final model. All analyses were weighted by household size. P-values reported are for design-based F statistics from the weight-adjusted χ^2 tests (unadjusted) and Wald tests (adjusted) of the overall effect of each factor. Effect estimates are reported as adjusted odds ratios (AOR) with 95% confidence intervals (CI). Analyses were conducted using Stata, version 10.1 (StataCorp, College Station, TX).

RESULTS

A total of 8656 men and women completed the interview; of these respondents 14.5% had ever been tattooed. Overall, men were significantly more likely than women to report they had been tattooed (15.4% vs. 13.6%, p = .03), but the effect of sex differed by age (p < .001). A greater prevalence of tattooing was found in 20- to 29-year-old women



FIGURE 1. Prevalence of ever getting a tattoo by age and sex.

than in 20- to 29-year-old men (p = .008), whereas among men, tattooing was more common in the older age groups (40–49 years, p < .001; 50+ years, p < .001; Fig. 1).

Overall, 2.4% of respondents had been tattooed in the year before the interview. Of these, 90.7% reported being tattooed by a professional, 3.6% reported being tattooed at home or at a friend's house and 3.2% had been tattooed overseas. The rest were tattooed at a chemist or clinic.

Characteristics of Men Who Have Tattoos

Demographic correlates of ever having been tattooed for men are displayed in Table 1. Age, education, and occupation were associated with having been tattooed after adjusting for other demographics and behaviors. Almost one in four men ages 30–39 years reported having a tattoo. Compared with these men, those younger than the age of 20 and those aged 40 or more were significantly less likely to have been tattooed. Increasing levels of education reduced the likelihood of men reporting tattoos, while tradesmen were more likely to have a tattoo than professionals. Sexual identity was not associated with having been tattooed.

A number of behaviors were associated with having a tattoo for men. Men who smoked had twice the odds of having been tattooed. Men with more lifetime sexual partners were more likely to have a tattoo, eg, 1 in 25 men who reported one sex partner or none reported a tattoo compared to 1 in 4 men who reported 11 or more lifetime sexual partners (AOR, 5.06; 95% CI, 3.15–8.13). Men who reported ever being told by a doctor they have depression had 1.3 times the odds of having a tattoo after adjusting for all other variables.

Characteristics of Women Who Have Tattoos

Demographic and behavioral correlates of ever been tattooed for women are displayed in Table 2. Age, education, and partner status were all associated with being tattooed. Compared with women aged 30–39 years, women younger than the age of 20 and those aged 40 or older were less likely to have been tattooed. Women with postsecondary education were also less likely to have been tattooed, whereas women who reported having a regular partner they did not live with were more likely to have been tattooed. Similar to men, sexual identity was not associated with having been tattooed after adjusting for the other variables.

After adjusting for all other variables, women who currently used tobacco and those who had used cannabis in the last 12 months were more likely to have been tattooed than women who did not use tobacco or cannabis. Increasing number of lifetime sex partners was also associated with a greater likelihood of being tattooed: 3% of women who reported one sex partner or none reported being tattooed compared to 30% of women with 11 or more lifetime sex partners (AOR, 6.41; 95% CI 4.13–9.96).

DISCUSSION

Tattoos have become increasingly prominent in Australia as evidenced by three large national studies. Studies in 1998 (20), 2001–2002 (21), and the current study in 2004–2005 have reported prevalences of 10%, 13%, and 15%, respectively. Furthermore, tattooing does not appear to be confined to certain subpopulations, with men and women in every demographic reporting having tattoos.

Certain groups were, however, more likely to have been tattooed. The overall finding that men were more likely than women to have been tattooed is consistent with the two previous Australian studies (20, 21) but contradicts a small study among adults in the United States (19) and a number of adolescent studies (10, 12, 13) in which the authors found no differences between males and female subjects.

Despite these overall findings, gender differences were found in certain age groups. A greater proportion of women in their 20s reported getting a tattoo, whereas in the older age groups tattoos were more common among men. Furthermore, tattooing was most popular among 20- to 39-year-old respondents. Although we do not have data on the age at which subjects got a tattoo, these findings show changing patterns and motivations for getting tattoos in the community. In the 1960s, 1970s, 1980s and early 1990s when the oldest respondents were most likely tattooed and tattooing was a male-dominated practice, motivated by group affiliations such as gangs and prisoners and confined to certain subcultures (14, 25, 26). More recently however, in a 2007 review authors found the most common reasons mentioned in the literature related to embellishments of the body, art, fashion, and individuality (14).

Tattooing was popular among men who had not finished secondary school, tradesmen, and women who did not live with their partners, whereas men and women who had completed postsecondary education were less likely to

TABLE 1. Demographic and behavioral correlates of ever getting a tattoo for 4290 men

| | % tattoo | Unadjusted OR | Adjusted OR* |
|---|----------|---------------------|--------------------|
| Demographics | | | |
| Age (4290) | | <i>p</i> < .001 | p < .001 |
| 16–19 (367) | 5.4 | 0.19 (0.10–0.35) | 0.27 (0.14–0.55) |
| 20-29 (737) | 22.3 | 0.95 (0.73–1.23) | 1.03 (0.77–1.39) |
| 30-39 (810) | 23.2 | _ | _ |
| 40-49 (1054) | 16.3 | 0.64 (0.51-0.81) | 0.60 (0.46-0.77) |
| 50 + (1322) | 87 | 0.32(0.24-0.41) | 0.33 (0.25–0.44) |
| Education (4289) | 0.1 | b < 0.01 | b < 001 |
| Less than secondary (1056) | 21.7 | 1 37 (1 12 - 1 67) | 1.58(1.25-1.99) |
| Secondary/college (2205) | 16.8 | 1.57 (1.12 1.67) | 1.50 (1.25 1.55) |
| Postsocondary (1028) | 5.6 | (0.29)(0.22)(0.39) | 0.38 (0.28, 0.52) |
| $\Omega_{\text{acupation}}(1020)$ | 5.0 | 0.29(0.22-0.39) | 0.38 (0.28 - 0.32) |
| $\frac{D}{2} = \frac{D}{2} = \frac{1}{2} \left(\frac{1504}{2} \right)$ | 0.4 | p < .001 | p < .001 |
| $\frac{1}{2}$ | 9.4 | | |
| Associate professional (823) | 15.0 | 1.09(1.29-2.21) | 1.00 (0.01-1.45) |
| $\frac{1}{1} radesperson (1151)$ | 23.1 | 2.89 (2.32–3.59) | 1.70 (1.33–2.17) |
| Unskilled (634) | 18.1 | 2.13 (1.60–2.82) | 1.22 (0.87–1.70) |
| Residential location (4228) | 10 5 | p = .004 | p = .26 |
| Cities/metro (2196) | 13.7 | _ | _ |
| Regional/remote (2032) | 17.1 | 1.30 (1.08–1.55) | 1.13 (0.92–1.39) |
| Country of birth (4288) | | p = .53 | p = .11 |
| Australia (3313) | 15.6 | - | - |
| Overseas (975) | 14.7 | 0.93 (0.75–1.16) | 1.23 (0.95–1.58) |
| Partner status (4290) | | p = .50 | p = .07 |
| No partner (989) | 15.0 | 0.99 (0.79–1.24) | 0.73 (0.55–0.95) |
| Live-out partner (465) | 17.5 | 1.19 (0.87–1.62) | 0.88 (0.63–1.25) |
| Live-in partner (2836) | 15.1 | _ | _ |
| Sexual identity (4290) | | p = .54 | p = .77 |
| Heterosexual (4187) | 15.3 | _ | _ |
| Other (103) | 17.6 | 1.18 (0.69–2.02) | 0.91 (0.50-1.68) |
| Behavior | | | |
| Current smoker (4284) | | <i>b</i> < .001 | <i>b</i> < .001 |
| Nonsmoker (3221) | 10.7 | _ | - |
| Smoker (1063) | 29.6 | 3.53 (2.93-4.24) | 2.04 (1.65-2.51) |
| Alcohol use (4289) | | b = .008 | b = .04 |
| None (629) | 12.1 | F | F |
| Less than weekly (1149) | 17.9 | 1.58 (1.17-2.14) | 1.24 (0.88–1.75) |
| Weekly to daily (2511) | 15.0 | 1 28 (0.96–1.69) | 0.93 (0.67–1.29) |
| Cannabis $12m$ (4281) | 1500 | b < 001 | b = 18 |
| No (3795) | 13.5 | p < | p |
| Vos (486) | 20.0 | 274(217345) | 1 21 (0.02, 1.50) |
| Depression (4270) | 29.9 | 2.17(2.17-3.75) | 1.21(0.92-1.99) |
| N_{-} (2669) | 14.2 | p < .001 | p = .04 |
| NO(5000) $N_{rec}(602)$ | 14.3 | - 1.70 (1.36, 2.11) | |
| $I = \{0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0$ | 22.0 | 1.70(1.30-2.11) | 1.50 (1.01-1.07) |
| Lifetime sex partners (4177) | 4.2 | p < .001 | p < .001 |
| 0-1(707) | 4.2 | - | - |
| 2-3(1191) | 10.7 | 2.74 (1.70-4.40) | 2.07 (1.26-3.38) |
| 6-10 (907) | 16.4 | 4.49 (2.81–7.17) | 3.18 (1.95–5.18) |
| 11+(1372) | 24.4 | 7.38 (4.70–11.57) | 5.06 (3.15-8.13) |
| History of STI (4290) | | <i>p</i> < .001 | p = .07 |
| No (3601) | 14.2 | — | — |
| Yes (689) | 21.6 | 1.67 (1.35–2.06) | 1.25 (0.98–1.60) |

AOR = adjusted odds ratio; CI = confidence interval; STI = sexually transmitted infection.

*AORs and 95% CIs for having a tattoo vs not having a tattoo. Adjusted for age, education, occupation, use of tobacco, alcohol, depression, and lifetime number of sex partners.

have a tattoo. Similar findings relating to education attainment were also reported in the U.S. national study (19).

Having been tattooed also correlated with certain risktaking behaviors, most notably smoking, cannabis use, and greater numbers of lifetime sexual partners. Associations between tattooing and risk-taking behavior have also been reported in studies among adults (19) and adolescents (4, 12, 15–18). Although the direction of the relationship

TABLE 2. Demographic and behavioral correlates of ever getting a tattoo for 4366 women

| | % tattoo | Unadjusted OR | Adjusted OR* |
|-------------------------------|----------|------------------------------|--|
| Demographics | | | |
| Age (4366) | | <i>p</i> < .001 | <i>p</i> < .001 |
| 16–19 (318) | 6.9 | 0.26 (0.14–0.47) | 0.30 (0.15–0.57) |
| 20-29 (697) | 29.4 | 1.45 (1.14–1.84) | 1.41 (1.08–1.86) |
| 30-39 (975) | 22.3 | _ | _ |
| 40-49 (1091) | 9.8 | 0.38 (0.29–0.49) | 0.37 (0.28–0.50) |
| 50 + (1285) | 3.3 | 0.12 (0.08-0.17) | 0.14 (0.09–0.20) |
| Education (4365) | | p < .001 | p < .001 |
| Less than secondary (1212) | 13.5 | 0.86 (0.69–1.06) | 1.15 (0.89–1.50) |
| Secondary/college (2083) | 15.5 | _ | _ |
| Post-secondary (1070) | 10.0 | 0.60 (0.47-0.78) | 0.52 (0.39-0.69) |
| Occupation (4252) | | b < .001 | b = .83 |
| Professional (1454) | 9.8 | | F |
| Associate Professional (1654) | 15.2 | 1.64 (1.31-2.06) | 1.09 (0.83–1.42) |
| Tradesperson (182) | 14.9 | 1.60(1.01-2.55) | 1.03 (0.03 - 1.12) 1.04 (0.60 - 1.82) |
| Unskilled (962) | 17.3 | 1.91 (1.49–2.46) | 1.16(0.84 - 1.61) |
| Residential location (4309) | 11.5 | b = 51 | b = 10 |
| Cities/metro (2200) | 13.2 | p = .51 | p = .10 |
| Begional/remote (2109) | 13.0 | 1.06 (0.88-1.28) | 1 20 (0 97-1 49) |
| Country of birth (4365) | 15.7 | b = 002 | b = 63 |
| Australia (3427) | 14.5 | p = .002 | p = .05 |
| $O_{\text{verseas}}(938)$ | 10.3 | - 0.68 (0.53-0.86) | 0.93 (0.71 - 1.23) |
| Partner status (4366) | 10.5 | b < 001 | b = 03 |
| No partner (981) | 14.3 | p < .001 1 30 (1 03 1 63) | p = .05 1 24 (0 94, 1 63) |
| Live out partner (463) | 25.6 | 2.66(2.03, 3.40) | 1.24(0.94-1.03) 1.49(1.08, 2.05) |
| Live-out partner (2022) | 25.0 | 2.00 (2.03-3.49) | 1.49 (1.00-2.03) |
| Souvel identity (4366) | 11.4 | - | - t - 70 |
| Hatamanul (4257) | 12.2 | p = .01 | p = .10 |
| $\frac{1}{2}$ | 15.5 | | - |
| Patassian | 24.0 | 2.00 (1.19-3.57) | 1.14 (0.36-2.23) |
| Denavior (4261) | | t. < 001 | t < 001 |
| Current smoker (4501) | 0.1 | p < .001 | p < .001 |
| Non-smoker (3381) | 9.1 | | - |
| Smoker (980) | 29.2 | 4.12 (3.40-5.00) | 2.57 (2.03-3.25) |
| Alconol use (4500) | 10.1 | p < .001 | p = .08 |
| None (1136) | 10.1 | - | - |
| Less than weekly (1510) | 16.3 | 1.(4(1.35-2.23)) | 1.31 (0.99–1.75) |
| Weekly to daily (1720) | 13.6 | 1.41 (1.09–1.80) | 1.05 (0.77–1.42) |
| Cannabis 12m (4359) | 11.0 | p < .001 | p = .003 |
| No (4089) | 11.8 | - | - |
| Yes (270) | 40.4 | 5.07 (3.82–6.71) | 1.70 (1.20–2.39) |
| Depression (4361) | | p = .005 | p = .81 |
| No (3336) | 12.7 | _ | |
| Yes (1025) | 16.4 | 1.35 (1.10–1.66) | 0.97 (0.76–1.24) |
| Lifetime sex partners (4202) | | <i>p</i> < .001 | <i>p</i> < .001 |
| 0–1 (1197) | 3.3 | — | - |
| 2–5 (1628) | 11.4 | 3.76 (2.53–5.59) | 2.66 (1.76–4.02) |
| 6–10 (788) | 20.3 | 7.41 (4.93–11.13) | 4.40 (2.85–6.78) |
| 11 + (589) | 30.0 | 12.48 (8.32–18.74) | 6.41 (4.13–9.96) |
| History of STI (4366) | | <i>p</i> < .001 | p = .61 |
| No (3639) | 12.5 | - | - |
| Yes (727) | 19.1 | 1.65 (1.33–2.06) | 0.93 (0.71–1.22) |

AOR = adjusted odds ratio; CI = confidence interval; STI = sexually transmitted infection.

*AOR and 95% CIs for having a tattoo versus not having a tattoo. Adjusted for age, education, partner status, use of tobacco and cannabis, and lifetime number of sex partners.

between tattooing and risk-taking behavior in adults is not currently known, it may be that in some groups tattooing still represents and is associated with resistance and rebellion towards more conservative parts of society. Strengths of this study are the large sample size and the representative nature of the sample. Limitations include reliance on self-report and social desirability bias. The current study says nothing about motivations for being tattooed, the size, location, type and number of tattoos a respondent has, or whether the respondent has had or would like to have their tattoo/s removed. Future research investigating these topics would enrich understandings of current tattoo practices in the community.

Tattooing appears to have moved into mainstream society, with roughly one in seven Australian adults reporting having been tattooed. Despite the recent gentrification of tattooing, tattoos still appear to be associated with risktaking behavior in adults. Although the risk of acquiring blood-borne virus infections such as hepatitis C and HIV during tattooing is relatively small, greater awareness of how to avoid these risks is still needed.

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