SECTION 6

65 to 74-year old non-institutionalized older persons (NOP)

Introduction

The 65 to 74-year old older persons group has become a focus for attention as Hong Kong's population continues to age. The growing longer life expectancy and low mortality rates have contributed to this population-aging phenomenon. It is expected that one in every five of our population will be aged 65 or above by 2029[3].

The World Health Organization has recommended that both active and housebound older persons of this age group must be included. Housebound older persons has been defined as older persons living in residential care homes in the local context, and a separate survey has been performed on the institutionalized older persons which will be presented in Section 7.

Survey objectives

The objectives of the survey of the 65 to 74-year old NOP were :

1. to assess the oral health status (mainly tooth decay and gum disease status);
2. to collect information on the oral health care behaviour;
3. to collect information on the knowledge on dental diseases;
4. to collect information on attitudes towards oral health; and
5. to collect information on attitudes towards oral health care service.

A brief description on the survey methods employed is presented in the following paragraphs. Details on data collection, methodology and statistical methods in sampling and computation of results, can be referred to in a separate Technical Report of the Oral Health Survey 2001. Readers who wish to go direct to survey findings can proceed to quick reference sections found in green text boxes.

Sample design

The survey on the 65 to 74-year old NOP group was conducted at the time the Thematic Household Survey of the first quarter in 2001 was in progress.

Thematic Household Survey is carried out by contracting out mode under the coordination and management of the Census and Statistics Department on a regular basis, to meet the requests from Government policy bureaux and departments for statistical data and information on various social issues. It makes use of the frame of quarters maintained by the Census and Statistics Department as the sampling frame, which covers the land-based non-institutionalized population. Samples of quarters are selected from the frame in accordance with a scientifically designed sampling scheme.

A sub-sample of 65 to 74-year old subjects was selected from the Thematic Household Survey sample using a systematic random sampling method for the Oral Health Survey. The sample size was determined by taking into consideration the precision level, prevalence of gum pocket, sample design effect, anticipated response rate and resources availability.

Data collection method

Data on oral health status was collected by clinical examination performed by a team of dental officers (examiners). The examination procedure and recording criteria were based on the recommendation of the World Health Organization[1]. Clinical examination was performed using portable equipments, either at the home of the selected subject, or at a designated examination center set up by the Department of Health.

Data on personal behaviour, knowledge and attitudes related to oral health and usage of oral health service were collected through structured interview conducted by a team of trained dental surgery assistants.

Training sessions were arranged for both the dental officers and dental surgery assistants to familiarize them with the data collection methods and to calibrate them to ensure consistency. Calibration exercises were arranged once every two weeks during the survey period to ensure consistent performance of all staff involved in data collection.

Enumeration results

A sub-sample of 1 069 NOP was selected, and the survey was successfully completed on 316 NOP. The response rate was 29.6%. A follow up survey was performed with the purpose of evaluating the characteristics of the 753 non-respondents against the 316 respondents. The follow up survey was conducted on a sample of 80 quarters with eligible residents from the 753 subjects who declined to participate initially. Intensive enumeration and response enhancing procedures were applied during the follow up survey. There were 59 NOP who responded to the follow up survey.

No significant difference was found in either oral health status or key oral health care behaviour between the respondents and non-respondents. With statistical adjustment and weighting, the final results could be inferred to some 445 500 NOP aged 65 to 74 in Hong Kong. There were 458 300 older persons aged 65 to 74, including older persons in hospitals, residential care homes and correctional institutions, at the time of survey according to the 2001 Population Census. The number of 65 to 74-year old NOP residents in Hong Kong was not precisely known.

Limitations

The findings were reported at the aggregate level. For Tables presented in the report, figures may not add up to the totals due to rounding off.

Results of the Oral Health Survey may be subject to errors. The estimates contained in this report were based on information obtained from a particular sample, which was one of a large number of possible samples that could be selected using the same sample design. By chance, estimates derived from different samples would differ from each other. Due to this possible variation of results, a zero figure may mean a non-zero figure of small magnitude. These estimates should be interpreted with caution. Some results were derived from small sub-group of the sample and the limitation should be noted in its interpretations.

What was the oral health status of the 65 to 74-year NOP in Hong Kong?

Teeth status - how many teeth were there?

Only 1.9% (8 500) NOP had the full complement of 32 permanent teeth. However, it is not the goal of the dental profession for every individual to possess 32 teeth. There is also no optimal number nor minimum acceptable number of teeth agreed by the dental profession. For comparison purpose, 20 teeth has been used as the arbitrary minimum number of teeth for minimum level of function. From this survey, it was found that 49.7% (221 400) NOP had ≥ 20 teeth. 8.6% (38 300) NOP had no teeth at all (edentulous). Retained roots, i.e. severely broken down teeth with only the roots left behind, were found in 30.2% (134 500) NOP. The results are summarized in Table 6.1. The mean number of teeth present was 17. Among the teeth present, a mean of 0.6 tooth was retained root.

Table 6.1
Number and percentage of NOP according to various indicators related to teeth status

Teeth status	Number	Percentage
No teeth left (edentulous)	38 300	8.6
With ≥ 20 teeth left	221 400	49.7
With 32 teeth left	8 500	1.9
With roots left	134 500	30.2

Teeth status - replacement of missing teeth

Two-thirds of the NOP had dental prostheses. The proportion of NOP with various types of dental prostheses are shown in Table 6.2.

Table 6.2
Number and percentage of NOP with dental prostheses

Type of dental prostheses	Number	Percentage
With any type of prostheses	303 500	68.1
With dental bridges	134 400	30.2
With partial dentures	149 500	33.6
With full dentures	88 100	19.8

Teeth status - what was the level of tooth decay?

The level of tooth decay among the NOP population are shown in Table 6.3. The level of root surface decay is shown in Table 6.4. Virtually all NOP had tooth decay experience. A large proportion of this experience was manifested as tooth loss (MT). Untreated decay (DT) was found in more than half of the NOP population. Decay on root surfaces (DF-root) was found in almost a quarter of the NOP, and almost all of the decay on root surfaces were untreated (D-root).

The proportion of NOP with root surface decay (Table 6.4) was already included in the proportion of NOP with tooth decay (Table 6.3). Hence, it can be said that 40.6% of the NOP with untreated tooth decay in fact had root surface decay (21.5% out of 52.9%).

Table 6.3
Level of tooth decay as measured by the DMFT index among NOP

	DMFT	DT (decayed)	MT (missing)	FT (filled)
Mean value	17.6	1.3	15.1	1.2
% Among population	99.4	52.9	98.1	40.3

Table 6.4
Level of root surface decay among NOP

	DF-root	D-root (decayed)	F-root (filled)
Mean value	0.4	0.3	<0.05
% Among population	22.6	21.5	3.1

Gum condition as measured by the loss of gum attachment (LOA)

The level of loss of gum attachment among the NOP population are shown in Table 6.5. Around nine out of every ten NOP had experienced some loss of gum attachment and more than half of them had moderate to severe loss of gum attachment (≥ 6 mm).

Table 6.5
Loss of gum attachment (LOA) among NOP

	≥ 4 mm	≥ 6 mm	≥ 9 mm	≥ 12 mm
Mean number of sextants affected	2.7	1.0	0.2	0.1
% Among population	91.7	51.8	15.5	4.8

19.5% (86 800) NOP, and 1.5 sextants were excluded due to insufficient number of teeth present or unable to be examined according to the criteria.

Gum condition as measured by the Community Periodontal Index (CPI)

The gum condition as measured by the CPI can be found in Table 6.6. None of the 65 to 74-year old NOP surveyed had healthy gums in all the sextants examined. Gum pockets were present in more than half of the NOP population, and deep gum pockets were found in 11% (39 000) NOP.

Table 6.6
Gum condition as measured by the highest CPI score among NOP

	Healthy	Bleeding	Calculus	Shallow pocket	Deep pocket
Mean number of sextants affected	0.1	0.2	2.9	1.2	0.1
% Among population	0	1.7	43.0	44.3	11.0

19.5% (86 800) NOP, and 1.5 sextants were excluded due to insufficient number of teeth present or unable to be examined according to the criteria.

As seen from Table 6.5, 91.7% (328 800) had loss of gum attachment of ≥ 4mm. Table 6.6 showed that 55.3% (198 300) had gum pockets, i.e. a loss of gum attachment of ≥ 4mm. At least 36.4% (130 500) (by subtracting 55.3% from 91.7%) had loss of gum attachment not in the form of gum pocket, but in the form of gum recession, as assessed by examining one tooth in each of the six sextants in the mouth.

More than half of the NOP had untreated decay. Among them, 40.6% had decay on root surfaces. With only an average of 17 teeth remaining among the NOP, 1.3 teeth were affected by untreated decay, and of these, 0.6 tooth was severely broken down with only the root left. Tooth decay was a genuine threat to the NOP population. The problem of decay on root surfaces was also significant as most of these were untreated.

Both gum pockets and gum recession were common. About half of the NOP population had lost half of the total gum attachment (≥ 6mm) on at least one of the remaining teeth. Severe loss of gum attachment (≥ 9mm) was found in 15.5% of NOP. Gum pockets were found in more than half of the NOP.

Tooth loss was a problem and there was risk of more tooth loss in the future. Half of the NOP population had lost their teeth to the extent of having less than 20 teeth remaining. Almost one in every ten NOP had no teeth at all. With the prevailing loss of gum attachment and decay on root surfaces, the loss of more affected teeth is highly probable.

Around two-thirds of NOP had dental prostheses. As the use of dental prostheses can lead to dental plaque retention, its use justifies special attention on teeth cleaning practices.

What was the experience in oral health problems among the NOP population?

Aside from assessing the level of tooth decay and gum disease in NOP, it was also the objective of the Oral Health Survey to have a better understanding of oral health in terms of their perception of well being. Part of the structured interview was designed to investigate their experience of oral health problems, and the care seeking behaviour when oral health problems had been perceived.

How many NOP had experienced oral health problems, and what did they do to deal with the problems?

The percentage of NOP who had perceived oral health problems in the previous 12 months is shown in Table 6.7. *Bad breath* was the mostly reported problem. However, *bad breath* is a complex oral problem that may or may not be directly related to teeth. The most common problems reported that were directly related to teeth was *mobile teeth*, followed by *tooth sensitivity to hot and cold*. *Abscess* and *severe pain* were the least reported problems, but they were perceived by around one out of seven NOP, which showed that these problems were not that uncommon.

The actions taken by the affected NOP for the problems perceived are also shown in Table 6.7. For problems that were directly related to teeth, such as *mobile teeth* and *tooth sensitivity to hot and cold*, more than half of the affected NOP did not take any action. For non-specific problems like *bad breath* and *dryness of mouth*, around seven in ten of the affected NOP managed the problems on their own. The seeking of professional advice and care was the least likely course of action. However, less than half of those affected sought care even for the most severe condition which was *pain that disturbed sleep*.

Table 6.7
Perceived oral health problems by NOP and the actions taken

Condition	Percentage	Actions taken by the affected NOP			
		No action	Self manage	TCM* / Doctor	Dentist
Bad breath	59.7	25.6%	69.3%	3.7%	1.3%
Mobile teeth #	42.4	63.9%	10.2%	0.7%	25.1%
Sensitivity to hot or cold #	40.9	51.2%	37.2%	2.0%	9.6%
Dryness of mouth on eating	36.8	23.0%	73.1%	3.0%	0.8%
Difficulty in chewing	35.2	41.0%	42.8%	1.7%	14.5%
Bleeding gums #	28.6	46.4%	43.5%	4.0%	6.1%
Pain that disturbed sleep	14.7	15.0%	37.4%	7.5%	40.1%
Abscess	13.0	34.6%	30.7%	11.0%	23.6%

* TCM = traditional Chinese medicine practitioner
# Conditions affecting remaining teeth

Bad breath was perceived by 59.7% of NOP, and other oral health problems were also reported by less than half of the NOP, such as mobile teeth, abscess and pain that disturbed sleep.

The affected NOP tended to manage the problems by themselves. To seek professional oral health care was the least likely course of action. Less than half of those affected sought care, even for the most severe condition which was *pain that disturbed sleep*.

What was the impact of the conditions of the teeth, mouth and dental prostheses on the daily life of the NOP population?

The impact of oral conditions on NOP's various aspects of daily life was measured by a locally validated set of questions, ie. Oral Health Impact Profile (OHIP-14).

The proportion of NOP who responded negative impact on various aspects of daily life are shown in Table 6.8. The three aspects of daily life with the highest reported negative impact were all related to eating, and such negative impact was reported by around 12% to 18% of NOP. The negative impact on other aspects of daily life in OHIP-14 was even lower.

Table 6.8
Percentage of NOP expressing negative impact on aspects of daily life in OHIP-14

Impact on daily life	Percentage
Have found it uncomfortable to eat any food	18.2
Have had difficulty chewing any food	18.1
Have felt that there has been less flavour in food	11.7
Have had trouble pronouncing any words	8.4
Have had to interrupt meals	5.9
Have been a bit embarrassed	5.3
Have been miserable	5.3
Have been worried	4.2
Have had sore spots in mouth	3.8
Have been upset	3.3
Have had troubles getting along with other people	1.7
Have been unable to work to full capacity	1.6
Have avoided going out	1.6
Have been totally unable to function	0.8

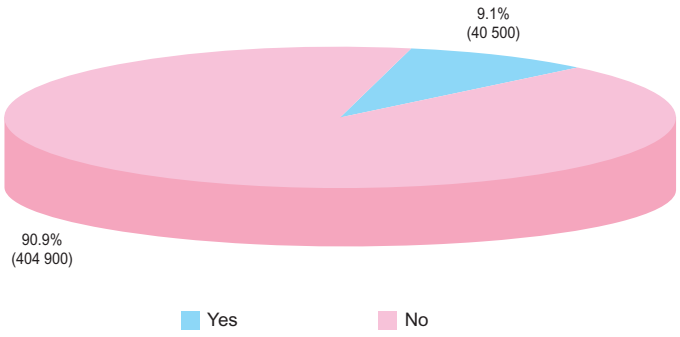
Around 12% to 18% of the NOP population in Hong Kong expressed negative impact arising from oral health conditions on eating. Negative impact on other aspects of daily life was lower. This may have been due to either a true low impact (NOP did not perceive functional difficulty arising from their oral health conditions) or the inability to express the negative impact (functional difficulty arising from oral health conditions was perceived but the NOP were not used to expressing such difficulty).

What was the pattern of usage of oral health care services like among the 65 to 74-year old NOP?

How many NOP had the habit of seeking regular dental checkup?

Only 9.1% (40 500) of NOP reported that they had the habit of regular dental checkup. (Figure 6.1)

Figure 6.1
Distribution of NOP according to habit of regular dental checkup



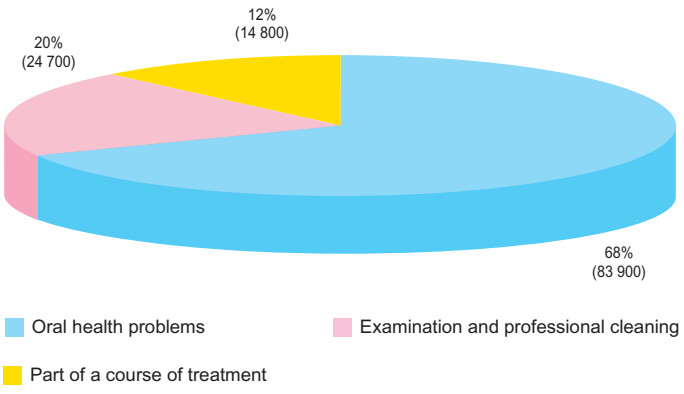
When was the last dental visit made by the NOP?

The distribution of NOP according to the time when the NOP made their last visit to the dentist is shown in Table 6.9. Less than one-third had visited a dentist within the past year. Among the 27.7% (123 400) NOP who had visited a dentist in the previous 12 months, 68% did so because of oral health problems (Figure 6.2).

Table 6.9
Distribution of NOP according to time of last dental visit

Time of last dental visit	Number	Percentage
1 year or less	123 400	27.7
1 to 3 years	93 100	20.9
More than 3 years	194 200	43.6
Never visited dentist	16 000	3.6
Could not remember	18 800	4.2

Figure 6.2
Distribution of NOP who had visited dentist in the previous year according to the reported reason of visit



Only 9.1% of the NOP had the habit of regular dental checkup. And only 27.7% had visited the dentist in the previous year. A small group (3.6%) reported that they had never visited a dentist.

Most of the dental visits made in the previous year were curative treatment for oral health problems. Oral health problems actually accounted for 68% of those visits. Only 20% of those visits were for checkup

How did the 65 to 74-year old NOP practise oral self-care ?

As 8.6% (38 300) of the NOP had no teeth at all, the following description on toothbrushing and flossing will be limited to those NOP with teeth remaining, and they are referred to as **dentate NOP**.

Toothbrushing - how often did the dentate NOP brush?

The toothbrushing habit reported by the dentate NOP is shown in Table 6.10. 98.7% (401 900) of dentate NOP reported the habit of daily toothbrushing.

Table 6.10
Distribution of dentate NOP according to toothbrushing habit

Toothbrushing habit	Number	Percentage
Brushed everyday	401 900	98.7
Brushed occasionally	1 300	0.3
Never brushed	4 000	1.0

Toothbrushing - what time did the dentate NOP usually brush?

The time of brushing is shown in Table 6.11. Among those who reported a habit of daily toothbrushing, almost all did so in the morning. Brushing before going to bed was reported by less than two-thirds of dentate NOP.

Table 6.11
Number and percentage of dentate NOP who brushed everyday according to time of toothbrushing

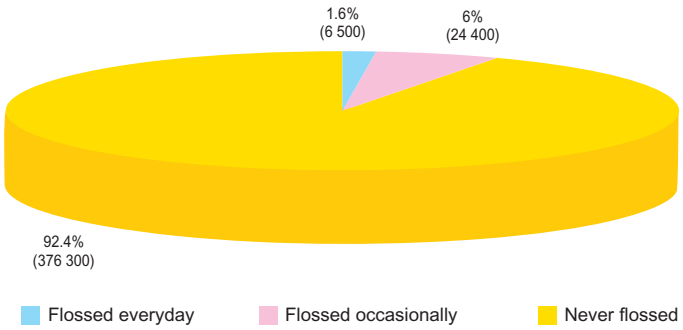
Time of day	Number	Percentage
In the morning	395 500	98.4
Before bed	252 400	62.8
After dinner	29 700	7.4
After lunch	23 300	5.8
After eating	14 500	3.6

Respondents allowed to choose multiple answers

How many dentate NOP flossed as part of interdental cleaning ?

The habit of flossing is shown in Figure 6.3. Only 1.6% (6 500) of dentate NOP reported that they flossed on a daily basis.

Figure 6.3
Distribution of dentate NOP according to flossing habit



Around 60% of dentate NOP brushed twice daily. This was deduced from the fact that almost all of those who had the brushing habit did so in the morning, and 62.8% also reported brushing at night time.

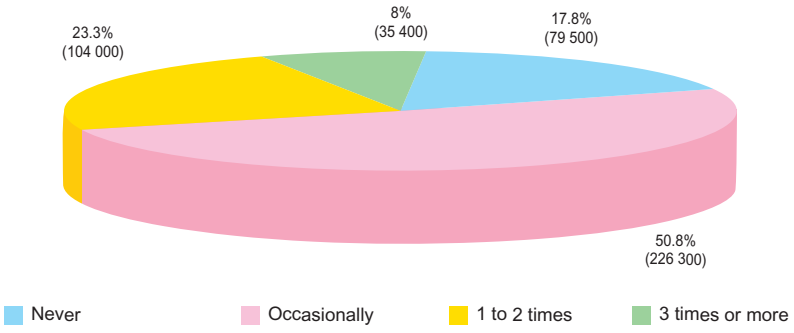
Only 1.6% of NOP reported that they flossed their teeth everyday.

What was the dietary pattern in relation to oral health among the 65 to 74-year old NOP?

Snacking habit

Snacking was referred to as any food, snack or drink (except water) intake in between normal meals. The reported snacking habit of NOP is shown in Figure 6.4.

Figure 6.4
Distribution of NOP according to the daily snacking frequency



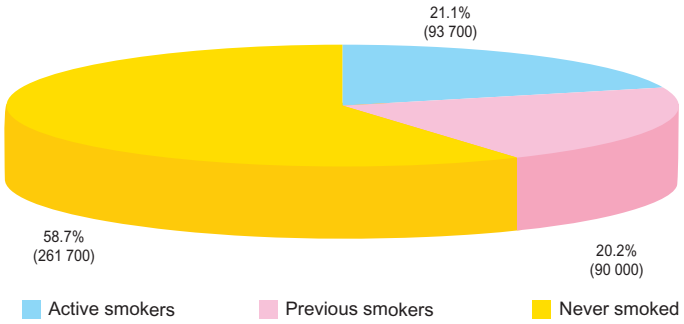
Snacking did not seem to be a major problem among the NOP population. Only 8% of NOP snacked three or more times a day. High snacking frequency is considered by the dental profession worldwide as a risk factor in developing tooth decay.

What was the smoking habit among the 65 to 74-year old NOP?

Smoking

The smoking habit among the NOP is shown in Figure 6.5. It was found that 21.1% (93 700) were active smokers.

Figure 6.5
Distribution of NOP according to smoking habit



Smoking habit was reported by one in every five NOP.

Summary on oral health status and oral health behaviour

Most NOP had experienced tooth loss, and almost one in every ten NOP had total tooth loss.

More than half of the NOP had untreated tooth decay, and gum pockets were also found in more than half of the NOP. With only one-fifth of the NOP population who had the habit of regular dental checkup, most of these existing diseases may progress without being noticed by the affected individual. Even when some of these diseases were to progress to a stage to cause discomfort, it was likely that some of the NOP would not seek professional care based on the surveyed behaviour. In other words, the observed behaviour was unlikely to prevent further deterioration of the diseases.

The presence of gum recession leading to exposed root surfaces, abundant calculus deposits, and use of dental prostheses, along with inadequate teeth cleaning practice, low usage of regular dental checkup, were all risk factors to the development of new tooth decay and gum disease and deterioration of existing diseases.

In summary, there were possibilities that NOP would have new tooth decay and gum disease, and/or further disease progression leading to tooth loss. However, such prospects should not be too pessimistic if there were room for improvement in the oral health life-style. Tooth loss can be prevented and oral health can be maintained with positive changes in oral health behaviour.

What were the possible explanations to the inadequacies in oral health related behaviour?

What did the NOP know about the factors leading to tooth decay?

The factors leading to tooth decay as perceived by the NOP population are shown in Table 6.12. The main factor perceived was *eating too much candies or sweet food*. However, only less than 1% pointed out that *frequent intake of food or drink* as related to tooth decay. The second most commonly cited factor was *improper cleaning of teeth*. Other factors were reported by less than 10% of the NOP, and more than a quarter of NOP replied *don't know*.

Table 6.12
Number and percentage of NOP
according to perceived factors leading to tooth decay

Perceived factors	Number	Percentage
Eating too much candies / sweet food *	207 500	46.6
Improper cleaning of teeth *	161 100	36.2
Traditional Chinese medicine beliefs	15 100	3.4
Sour food / drink	13 600	3.1
Lack of calcium / nutrition	10 000	2.2
Poor general health	7 600	1.7
Inherited	6 200	1.4
Dental plaque / bacteria *	3 600	0.8
Too frequent food / drink intake *	3 800	0.8
No regular dental checkup *	1 300	0.3
Don't know	125 200	28.1

Respondents allowed to choose multiple answers
* Relevant factors

What did the NOP know about the factors leading to gum disease?

The factors leading to gum disease as perceived by the NOP population are shown in Table 6.13. Almost half of the NOP replied *don't know* to this question, indicating that the NOP population were not at all certain about the factors leading to gum disease. *Traditional Chinese medicine beliefs* - mainly "reqi" (internal heat 熱氣) was the most commonly perceived factor, followed by *improper cleaning of teeth. Smoking* was mentioned by very few NOP.

Table 6.13
Number and percentage of NOP
according to perceived factors leading to gum disease

Perceived factors	Number	Percentage
"reqi" / traditional Chinese medicine beliefs	129 400	29.0
Improper cleaning of teeth *	54 400	12.2
No avoidance of certain food	18 500	4.2
Dental plaque / bacteria *	15 800	3.5
Accumulation of calculus	11 100	2.5
Poor general health	7 500	1.7
Lack of vitamin / nutrition	6 300	1.4
No regular dental checkup *	4 900	1.1
Smoking *	3 700	0.8
Don't know	198 300	44.5

Respondents allowed to choose multiple answers
* Relevant factors

What did the NOP know about the prevention of tooth decay?

When asked what could be done to prevent tooth decay, more than half of NOP cited *proper cleaning of teeth* - mainly toothbrushing. Other perceived methods are listed in Table 6.14. *Reduce consumption of candies or sweet food* was reported by 19.8% (88 200) of NOP as a measure to prevent tooth decay, while only 0.3% (1 300) mentioned *to reduce frequency of food / drink intake. To seek regular dental checkup* was reported by only 3.6% (16 100) of NOP. 30.9% (137 600) replied *don't know* to this question, indicating the uncertainty of the NOP about prevention of tooth decay.

Table 6.14
Number and percentage of NOP
according to perceived methods to prevent tooth decay

Perceived methods	Number	Percentage
Proper cleaning of teeth *	228 500	51.3
Reduce consumption of candies / sweet food *	88 200	19.8
Rinsing with water / salt water	43 600	9.8
Use commercial mouth wash	17 600	3.9
Avoid certain food	17 200	3.9
Seek regular dental checkup *	16 100	3.6
Drink herbal tea / Chinese medicine	7 400	1.7
Take calcium / nutrient supplements	6 300	1.4
Avoid sour food / drink	5 000	1.1
Reduce frequency of food / drink intake *	1 300	0.3
Use fluoride toothpaste *	1 200	0.3
Don't know	137 600	30.9

Respondents allowed to choose multiple answers
* Relevant factors

What did the NOP know about the prevention of gum disease?

The perceived methods to prevent gum disease as reported by NOP are listed in Table 6.15. As many as 62.1% (276 600) of the NOP replied *don't know* to this question. This clearly showed that more than half of the NOP were not aware of how to prevent gum disease.

Table 6.15
Number and percentage of NOP according to perceived methods to prevent gum disease

Perceived methods	Number	Percentage
Avoid certain food	46 100	10.3
Proper cleaning of teeth *	40 900	9.2
Taking Chinese medicine / herbal tea	34 700	7.8
Rinsing with water / salt water	22 600	5.1
Seek regular dental checkup *	15 000	3.4
Take vitamin / nutrient supplements / fruits	12 400	2.8
Use commercial mouthwashes	9 800	2.2
Use medicated toothpaste	1 300	0.3
Avoid smoking *	0	0
Don't know	276 600	62.1

Respondents allowed to choose multiple answers
* Relevant factors

Knowledge on tooth decay and gum disease was poor. For tooth decay, 28.1% did not know anything about its causative factor and 30.9% did not know any preventive method. The knowledge about gum diseases was even worse, 44.5% did not know the causative factor and 62.1% did not know any preventive method.

Proper cleaning of teeth was the main preventive method for both tooth decay and gum disease. This was followed by about 8% who cited taking *Chinese Medicine*/*herbal tea*. Little else was known of other relevant factors to prevent tooth decay and gum disease.

Toothbrushing - as perceived by the NOP, what were the most effective ways to brush their teeth ?

The dentate NOP were asked to indicate how they thought was effective brushing method. The results are shown in Table 6.16. More than half of the dentate NOP regarded their own brushing methods acquired from non-professional sources (e.g. acquired from family during childhoold) or professional messages not delivered on a personal basis (e.g. posters, pamphlets, video demonstration) as adequate. More than a quarter of them also considered the *use of toothpaste* as important. Only 9.4% (37 800) of dentate NOP pointed out that *personal instructions given by dental professionals* was an effective method.

Table 6.16
Number and percentage of dentate NOP who brushed everyday according to perceived effective toothbrushing method

Perceived effective toothbrushing method	Number	Percentage
Methods from non-professional / non-personal sources	232 700	57.9
Use toothpaste	108 100	26.9
Personal instruction by dental professionals	37 800	9.4
Brush longer time / harder	10 400	2.6
Use electric / special design toothbrush	6 400	1.6
Don't know	20 900	5.2

Respondents allowed to choose multiple answers

Proper teeth cleaning was the most commonly reported preventive method to tooth decay and gum disease. As perceived by the NOP, the most effective toothbrushing method was derived from non-professional sources (e.g. acquired from family during childhood) or professional messages not delivered on a personal basis (e.g. posters, pamphlets, video demonstration). Without proper instruction and reinforcement, NOP practising teeth cleaning might not be able to recognize the inadequacies in their teeth cleaning practices.

What were the reasons for not seeking regular dental checkup?

The reasons for not seeking regular dental checkup were sought from the 90.9% (404 900) NOP who did not report this habit. The results are shown in Table 6.17. The most commonly reported reason was *no perceived need* due to the *perception of good teeth* and also to *absence of pain*. The second most reported reason was *uncertainty of cost* / *worry of high cost*. Other reasons were reported by a relatively smaller proportion of NOP.

Table 6.17
Number and percentage of NOP who did not seek regular dental checkup according to the reported reasons for not doing so

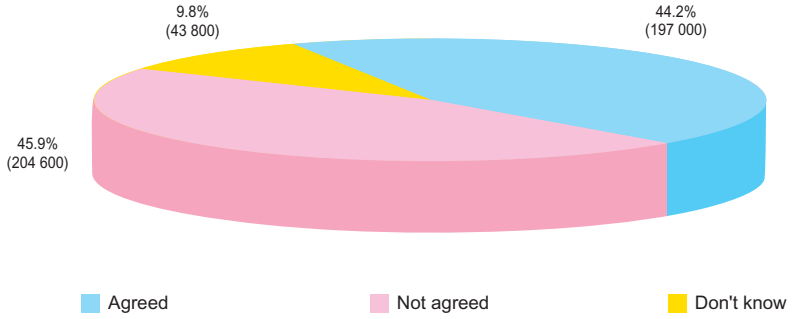
Reasons	Number	Percentage
Teeth were good / no pain / no need	146 200	36.1
Uncertainty of cost / worry of high cost	119 400	29.5
Did not know / never thought about checkup	50 600	12.5
No time/could not get off work	36 400	9.0
Did not know how to find dentist	34 000	8.4
No teeth, no need to go	24 700	6.1
Teeth had minor problems only, no need	18 200	4.5

Respondents allowed to choose multiple answers

Perceived benefit and worthiness of regular dental checkup

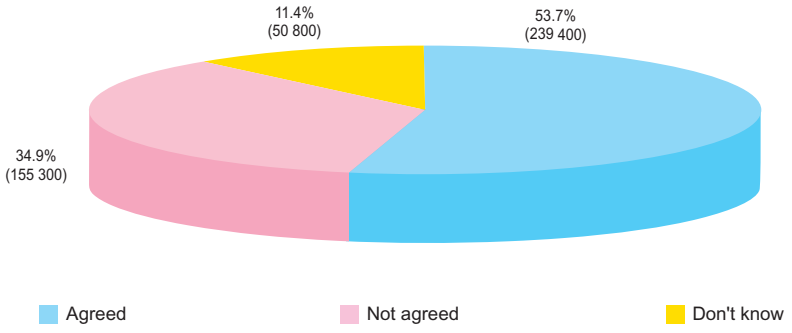
The perceived benefit of regular dental checkup was inferred by the agreement to the statement *teeth will be fine without regular checkup*, and the results are shown in Figure 6.6. Almost half of the NOP agreed to the statement, indicating that they did not perceive any benefit from regular dental checkup.

Figure 6.6
Distribution of NOP according to agreement that *teeth will be fine without regular checkup*



As shown in Figure 6.7, majority of the NOP agreed that *it is worthy to spend money on regular dental checkup*, but then again about one-third disagreed to the same statement.

Figure 6.7
Distribution of NOP according to agreement that *it is worthy to spend money on regular dental checkup*



No perceived need was the reason provided by more than one-third of the NOP for not seeking regular dental checkup. The absence of perceived need was due to the self-perceived good oral health and the absence of pain.

There were conflicting attitudes concerning regular dental checkup. Around half of the NOP perceived that regular dental checkup may help to keep their teeth fine and it was worthy to spend money on dental checkup. This should be an indication that some kind of need and value regarding dental checkup had been perceived by half of the NOP. However, nine out of ten NOP did not seek regular dental checkup. Among the NOP with perceived need for regular dental checkup, there were barriers to the transformation of perceived need into demand.

How was the NOP's perceived need for dental treatment as compared to the need assessed by the survey method?

The treatment need perceived by the NOP was compared to the assessed need based on the survey method in Table 6.18. Generally speaking, the perceived need was lower than the assessed need. The disparity was especially noted in preventive treatment such as oral hygiene instruction and scaling.

Table 6.18
Dental treatment need perceived by the NOP compared with the assessed need based on the survey method

Dental treatment need	Perceived	Assessed
Oral hygiene instruction	0.8%	100%
Scaling	3.9%	98.3%
Dental prostheses	22.2%	36.6%
Tooth extraction	8.6%	36.1%
Tooth filling	8.7%	32.6%
Advanced periodontal treatment	1.7%	11.0%
Dental pulp care	1.1%	3.4%
Crown fabrication	0.8%	1.1%

The treatment need perceived by the NOP was found to be far lower than the assessed need. No perceived need was the most commonly reported reason for not seeking regular dental checkup. Most of the treatment need as assessed using the survey methods had not been perceived by the NOP, especially the need for preventive treatment.

In the structured interview, a set of hypothetical tooth decay situations were presented to the NOP, and they were asked to propose their course of action when confronted with such situations. The purpose was to study the considerations in NOP's proposed actions under different tooth decay problems, and to investigate if there were any difference in the management of problems of front teeth or back teeth, and when the problems were associated with pain or not.

What would the NOP do in case of tooth decay problems ?

The proposed actions of the NOP under the various tooth decay situations are summarized in Table 6.19

Table 6.19
Proposed actions of the NOP
under various tooth decay situations

	Front teeth	Back teeth
Decayed with no pain	49.0% no action	51.0% no action
	1.4% self manage	3.3% self manage
	7.2% seek removal of tooth	8.4% seek removal of tooth
	29.5% see dentist	24.4% see dentist
	12.8% could not decide	12.9% could not decide
Decayed with pain	4.7% no action	3.9% no action
	7.8% self manage	9.7% self manage
	29.1% seek removal of tooth	30.9% seek removal of tooth
	44.2% see dentist	41.5% see dentist
	2.2% see medical doctor	2.5% see medical doctor
	12.1% could not decide	11.5% could not decide

Under the hypothetical tooth decay situations, majority of the NOP proposed to see dentist and very few proposed self-management. The proposed actions were not consistent with the actual behavior reported in the previous experience of other oral health problems, where majority of the NOP tended to manage the problems by themselves and relatively few sought professional care (Table 6.7).

For the proposed actions under various hypothetical tooth decay situations, only very few NOP cited self-management and yet this had been commonly practised in previous oral health problem experience.

Pain was an important determining factor in taking action. Around half of the NOP would not take any action if there was no pain, even if decay was apparent.

The removal of the offending tooth was an expedient solution among some of the NOP. Around 8% would ask for tooth removal if there was decay even without pain. The proportion increased to around 30% if there was associated pain.

Some would not take any action even in pain. Around 5% would not take any action even if there was associated pain.

What were the reasons for not proposing to seek oral health care services in hypothetical situations?

The reasons given by the NOP for not seeking care in hypothetical tooth decay situations are listed in Table 6.20. When there was no pain, the main reason for not seeking oral health care was the belief that *the condition would relieve by itself*, followed by *uncertainty of cost* / *worry of high cost*. When there was pain, the *uncertainty of cost* / *worry of high cost* became the most important reason.

Table 6.20
Proportion of NOP who did not propose to seek care in hypothetical tooth decay situations according to reasons for not proposing so

Reasons	No pain	Pain
Minor problem will relief by itself	58.5%	33.8%
Uncertainty of cost / worry of high cost	24.9%	41.6%
No time / could not get off work	5.8%	9.8%
Don't know how to find dentist	5.4%	6.6%
Fear of pain	4.0%	6.6%

Respondents allowed to choose multiple answers

Tooth decay and pain had been perceived as minor problems which could be relieved by itself. This reason was more important when there was no pain associated with the oral health problem. There was an apparent lack of knowledge that tooth decay was progressively destructive.

There were barriers to seeking oral health care services. Similar to the reasons reported for not seeking regular dental checkup, some of the reasons were related to the oral health care services. These included the *uncertainty of cost* / *worry of high cost, no time* and *could not get off work*.

What were the attitudes of the NOP population towards oral health care services?

The attitudes of the NOP towards oral health care services was evaluated by their agreement to a series of statements / questions related to oral health care services. The results are shown in Table 6.21. Quite a substantial number of NOP replied *don't know* to some of the questions. The proportion of NOP who answered *don't know* ranged from roughly 4% to 20% (18 500 to 91 000) among all NOP. The NOP might have replied *don't know* simply because they did not understand the question, or they had no knowledge whatsoever. The NOP had difficulty in responding to questions like *do you think dentists will perform treatment for you that is unnecessary* and *are dentists' fees worthy of the value*.

Table 6.21
Attitudes of NOP towards oral health care services

Statements / questions	Responses	Number of NOP	Percentage
Do you agree that dentists can solve your oral health problems ?	Yes	390 600	94.0
	No	24 800	6.0
	30 000 replied don't know		
Dentists are more concerned on treatment than to teach people how to prevent dental diseases.	Agree	250 600	64.9
	Disagree	135 200	35.1
	59 700 replied don't known		
Do you think dentists will perform treatment for you that is unnecessary?	Yes	60 700	17.1
	No	293 800	82.9
	91 000 replied don't know		
Visiting a dentist must be painful and uncomfortable?	Agree	165 300	38.7
	Disagree	261 700	61.3
	18 500 replied don't know		
Are you worried about contracting contagious diseases from dentists' equipment?	Yes	145 800	35.0
	No	269 700	65.0
	29 900 replied don't know		
The dentists' fees are worthy of the value.	Agree	230 800	62.4
	Disagree	138 900	37.6
	75 800 replied don't know		

Generally speaking, the NOP population had confidence in the dental profession. The NOP population had very high confidence on the dentists' technical ability to solve their oral health problems. They also believed that dentists would not perform unnecessary treatment.

The dental profession should take note of the views from the minority of this group. Around one-third of the NOP expressed doubts on aspects such as clinic hygiene standard, the association of pain and discomfort with dental visit and the worthiness of dentists' fee.

Around one-third of the NOP disagreed to the statement that *dentists' fees are worthy of the value* The problem might be due to the inability of the NOP to appreciate the worth of the dentists' fees, or perhaps they had simply considered the dentists' fees as too high.

What was the perceived cost for dental visit?

The *uncertainty of cost* / *worry of high cost* was one of the factors given for not visiting the dentist. To evaluate the perceived cost of dental visit, the NOP were asked to estimate the cost for a dental checkup plus professional tooth cleaning (scaling). Care should be taken to interpret the result as 29.5% of the NOP were not able to give an estimate. Among those who made an estimation on the cost of checkup and scaling, the 25th percentile was HK$200, the median was HK$300, and the 75th percentile was HK$500.

Dental schemes and the usage of oral health care services

The proportion of NOP with coverage by dental schemes is shown in Table 6.22. Only 6.4% of NOP reported being covered by dental schemes. Majority of these schemes were dental benefits provided by public service, most likely benefits provided by the Government for retired civil servants.

Table 6.22
Distribution of NOP according to coverage by dental schemes

Types of dental schemes	Number	Percentage
No coverage	417 000	93.6
Employer provided dental benefits (public service)	21 900	4.9
Employer provided dental benefits (private service)	3 900	0.8
Self-purchased dental insurance	2 600	0.6

The usage of oral health care services based on the dental schemes is shown in Table 6.23. There was a higher proportion of NOP with dental schemes who had regular dental checkup, had visited a dentist in the previous 12 months, and who visited dentist for checkup.

Table 6.23
Usage of oral health care services by NOP and dental scheme coverage

Behaviour	Covered	Not covered
Regular dental checkup	68.0%	4.7%
Visited dentist within previous 12 months	72.5%	24.6%
Visited in previous 12 months for checkup	50.3%	15.2%

Coverage by dental schemes was found to be associated with a more favourable pattern on the usage of oral health care services. The coverage by dental schemes was uncommon among the NOP. Even with such coverage, some NOP still did not visit the dentist.

What were the attitudes of 65 to 74-year old NOP towards tooth loss?

The NOP were asked whether they agreed to the statement *tooth loss is a part of aging*. The results are shown in Table 6.24. Almost two-thirds of the NOP believed that *tooth loss is just a part of aging*, which was a cause for concern.

Table 6.24
Distribution of NOP according to agreement that *tooth loss is a part of aging*

Agreement to the statement	Number	Percentage
Agree	279 200	62.7
Disagree	146 400	32.9
Don't know	19 900	4.5

SECTION 6 - SUMMARY

Tooth loss had been experienced by almost all NOP, but there was still the risk of further tooth loss in the future.

There were existing tooth decay and gum disease, and there were also risk factors for the development of new tooth decay and gum disease. The observed oral health behaviour, both in terms of self-care and the use of professional oral health care, was not at all favourable to maintaining a healthier level of oral health.

Inadequate oral health behaviour may likely be related to the inadequate knowledge on tooth decay and gum disease, barriers to oral health care services, and attitude regarding tooth loss and oral health.

The knowledge of the NOP population on tooth decay and gum disease was poor. About one-third to two-thirds of NOP replied *don't know* to the perceived causative factors of and preventive methods for tooth decay and gum disease. There was insufficient knowledge on tooth decay and gum disease among those NOP who provided responses. Proper toothbrushing had been perceived as an important preventive method for both diseases, but there was an apparent lack of awareness that proper interdental cleaning is complimentary to toothbrushing, and an apparent lack of knowledge that teeth cleaning might have been inadequate without reinforcement. Other important factors like dental plaque, frequency of snacking and smoking were not even familiar among the NOP.

The low proportion of NOP who mentioned *regular dental checkup* in the preventive methods, may be one of the factors to the low usage of oral health care services. However, the relatively high proportion of disagreement to the statements *teeth will be fine even without regular dental checkup* and *it is worthy to spend money on regular dental checkup* indicated that there might be other factors behind the expressed low perceived need for dental checkup.

It was found that the NOP population had confidence in the dental profession as a whole. However, there were varying perceptions reported by a relatively smaller proportion worth taking note of. Such perceptions included *dentists are more concerned with treatment than to teach people how to prevent dental diseases, visiting a dentist must be painful*, and the *worry of contracting diseases from dentists' equipments*. About one-third of the NOP did not agree *dentists' fees as worthy of the value*. The cited median cost of a dental checkup and professional cleaning was estimated to be $300. It was not conclusive as to whether this had been considered as too costly or the services had not been considered as worthy of this value.

The coverage by dental schemes was found to be associated with relatively better usage of oral health care services. Even so, the few NOP with dental scheme coverage did not seek oral health care service. The proper use of oral health care services might have been influenced by a host of various factors and barriers. Findings from the current survey was not sufficient to provide a clear understanding of the matter.

Tooth loss was considered by more than half of the NOP population as part of aging.

This may be the biggest challenge to attaining desirable behavioural change. Findings from this survey suggested that teeth were accorded low priority among the NOP population. In one of the hypothetical tooth decay situations, around half of the NOP would not take action if there was no pain, even if decay was apparent. Around 8% of NOP would seek removal of teeth directly. The proportion who indicated removal of teeth rose to around 30% if there was associated pain. There were apparent risks of more tooth loss in the future for the NOP population, and such loss may be prevented. To motivate the NOP population to act early to prevent tooth loss, the population has to be convinced first that the possibility of tooth loss at old age can be minimized.