Pulling teeth for Fashion: Dental modification in modern day Cape Town, South Africa

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SUMMARY

Friedling and Morris (2005) have reported that intentional removal of incisors as a form of dental modification is relatively common in Cape Town. In this paper we further report on the style of modification and the reasons for the modification. A survey of eight adjoining areas in the northern suburbs of the Cape Town Metropole in the Western Cape was done to investigate the current prevalence of this practice. The survey was conducted by means of a questionnaire. Three groups of study subjects (scholars, working people and retired people) were included to gain a perspective of the community in general. The individual ages ranged from 15 to 83-years-old. A total of 2167 individuals participated in this study. Forty one percent had modified their teeth. More males (44,8%) than females (37,9%) were involved in this practice. Six "styles" of modification were identified. The removal of the upper four incisors was by far the most common modification (93,7%). There were four reported reasons for dental modification i.e. gangsterism, peer pressure, fashion and medical (dental) or accidental. More than two thirds (69,8%) of individuals with modifications also wore dentures.

INTRODUCTION

After eruption, teeth interface with the environment in terms of disease, wear and cultural manipulation (Cruwys and Foley, 1986). In particular, because of their visibility and accessibility, the anterior teeth can be affected by intentional behaviours (extraction and filing), incidental behaviours (habitual abrasion such as that caused by pipe-smoking) and accidents (Davies, 1972). Cultural pressures, either from fashion or tradition, sometimes result in individuals altering the natural morphology of their teeth along the lines specific to their value system (Molnar, 1972). According to Molnar (1972), Milner and Larsen (1991) and Hillson (1996), such altering of teeth is concentrated on the incisors and canines because these teeth are visible in social intercourse. This altering of the incisors is the pattern we see among the people living in the area of Cape Town known as the Cape Flats.

There are aesthetic ideals for how teeth should 'appear' but these ideals and how they are attained, vary greatly in different cultures (Scott and Turner, 1997). The western ideal of dental beauty is straight, white, vertically positioned anterior teeth that are all present and accounted for (Scott and Turner, 1997). Except for correcting occlusal problems, individuals are less concerned with the appearance of their molars because these teeth are not often visible during social interactions. However, the western ideal of 'eye-catching' anterior teeth is not universal. In some cultures, straight white teeth are far from the ideal. Groups from many parts of the world, especially Africa and Southeast Asia, modify their tooth morphology through artificial deformation. These practices of dental modification range from the intentional removal of teeth to modifying crown form by filing, incising, chipping, staining, banding and insetting (Larsen, 1985; Alt and Pichler, 1998).

The perception of many South Africans is that a typical 'coloured' person has had his or her front teeth removed. Such a perception has all the hallmarks of a stereotype. Erasmus (2001), states that 'coloured' identities and stereotypes are not based on 'race mixture' but on cultural creativity shaped by South Africa's history of colonialism, slavery, segregation and apartheid. The stereotypes can be generated both by the community itself and by the perception of other communities. Data from this 2002 study (Friedling and Morris, 2005) have already demonstrated that the assumption of a 'coloured' dental stereotype is not true. Social class is a critical factor and while the practice of tooth removal is frequent among lower income groups, it is rare in higher income communities. More importantly, people of other South African racial categories who live in the same communities also practice the same form of dental modification (Friedling and Morris, 2005).

Dental modification in Africa

Historically, African dental modification has been found almost exclusively in tribal people (Briedenhann and Van Reenen, 1985). Erlandsson and Bäckman (1999) explain that the practice of dental modification is becoming rarer, especially where people are urbanised and education levels are higher. According to Sawyer and Allison (1992), in recent years dental modification appears to be limited to countries north in Africa and is no longer common in the southern regions. Van Reenen (1978a, 1978b, 1986) on his own and in collaboration with Briedenhann (1985, 1986) has written much about the practice of dental modification in Namibia. The practice did not always coincide with the onset of puberty as stated by the various communities. Van Reenen also verified that the practice is disappearing among the peoples of Namibia, although it is still encountered among the older people. The San did not have a specific style of dental modification of their own but copied a style practised by other peoples (Van Reenen and Briedenhann, 1985, 1986, Van Reenen, 1986). The style of dental modification, however, varied from one group to another and had tribal significance. Each ethnic group adopted an individual style of dental modification which was linked to geographical distribution of the tribes (Van Reenen, 1986, Briedenhann, 1987).

Van Reenen (1977) and Singer (1953) stated that dental modification was not regarded as a custom practised by the native peoples of South Africa. Despite this, Shaw (1931) reported that a small number of South African Bantu-speaking peoples in the skeletal samples of cadaver origin he had examined had modified teeth. The samples included Zulu, Xhosa, Sotho, some Namibians and some individuals from Zimbabwe. All were males and none of these had extracted teeth. Similarly Davies (1972) mentioned that tooth evulsion was found 'from the Sudan to the tribes of the Cape Province'. It appears as if the Broederstroom people (about 500AD) practiced tooth removal as a form of dental modification (Van Reenen, 1977) and that tooth removal or other forms of modification were present in prehistoric South Africa (Morris 1989, 1998).

Even if the practice of tooth modification was becoming rare in the South African historic period, the practice in early 20th century Cape Town was present. When Ralph Bunche visited Cape Town in 1937, he mentioned walking in District Six and having a 'coloured' girl smile at him with no front teeth (Edgar, 1992). Similarly, in his study of 'Cape Coloured' males, Van Wyk (1939) spoke about the difficulty in doing some of the head measurements because of the 'missing front teeth'.

Considerable attention has been directed toward the motivational bases for these dental modifications. There are numerous theories as to why dental modification is practiced and it seems that different people each have a different philosophy regarding this custom. Depending on the specific tribes or individuals involved, reasons given for extractions and filing of teeth have included initiation ceremonies concerning puberty, marriage or entry into a warrior society. Shaw (1931) reported reasons for modification that included punishment (from the Ashanti), ornamentation, and as a tribal mark of identity. Specific patterns of dental modification were performed in order to improve personal appearance, to provide a form of tribal and intra-tribal class identification, and to improve masticatory function (Gould, Farman and Corbitt, 1984). In a few cases the dental modification may have carried religious significance for the individual involved (Gould, *et al.*, 1984, Konnild, n.d). The practice was believed to enhance beauty among the Chokwe of Angola and the Democratic Republic of the Congo. The women of the Mhuila tribe of Southern Angola had their two upper central (maxillary) incisors removed as a form of traditional beautification carried out after puberty. The Tonga people in southern Zambia carried out a similar practice, but they removed all 4 maxillary incisors and tooth removal occurred in both sexes. David Livingstone alluded to a source of the custom that reflected the belief system of the cattle-keeping Mhuila and Tonga people (Jones, 1992, 2001). Those that removed their maxillary incisors were said to be like oxen, while those who retained their teeth were considered to resemble zebras. Oxen were venerated but zebras were hated. Singer (1953) also observed this practice in Namibia and Angola. The four upper incisors were knocked out according to tribal custom with no obvious connection to puberty rites. Once again, the reasoning was done that the dental modification made the people resemble oxen but not zebras.

In his 1969 paper, Pindborg stated that dental modification in Uganda persisted in populations due to local customs or superstitions. There the canines were removed in children for medical purposes i.e. to prevent fevers. Erlandsson and Bäckman (1999) added to this by stating that the extraction of the lower permanent incisors was usually for tribal identity or a treatment for an illness such as tetanus. Ritual dental modification as a treatment for illness has been applied for thousands of years and is still carried out – at a lower incidence. However, the custom is limited to isolated areas where accessibility to medical treatment is limited (Erlandsson and Bäckman, 1999). In his 1982 paper, Bachmayer stated that the high prevalence of dental modification among the San was because they were still living within a tribal system and were thus subject to fewer outside influences and the traditions simply remained in tact.

In his travels through Sub-Saharan Africa, Konnild (n.d.) observed many forms of dental modification in various countries. He stated that one of the reasons for removal of the lower incisors was to correctly enunciate Nilotic languages. Another of his reasons for tooth extraction was to ensure eligibility for marriage among the Dinka. In South Africa, Konnild (n.d.) decided that the tooth avulsion he observed was a form of dental modification related to the 'sexual life of the coloured people'. Van Wyk (1976) also mentioned tooth extraction to facilitate oral sex. Here individuals had removed their central upper incisors to apparently facilitate fellatio (sucking of the penis). No evidence for this sexual theory was presented by either author and they may have been reproducing stereotyped racial explanations passed on as an 'urban myth'. The term 'passion-gap' is commonly heard in Cape Town to describe the practice of anterior tooth removal, showing how this sexual myth

has become ingrained as an explanatory model. Interestingly, Konnild (n.d.) also mentioned a rumour that a similar type of mutilation and practice was present among some of the white people in Cape Town as well, but again provided no confirming data. Despite the historic evidence and the obvious presence of dental modification amongst modern Capetonians, no evidence detailing the frequency of this practice was published until the work of Friedling and Morris (2005), although some data had been collected in an unpublished report by Davies (1990).

The evidence from Friedling and Morris (2005) demonstrated that the distribution of dental modification in the Western Cape was not predominantly on females and that it was strongly linked to socio-economic status. Morris (1998) rejected the socio-sexual theory alluded to by Konnild (n.d.) and Van Wyk (1976), but could only suggest gangster identity as a motive for the practice. He introduced the term 'Cape Flats Smile' as a name for the practice that was less offensive than the more common name of 'passion-gap'.

What then is the stimulus that is driving the presence of dental modification in modern day Cape Town? Modern Capetonians can hardly be called 'tribal peoples' so models of tribe and ethnicity probably do not apply to this situation. Why does the practice take place in the Western Cape but not in other areas of South Africa? We seek to answer two key questions that may help to shed some light on the subject.

1. What are the kinds of the dental modification present in the Western Cape?
2. What is the stated motivation for the tooth removal from the people themselves?

MATERIALS AND METHODS

The study area comprised a roughly rectangular area, limited by the R300 Road to the east, Voortrekker Road to the north, the N2 National Highway to the south and Valhalla Drive to the west. This area is often referred to as the 'Northern Suburbs' of Cape Town and has been demographically shaped by 40 years of apartheid history.

The Northern Suburbs (Parow, Bellville, Belhar, Uitsig, Ravensmead, Elsies River, Valhalla Park and Bishop Lavis) of Cape Town are representative of the greater demography of the Western Cape i.e. having people from varied cultural ethnicities and includes peoples whom the apartheid system classified as 'white', 'coloured' and 'black'. These suburbs have a range of individuals covering the full spectrum from teenagers to older adults of different socio-economic backgrounds. They also contain schools, old age homes, community centres and businesses that act as points of congregation where it is possible to meet with a large number of people of various ages from the surrounding areas. Study subjects resided within the larger borders of the entire study area. In the case of the high school students, 95% of the study subjects lived within the immediate surroundings of the participating schools with the remaining 5% living within the larger study area. Thus 100% of the school data have been used. This percentage changed for the working people as only 85% lived within the boundaries of the study area, thus disqualifying 15% of the 'working' study subjects. The percentage was even less for the retired people as only 75% had lived within the boundaries of the study area for at least 20 years or had family members who resided within the area for at least 15 years, thus disqualifying 25% of the 'retired' study subjects. The ages of the sample groups range from 14 to 21 years for the scholars, 19 to 60 years for the working group and 55+ years for the retired group. The overlap of ages between the three groups resulted in a good continuity in the sample studied. Interviews were conducted with eligible candidates (those who lived, worked, or attended school within the study area) between September 2002 and December 2002. A questionnaire was used for the interview (approved by the University of Cape Town Ethics Committee). The interviews were no longer than 20 minutes, depending on the person being interviewed. Questionnaires were given to those who wanted to fill in the form themselves. The investigator personally interviewed those who could not fill in the questionnaire for various reasons (including illiteracy and blindness), but still willing to participate in the study. Before the questionnaires were handed out, all the questions were read to all willing respondents. There were no risks to the study subjects as they remained anonymous.This questionnaire was available in both English and Afrikaans. The wording was simple so that no prompting of answers was necessary when filling in the blank spaces. The nature of the questions revolved around demography and tooth removal. Dental modification was clearly evident in younger individuals, but where tooth loss was excessive, the recall of the subject was accepted as to which teeth had been intentionally removed and which were lost through disease. Schematic pictures of six styles of dental modification (from Gould, *et al*., 1984) were attached to the questionnaire for ease of identification for the study subjects. Study subjects marked off their form of dental modification.

Adapted from Gould, *et al*., (1984), the following styles of anterior tooth extraction were applied:

- Extraction of central maxillary incisors (style 2U)
- Extraction of four maxillary incisors (style 4U)
- Extraction of central mandibular incisors (style 2L)
- Extraction of four mandibular incisors (style 4L)
- Extraction of four maxillary incisors and four mandibular incisors (style 4U4L)
- Extraction of four maxillary incisors and two mandibular incisors (style 4U2L)

Stated reasons for modification were also categorized on questionnaire analysis, but the respondents were not primed with these categories. The questionnaire simply asked the respondent to give a reason in their own words for the modification. The summary categories created in the analysis applied to both males and females:

1. **Gangsterism** – as part of the initiation rites into a gang or as a mark of gang membership.

2. **Peer pressure** – tooth removal as a result of encouragement from friends / peers.
3. **Fashion** – conforming to current behaviour within a community.
4. **Medical or accidental** – the teeth were removed because of a recommendation by either a doctor or a dentist e.g. abscesses, or resulting from a sporting accident or any other incident pre-empting the removal of the incisors e.g. accident.

Stated reasons were clustered into two categories after data collection:

- Cultural / Social - gangsterism, peer pressure and fashion
- Medical / Accidental - other

Chi squared (χ^2) tests are used to determine the significance of frequency difference between groups. All Chi squared (χ^2) values are considered significant at the $p < 0.05$ levels. The statistical analysis was done using the Statistica 6 programme and Microsoft Excel.

RESULTS AND DISCUSSION

The age of the study subjects ranged from 14 to 83 years and the full sample of 2167 individuals included 1196 females and 971 males (Table 1). The 888 (41%) individuals who had modified their teeth are the individuals on which this study concentrates. More males (44,8%) than females (37,9%) were involved in this practice of dental modification (Table 1). The average age when the modification took place is consistently in the late 'teens, with an average age of 16,8 years for males and 17,9 years for females (Table 2). The data suggest that the age at modification is earlier today than it was in the past, but this may not be significant because of problems in recall of the older individuals. A choice of six styles of dental modification (Table 3) was given on the questionnaire. A χ^2 test showed no significant differences in the style of modification between males and females ($p = 0, 67$). The most popular style of dental modification in both males (94,9%) and females (92,5%) was style 4U – the removal of the upper four incisors (93,7% sexes combined). There were four stated reasons in this study for dental modification (Table 4). The sex- pooled data rendered peer pressure (42,6%) as the main reason for dental modification and followed by fashion (36,3%) (Fig. 1). This was followed by medical or other (11%) and gangsterism (10,1%). There were significant differences in the reasons for dental modification between males and females ($p < 0.001$). The most common reason stated by males was peer pressure, followed by gangsterism, then by fashion and medical / accidental. The most common reason stated by females was fashion and peer pressure, followed by medical / accidental and gangsterism. Collectively, gangsterism was the least stated reason for dental modification as only 10,1% of study subjects (sexes combined) stated it as a reason. However, when males and females were separated, a slightly different picture emerged. At 17.5% in males, gangsterism was the second most stated reason for dental modification. It was the least stated reason for dental modification in females (3,1%).

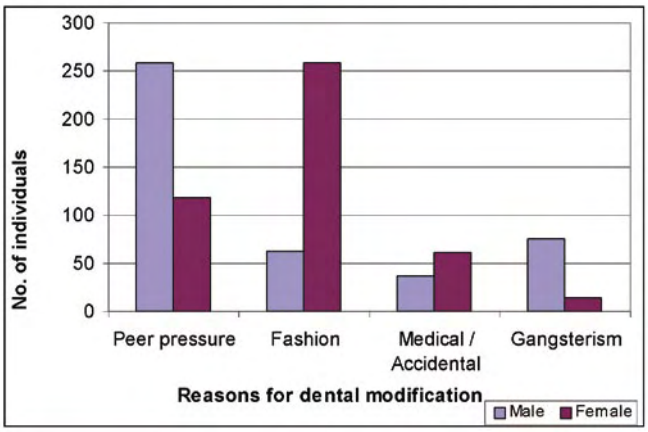

Figure 1: Comparison of male and female data

The pattern of modification compared to the stated reasons for modification indicate that there is a major difference between social-cultural choice of style compared with medical or accidental tooth loss (Tables 5 and 6). A χ^2 test showed that the pattern of modification is significantly different between cultural / social reasons and medical / accidental reasons ($p < 0.001$). Where socio-cultural choice was the stated reason, the overwhelming style of modification was the removal of the four upper incisors. The rarer pattern of style 4L is caused by medical or accidental reasons. These data suggest that the lower incisors are at greater risk to injury or disease while the upper incisors are the primary targets for cultural modification. Sample sizes were too small in the rest of the categories to get reliable statistical results. Style 4U4L (the removal of both the upper and lower four incisors) showed clear sexual dimorphism in the cultural / social versus medical / accidental categories (Tables 5 and 6). The males had a 25% to 75% ratio whereas the females had an 87,5% to 12,5% ratio. This could be as a result of men more frequently losing their lower teeth by accident or for example, in sports related incidences.

Are fashion and peer pressure simply two expressions referring to the same phenomenon? We would argue that there is a distinction between them. Fashion can be defined as a 'convention, craze, fad, trend, appearance or social standing shown by behaviour' (Russell, 2001). Peer pressure can be seen as pressure to conform by those 'equal in rank, standing, status or any respect' (Russell, 2001). To grasp the difference

Table 1: Summary table of study sample.

	Females	Males	Totals
Sample size	1196	971	2167
n Modified	453	435	888
n Unmodified	743	536	1279
% Modified	37.9	44.8	41.0
Ave modification age	17.9	16.8	

Table 2: Age range of study sample with modified teeth								
Females					Males			
Age	n	# with modified teeth	Mean age at modification	% with modified teet	n	# with modified teeth	Mean age at modification	% with modified teet
15-19	741	243	14.4	32.8	538	200	15.6	37.2
20-24	61	26	15.9	42.6	41	2	13.7	56.1
25-29	44	11	15.8	25.0	38	23	16.7	60.5
30-34	44	14	18.6	31.8	48	23	15.0	47.9
35-39	54	32	17.8	59.3	38	23	15.8	60.5
40-44	47	29	18.1	61.7	46	30	15.8	65.2
45-49	34	18	16.9	52.9	52	32	17.3	61.5
50-54	33	15	17.5	45.5	41	20	17.9	48.8
55-59	30	18	19.0	60.0	20	11	15.2	55.0
60-64	44	14	17.6	31.8	55	22	19.7	40.0
65-69	29	13	25.3	44.8	20	10	20.8	50.0
70+	35	20	17.6	57.1	34	18	17.8	52.9
Totals	**1196**	**453**	**17.9**	**37.9**	**971**	**435**	**16.8**	**44.8**

Table 3: Modification styles in males and females						
Style	Male	% Males	Female	% Female	Totals	%Totals
4L	9	2.1	11	2.4	20	2.3
4U	413	94.9	419	92.5	832	93.7
4U4L	4	0.9	16	3.6	20	2.3
2L	1	0.2	0	0	1	0.1
2U	7	1.7	6	1.3	13	1.5
4U2L	1	0.2	1	0.2	2	0.2
Total	**435**	**100.0**	**453**	**100.0**	**888**	**100.0**

Table 4: The number of males and females in the various stated reason categories				
Reason	Male	Female	Totals	%
Peer Pressure	259	119	378	42.6
Fashion	63	259	322	36.3
Medical / Accidental	37	61	98	11.0
Gangsterism	76	14	90	10.1
Total	**435**	**453**	**888**	**100.0**

Table 5a: Style of modification in the categories of modification for males							
Categories	4L	4U	4U4L	2L	2U	4U2L	Total
Cultural/ Social	2	392	1	1	5	0	401
Medical / Accidental	7	21	3	0	2	1	34
Total	**9**	**413**	**4**	**1**	**7**	**1**	**435**

Table 5b: Style of modification in the categories of modification for males in percentages							
Categories	4L	4U	4U4L	2L	2U	4U2L	Total
Cultural/ Social	22.2	94.9	25.0	100.0	71.4	0.0	92.2
Medical / Accidental	77.8	5.1	75.0	0.0	28.6	100.0	7.8

between the two, one has to firstly look at behaviour around the time of dental modification. Adolescence seems to be a time, at least in many technologically advanced Western cultures, when one is confronted with the problem of self-definition (Kroger, 1989). Peer pressure plays an important role in this self-definition. While being an individual and 'standing out' in a group is important, it is even more important to conform and 'fit in' with your chosen group of peers – i.e. their behaviour becomes your behaviour. It is often viewed as a by-product of social condition.

Thus, for the 2002 study 'peer pressures' were viewed as conforming to the things that your friends (people your own age) did and expected you to do as well. These were not necessarily fashionable, just important to the group dynamics. 'Fashion', on the other hand, was a recognition of what everyone else, not necessarily your friends or people your age, was doing. Turok (2002) concurs with this view from her interviews with people living in the Mitchell's Plain area. Table 4 and Fig. 1 support this where males and females gave different reasons for dental modification practices. Peer pressure (42,6%) and fashion (36,3%) were the two most stated reasons for dental modification practices in this study. Is gangsterism an extreme form of peer pressure? It is, according to work by Pinnock, 1997. However, not all respondents who gave peer pressure as a reason for dental modification belonged to a gang. But all respondents quoting gangsterism as a reason for the modification did it for group inclusion. Thus, gangsterism and peer pressure were treated as separate categories.

Morris (1989, 1998) argued the frequency of anterior tooth extraction seemed to be higher in males than in females and appeared to be strongly

Table 6a: Style of modification in the categories of modification for females							
Reason	**4L**	**4U**	**4U4L**	**2L**	**2U**	**4U2L**	**Total**
Cultural/ Social	1	374	14	0	3	0	392
Medical / Accidental	10	45	2	0	3	1	61
Total	**11**	**419**	**16**	**0**	**6**	**1**	**453**

Table 6b: Style of modification in the categories of modification for females in percentages							
Categories	**4L**	**4U**	**4U4L**	**2L**	**2U**	**4U2L**	**Total**
Cultural/ Social	9.1	89.3	87.5	0.0	50.0	0.0	86.5
Medical / Accidental	90.9	10.7	12.5	0.0	50.0	100.0	13.5

Table 7: Comparison of Davies (1990) and present data for reasons of dental modification				
	Davies data		**This study**	
	Males	**Females**	**Males**	**Females**
Peer Pressure	11.7%	1.7%	59.5%	26.2%
Gangsterism			17.5%	3.1%
Fashion	50.0%	20.0%	14.5%	57.3%
Medical / Accidental	36.7%	65.0%	8.5%	13.4%
Better sex	1.6%	13.3%	-------	-------
Average modification age	**15.6**	**16.6**	**16.8**	**17.9**

linked to gang membership as a marker of social group inclusion. He based his argument on the high frequency of gang membership on the Cape Flats as recorded by Pinnock (1997). This study does not corroborate this speculation as a small number of the males and almost none of the females suggested gangsterism as a reason for the practice. The small pilot study done as a student project in 1990 (Davies 1990) provides an interesting comparison with this study (Table 7). Davies noted that 50% of males removed their teeth for fashion (compared to only 14,5% in the current study), followed by smaller numbers who removed their teeth for medical or dental reasons, peer or gang related pressure, and finally for 'better sex'. Only 11,7% of the Davies (1990) males gave peer pressure or gangsterism as a reason for dental modification in comparison to the 77% of the present study. Medical / accidental reasons were given by 3,.7% of the Davies study group compared to only 8,5% of the 2002 study group. There are sharp contrasts between the female data too. Davies' female data had 65% of females quoting medical or dental reasons for dental modification, followed by fashion, then 'better sex', and then peer or gang related pressure. One individual (1,7%) of the 1990 female study group mentioned peer pressure or gangsterism as a reason for dental modification whereas 29,3% of the 2002 study group gave this reason. Twenty percent of the Davies study group quoted fashion as the reason for the modification compared to the 57,3% of the 2002 study group. One of the largest differences was in the medical or accidental category where 65% of the Davies female study gave this as a reason for modification compared to only 13,4% in the 2002 study group. None of the present study group quoted 'better sex' as a reason for modification. One of the most noteworthy differences between the Davies (1990) and the present study is the fact that Davies presented the respondents with various reasons for the practice. They simply had to choose one suitable answer that may or may not have accurately expressed their reasons. In addition, the stating of the special category 'better sex' may have prompted answers that the respondent chose in order to be shocking or amusing. The present study respondents created their own reasons that, interestingly enough, never included 'better sex'. The Davies (1990) study can thus be regarded as an introductory one that provided some hints about behaviour.

Both the current study and that of Davies in 1990 showed that the age of dental modification, for nearly all the individuals, was between 11 and 20 years of age and that males modified their teeth a year before females. In the Davies data, the average age of extraction for males was 15,6 years and 16,6 years for females, while the present study with its larger data base indicates the age of extraction being a year older. A small number of individuals (68 out of 888, totaling 7,7%) had their dental modifications done after they were 20-years-old. The fact that the overwhelming majority removed their teeth before the age of 20 strongly supports the case for dental modification being a form of rite of passage for teenagers on the Cape Flats. The reason for the delay in these few individuals is unclear. What is interesting is that more females than males quoted peer pressure as the reason for the dental modification (after the age of 20 years). This could indicate that group identity for women coalesces during and after their teenage years. Individuals with modified teeth were asked on the questionnaire whether or not they had had dentures made to replace their front teeth. Surprisingly 72,2% of males and 67,5% of females (69,8% sexes pooled) had indeed had dentures made once the incisors had been extracted. Often dentures were not worn all the time but only on special occasions such as social functions. The affordability of dentures is seen as a status symbol in some poorer communities (Turok, 2002, Jappie, 1998). As already mentioned, none of the present study group mentioned 'better sex' or anything remotely to do with sex as a reason for dental modification. We do not think this was as a result of any embarrassment on the part of the study subjects as they were very candid about providing other information - even that which alluded to gang membership. This brings the 'socio-sexual' theory for dental modification strongly into question! Singer (1953) and Konnild (n.d.) state that the girls had their teeth extracted (even though they were healthy) because they thought that the toothless grin enhanced their beauty and sexual attraction. This makes sense as motivated by fashion and self-image, but does not imply anything about sexual acts. Only Van Wyk (1976) argued that the removal of the upper four incisors among a certain

group (presumably) was 'believed to be for the facilitation of oral sex' (fellatio). Van Wyk (1976) goes a step further and states that the practice was especially prevalent among females. Our study (and to a lesser extent the Davies 1990 study) clearly shows that both males and females practice dental modification and the removal of the upper four incisors was more prevalent in males than females. Van Wyk's observations are therefore unsupported by our data. Morris (1998) has called the 'socio-sexual' theory insulting because it attributes a negative behaviour to a stereotype. In our opinion, the so-called 'socio-sexual' theory is an idea without factual support and is simply a manifestation of 'urban legend'.

CONCLUSIONS

It is evident that although six styles of dental modification were present, style 4U was the style of choice and most of the other styles could be linked to medical or accidental occurrences. The motivation for dental modification is overwhelmingly peer pressure and fashion during the teenage years. As such it can be seen as a rite of passage in the poor socio-economic communities of the Cape Town area. No evidence was found to support the 'socio-sexual' theory for tooth removal.

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REFERENCES

1. Alt K and Pichler S Artificial modifications of human teeth. In: Alt K, Rosing F and Teschler-Nicola M. Eds. Dental Anthropology fundamentals, Limits and Prospects. Springer Wein, New York, 1998.
2. Bachmayer DI. Tooth mutilating practices amongst the Barakwena and Vassakela Bushmen in West Caprivi and the peoples of Kavango. *SADJ* 1982; **37**:173-177.
3. Briedenhann SJ. Maxillary midline diastema and its association with ritual extraction of mandibular incisors in the Herero-speaking people of Kaokoland. *SADJ* 1987; **42**:461-468.
4. Briedenhann SJ and Van Reenen JF. Tooth extraction and tooth mutilating practices amongst the Herero-speaking peoples of South West Africa (Namibia). *SADJ* 1985; **40**:531-536.
5. Cruwys E and Foley RA. eds. Teeth and Anthropology. Oxford, England: BAR International Series 291, 1986.
6. Davies C. The Cape Flats Smile: Dental mutilation in the Western Cape. University of Cape Town Bachelor of Science Project, 1990.
7. Davies DM. The influence of teeth, diet and habits on the human face. London: Pitman Press, William Heinemann Medical Books Ltd., 1972.
8. Edgar RR. ed. An African American in South Africa. Johannesburg, South Africa: Witwatersrand University Press, 1992.
9. Erasmus Z. ed. Coloured by history shaped by place. Cape Town, South Africa: Kwela Books and South African History Online, 2001.
10. Erlandsson A-L and Bäckman B. A case of dental mutilation. *J Dent Child* 1999; **66**: 278-279.
11. Friedling LJ and Morris AG. The frequency of culturally derived dental modification practices on the Cape Flats in the Western Cape. *SADJ* 2005; **60**(3):97-102.
12. Gould AR, Farman AG and Corbitt D. Modifications of the dentition in Africa. *Quint Int* 1984; **1**:89-94.
13. Hillson S. Dental Anthropology. London: Cambridge University Press, 1996.
14. Jappie A. Tooth alteration in the Cape Town township of Factreton. University of Cape Town Minor Honours Dissertation, 1998.
15. Jones A. Tooth mutilation in Angola. *Br Dent J* September Supplement: 1992; 177-178.
16. Jones A. Dental disfigurements in Borneo. *Br Dent J* 2001; 191:98-102.
17. Konnild J. Dental mutilations among tribal groups in Africa south of Sahara with some notes on African dental folklore. Unpublished manuscript in the authors' files. n.d.
18. Kroger J. Identity in Adolescence: The balance between self and other. London: Routledge Publishers, 1989.
19. Larsen CS. Dental modifications and tool use in the Western Great Basin. *Am J Phys Anthropol* 1985; **67**:393-402.

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