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Oral Health for Older People

Evaluation of the South Australian Dental Service project

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Government of South Australia

SA DENTAL SERVICE

Central Northern Adelaide
Health Service

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Abbreviations

EPC	Enhanced primary care
EPCA	Enhanced primary care assessment program
FTE	Full-time equivalent
GP	General Medical Practitioner
SDGP	Southern Division of General Practice
SF-36	Short-Form 36
SLA	Statistical local area
OHIP	Oral Health Impact Profile
SA	South Australia

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Editorial team

Several people have contributed to the editing of this publication. Lorna Lucas and Alison McLean (ARCPOH) and proofreader Jo Mason have all worked to improve the consistency, layout and readability of the text.

1 Overview of results

This publication presents results from the evaluation of a project entitled 'Oral Health for Older People' that was conducted by the South Australian (SA) Dental Service. The project, which was developed following recommendations from a 2002 working party of the South Australian Oral Health Advisory Committee, was targeted towards the community-dwelling elderly population living within nine statistical local areas (SLAs) of Adelaide's Southern Division of General Practice. Their oral health was screened during health assessments provided through the Enhanced Primary Care (EPC) program. This publication presents results from 1,960 elderly people who were assessed in their homes by medical personnel during the period July 2003 – August 2005. More detailed data are presented from 253 elderly people who received dental care and completed interviews and questionnaires for this evaluation project.

Based on several assumptions about the size of the target population, the data suggest that in 2004–05, dental screening was provided for approximately 22% of elderly people receiving EPC health assessments in the nine targeted SLAs. Of the 1,960 people assessed in their homes by medical personnel, 39% responded positively to one or more of six questions used to screen for dental needs. For this analysis they were further categorised into a 'medium screening priority' group that responded positively to one question about dental treatment needs *or* to one or more questions about impacts of symptoms (20% of people); and a 'high screening priority' group that responded positively regarding treatment needs *and* impact of symptoms (19% of people). The remaining 61% of people who responded negatively to all questions were classified as 'low screening priority' (Figure 1). The medical personnel who conducted the screenings felt that virtually all 'high screening priority' people (93%) and most 'medium screening priority' people (76%) would benefit from a dental visit. Screened people who were eligible for SA Dental Service treatment were more likely to be in 'moderate' or 'high' screening priority groups than screened people who were not eligible (Table 2).

Information about past patterns of dental care, chewing capacity, oral health related quality of life and general health related quality of life was collected by interview and questionnaire from 253 people who attended the SA Dental Service Somerton Park Dental Complex between July 2003 and September 2004. Six-month follow-up information was collected from 198 of those patients, whose dental treatment was completed by April 2005.

The distribution of screening priority categories did not differ significantly between people who completed questionnaires and interviews compared with those who did not (Table 3). This provides evidence that the people studied in this analysis are representative of all screened people who scheduled an appointment with the SA Dental Service.

Six months after they completed their course of general dental care, there were statistically significant improvements in patients' average ratings of oral health and quality of life. Specifically:

- The percentage of patients rating their oral health as 'good', 'very good', or 'excellent' increased from 53% at the pre-treatment interview to 83% 6 months after completion of treatment (Figure 4). The number of adverse impacts on quality of life due to dental problems more than halved, from an average of 1.9 impacts per person (approximately four times the population norm for elderly Australians) to 0.7 impacts per person (Figure 7) 6 months after completion of treatment.
- Patients' rating of the extent to which they had achieved their own nominated goal for oral health improved significantly between pre-treatment and 6-month post-treatment interviews, equivalent to moving up 1.4 rungs on a 'goal attainment ladder' that had 7 rungs (Figure 9).
- One aspect of patients' quality of life, measured using the 'role-emotional' subscale of the Short-Form 12 (SF-12) health survey, improved significantly from a pre-treatment level that was below the South Australian population norm for people aged 75+ years to a post-treatment level that was similar to the population norm (Figure 12).
- Improvements in both oral health related quality of life (Figure 8) and treatment goal attainment (Figure 10) were most pronounced for patients who had the highest priority for care based on their in-home screening, suggesting that the six-question screening tool is effective in identifying those most likely to benefit from dental treatment.

2 Background and description of the project ‘Oral Health for Older People’

2.1 Background

In September 2002 a Working Party of the South Australian Oral Health Advisory Committee proposed undertaking a 2-year demonstration project entitled ‘The integration of an Oral Health Assessment amongst older people living in the community’ (Appendix A). The goal of the project was to ‘ensure that oral health is a recognised and practised part of health assessments for older people living in the community and that appropriate care planning and referral are delivered where required.’

The working party proposed that:

- the demonstration project be run collaboratively between the Divisions of General Practice (Southern Division), the Australian Dental Association (SA), Support Link (Northern Venture) and the South Australian (SA) Dental Service
- a small number of oral health questions be integrated into existing health assessment processes for people living in the community aged 75 years or older or, in the case of Aboriginal or Torres Strait Islander peoples, aged 55 years or older
- the Oral Health Assessment questions be used by all assessment personnel
- clear paths for referral for subsequent oral health care be established.

In March 2003 a steering committee was formed to implement the proposal. The committee included representatives from: the Australian Dental Association SA Branch, the Australian Research Centre for Population Oral Health, the Australian Nursing Home and Extended Care Association, the SA Dental Service, the SA Council on Ageing, the SA Department of Health and the Southern Division of General Practice. The steering committee advised the SA Dental Service, which funded the project. Planning continued through the first half of 2003 and the project was implemented in July 2003.

Purpose of this publication

This publication presents results from the evaluation of the project ‘Oral Health for Older People,’ conducted by the SA Dental Service. These results draw on information collected from the first 1,960 people who underwent screening in the period July 2003 – August 2005.

2.2 Description of the project

Aim of the project

The aim of the 'Oral Health for Older People' project was to ensure that oral health is a recognised and practised part of health assessments for older people living in the community and that appropriate planning and referral leading to adequate dental care is achieved.

Project setting

The project builds upon health assessments conducted within the Enhanced Primary Care (EPC) health assessment program that has been funded by the federal government since 1999. In the program, home-dwelling people aged 75+ years (or, among Aboriginals and Torres Strait Islander peoples, those aged 55+ years) are assessed annually for their physical and mental health, their social circumstances and the support services available. Assessments are done by general medical practitioners and/or registered nurses, either at the elderly person's home, the medical practice, or both.

Target population

The target population for this project comprised people who received EPC health assessments and who were living within the suburbs of Adelaide served by the SA Dental Service's Somerton Park Dental Complex. Predominantly, those suburbs extend from the Anzac Highway in the north to O'Sullivan Beach Road in the south. This corresponds approximately with the nine statistical local areas (SLAs): Marion-South; Marion-North; Marion-Central; Mitcham-West; Mitcham-North East; Mitcham-Hills; Holdfast-North; Holdfast-South; Onkaparinga-Reservoir.

In the southern suburbs of Adelaide, parts of the Fleurieu Peninsula and Kangaroo Island, the Adelaide Southern Division of General Practice (SDGP) supports general medical practitioners (GPs) and practices to make best use of the EPC program. According to SDGP records of January 2005, there was a population of 33,988 elderly people living in the nine SLAs that conform approximately with the suburbs targeted for this project (Williams 2005). They were served by a workforce of 172.95 full-time equivalent (FTE) GPs. Those numbers represent 63% of elderly people within the complete SDGP and 62% of FTE GPs within the complete SDGP.

According to SDGP records, there were 6,556 EPC health assessments conducted in the complete SDGP in 2004-05, (Williams 2005). This represents a rate of 193 assessments per 1,000 elderly people living in the SDGP based on the January 2005 records. That rate is approximately twice the national rate reported for 2001-02 of 112 assessments per 1,000 elderly people (Australian Government Department of Health and Ageing 2004). If EPC assessments within the nine SLAs targeted for this project were performed at the same overall SDGP rate of 193 assessments per 1,000 aged people, an expected 4,130 assessments per annum would be completed within the approximate catchment area of the Somerton Park Dental Complex.

Project activities

The project was implemented in July 2003, when medical providers in the SDGP added six screening questions about oral health to the EPC assessment protocol (Appendix A). Those questions were selected from among a pool of over 100 questions that were investigated in a previous study of people seeking public dental care in South Australia and New South Wales (Luzzi 2004). In that study, people seeking general dental care were asked to complete questionnaires relating to their dental symptoms. Subsequently, general practitioner dentists examined study subjects and, using their best clinical judgement, determined how promptly dental treatment was needed. Statistical analysis was then undertaken for this project among subjects aged 65 years or more, identifying questions that were most strongly predictive of dentists' judgement that dental treatment was required within six months. Questions with the best statistical performance were then reviewed by the steering committee for this project. This led to some revisions to phrasing, followed by final selection of the six questions felt to be most suitable for inclusion within EPC health assessments.

EPC health assessors, most of whom were nurses, asked the six dental screening questions and also recorded their own judgement as to whether the assessed person would benefit from dental care. Responses were recorded on a custom-printed notepad that included two carbon copies. The original was forwarded to SA Dental Service project staff, one copy was retained in medical records, and the other copy was given to the screened person. SA Dental Service project staff then telephoned people who had provided signed consent to be contacted. During the telephone call, the staff identified those who are eligible for care with the SA Dental Service (i.e. holders of pensioner health benefits cards or health care cards) and who were willing to attend the Somerton Park Dental Complex for dental care. An appointment and information letter was mailed to those people. Included with the appointment letter was a copy of the Oral Health Impact Profile (OHIP) questionnaire (Appendix C), responses to which have been used for this publication. Screened people who were not eligible or who did not want to attend Somerton Park were given information about oral health and sent information about dental visits if desired.

On the day of their first visit to the Somerton Park Dental Complex, but prior to their initial consultation with a dentist, patients took part in a face-to-face interview in which they were asked about their general health, oral health and past patterns of dental care (Appendix C). Responses to that questionnaire have also been used for this publication. SA Dental Service dentists then conducted a comprehensive oral examination and developed a treatment plan based on the same standards of clinical practice used for all SA Dental Service patients. SA Dental Service dentists provide a full range of general dental services based on their assessment of clinical needs, including preventive care, fillings, root canal treatment, extractions and referral for dentures. Data from the dental examination and information about any subsequent treatment provided to patients in the project was recorded on the SA Dental Service computerised clinical record system known as 'EXACT'. Those data will also be used for future ongoing analysis of the project.

People who were offered treatment through this project bypassed the usual 2-3 year waiting list for general dental care. As for other SA Dental Service patients, people receiving dental care in this project were required to make co-payments up to a maximum of \$63 per patient in 2003. If dentures formed part of the treatment plan,

patients generally were referred to private dentists in Adelaide who participate in the Pensioner Denture Scheme. Treatment with dentures incurred an additional co-payment of up to a maximum of \$110 per patient in 2003.

2.3 Methods used to evaluate the project

Aims of the evaluation

During the planning stage, the following five aims were developed to evaluate the project:

- (1) To describe the rate of adoption by medical personnel of the integrated oral health items within assessments conducted under the Enhanced Primary Care Assessment ('Oral Health EPCA') program.
- (2) To describe the rates of oral health problems and uptake of referral for dental care among elderly people who undergo Oral Health EPCA.
- (3) To describe the rates of dental services provision and general and oral-health outcomes following dental treatment among referred patients who receive dental care with the SA Dental Service.
- (4) To describe the levels of satisfaction with dental care and global general and oral-health outcomes following dental treatment among referred patients who receive dental care at the SA Dental Service or elsewhere.
- (5) To establish a tracking system for long-term estimation of mortality rates and rates of institutionalisation among elderly people who undergo Oral Health EPCA.

This analysis addresses aims 1–4. The fifth aim could not be addressed using the resources and time available for this evaluation.

Data sources

Original data for this publication were collected from five sources:

- (1) responses to oral health screening questions administered by EPC health assessors (Appendix A)
- (2) responses to the self-completed Oral Health Impact Profile (OHIP; Appendix B) that was mailed to participants prior to the first dental visit
- (3) responses to the pre-treatment interview (Appendix C)
- (4) responses to the Oral Health Impact Profile that was mailed to people who completed dental treatment approximately 6 months following their final visit. The OHIP questions were identical to those in Appendix C but included an additional question relating to dental treatment goal attainment (Appendix D).
- (5) responses to a telephone interview that was administered to people who complete dental treatment approximately 6 months following their final visit.

Where possible, summary statistics were compared with normative population data obtained from the following sources:

- The 2002 National Dental Telephone Interview Survey (Carter & Stewart 2003), which asked a random sample of Australian adults in all states and territories about their oral health, access to dental care and use of dental services. For this publication, responses from people aged 75 years or more were used as population benchmarks for oral health status and patterns of dental visits.
- A mailed questionnaire associated with the 1999 National Dental Telephone Interview Survey, which included the 14-item Oral Health Impact Profile (Slade et al. 2005). The Oral Health Impact Profile is a standardised questionnaire that measures adverse impacts of oral disease on wellbeing and quality of life (Slade & Spencer 1994). It was developed in South Australia and has been tested and validated in Australia (Slade 1997) and several other countries (John, Patrick & Slade 2002). For this publication, responses from people aged 65 years or more were used as population benchmarks for oral health related quality of life.
- The Short-Form 36 (SF-36) health survey, which was administered by telephone to a random sample of South Australians in the 2002 Health Omnibus Survey conducted by the South Australian Department of Health (Dal Grande 2004). The SF-36, which was developed in the United States (Ware, Snow & Kosinski 2000), is a generic indicator of health status used in population surveys. For this publication, data reported for people aged 75 years or more were used as population benchmarks for oral health related quality of life.

Data management and statistical analysis

Data from the five sources described above were keypunched and merged to produce a dataset that contained six dependent variables, as follows:

Global self-rated oral health was queried at both the pre-treatment and 6-month post-treatment interviews and analysed as an ordinal variable with five levels of response ranging from 'poor' to 'excellent'. The categories were dichotomised by grouping 'excellent', 'very good' and 'good' responses versus 'fair' and 'poor' responses. Statistical comparisons between dichotomised pre-treatment and post-treatment ratings were made using McNemar's test for paired samples.

Reported chewing incapacity was measured using the patient's reported capacity to chew four specific foods that were queried at both the pre-treatment and 6-month post-treatment interviews: raw carrot, lettuce, steak and fresh apple. The number of foods that could not be chewed was compared between pre-treatment and post-treatment interviews and evaluated statistically using the signed-rank test.

Oral health related quality of life was summarised for each patient by counting the number of impacts reported 'fairly often' or 'very often' during the 6-months preceding both the pre-treatment questionnaire and the 6-month post-treatment questionnaire. Changes in the average number of reported impacts were evaluated statistically using the paired t-test.

Patients' main *treatment goals* were described qualitatively and categorised into mutually exclusive categories for the four most commonly expressed goals: chewing/eating, dentures, pain/discomfort and appearance. Patients who did not mention those four

goals were classified into a fifth 'other' category. In addition to their qualitative description of a treatment goal, patients used a ladder diagram to rate where they were positioned with respect to that goal. In the questionnaire mailed 6-months after treatment, they were reminded of their nominated qualitative goal and were asked again to rate where they were positioned with respect to that goal. They were not reminded of their pre-treatment position on the ladder at this time. The rank position on the ladder, ranging from 0.5 to 7.5 in increments of 0.5, was compared between pre-treatment and post-treatment questionnaires and evaluated statistically using the paired t-test.

Global self-rated health, which forms one of the 12 questions queried in the Short-Form 12 (SF-12) health survey, was analysed using the same methods described above for self-rated oral health.

The remaining questions in the SF-12 *health survey* were recoded and rescaled using methods described for the SF-36 in order to yield results that could be contrasted with some level of consistency with the South Australian Health Omnibus Survey (Dal Grande 2004). This yielded SF-12 questionnaire subscale scores that potentially ranged from zero to 100, with 100 signifying the best health status. Notwithstanding the fact that the SF-12 questions represent only a subset of the SF-36 questions the scaling and range were identical to SF-36 scales. For example, there are only two questions from the 'role-emotional' subscale in the SF-12 compared with three such questions in the SF-36. Hence, the SA population data represent only an approximate guide to average levels of role-emotional health that would be likely attained if the SF-12 questionnaire were used in the SA Health Omnibus Survey.

Ethical conduct of research

People who attended the Somerton Park Dental Complex provided informed, signed consent to take part in interviews and to complete questionnaires. This project was reviewed and approved by the University of Adelaide's Human Research Ethics Committee.

2.4 Administration of the project

The project is managed by the SA Dental Service with guidance from a steering committee described above (section 2.1). Evaluation was undertaken by the Australian Research Centre for Population Oral Health (ARCPOH) at the University of Adelaide.

Individuals primarily responsible for implementation of the project were:

Ms Anne Pak-Poy, SA Dental Service Director of Service Planning,
phone (08) 8222 9092

Ms Anne Fricker, SA Dental Service Project Manager,
phone (08) 8222 9093.

Evaluation of the project was directed by:

Professor Gary Slade, Australian Research Centre for Population Oral Health,
phone (08) 8303 3291.

3 Results

3.1 Characteristics of 1,960 people screened for dental needs in the period July 2003 – August 2005

There were 1,960 people whose dental health was screened during health assessments conducted between July 2003 and August 2005. Between July 2004 and June 2005, 896 dental health screenings were conducted. As estimated above (Section 2.2), approximately 4,130 EPC health assessments were probably conducted during 2004-05 within the target population's geographic area comprising nine SLAs in Adelaide's southern suburbs. Based on assumptions about the size of the target population, the data therefore suggest that in 2004-05, dental screening was provided for approximately 22% of the elderly people receiving EPC health assessments in the nine targeted SLAs.

Of those who had dental health assessments, 64% were females and 2% were of Aboriginal or Torres Strait Islander origin. They ranged in age from 75 to 97 years: 50% were aged 75-79 years, 29% were aged 80-84 years, 15% were aged 85-89 years and 5% were aged 90 years or more. However, age was not recorded for 1,080 people.

In answer to the first dental screening question, 55% of people (95% confidence interval = 53-57%) said that they had one or more of their own natural teeth (referred to hereafter as dentate people). This percentage did not differ significantly from the figure of 56% among people aged 75 years or more in the Australian population (4).

The percentage of people responding positively to the remaining five dental screening questions ranged from 2% (avoided laughing) to 36% (lost fillings or needed treatment) (Table 1).

Table 1: Responses to dental screening questions recorded during EPC assessments^(a)

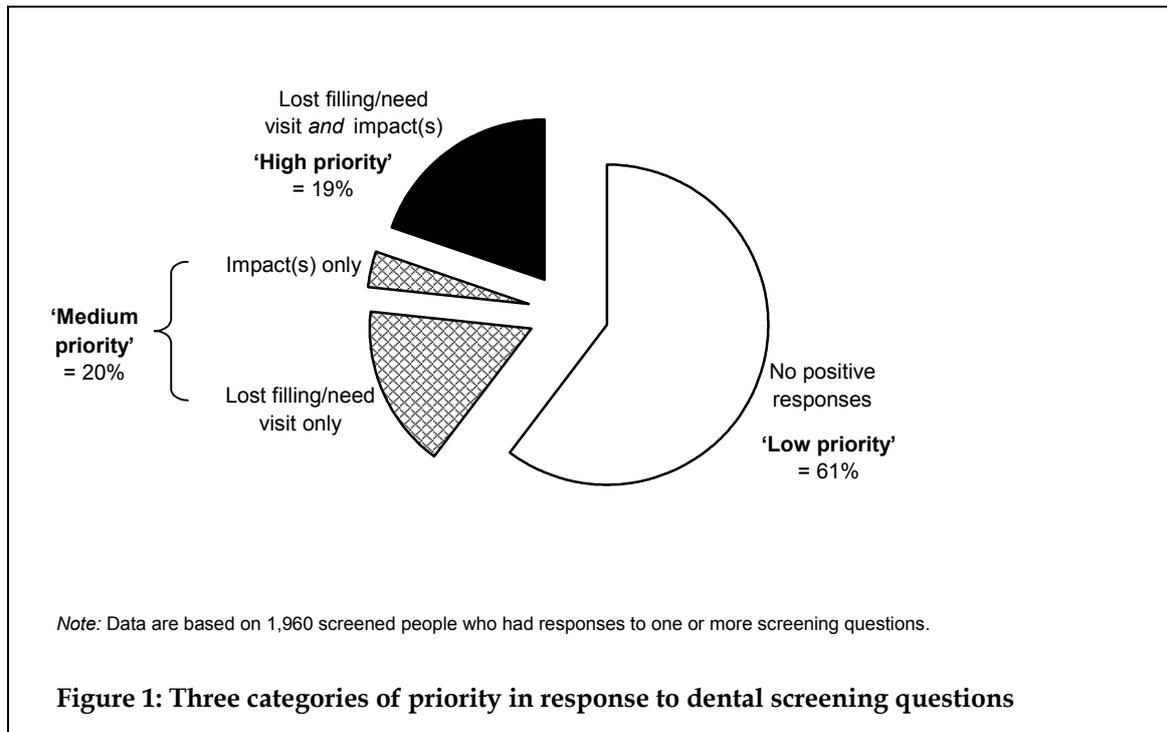
Screening question	Per cent of people ^(b) answering 'yes'	No. of people with missing or 'don't know' response
Have you lost any fillings or do you need a dental visit?	36	78
Have you had pain in your mouth while chewing?	14	14
Have you had to interrupt meals because of problems with your teeth, mouth or dentures?	14	39
Have you had difficulty relaxing because of problems with your teeth, mouth or dentures?	6	65
Have you avoided laughing or smiling because of problems with your teeth, mouth or dentures?	2	52

(a) Data in this table are based on 1,960 screened people.

(b) Percentages are calculated after excluding people with missing/don't know responses.

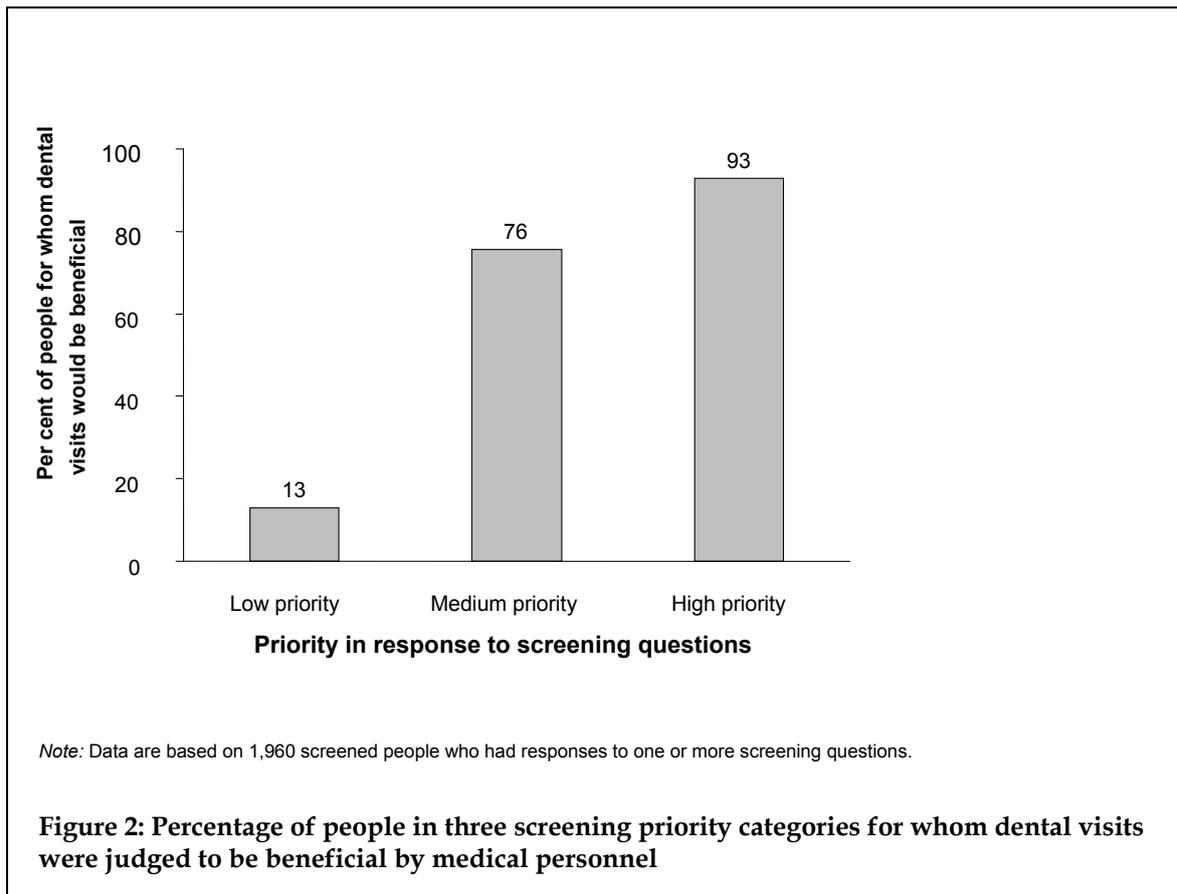
Responses to screening questions were pooled to create three levels of priority for care (Figure 1). The 'high priority' group comprised 19% of people who responded affirmatively to the question about a lost filling or need for dental visit *and* who reported one or more impacts queried in the remaining four screening questions.

A 'medium priority' group comprised 20% of people who either responded affirmatively to the question about a lost filling or need for dental visit *or* they reported one or more impacts queried in the remaining four screening questions.



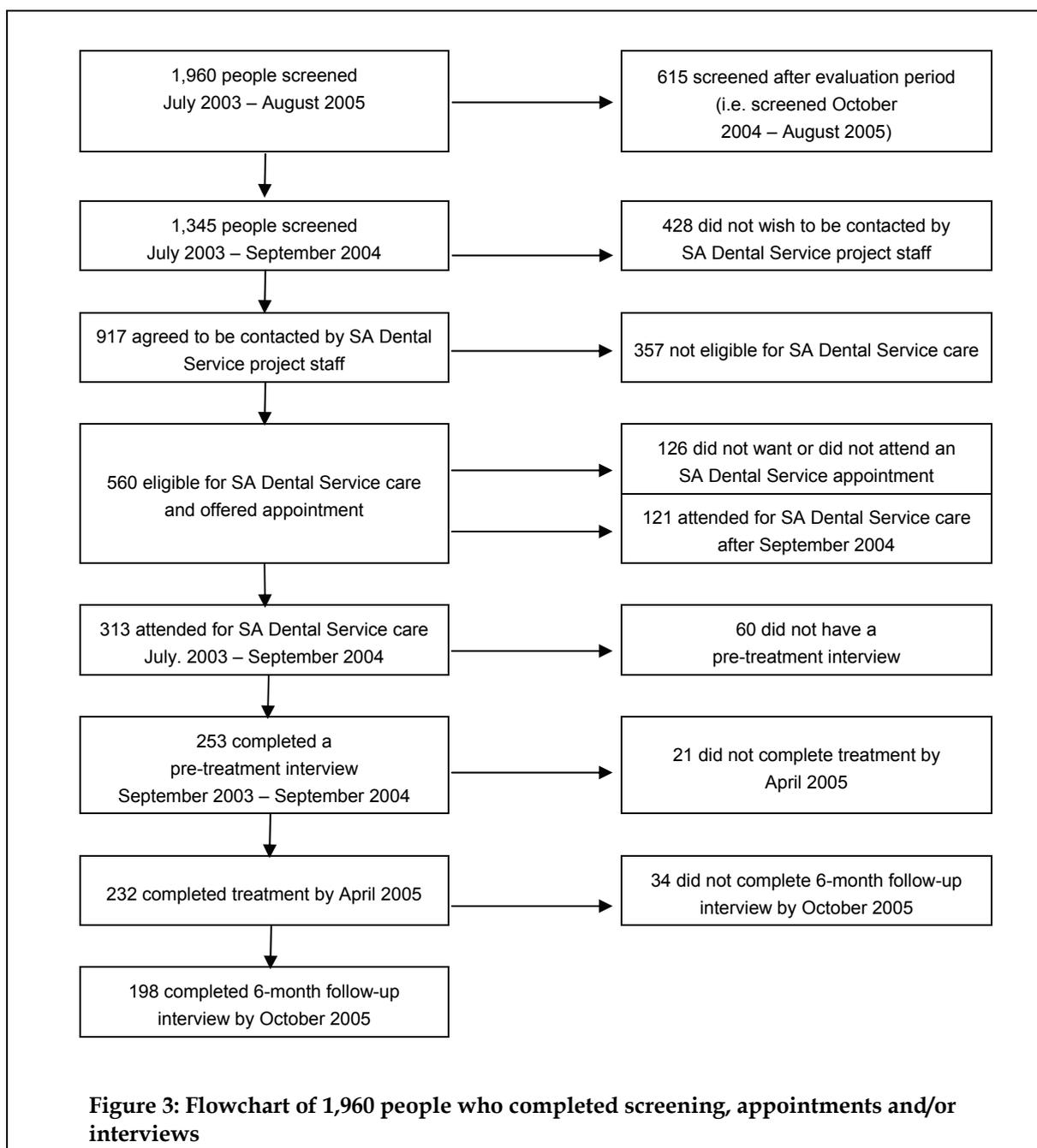
Medical personnel who conducted screenings were asked to judge whether or not each screened person would benefit from a dental visit. Among the 1,960 screened people who had responses to one or more screening questions, assessors felt that 799 (41%) would benefit from a dental visit. The remainder was either judged not in need of a dental visit (1,052 people) or health assessors recorded no opinion (109 people).

There was strong concordance between the three categories of priority and the health assessors' judgements regarding the benefit of dental visits. Medical personnel felt that virtually all (93%) 'high screening priority' people would benefit from a dental visit and that three-quarters (76%) of 'medium screening priority' people would benefit from a dental visit (Figure 2).



3.2 Representativeness of people included in the evaluation study

Among the 1,960 people screened up to August 2005, 1,354 were screened in the period July 2003 – September 2004 and hence were eligible for inclusion in this evaluation study. However, results that follow in this publication are limited to the 253 who attended for care and completed a pre-treatment interview by September 2004. Follow-up information is available from the subset of 198 patients who completed a pre-treatment interview *and* whose treatment was finished by April 2005 *and* who completed the 6-month follow-up telephone interview in October 2005 (Figure 3).



Subgroups of the screened sample differed significantly with respect to the categories of priority. People who did not wish to be contacted, who were not eligible for SA Dental Service care, or who did not make an appointment for SA Dental Service care were more likely to be in the low priority group (Table 2).

The 677 screened people who did not agree to be contacted by SA Dental Service project staff were more likely to be in the low priority group compared with the 917 screened people who did agree to be contacted.

Among the group contacted by SA Dental Service project staff, the 357 who were not eligible for SA Dental Service care were approximately three times more likely to be in the low priority group compared with the 560 who were eligible for SA Dental Service care.

Among the group eligible for SA Dental Service care, the 126 who did not want an appointment or who did not attend for care were approximately two times more likely to be in the low priority group compared with those who did attend for care.

However, there was no discernable difference in screening priority among the 313 patients who attended for care by September 2004 compared with the 121 patients who attended for care after September 2004. This suggests that patients attending for care between July 2003 and September 2004 were similar with respect to screening priority compared with patients who attended for care after September 2004.

Table 2: Categories of priority among subgroups of screened people^(a)

Subgroup	No. of people	Per cent of people with screening priority ^(b)			P-value
		Low	Medium	High	
Agreed to be contacted by SA Dental Service project staff	917	49	23	28	<0.01
Did not wish to be contacted by SA Dental Service project staff	677	84	12	4	
Agreed to be contacted and were eligible for SA Dental Service care	560	26	32	42	<0.01
Agreed to be contacted and were not eligible for SA Dental Service care	357	86	8	6	
Were eligible for SA Dental Service care and attended for care by September 2004	313	20	36	44	<0.01
Were eligible for SA Dental Service care and attended for care after September 2004	121	21	30	50	
Were eligible for SA Dental Service care and did not want or did not attend an appointment	126	44	26	29	

(a) Data based on 1,345 people who were screened between July 2003 and September 2004.

(b) Categories of priority are depicted in Figure 1.

Among patients who attended for care by September 2004, those who completed an interview had a very similar distribution of screening priority compared with those who did not. Specifically, there were no more than 6 percentage points difference in the distribution of high priority between subgroups that had completed pre-treatment or follow-up interviews, compared with subgroups that did not complete those interviews (Table 3). These small differences were not statistically significant. This provides evidence that the people studied in this analysis are representative of all 313 people who attended for care with the SA Dental Service in the period July 2003 – September 2004 insofar as their dental screening priority is concerned.

Table 3: Representativeness of patients used in this publication^(a)

Subgroup	No. of people	Per cent of people with screening priority ^(b)			P-value
		Low	Medium	High	
Pre-treatment interview completed	253	23	34	43	0.17
Pre-treatment interview not completed	60	12	40	48	
Treatment and 6-month follow-up interview completed	198	23	35	42	0.26
Treatment and 6-month follow-up interview not completed	115	16	36	48	

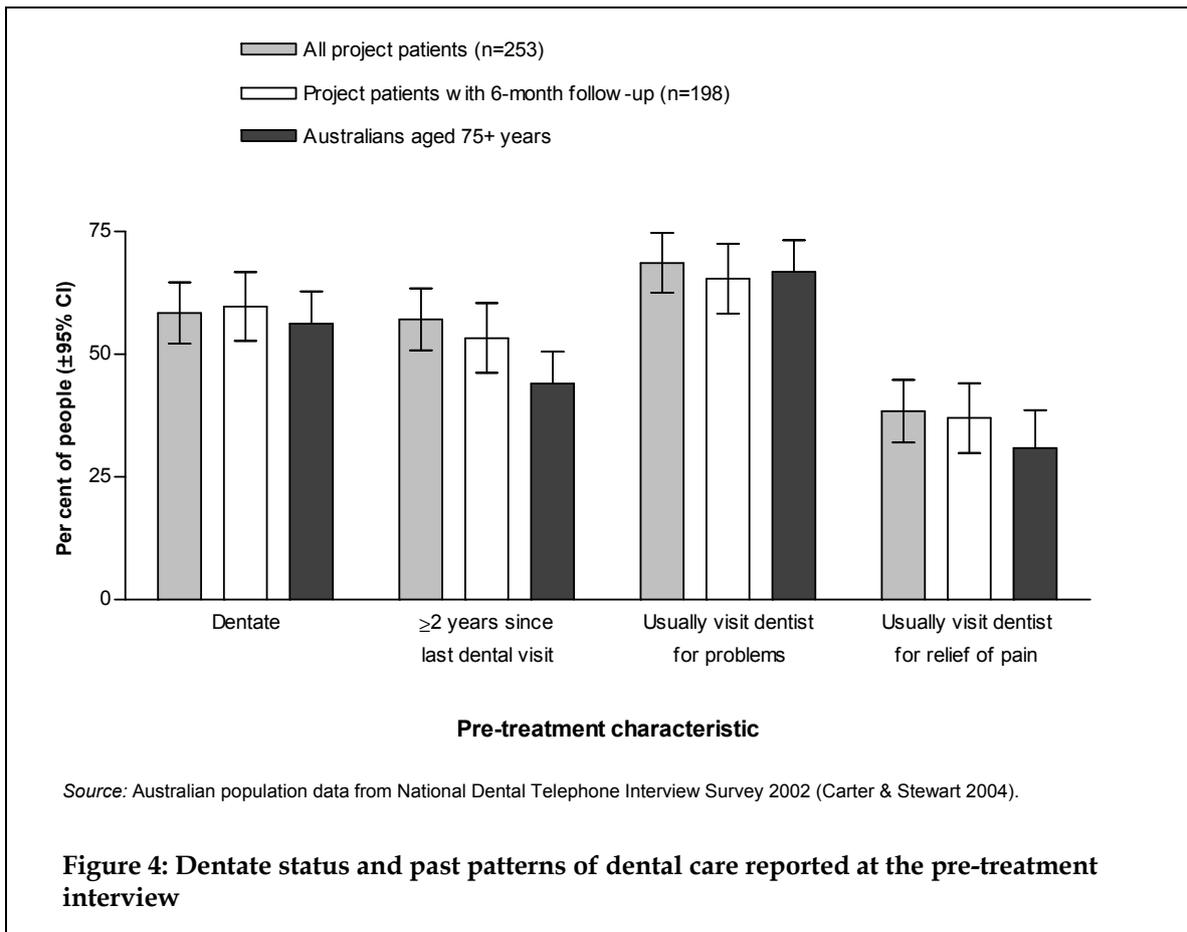
(a) Data based on 313 people screened between July 2003 and September 2004 who attended for SA Dental Service care.

(b) Categories of priority are depicted in Figure 1.

3.3 Dentate status and past patterns of dental care reported by patients at the pre-treatment interview

At their pre-treatment interview 58% of patients said they were dentate, 57% said that it had been at least 2 years since their last dental visit, 69% said that they usually made dental visits to fix a problem, and for 38% the nature of the problem was related to dental pain.

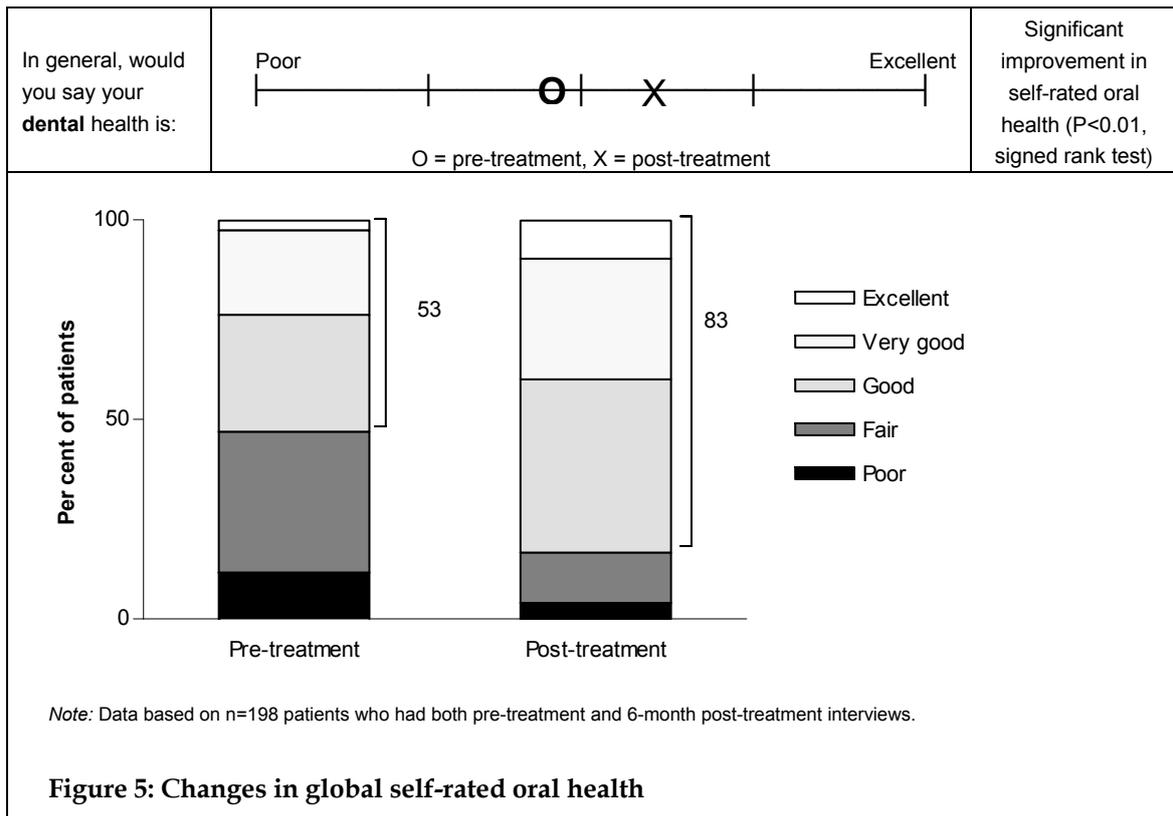
These percentages did not differ significantly among the complete sample of 253 patients, the subset of 198 patients who had a 6-month follow-up interview, and the Australian population age 75+ years, (Figure 4).



3.4 Pre-treatment and post-treatment levels of oral health

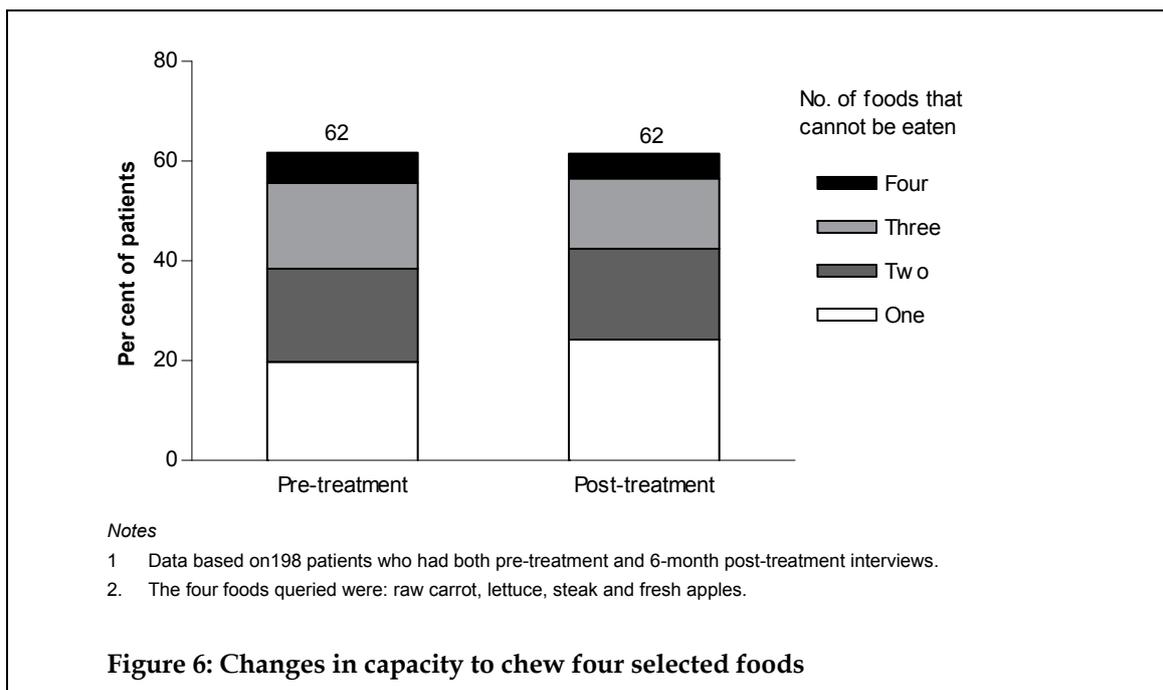
Global self-rated oral health

Average levels of global self-rated oral health improved significantly between the pre-treatment interview and 6-months after completion of treatment (Figure 5). There was a 30% increase in the percentage of people rating their oral health as good, very good or excellent ($P < 0.01$, McNemar's test).



Chewing incapacity

There was no overall change in chewing incapacity. There were small, but statistically non-significant, reductions in the percentage of people unable to eat three foods and a corresponding increase in the percentage of people unable to eat only one food (Figure 6).



Oral health related quality of life

Prior to treatment, one-third of patients said they had been uncomfortable eating foods. Ten other impacts of oral problems were reported by at least 10% of patients, ranging from difficulty relaxing (10%) to being self-conscious (22%) (Table 4).

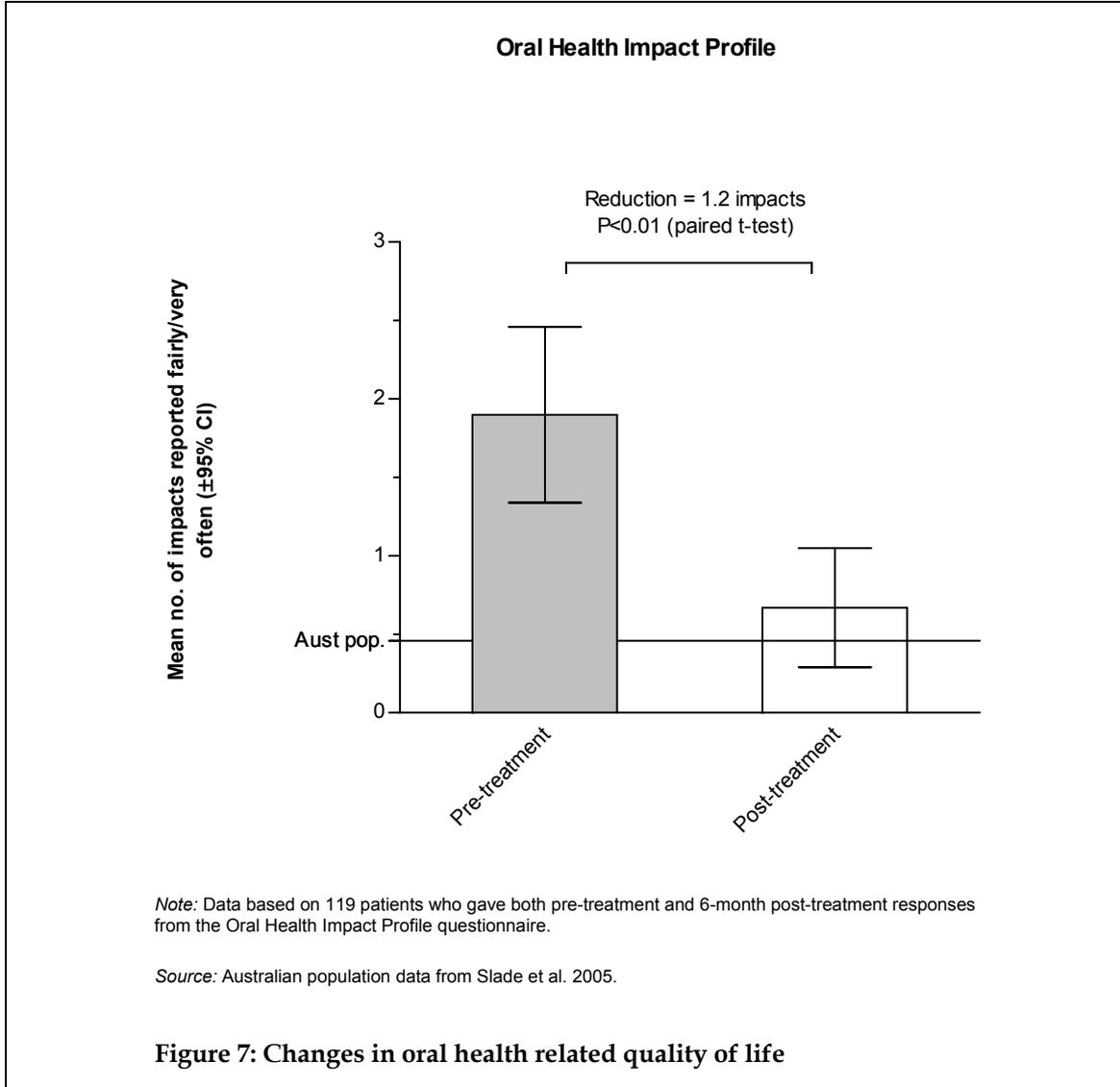
Table 4: Percentage of patients reporting adverse impacts on quality of life prior to treatment^(a)

Impact experienced due to problems with teeth, mouth or dentures	Per cent of patients reporting impact ^(b)
Uncomfortable to eat foods	36
Self-conscious	23
Painful aching in the mouth	19
Diet has been unsatisfactory	18
Felt tense	18
Been embarrassed	17
Interrupted meals	16
Taste affected	16
Life has been less satisfying	15
Had difficult relaxing	12
Trouble pronouncing words	8
Been a bit irritable	5
Had difficulty doing usual jobs	3
Been totally unable to function	3

(a) Data based on 172 patients with pre-treatment responses from the Oral Health Impact Profile questionnaire.

(b) Impacts reported 'fairly often' or 'very often' in the preceding 6 months.

Prior to treatment, patients reported an average of 1.9 impacts (out of 14 queried) that occurred 'fairly often' or 'very often' in the preceding 6 months. At the 6-month follow-up interview, this number had reduced significantly to an average of 0.7 impacts (Figure 7). The post-treatment value was similar to that of the Australian population aged 65+ years as reported by Slade et al. 2005.

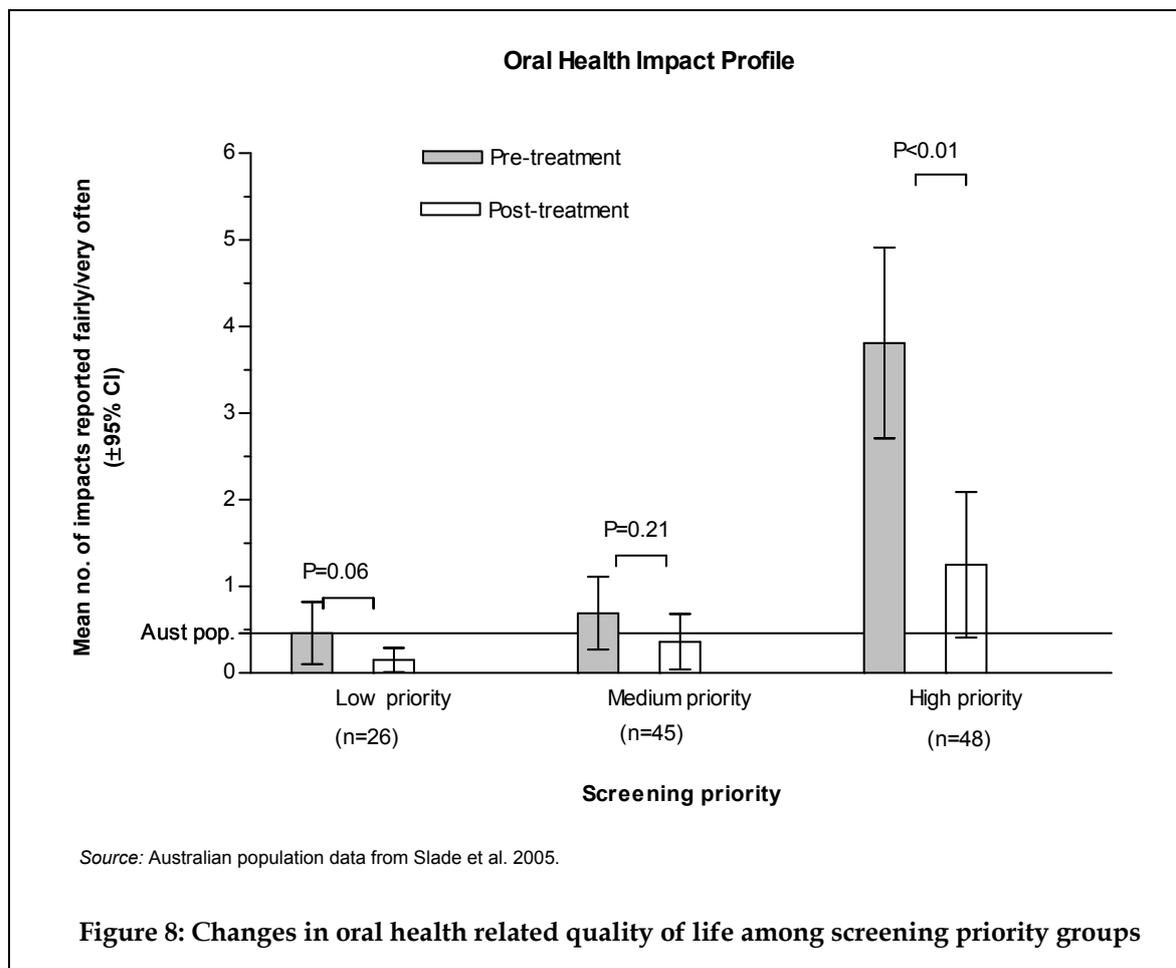


There were substantial differences in oral health related quality of life among the three categories of screening priority.

People in the high level of screening priority reported the largest number of impacts prior to treatment, and experienced the largest reduction in adverse impacts after treatment (Figure 8).

In contrast, people in the low screening priority group had pre-treatment levels of impact that were close to the Australian population average, and there was only a small and statistically non-significant reduction in the number of adverse impacts reported by this group after treatment.

People in the medium priority group had intermediate levels of impact and change in impacts.



3.5 Treatment goal attainment

At the pre-treatment interview, when patients were asked to nominate the main goal they hoped to achieve from dental treatment, the most frequently mentioned goals related to chewing and/or eating (Table 5). Goals related to dentures, pain or appearance was described by between 10% and 17% of patients.

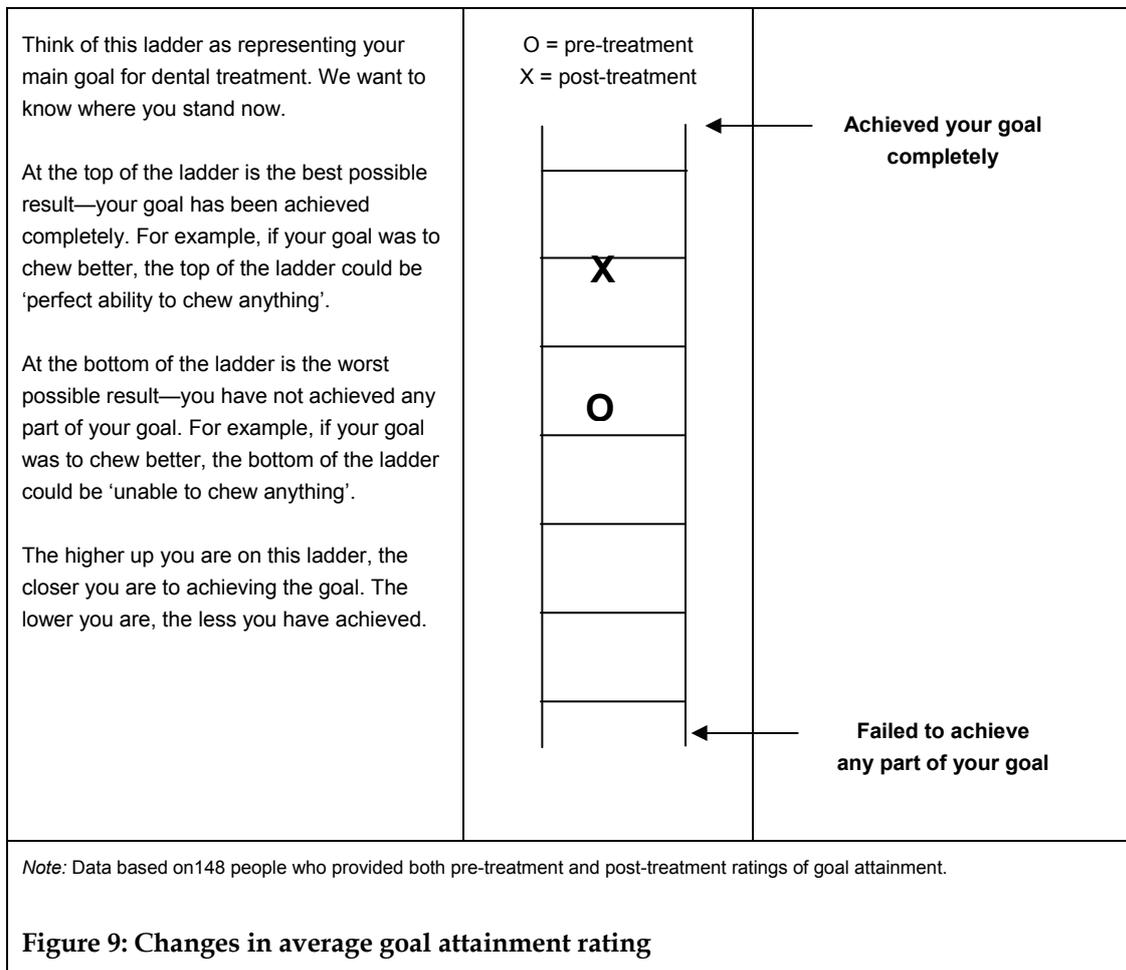
Eighteen per cent of patients described 'other' goals that could not be classified into the four groups listed above, including 'to be able to speak better', 'clean teeth' and 'teeth that are healthy'.

Table 5: Categories of pre-treatment goals nominated by patients^(a)

Category of goal	Per cent of patients reporting goal
Better chewing/eating	39
New/better dentures	17
Less pain/discomfort	16
Better appearance	10
Other goals	18

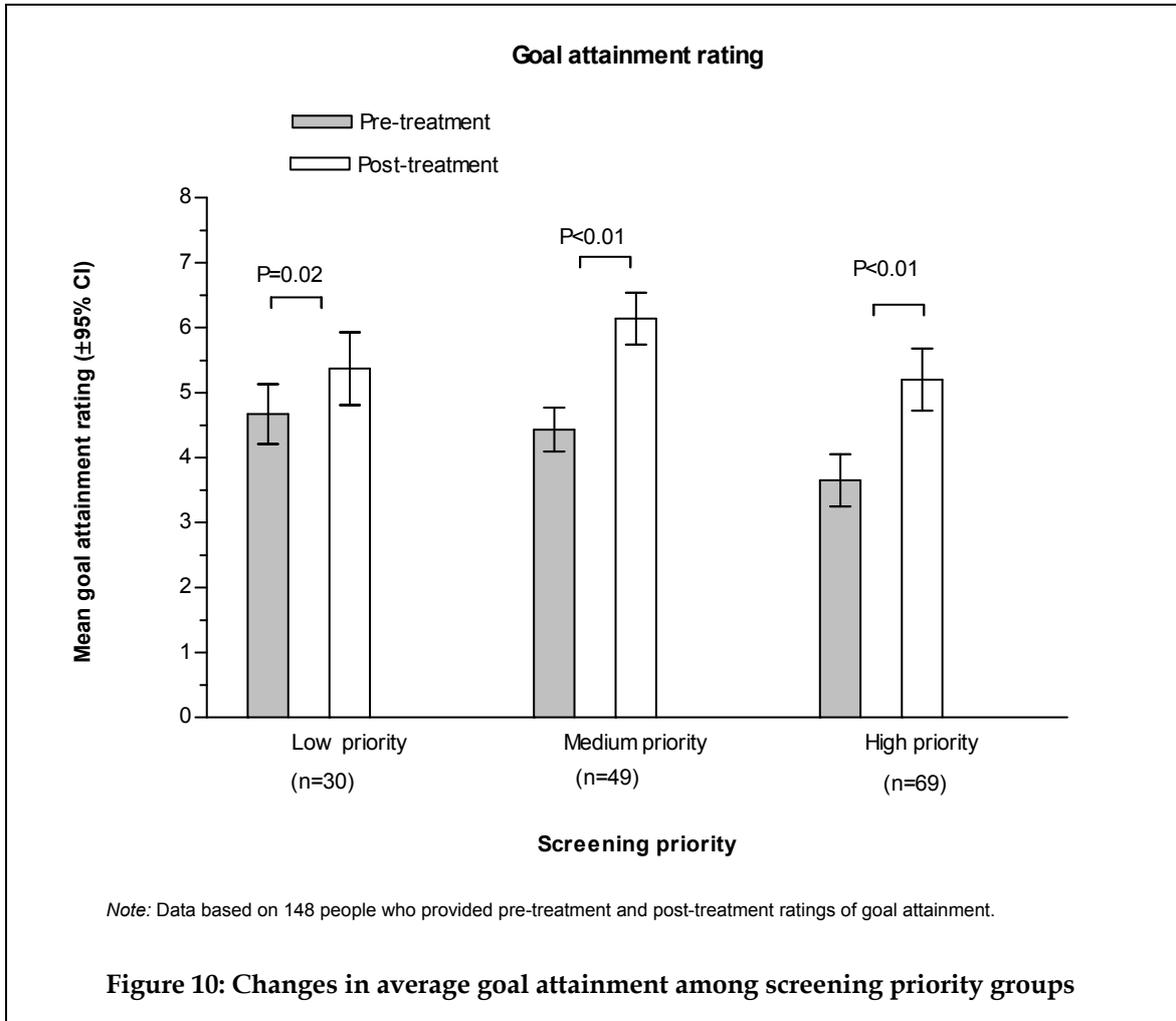
(a) Data based on 148 patients who nominated a pre-treatment goal.

Patients' rating of their goal increased significantly between pre-treatment and 6-month post-treatment interviews, equivalent to approximately 1.4 rungs on the 7-rung ladder (Figure 9).



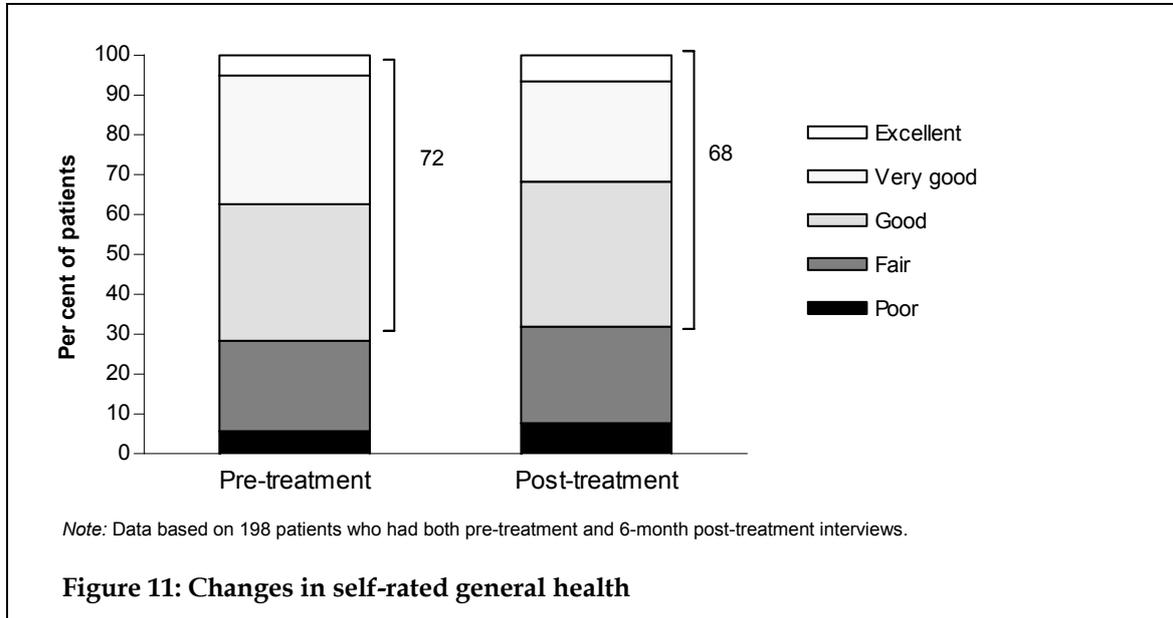
When compared among screening priority groups, pre-treatment goal attainment ratings were greatest for the low priority group, and underwent the smallest increase in goal attainment following treatment, with an average improvement of only 0.7 rungs, which was statistically significant (Figure 10).

In contrast, average goal attainment among the medium and high priority groups increased significantly, with average increases equivalent to 1.7 and 1.5 rungs respectively.

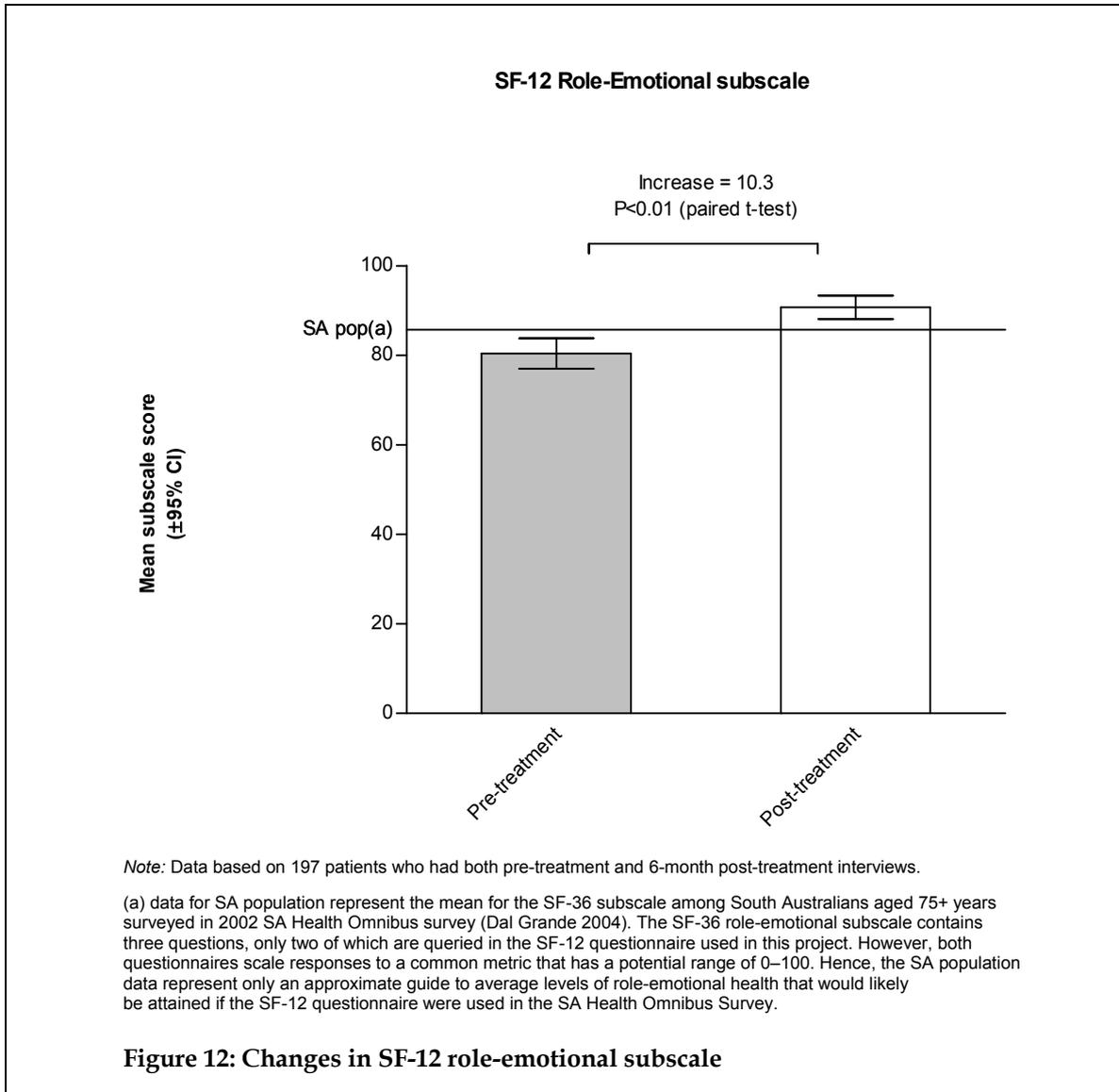


General health and quality of life

There were no statistically significant changes in global self-rated health between the pre-treatment interview and the 6-month post-treatment interview (Figure 11).



Of the 11 remaining questions concerning quality of life queried in the SF-12 questionnaire, there were two questions from the 'role-emotional' subscale that improved significantly (Figure 12). Other SF-12 items exhibited no change.



Appendix A: Guidelines for using oral Health Assessment

GUIDELINES FOR USING ORAL HEALTH ASSESSMENT

This pad is to enable General Practitioners or other Health Assessors to use the oral health questions, in conjunction with the Health Assessment, to assess the patient's oral health status. This is a project being conducted by the SA Dental Service in conjunction with the Southern Division of General Practice.

There is no requirement for an oral examination and the questions should take no longer than a few minutes.

Procedure

Interrupt the general Health Assessment at the questions about oral health to ask the questions below:

- Q1 Do you have any of your own teeth?
(*'own teeth' means natural teeth, not dentures*)
- Q2 Have you had pain in your mouth while chewing?
- Q3 Have you lost any fillings, or do you need a dental visit for any other reason?
- Q4 Have you avoided laughing or smiling because of problems with your teeth, mouth or dentures?
- Q5 Have you had to interrupt meals because of problems with your teeth, mouth or dentures?
- Q6 Have you had difficulty relaxing because of problems with your teeth, mouth or dentures?

- Ensure the cardboard is behind the third (yellow) copy.
- Tick "Yes" or "No" in the relevant boxes on the pad to indicate the patient's responses.
- Complete the rest of the form.
- Remove the top (white) form and mail to SA Dental Service in the reply-paid envelope provided.
- Remove the second copy (blue) and add to the Health Assessment for the G.P.'s files.
- Remove the third copy (yellow) and give to the patient.
- Explain to the patient that the SA Dental Service will phone or write to them, if as a result of their answers to the oral health questions it will be helpful for them to be examined by a dentist.
- As part of the project, those patients eligible for public care will be entitled to priority treatment at the S.A. Dental Service. Patients who are not eligible for public care will be referred to a private dentist.

Tear off this original and send to SA Dental Service.
To: SA Dental Service, Frome Road, Adelaide SA 5000

Original

This patient has answered the oral health assessment questions and indicated problems with the following areas: **A**

Q1: Own teeth? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q2: Pain chewing? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q3: Treatment needed? Yes <input type="checkbox"/> No <input type="checkbox"/>
Q4: Avoided laughing? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q5: Interrupt meals? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q6: Difficulty relaxing? Yes <input type="checkbox"/> No <input type="checkbox"/>

In the opinion of the health assessor, a dental visit would be beneficial Yes No

Any comments

Mr / Mrs / Miss / Ms

Patient (Name)

Address

Age Phone

Aboriginal / Torres Strait Islander

Current Smoker

Yes No

Patient's Consent

I have received an explanation about the SA Dental Service project and received a brochure. I am happy for you to contact me about dental care.

Signature of patient Date / /

Health Assessment

done by

Date of Assessment: / /

Patient's G.P.

Dr.

SA Dental Service Use Only

.....
.....
.....
.....

Appendix B: Oral Health Impact Profile: pre-treatment questionnaire

Oral Health Impact Profile

THE QUESTIONNAIRE.

The questionnaire overleaf asks how problems with your teeth, mouth or dentures may have affected your daily life. We would like you to complete the questionnaire even if you have good dental health.

EXAMPLE: If you had painful aching in your mouth occasionally during the last three months, you would tick the box as shown in this example.

HOW OFTEN during the <u>last three months</u>	<i>Please tick ONE box that best describes your experience</i>				
... have you had painful aching in your mouth?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input checked="" type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅

Please turn this page and answer each of the 14 questions then bring the completed questionnaire to your dental appointment.

Office use only: ID: _____	Date received / /
-------------------------------	-------------------------

Oral Health Impact Profile

HOW OFTEN during the <u>last three months</u>	<i>Please tick ONE box that best describes your experience</i>				
Q1. ... have you had trouble pronouncing any words because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q2. ... have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q3. ... have you had painful aching in your mouth?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q4. ... have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q5. ... have you been self conscious because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q6. ... have you felt tense because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q7. ... has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q8. ... have you had to interrupt meals because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q9. ... have you found it difficult to relax because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q10. ... have you been a bit embarrassed because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q11. ... have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q12. ... have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q13. ... have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q14. ... have you been totally unable to function because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅

Appendix C: Pre-treatment interview

 South Australian Dental Service	SADS AGED CARE PROJECT - Pre-Treatment Interview -	 ARCPOH <small>Australian Research Centre for POPULATION ORAL HEALTH</small>
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*Interviewer: collect completed OHIP questionnaire before interview.
Complete items a) to d) after interview.*

a) Record Subject ID on OHIP questionnaire and here: →	ID
b) How was OHIP questionnaire completed? (circle one number)	1 – By subject alone 2 – By interviewer and subject
c) How well did subject understand questions in Sections A and B? (circle one number)	1 – Completely 2 – Partially 3 – With great difficulty
d) Date of interview	__ / __ / __

SECTION A: Dentures, dental visits and eating

A1. Do you have any of your own natural teeth?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>			
A2. Do you have a denture or false teeth for your <u>upper</u> jaw?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>			
A3. Do you have a denture or false teeth for your <u>lower</u> jaw?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>			
A4. Which is your usual reason for visiting a dental professional, for check ups or when you have a dental problem?	Check-up <input type="checkbox"/>	Dental problem <input type="checkbox"/>	Don't know <input type="checkbox"/>			
A5. Would your dental visits usually be necessary for the relief of pain?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>			
A6. Before today's visit, how long ago did you see a dental professional about your teeth, gums or dentures? (Dental professional means dentist, dental hygienist or dental technician. Tick ONE box from the options below.)						
Less than 12 months <input type="checkbox"/>	One year to less than two years <input type="checkbox"/>	Two years to less than five years <input type="checkbox"/>	Five years to less than ten years <input type="checkbox"/>	Ten years or more <input type="checkbox"/>	Never attended <input type="checkbox"/>	Don't know <input type="checkbox"/>

A7. How often on average would you visit a dental professional?	Two or more times a year <input type="checkbox"/> 1	Once a year <input type="checkbox"/> 2	Once in two years <input type="checkbox"/> 3	Less often than once in 2 years <input type="checkbox"/> 4
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A8. In general, would you say your dental health is:	Excellent <input type="checkbox"/> 1	Very good <input type="checkbox"/> 2	Good <input type="checkbox"/> 3	Fair <input type="checkbox"/> 4	Poor <input type="checkbox"/> 5
---	---	---	------------------------------------	------------------------------------	------------------------------------

We are interested in whether or not you can eat certain types of food, if you wanted to. 'Eat' means bite, chew and swallow. We are not asking about digestion of these foods.

Are you usually able to bite, chew and swallow:

A9. ...boiled vegetables?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
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A10. ...hamburger?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
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A11. ...fresh lettuce salad?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
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A12. ...a piece of fresh carrot?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
----------------------------------	-----------------------------------	----------------------------------	--

A13. ...firm meat such as steak or chops?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
---	-----------------------------------	----------------------------------	--

A14. ...a piece from a whole fresh apple?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	Don't know <input type="checkbox"/> 3
---	-----------------------------------	----------------------------------	--

SECTION B: These next questions are about your general health

B1. In general, would you say your health is:	Excellent <input type="checkbox"/> 1	Very good <input type="checkbox"/> 2	Good <input type="checkbox"/> 3	Fair <input type="checkbox"/> 4	Poor <input type="checkbox"/> 5
---	---	---	------------------------------------	------------------------------------	------------------------------------

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much? (*PROMPT CARD 1*)

B2. <i>Moderate Activities</i> , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?	Yes, limited a lot <input type="checkbox"/> 1	Yes, limited a little <input type="checkbox"/> 2	No, not limited at all <input type="checkbox"/> 3
B3. Climbing <i>several</i> flights of stairs?	Yes, limited a lot <input type="checkbox"/> 1	Yes, limited a little <input type="checkbox"/> 2	No, not limited at all <input type="checkbox"/> 3

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities *as a result of your physical health?* (PROMPT CARD 2)

B4. Accomplished less than you would like?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5
B5. Were limited in the <i>kind</i> of work or other activities?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities *as a result of any emotional problems* (such as feeling depressed or anxious)? (PROMPT CARD 2)

B6. Accomplished less than you would like?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5
B7. Didn't do work or activities as carefully as usual?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5

B8. During the past 4 weeks , how much did <i>pain</i> interfere with your normal work (including both work outside the home and housework)? (PROMPT CARD 3)	Not at all <input type="checkbox"/> 1	A little bit <input type="checkbox"/> 2	Moderately <input type="checkbox"/> 3	Quite a bit <input type="checkbox"/> 4	Extremely <input type="checkbox"/> 5
---	--	--	--	---	---

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the *past 4 weeks*... (PROMPT CARD 2)

B9. Have you felt calm and peaceful?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5
B10. Did you have a lot of energy?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5
B11. Have you felt downhearted and depressed?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5

B12. During the past 4 weeks , how much of the time has your <i>physical health or emotional problems</i> interfered with your social activities (like visiting friends, relatives, etc.)?	All of the time <input type="checkbox"/> 1	Most of the time <input type="checkbox"/> 2	Some of the time <input type="checkbox"/> 3	A little of the time <input type="checkbox"/> 4	None of the time <input type="checkbox"/> 5
---	---	--	--	--	--

SECTION C: Dental treatment and goals

C1. What type of dental care do you think you need? (Tick all that apply?)	Check-up (examination with or without x-rays).....	<input type="checkbox"/>	1
	Cleaning of teeth	<input type="checkbox"/>	2
	Filling(s).....	<input type="checkbox"/>	3
	Extraction of tooth/teeth.....	<input type="checkbox"/>	4
	Gum (periodontal) treatment.....	<input type="checkbox"/>	5
	New denture(s)	<input type="checkbox"/>	6
	Repair/reline of existing denture(s)	<input type="checkbox"/>	7
	Other (specify _____)	<input type="checkbox"/>	8
	Don't know.....	<input type="checkbox"/>	9

Different people hope to achieve different things from dental visits. For example, one person might want to improve their chewing. Another person might want relief from toothache. We are interested in your main goal from your forthcoming dental visits.

C2. What is the main goal you hope to achieve after you complete your dental visits? (PROMPTS: better able to chew? relief from toothache? have a better smile?)	_____	I can't think of any goals <input type="checkbox"/>
---	-------	--

(LADDER PROMPT CARD)
Think of this ladder as representing your main goal for dental treatment. We want to know where you stand now. At the top of the ladder is the best possible result – your goal has been achieved completely. For example, if your goal was to chew better, the top of the ladder could be “perfect ability to chew anything”. At the bottom of the ladder is the worst possible result – you have not achieved any part of your goal. For example, if your goal was to chew better, the bottom of the ladder could be “unable to chew anything”. The higher up you are on this ladder, the closer you are to achieving the goal. The lower you are, the less you have achieved.

C3. Where do you think you stand <u>at the moment</u> with respect to your main treatment goal? (Mark the ladder with a large X)		Optionally record patient's boundaries:

Appendix D: Oral Health Impact Profile: six-month follow-up questionnaire



THE ORAL HEALTH IMPACT PROFILE.

INSTRUCTIONS:

The questions overleaf ask how problems with your teeth, mouth or dentures may have affected your daily life. These are the same questions that you answered approximately six months ago, prior to your treatment at the Somerton Park Dental Centre. We would like you to complete this follow-up questionnaire so that we can learn about your experiences from dental treatment.

EXAMPLE: If you had painful aching in your mouth occasionally during the last three months, you would tick the box as shown in this example.

HOW OFTEN during the <u>last three months</u>	<i>Please tick ONE box that best describes your experience</i>				
... have you had painful aching in your mouth?	Very Often <input type="checkbox"/> 1	Fairly Often <input type="checkbox"/> 2	Occasionally <input checked="" type="checkbox"/> 3	Hardly Ever <input type="checkbox"/> 4	Never <input type="checkbox"/> 5

Please answer the questions in the next two pages. If you wish, we can help you to answer these questions. We will be phoning you within the next few weeks to ask you some questions about your dental treatment. So if you would like some help, you can ask us when we phone you..

Thank you for your assistance with this project.

Oral Health Impact Profile

HOW OFTEN during the last three months	<i>Please tick ONE box that best describes your experience</i>				
Q1. ... have you had trouble pronouncing any words because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q2. ... have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q3. ... have you had painful aching in your mouth?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q4. ... have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q5. ... have you been self conscious because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q6. ... have you felt tense because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q7. ... has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q8. ... have you had to interrupt meals because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q9. ... have you found it difficult to relax because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q10. ... have you been a bit embarrassed because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q11. ... have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q12. ... have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q13. ... have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅
Q14. ... have you been totally unable to function because of problems with your teeth, mouth or dentures?	Very Often <input type="checkbox"/> ₁	Fairly Often <input type="checkbox"/> ₂	Occasionally <input type="checkbox"/> ₃	Hardly Ever <input type="checkbox"/> ₄	Never <input type="checkbox"/> ₅

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