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- 1 Lowe LA, Simpson A, Woodcock A, Morris J, Murray CS, Custovic A. Wheeze phenotypes and lung function in preschool children. *Am J Respir Crit Care Med* 2005;171:231-7.
- 2 Frank P, Ferry S, Moorhead T, Hannaford P. Use of a postal questionnaire to estimate the likely under-diagnosis of asthma-like illness in adults. *Br J Gen Pract* 1996;46:295-7.
- 3 Frank PI, Wicks PD, Hazell ML, Linehan MF, Hirsch S, Hannaford PC, et al. Temporal change in the prevalence of respiratory symptoms and obstructive airways disease 1993-2001. *Br J Gen Pract* 2005;55:596-602.
- 4 Keil U, Wieland S. International asthma and allergy study. *Lancet* 1992;340:46.
- 5 Kuehni CE, Brooke AM, Silverman M. Prevalence of wheeze during childhood: retrospective and prospective assessment. *Eur Resp J* 2000;16:81-5.
- 6 García-Marcos L, Suarez-Varela MM, Canflanca IM, Garrido JB, Quiros AB, Lopez-Silvarrey Varela A, et al. BCG immunization at birth and atopic diseases in a homogeneous population of Spanish schoolchildren. *Int Arch Allergy Immunol* 2005;137:303-9.
- 7 Masoli M, Fabian D, Holt S, Beasley R. The global burden of asthma: executive summary of the GINA Dissemination Committee report. *Allergy* 2004;59:469-78.
- 8 Morgan WJ, Stern DA, Sherrill DL, Guerra S, Holberg CJ, Guilbert TW, et al. Outcome of asthma and wheezing in the first 6 years of life. *Am J Respir Crit Care Med* 2005;172:1253-8.
- 9 Kurukulaaratchy RJ, Fenn MH, Waterhouse LM, Matthews SM, Holgate ST, Arshad SH. Characterization of wheezing phenotypes in the first 10 years of life. *Clin Exp Allergy* 2003;33:573-8.

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Body piercing in England: a survey of piercing at sites other than earlobe

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ABSTRACT

Objectives To estimate the prevalence of body piercing, other than of earlobes, in the general adult population in England, and to describe the distribution of body piercing by age group, sex, social class, anatomical site, and who performed the piercings. To estimate the proportion of piercings that resulted in complications and the proportion of piercings that resulted in professional help being sought after the piercing.

Design Cross sectional household survey.

Setting All regions of England 2005.

Participants 10 503 adults aged 16 and over identified with a two stage selection process: random selection of geographical areas and filling predefined quotas of individuals. Results weighted to reflect the national demographic profile of adults aged 16 and over.

Main outcome measures Estimates of the prevalence of body piercing overall and by age group, sex, and anatomical site. Estimates, in those aged 16-24, of the proportion of piercings associated with complications and the seeking of professional help.

Results The prevalence of body piercing was 1049/10 503 (10%, 95% confidence interval 9.4% to 10.6%). Body piercing was more common in women than in men and in younger age groups. Nearly half the women aged 16-24 reported having had a piercing (305/659, 46.2%, 42.0% to 50.5%). Of the 754 piercings in those aged 16-24, complications were reported with 233 (31.0%, 26.8% to 35.5%); professional help was sought with 115 (15.2%, 11.8% to 19.5%); and hospital admission was required with seven (0.9%, 0.3% to 3.2%).

Conclusions Body piercing is common in adults in England, particularly in young women. Problems are common and the assistance of health services is often required. Though serious complications requiring admission to hospital seem uncommon, the popularity of

the practice might place a substantial burden on health services.

INTRODUCTION

Few data indicate how many people have had a cosmetic body piercing, how often it is performed, and how often complications occur. Three surveys of the general population provide estimates of prevalence of body piercing (excluding earlobe piercing) of between 6.7% and 14%.¹⁻³ Two of these were recent studies, but none of them was performed in the United Kingdom. Complications are estimated to develop in 17% to 70%.⁴⁻⁷

The annual incidence of auricular perichondritis more than doubled from 1990-1 to 1997-8,⁸ possibly because of the increasing popularity of high ear piercing—that is, in the upper third of the pinna. On one survey of 115 general practitioners, 95% had seen a patient with a complication of piercing.⁹ In another study 62 of 64 dentists had seen patients with lip or tongue piercings in the previous 12 months, and 44% of respondents had seen patients with associated oral health problems.¹⁰

We estimated the prevalence of body piercing in England in those aged 16 and over; the proportion of piercings that resulted in complications; and the proportion of piercings that resulted in complications serious enough for further help to be requested.

METHODS

A market research company carried out the survey in January to March 2005 in 10 regions in England. See bmj.com for full details of the sampling process. A total of 694 different neighbourhoods were sampled, which were considered to be representative of neighbourhoods in England.

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A piercing (patent or healed over) was defined as “an opening in any part of the body (except the earlobes) through which jewellery might be worn.” We excluded soft earlobe piercings to achieve a larger sample size than would otherwise have been possible. Individuals were first asked “Have you ever had any body piercings—that is, NOT including any earlobe piercings?” Those who reported having ever had such a piercing were then asked a series of questions. For each of a maximum of 10 piercings recorded in the survey, the respondent was asked “Where on the body is/was the piercing?” “Which, if any, of the following health problems did you experience?” “Which, if any, of the following sources of professional help did you use?” All questions had various choices of answers. We used sampling weights, based on the national demographic profile of adults in England, to make results more representative of adults aged 16 or over in England and of the piercings they have. We used demographic variables to weight the sample. See bmj.com for further information and details of analysis.

RESULTS

In total, 10 503 adults aged 16 or over living in England in the period January to March 2005 answered questions about body piercing. Overall, 1049 of these adults (10%, 95% confidence interval 9.4% to 10.6%) had ever had a body piercing. The mean number of piercings per pierced individual was 1.71. Seven individuals reported having had at least 10 piercings.

In each age group piercing was more common in women than men and was about three times more common in women than men overall. Piercing was much more common in younger age groups, and there was a steady and marked fall in prevalence with increasing age. Nearly half the women aged 16-24 reported having had a piercing (305/659, 46.2%, 42.0% to 50.5%). Piercing was significantly less common in higher (A and B) social grades and in London than in other regions (prevalence ratio 0.68, 0.55 to 0.84; $P < 0.001$). Further analysis showed that this could not be explained by differences in age group, sex, or social grade.

Of all 1934 piercings, 33% were at the navel, followed by nose (19%), ear (13%), tongue (9%), nipple (9%), eyebrow (8%), lip (4%), genitals (2%), and some other part of the body (3%). The anatomical sites used for piercing varied by sex. In women, the most common piercings were, in order: navel, nose, ear, tongue, eyebrow, nipple, lip; and in men: nipple, eyebrow, ear, tongue, nose, lip, genitals. Genital piercing was not popular but is estimated to be about twice as common in men than in women. All sites of piercing were more common among 16-24 year olds, and this was particularly the case for lip and tongue piercings.

Four in five (1564/1943, 80%) piercings were performed in specialist piercing/tattooing shops, and with certain piercings such as tongue and navel, about 90% were performed in specialist shops. A worrying 9% of tongue piercings, however, were performed by

“non-specialists.” Compared with other types of piercings, piercings of the ears (excluding lobes), nose, lips, and genitals were more likely to be performed by “non-specialists.” At each anatomical site, even genital and tongue, several piercings were reported as having been performed by the individuals themselves or by a friend or relative.

Complications

Complications were reported in 533/1940 (27.5%, 24.8% to 30.3%) piercings, with problems thought serious enough to seek further help in 250/1940 (12.9%, 10.8% to 15.2%). In the group aged 16-24, in whom piercings and subsequent complications are likely to have been in the recent past, there was a slightly higher proportion of piercings in which complications developed and respondents sought further help.

The most common problems reported with piercings in those aged 16-24 were swelling, infection, and bleeding. Problems were most likely to be reported with tongue piercings, followed by piercings of the genitals and nipple. Help was most likely to be sought for piercings of the genitals, followed by the nipple and tongue. Serious complications that resulted in a hospital admission were significantly more likely to occur with piercings performed by a non-specialist (4/134, 3.0%, 0.7% to 11.9%) than with piercings performed by someone at a specialist piercing or tattooing shop (3/620, 0.5%, 0.1% to 2.0%) ($P = 0.01$). Help was sought most often from pharmacists, piercers, and general practitioners. Almost one in every 100 piercings in this age group resulted in a hospital admission.

DISCUSSION

Cosmetic body piercing is common in England, particularly in young women aged 16-24. Piercing is about three times more common in women than men in all age groups. The clear trend in prevalence of piercing by age group in both sexes confirms that piercing is favoured more by the young and is a fairly recent phenomenon. In those aged 16-24, complications were reported in almost a third of piercings, with about one in seven resulting in difficulties considered problematic enough to require professional help. Help was most often sought from pharmacists, piercers, or general practitioners, with almost one in 100 piercings resulting in a hospital admission.

Women particularly favoured navel, nose, ear, and tongue piercings, whereas men favoured nipple, eyebrow, ear, and tongue piercings. Nipple, eyebrow, and genital piercings were more common in men. Navel piercings were by far the most common piercing overall, accounting for 33%. All piercings were more common in young people, but particularly oral piercings. That piercing was less common in London than other regions might be related to ethnic, cultural, or religious differences.

About a third of all complications were associated with navel piercings, the most common type of

WHAT IS ALREADY KNOWN ON THIS TOPIC

Complications from body piercing are common
Published estimates of prevalence and the level of complications vary widely depending on the populations studied and definitions used

WHAT THIS STUDY ADDS

About one in 10 of the adult population of England has had a body piercing at a site other than the earlobe
Almost half of women aged 16-24 have had such a piercing
In those aged 16-24, health problems occurred with about a third of piercings and further help was sought in about one in seven, leading to hospital admission in about one in 100

piercing. Tongue piercings, however, most often resulted in a complication (usually swelling). About a half of tongue piercings resulted in a complication and about a quarter resulted in help being sought. Intimate (nipple and genital) piercings were less common but the chances of a complication occurring were relatively high (about a quarter of nipple piercings and about a half of all genital piercings resulting in help being sought). A high level of complications with such piercings has been reported by others.¹¹

Most piercings were performed in specialist piercing or tattooing shops, though self piercings were reported at every anatomical site, even the tongue. Piercings in settings other than specialist piercing/tattooing shops were more likely to result in a complication for which help was sought and were significantly more likely to result in a complication requiring a hospital admission.

Some complications are serious and can be fatal. There is some evidence to support the concerns raised about the transmission of bloodborne viruses through body piercing.¹² People choosing to be pierced and healthcare providers need to be aware of the possible serious negative outcomes.

Limitations

Our study might have been subject to some selection bias as the selection of the sample was not truly random. Moreover it is not known how many approaches led to a refusal or no contact being made, potentially introducing a further selection bias to our results. We consider that the sampling method and corrective weighting used, however, produced good estimates for all adults and all body piercings (excluding earlobe piercings) in England.

Data were collected with a self completed questionnaire to avoid embarrassment with regard to intimate piercings, but some recall or response bias remains possible. The maximum number of piercings recordable for each individual was 10. Of the seven individuals who reported at least 10, some bias could have occurred in their choice of which piercings to report. Respondents were limited to fixed categories of response and their responses were not verified. The detail of each complication was not captured and there

could have been some misclassification, such as confusion between infection and allergy.

We did not collect data on the date of piercing and the date of any complications so it was impossible to estimate a proper risk. But piercings and complications in those aged 16-24 will have occurred in the relatively recent past and restricting an analysis of complications to these 754 piercings is a more reliable basis for identifying which type of piercing is more likely to result in a complication.

Conclusions

If piercing remains fashionable, almost half the female population might eventually have had a body piercing at a site other than the earlobe. Even if serious complications are rare, the popularity of the practice and the fact that complications can occur long after the actual piercing, might place a considerable burden on health services for many years.

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Contributors: AB participated in the design, analysis and interpretation of the study, and drafted the paper. FN participated in the design, analysis, and interpretation of the study, commented on the drafts, and is guarantor. TN participated in the design and interpretation of the study, performed the statistical analyses, and commented on the drafts. NDN participated in the design, analysis, and interpretation of the study and commented on the drafts. All authors saw and approved the final version.
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Competing interests: NDN has acted as a paid hygiene consultant to acupuncturists and manufacturers of ear piercing equipment and an unpaid hygiene consultant to tattooists and beauty therapists. He has also acted as an expert witness in cases concerned with the hygiene of skin piercing.

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- Makkai T, McAllister I. Prevalence of tattooing and body piercing in the Australian community. *Commun Dis Intell* 2001;25:67-72.
- Stim A, Hinz A, Braehler E. Prevalence of tattooing and body piercing in Germany and perception of health, mental disorders, and sensation seeking among tattooed and body-pierced individuals. *J Psychosom Res* 2006;60:531-4.
- Laumann AE, Derick AJ. Tattoos and body piercings in the United States: a national data set. *J Am Acad Dermatol* 2006;55:413-21.
- Armstrong ML, Roberts AE, Owen DC, Koch JR. Contemporary college students and body piercing. *J Adolesc Health* 2004;35:58-61.
- Mayers LB, Judelson DA, Moriarty BW, Rundell KW. Prevalence of body art (body piercing and tattooing) in university undergraduates and incidence of medical complications. *Mayo Clin Proc* 2002;77:29-34.
- Simplot TC, Hoffman HT. Comparison between cartilage and soft tissue ear piercing complications. *Am J Otolaryngol* 1998;19:305-10.
- Greif J, Hewitt W, Armstrong ML. Tattooing and body piercing. Body art practices among college students. *Clin Nurs Res* 1999;8:368-85.
- Hanif J, Frosh A, Mamane C, Ghufoor K, Rivron R, Sandhu G. Lesson of the week: "high" ear piercing and the rising incidence of perichondritis of the pinna. *BMJ* 2001;322:906-7.
- Benon L, Silverwood A, Horth C, Johnson A, Dineen J. A piercing issue. *Environ Health J* 1999;Oct:316-8.
- Whittle JG, Lamden KH. Lip and tongue piercing: experiences and views of general dental practitioners in South Lancashire. *Prim Dent Care* 2004;11:92-6.
- Caliendo C, Armstrong ML, Roberts AE. Self-reported characteristics of women and men with intimate body piercings. *J Adv Nurs* 2005;49:474-84.
- Hayes MO, Harkness GA. Body piercing as a risk factor for viral hepatitis: an integrative research review. *Am J Infect Control* 2001;29:271-4.

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