The Social Impact of Oral Diseases and Disorders

Among Filipino and Australian Workers

by

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DOH	Department of Health (Philippines)
OHIP	Oral Health Impact Profile
WHO	World Health Organization

ABSTRACT

Key words: Oral Health Impact Profile, social impact, restricted activity, social functioning, test-retest, translation, socio-dental indicator.

The social impact of oral diseases and disorders in late adulthood has been extensively studied in South Australia, Canada and the United States. However, there has been limited research on social impact among working adults or in non-English speaking communities. This study aimed to assess and compare the social impact of oral diseases and disorders among workers belonging to two countries with different social, economic, political and demographic characteristics using the Oral Health Impact Profile (OHIP) and restricted activity. Randomly selected workers aged 18 to 65 years old from five companies in Adelaide, South Australia (n=426) and in Metro Manila, Philippines (n=510) were studied. These companies were matched by organizational characteristics and product line or services offered. Two test-retest nested studies were conducted to determine the reliability of a bilingual English-Tagalog OHIP with an English OHIP and with itself. The bilingual English-Tagalog OHIP was found to have moderate to high intra-class correlation coefficients (0.5 to 0.9) and slightly higher correlation than the bilingual English-Tagalog to English test-retest (0.2 to 0.7) across the OHIP subscales. Comparison of OHIP scores showed Filipino workers to have a significantly higher prevalence of reported impacts experienced 'fairly often' and 'very often' (64.5% vs. 46.5%) and higher overall mean OHIP scores compared with the Australian sample (76.1 vs. 38.9 mean OHIP). Workers of the two countries also exhibited different OHIP patterns, with OHIP scores associated with gender, income, self-reported dental status (number of remaining teeth) and dental status category for Filipino workers, but only with age, job and dental status category for Australian workers. The OHIP was found to be a reliable social impact measure that may be used among adults of non-English speaking countries. Meticulous translation, however, was necessary. The differences in the OHIP scores between Australian and Filipino workers may be due to the dental health status and care seeking behaviors of the two samples. Comparison of OHIP scores by type of restricted activity (time off work for dental check up, dental problems, and reporting to work despite a problem) showed that those who reported for work despite a dental problem had significantly higher OHIP scores than those who did not for both samples. Comparison of OHIP scores by subscales for those who took time off for dental check ups and dental problems showed different patterns for the two samples, with the Filipino sample presenting more oral health impacts by subscales for restricted activity compared with the Australian workers. Linear regression to determine variables associated with high OHIP scores, and logistic regression to determine variables associated with restricted activity identified several common variables between the two samples as well as other variables distinct for each sample.

SIGNED STATEMENT

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university and to the best of the candidate's knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the text of the thesis.

The author consents to the thesis being made available for photocopying and loan , if available , if accepted for the award of the degree.

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CHAPTER 1 INTRODUCTION AND LITERATURE REVIEW

1.1 Definition of Health

The WHO (1948) defined health as a "state of complete physical, mental and social well being and not merely the absence of disease". This definition recognizes that there are other factors that influence health besides disease. Bowling (1991) mentioned two ways of regarding health. The first and more traditional way would be to look at it as the "absence of disease, illness or sickness" (p. 6). Health measures used here, are actually measures of ill health or departures from health, such as morbidity rates, mortality rates, routine collected statistics on health service use. The DMFT index and Russell's Periodontal Index are some dental clinical indices that measure existing or past dental diseases.

The other, according to Bowling (1991) is the concept of positive health. Positive health may be described as "the ability to cope with stressful situations, the maintenance of a strong social support system, integration in the community, high morale and life satisfactions, psychological well being and even levels of physical fitness as well as physical health" (p. 7). Bowling also included other concepts of well being, such as 'social well being' or 'social health' or 'quality of life' as "components of a broad concept of positive health".

Locker (1988) in his discussion of the conceptual frameworks of oral health measures cited Parson's theory of the sick role. In Parsons' structural functional analysis--function is conceptualized as referring to "the formulation of sets of conditions governing the states of living systems as going concerns in relation to their environments". These conditions concern the stability and

or/ instability, the survival and/or probable extinction and not least, the temporal duration of such systems" (Parson, 1977, p.114). Locker states that within this theory---"illness is defined as a form of deviance which threatens the integrity of the system and must be contained by means of social control" (p.7). Consequently health may be defined as the "state of optimum capacity of an individual for the effective performance of valued tasks for which he has been socialized... If the level of illness in society is too high, its productive capacity declines and its stability threatened" (Locker, 1988, p.7)". Social functioning studies done by Reisine (1988) incorporated this concept. She concluded that dental condition affects social functioning in terms of work loss days as well as productivity (Reisine, 1988).

Locker (1988,p.8), on the other hand, maintained that the while oral conditions impact on social roles functioning, they would "not embrace the full scope of changes consequent upon oral conditions". He maintains that there are "many subtle, experiential and psychological outcomes of these conditions which have their impact on an individual level rather on society at large". A more comprehensive, relevant and useful definition of health he suggested, would be the pragmatic definition of health in terms of eclectic sets of characteristics of individuals that include functional capacity, disability, pain and suffering and cognitive and emotional states.

Locker (1988) summarized some of these health concepts which he based from the earlier works of Wood (1980) and Patrick (1982). These are the concept of death, disease, impairment functional limitation, discomfort disability and dissatisfaction. Gift and Atchison (1995) used similar concepts,

but referred to them as survival, illness, impairment, injury; functional status, perceptions, opportunity and resilience based on later works done by Patrick and Erickson (1993). Brief definitions of the concepts used by Locker (1988) are presented below:

> Death: Mortality rates, potential years of life.
> Disease: Refers to pathological processes affecting the physical and psychological make up of individuals, self reported or clinically diagnosed.
> Impairment: Any anatomical loss, structural abnormality or disturbances in physical or psychological processes, either present at birth or arising out of disease or injury. (e.g. edentulousness, number of functioning units and M components of the DMFT, structural abnormalities of the teeth and jaws)
> Functional Limitation: restrictions in the functions customarily expected of the body or its organ components or systems.(e.g. assessment of jaw mobility, chewing efficiency)
> Discomfort: restrictions in activity and subjective appraisals of well beings. Discomfort is treated as a socio-medical measure because it is subjectively perceived and may be experienced in the absence of underlying clinical condition.
> Disability: is a behavior concept defined as any limitation in or lack of ability to perform the activities of daily living, physically, psychologically or socially.(e.g. activity restrictions, limitation in usual social roles, anxiety, depression)
> Handicap: disadvantages due to disease either as loss of opportunities, actual material and social deprivation and dissatisfaction.

1.2. Socio-dental indicators

Socio-dental indicators have been developed to quantify oral health within the concepts discussed in the previous section. Locker and Reisine (Cohen and Gift, 1995, p. 35) stated that socio-dental indicators should be based "on the social, psychological, cultural and economic effects of oral health problems and not only on the absence of oral pathology". They mentioned two issues in using socio-dental indicators in assessing the multi-dimensional nature of oral health. These are:

detect beneficial effects which are small in individual domains of function but become important in total".

Many researches are recognizing the need for multidimensional measures. Bader (1992, p.24) for example, commented that "continued reliance on current based (disease based) measures may act as a deterrent to the development and evaluation of more innovative dental health programs". He stressed that "an expanded list for any oral health assessment might include presence of non-disease conditions and symptoms, level of function, satisfaction with status and psycho-social factors" is needed. Schou (1989, p.122) suggested that "measures of social functions rather than traditional measures of oral health are far more relevant as health indicators, particularly when attempting to promote oral health through the workplace". Reisine (1985, p. 27) concluded that "traditional measures should be linked to measures of social outcomes in order to place dental conditions within the broader context of health status in terms that are relevant to policy makers".

Some researches on the use of socio-dental indicators were those done by Cushing, Shieham and Maizels(1986) and Locker and Grushka(1987). Cushing, Shieham and Maizels (1986) for instance, studied a group of industrial workers in North England and identified impacts at a personal level of discomfort and social interaction. They reported that the impacts only rarely affected people's social role or general health. Locker and Grushka (1987), on the other hand, studied the prevalence of dental and facial pain and its impact on daily life and reported that the most common behavioural impact were consulting a doctor, a dentist, avoiding certain foods,

taking medications and disturbed sleep. The more severe impacts were those related to work disability, need for bed rest and reduced social contact.

1.3 The Oral Health Impact Profile

The Oral Health Impact Profile (OHIP) is a socio-dental indicator that was initially developed for older adult studies in South Australia (Slade and Spencer, 1994). It was based on the conceptual framework derived from the WHO International Classification of Impairments, Disability and Handicaps and adapted by Locker (Locker, 1988; Slade and Spencer, 1994). The OHIP contains 49 question items grouped into seven subscales. These subscales include:

a) functional limitation;
b) physical pain;
c) psychological discomfort;
d) physical disability;
e) psychological disability;
f) social disability;
g) handicap

Figure 1.0 depicts the WHO framework adapted by Locker and from which Slade and Spencer based the OHIP.

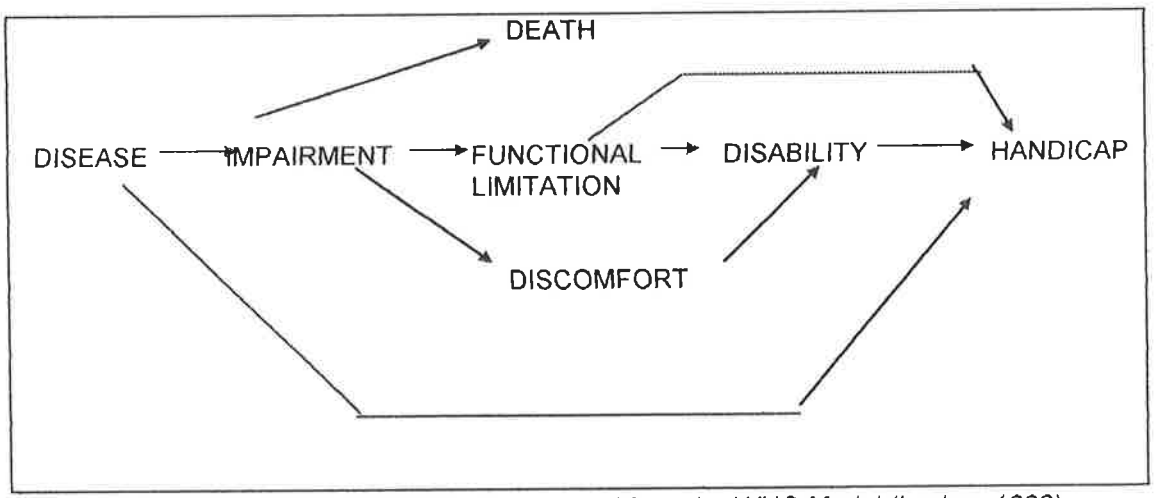

Figure 1.0 Lockers model of Oral Health, adapted from the WHO Model (Locker, 1988)

The 49 impact items were obtained by interviewing 64 dental patients with a variety of diseases and disorders about the consequences of those diseases and dental disorders to their lives. Five hundred and thirty-five statements were collected, then collated into the seven domains or subscales. Extensive editing, sorting, content analysis of each statement and grouping of the statements into common themes was done, until finally, the items were reduced to 49 items. Individual items within common themes or subscales were weighted for summation into subscale scores using the Thurstone's method of paired comparison. These items were converted into questions, with responses made on a Likert scale indicating if the impact had been experienced 'very often', 'fairly often', 'sometimes', 'hardly ever' or ,' never'.

There are several ways of expressing social impacts using the OHIP scores: These are by:

1. using the Likert scale response for each individual item to examine the distribution of responses to each item;
2. summing the Likert scales response across items within subscales;
3. by multiplying predetermined weights against each Likert scale response within subscales, then summarizing across items within a subscale ;
4. counting the number of positive (very often, fairly often, occasionally) responses;

The validity and reliability of the weighted mean OHIP subscale score was assessed and found to have good internal consistency (Cronbach's α=0.70 to 0.83), except for the handicap subscale which had moderate reliability (α=0.37). Stability was also found to be good with intraclass correlation coefficients ranging from 0.42 to 0.77 in six out of seven subscales. The social disability subscale had an intraclass correlation coefficient of 0.08 (Slade and Spencer, 1994; Locker and Slade, 1993).

1.4 Past studies using the OHIP

Slade and Spencer (1994, p.363) did a cohort study of a random sample of 1217 non institutionalized adults, aged 60 years old and over in Adelaide and Mt. Gambier in South Australia. They reported that "over five per cent of dentate persons and over 10 per cent of edentulous persons reported impacts experienced 'fairly often' and 'very often'. " These values doubled when 'occasionally' was included. They also observed larger variations of the OHIP among dentate persons according to dental utilization pattern, with those who usually attended for dental problems and those who had attended the previous year having the highest levels of impacts. Older age was associated with a significantly greater amount of impacts among dentate persons but not with edentulous persons (p.363). They suggested that "the aging or generation effects (cohort differences) do not influence levels of social impacts, at least in a consistent manner and that the age association may more likely reflect differences in the extent or severity of underlying clinical conditions which probably have differential correlates with age among the two groups" (p.363). They also observed that while edentulous people reported more social impacts than dentate persons in terms of chewing and eating, that the "majority of adverse psycho-social outcomes did not differ significantly between dentate and edentulous persons" (p.363). They suggested that "psycho-social impacts are not caused solely by the same oral conditions which contribute to chewing and eating" (p363). They also found that there "is a range of impacts such as toothache, which are confined to dentate persons..."(p.363).

Locker and Slade (1993) used the OHIP to study how oral conditions compromised the quality of life of 699 older adults Ontario, Canada, and to assess the measurement properties of the OHIP. Locker and Slade reported that the OHIP had excellent reliability with values of Cronbach alpha for the seven subscales ranging from 0.08 to 0.90. High correlation coefficients of the OHIP scores with the scores from other subjective indicators derived from previous interviews, indicated an association of higher OHIP scores with problems in chewing, pain and other oral symptoms, problems with eating and communication, with less satisfaction with oral health, and with perceived need for dental treatment. These associations suggested that the OHIP had acceptable validity.

Many of the oral problems reported in their study were linked to tooth loss and denture wearing and emphasized the importance of a natural dentition in terms of quality of life. Analysis of dentate subjects by dental visiting pattern also showed significant differences for four of the seven subscales (psychological discomfort, psychological disability, physical disability, and handicap). Those who visited the dentist regularly were less likely to experience problems in these four subscales. They also proposed the need to test the OHIP on "populations of young adults to see if it is sensitive to the way in which oral disorders affect the quality of life of younger people" (Locker and Slade, 1993, p.838).

Hunt, Slade and Strauss (1995) used the OHIP to compare the oral health impacts on 440 elderly black and white older adults, aged 70 and above, in North Carolina. Dentate and edentulous subjects who had

participated in a baseline interview and examination three years previously, were sent copies of the OHIP questionnaire. Hunt, Slade and Strauss observed that edentulous blacks and whites did not differ significantly in the number of oral impact problems experienced 'fairly often' and 'very often' in the previous 12 months. They were also similar in age, education. Among the dentate subjects however, dentate blacks reported more oral health impacts that occurred 'fairly often' and 'very often'. While dentate black and whites had similar age, the black subjects had less education, were more likely to make episodic dental visits, and were more likely to be male. They also had poorer oral health status, "had more unreplaced missing teeth, more periodontal disease, more untreated caries and more root fragments" (p.207). They concluded that older dentate black adults reported more impacts from oral problems than older dentate white adults, and that the differences in reported impact were likely to be linked to differences in oral status and dental visit history between these two racial groups." (Hunt, Slade, and Strauss, 1995, p.205)

Locker and Jokovic (1996) assessed the sensitivity of several subjective indicators to identify community dwelling older adults in Ontario, Canada who needed dental treatment. Three indicators were used, a single item self rating of treatment needs, a 15 item psycho-social impact index, and the OHIP. Assessment of the associations among these three indicators with clinically defined dental treatment needs was also done to determine the predictive power of these measures. Two methods were used to obtain the OHIP scores:

1) By simply counting the number of statements with responses 'fairly often' and 'very often'; and
2) By using "previously developed item weights to obtain sub-scale scores which were standardized to a mean and standard deviation of 1 and summed to give an overall score" (Locker and Jokovic, 1996, p. 399).

Test statistics demonstrated that the weighted standardized OHIP was only marginally better than the simple count OHIP. They concluded that "although the sensitivity of the subjective indicators were low in terms of identifying those with clinically defined needs", the three subjective indicators used "all identified a subgroup whose dental condition impact on daily living and who therefore, may be the more likely to benefit from dental treatment" (p. 401). They also reported that that the OHIP weighted score showed the best performance.

1.5 Other impact studies done on Asian samples:

Jaafar, Razak and Zain (1989) studied the social impact of oral and facial pain among Malaysian industrial workers. They reported similar impacts to those listed in the OHIP.

1.6 Restricted activities

Social impact may take the form of changes in the social functioning of individuals. These may either be by absenting from work or school, or by cutting down on things one usually does. All of these are defined as restricted activities.

Spencer and Lewis (1988) reported data from the Australian Health Survey which showed that in 1983, "646,000 days were lost from school and

1.1 million days were lost from work due to a dental problem " (in Cohen and Gift, 1995, p. 48).

The Pennsylvania Blue Cross and Blue Shield study of dental insurance subscribers reported that "38 per cent of the respondents took time off for dental visit" and that "those with higher incomes, white collar occupation were more likely to lose time from work than those with lower incomes and blue collar occupations" (in Reisine,1988 p.7).

Reisine described that the US NHIS 1984 data reported 1.6 acute dental conditions per 100 persons in the United States associated with 5.0 restricted activity days per 100, 1.6 bed days per 100, 3.2 work loss days per 100 currently employed and 4.0 school days loss per 100 youths, 5-17 years old (Reisine, 1988). While the prevalence of restricted activities due to dental condition may be less than other acute conditions such as respiratory, eye conditions or headaches, dental conditions incur "proportionately similar limitations in social functioning relative to more acute conditions" (Reisine, 1988, p.4). These figures, she suggested, may be lower than the actual, since the definition used by the US NHIS for restricted activity was restricted activity loss for at least one day. Many dental conditions are unlikely to cause a whole day of restricted activity and that less than one whole day may have been excluded.

Reisine (1988) also studied a community sample of employed adults in Connecticut and reported that 26 per cent of the sample reported work loss associated with a dental problem or dental visit. "Most dental visits were for both preventive and restorative visit to the dentists. The average number of

hours of work loss was relatively small, 1.3 hours per person per year although eight per cent reported a half day or more work loss days because of a dental problems" (p.6). She also found that "those with lower socioeconomic status and more severe treatments experienced more time lost from work" and suggested that "those in the lower social class delayed treatment until symptoms were severe and required more time from work because of greater needs" (p.6).

Gift et al (1992) analyzed data from the US NHIS 1989 survey of 117,000 individuals (50,000 households) representing 240 million persons. They reported a mean of 1.48 hours of work lost for dental visits or problems per employee and total hours in thousands of 164,180 hours of work lost annually. They concluded that while a "mean of 1.48 hours of work per employee may be of little consequence, at a societal level, 164,180 hours lost annually may be a significant problem in terms of staffing, sick leave and other workplace policy issues" (p. 1666.). They also reported that "the lower socio economic individual bears the combined burden of an increased number of lost work, school hours and of restricted activity (p.1666). They suggested that "targeted research in selected socioeconomic groups may provide more information on the causes for observed differences in time loss from work" (p. 1668).

Small changes in social functioning due to oral conditions are more difficult to measure. Workers reporting to work despite dental problems may suffer from a toothache or other oral malady and this may affect their work and productivity. Reisine (1988, p. 8) stated that "work loss days measures only

one dimension of social functioning and a more sensitive measure of social functioning is needed to assess the differences among groups" Table 1.1 presents a summary of results on work loss made by previous studies.

Table 1.1 Summary of previous studies on work loss due to dental conditions

Previous Studies	Results	
	Days/ Hours	Percent
Conrad et al, Pennsylvania Blue Cross Blue Shield study**		• 38 per cent took time off from work for dental visits.
Bailit et.al. 1982* 1979,U.S.A	• 6.1 M days loss or • .06 days per employed adult	
Spencer and Lewis Australia,1988	• 1.1M days lost due to dental conditions	
Reisine et, al Hartford Area, Connecticut 1984**	• 1.3 hours per person per year	• 26 per cent of the sample reported work loss • 8 per cent reported ½ or more days off
Feaver (1988) U.K*	• 12 M working days loss in the U.K through dental; causes each year.	
Gift, Reisine, and Larach (1989) NHIS data	• 164,180 (thousand) total hours annually • 1.48 hours per employee per year	

- **Source: Schou-L., Oral health promotion at work sites, International Dental Journal, 1989 June,39(2):122-8.*
- ***Source: Reisine, S.T. , The Impacts of Dental Condition on Social Functioning and the Quality of Life, Ann. Rev. Public Health,1988 9:1-9*

1.7 Rationale

This thesis is a comparative study of oral health impacts among Australian and Filipino workers. Comparison of oral health impacts between Filipino and Australian workers, provided an opportunity to study social impacts of oral conditions among workers in two countries with different social, economic, political and demographic characteristics.

By the World Banks definition, the Philippines is a low-middle income economy while Australia is a high-income economy (World Bank Report, 1993, p.234). Middle income economies are those countries with a Gross National Product (GNP) per capita of more than $635 but less than $7911 in 1991. High Income economies are those countries with a GNP per capita of $ 7911 or more in 1991. Australia is an industrialized economy while the Philippines is a developing country (newly industrializing).

Hunter (1990) clustered countries using six health status measures: crude birth rate, crude death rate, infant mortality rate, child death rate and male / female life expectancy and came up with six health development levels. Under this grouping, Australia was categorized under level 1 while the Philippines was placed under level two. Level 6 represented the least developed countries. Table 1.2 presents a comparison of disease patterns in developing and developed countries (Mercado, 1996, p.26).

Table 1.2 Basic differences in health between developing and developed countries.

Developing country	Developed country
1. Sickness falls heavily on the very young and the productive years of life.	1. Sickness falls heavily on the non-productive years, especially old age.
2. Undernutrition widely spread and is a major national problem.	2. Undernutrition not a national problem.
3. High prevalence of infectious but preventable illness.	3. Infectious diseases affect fewer people and less severely.
4. Accidental, injuries significant but secondary.	4. Accidental injuries are very important.
5. Malignancies and degenerative diseases of relatively lower significance.	5. Malignancies and degenerative diseases are major problems.

Table 1.3 presents basic health status difference between Australia and the Philippines.

Table 1.3 Basic differences in health status of Australia and the Philippines

Basic Indicators	Australia	Philippines
Life expectancy at birth(1991)	77 years	65 years
Babies with low birth weights 1985	6%	18%
Infant Mortality Rate per 1000 live births(1991)	8%	41%
Years of life lost per 1,000 population (1990)	9%	27%
Prevalence of malnutrition under 5 (1990)	----	19%

Source: World Bank Report, 1993

In the case of the Philippines, which is newly industrializing, the disease pattern reflects a combination of these two characteristics. Its infectious diseases remain high while at the same time, chronic diseases such as cardiovascular diseases and hypertension, accidents and injuries, and malignancies are slowly emerging. Both types of diseases require great

resources in terms of infrastructure, equipment, technology and health personnel.

The Philippine government recognizes the importance of health and has included it in its national agenda. Its National Health Plan for 1995-2020 was guided by the concept that health is a basic right and both a means to and an end for development. Oral health however remains a low priority. The perception is that the impact of oral health is negligible. Its chronic, non- fatal nature amidst fatal acute infectious diseases, emerging malignancies and chronic diseases further aggravates the degree of priority it receives. It therefore becomes important to assess how oral conditions really affect daily living. Recent improvements in the economy of the country and an expanding labourforce, makes workers an appropriate population to study.

The Philippines requires companies with at least 100 workers to provide medical and dental services to its employees (Rule No.1963.02 Emergency Medical and Dental Services Law) either on a part time basis (for companies with 100-1999 employees) or on a full time basis (for companies with 2,000 or more employees). This policy has not been evaluated. The present study on workers would therefore provide some information on how effective the company dental clinics have been in reducing oral health impacts on the Filipino workers and also provides an idea of the amount of restricted activity due to oral conditions in the workplace.

Oral health in Australia, on the other hand, receives moderate importance in national health policy. Approximately 5 per cent of all health expenditure go into the control and treatment of oral diseases. The focus of

public funded care however has been among the children through the School Dental Service and among the elderly through public funded dental care. Spencer (1993, p.1) discussed the oral health problems of adults and stated that while there have been well-documented improvements in the oral health of children, there has been "no commensurate improvement among adults". He also stated that "while there is a shift in the burden of disease and focus of policy from children to adults, there has not been the development and availability of information based on adults from which decision making can be guided or achievements of targets in improved oral health and access to dental care can be evaluated". This study therefore provides additional information on the oral health of Australian adults in terms of how oral diseases and disorders affect daily living and social functioning.

South Australia has conducted a social impact study of oral conditions (Slade and Spencer, 1994) on older adults (60 years old and above) and among medically compromised individuals (Coates et al,1995). However adults, aged 18 to 64 years old, in the workforce have not been studied so far. Other previous studies using the OHIP (Locker and Slade,1993; Hunt, Slade and Strauss,1995; Locker and Jokovic,1996) have likewise been on older adults and among English speaking communities.

1.8 Objectives

The objectives of this study were:

1. To assess the impact of oral diseases and disorders on the daily living of Filipino and Australian workers using two measures:
   1.1. The Oral Health Impact Profile; and
   1.2. Restricted activities in terms of work loss and reporting to work despite a dental problem.
2. To compare the impacts of oral diseases and disorders of the two study samples.
3. To determine any associations between OHIP scores and restricted activities.
4. To identify variables associated with both OHIP scores and restricted activities.

Since the Oral Health Impact Profile had to be translated into Filipino (Tagalog) for the Philippine study, this study provided an opportunity to further assess the reliability of the Oral Health Impact Profile by using the instrument in a translated form.

CHAPTER 2 METHODOLOGY

2.1 Study sample

The study consisted of a cross sectional sample of workers, aged 18 to 65 years old, belonging to two countries with different social, political, economic and demographic characteristics.

2.1.1. Companies

A limited number of companies from Adelaide, South Australia and the Manila, Philippines were selected to participate in the study. Since the Philippines and Australia have different economic profiles, it was necessary to match Australian and Philippine companies by industry, employment size and organizational structure. This limited the selection of companies to:

a) Multinational companies who had subsidiaries in both countries and therefore had similar organizational arrangements;
b) Companies with similar product lines or services; and
c) Large sized companies where the desired sampling size could be easily obtained.

Australian companies were approached first, using the above mentioned criteria and considering possible companies in the Philippines that could be matched with them. (*Refer to Appendix A for the schedule of activities*).

Letters of invitation were sent to these companies. The objectives and general protocol of the study, as well as the expected assistance from the companies were outlined in the letters. Meetings were then scheduled with

companies who were willing to participate, to discuss the details of how the study would be implemented in their specific workplace.

Twelve companies were approached for the Australian study. Of these 12, six were willing to participate. Arrangements with one Australian company however, did not proceed due to lack of agreement on random sampling. For the Philippines, nine companies were approached, with six companies initially agreeing to participate. One company was also excluded from the study, again because the management did not agree to assist with a sampling frame and random selection of possible participants. In both cases, total enumeration was not considered because of the very large number of employees from these companies.

The most common reason given by Australian companies for not participating in the study was that other groups were conducting concurrent researches and they were apprehensive that their employees would not be cooperative to another study. Several Australian companies who were initially approached for the study also refused because of their very small workforce. These companies had their main offices in the other Australian States and maintained a workforce of less than 10 employees in Adelaide.

The Philippines, on the other hand, has a human resource driven economy. Small numbers of employees were therefore not a problem. The problem was the opposite. All Philippine companies approached had moderate (approximately 500) to large (1500 or more) numbers of employees. It was therefore necessary to limit the study to a specific plant or factory.

Three of the five companies in the Philippines and one company in Adelaide were limited to a specific plant or factory.

Management made the decision regarding which section or plant site would participate in the study. Ease in the distribution of the questionnaires and follow up letters and expected participation by employees were major considerations. Location of the plant site within Metro Manila was also a major consideration for the Philippine companies.

The selected plant sites and sections were still moderately large with approximately 500 to 1,500 employees. The employees in these selected plant sites and/or sections, for both countries, were heterogeneous with workers belonging to the Administrative, Sales, Accounting, Manufacturing, and Maintenance employee sub-sections.

2.1.2 Selection of workers

A pooled target sample size of 500 workers for each country was determined at the start of the study.

Most of the companies provided a list of their employee's names or codes for either the whole company or for the selected section or plant site. Two Australian companies (Company G and Company I) preferred not to give a list of their employees codes or names, but were willing to participate in the study. For these companies, total enumeration of employees was done instead. Total enumeration was also used for Company F (Australian) because of its manageable employee size of 62.

For the Philippine companies, approximately 150 -250 employees from each company were randomly selected from the rosters provided by the companies. For the Australian companies, where company size varied from 62 to 3,000 or more, the number of employees selected from each company depended:

a) on company size ; and

b) the willingness of the companies to distribute questionnaires.

Two companies had more than one thousand employees. Company H had 1,000 employees of which 50 per cent was randomly selected, while for Company J, 20 per cent of employees all belonging to one section of the company were randomly chosen. The decision to limit the number of possible participants to 20 per cent for Company J was based on an assessment of the level of participation and cooperation that could be expected from the company, both in the distribution and follow up of the questionnaires.

Company F was the only Australian company in the study that provided a list of employee's names. The rest of the lists were employee's numbers e.g. payroll number, employee's identification number. Only Company F permitted individual follow up of employees. Company H allowed open fliers and letters to be distributed by departments, twice at two weekly intervals. The other companies were followed up through contact persons who were directly responsible for the distribution of the questionnaires and who did not believe that the distribution of follow up letters was practical or necessary. Table 2.1 presents a summary of the companies and the sampling procedure used.

Table 2.1 Description of Australian and Philippine companies.

Country	Company	Sampling Procedure
Philippines	A Oil exploration and others	Total enumeration of 209 employees based in Metro Manila.
	B Beer manufacturing company	Random sampling of one plant with more than 2,000 employees.
	C Manufactures threads	Random sampling of all 450 employees
	D Beverage(soft drinks) company	Random sampling of all employee in two plant sites
	E Petroleum Company	Total enumeration of all 135 employees in one installation.
Australia	F Bank	Total enumeration of one section of the bank with 62 employees
	G Petroleum company	Total enumeration of 263 employees in two plants
	H Oil exploration and others	50 per cent of 1000 of employees(500) k=2
	I Soft drinks company	Total enumeration of 500 employees
	J Automobile Company	20 per cent of one section of the company with 1,000 employees

2.2. Data gathering

Self-administered questionnaires were used for the data collection. The questionnaires contained two components.

The first component was a general section that inquired about the participant's socio demographic characteristics as well as information regarding his/her self-reported oral health status, use of dental services and dental health attitudes. Most of the questions in this section were culled from questionnaires used in previous studies by the Australian Institute of Health and Welfare's Dental Statistics and Research Unit and the Social and Preventive Dentistry area of the Department of Dentistry of the University of Adelaide.

The second component contained the 49 item Oral Health Impact Profile used by Slade and Spencer (1993) in the South Australian Dental Longitudinal Study (SADLS) of older adults.

The biographical details included age, gender, education levels, job categories, length of years in the company and number of hours at work. Job and income categories for the Australian study were based on the categories used by the Australian Bureau of Statistics (1995). The Australian job category was used as reference category. Income categories for the Philippine study was based on the categories provided by the Philippine Bureau of Internal Revenue *(Fax Communication with BIR Commissioner, 1995)*.

Question item no. 4 that inquired whether the workers spoke any other language aside from English at home was omitted for the Philippine study.

The Filipino workers were asked instead what language they spoke at home. This was necessary since the Philippines is multilingual and aside from English and Spanish, has at least 79 local languages. By identifying the language spoken at home, the researcher would have an idea on how well the Filipino workers understood the bilingual English and Tagalog questionnaire.

Questions on self reported dental status as well as dental visits and behaviours were also culled from previous studies done at the Australian Institute of Health and Welfare's Dental Statistics and Research Unit and the Social and Preventive Dentistry area at The University of Adelaide. New question items included in the Australian study were those related to restricted activity.

Both questionnaires for the Philippine and the Australian study were pre-tested for clarity and any ambiguities. *(Please refer to Appendix A -Forms, Copies of the Questionnaire).* Ethical approval was sought and obtained from two institutions:

1) The University of Adelaide for the Australian study and
2) The University of the Philippines College of Public Health for the Philippine study. (*Refer to Appendix A- Forms, Ethical Clearance)*

2.3 Differences between the Philippine and Australian components of the study.

There were differences in the organizational arrangements and health systems of the two countries. These influenced the flow and conduct of the study in each country.

2.3.1. Company involvement in health care.

Philippine companies are required by law to provide medical and dental services to their workers. Australian companies, on the other hand, are not. This directly influenced how the study was introduced and conducted in the companies.

All communications for the Australian companies were made through the human resource department. For the Philippines, higher management referred the researcher to their clinical services departments and most arrangements were made on that level. This provided the researcher with greater access to the selected employees, either through the dentist, the company physician or through the company nurse. It also allowed more follow-ups of late responders for the Philippine sample.

While most arrangements were done through the company clinics for the Philippine study, the study sample was selected from the employees lists provided by the company and included all employees regardless of whether they utilized the company medical-dental clinic or not.

2.3.2. Differences in the collection of the data between the two samples.

For the Australian sample, reply paid envelopes were used. The answered forms were returned directly to the Social and Preventive area of the Department of Dentistry at The University of Adelaide. For the Philippines, it was more expedient to request the employees to return the answered questionnaires in sealed brown envelopes provided for that purpose to the company dental and or medical clinic or to the personnel office. The questionnaires were then gathered every other week.

2.3.3 Voluntary participation and level of follow up

Both the Philippine and Australian companies were concerned with voluntary participation and the privacy of their employees. It was however more apparent for the Australian companies.

All but one of the sampling lists provided by the Australian companies was in the form of employee's codes. This meant that before any of the questionnaires or follow up letters could be distributed to the randomly selected employees, the personnel department of the Australian companies had to decode the numbers, locate the employees by department and re-label the envelopes for distribution. The Australian companies, therefore, limited the degree of follow-ups, either in the number of follow ups per individual or in the nature of the follow up. Some companies requested that the follow-ups be done by sections as open letters and or fliers.

Companies in the Philippines, on the other hand, provided a combination of employee's name and codes. After the employee codes were selected and decoded, the researcher had access to the names of the

selected employees as well as the employees' location in the workplace. It was, therefore, possible to do as many as three follow ups per worker for each company, at two-week intervals. The Philippine companies also allowed the researcher and her staff to be physically present in the medical and dental clinics and to do the follow ups from there.

2.3.4 Difference in the question items.

For the Australian study, participants were asked whether or not they had dental insurance. For the Philippine study, where dental health insurance is not available, this question was omitted and the employees were asked instead whether they attended and utilized the company dental clinics.

2.4. Translation of the English OHIP to Tagalog.

The OHIP was primarily developed for an English speaking population and was initially used in Australia for older adult studies (Slade and Spencer,1994). The Philippines on the other hand, is an Asian country and while English is a medium of instruction, it is a learned language. It is also not the *lingua franca* in the Philippines. It was therefore necessary to translate the OHIP into Filipino (Tagalog), the Philippine national language.

The back translation method described by most reports in the literature (Streiner and Norman, 1995; Hendricson, 1995) as the most reliable method for translating health measures was used. To ensure further accuracy of the translated OHIP, the questionnaire used for the Philippine sample appeared in a bilingual form with all instructions and question items in English and in Tagalog. *(Please refer to Appendix A- Copy of the Questionnaires).*

2.4.1 Translation of the English OHIP to Tagalog.

The initial translation of the OHIP to Tagalog was by the researcher herself for two reasons:

a) familiarity with the intent of the OHIP questions; and

b) fluency in English and in Tagalog;

This conforms to the criterion prescribed by Streiner and Norman (1995) on who should best do the translation.

2.4.2 Reference group technique

To further ensure correct translation, a reference group technique was also conducted with four other Filipinos going through the translated OHIP. They were asked to study the initial translation of the 49 items, and write whether they agreed or disagreed with the translation. If they did not, they were requested to provide an alternative suggestion to the translation. All four reviewers were non-dental professionals, and were in Adelaide as higher degree students. Their suggestions were collated and the translated OHIP was modified for the first time. Most of the suggested corrections were on the use of informal idiomatic Tagalog over a very formal academic version of the language.

2.4.3. Back translation into English

Two visiting Filipino dentists from the University of the Philippines were then approached to translate the Tagalog OHIP back to English. Professor John Spencer reviewed the back translations. The main issued identified in the English back translation of the questions was on the consistent use of the phrase "Have you ever..." which was different from the original questions which referred to impacts experienced during the last year. The Tagalog OHIP was again modified.

2.4.4. Pre-testing

The translated questionnaire was then pre-tested in Manila. Two groups of workers were chosen for this purpose. The first group consisted of an informal group of union workers from one of the multinational companies

based in Manila, while the other group was workers from one of the participating companies.

Half of those in the first group (seven) were asked to answer the questionnaires as a self-administered questionnaire. No attempt was made to explain how the questionnaires should be answered, except to explain why the pre-testing was being done. The researcher personally interviewed the other half. On both occasions, the time of completion of both self-administered questionnaires and interviews was noted. This protocol was necessary to determine whether the self-administered route was as feasible among the Philippine sample as it was for the Australian sample.

The first half of this group had an average completion time of more than 45 minutes and left several items blank. The second half were observed to have an average interview time of 15-20 minutes, but the researcher noted a tendency towards acquiescence.

The second group consisted of 15 employees belonging to one of the participating companies. A focus group discussion was held to determine which items were ambiguous and to find out how the subjects interpreted the questions in their own words. All 49 items in the Oral Health Impact Profile questionnaire were reviewed. The focus group was heterogeneous and was made up of both white and blue collared workers from both genders. Three main areas of comment were noted:

a) The responses seemed very similar with one another in that there seemed to be no difference between the Tagalog version of 'occasionally' and 'hardly ever';
b) The questions seemed answerable with "yes" and "no" rather than 'very often', 'fairly often', 'occasionally', 'hardly ever' or 'never'; and

c) The questions seemed repetitive.

These comments were attributed to the relative vagueness of the Tagalog language compared with English which is more technical and precise. It was also decided to consult a linguist for a clearer translation of the response categories. The Tagalog OHIP was revised for the third time.

2.4.5. Consultation with linguist

The translated questionnaire was then submitted to a linguist from the Centro ng Wikang Tagalog of the University of the Philippines (Centre for Filipino Language) for a thorough review and more modification. Slight modification in the construction of the OHIP questions and in the translation of the Tagalog responses ('very often', 'fairly often', 'occasionally', "hardly ever", "never") in the Likert scale were necessary. The Tagalog OHIP was modified for the fourth time.

2.4.6. Final pre-testing

A second pre-testing was done, this time, among 15 non-academic personnel from the University of the Philippines College of Public Health. They were asked to answer the self-administered questionnaire and to write down their comments regarding any item not clear to them. Most of the modifications done at this stage were in the formatting of the questions and in the correction of some questions in the first section of the questionnaire. This group was also asked which of the bilingual English and Tagalog version they referred to in answering the questionnaire. Most referred to the Tagalog version.

2.6 Data Collection

The data collection for both the Australian and the Filipino study was done within a period of one year, with the preparations (arrangement with companies, pre-testing etc.) for both studies done alternately. The Australian study preceded the Filipino study and began in the middle of February of 1996 continuing until July1996.

Some companies were contacted earlier than others. Meetings and arrangements with the companies about the research details by workplace likewise could not be hurried or imposed. Because of this, data collection for the five companies did not begin at the same time. Some companies were receiving the questionnaires, while other companies were already being followed up for the return of the answered questionnaires.

In July 1996, the researcher traveled to Manila for the Philippine study. The Australian questionnaires however continued to be collected by the Preventive and Social Dentistry section of the Department of Dentistry, The University of Adelaide.

Data collection for the Philippine study started late August of 1996. All pre-tests, except for the initial pre-testing of the questionnaire and focus group discussion which were conducted November of 1995, were implemented from July to August 1996. While some Philippine companies were contacted as early as November 1995, only two companies confirmed their participation at that time. Other companies were non-committal, making it necessary for the researcher to invite other companies to participate in the study as late as July

and August of 1996. Unlike the Australian study, where companies joined the study at different times, the data collection for four of the five Philippine companies started almost simultaneously, with the fifth company joining the study at a later time. Distributions of the questionnaires, monitoring of the response rate and the follow up of late responders were therefore done simultaneously for almost all companies. Data collection for the Philippine study continued until first week of January 1997 and ended when the researcher returned to Adelaide.

For both countries, data were encoded as soon as the completed questionnaires were received.

2.7 Data analysis

Socio-demographic characteristics, self reported health status (number of remaining teeth and dental categories) and use of dental services for both samples were described and compared. Impacts were measured using simple counts (prevalence), and weighted OHIP scores (severity). The latter was used more often. Prevalence refers to the number of workers who reported at least one impact experienced 'fairly often' or 'very often'.

The responses to each question were coded and entered into the SPSS program. Data entry for the Philippine study was done in Metro Manila and later merged with the Australian data. Approximately 5 -10 completed questionnaires were randomly selected from the returned forms entered for the day and double-checked with the encoded data. If there were consistent errors, the whole batch of returned questionnaires entered for the day were

reviewed. Completed forms with obvious inconsistent answers and or with more than two pages of missing answers were excluded.

OHIP items with missing responses were replaced by series means using the SPSS missing values program options. Pre-determined weights developed by Slade and Spencer (1994) were then multiplied to the scores corresponding to the responses (Very often=4, fairly often=3,occasionally=2, hardly ever=1, never = 0). 'Don't know' was likewise allocated scores of "0" (*Refer to Appendix C for weights used*).

OHIP scores by subscales were computed by adding the weighted scores of all OHIP items belonging to each subscale. Overall OHIP score refers to the sum of the 49 item weighted OHIP scores. The computation for the overall OHIP score differed from earlier computations done by Slade and Spencer (1994) and by Locker and Slade (1995) in that the weighted subscale scores were not standardized to a mean and standard deviation of one.

Comparisons of the OHIP scores were made at different levels:

1) Comparison of the prevalence and mean OHIP scores (severity) between the workers of the two countries.
2) Comparisons of the OHIP scores by the different variables identified to be studied between workers of the two countries
3) Comparison of OHIP scores by subscales among the different groups of workers within each study sample. Mean OHIP scores by subscales were compared by socio-demographic characteristics, self reported oral health status, and use of dental services to determine which subgroups of workers and which OHIP subscales would be most affected by oral disease and disorders.

Income, job, age, education, number of remaining teeth and dental status categories were grouped and re-coded to form more manageable sized

cells for analyses. Filipino languages were confined to analyses of those who spoke Tagalog and English at home, regardless of the number of other local languages spoken. Answers to the open ended question on why Filipino workers did not use the company dental clinics, or the effect of reporting to work despite a dental problem for both samples were classified by main theme and collated.

Analyses was done to determine the impact of oral diseases and disorders on two types of restricted activities:

a) work loss days; and

b) change in social role functioning (e.g. reporting to work despite a problem, work affected by dental problem).

The mean OHIP scores of those who reported any or both types of restricted activity and those who did not were compared.

Regression analysis was used to determine variables significantly associated with

a) high overall weighted OHIP scores; and

b) those who reported that they experienced some form of restricted activity due to oral conditions

Statistical tests used for data analysis included the Chi square tests, ANOVA and t-tests in a range of bivariate analyses. Multivariate analyses involved logistic regression. These were performed with SPSS for Windows.

CHAPTER 3 RESULTS

3.1 Description of the study samples

3.1.1 Sample size and response rate

Ten companies, five from each country, participated in the study. Five hundred and ten workers participated from the Philippines and 426 from Australia resulting in a pooled sample size of 936. The response rate for the Philippines was 53 per cent and 28 per cent for the Australian study. Individual response rates of the Australian companies ranged from 18.3 to 66.1 per cent, while for the Philippines the response rate was from 46.9 to 58.7 per cent. Table 3.1 presents the response rate of the various companies.

Table 3.1 Response rates of Australian and Filipino workers

Companies	Number of questionnaires actually distributed	Questionnaires returned	Response rate
Philippine companies			
Company A	209	98	46.9%
Company B	240	141	58.7%
Company C	237	119	50.2%
Company D	141	79	56.0%
Company E	135	73	54.1%
Total	962	510	53.0%
Australian companies			
Company F	62	41	66.1%
Company G1	48	25	52.8%
Company G2	205	51	24.9%
Company H	500	166	33.2%
Company I	500	94	18.8%
Company J	200	49	24.5%
Total	1515	426	28.1%

3.1.2 Socio-demographic characteristic of the study samples

3.1.2.a. Companies

The companies chosen for the study were predominantly in the manufacturing industry and employed more males than female workers. All companies chosen, were large-sized companies, mostly multinational corporations, belonging to the top 100 companies of Australia and the Philippines. Four companies (two from each country) were classified as among the top 1,000 corporations in the Asian Pacific Region (ASIAWEEK, November, 1996).

3.1.2.b. Education and job

The professional, paraprofessional and manager/administrator category represented the largest group for the Australian workers (50.5 per cent). A moderate 31.2 per cent of Australian workers belonged to the clerical, trade, and sales job category and a much smaller percentage (16.0 per cent) to the machine operators, drivers, labourer, and factory assistant job category. The majority of the Filipino workers (44.3 per cent) likewise belonged to the professional, paraprofessional, manager category. A moderate percentage (40.0 per cent) belonged to the machine operators, drivers, labourers and factory helper job category. Only 14.3 per cent belonged to the clerical, sales, trade and personal services category.

The largest percentage of Australian workers in the study were those with some college education and or those who have gone to trade school. The Filipino workers on the other hand, reported 47.6 per cent who had

completed college education. Table 3.2 presents the socio-demographic characteristics of the study samples.

Table 3.2 Socio-demographic characteristics of Australian and Filipino workers.

Characteristics	Australian workers		Filipino workers		Remarks (Chi sq.)
	No.	%	No.	%	
AGE					p. < 0.01
18-24	26	6.1	22	4.3	
25-34	124	29.1	148	29.0	
35-44	136	31.9	212	41.6	
45-54	89	23.9	99	19.4	
55-64	24	6.8	24	4.7	
No response	09	2.1	5	1.0	
Total	426	100	510	100	
GENDER					
Male	346	81.2	391	76.7	
Female	80	11.8	119	23.3	
Total	426	100	510	100	
EDUCATION					p. < 0.001
School *(primary/secondary)*	135	31.7	126	24.7	
Post School *(some college/ trade school)*	166	39.0	138	27.1	
Completed college	124	29.1	243	47.6	
No response	1	0.2	3	0.6	
Total	426	100	510	100	
JOBS					p. < 0.001
Job A *Managers/ Admi. Professionals Paraprofessionals*	215	50.5	226	44.3	
Job B *Trade person Clerks Sales/Personal Service.*	133	31.2	73	14.3	
Job C *Machine Operators Labourers*	68	16.0	204	40.0	
Others					
No response	10	2.3	7	1.4	
Total	426	100	510	100	

3.1.2.c. Gender

While the proportion of female workers was similar for the two study samples, there was a difference in the proportion of female workers by job category. There were *greater* proportions of male workers than female workers in the managerial, administrative, professional, paraprofessional and in the machine operators, labourer, and factory helpers job categories for the Australian sample. And the opposite for the trade persons, clerical and personal service job category. For the Philippine sample, there were *similar* proportions of female workers to male workers among the manager, administrative, professional and para- professional and the trade person, clerical, sales and personal services job categories. The number of male workers in the machine operators, labourer, factory helpers job category however were greater than the female workers. Table 3.3 presents the distribution of male and female workers by job categories.

Table 3.3 Comparison of workers by gender and job categories.

Jobs	Australian workers				Filipino workers			
	Male		Females		Male		Female	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Managers, professionals, Para-professionals.*	189	56	26	34.	168	43.3	58	50.4
Trade person, salespersons, Clerks*	86	25	47	61.	52	13.4	21	18.3
Labourer, Machine operators, Others*	64	19	4	5	168	43.3 .	36	31.3
Total	339	100	77	100	338	100	115	100

*p<0.001

Table 3.4 Use of dental services by Australian and Filipino workers

Use of dental service	Australian workers		Filipino workers		Remarks (Chi sq.)
	No.	%	No.	%	
Service providers					
Private dentist	397	93.2	196	38.4	*no comparison was made due to the difference in health system between countries*
Public/ Govt.	14	3.3	12	2.3	
Company dentist	NA	NA	284	55.7	
Denturist	9	2.1	4	0.8	
Others	2	0.5	3	0.6	
No response	4	0.9	11	2.2	
Total	426	100	510	100	
Reason for last visit*					*p < 0.01
Regular	189	44.4	114	22.3	
For a problem	233	54.7	382	74.9	
No response	4	0.9	14	2.7	
Total	426	100	510	100	
Last Visit					
Less than 2 year	310	72.7	391	76.7	
2 to less than 5 years	71	16.7	71	13.9	Not significant
5 years and over	42	9.8	39	7.6	
No response	03	0.7	9	1.8	
Total	426	100	510	100	
Utilized company dental clinic					
Yes			347	68.0	
No	NA	NA	119	23.3	NA
No response			44	8.7	
Total			510	100	
Dental insurance					
Yes	308	72.3			
No	114	26.7	NA	NA	NA
No response	4	1.0			
Total	426	100			

NA: Comparison not applicable

When asked what dental treatment(s) were done during their last dental visit, 61.9 per cent of the Australian sample reported that they had their periodic dental examination, 65 per cent had their teeth cleaned and another 43.6 per cent had at least one tooth restored. Filipino workers reported much lower percentages for these dental treatments. Only 28.6 per cent had a periodic dental examination, 45.6 per cent had their teeth cleaned and 24.3 per cent had a tooth restored. For dental extractions, it was the opposite with 24.3 per cent of the Filipino sample reported having at least one tooth extracted during their last dental visit, while only 6.6 per cent of Australian workers reported the same. For rehabilitative dental treatment, 13.7 per cent of the Filipino sample reported having a denture installed, repaired or adjusted while only 3.3 per cent of the Australian sample had similar treatment. Table 3.5 presents the treatment(s) done during the last dental visit of the Australian and Filipino samples.

Table 3.5 Dental treatment received by the Australian and Filipino workers during their last dental visit.(Australian workers =426, Filipino workers=510)

Treatment procedures	**Australian workers**		**Filipino workers**	
	No.	%	No.	%
Periodic examination	264	61.9	146	28.6
Scaling and polishing	277	65 0	233	45.6
Restorations	186	43.6	243	24.3
Gum treatment	17	4.0	20	3.9
Root canal treatment	25	5.9	20	3.9
Denture (installation, repair, adjustment)	14	3.3	70	13.7
Orthodontic treatment	4	0.9	6	1.2
Tooth Extraction	28	6.6	124	24.3

3.1.4 Self-reported dental health status

Table 3.6 presents the self-reported dental health status of Australian and Filipino workers. More Australian workers (49.3 per cent) reported having a set of "complete and natural teeth" compared with only 10.6 per cent of Filipino workers belonging to the same dental category. More Filipinos in the study, reported wearing "some form of dental prosthesis" (45.3 per cent) and having "full dentures" (3.2 per cent) compared with Australian workers (9.7 per cent and 0.9 per cent respectively).

A significantly higher proportion of Australian workers reported having "twenty-one or more teeth" (93.5 per cent) than Filipino workers (66.7 per cent). Only 27 out of the 415 Australian workers or 6.5 per cent had "twenty or less teeth" compared with 155 out of the 466 Filipino workers (33.3 per cent) who reported the same.

Table 3.6 Self-reported dental status of the Australian and Filipino workers*

Self-reported dental status	Australian workers		Filipino workers	
	No.	%	No.	%
Dental categories *				
Complete natural teeth(28 to 32) teeth)	209	49.3	53	10.6
Natural teeth with some missing teeth, but no dentures	170	40.1	203	40.5
Some natural teeth, with some form of prosthesis	41	9.7	227	45.3
No natural teeth, with full dentures	4	0.9	16	3.2
No natural teeth, no dentures	0	NA	2	0.4
Total	424	100	501	100
Number of remaining teeth**				
Twenty teeth or less	27	6.5	155	33.3
Twenty one teeth or more	388	93.5	311	66.7
Total	415	100	466	100

**Missing observations = 11, comparison of proportions between Australian and Filipino workers significant at Chi square p< 0.01."No natural teeth, no dentures" was not included in the comparison.*

***Missing observations =55. Comparison of proportions significant at Chi sq. p < 0.01.*

Table 3.8.1 Comparison of Filipino study sample with Filipino labour force (National Capital Region) by age and gender

Age groups	Female		Male	
	Employed females by age group, 1987	Philippine sample	Employed males by age group, 1987	Philippine sample
20-24	19.3%	10.9%	14.3%	2.3%
25-34	32.5%	41.2%	34.6%	25.2%
35-44	18.8%	38.6%	34.6%	42.3%
45-54	13.2%	7.6%	15.3%	22.9%
55-64	5.3%	1.7%	6.9%	5.6%

Source: Philippine Health Care Factbook, 1990, Center for Research and Communication

Table 3.8.2 Comparison of the Filipino study sample with Filipino labour data (National Capital Region) by education categories

Education categories	Filipino labour data	Filipino study sample
School category	16.5%	24.7%
Post school	18.1%	27.1%
Completed college	23.2%	47.6%
Not reported	0.1%	0.6%

Source: 1993 Year book of Labour Statistic, Department of Labour and Employment , Manila, Philippines

3.2 Test- retest

Two sub-samples of 50 Filipino workers each were randomly selected from early responders and were given retests using the English OHIP for the first retest (different language test-retest) and the bilingual OHIP for the other retest(same language test-retest). Over 60 per cent returned the second OHIP questionnaire for both retests. Table 3.9 shows the intra-class correlation coefficients by subscales for the two reliability tests.

Table 3.10 The prevalence and mean OHIP scores of Australian and Filipino workers

SUBSCALES	Prevalence *				Mean OHIP** (Severity)			
	Australians		Filipinos		Australians		Filipinos	
	No.	%	No.	%	Mean	S.D.	Mean	S.D.
Functional limitation	167	**39.2**	294	**57.9**	**10.3**	5.9	**15.7**	7.9
Physical pain	71	**16.7**	178	**34.9**	**12.7**	6.1	**17.0**	8.4
Psychological discomfort	36	**8.5**	120	**23.5**	**5.7**	5.4	**9.5**	6.9
Physical disability	18	**4.2**	96	**18.8**	**4.2**	5.0	**11.6**	9.6
Psychological disability	9	**2.1**	43	**8.4**	**3.2**	4.6	**7.8**	6.5
Social disability	2	**0.5**	20	**3.9**	**1.1**	2.7	**3.8**	4.6
Handicap	8	**1.9**	29	**5.7**	**1.5**	3.2	**5.6**	5.8
Overall summed OHIP score					**38.7**	26.7	**71.2**	42.0
Overall prevalence	198	**46.5**	329	**64.5**				

Australian Sample = 426, Philippine Sample = 510
Prevalence of impacts refers to at least one reported impact experienced 'fairly often' or 'very often'.
**Percentages of reported impacts by all subscales is higher among Filipino workers than among Australian workers .Chi sq. p< 0.01.*
*** Mean OHIP scores by subscales were significantly higher among Filipino workers than among Australian workers in all subscales and in the overall OHIP score, t tests p< 0 .01.*

The Filipino workers had significantly higher prevalence of reported oral health impacts than the Australian workers. Within each country, the prevalence was highest for the functional limitation and for the physical pain subscales and lowest for the social disability and handicap subscales.

For the Australian workers, the prevalence of impacts experienced for the functional limitation subscale was 39.2 per cent, but only 1.9 per cent for the handicap subscale and 0.5 per cent for social disability. For the Filipino workers, 57.9 percent experienced at least one impact belonging to the

functional limitation subscale but only 5.7 per cent and 3.9 per cent for the handicap subscale and social disability subscales respectively. All figures higher than the Australian sample.

For the Filipino sample, four of the seven subscales (functional limitation, physical pain, psychological discomfort, and physical disability) had a prevalence of higher than 15 per cent, while for the Australian sample only two subscales (the functional limitation and the physical pain subscale) had a prevalence higher than this value.

The mean weighted OHIP scores were significantly higher for the Filipino sample compared with the Australian sample. The range of mean OHIP scores for the Australian workers was highest at 12.7 for the physical pain subscale and lowest for the social disability subscale at 1.1. For the Filipino sample on the other hand, the highest mean weighted OHIP score was 15.7 for functional limitation and lowest for social disability at 3.8.

3.3.2 Most and least frequently reported OHIP items

The most frequently reported impacts for both samples belonged to the following subscales:

a) functional limitation :OHIP 4 (appearance affected), OHIP 5(stale breath), OHIP 7 (food catching between the teeth)
b) physical pain: OHIP 12(headaches)
c) psychological discomfort: OHIP 20 (self conscious)

Avoiding eating some foods due to problems with teeth, mouth and dentures (physical disability) was also reported as one of the most frequent impacts for

the Philippine sample, but not for the Australian sample. Table 3.11 presents the 10 most frequently reported impacts and or those with more than 5 per cent of workers having reported impacts.

Table 3.11 Most frequently reported oral health impacts among Australian and Filipino workers.

OHIP item	Australian workers		Filipino workers	
	%	Rank	%	Rank
1. Food catching between teeth ...(OHIP 7).	29.1	1	46.9	1
2. Noticed a tooth, which does not look right. (OHIP 3).	9.0	3	23	2
3. Felt that appearance has been affected because of problems with teeth, mouth or denture. (OHIP4).	6.1	4	17.8	3
4. Had sensitive teeth due to cold foods or drinks. (OHIP12).	11.7	2	15.7	4
5. Worried by dental problems (OHIP 19)			15.5	5
6. Found it uncomfortable to eat with teeth, mouth or dentures (OHIP15).			14.3	6
7. Have been self conscious because of problems with teeth, mouth or denture. (OHIP 20).	6.1	4	15.1	7
8. Difficulty in chewing because of problems with teeth, mouth or dentures (OHIP 1).			11.56	8
9. Had sore spots in mouth (OHIP 16).			11.0	9
10. Avoided eating some food because of problems with teeth, mouth or dentures (OHIP 28).			9.8	10
11. Felt that breath was stale because of problems with teeth, mouth or dentures (OHIP 5).	5.9	5		

There were several OHIP items that did not have any reported impacts at all for the Australian sample. These items belonged to the physical disability subscale (OHIP 26- less flavour in the food, OHIP 29-diet has been unsatisfactory, OHIP 30-unable to eat because of dentures), social disability subscale (OHIP 39-avoided going out, OHIP 43- difficulty in doing job) and handicap (OHIP48-totally unable to function). On the other hand, Filipino workers reported impacts in all items. Table 3.12 presents the least frequently reported impacts. (*Please refer to Appendix D, for detailed prevalence of oral health impacts by individual OHIP items.)*

Table 3.12 Least frequently reported oral health impacts among Australian and Filipino workers

Australian workers	Philippine workers
Group 1 No impacts reported: 1. Felt that there has been less flavor in food... (OHIP26). 2. Diet has been unsatisfactory... (OHIP 29). 3. Unable to eat ... (OHIP30). 4. Avoided going out ... (OHIP39) . 5. Difficulty in doing usual job ... (OHIP43). 6. Have been totally unable to function ...(OHIP48).	**Group 1 (0.60%)** 1. Avoided going out ... (OHIP 39). 2. Less tolerant of spouse and family ... (OHIP 40). 3. Suffered from financial loss ... (OHIP 45).
Group 2 (0.23 % or less) 7. Had to interrupt meals ...(OHIP 32). 1. Concentration affected ...(OHIP37). 2. Less tolerant of spouse and family ... (OHIP40) 3. Bit irritable with other ... (OHIP42). 4. Have you been unable to work to your full capacity...(OHIP 49).	**Group 2 (1.2%)** 1. Had trouble getting along with people ... (OHIP 41).
Group 3 (0.05% to 0.23 %) 1. Felt tense ...(OHIP25) 2. Sleep was interrupted ...(OHIP33) 3. Was upset ...(OHIP 34) 4. Found it difficult to relax...(OHIP 35)	**Group 3 (1.4%)** 1. Found it difficult to relax ... (OHIP 35). 2. Unable to enjoy other people's company as much ... (OHIP 46).
Group 4..(0.70% to 0.05%) 1. Unclear speech ... (OHIP 24) 2. Felt depressed ... (OHIP 36) 3. Found life generally unsatisfactory...(OHIP47)	**Group 4 (1.6%)** 1. Sleep was interrupted ... (OHIP 33) 2. Have been totally unable to function ... (OHIP 48). 3. Difficulty in doing usual job...(OHIP 43)
	Group 5 (1.8%) 1. Felt that general health has worsened ...(OHIP 44). 2. Have you been unable to work to your full capacity...(OHIP 49). 3. Bit irritable with other ...(OHIP42)
"... because of problems with your teeth, mouth or dentures.".	*"... because of problems with your teeth, mouth or dentures."*

3.4 Variation in OHIP scores

3.4.1 Age, gender, income

3.4.1.a. Age

Mean OHIP scores by age showed only one subscale with any significant difference for each study sample. For the Australian sample, those aged 45-54 had higher mean OHIP scores for the functional subscale than the other age categories. For the Philippines the same age category as well as the 55-64 age group had higher mean OHIP scores for the physical disability subscale compared to the other age categories.

Table 3.13 Mean OHIP scores by age categories -the Australian sample

	The Australian Workers									
	18-24 (26)		25-34 (124)		35-44(136)		45-54(102)		55-64(29)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Functional limitation**	7.9	4.9	9.2	6.0	10.9	6.0	**11.7**	**6.0**	11.1	6.1
Physical Pain	12.6	5.4	12.3	6.1	13.0	6.4	13.6	5.8	11.3	7.5
Psychological discomfort	4.3	4.2	5.9	5.7	5.8	5.5	5.8	5.4	6.0	4.8
Physical disability	2.5	2.7	3.6	4.3	4.5	5.2	4.7	5.2	5.1	7.6
Psychological disability	1.6	2.6	3.2	4.6	3.5	5.0	3.4	4.6	3.1	4.8
Social disability	0.4	1.1	0.9	2.5	1.3	3.0	1.3	2.9	0.6	1.8
Handicap	0.6	2.0	1.3	3.4	1.6	3.2	1.7	3.3	1.8	3.1
Overall OHIP	29.9	17.2	36.3	26.2	40.5	28.7	42.1	26.3	38.9	30.1

**p <0.01

Table 3.14 Mean OHIP scores by age categories - the Filipino sample

	The Filipino Workers									
	18-24 (26)		25-34 (124)		35-44(136)		45-54(102)		55-64(29)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Functional limitation	13.6	7.4	15.0	7.4	15.8	8.0	16.9	8.4	16.6	8.9
Physical Pain	15.1	7.6	16.5	7.9	17.0	8.3	18.0	8.7	19.3	10.1
Psychological discomfort	10.5	7.4	9.0	6.8	9.2	6.6	10.2	7.2	10.8	8.2
Physical disability**	10.5	9.7	9.8	8.9	11.3	8.7	***14.4***	***10.9***	***14.3***	***10.5***
Psychological disability	9.0	7.7	7.3	6.4	7.7	6.3	8.6	6.7	7.8	6.4
Social disability	3.0	4.4	3.4	4.0	4.1	4.8	4.4	5.0	3.2	3.5
Handicap	5.3	5.1	4.7	5.2	5.8	6.0	6.6	6.8	5.8	4.6
Overall OHIP	66.9	41.6	65.5	39.4	71.0	40.7	79.2	44.5	77.9	46.0

**p<0.01

3.4.1.b Gender

Table 3.15 presents the comparison of overall OHIP scores by gender between the two study sample. Both the Filipino male and female workers had higher overall OHIP scores than the Australian workers of the same gender.

Table 3.15 Comparison of Overall OHIP scores by gender between the Filipino and Australian workers

Gender	Australian workers			Filipino workers		
	Nos.	Mean Overall OHIP score	S.D.	Nos.	Mean Overall OHIP score	S.D.
Male ***	346	38.7	27.5	391	73.2	42.5
Female ***	80	41.7	25.5	119	68.4	37.7

***p=0.000

The OHIP subscales scores of the two study population also showed different patterns. For the Australian sample, no significant differences were

observed in the mean OHIP scores by subscales by gender. For the Philippine sample however, there were significant differences in the mean OHIP scores between Filipino male and female workers. The mean OHIP scores for the, physical pain, physical disability, as well as the overall OHIP score were higher among male workers than female Filipino workers. Tables 3.16 and 3.17 presents the mean OHIP scores by subscales and gender among the two study samples.

Table 3.16 Mean OHIP scores by gender among Australian worker

	Male (n=346)		Female (n=80))	
Subscales	Mean	S.D.	Mean	S.D.
Functional limitation	10.4	5.9	9.7	6.0
Physical pain	12.4	5.9	13.9	6.8
Psychological discomfort	5.7	5.4	5.6	5.1
Physical disability	4.2	5.2	4.1	4.3
Psychological disability	3.2	4.7	3.2	4.3
Social disability	1.2	2.8	0.5	1.6
Handicap	1.5	3.3	1.1	2.4
Overall OHIP score	38.7	27.5	38.2	23.3

Table 3.17 Mean OHIP scores by gender among Filipino workers.

	Male (n=391)		Female(n=119)	
Subscales	Mean	S.D.	Mean	S.D.
Functional limitation	16.5	8.3	14.6	6.4
Physical pain*	17.5	8.7	15.3	6.9
Psychological discomfort	9.7	7.1	9.0	6.4
Physical disability*	12.1	9.8	9.9	8.6
Psychological disability	8.1	6.5	6.8	6.5
Social disability	3.9	4.5	3.6	4.8
Handicap	5.8	5.8	5.0	5.9
Overall OHIP Score*	73.6	42.5	64.4	38.8

* $p<0.05$

3.4.1.c. Income

No significant differences in the mean OHIP score by subscale were observed among the different income categories. For the Philippine study, mean OHIP scores for the handicap subscale showed significant differences by income categories.

Table 3.18 Mean OHIP by income (Australian workers)

	$ 20,000 or less n=16		**$20,001 to $45,000** n=174		**$45,000 and above** n=223	
Subscales	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Functional limitations	11.0	4.5	10.3	6.3	10.3	5.9
Physical pain	14.4	5.1	12.9	6.0	12.5	6.4
Psychological discomfort	5.3	4.7	6.1	5.4	5.4	5.4
Physical disability	3.0	3.1	4.2	5.3	4.2	4.9
Psychological disability	3.1	3.7	3.3	4.8	3.2	4.6
Social disability	1.5	2.7	1.0	2.5	1.1	2.7
Handicap	0.6	1.5	1.6	3.3	1.3	2.8
Overall OHIP	38.8	20.9	39.4	24.7	38.0	25.8

Table 3.19 Mean OHIP by income (Philippine workers)

	P 10,000 and below n=185		**P 10,001- P 59,999** n=247		**P 60,000- P500,000** n=13	
Subscales	Mean	S.D.	Mean	S.D.	Mean	S.D.
Functional limitation	16.8	8.5	17.2	7.9	17.6	11.6
Physical pain	16.7	8.6	17.8	8.5	13.8	8.6
Psychological discomfort	9.6	6.8	9.3	7.1	12.4	7.4
Physical disability	11.6	10.3	11.5	9.1	12.8	11.8
Psychological disability	7.9	6.8	7.7	6.1	9.1	6.3
Social disability	4.2	5.1	3.5	3.9	4.4	5.4
Handicap*	6.4	6.6	5.1	5.1	3.2	6.4
Overall OHIP	72.1	39.1	70.0	36.1	74.2	46.8

*$p<0.05$

3.4.2 OHIP score by job category

The Filipino workers were observed to have higher OHIP scores than Australian workers in all three job categories.. Table 3.20 presents the overall OHIP scores of the two study samples.

Table 3.20 Comparison of Overall OHIP scores between the Australian and Filipino workers by Job Categories

	Australian Workers			Filipino Workers		
JOBS	Nos.	Mean Overall OHIP scores	S.D.	Nos.	Mean Overall OHIP scores	S.D.
Managers, Professionals and paraprofessional***	215	35.9	23.3	226.0	67.3	36.2
Trade persons, salespersons, clerks and personal services***	133	39.6	28.1	73.0	77.0	43.9
Machine operators, drivers, labourers, factory helpers***	68	46.6	33.5	204.0	73.8	46.3

*** $p<0.001$

Table 3.21 presents the mean OHIP scores by subscales for the two study samples. For the Australian sample , those belonging to the machine operator ,labourer driver job category had consistently higher mean OHIP scores for the psychological discomfort and disability, social disability and handicap subscales. The Filipino workers belonging to the trades person, clerical and sales category and the machine operator driver, labourer category had consistently higher OHIP scores for the psychological physical and social disability and handicap subscale compared to the professional, manager and administrator job category.

Table 3.21 Mean OHIP scores by job categories managers

Subscales	Australian workers						Filipino workers					
	Managers, Professional n= 213		Tradesperson, Clerks and Sales n= 133		Drivers and Labourers n=68		Managers, Professional n=226		Tradesperson, Clerks and Sales n=73		Drivers and Labourers 204	
	Mean OHIP Score	S.D	Mean OHIP Score	S.D.	Mean OHIP Score	S.D.	Mean OHIP Score	S.D	Mean OHIP Score	S.D.	Mean OHIP Score	S.D.
Functional Limitation	10.2	5.8	10.2	6.5	11.3	5.8	16.2	7.2	16.1	8.3	15.3	8.6
Physical Pain	12.5	5.8	13.0	6.5	13.1	6.5	17.0	0.5	17.0	1.0	17.2	0.7
Psychological Discomfort	5.3	5.1	***6.2***	***5.7***	***6.2***	***5.6***	9.2	6.3	10.9	7.2	9.4	7.4
Physical Disability	3.6	4.2	4.3	4.9	5.8	6.9	10.4	8.7	***12.9***	***10.4***	***12.6***	***10.2***
Psychological Disability	2.6	3.8	3.4	5.0	***5.1***	***5.7***	7.0	5.9	***9.3***	***7.2***	***8.3***	***6.8***
Social Disability	0.6	1.7	1.2	2.8	***2.3***	***4.1***	3.1	3.6	4.3	4.7	***4.4***	***5.2***
Handicap	1.1	2.8	1.4	3.3	***2.7***	***4.1***	4.4	5.1	***6.6***	***6.4***	***6.6***	***6.3***
Overall OHIP Score	35.9	23.3	39.6	28.1	46.6	33.5	67.3	37.3	77.0	45.1	73.8	45.1

***p<0.001

3.4.3 OHIP scores and education category

Comparison of the overall OHIP scores between the two samples showed that Filipino workers had significantly higher scores than the Australian workers for all education categories. Table 3.22 presents the overall OHIP score between the two study samples by education categories.

Table 3.22 Comparison of overall OHIP scores between the two-study sample by education categories

	Australian workers			Filipino workers		
Education Categories	Nos.	Mean Overall OHIP score	S.D.	Nos.	Mean Overall OHIP score	S.D.
School ***	135	40.3	29.3	126	76	47.1
Post school***	166	38.9	26.5	138	71.3	43.1
College, University***	124	36.6	24.2	243	68.3	38.2

***T test: $p<0.001$

There were no significant differences in the mean OHIP scores of Australian workers by education category. For the Philippine sample, three subscales - the physical disability, social disability and handicap subscales had significantly different mean OHIP scores. Both those with post school education and with school education had higher mean OHIP scores than those with college education for the handicap subscale as well as the physical disability subscale. In all occasions, those who have completed college education had the lower mean compared to the two other categories. For social disability, those with school education had higher mean OHIP cores than those with either post school and or completed college Table 3.23 and 3.24 presents the OHIP scores by educational categories for the two study samples.

Table 3.23 Mean OHIP scores by education among Australian workers

Subscales	School (primary and secondary education) n=135		Post school and Trade n=166		Completed university n=124	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Functional limitation	10.2	6.4	10.8	6.0	9.9	5.6
Physical discomfort	12.9	6.8	12.6	6.2	12.8	5.3
Psychological discomfort	6.0	5.7	5.7	5.4	5.4	4.9
Physical disability	4.4	5.4	4.2	4.9	3.9	4.8
Psychological disability	3.9	5.1	3.0	4.4	2.6	4.3
Social disability	1.4	3.0	1.0	2.6	0.7	2.3
Handicap	1.5	3.2	1.5	3.1	1.3	3.4
Overall OHIP	40.3	29.3	38.9	26.5	36.6	24.2

Table 3.24 Mean OHIP scores by education categories among the Filipino workers

Subscales	School (primary and secondary education) n=126		Post school (some college and trade school) n=138		Completed university n=243	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Functional limitation	15.5	8.9	15.1	8.4	16.2	7.2
Physical discomfort	17.6	9.2	17.2	8.9	16.7	7.8
Psychological discomfort	9.7	7.9	9.0	6.8	9.6	6.5
Physical disability*	***12.9***	***10.7***	***12.5***	***10.3***	**10.4**	**8.5**
Psychological disability	8.9	7.0	7.7	6.4	7.3	6.3
Social disability*	***4.7***	***5.1***	**3.8**	**4.7**	**3.4**	**4.1**
Handicap***	***6.8***	***6.2***	***6.0***	***5.7***	4.7	5.7
Overall OHIP score	76.0	47.1	71.3	43.1	68.3	38.2

***p<0.001,*p<0.05

3.4.4 OHIP scores and insurance (Australian sample only) and utilisation of company dental clinics(Philippine sample)

Australian workers with dental insurance and those without had similar OHIP scores by subscales. . Table 3.25 presents the mean OHIP scores by dental insurance for the Australian workers

Table 3.25 Mean OHIP by Dental Insurance(for *Australian workers only*)

Subscale	Yes n=308		No n=114	
	mean	S.D.	mean	S.D.
Functional limitation	10.5	6.2	9.8	5.5
Physical pain	13.0	6.4	11.8	5.4
Psychological discomfort	5.9	5.5	5.0	5.2
Physical disability	4.3	5.3	3.7	4.3
Psychological disability	3.4	4.7	2.7	4.3
Social disability	1.	2.8	1.1	2.4
Handicap	1.4	3.1	1.5	3.6
Overall OHIP	39.6	25.8	35.6	22.8

For the Philippine sample, no significant differences were observed in the mean OHIP scores by subscales for workers who reported that they utilise the company dental clinic and those who did not, except for the social disability subscale.

Table 3.26 Mean OHIP scores by utilisation of company dental clinics (*for Philippine sample only)*

Subscale	No, do not use the clinic (n=116)		Yes, use the clinic (n=346)	
	Mean	S.D	Mean	S.D.
Functional limitation	15.8	8.0	15.7	7.9
Physical pain	16.8	7.9	17.1	8.3
Psychological discomfort	9.7	6.3	9.2	7.0
Physical disability	11.2	9.3	11.5	9.5
Psychological disability	8.0	6.7	7.7	6.5
Social disability*	**4.5**	**5.2**	**3.5**	**4.2**
Handicap	6.1	6.2	5.3	5.8
Overall OHIP	72.2	42.1	69.9	40.7

* $p<0.05$

3.4.5. OHIP score and self-reported dental health status

3.4.5.a Number of remaining teeth

The Filipino workers presented higher mean overall OHIP scores compared to the Australian workers both for the 20 or fewer teeth and for the 21 or greater teeth categories. Table 3.27 presents the comparison of the overall OHIP scores between the two-study sample.

Table 3.27 Comparison of overall OHIP scores between the Australian and Filipino workers by number of remaining teeth.

Number of remaining teeth	Australian workers			Filipino workers		
	Nos.	Mean Overall OHIP score	S.D	Nos.	Mean Overall OHIP score	S.D.
20 or less teeth***	29	46.9	30.1	115	87.3	43.4
21 or more teeth***	384	37.7	26.2	311	62.4	39.1

$p<0.001$

For the Australian sample, those with 20 or less teeth had higher mean OHIP scores for the physical disability subscale than those with 21 or more teeth. For the Philippine sample those with 20 or lesser teeth had higher mean OHIP scores for all the subscales.

Table 3.28 Mean OHIP scores by number of remaining teeth among the Australian workers

Subscales	20 or less teeth n=29		21 or teeth n=384	
	Mean	S.D.	Mean	S.D.
Functional limitation	12.9	7.1	10.1	5.9
Physical pain	13.9	6.8	12.5	6.0
Psychological discomfort	7.2	6.2	5.6	5.3
Physical disability* **	**6.7**	**7.4**	**3.9**	**4.7**
Psychological disability	4.2	5.2	3.1	4.6
Social disability	0.5	1.3	1.1	2.7
Handicap	1.4	2.5	1.4	3.2
Overall OHIP	46.9	30.1	37.7	26.2

*p<0.001

Table 3.29 Mean OHIP scores by number of remaining teeth among the Filipino workers

Subscales	20 or less teeth n=155		21 or more teeth n=311	
	Mean	S.D.	Mean	S.D
Functional limitation***	17.9	8.2	14.5	7.6
Physical pain***	19.9	8.8	15.8	7.9
Psychological discomfort***	11.5	7.5	8.5	6.6
Physical disability***	16.0	10.2	9.1	8.3
Psychological disability***	10.0	6.5	6.6	6.2
Social disability***	4.9	4.9	3.3	4.3
Handicap***	7.2	6.1	4.7	5.6
Overall OHIP***	87.3	43.4	62.4	39.1

***p < 0.001

3.4.5.b. Self reported dental status category

Comparison of the overall OHIP scores of the two study samples by dental status category presented higher mean overall OHIP scores for the Filipino workers. Comparison by full denture category was disregarded because of the very small sample size among Australian workers. Table 3.30 presents the overall OHIP scores by country and by dental status category.

Table 3.30 Comparison of overall OHIP scores between Australian and Filipino workers by self reported dental status categories.

Self reported dental status category	Australian workers			Filipino workers		
	Nos.	Mean Overall OHIP	S.D.	Nos.	Mean Overall OHIP	S.D.
Complete and natural dentition**	209	34.3	22.6	53	43.8	26.8
With missing teeth but no denture***	170	41.1	25.6	203	65.8	36.7
Some natural teeth , with some form of denture***	41	48.1	28.6	227	79.8	35.2
Full denture	4	58.1	39.8	16	93.48	44.9

** $p<0.01$, *** $p<0.001$, Bonforonni corrected

Table 3.31 Comparison of mean OHIP scores by subscales and self reported dental categories among the Australian Workers.

Subscales	Complete natural teeth n=209		With missing teeth, no dentures n=170		Some natural teeth, with some dentures n=41		Full dentures	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Functional limitation* **	9.2	5.7	**11.1**	**6.0**	**13.0**	**6.3**	13.2	8.7
Physical pain	12.5	5.6	12.8	6.3	13.3	7.6	**19.3**	**9.3**
Psychological discomfort**	4.8	5.0	**6.5**	**5.7**	**7.2**	**5.5**	5.7	6.5
Physical disability* **	3.4	4.4	4.2	4.8	**6.9**	**7.1**	**9.3**	**8.0**
Psychological disability**	2.5	4.2	**3.7**	**5.0**	**4.3**	**4.5**	**7.2**	**8.4**
Social disability*	0.6	2.1	**1.4**	**3.1**	1.3	2.8	2.3	2.8
Handicap*	1.3	2.9	1.5	3.4	**2.0**	**4.2**	1.1	1.3
Overall OHIP **	34.3	22.6	**41.1**	**25.6**	**48.1**	**28.6**	**58.1**	**39.8**

$p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$

For the Australian sample, those with missing teeth with or without prosthesis presented the higher mean OHIP scores for the **functional limitation and social disability subscale** subscale compared to those with complete natural teeth. Those wearing some form of prosthesis, either partial or full, presented higher mean OHIP scores for the **physical disability subscale** than those with complete dentition, while those with some form of prosthesis had higher mean OHIP scores for **the handicap subscale** compared to the other dental status categories.

For the Philippine sample, all subscales had significantly different mean OHIP scores by dental status category. Those with complete and natural dentition had significantly lower mean OHIP scores compared to the three

other categories. Those wearing full dentures had the highest mean OHIP scores for all subscales.

Table 3.32 Comparison of mean OHIP scores by subscales and self reported dental status category among the Filipino workers.

Subscales	Complete natural teeth n=53		With missing teeth, no dentures n=203		Some natural teeth, with some dentures n=227		Full dentures1 n=6	
	Mean	S.D	Mean	S.D.	Mean	S.D	Mean	S.D.
Functional limitation***	9.8	5.8	14.6	7.8	17.6	7.3	20.0	8.2
Physical pain***	10.6	5.1	15.9	8.0	19.2	8.3	19.6	9.1
Psychological Discomfort***	4.7	4.8	8.9	6.8	10.8	6.7	12.8	8.3
Physical disability***	5.8	6.1	9.1	8.4	14.2	9.3	21.2	11.6
Psychological disability***	3.8	4.8	7.5	6.5	8.6	6.3	11.3	7.1
Social disability**	1.9	3.5	3.8	4.7	4.1	4.4	6.2	6.1
Handicap***	7.1	7.1	5.9	5.6	5.2	5.9	2.4	3.6
Overall OHIP***	43.8	26.8	65.8	36.7	79.8	35.2	93.4	44.9

3.4.6. OHIP score and dental health seeking behavior

The comparison of the overall OHIP scores between the two study samples by reason of last visit presents similar results as those previously reported in the earlier sections. The Filipino workers having higher OHIP scores than the Australian workers both for those who visited regularly and those who visited the dentist for a problem. Table 3.33 presents the comparison of overall OHIP scores between the Australian and the Filipino workers.

Table 3.33 Comparison of overall OHIP scores between the Australian and the Filipino workers by reason of last visit.

Reason for last visit	The Australian workers			The Filipino workers		
	No.	Mean Overall OHIP	S.D.	No.	Mean Overall OHIP	S.D.
Regular****	189.0	35.2	24.0	114.0	56.4	36.0
For a problem****	233.0	41.6	28.7	382.0	76.2	42.2

T test p<0.0001 (Unequal Variances)

The mean OHIP scores and pattern by "reason of last dental visit" by subscale also differed for the two samples. For the Australian sample, there were no significant differences in the mean OHIP scores by reason for last visit. For the Philippine sample, those who visited the dentist for a problem had higher mean OHIP scores for the physical pain subscale and the handicap subscale than those who visited regularly. Table 3.34 and 3.35 presents the mean OHIP score by reason of last visit among the Australian and Filipino workers respectively.

Table 3.34 Mean OHIP scores by reason of last visit among Australian workers

OHIP subscales	Australian Workers			
	Regular check up n=189		Visited for a problem n=233	
	Mean	S.D.	Mean	S.D.
Functional Limitation*	9.7	5.7	10.9	6.2
Physical pain	12.2	5.7	13.2	6.5
Psychological discomfort**	4.9	5.0	6.3	5.6
Physical disability	3.7	4.5	4.5	5.4
Psychological disability*	2.7	4.2	3.6	4.9
Social disability	0.9	2.3	1.2	2.9
Handicap	1.2	2.7	1.7	3.6
Overall OHIP*	35.2	24.0	41.6	28.7

Table 3.35 Mean OHIP scores by reason of last visit among Filipino workers.

OHIP subscales	Filipino Workers			
	Regular check up n=114		Visited for a problem n=382	
	Mean	S.D.	Mean	S.D.
Functional Limitation***	13.6	7.2	16.5	8.0
Physical pain***	14.9	7.8	17.9	8.5
Psychological discomfort***	7.3	6.0	10.2	7.0
Physical disability***	9.0	8.5	12.4	9.7
Psychological disability***	5.6	5.7	8.6	6.5
Social disability***	2.6	3.8	4.3	4.7
Handicap***	3.4	5.0	6.3	5.9
Overall OHIP***	56.4	36.0	76.2	42.2

*** $p<0.001$

3.5 Variables associated with overall OHIP

Linear regression analysis was used to determine variables significantly associated with overall OHIP score, through separate models for the Australian and the Filipino workers. Table 3.36 presents the two models.

Table 3.36 Multivariate analysis, variables significantly associated with overall OHIP (Dependent variable: overall OHIP score)

Reference category	Australian model	Philippine model
	Multiple R: .34 R square .11 Adjusted R sq. .11 Std. Error 25.1 p<0.001	Multiple R : .41 R square: .17 Adjusted R sq.: .16 Std. Error: 37.0 p<0.001
Dental Category " Natural and Complete dentition"	**"With missing teeth and not wearing dentures"** **Beta: .11** **B: 6.03** **SE B 2.6** **95% C.I. 0.85,11.3** **t =0.02** **"With some missing teeth and with denture"** **Beta .13** **B 12.3** **SE B 4.9** **95 CI 3.5,20.5** **t =0.006** "With complete dentures" *Note: Removed from the equation.(No cases)*	**"With missing teeth and not wearing dentures"** **Beta 0.23** **B 18.8** **SE B 6.3** **95%C.I 10.3, 37.9** **t=0.0032** **"With some missing teeth and with denture"** **Beta: 39.7** **B 26.5** **SE B 6.7** **95% CI 13.2, 39.7** **t= 0.0001** **"With complete dentures"** **Beta .14** **B 48.2** **SE B 16.7** **95% CI 15.3,81.4** **t=0.0041**

Continuation of Table 3.36 Multivariate analysis of variables significantly associated with overall OHIP

Reference Category	Australian Model	Philippine Model
"No, did not delay dental treatment"	**"Yes delayed dental treatment"** **Beta: 0.29** **B: 15.5** **SE 2.5** **95% C.I. 10.5, 20.6** **t =0.000**	**""Yes , delayed dental treatment"** **Beta: .24** **B: 21.6** **SE: 4.1** **95% C.I 13.5,29.7** **t=0.000**
Number of remaining teeth " 21 or more teeth"	NA	**20 or fewer teeth"** **Beta: 0.15** **B: 13.6** **SE 4.3** **95%C.I. 5.09,22.17** **t = 0.0018**

For both the Australian and Filipino sample, denture wearing, and delaying dental treatment were significantly associated with high overall OHIP score. For the Australian workers, those with missing teeth and with some form of prosthesis, and those with missing teeth but with no dentures were 12 and 6 times likely to have high OHIP scores compared to those with complete natural dentition.

For the Filipino worker, all dental status categories such as missing teeth with no denture, missing teeth with denture and complete dentures had higher associations with OHIP scores compared to the reference category (complete natural dentition). One other variable, having 20 or fewer teeth was also strongly associated with high OHIP scores for the Filipino worker but did not emerged as a predictor variable for the OHIP scores of the Australian workers.

3.6 Restricted Activities

Restricted activities in this study refer to the following:

a) Taking time off for dental check up;
b) Taking time off work for a dental problem;
c) Reporting to work despite a dental problem;

A larger proportion of the Filipino sample reported that they took time off work for both dental check-up and dental problems compared with the Australian sample. A larger proportion of the Filipino sample also reported that they went to work despite a dental problem and that their work was affected by a dental condition. Table 3.37 presents the frequency of those who reported some form of restricted activity for Australian and Filipino sample.

Table 3.37 Distribution of Australian and Filipino workers who reported some form of restricted activity due to oral conditions

	Australian workers				Filipino workers			
	No		Yes		No		Yes	
During the past year...	No.	%	No.	%	No.	%	No.	%
1. Have you taken time off work for a dental check-up? *	303	79.1	80	20.9	255	70.8	105.	29.2
2. Have you taken time off work for a dental problem? **	318	84.1	60	15.9	226	70.8	93	29.2
3. Have you reported to work despite a dental problem? **	291	70.8	120	29.2	240	49.1	249	50.9
3.1. If yes, did it affect your work? **	93	78.8	25	21.1	132	53.2	116	46.8

Discrepancy in totals per question due to non response
*Chi square, Australian versus Filipino workers, * sig. at p<0.05, ** sig. at p <0.01.*

A moderate percentage (29.2 per cent) of the Australian sample said they went to work despite a dental problem while half (50.9 per cent) of Filipino workers reported the same. These represent the largest percentages of restricted activity for both samples, much higher than taking time off for dental check up or for a dental problem.

Of those who went to work despite a dental problem, 21.1 per cent of the Australian sample, and 46.8 per cent of Filipino workers reported that their work was affected. Some of the impacts of working despite a dental problem reported by 92 per cent of these workers (107 out of 116 workers) for the Filipino sample and 45.2 percent (42 out of 93 workers) of the same group of workers for the Australian sample were:

a) "lethargy",
b) "not feeling well", "pain", "being more irritable".
c) communication difficulties ("could not speak", "could not communicate"),
d) low work output or feeling of being less efficient ("bad work", "less work", "could not work", "low output"),
e) lack of concentration ("distracted", "could not concentrate"),

Among those who took time off, the mean hours lost for dental check-ups was 1.4 hours for the Australian sample and 1.6 hours for the Filipino sample. Mean time lost for a dental problem was 2.2 hours for the Australian sample and 1.2 hours for the Filipino sample. Table 3.38 shows the mean hours lost for those who took time off for both dental check-up and dental problems.

Table 3.38 Time lost for dental checkup and dental problems among Australian and Filipino workers

Time lost	Australian workers	Filipino workers
Dental check-up (hours)	mean: 1.4 hours S.D.: 1.3 n= 80	mean:1.6 hours S.D.: 4.1 n=105
Dental problem (hours)	mean: 2.2 hours S.D.: 2.9 n=60	mean: 1.2 hours S.D.: 1.9 n=93

3.7 Restricted activity and OHIP scores

Mean OHIP scores of those who took time off for dental check-ups and dental problems exhibited different patterns for the two samples. For the Australian workers, there was no significant difference in the mean OHIP scores of those who took time off for a dental check-up and those who did not. For the Filipino sample, those that took time off for a dental check-up had significantly higher mean OHIP scores in the social disability and the handicap subscales.

Filipino workers who took time off work due to a dental problem likewise reported higher oral health impacts profile scores than those who did not, in all of the subscales except for the physical disability subscale. The Australian workers who took time off for a dental problem on the other hand, reported higher mean OHIP scores in three of the seven subscales (psychological discomfort, psychological disability and handicap). For both samples, physical disability was not among the subscales reported to be associated with taking time off work for either a dental problem, or for a check-up.

Mean OHIP scores of those who reported to work despite a dental problem showed significantly higher mean scores for all subscales for both samples. Table 3.39 presents the mean OHIP scores among those reported some form of restricted activity.

Table 3.39 Restricted activity and OHIP scores of the Australian sample

Subscale	Time off for check up					Time of for dental problem					Reported to work despite a problem				
	No(n=303)		Yes(n=81)		remark	No (n=318)		Yes(n=60)		remark	No(n=291)		Yes(n=120)		remarks
	Mean	S.D	Mean	S.D		Mean	S.D	Mean	S.D.		Mean	S.D	Mean	S.D	
Functional limitation	10.1	6.1	10.6	6.0		10.1	6.0	11.1	6.1		9.0	5.5	13.7	6.1	p<0.001
Physical Pain	12.5	6.1	13.2	6.2		12.4	6.0	13.6	6.3		11.4	5.5	15.9	6.5	p<0.001
Psychological discomfort	5.4	5.3	6.1	5.3		5.3	5.2	7.3	6.2	p<0.01	4.5	4.8	8.4	5.8	p<0.001
Physical disability	3.9	5.0	4.7	5.0		3.9	4.9	4.7	5.2		3.1	3.7	6.6	6.7	p<0.001
Psychological disability	2.9	4.5	3.5	4.6		2.8	4.4	4.9	5.6	p<0.01	2.0	3.4	5.9	6.0	p<0.001
Social disability	0.9	2.6	1.3	2.8		0.9	2.5	1.4	3.3		0.5	1.5	2.2	4.0	p<0.001
Handicap	1.3	2.9	2.0	4.1		1.2	2.8	2.8	4.8	p<0.001	0.9	2.3	2.7	4.4	p<0.001
Overall OHIP	37.0	26.3	41.4	27.9		36.5	26.0	45.7	30.1	p<0.05	31.5	20.9	55.4	31.9	p<0.001

Table 3.40 Restricted Activity and OHIP scores of the Filipino sample

Subscale	Time off for check up					Time of for dental problem					Reported to work despite a problem				
	No(n=255)		Yes (n=105)		remark	No(n=226)		Yes(n=93)		remark	No(n=241)		Yes(n=250)		remarks
	Mean	S.D	Mean	S.D		Mean	S.D	Mean	S.D		Mean	S.D	Mean	S.D	
Functional limitation	15.8	7.8	15.9	7.8		15.3	7.8	18.3	8.2		13.4	7.1	18.2	8.1	p<0.001
Physical Pain	17.0	8.1	16.9	8.7		16.8	8.7	19.1	8.3	p<0.01	14.3	7.2	20.0	8.7	p<0.001
Psychological discomfort	9.3	6.9	9.8	6.3		8.7	6.7	11.6	7.1	p<0.01	7.5	6.1	11.5	7.2	p<0.001
Physical disability	11.2	9.5	11.8	9.2		10.7	9.6	12.9	9.5		9.5	8.6	14.0	10.2	p<0.001
Psychological disability	7.3	6.6	8.3	6.2		6.6	6.2	9.5	6.6	p<0.001	5.4	5.2	10.2	6.8	p<0.001
Social disability	**3.3**	**4.2**	**4.6**	**5.4**	**p<0.05**	3.2	4.2	4.9	5.5	p<0.01	2.4	3.3	5.2	5.2	p<0.001
Handicap	**4.7**	**5.6**	**6.9**	**6.3**	**p<0.01**	4.4	5.3	7.4	6.6		3.9	4.7	7.2	6.5	p<0.001
Overall OHIP	68.5	41.1	74.2	42.2		65.5	42.0	83.8	42.8	p<0.001	56.5	34.4	86.3	43.7	p<0.001

3.8 Variables associated with restricted activity

Logistic regression analysis of variables associated with restricted activities was used to produce two separate models for the Australian and the Philippine sample.

3.8.1 Taking time off for a dental problem, for dental check up

Taking time off for a dental check-up and taking time off for a problem are closely associated with each other. Taking time off for a dental check up however may reflect preventive oral health behaviour compared to taking time off for a problem and were therefore included as a separate type of restricted activities.

For the Australian sample, only one variable, education was associated with both time off work for a problem and for dental check up. Those with post school education were one third less likely to take time off from work compared with those with school education. The odds ratio of the college educated Australian workers taking time off work for a problem compared to the reference category (school category) however, was close to one

For time off for a dental check up, the Australian workers with college education were almost four times likely to take time off for a dental check up, than those with school education. The odds ratio for taking time off work for a dental check up among those with post school education however was only slightly higher (1.3) than those with school education.

For the Philippine sample, two variables, reason for last visit, and utilisation of company dental clinic were strongly associated with taking time

off for a dental problem. Those who visited the dentist for a dental problem were almost three times more likely to take time off for a dental problem than those who visited the dentist on a regular basis were. Those who went to the company dental clinic were twice likely to take time off both for a dental problem and a check up compared to those who did not.

Another predictor variable associated with time off for dental check up for the Filipino worker, was job category. Those belonging to the trades, clerical and sales job category (Odds ratio 2.3) and the operator, driver, manual labourer category (Odds ratio: 1.8) were twice more likely to take time off for dental check up than the managers, professionals and paraprofessional category

Table 3.41 Variables significantly associated with restricted activities - time off work for a dental problem

Independent variables	Australian workers	Philippine workers
Education Ref. category "school"	"Post school" Odds Ratio: 0.30 95% CI: 0.14,0.67 "College" Odds Ratio: 0.97 95% C.I: 0.5, 1.8	
Reason for last visit Ref. category: "Regular"		"For a problem" Odds ratio: 3.2 95% C.I.: 1.4,7.6
Utilisation of company dental clinic Ref. Category: "No"		"Yes" Odds ratio: 2.2 95% C.I : 1.1,4.5
Model Chi square	**P<0.01**	**P<0.001**

Table 3.42 Variables significantly associated with restricted activity - time off for a dental check-up

Independent variables	Australian workers	Philippine workers
Job Ref. Category: "managers"		**"trades, clerk and sales category"** **Odds ratio: 2.3** **95%C.I.: 1.1,5.0** **"operators, drivers, labourer category"** **Odds ratio: 1.8** **95% C.I. : 1.0, 3.1**
Education Ref. category "school"	**"Post School"** **Odds ratio: 1.3** **95% C.I : 0.6, 2.6** **"College"** **Odds Ratio: 3.9** **95% C.I. :1.9, 7.6**	
Utilization of company dental clinic Ref. Category: "No"		**"Yes"** **Odds ratio: 2.2** **95% C.I.: 1.1, 4.2**
Model Chi square	**P<0.001**	**P<0.01**

3.8.2 Reporting to work despite a dental problem

Two common predictor variables emerged for reporting to work despite a dental problem, for both samples. These were:

a) delaying dental treatment

b) reason for last visit.

Reason for last visit seems to be a very logical variable to be associated with reporting to work despite a dental problem. Those who visited the dentist for a problem were twice (Australian sample) and thrice (Filipino sample) more likely to report to work despite a dental problem than those who visit the dentist regularly.

Education continued to emerge as a common variable to all three types of restricted activities for the Australian sample. For reporting to work despite a dental problem, those with post school education (odds ratio: 0.7), and those with college (odds ratio: 0.5) education were less likely to report to work despite a problem than those with school education.

One variable that came out as significantly associated with reporting to work despite a dental problem for the Philippine sample, but not for the Australian sample was dental status category. The Filipino workers with some missing teeth but no dentures, and those with wearing some form of prosthesis were 3.4 and 27 times more likely to report to work despite a dental problem compared to those with complete dentition.

Table 3.43 Variables significantly associated with restricted activity - reported to work despite a dental problem

Independent variables	Australian workers	Philippine workers
Delayed treatment Ref. category: "NO"	**"Yes"** **Odds ratio: 3.1** **95%C.I. : 1.2, 4.9**	**"Yes"** **Odds Ratio: 4.2** **95%C.I: 2.5, 6.9**
Education Ref. category: "School"	**"Post school"** **Odds ratio: 0.7** **95% C.I: 0.5,1.2** **"College"** **Odds ratio: 0.5** **95% C.I.: 0.2, 0.8**	
Reason for last visit Ref. category: "Regular"	**"For a problem"** **Odds ratio: 2.0** **95% C.I.: 1.2, 3.3**	**For a problem** **Odds ratio: 3.1** **95% C.I.: 1.82, 5.3**
Dental status category Ref. Category "Complete and natural dentition"(28 or more teeth)		**"with missing teeth no dentures"** **Odds ratio: 3.4** **95% C.I.:1.4, 8.2** **"with missing teeth and with some form of dentures"** **Odds ratio: 2.7** **95% C.I: 1.1, 6.6** **"with full dentures"** **Odds ratio: 2.5** **95% C.I.: 0.34,18.8**
Number of teeth Ref. Category: "20 or less"		**"21 or more"** **Odds ratio: 0.6** **95% C.I.: .38, 1.1**
Sex Ref. Category "Male"	**"Female"** **Odd ratio: 0.5** **95% C.I.: 0.2, 1.01**	
Model Chi square	**P<0.001**	**P<0.001**

Logistic regression, Backward Wald method

3.9 Comparison of mean OHIP scores of the Australian workers with Older Australian Adults

The results of the present study were compared with the previous study conducted by Slade and Spencer among older dentate Australian adults. Table 3.44 presents the OHIP scores of the two samples.

Table 3.44 Comparison of mean OHIP scores among older Australian adults and the Australian Adult sample*

	Older Australian Adults** (677)			Australian Adults*** (420)			P value
Subscales	Mean	S.D.	Variance *	Mean	SD	Variance	
Functional Limitation	7.9	5.2	26.5	10.3	6.0	35.9	0.00
Physical pain	7.8	5.0	24.6	12.7	6.1	37.2	0.00
Psychological Discomfort	5.9	6.4	40.7	5.7	5.4	29.0	0.50
Physical disability	3.6	4.3	18.7	4.1	5.0	24.7	0.08
Psychological Disability	3.1	4.8	22.9	3.2	4.6	20.9	0.97
Social disability	1.2	3.0	9.2	1.0	2.7	7.0	0.29
Handicap	1.7	3.3	11.0	1.5	3.2	10.4	0.30

**Comparison of means -Epitabcalculator Epi6*
***Source: Slade, G., Social Impact of Oral Diseases Among Older Adults, PhD Thesis, Department of Dentistry, University of Adelaide, 1993,. Variance was computed based on available SD*
****Sample size refers to dentate adults only*

The table shows that the older Australian adults presented higher mean OHIP scores for two subscales, the functional limitation and the physical pain subscales. The remaining five subscales did not show any substantial differences.

CHAPTER 4 DISCUSSION

Information on oral health impact profile and experiences of restricted activities among workers belonging to two different cultures were collected and compared. The information gives an indication of the burden of oral diseases and the need for intervention among adult workers in Australia and the Philippines.

4.1 Methodological Issues

Patrick, Sittampalan, Sommervile, et.al. (1985) mentioned two issues on the use of translated health measures. These were:

a) the need to test the reliability of the translated instrument compared with its original form; and

b) that standardised weights may have culture and value orientation .

The first issue was addressed by conducting a meticulous translation process of the OHIP to Tagalog. Test-retest procedures determined the reliability of the translated bilingual OHIP in comparison with the original English OHIP and with itself.

4.1.1 Translation

The meticulous translation procedure described in Chapter 2 (Methodology) was necessary not only to ensure the accuracy of the English OHIP to Tagalog, but also to overcome problems brought about by the diversity of the languages in the Philippines. Tagalog is only one of the 79 local languages spoken in the Philippines. It was chosen because it is the

national language and the *lingua franca*. As a language, Tagalog has several nuances and variations in the way it is spoken and structured.

The **reference group technique** allowed for the refinement of a very formal and academic translation of the OHIP to a more idiomatic informal one. Since all those who reviewed the translated OHIP were higher degree students and were fluent in English, they were able to suggest improvements in the initial Tagalog translation. Of the four reviewers however, only one, aside from the researcher, spoke Tagalog as a first language. The remaining three were from non Tagalog regions of the country and spoke Tagalog as a second language. In some cases, there were as many as four different suggestions for each OHIP item. The first revision was therefore based on the researcher's judgement of what she considered was the best improvement of the translation and the culling together of different suggestions.

Two Filipino dentists who visited Adelaide did the **back translation** of the Tagalog version to English. It was important that persons who were actually residing in Manila and who were not involved with the earlier forward translation did the back translation. As dentists, it was assumed that they would understand the intent of the questions better and would be able to provide a more accurate back translation. The back translation was able to detect a significant error in the way the questions were phrased and assessed how far the Tagalog translation digressed from the original meaning.

The researcher observed a difference in the way she translated the Tagalog version in Australia and in the way she modified it later in Manila. Her translation in Adelaide was formal and academic. This may be because there

that the tendency towards acquiescence among the Filipino workers may influence their selection of *'paminsan minsan'* ('occasionally') over 'hardly ever' or *'bihira'*. To ensure that this did not happen, the cut off response for prevalence of oral health impact was placed at impacts experienced 'fairly often' (*madalas-dalas*) or 'very often' *(pinaka-madalas)*.

4.1.2 Test-retest

Two test-retests were done to determine the reliability of the translated OHIP with itself and with the English OHIP.

4.1.2.a Same language test-retest

The majority (72 per cent) of the Filipino workers in the study spoke Tagalog at home. However, 28 per cent spoke at least two other dialects apart from Tagalog. Despite this, the intraclass correlation coefficients of the same language test-retest (Bilingual Tagalog-English OHIP), were high for all subscales, and ranged from 0.5 to 0.9. This demonstrated good reliability of the translated bilingual OHIP (Tagalog - English) with itself.

4.1.2.b Different language test-retest

The *different* language test-retest OHIP (bilingual Tagalog-English OHIP and the English OHIP) had lower intraclass correlation coefficients, compared with the *same language* test-retest. The intraclass correlation of five of the seven subscales was within the moderate range. Two subscales, the social disability and handicap subscales, however had low intraclass correlation coefficients of 0.3 and 0.2 respectively.

The lower intraclass correlation coefficients for the different language test-retest reflects variations in the understanding of the English and Tagalog versions of the OHIP items and of the Likert scale. English is a learned language for most Filipinos. While it is a medium of instruction and used extensively for commercial purposes, it is not the *lingua franca*. Workers with varying educational levels and job categories are bound to have varying degrees of English proficiency. Only two per cent of the Filipino sample reportedly spoke English at home.

Studies by other researchers using translated measures such as the Spanish translation of the English Arthritis Impact Measurement Scales (Hendricson, 1989), and the Health Assessment Questionnaire (Esteve-Vives, et al, 1993), and Spanish Sickness Impact Profile (Deyo, 1984) showed similar ranges of test-retest results. Some factors that have been associated with low correlation between the original English translation and Spanish translations of other health measures, despite rigorous translation procedures are:

1) oral versus written nature of the languages;
2) the diversity of the language (multiple languages and dialects); and
3) the low English literacy level among certain subgroups of the Hispanic population (Schreiber and Horniak, 1981)

All of these factors may apply to the Philippines.

The low intraclass correlation coefficient for the social disability subscale was also consistent with the earlier studies by Slade and Spencer (1994). They reported an intraclass correlation coefficient of 0.08 for social

disability, and attributed it to the low frequency of reported impacts belonging to this subscale.

As a whole, however, the moderate intraclass correlation coefficients of the *different language* test-retest indicated that the translation of the English OHIP to Tagalog was reasonably accurate and allows the comparison of OHIP scores between the two samples.

4.1.3 Use of Weights

The second issue mentioned by Patrick was that standard measures may have cultural contents and value orientation in the way "health is conceptualised and the relative weighing of each statements or levels within and across different categories of health status." (Patrick, Sittampalam, Somerville, et al, 1985, p.1402). Current studies by Jokovic, Allison, Slade and Locker (1997) have also found the OHIP weights to be similar for three populations where the OHIP has been used (South Australia, Ontario, French Quebec).

To further cross check the results of the weighted OHIP scores, the prevalence of impacts experienced "fairly often" or "very often" was also obtained. The results of the simple count (prevalence) and the weighted OHIP scores by subscales were similar. Both showed the Filipino sample to have significantly higher prevalence and more severe impacts (mean OHIP subscale scores) than the Australian sample. The differences in the OHIP scores between the two samples, both by simple counts (prevalence) and weighted OHIP scores subscales (severity) were so pronounced, that it is

health impacts increased from 46.5 per cent to 93 per cent for the Australian sample. For the Philippine study, it increased from 64.5 per cent to 96 per cent. The prevalence of impacts experienced for the functional limitation subscale increased to as high as 88.5 per cent from a moderate 39.2 per cent for the Australian sample and from 57.9 per cent to 91.8 per cent for the Philippine sample. The prevalence of impacts in other subscales also increased. *(Please refer to Appendix B)*

The overall prevalence of impacts experienced 'occasionally' for both samples were similar. So were the prevalences of impacts for the functional limitation subscale. The other subscales showed statistically different prevalence of impacts between the two samples.

The magnitude of increase in prevalence was interesting when occasionally was used. For the Australian sample, the prevalence increased three to ten times, for six of the seven subscales, and 45 times for the social disability subscale. For the Filipino sample the increase in the prevalence was lower. It ranged from 1.5 to 5.9 times higher than the prevalence of impacts experienced 'fairly often' and 'very often'. Contrary to earlier concerns on the ambiguity of the word *'paminsan minsan'* ('occasionally'), the Filipino workers seemed to have been careful with their choices of responses in the Likert scale and have used *'paminsan -minsan'* according to its formal literal translation.

The increase in the prevalence of impacts among Australian workers, when occasional impacts was included, indicated that oral health impacts might be more common among adults age 18 to 64 years old. Whether these

impacts experienced 'occasionally' can have effect on daily living than those experienced 'fairly often' and 'very often' would be worthy of further investigation.

The similarity in the overall prevalence among Australian and Filipino workers who experienced impacts occasionally is more likely due to the high prevalence of impacts belonging to the functional limitation subscale. The differences in the prevalence of impacts experienced 'occasionally' in the other subscales, among the Australian and Filipino workers further suggest that there is a true difference in the prevalence of impacts between these two samples even with a less stringent cut off score.

4.1.5 Overall OHIP score

The present study differed from the previous studies by Slade and Spencer (1994) and by Locker and Slade (1995). Instead of standardising the weighted OHIP scores by subscales to a common mean and deviation and then summing the seven subscale scores to an overall score, it merely added all the weighted OHIP scores by subscales. The overall OHIP scores presented in this study are therefore 'raw' totals of the weighted OHIP scores for the 49 item OHIP. As such, the number of items in a subscale affect the raw weighted score and subscales with different number of items will make different contributions to the overall OHIP score. However, as most of the focus of this study is on the subscale score it was suggested that standardisation was not crucial. Even in the overall OHIP, comparisons are still being made between the two countries, on a comparable measure.

Standardisation was thought not necessary since the study compares OHIP scores of the two samples using similar methods of calculation.

4.2 Characteristics of the study samples

There were differences in the characteristics of the workers in the study, and those of the general workforce. This indicates the possibility of some bias in the samples.

4.2.1 Selection bias

To be able to compare social impacts between workers of two countries with different social, political, economic and demographic characteristics, it was necessary to approach multinational companies which had subsidiaries in both countries, or at least companies whose nature of industry and organisation were similar.

Most of the companies approached and which participated in the study therefore belonged to the top 100 companies in both countries. These companies were more visible, easier to locate, had larger workforce and seemed more willing to participate than small or medium-sized companies. Four companies in the study (two from the Philippines and two from Australia) were also among the top 1,000 companies in the Asia Pacific Region (ASIAWEEK, November, 1996).

Selective participation of these companies may have affected the profile of the study sample. It may be speculated that the recruitment procedures of workers belonging to these top companies may be more rigorous and competitive than other companies with lower income, smaller size. The workers specifically those in the administrative, manager and professional categories may therefore have higher educational levels, better job qualifications than those workers in medium and smaller sized companies.

For the Philippines, one major requirement for the labourer category would be literacy and at least a high school education level. This may not be true for the same job category among smaller lower income companies.

It may not be possible to generalise the results of the study for the whole Australian and Filipino workforce. For the Philippines, it is likely that the results of the study may actually provide a more positive oral health impact profile of Filipino workers, compared with the average worker employed in small and medium-sized companies, and those in the informal labour sector who are known to receive lower wages and fewer or no medical-dental benefits at all (Ofreneo , 1995 and Cabalu, 1994).

4.2.2 Response rate

4.2.2.a. The Philippine sample

The response rate of the Philippine sample ranged from 46.9 per cent to 58.7 per cent. This is a relatively good response rate considering that the usual response rate for self administered surveys in the Philippines was reported at 30 per cent (Lawas, 1996). Interview surveys therefore are more commonly used in the Philippines.

The use of interview was considered for the Philippine sample early in the preparation of the protocol. Pre-testing using this method of data collection was even done. However the need to establish that there would be no bias between two different methods seemed more problematic than just having one method for the two countries and doing more follow ups for a better response rate.

The interview method was also ruled out because of the inconvenience it would have caused the companies to have the interviewers in the workplace, the scheduling of the interviews with management and with workers, and the disruption of the work activity of the employees. These inconveniences may have made companies reconsider their participation in the study.

With the self-administered questionnaire method, companies were informed that the employees may take the questionnaire home and that it would not disrupt their normal work activity. Literacy (in either English or Tagalog) was not considered a deterrent, since the Philippines has a high basic literacy rate of 93 per cent (DOH, 1995). It was also expected that the workers belonging to the labourer, machine operator, driver category in these companies would have reached at least secondary education and were literate for reasons already mentioned in the previous section.

4.2.2.b. The Australian Sample

For the Australian sample, the low mean response rate of 28 per cent was due to several limitations already mentioned in the methodology. These were:

a) the concern by participating companies over voluntary participation and privacy of workers;

b) the degree of follow-up allowed by companies; and

c) the lack of direct access to the workers themselves.

Lack of direct access to the workers was a major limitation. A higher response rate among worker participants in Company F compared with

Company G2, I, J indicated that a better response rate would have been obtained had companies allowed individual follow-ups. Company F allowed individual follow-ups while contact persons from Company G2, I and J felt that follow ups in their companies were unnecessary.

4.2.2.c. Other factors that may have influenced response rate.

The Philippine sample had a higher response rate than the Australian sample. Culture and research practices may have affected response rate. The researcher found it easier to approach the Philippine companies than the Australian companies. Her familiarity with the Philippine situation made it easier for her to identify contact persons for the Philippine companies who endorsed the research and provided all the opportunity for follow up. This was not so for the Australian companies.

In the introductory letter sent to the Philippine workers, the workers were informed that no such other study has been done in the country and that the results would provide important information that may be used to improve the oral health of workers. It appealed to their goodwill, their sense of responsibility and obligation to the "collective good". This was not done for the Australian companies. (Please refer to Appendix A- Introductory Note of the Questionnaires). Since very few researches are conducted among Filipino workers, non-participation due to "participation fatigue" was unlikely for the Philippine study. Unfamiliarity with surveys, however may have been a problem for the Filipino participant. For the Australian companies, concurrent and previous studies may have resulted to a lower participation rate of Australian workers.

It is possible that some response bias may have occurred due to the low response rate of both study samples. It is however not possible to verify this, since no dates of receipt of the questionnaires, nor information on whom needed following up or not were gathered and encoded. Information on employee's profile for the non-responders is also not available.

The total sample size of 936, the pooled sampling from the five companies for each country and the random sampling of workers, however, allowed for an adequate number of workers from the various ages, sex, and job categories.

4.2.3 Differences between the two samples

4.2.3.a Age

The age distribution of the two samples depicted some basic difference between the two countries. The Australian sample was equally distributed among the 25-34, 35-44, 45-54 age groups. The Philippine sample on the other hand had more workers belonging to the 25-34, 35-44 age groups, with the 35-44 age group having the greatest number of workers.

4.2.3.b. Job and education

Most of the workers for both samples belonged to the manager, administrator, professional and para-professional job categories. The other job categories however presented different distributions of workers. There were more labourers, machine operators, factory workers in the Philippine sample than in the Australian sample. This is to be expected because of the human resource driven and labour intensive nature of the Philippine economy.

On the other hand, there were more Australian workers belonging to the trade person, clerical, sales and personal services job category.

There were also more Filipino workers with college education than Australian workers. The discrepancy between the number of Filipino workers with college education and workers belonging to the manager, administrator, professional and para professional job category may be explained by the under employment of many college graduates in the Philippines. The difference in the number of workers with college education and those with Manager, Administrative, Professional and Para professional job category for the Australian sample, may be due to the mobility of Australian workers to higher job positions over time.

4.3 Comparison of OHIP scores

4.3.1 Comparison of OHIP score among Australian and Filipino workers

The main question raised by Patrick, Sittampalam, Somervile et al (1985, p.1402) regarding cross-cultural studies was whether *"different social and cultural groups value states of health differently"*. This would be most reflected in the use of weights. Previous discussion on weights (Section 4.1.3) for the OHIP have tried to addressed this question. The present study also found that there were common impacts between the two samples (Appendix D):

a) the five most frequently reported impacts were common for both samples;
b) those with complete natural dentition had similar mean OHIP scores for functional limitation, psychological discomfort subscales (Appendix F);
c) those with full dentures had similar OHIP scores for all subscales .

The result for the full dentures however will need further study since the sample size of Australians wearing full dentures was too small. Findings (a) and (b) suggest that there are common oral health impacts and subscales affected, for dentate and edentulous individuals regardless of culture

The subscales showing similarities or differences are consistent with the finding of Locker and Miller (1994) that subjects who lost teeth were more significantly compromised in their oral and psychosocial behaviours. It was also consistent with earlier findings of Slade and Spencer (1994) that dentate individuals may have a range of impacts more confined to them, just as edentulous patients may have common impacts.

There were also some difference in the prevalence and severity of impacts in the social disability and the handicap subscales between the two samples. The Filipino workers reported experiencing impacts for all OHIP

items compared with the Australian sample that did not have any reported impacts for several OHIP items belonging to these subscales. While culture may influence perception of oral conditions and their affect on daily living, it may be possible that the oral conditions experienced by Filipino workers were really more prevalent and more severe. This may be reflected in the progression of impacts beyond mere physical pain to physical and social disability and to handicap. The higher percentage of Filipino workers who reported a tooth extracted during their last dental visit, and who visited the dentist for a dental problem provides some support for this explanation.

4.3.2 Comparison of social impacts with Malaysian industrial workers

Jaafar, Razak and Zain (1989) studied the social impact of oral and facial pain among Malaysian industrial workers. They reported similar impacts to those listed in the OHIP. Their findings however, were much higher compared with the frequencies of impacts reported by the Filipino workers. For instance, in their study, 29.1 per cent reported pain with hot or cold food, compared with 16 per cent of the Filipino study sample that reported impacts for "sensitive teeth, due to hot, cold food or drinks". Some 18.5 per cent of the Malaysian workers experienced toothache compared with 8.6 per cent of Filipino workers who reported the same. These differences may be due to a number of factors ranging from different populations, sampling, methodology, data collection procedures and manner of analysis.

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4.4. Variation in OHIP scores

4.4.1 Education, income and job categories

The OHIP patterns by income, education and job categories for the two study samples are different. The impact of oral conditions on daily living appeared more stratified by socio-economic status among the Filipino workers than the Australian workers. This may reflect relative differences in the distribution and access to oral health care between those living in an industrialised and those in a newly industrialising country. Lack of any significant differences in the mean OHIP scores by income and education categories for the Australian sample may indicate that oral health and care of this sample, is relatively, more equitably distributed among the different socio-economic categories, compared with the Filipino sample.

4.4.2 OHIP and the identification of priority groups

The OHIP identified target groups most affected by dental conditions and most likely to benefit from planned oral health programs. For the Australian workers, these are workers belonging to the blue-collar jobs or those in the labourer, machine operators, drivers and factory helper job category. For the Philippines, those with primary and secondary education reported higher OHIP scores than those with university, trade school, or college education.

other subscales such as physical pain, physical disability, social disability, handicap subscales and the over all OHIP scores, however, showed significant differences. This may reflect differences in the condition and appearance of the remaining teeth for the two samples. Contrary to the results obtained by Locker (1995), number of teeth was not a consistent indicator for OHIP scores among the young adults in this study.

4.4.3.b. Dental Prosthesis

Denture wearing, was a consistent indicator for high OHIP scores for both study samples. Those *wearing some form of dental prosthesis* were most likely to have higher overall OHIP scores than those with *complete and natural teeth* or *those with missing teeth but no dentures* . For the Filipino sample 45 per cent reported wearing some form of denture compared with only 9.7 per cent of Australian workers. This may partly explain the wide difference in the OHIP scores between the two samples. Replacement of missing teeth should improve function, but if the remaining teeth are in poor health or if the dentures are poorly fitted then wearing dentures may even aggravate exiting problems and contribute to higher oral health impact scores.

4.4.3.c. Delaying dental treatment

Another variable significantly associated with high OHIP scores for both samples was delaying dental treatment. Those who delayed dental treatment had significantly higher OHIP scores than those who did not, for both the Philippine and Australian workers. More Filipino workers however delayed dental treatment than the Australian workers. The majority of Filipino workers (70.3 per cent) reported delaying dental treatment compared with just less

than half of Australian workers (49.4 per cent) who reported the same. This may partially explain why the Philippines has higher OHIP scores than Australian workers. (Refer to Appendix E for the OHIP scores by delayed treatment.)

4.5 OHIP and dental insurance (Australian sample) / OHIP and company dental clinics (Philippine sample)

There were no significant differences in the mean OHIP scores of the Australian workers with dental insurance and those without. Neither was dental insurance a strong indicator for either the overall OHIP score, or for taking time off work for a dental condition. It was however, significantly associated with *reason for dental visit*, and indirectly, may influence restricted activities.

For the Philippine sample, only one subscale showed any significant difference in the OHIP scores of those who utilised company dental clinics and those who did not. This was for the social disability subscale, with those who did not utilise the company dental clinic having a slightly higher OHIP score for this subscale. The remaining six subscales, as well as the overall OHIP, were similar for the two categories of workers. While utilisation of company dental clinics was not associated with overall OHIP scores for the Philippine sample, it consistently emerged as significantly associated with restricted activity. Those who were seen by the company dentist were twice more likely to take time off for dental check up and problem than those who were seen by private dentists.

4.6 Restricted activity

The results of the study showed that a considerable number of both Australian and Filipino samples took *time off for a dental reason* and *reported to work despite a dental problem*. A higher percentage of the Filipino workers reported *taking time off work* and *went to work despite a dental problem* compared with the Australian workers.

Variables associated with time off work for 1) *a dental check up*, 2) *for a dental problem* and 3) *reporting to work despite a dental problem* differed slightly between the two samples. These variables may be categorised into three groups:

Those related to health seeking behaviours-
- Reason for last dental visit
- Delayed dental treatment
- Use of company dental clinic

Those related to socio-economic status
- Education

Those related with oral health status.
- Dental status category
- Number of remaining teeth

These variables emerged, either as a common variable for both samples or as separate indicators for one or other sample.

Taking time off for a dental check up and dental problem are closely associated with each other. Distinction is made between the two however since taking time off from work due to a dental check up may indicate more preventive behaviour than taking time off for a dental problem.

4.6.1. The Australian Model

One variable that consistently emerged as significantly associated with all three types of restricted activity for the Australian model was education. A summary of the results are presented below:

Table 4.1 Summary of odds ratio for restricted activity for the Australian workers by education categories

Australian Model	Time off for dental check up	Time off work for a problem	Report to work despite a dental problem
School educated	1.0	1.0	1.0
Post school educated	1.3	**0.3**	0.7
College educated	**3.9**	0.97	**0.5**

It is interesting that those with college education were almost four times more likely to take time off work for a dental check up compared to either workers with school or post school education. They were also half-likely to report to work despite a dental problem. It may be that those with school and post school education categories have jobs requiring stricter work time schedules and are paid on an hourly basis compared with those with higher levels of education. They may therefore have more difficulty in taking time off for preventive dental care, and as a consequence more likely to report to work despite a dental problem or take time off work for a dental problem. This is consistent with earlier findings of Gift, Reisine and Larach (1992, p.1666) that the "more socio-economically disadvantaged...bear the combined burden of increased number of lost work hours...and of restricted activity."

While no significant differences were observed in the mean OHIP scores of Australian workers by educational categories, education emerged as

a variable strongly associated with restricted activity for this sample. This indicates a lack of direct relationship between oral health impacts measured by the OHIP, which is basically an individual oral health measure and the experiencing of restricted activity which is influenced by coping behaviours, support from family and friends and the attitude and values of the workplace and society.

4.6.2. The Philippine Model

A consistent variable significantly associated with restricted activity for the Philippine sample was the utilisation of company dental clinic. Those who utilised the company dental clinic were twice more likely to take time off from work both for dental check up and for a dental problem. While this may seem contradictory at first, it provides an insight on how the Philippine company dental clinics work.

The company dental clinic provides dental services to Filipino workers who probably would have very little access to dental care outside the workplace. Those who received school education (primary and secondary education) were thirteen times more likely to use the company dental clinic compared with those with college education. The company dental clinic also creates, by its mere presence, more opportunity for time off work for this group of people.

At the same time, the present study indicates that there were no significant differences in the OHIP scores of those who use company dental clinics and those who did not. This may mean that while these dental clinics may provide oral health care, the level of oral health care may not be sufficient

to make any significant difference in the experiencing of oral impacts. It may also indicate that those who used company dental clinics were most likely those with more severe dental problems to begin with, and who were more likely therefore to take time off for work.

This raises a concern on the effectiveness of the company dental clinic and the need to evaluate how the clinics operate: What type and level of oral health services do they offer? Further studies on the company dental clinics would provide some answers to these questions.

Dental status category as well as number of remaining teeth also emerged as predictors for reporting to work despite a dental problem for the Philippine sample, but not for the Australian sample. Those with some missing teeth, but not wearing any denture and those wearing some form of dentures, were more than twice as likely to report to work despite a problem. than those with natural complete dentition. Likewise, those with 21 or more teeth were less likely to report to work despite a dental problem. This once more suggests a more severe condition of the remaining teeth for the Filipino sample specially those who already have missing teeth. While this study does not include any clinical indicators, the DMFT of the average Filipino aged 35-45 (DMFT: 14.42) as well as the figures in the self-reported dental health status suggest that the condition of the remaining dentition of the Filipino workers could contribute to the associations with restricted activity.

4.6.3 Reporting to work despite a dental problem as a form of restricted activity.

Most studies on restricted activity have been confined to work loss. Reisine (1985; 1988) mentioned that available data on restricted activity may under-report the social impact of dental diseases and disorders, because it does not cover those who report to work despite a dental problem and the absence of any measures to quantify the effect on working despite a dental problem. The present study included "reporting to work despite a dental problem" as a form of restricted activity. The inclusion of reporting to work despite a dental problem was able to characterise the impacts experienced by the workers by looking at the association between restricted activity and the OHIP. It also indicates that restricted activity due to oral conditions could be much greater than previously reported.

4.7 Variable significantly associated with restricted activity and the overall OHIP scores and common to both the Australian and Philippine Model.

One variable that was significantly associated with "reporting to work despite a problem" and with the overall OHIP scores for both the Australian and Filipino workers was delaying dental treatment. Those who delayed treatment had higher OHIP scores for all subscales for the two study samples (Refer to Appendix E). The reasons for the delay in dental treatment between the two study samples however differed.

For the Australian sample, "cost" followed by "dislike for dental treatment" were the main reasons reported by the workers. For the Philippine sample, "cost" was not a major factor for delaying dental treatment, "difficulty in taking time off " however was. Some 39.5 per cent of those Filipino workers who delayed dental treatment ticked "difficulty in taking time off", and another 24 per cent reported "inconvenient hours". This was a surprising finding since all companies who participated in the study reported that it was company policy to allow their employees to take time off for dental reasons and to use the company dental clinic, which is located within or near the workplace. These findings may indicate either a difference in the implementation of the time off policy, or that the dental clinic may not be as accessible as intended. "Difficulty in taking time off" may also reflect the priority and importance the Filipino workers give towards dental care.

Either way cost for the Australian sample, and difficulty in taking time off for the Philippine sample, are important barriers to timely oral health care.

Any attempt to decrease impacts of oral conditions for these two samples would have to address these barriers.

4.8 Significance and implications

4.8.1 The Oral Health Impact Profile as an oral health measure.

4.8.1. a. Adult samples.

Previous studies on the Oral Health Impact Profile, by Slade and Spencer (1994), Slade and Locker (1993), Hunt and Slade (1995) were conducted among older adults aged 60 and above. The present study differed in that the sample population represents the adult population age 18 to 64 years old. It answered the query posed by Locker and Slade (1993) about the need to test the OHIP on "population of young adults to see if it is sensitive to the way in which oral disorders affect the quality of life of younger people" (p.838).

The results of the study showed higher OHIP scores for the functional limitation and physical pain subscales among Australian adults compared with older Australians adults. This is partly consistent with the results obtained by Locker and Miller (1994, p.30) where they found "unexpected high proportions of young adults who reported that their functional, social or psychological well being was compromised in some way by oral conditions.

OHIP items belonging to the functional limitation and physical pain subscales are about problems related to dentition (e.g. difficulty in chewing,

The results of this study suggest that the company dental clinics play a crucial role in providing oral health care to Filipino workers who may have no access to it outside the workplace. Company dental clinics, however, were unable to decrease the burden of illness among those who use them, nor have they been effective in reducing time off work due to dental conditions. Similarities in the OHIP scores among those who utilised company dental clinics and those who did not, and the variables significantly associated with restricted activities support this conclusion. The problem may not so much lie in the policy itself, but rather, in the implementation of the policy.

Most Philippine companies require their employees to undergo annual medical and dental check ups. Most Filipino employees comply with this requirement. However according to the dentists of the participating Philippine companies, a moderate number of employees do not make additional appointments for dental treatment after their annual dental check up. This means that a moderate number of workers may be attending the dental clinic merely for compliance of the regular annual medical and dental check up requirement and do not follow through the treatment plan. There may be need to do more follow up and recall of the workers and to emphasise the importance of comprehensive dental care.

The present study found that the OHIP may be an effective oral health outcome measure that may be utilised to evaluate dental health programs. As a result of the research process, the study was able to get some information about company dental clinics and was able to measure impact of oral diseases

and disorders among Filipino workers. This information may be a basis for the further evaluation of the current company dental clinic policy in the Philippines.

Aside from the routine data collected for service reports such as the numbers of patients seen per month; or types of dental services provided. It might be interesting to collect data on restricted activities and the OHIP and use it for impact evaluation of oral health programs.

4.8.2 Social impacts of oral diseases among Australian and Filipino workers.

The comparison of oral health impacts among Filipino and Australian workers provided an insight into the burden of oral disease among those living in a newly industrialising country and an industrialised country. The oral health impacts as measured by the OHIP among Australian workers were subtler between subgroups than among Filipino workers, where the impacts were distinct and more stratified by socio-economic status and by dental categories. The subtleties of impacts between subgroups and among dental status categories indicate the need for caution in using only one type of oral health measure.

Further research might examine how the OHIP pattern demonstrated by the Filipino sample compares with OHIP patterns of other newly industrialising countries in Southeast Asia or with countries with similar demographic, social, economic and political characteristics. Research may examine whether the OHIP pattern found among Australian workers would be similar to OHIP patterns among workers in other industrialised countries. Patterns of oral health impacts between countries might be used in the same way as the

DMFT or the CPITN to characterise dental health status for comparison among countries. The differences between social impact data between Filipino and Malaysian workers indicates the need for common socio-dental indicators for comparison across countries. The 49 item OHIP with its seven subscales may be one such indicator.

4.8.3 Introduction of a new oral health measure to the Philippines

The translation of the English OHIP to Tagalog provided an opportunity to introduce a new oral health measure to the Philippines. Lack of resources for oral health in the Philippines has constrained efforts in dental research for the development of instruments such as the OHIP. Adapting already developed and existing instruments for local use is therefore more practical.

The Bilingual OHIP provides a more dynamic oral health measure that could quantify health outcomes and the burden of disease in a manner that can be easily be understood by non-dental health professionals. This is important since all indicators currently being used to measure oral health in the Philippines are clinical indicators such as the DMFT, the CPITN and they do not provide any information on the consequences of dental diseases on daily living and social functioning. Availability of a socio-dental indicator comes at an appropriate time when the national government is interested in health care and when advocacy for more oral health care is crucial.

The use of self administered questionnaires for the Philippine study indicated that when properly planned and implemented the self administered route, not normally used in the Philippines, may have potential use among

the proportion of those who took time off for a dental problem was so much higher at 50.9 per cent. This would account for 610 hours for every 1000 Filipino workers per year. These estimates do not include:

a) those who reported to work despite a dental problem,

b) the decrease in productivity caused by oral problems;

c) and the individual oral health impact of oral diseases as demonstrated by higher OHIP scores by those who did take time off for dental conditions, and those who reported to work despite a dental problem.

If it is not representative of the general workforce, the estimates mentioned above may actually be lower estimates of time off work especially for the Filipino labour force. Lower wages and fewer or no medical and dental benefits among Filipino workers in small to medium size enterprises, as well as those working in the informal labour sector would most likely make restricted activity due to oral conditions higher.

CHAPTER 5 SUMMARY AND CONCLUSION

5.1 Summary

5.1.1 Literature review and rationale

Oral diseases and disorders impact at both the individual and societal levels. Studies done by Reisine et al (1984), Cushing et al (1986), Locker and Grushka (1987) have reported work loss and restricted activities, pain, discomfort, difficulty in eating, dietary restriction, and reduced social contacts as some of the consequences of oral disorders.

Reisine (1988) investigated work loss and change in role functioning due to dental disorders and visits and classified four types of restricted activities: bed days, work loss days, cut down days and school loss days. Gift et al. (1992) analyzed data as part of the 1989 US NHIS and reported a mean of 1.48 hours of work loss per employee. Gift et al. stated that while this figure may initially seem small, at a societal level, it would account for a substantial number of hours of work loss annually for the workforce. They also found out that the "more socio economically disadvantaged (no insurance, lower income, less education) lost more time than those with higher income, more education and with dental insurance" (Gift et al., 1992, p.1666). A survey of the US NHIS in 1991 reported work loss associated with an oral condition at three days per employee. (Reisine, 1988) This figure is similar or larger than for work loss due to eye conditions, acute infections and headaches.

The Philippines presents a disease pattern typical of an industrializing country. It has a rising prevalence of non-communicable ailments and a large number of infectious and preventable diseases. While the government recognizes the importance of health and includes it in its national agenda, oral health continues to receive low priority. The rationale behind this is the perception that the impacts of oral health are negligible. It becomes important, therefore, to assess how oral diseases and disorders really affect daily living. With the recent improvements in the economy of the country, and an expanding labourforce, workers seemed to be an appropriate group to begin such investigation.

South Australia on the other hand, has conducted a study of the social impact of oral conditions (Slade and Spencer, 1994) on elderly adults, and among medically compromised individuals (Coates et al. 1995). However no prior study has been done for the working adults, aged 18 to 65 years old.

5.1.2 Objectives:

The present study aimed to:

a) To assess the impact of oral diseases and disorders among Filipino and Australian workers using two outcome measures: **the Oral Health Impact Profile** (OHIP) and Restricted Activities;
b) To compare the impacts of oral diseases and disorders between these two study populations;
c) To determine any associations between the two outcome measures;
d) To identify variables associated with the two outcome measures

This study also provided an opportunity to further assess the reliability of the OHIP by using the measure in a translated form.

5.1.3. Methodology

a) Self-administered questionnaires were distributed to randomly selected employees of five companies in Manila, Philippines and five companies in Adelaide, Australia. Australian companies were matched as far as possible with Philippine companies in terms of similarity in organizational set up, industry, product line and employee size.

b) The questionnaire contained two components. The first was a general section that inquired about the socio-demographic characteristics of the participants as well as information regarding his/her self-reported oral health, use of dental services and dental health attitudes. The second component consisted of the 49 item Oral Health Impact Profile.

c) A bilingual (English -Tagalog) questionnaire was used for the Philippine study. To ensure the accurate translation of the OHIP, the back translation method was used. The questionnaires for the Philippine and Australian study were pre-tested several times to ensure clarity of the questions.

d) Two test-retests were conducted to determine the reliability of the translated OHIP. The first test-retest used the bilingual OHIP and the original English OHIP, while the second test-retest utilized the bilingual OHIP on both occasions. Both test-retests were conducted four weeks after the first test. Only the Oral Health Impact Profile component of the questionnaire was subjected to the retesting. Intraclass correlations of the two test-retests were computed to determine reliability of the translated OHIP. These were also compared with existing test-retest results of the English OHIP among older adults in South Australia.

e) OHIP subscale scores and simple count OHIP (prevalence) were obtained. Mean OHIP scores by subscales, OHIP patterns, most and least frequently reported OHIP items were compared between the two samples. Frequencies of restricted activities as well as the mean OHIP scores by restricted activities were obtained and compared. Variables significantly associated with overall OHIP scores and with restricted activities were determined using regression analysis.

5.2.0 RESULTS

5.2.1. Reliability of the OHIP in a translated form.

a) The same language test-retest (bilingual OHIP retested with itself) showed high intraclass correlation coefficients ranging from 0.5 to 0.9.

b) The different language test-retest (bilingual OHIP test-retest with the English OHIP) showed lower, but fairly moderate interclass correlation coefficients ranging from 0.4 to 0.7 in five out of seven subscales. The remaining two subscales, the social disability and handicap subscales, had lower intraclass correlation coefficients of 0.2 and 0.3. The lower correlation between the Bilingual and English OHIP reflect cultural differences in the comprehension of the English language questions and the subtle variations in meaning introduced by the translation to Tagalog.

5.2.2 Selection Bias

Comparison of oral health impacts between workers within different economies (industrialized versus newly industrializing) made it necessary to select companies that had similar products or organizational set-up. These

were usually multinational companies with subsidiaries in both countries. While it is not possible to generalize the results of this study for the whole Australian and Filipino workforce, the results of the study may represent oral health impacts for workers belonging to similar companies or industries. For the Philippines, the results of the study may present a more positive oral health impact profile of workers compared with those in medium, small scale industries or those belonging to the informal labour sector, who are known to have lower wages and fewer or no medical or dental benefits.

5.2.3. Response rate

a) A pooled target sample size of 500 workers per country was determined at the start of the study. Nine hundred and thirty-six employees participated in the study, with 510 from the Philippines and 426 from Australia.

b) The response rate to the self completed questionnaire for the Philippine sample was 53 per cent. This is an acceptable response rate considering that most self-administered questionnaire in the Philippines have received response rates of 30 per cent or below.

c) For Australia, the response rate was 28 percent, with individual company response rates ranging from 20 to 66 percent. Three major factors that may have influenced the response rate were:

- the company's degree of willingness to participate in the research;
- the company's concern over voluntary participation and privacy of their employees; and
- the lack of direct access to the workers, especially for follow up.

5.2.4. The study population

a) Gender/ age The companies chosen for the study were predominantly involved in manufacturing and production and employed more male than female workers. Both Australian and Filipino samples however had similar proportions of female and male workers.

b) Job categories. The job categorization used for the study was based on Australian job categories. There were significant differences in the proportions of workers belonging to different job categories. More of the Australian workers belonged to the managerial/administrative or professional job categories while the Filipino workers had almost similar proportions of managers /administrative and professional workers as well as laborers and machine operators and drivers.

c) Education. More Australian workers in the sample went to trade school than Filipino workers, while more Filipino workers in the sample completed college/university. There appeared to be under-employment for Filipino workers with many employees reporting that they have completed college but who ticked "labourer" as their job category.

d) Dental status. Only 10.6 per cent of Filipino workers in the study reported having "complete natural teeth" (28 -32 teeth), compared with 49.3 per cent of Australian workers. Some 45.3 per cent of Filipino workers reported having "some natural teeth and wearing some form of prosthesis" while only 9.7 per cent of Australian workers belonged to this category. Only 0.9 per cent of the Australian workers reported being "edentulous and

wearing full dentures" while 3.2 per cent of Filipino workers reported wearing full dentures.

e) Number of remaining teeth. The majority of Australian workers (93.5 per cent) reported having 21 to 32 remaining teeth, while 66.7 per cent of workers from the Philippines had the similar number of remaining teeth. While both populations reported some cases of no natural teeth, two out of the 510 workers in the Philippine study had "no natural teeth no dentures". No one ticked this category among the Australian workers.

f) Reason for last visit. A significantly larger proportion of the Australian workers reported visiting the dentist regularly, while more of the Filipino workers reported visiting the dentist for discomfort or pain and because something needs fixing. A larger proportion of the Australian workers likewise reported visiting the dentist mainly for check-ups and restorative care. The Filipino workers, on the other hand, reported going to the dentist more for denture problems, and relief of pain.

g) Time of last visit. No differences were observed in the proportions of those visited the dentist within the last two years, two years to less than five years, and greater than five years between the two populations. A factor that may have contributed to this is the compulsory medical and dental check-up for the Filipino workers. Interviews with the dentists of participating Filipino companies indicated, however, that despite annual check-ups, a moderate number of employees do not go back for treatment.

e) The Filipino workers had more subscales showing significant differences in the mean OHIP scores by categories of number of remaining teeth, and dental categories than Australian workers.

f) Filipino and Australian workers with complete natural dentition had similar mean overall OHIP scores. Other subscales such as functional limitation, and psychological discomfort subscales, were also similar. However, the remaining five subscales e.g. physical disability, physical discomfort psychological disability, social disability and handicap showed some significant differences, with the Filipino worker having higher OHIP scores.

g) The Australian and Filipino workers with full dentures also had similar OHIP scores for the psychological discomfort, physical disability, psychological disability and the social disability subscales. Results are however inconclusive since there were very few Australian samples who reported wearing full dentures.

h) Dental insurance (Australian sample). No significant differences were observed in the mean OHIP scores by subscales and by overall OHIP scores among Australian workers who had and did not have dental insurance.

i) Utilization of company dental benefits(Philippine sample). No significant differences were observed among those who used the company dental clinic and those who did not.

5.2.7. Factors associated with overall OHIP scores

Regression analysis of variables associated with the overall OHIP scores produced two separate models for the two samples.

a) Delaying dental treatment and wearing some form of dental prosthesis were variables strongly associated with high overall OHIP scores for both the Filipino and Australian samples.

b) For the Philippine sample, one other variable was associated with high overall OHIP scores. Those who reported having "20 or less teeth" were 13 times more likely to have high OHIP scores.

5.2.8. Restricted activities

Three types of restricted activities are described in this study. These are work days and hours loss for dental check ups and for dental problems and change in role functioning

a) A higher proportion of the Filipino workers reported that they took time off work, both for dental check-ups and dental problems.

b) A higher proportion of the Filipino workers reported that they went to work despite a dental problem and that their work was affected.

c) Of the three types of restricted activities included in the study (time off work for a dental problem, time off for a dental check-up, and reporting to work despite a dental problem), reporting to work despite a dental problem had the largest frequency.

d) The average hours lost for a dental check-up was 1.4 for the Australian workers and approximately 1.6 hours for the Filipino workers. The average

c) For those who reported working despite a dental problem, both the Australian and Filipino samples presented significantly higher mean OHIP scores for all subscales for those who reported to work despite a dental problem compared to those who did not.

2.2.10 Variables associated with restricted activities

a) Regression analysis of variables associated with restricted activity resulted in two separate models for each sample. Two variables that consistently emerged as associated to restricted activity for both samples were delaying dental treatment and reason for last dental visits.

- Delaying dental treatment was a common variable associated with reporting to work despite a dental problem for both samples. Those who delayed dental treatment had 3.1 times the odds of reporting for work despite a dental problem than those who did not for the Australian sample, and 4.2 times the odds for the Philippine sample.
- Those Australian workers in the sample who visited for a problem where 2.0 times more likely to report to work despite a problem. The Filipino workers who reported visiting the dentists for a problem were 3.1 times more likely to report to work despite a dental problem.

b) Although there were no significant differences in the mean OHIP scores by education categories for the Australian workers, education emerged as a consistent variable associated with all types of restricted activity for the Australian sample. Those who had school education (primary and

5.3.2 The results of this study provided a picture of the oral health status of Filipino workers. It raised the possibility of using the OHIP as an outcome indicator for evaluating dental health programs and policy.

5.3.3 Stratification of oral health impacts by the variable categories studied indicates different OHIP patterns for adult workers in Australia and those in the Philippines. It may reflect the relative inequity in the distribution of oral health care between these two samples of adult workers.

5.3.4 The study demonstrated that oral disease and disorders impact on daily living and social functioning. It was also able to identify priority groups which had high mean OHIP scores and were most impacted upon, and which would benefit the most from planned oral health programs

5.3.5 There is a need to investigate the reasons for the differences in the overall OHIP scores. The dental status and dental health care seeking behavior of the two samples are two important variables that should be further studied.

5.3.6 Delaying dental treatment as a consistent predictor of both high OHIP scores and restricted activities for both samples, indicate the need for oral health promotion activities that would encourage individuals to use dental services regularly and to adopt preventive dental health behaviors.

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APPENDIX A

Schedule of Activities for the study on the Social Impact of Oral Diseases among Australian and Filipino Workers.

FIRST YEAR JULY 1995 TO June `1996

JULY	AUG	SEPT	OCT	NOV	DEC	JAN.	FEB	MAR	APRIL	MAY	JUNE
Prepare Protocol			• PREPARE QUESTIONNAIRE • TRANSLATION OF ENGLISH OHIP TO TAGALOG • MODIFIED DELPHI TECHNIQUE • BACK TRANSLATION • CONTACT AUSTRALIAN COMPANIES			• PRE-TESTING OF BILINGUAL OHIP • START CONTACTING PHILIPPINE COMPANIES			AUSTRALIAN STUDY DATA GATHERING		

SECOND YEAR JULY 1996 TO JUNE 1997

JULY	AUG.	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE
• CONSULTATION WITH LINGUIST • FINAL PRETESTING OF THE BILINGUAL QUESTIONNAIRE • FINALIZE QUESTIONNAIRE • PHILIPPINE STUDY				• ANALYSIS OF DATA				• THESIS WRITING			

COLLEGE OF PUBLIC HEALTH
UNIVERSITY OF THE PHILIPPINES MANILA
625 Pedro Gil St., Manila 1000
P. O. Box EA-460, Manila, Philippines
Cable Address: INOPHEALTH, MANILA
Tel. No. 50-27-03

Prof./Dr. Susan Y. Mabunga
Department: Public Health Administration

Dear Dr. Mabunga:

The ETHICS COMMITTEE, hereby, grants ethical clearance on your research project entitled, Social Impact of Oral Diseases and Disorders among Workers'

Please ensure strict implementation of your built-in precautionary and ethical measures.

Yours truly,

Lilian A. delas Llagas
Chair, Ethics Committee
18 Jan. '96

THE UNIVERSITY OF ADELAIDE
Registry Secretariat

F.2556/93

Enquiries:
Mrs. Helen Malby, Secretary,
Committee on the Ethics of Human Experimentation
Tel: 30-34014

31 January 1996

Dr. M.S.T. Yanga-Matunga
Department of Dentistry.

Dear Dr Matunga,

H/29/95
SOCIAL IMPACT OF ORAL DISEASES/DISORDERS AMONG WORKERS

I am pleased to inform you that at its meeting held on 18 December 1995 the Committee on the Ethics of Human Experimentation approved the above project, subject to minor modification to the proposed consent form, as discussed.

Project approvals are current for one year only and the expiry date for this project is **28 February 1997.**

Please note that any change to the project which may affect its ethical aspects will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval.

Where possible, subjects taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

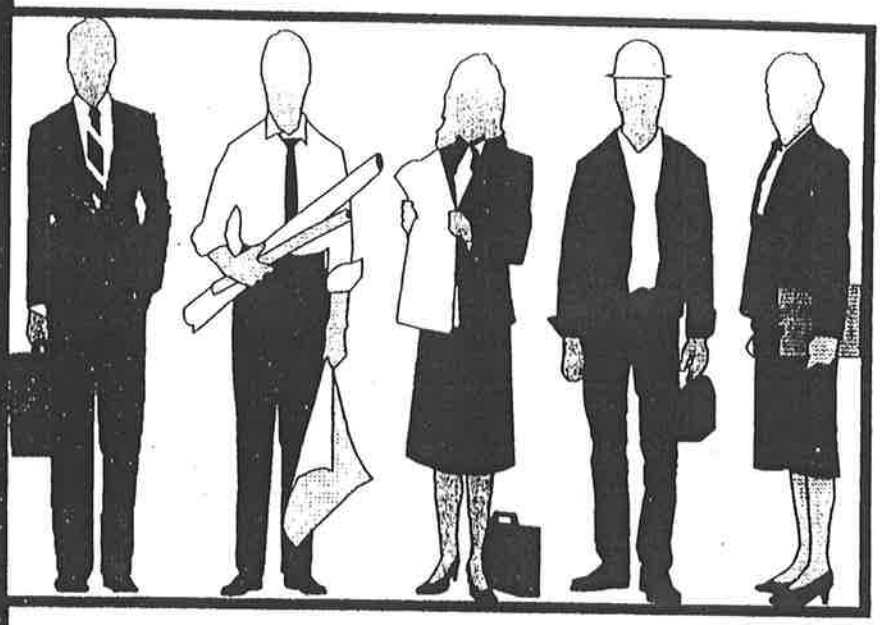
Applications for renewal must be accompanied by a brief report on the project's progress and any ethical issues which may have arisen. Similarly, if the project has been completed, has lapsed, or has been withdrawn, a report should be submitted to the Committee.

Yours sincerely,

F.J. O'NEILL
Registrar

Postal Address: The University of Adelaide, Australia 5005
Tel: (08) 30-35668 Fax: (08) 30-33417 Telex: UNIVAD AA89141

Social Impact Of Oral Diseases



Panlipunang Epekto ng Sakit ng Ngipin at Bibig sa mga Manggagawang Pilipino

Dental Public Health
College of Public Health
University of the Philippines
Pedro Gil, Manila

Social and Preventive Dentistry
Department of Dentistry
The University of Adelaide
Australia, 5000

ANG PANLIPUNANG EPEKTO NG SAKIT NG BIBIG/NGIPIN SA MGA MANGAGAWA

Layunin ng pag-aaral na ito na mangalap at suriin ang mga impormasyon tungkol sa epektong panlipunan ng mga sakit ng ngipin at bibig. Binubuo ng dalawang yugto ang pag-aaral na ito na kapwa gumagamit ng mga palatanungan na sasagutin mismo ng mga kalahok.
Hihilingin ng unang palatanungan ang pangkalahatang impormasyon tungkol sa inyo at sa inyong kalusugang dental. Ang pangalawa naman ay palatanungan tungkol sa bagay bagay na kaugnay ng epektong panlipunan ng mga sakit na ito sa inyo.

Labis naming pahahalagahan ang inyong paglahok sa pag-aaral na ito.Wala pang nagagawang pag-aaral tungkol dito. Inaasahan na ang mga resulta ng pag-aaral na ito ay magagamit sa darating na panahon upang mapabuti ang pangangala sa kalusugang dental ng mga mangagawang Filipino.

Kung sang ayon kayo na lumahok sa pag-aaral na ito, maari lamang pong punuan ang mga sumusunod na Consent Form, at sagutin ang palatanugan:

Consent Form

Ako (pangalan) _____, na lumagda sa ibaba , ay nagpapatunay na nabasa ko na ang paglalarawan at ang layunin ng pagaaral na ito.

Na sumasang-ayon ako na lumahok sa saliksik na ito na pinamagatang "Panlipunang Epekto Ng Mga Sakit ng Bibig/Ngipin sa mga Mangagawa", na isinasagawa nina Dr. Susan Yanga- Mabunga at Professor A. John Spencer ng Unibersidad ng Adelaide, Department of Social and Preventive Dentistry .

Nauunawaan ko na kapag nalimbag ang mga resulta ng pag-aaral na ito ay walang babangiting mga pangalan at walang indibidwal ang makikilala.

Nauunawaan ko na anumang oras ay maari akong tumiwalag sa pagaaral na ito.

Lagda:_____ Petsa:_____

BIOGRAPHICAL DETAILS

1. Ilan taon na po sila? *Age* ☐☐ taon gulang *(years)*

2. Kasarian ? *Sex* ☐ *Male* ☐ *Female*

3. Ano ang salita ninyo sa bahay? _____
   What language do you mainly use at home?

4. Ano ang baytang na natapos ninyo sa pagaaral?
   What level of education have you completed?

   ☐ Elementarya (Primary school)
   ☐ High School (Secondary school)
   ☐ Some College/University
   ☐ Completed college/university
   ☐ Trade /Technical/Vocational

5. Paki tsekan lang po ang kategorya ng inyong trabaho.
   Please indicate in which job category you belong.

   ☐ Manager/Administrator/Supervisor
   ☐ Professional *(scientist, teacher, accountant, engineer etc.)*
   ☐ Para-professional *(technician, surveyors, registered nurse, police etc.)*
   ☐ Tradesperson *(electrician, carpenter, signwriters, plumbers, printers, mechanic, etc.)*
   ☐ Clerk *(typist, stenographer, data processor, receptionists, messenger, etc.)*
   ☐ Salesperson/personal service worker *(real estate /insurance/sales agent, brokers, steward, cashiers, etc.)*
   ☐ Plant and machine operators and drivers *(fork-lift /engine /broiler operator, etc.)*
   ☐ Laborer /worker *(trade assistants, factory worker, cleaner, construction worker, miners, quality controller etc.)*
   ☐ Others: _____

6. Gaano katagal na kayo sa trabaho na ito? *How long have you been in this job?*

   ☐1☐0 taon *(years)*

7. Ilang oras kayo nagtratrabaho sa isang linggo?
   How many hours a week do you work?

   ☐☐ oras bawat linggo */ hours per week*

DENTAL VISITS

11. Kailan kayo huling nagpagamot ng inyong ngipin, bibig o pustiso?
How long ago did you see someone about your teeth , mouth or dentures?

- ☐ kulang sa anim 6 na buwan ang nakalipas. *6 months or less*
- ☐ anim na buwan o higit pa ,ngunit hindi lalampas ng12 na buwan ang nakalipas. *6 months or more but less than a year*
- ☐ 12 na buwan o higit pa ,ngunit hindi lalampas ng 2 taon. *12 months to less than 2 years*
- ☐ 2 taon o higit pa , ngunit hindi lalampas ng limang 5 taon. *2 years to less than 5 years*
- ☐ 5 taon o higit pa. *5 years and more*

12. Kailan kayo bumibisita sa dentista?
When do you visit the dentist?
Isa lang po ang tsekan (Tick only one)

- ☐ Regular
- ☐ Pag may masakit (when in pain)
- ☐ Pag may kailangan pagawa *(when something needs fixing)*

13. Saan kayo pumunta para sa huli ninyong gamutan sa dentista?
For your last course of dental treatment, where did you go?

- ☐ Privadong dentista *(Private dentist)*
- ☐ Dentista ng gobyerno *(Public Clinic)*
- ☐ Dentista ng kompanya *(Company Dentist)*
- ☐ Dental technician
- ☐ Iba pa.*(Others, please specify):* _____

14. Ano ang dahilan ng huli ninyong pagpunta sa dentista?
For your last course of dental treatment , what was your main reason for going?

- ☐ tsek-up *(check up)*
- ☐ nagpa-pasta ng ngipin na bulok *(filling of decayed teeth)*
- ☐ nasira ang pasta *(lost or broken fillings)*
- ☐ problema sa pustiso *(problems with dentures)*
- ☐ problema sa gilagid *(problems with gums)*
- ☐ problema sa hininga *(problems with bad breath)*
- ☐ sunki ang ngipin *(problems with crooked teeth)*
- ☐ may masakit *(relief of pain)*
- ☐ Iba pa, pakisulat lang po *(other, please specify)*:

_____

15. Ano *ang lahat* na ginawa ng dentista sa huling pagpapagamot mo? *Ang buong gamutan ay maaring binubuo ng maraming bisita sa dentista.* Maaaring magmarka (.) ang higit sa isa.
Whatwere all the things that were done during your last course of dental treatment. You may tick more than one.

☐ periodic oral examination *(periodic oral examination)*
☐ nilinis ang mga ngipin *(teeth cleaned and polished)*
☐ nagpasta o nag jacket crowns *(fillings or crowns)*
☐ ginamot ang gilagid *(gum treatment)*
☐ nag root canal treatment *(root canal treatment)*
☐ naglagay, nagayos ng pustiso *(denture inserted/repaired/adjusted)*
☐ nag orthodontic treatment *(orthodontic treatment)*
☐ binunutan kayo ng ngipin *(tooth extracted)*
☐ iba pa; paki sulat lang po. *(other; please specify):*

_____

16. Nagkaroon na ba ng pagkakataon na hindi ka kaagad nagpatingin sa dentista kahit gusto mo?

Have there been occasions when you delayed seeking dental treatment you wished to have?

☐ Oo *(Yes)* ☐ Hindi *(No)*

Kung Oo ano ang naging dahilan ?
If yes, what was the reason for delaying?

☐ Masakit magpagamot *(dental treatment hurts)*
☐ Mahirap sumakay *(transport problem)*
☐ Hindi kayo nagkaintindihan ng dentista *(language difficulty)*
☐ May karamdaman *(ill health)*
☐ Walang mag-aalaga sa mga anak *(lack of child care)*
☐ Halaga ng pagpapagamot *(cost)*
☐ Ayaw magpagamot *(dislike of dental treatment)*
☐ Hindi conveniente ang oras *(hours are inconvenient)*
☐ Mahirap gumawa ng appointment sa dentista *(difficulty in getting an appointment)*
☐ Mahirap makahanap ng oras mula sa trabaho (*difficulty in taking time off work)*
☐ Iba pa; paki sulat lamang po *(others, please specify.):*

_____

17. Mayroon ka bang mga benepisyon pang dentista na nakukuha sa kompanya na pinagtratrabohohan mo?*Do you have any dental benefits from the company?*

☐ Oo *(Yes)* ☐ Hindi *(No)*

Kung Oo, nagagamit mo ba ito? *If yes, are you able to use it*

☐ Oo *(Yes)* ☐ Hindi *(No)*

Kung Hindi, bakit ?_____

18. Magkano ang binayaran mo sa huli mong pagpapagamot sa dentista? (Ang huling pagpapagamot sa dentista ay maaaring binubuo ng maraming bisita sa dentista) *How much were you charged for your last course of dental treatment?*

Peso _____

19. Saan, kanino mo nakukuha ang mga impormasyon tungkol sa kalusugan ng ngipin?
Where do you usually obtain information about dental health ?

- ☐ Dentista *(dentist)*
- ☐ Kaibigan/kamaganak *(friends and relatives)*
- ☐ Sa pinagtratrabahohan *(workplace)*
- ☐ Telebisyon *(television)*
- ☐ Dyaryo/Magasin *(newspapers and magazines)*
- ☐ Iba pa *(others)*:_____

20.Sa nakaraang taon, nag-absent ka na ba o di kaya'y nag "undertime" upang bumisita sa dentista? *During the past year, have you taken time off work to visit the dentist?*

		Kung "Oo,"gaano katagal ?	Kung "Oo," nawalan ka ba ng kita dahil dito?
Para sa isang dental check-up *(For a dental check-up)*	☐ Hindi *(No)* ☐ Oo *(Yes)*	_____araw o _____oras	☐ Hindi *(No)* ☐ Oo *(Yes)*
Dahil sa problema sa ngipin, bibig o pustiso *(Due to a dental problem)*	☐ Hindi *(No)* ☐ Oo *(Yes)*	_____araw o _____oras	☐ Hindi *(No)* ☐ Oo *(Yes)*
Upang samahan ang kamaganak sa dentista *To accompany a family member to the dentist*	☐ Hindi *(No)* ☐ Oo *(Yes)*	_____araw o _____oras	☐ Hindi *(No)* ☐ Oo *(Yes)*
Dahil sa problema sa ngipin,bibig ngunit hindi bumisita sa dentista.. *For a problem with your teeth, mouth or denture but not linked to a visit to the dentist*	☐ Hindi *(No)* ☐ Oo *(Yes)*	_____araw o _____oras	☐ Hindi *(No)* ☐ Oo *(Yes)*

21.Mayroon bang pagkakataon noong nakalipas na isang taon ,na pumasok ka sa trabaho *kahit na may problema* ka sa ngipin, bibig o pustiso?
In the past year, did you ever go to work despite problems with your teeth, mouth or denture.

☐ Oo *(Yes)* ☐ Hindi *(No)*

Kung Oo, na apektuhan ba ang iyong trabaho?
If yes, did it affect your work?

☐ Oo *(Yes)* ☐ Hindi *(No)*

Kung Oo, paano na apektuhan ang iyong trabaho.
If yes, in what sense? Please comment.

_____

_____

DENTAL BEHAVIOUR

22. Markahan sa pamamagita nang paglagay ng tsek ( ) kung gaano ka importante para sa inyo ang mga sumusunod na gawain.Ang bilang na 1 ay may ranko na hindi mahalaga at ang bilang lima ay may rank na labis na mahalaga.

Using a ranking scale of not important (1) to very important(5),how important is each of these behaviour you ?

	Hindi mahalaga 1	2	3	4	Labis na mahalaga 5	Hindi ko alam
a. Regular na pag bisita sa dentista *Regular visit to the dentist*	☐	☐	☐	☐	☐	☐
b. Paginom ng tubig na may Fluoride mula kabataan. *Drinking water with fluoride from childhood*	☐	☐	☐	☐	☐	☐
c. Regular na pagsipilyo at pag floss ng ngipin *regular brushing and flossing of teeth.*	☐	☐	☐	☐	☐	☐
d. Pag gamit ng toothpaste na may fluoride. *Using fluoride toothpaste*	☐	☐	☐	☐	☐	☐
e. Pag-iwas sa matamis na pagkain bago mag tanghalian o hapunan.*Avoiding sweets between meals.*	☐	☐	☐	☐	☐	☐
f. Pagkain ng mga mansanas at iba pang mga prutas na maraming "fibers."*Eating apples and other fibrous foods.*	☐	☐	☐	☐	☐	☐

23. Gaano kahalaga ang mga sumusunod para sa inyo? *How important are the following to you?*

	Hindi mahalaga 1	2	3	4	Labis na mahalaga 5	Hindi ko alam
g. Kalusugan ng ngipin at bibig *Oral health*	☐	☐	☐	☐	☐	☐
h. Pangkalahatang kalusugan *General Health*	☐	☐	☐	☐	☐	☐

24. Alin sa palagay ninyo ang madalas na dahilan ng pagkawala ng ngipin sa mga matatanda?
Which of the following do you think is the main cause of tooth loss among adults?

- ☐ Sirang ngipin *tooth decay*
- ☐ "Trauma" sa ngipin *trauma*
- ☐ Sakit sa gilagid *gum disease*
- ☐ Hindi alam *I dont know*

Maraming salamat po sa inyong pagsagot ng unang bahagi ng survey sa ***Panlipunang Epekto ng Sakit ng Ngipin at Bibig sa mga Mangagawang Pilipino.*** Para po sa ikalawang bahagi, maari lang po tumuloy sa susunod na pahina.

⇒⇒⇒⇒⇒⇒⇒⇒⇒⇒

Thank you for completing the first part of this questionnaire. For the second part, please proceed to the next page.

ORAL HEALTH IMPACT PROFILE

SA NAKALIPAS NA TAON,...

1. Nakaranas ka ba ng hirap sa pagnguya ng alin mang pagkain dahil sa problema sa iyong ngipin, bibig o pustiso? *Have you had difficulty chewing any because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

2 Nakaranas ka ba ng alin mang hirap sa pagbigkas ng ano mang salita dahil sa problema sa ipin , bibig o pustiso? *Have you had any difficulty pronouncing any words because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

3. Napansin mo bang hindi maganda ang hitsura ng isa mong ngipin?*Have you noticed a tooth which doesn't look right?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

4. Naramdaman mo na ba na naapektuhan ang iyong anyo dahil sa problema sa iyong ngipin, bibig o pustiso?*Have you felt that your appearance has been affected because of problems with your teeth mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

5. Naramdaman mo na ba na bumaho ang hininga mo dahil sa problema sa iyong ngipin, bibig o pustiso? *Have you felt that your breath has been staled because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

6. Naramdaman mo ba na nag-iba ang iyong panlasa dahil sa problema sa ngipin, bibig o pustiso?*Have you felt that your sense of taste have worsened because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

SA NAKALIPAS NA TAON,...

7. Napasukan na ba ng tinga ang mga pagitan ng iyong ngipin o pustiso? *Have you had food catching in your teeth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

8. Naramdaman mo ba na hirap ang katawan mo sa pagtunaw ng pagkain sa dahil sa problema sa ngipin, bibig o pustiso?*Have you felt that your digestion has worsened because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam(I don't know)
☐	☐	☐	☐	☐	☐

9. Nakaroon ka na ba ng matinding pananakit ng bibig? *Have you had painful aching in your mouth?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

10. Nakaranas ka na ba ng pananakit ng panga? *Have you had a sore jaw?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

11. Nakaranas ka ba ng sakit ng ulo dahil sa problema sa ngipin bibig o pustiso? *Have you had headaches because of problems with your teeth mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

12. Nakaranas ka na ba ng pangingilo ng ngipin dahil sa paginom ng mainit o malamig na pagkain? *Have you had sensitive teeth, for example due to cold or hot food?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

Hindi maaring sagutin-wala akong ngipin ☐

13. Sumakit na ba ang iyong ngipin? *Have you had a toothache?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

Hindi maaring sagutin-wala akong ngipin ☐

14. Sumakit na ba ang iyong gilagid? *Have you had painful gums?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

SA NAKALIPAS NA TAON,...

28. Kinailangan mo bang... umiwas kumain ng ilang uri ng pagkain dahil sa problema sa ngipin , bibig o pustiso? *Have you had to avoid eating some foods because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

29. Ang iyo bang wastong pagkain(diet) ay hindi naging kasiya-siya dahil sa problema sa ngipin, bibig o pustiso ?*Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

30. Nangyari na bang hindi kayo nakakain dahil sa problema sa pustiso?*Have you been unable to eat with your dentures because of problems with them?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

Hindi maaring sagutin ,wala akong pustiso ☐

31. Iniwasan mo ba ang ngumiti dahil sa problema sa ngipin ,bibig o pustiso? *Have you avoided smiling because of problems with your teeth , mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

32.Kinailangan mo bang itigil ang iyong pagkain dahil sa problema sa ngipin, bibig o pustiso? *Have you had to interrupt meals because of problems with your teeth , mouth or denture?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

33.Naabala na ba ang iyong pagtulog dahil sa problema sa ngipin , bibig o pustiso? *Has your sleep been interrupted because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

34.Sumama .na ba ang iyong pakiramdam dahil sa problema sa iyong ngipin bibig o pustiso? *Have you been upset because of problems with your teeth mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

SA NAKALIPAS NA TAON,...

	Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
35. Nahirapan ka bang mag relax dahil sa problema sa iyong ngipin, bibig o pustiso? *Have you found it difficult to relax because of problems with your teeth, mouth or dentures?*	☐	☐	☐	☐	☐	☐
36. Labis ka bang nalungkot dahil sa problema sa ngipin , bibig o pustiso? *Have you felt depressed because of problems with your teeth mouth or dentures?*	☐	☐	☐	☐	☐	☐
37. Naapektuhan ba ang iyong konsentrasyon dahil sa problema sa ngipin, bibig o pustiso? *Has your concentration been affected because of problems with your teeth, mouth or dentures?*	☐	☐	☐	☐	☐	☐
38. Napahiya ka ba kahit kaunti, dahil sa problema sa ngipin bibig o pustiso? *Have you been a bit embarrassed because of problems with your teeth , mouth or dentures?*	☐	☐	☐	☐	☐	☐
39. Iniwasan mo na ba ang lumabas dahil sa problema sa ngipin bibig o pustiso? *Have you avoided going out because of problems with your teeth, mouth or dentures?*	☐	☐	☐	☐	☐	☐
40. Naging mas maikli ba ang iyong pasensiya sa asawa o pamilya dahil sa problema sa iyong ngipin , bibig o pustiso? *Have you been less tolerant of your spouse or family because of problems with your teeth, mouth or dentures?*	☐	☐	☐	☐	☐	☐
41. Nagkaproblema ka ba sa pakikisama sa ibang tao dahil sa problema sa iyong ngipin, bibig o pustiso? *Have you had trouble getting along with other people because of problems with your teeth , mouth or dentures?*	☐	☐	☐	☐	☐	☐

SA NAKALIPAS NA TAON,...

42. Naging mainitin na ba ang ulo mo dahil sa problema sa ngipin , bibig o pustiso? *Have you been irritable with other people because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

43. Nahirapan ka bang tuparin ang kinagawian mong gawain dahil sa problema sa iyong ngipin, bibig o pustiso? *Have you had difficulty doing your usual job because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

44. Naramdaman mo ba na sumama ang iyong kalusugan dahil sa problema sa ngipin bibig, o pustiso.? *Have you felt that your general health has worsened because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

45. Nalugi ka ba dahil sa problema sa ngipin , bibig o pustiso? *Have you suffered financial loss because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

46. Hindi ka ba nagsaya ng husto na kasama ang ibang tao dahil sa problema sa ngipin bibig o pustiso? *Have you been unable to enjoy other peoples company as much because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

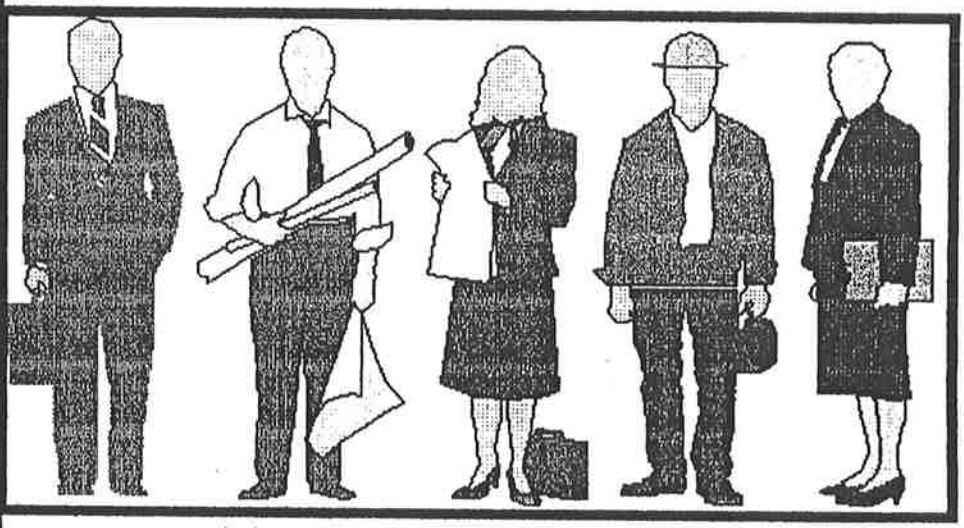
47. Naramdaman mo na ba na hindi gaanong kasiyasiya ang buhay dahil sa problema sa ngipin , bibig o pustiso? *Have felt that life was less satisfying because of problems with your teeth, mouth or dentures?*

Napaka-dalas (VeryOften)	Madalas-dalas (FairlyOften)	Paminsan-minsan (Occasionally)	Bihira (Seldom)	Hindi (Never)	Hindi ko alam (I dont know)
☐	☐	☐	☐	☐	☐

social impact of oral diseases

THE UNIVERSITY OF ADELAIDE

Social Impact of Oral Diseases and Disorders Among Australian Workers



Social and Preventive Dentistry
Department of Dentistry
The University of Adelaide
Australia, 5005

THE SOCIAL IMPACT OF ORAL DISEASE AND DISORDERS AMONG AUSTRALIAN WORKERS

The purpose of this study is to examine how oral diseases and disorders affect people's normal functioning at work and at home. It aims to determine the level of social and economic impact and their distribution across different levels of the workforce.

Participation in this study involves answering a self-administered questionnaire. The questionnaire attached with this information sheet seeks basic biographical data, details of access to service and information on how dental diseases and disorders impact on daily living. A smaller group of participants will receive a second questionnaire a month later, looking at any changes in impacts on daily living over that time.

If you are willing to participate in the study, please sign the consent form below, complete the questionnaire and return them in the enclosed reply-paid envelope.

CONSENT FORM

- I, (name) _____, the undersigned, have read the information sheet and understand the description of the study.
- I hereby consent to participate in the research study called "The Social Impact of Oral Diseases and Disorders Among Australian Workers". My consent is given freely.
- I understand that, although the purpose of this study is to improve dental care, my participation will not be of direct benefit to me.
- I understand that when the results of this study are published no names will be used and no individuals will be identified.
- I understand that I am free to withdraw from the study at any time.

Signed: _____ Date: _____

THE SOCIAL IMPACT OF ORAL DISEASES AND DISORDERS AMONG AUSTRALIAN WORKERS

CONFIDENTIALITY ☐☐☐--☐

Responses to this questionnaire are **STRICTLY CONFIDENTIAL** and will be reported in statistical form only so that individual identity is not revealed.

HOW TO ANSWER QUESTIONS

Please answer all questions in terms of your CURRENT ACTUAL situation.
Questions should be answered by putting a tick in the boxes provided or by writing the answer when a line is provided.

BIOGRAPHICAL DETAILS

1. What is your age? ☐☐ years old

2. What is your sex? ☐ Male ☐ Female

3. Were you born in Australia?

   ☐ Yes
   ☐ No → _____
   (Country of birth)

   → _____
   (Number of years you have lived in Australia)

4. Do you use a language other than English at home?

   ☐ Yes ☐ No

5. What level of education have you completed ?

   ☐ Primary school
   ☐ Secondary school
   ☐ Some university or college
   ☐ Completed university or college
   ☐ Trade/Technical/Vocational

6. Please indicate in which job category you belong.

- ☐ Manager/Administrator
- ☐ Professional (e.g. scientist, teacher, doctor, etc.)
- ☐ Para-professional (e.g. technician, nurse, police, etc.)
- ☐ Tradeperson (e.g. metal, electrical, building, vehicle etc.)
- ☐ Clerk (e.g. typist, receptionist, data processing operator, etc.)
- ☐ Salesperson and personal service worker (e.g. real estate, insurance, sales agent, child care, travel steward, etc.)
- ☐ Plant and machine operator and driver
- ☐ Labourer and related worker (e.g. trade assistant, factory hand, cleaner, etc)
- ☐ Other (please specify) _____

7. How long have you been working in this job? _____years

8. How many **hours** a week do you work?

☐☐ hours a week

9. Please indicate your average income (before tax) per week.
This question will help check the representativeness of the people participating in the survey and identify income groups whose normal activities are most affected by dental diseases and disorders.

Per week	Per year
☐ less than $58	(less than $3,001)
☐ less than $96	($3,001 to $5,000)
☐ $97 to $154	($5,001 to $ 8,000)
☐ $155 to $230	($8,001 to $12,000)
☐ $231 to $308	($12,001 to $16,000)
☐ $309 to $385	($16,001 to $20,000)
☐ $389 to $481	($20,001 to $30,000)
☐ $578 to 673	($30,001 to $ 35,000)
☐ $674 to $769	($35,001 to $45,000)
☐ $770 to $961	($45,001 to $50,000)
☐ $962 to $1,154	($50,001 to $60,000)
☐ $1,155 to $1,346	(more than $70,000)

DENTAL STATUS

10. I would like to get some idea of how many **natural teeth** you have.
There are **16 teeth** to make a complete set of teeth for each jaw. You may have only 14 teeth per jaw if you have had your wisdom teeth removed or if they are missing.

Number of teeth present in the upper jaw: _____

Number of teeth present in the lower jaw: _____

11. Which category best describes your teeth?

- ☐ Complete natural teeth (do not include the wisdom teeth)
- ☐ Natural teeth with some missing teeth, but without dentures
- ☐ Natural teeth and upper denture (plate).
- ☐ Natural teeth and lower denture
- ☐ Some natural teeth and with upper and lower dentures
- ☐ Some natural teeth, with dentures but still with gaps from missing teeth
- ☐ No natural teeth and with upper and lower dentures
- ☐ No natural teeth and no dentures

DENTAL VISITS

12. How long ago did you see someone about your teeth, dentures or gums?

- ☐ less than 6 months
- ☐ 6 months to less than 12 months
- ☐ 12 months to less than 2 years
- ☐ 2 years to less than 5 years
- ☐ 5 years and over

13. Would you say that you visit the dentist on a regular basis, only when you are in discomfort, or need something fixed? (Tick only one)

- ☐ Regular basis
- ☐ When in discomfort/pain
- ☐ When something needs to be fixed (lost filling, bleeding gums, etc.)

14. For your last course of dental treatment, where did you go? (A course of dental treatment may consist of one or more dental visits in a sequence.)

- ☐ Private dentist
- ☐ Dental hospital or public clinic
- ☐ Dental technician/denturist
- ☐ Others (please specify)_____

15. For your last course of dental treatment, what was your main reason for going? (Tick only one)

- ☐ Check - up
- ☐ Filling of decayed teeth
- ☐ Lost/broken fillings
- ☐ Problems with denture
- ☐ Problems with gums
- ☐ Problems with bad breath
- ☐ Problems with crooked teeth
- ☐ Relief of pain
- ☐ Other, please specify

_____

16. What were <u>all</u> the things that were done during this last course of dental treatment? (Tick more than one, if necessary)

- ☐ Periodic oral examination
- ☐ Teeth cleaned and polished
- ☐ Dental fillings or crowns
- ☐ Gum treatment
- ☐ Root canal treatment
- ☐ Denture inserted/repair/adjustments
- ☐ Orthodontic treatment
- ☐ Tooth extracted
- ☐ Other, please specify

_____

17. Have there been occasions when you delayed seeking dental care you wished to have?

☐ Yes ☐ No

If yes, what was the reason for delaying? (Tick only one)

- ☐ Dental treatment hurt
- ☐ Transport problem
- ☐ Language difficulty
- ☐ Ill health
- ☐ Lack of child care
- ☐ Cost
- ☐ Dislike of dental treatment
- ☐ Hours are inconvenient
- ☐ Difficulty in getting an appointment
- ☐ Difficulty in taking time off work
- ☐ Other, please specify

_____

18. Do you have insurance cover for dental expenses?

☐ Yes ☐ No

19. Are you entitled to free public dental care?

☐ Yes ☐ No ☐ Don't know

20. How much were you charged (before any insurance rebate) for your <u>last course of dental treatment</u>? (Please approximate, if unsure.)

$ _____

21. Where do you usually obtain information about dental health ?

☐ Dentist
☐ Friends or family members
☐ Dental hygienist/ dental therapist
☐ Newspaper or magazine articles
☐ Television
☐ Other, please specify

_____

22. During the past year, have you taken time off work ?

		If yes, how long in terms of workdays hours off?	If yes, did you lose pay for the hours you took off?
To visit a dentist for a check up?	☐ Yes ☐ No	____days/___hours	☐Yes ☐No
To visit a dentist for problem ?	☐ Yes ☐ No	____days/___hours	☐Yes ☐No
To accompany a family member to the dentist?	☐ Yes ☐ No	___days/___hours	☐Yes ☐No
For a problem with your teeth,mouth or dentures, but not linked to a visit to the dentist?	☐ Yes ☐ No	____days/___hours	☐Yes ☐No

23. During the past year, was there ever an occasion you went to work despite problems with your teeth, mouth or dentures?

☐ Yes ☐ No

If yes, did it affect your work?

☐ Yes ☐ No

If yes, in what sense? Please comment.

_____

_____

_____

DENTAL BEHAVIOURS

24. In this item, some oral health behaviours are listed. Using a rating scale of **not important** (1) to **very important** (5), how important is each of these behaviours to you?

	not important 1	2	3	4	**very important** 5	Don't know
Seeing a dentist regularly	☐	☐	☐	☐	☐	☐
Drinking water with fluoride from childhood	☐	☐	☐	☐	☐	☐
Regular brushing and flossing of teeth	☐	☐	☐	☐	☐	☐
Using fluoride toothpaste	☐	☐	☐	☐	☐	☐
Avoiding sweets between meals	☐	☐	☐	☐	☐	☐
Eating apples and other fibrous foods	☐	☐	☐	☐	☐	☐

25. How important are the following to you? (1 for **not important** and 5 for **very important** .)

	not important 1	2	3	4	**very important** 5	Don't know
The health of your teeth and mouth	☐	☐	☐	☐	☐	☐
Your general health	☐	☐	☐	☐	☐	☐

26. Which of the following do you think is the main cause of tooth loss among adults? (Tick one box only)

- ☐ Tooth decay
- ☐ Injury to the teeth
- ☐ Gum disease
- ☐ Don't know

Thank you for completing the first part of this questionnaire. For the second part, please proceed to the next page.

ORAL HEALTH IMPACT PROFILE

This questionnaire is about how troubles with the teeth, mouth or dentures cause problems in our daily lives. We would like you to complete the questionnaire even if you have good dental health. We would like to know how often you have had each of the problems during the **last year.**

How to answer the questions

Each question on the left side of the page asks you about a particular dental problem. You should think about each question in turn, and circle the answer to the right of the question, to indicate **how often** you have had the problem during the **last year.**

EXAMPLE

		HOW OFTEN have you had the problem during the **LAST YEAR**? (Circle your answer)					
Q7.	Have you had food catching in your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	(Never)	Don't Know

What if the question does not apply?

A few of the questions only apply to people who have all or some of their own teeth. If the question does not apply to you, then you would answer by checking the box as follows:

Q17.	Have you felt that your dentures have not been fitting properly?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

Does not apply - I do not have dentures ☑

HOW OFTEN have you had the following problems during the LAST YEAR? (Circle your answer)

Q1. Have you had any difficulty chewing any food because of problems with your teeth?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q2. Have you had trouble pronouncing any words because of any problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q3. Have you noticed a tooth which doesn't look right?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q4. Have you felt that your appearance has been affected because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q5. Have you felt that your breath has been stale because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q6. Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q7. Have you had food catching in your teeth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q8. Have you felt that your digestion has worsened because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q9. Have you had painful aching in your mouth?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q10. Have you had a sore jaw?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q11. Have you had headaches because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q12. Have you had sensitive teeth, for example, due to cold food or drinks?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

Does not apply - I do not have my own teeth ☐

HOW OFTEN have you had the following problems during the LAST YEAR? (Circle your answer)

Q13. Have you had a toothache?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
	Does not apply - I do not have my own teeth ☐					
Q14. Have you had painful gums?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q15. Have you found it uncomfortable to eat with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q16. Have you had sore spots in your mouth?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q17. Have you felt that your dentures have not been fitting properly?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
	Does not apply - I do not have dentures ☐					
Q18. Have you had uncomfortable dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
	Does not apply - I do not have dentures ☐					
Q19. Have you been worried by dental problems?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
20. Have you been self-conscious because of your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
21. Have dental problems made you miserable?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
22. Have you felt uncomfortable about the appearance of your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
23. Have you felt tense because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

HOW OFTEN have you had the following problems during the LAST YEAR? (Circle your answer)

Q24. Has your speech been unclear because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q25. Have people misunderstood you because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q26. Have you felt that there has been less flavour in your food because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q27. Have you been unable to brush your teeth properly because of problems with your mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
			Does not apply - I do not have my own teeth ☐			
Q28. Have you had to avoid eating some foods because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q29. Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q30. Have you been unable to eat with your dentures because of problems with them?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
			Does not apply - I do not have dentures ☐			
Q31. Have you avoided smiling because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q32. Have you had to interrupt meals because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

HOW OFTEN have you had the following problems during the **LAST YEAR?** (Circle your answer)

Q33.	Has your sleep been interrupted because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q34.	Have you been upset because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q35.	Have you found it difficult to relax because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q36.	Have you felt depressed because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q37.	Has your concentration been affected because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q38.	Have you been a bit embarrassed because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q39.	Have you avoided going out because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q40.	Have you been less tolerant of your spouse because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q41.	Have you had trouble getting along with people because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

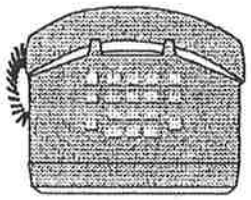
HOW OFTEN have you had the following problems during the **LAST YEAR?** (Circle your answer)

Q42. Have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q43. Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q44. Have you felt that your general health has worsened because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q45. Have you suffered any financial loss because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q46. Have you been unable to enjoy other people's company as much because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q47. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q48. Have you been totally unable to function because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know
Q49. Have you been unable to work to your full capacity because of problems with your teeth, mouth or dentures?	Very Often	Fairly Often	Occas-ionally	Hardly Ever	Never	Don't Know

You have just completed our survey form on the Social Impact of Oral Disease and Disorders among Australian Workers. Please return it to us through the reply-paid envelope attached with this questionnaire.

THANK YOU VERY MUCH FOR PARTICIPATING

If you have any queries, please do not hesistate to call Dr. Susan Mabunga at 303-3290



Physical Pain

10. Nakaranas ka na ng matinding pananakit ng bibig ?

11. Nakaranas ka na ba ng pananakit ng panga ?

12. Sumakit na ba ang iyong ulo dahil sa sakit sa ngipin , bibig or postiso?

13. Na ngilo na ba ang ngipin mo dahil sa miinit o malamig na pagkain o inumin.

14. Sumakit na ba ang ngipin mo ?

15. Sumakit na ba ang iyong gilagid ?

16. Mayroon bang pagkakataon na hindi ka komportable sa pagkain dahil sa problema sa ngipin , bibig o postiso?

17. Nagkaroon ka na ba ng singaw sa bibig?

18. Nagkaroon ka na ba ng postiso na hindi komportable ang sukat ?

Psychological Discomfort

19. Nag- alala ka na ba tungkol sa kalusugan ng iyong ngipin at bibig?

20. Naging mapansinin ka ba sa sarili pagdating sa ngipin , bibig o postiso?

21. Mayroon bang pagkakataon na naging miserable ka dahil sa problema sa ngipin, bibig o postiso?

_____

_____

22. Mayroon bang pagkakataon na hindi ka komportable sa anyo ng iyong ngipin , bibig o postiso ?

_____

_____

23. Mayroon bang pagkakataon na nakaranas ka ng tensyion dahil sa problema sa ngipin, bibig o postiso ?

_____

_____

Physical Disability

24. Mayroon bang pagkakataon na hindi maliwanag o malinaw ang pagsalita mo dahil sa problema ng ngipin , bibig o postiso ?

_____

_____

25. Mayroon bang pagkakataon na hindi naintindihan ang pagsasalita mo dahil sa problema sa ngipin , bibig o postiso?

_____

_____

26. Pakiramdam mo ba ,nawalan ka ng panlasa dahil sa problema sa bibig , ngipin o postiso?

_____

_____

27. Nagkaroon na bang pagkakataon na hindi mo nasipliyo ng mabuti ang iyong ngipin dahil sa problema sa ngipin ,bibig o postiso ?

_____

_____

28. Mayroon bang pagkakataon, may iniwasan kang pagkain dahil sa problema sa iyong ngipin , bibig o di kaya postiso?

_____

_____

29. Mayroon bang pagkakataon na di mo makain ang tamang pagkain dahil sa sakit sa nqipin, bibig o postiso.

_____

_____

PLEASE review all the translations and backtranslate to English.
Maraming Salamat Po

ORAL HEALTH IMPACT PROFILE - TAGALOG TRANSLATION

Functional limitation

1. Naranasan mo na bang mahirapan ngumuya dahil sa problema sa bibig, ngipin o postiso?

2. Mayroon bang pagkakataon na nahirapan ka sa pagsasalita dahil sa problema sa bibig, ngipin o postiso?

3. Mayroon ka bang napansin na ngipin na sa palagay mo hindi maganda at tama ang anyo?

4. Sa pakiramdam mo ba ay naapektuhan ang iyong itsura dahil sa problema mo sa bibig , ngipin o postiso?

5. Nagkaroon ka na ba ng pakiramdam na mabaho ang hininga mo dahil sa problema sa ngipin , bibig o postiso?

6. Nagkaroon ka na ba ng pakiramdam na nawalan ka ng panlasa dahil sa problem sa ngipin , bibig o postiso ?

7. Napasukan na ba ng tinga ang mga paligid ng iyong mga ngipin o di kaya postiso?

8. May pakiramdam ka bang nahirapan ang katawan mong tunawin ang mga kinain mo dahil sa problema sa nqipin, bibig, o postiso ?

9. Sa pakiramdam mo ba , di maayos ang sukat ng postiso mo ?

ORAL HEALTH IMPACT PROFILE

Back translation to English

1. Have you had difficulty chewing any foods because of problems with your teeth, mouth or denture?
- Have you experienced having difficulty in chewing because of problems in the mouth, teeth or dentures?
- Have you experienced difficulty in chewing in chewing due to problems of the mouth teeth or dentures?

2. Have you trouble pronouncing any words because of problems with your teeth, mouth or denture.?
- Have you ever had difficulty in speech due to problems with your teeth...
-Has there been an occasion that you had difficulty in speaking due to problems in the...

3. Have you noticed a tooth which doesnt look right ?
- Have you noticed any tooth, which in your opinion, does not appear /look nice?
-Have you noticed any tooth which you think is not beautiful or is rightly placed?

4. Have you felt that your appearance has been affected because of problems with your teeth , mouth or dentures?
-Do you feel that your looks is affected due to problems with your mouth...
-In your opinion is your appearance affected because of problems in the mouth

5.. Have you felt that your breath has been stale because of problems with your teeth , mouth , or dentures ?
-Have you ever felt that you had bad breath due to problems with your mouth...
-Have you experience the feeling of having bad breath because of problems due to ...

6. Have you felt that your sense of taste has worsened because of problems with your teeth , mouth or dentures?
-Have you ever felt losing your sense of taste due to problems with your teeth, mouth or dentures?
-Have you felt losing your taste because of problems...

7. Have you had food catching in your teeth or dentures?
-Have you ever caught junk between your teeth or dentures?
-Has food entered the surrounding of your teeth or dentures ?

8. Have you felt that your digestion has worsened becaused of problems with your teeth, mouth or dentures ?
-Do you feel that your body has difficulty in digesting your food due to problems with your teeth...
-Have you felt any difficulty in the digestion of your food due to problems...

9. Have you felt that your dentures have not been fitting properly ?
- Do you think your dentures dont fit properly?
- In your opinion, is your denture not fitted?

30. Nahirapan ka na bang kumain suot ang postiso mo dahil sa problema na dunudulot dito?

_____

_____

31. Iniwasan mo na bang ngumiti dahil sa problema sa ngipin , bibig o postiso.

_____

_____

32.Nagkataon na bang tumigil ka sa pagkain dahil sa problem sa ngipin , bibig o postiso?

_____

_____

Psychological Disability

33. Naabala na ba ang iyong pagtulog dahil sa problem sa ngipin , bibig, o postiso?

_____

_____

34. Mayroon bang pagkakataon naging masama ang iyong loob dahil sa problema sa ngipin , bibig o pustiso?

_____

_____

35. Nahirapan ka na bang magpahinga dahil sa problema sa ngipin , bibig o postiso ?

_____

_____

36. Mayroon bang pagkakataon na naging malungkutin ka dahil sa sakit sa ngipin , bibig o postiso ?

_____

_____

37. Mayroon bang pagkakataon na naapektuhan ang iyong konsentrasyon dahil sa problema sa ngipin , bibig o postiso. ?

_____

_____

38. Napahiya ka na ba , kahit kaunti , dahil sa problema sa ngipin ,bibig o postiso ?

_____

_____

Social disability

39. Iniwasan mo na bang lumabas dahil sa problema sa ngipin ,bibig o postiso?

_____

_____

40. Nagkaroon ka na ba ng pagkakataon na hindi ka makapagpasensiya sa asawa, o pamilya dahil sa problema sa ngipin, bibig o postiso.?

_____

_____

41. Nagkaroon na ba ng pagkakataon na nahirapan kang makisama sa ibang tao dahil sa problema sa ngipin, bibg o postiso ?

_____

_____

42.Naging mainitin na ba ang iyong ulo sa ibang tao dahil sa problema sa ngipin , bibig o postiso ?

_____

_____

43. Nahirapan ka na bang magtrabaho dahil sa problema sa ngipin , bibig o postiso?

_____

_____

44. Pakiramdam mo ba, lumubha o lumala ang iyong pangkalahatang kalusugan dahil sa problema sa ngipin, bibig, o postiso ?

_____

_____

45. Nagkaroon naba ng panahon ,nawalan ka ng kita o di kaya pagkakataon kumita dahil sa problema sa ngipin , bibig o postiso ?

_____

_____

46. Mayroon bang pagkakataon na hindi ka nakasama magsaya ng iyong mga kaibigan dahil sa problema sa bibig , ngipin o postiso.

_____

_____

47. Mayroon bang pagkakataon na sa palagay mo ang buhay ay di gaanong kanaisnais dahil sa problema sa ngipin , bibig o postiso ?

_____

_____

48. Mayroon bang pagkakataon na hindi mo nagampanan ang gawain sa araw araw dahil sa problema sa ngipin , bibig o postiso ?

_____

_____

49. Nagkaroon, na ba ng pagkakataon,na hindi mo nagampanan ng mahusay at sa buo mong kakayanan ang mga gawain mo sa bahay o di kaya sa opisina, dahil sa problema sa ngipin , bibig o postiso?

_____

_____

Physical Pain

10. Have you had painful aching in your mouth?
-Have you ever experienced severe pain of the mouth?
-Have you experienced severe pain of the mouth?

11. Have you had a sore jaw?
- Have you ever experienced pain in your jaw?
- Have you experience pain in your jaw?

12. Have you had headaches because of problems with you teeth , mouth or dentures?
-Have you ever had headaches due to pains in your teeth, mouth or dentures?
-Did you have headaches because of pain in the...

13. Have you had sensitive teeth for example due to hot or cold foods or drinks?
-Have you ever had sensitive teeth due to hot/cold foods/drinks ?
-was your teeth sensitive because of hot or cold food or water?

14. Have you had toothache?
-Have you ever had a sore tooth?
-Did you ever have a toothache?

15 Have you had painful gums?
-Have you ever had sore gum?
-Did you ever have pain in the gums?

16. Have you found it uncomfortable to eat any foods because of problems with your teeth , mouth or dentures?
-Have you ever been uncomfortable with eating due to problems with your...
-Has there been any occasion that you were not comfortable with food due to pain in the mouth...

17. Have you had sore spots in your mouth?
-Have you ever had mouth ulcers?
-Have you ever had sores in the mouth

18. Have you had uncomfortable dentures?
-Have you ever had ill fitting dentures?
-Have you ever had a denture which was ill-fitting?

Psychological Discomfort

19.Have you been worried by dental problems?
-Have you ever been concern with your dental health?
-Have you ever been apprehensive about the health of your teeth and mouth?

20. Have you been self conscious because of your teeth , mouth or dentures ?
-Have you been self conscious in regards to your teeth...
-Are you conscious/or very aware whein it comes to the teeth...

21. Have dental problems made you miserable?
-Have you ever felt miserable due to problems with your teeth...

-Has there been any occasion that your were miserable due to problems of the...

22. Have you felt uncomfortable about the appearance of your teeth , mouth or dentures?
-Have you ever felt uncomfortable regarding the conditions of your teeth, mouth and dentures?
-Has there been any occasions that you were not comfortable with the appearance of your teeth...

23. Have you felt tense because of problems with your teeth ,mouth or dentures ?
-Have you felt tensed due to problems with your teeth, mouth or dentures?
-Has there been any occasion that you felt tense/stressed because of problems in the teeth...

Physical Disability

24. Has your speech been unclear because of problems with your teeth , mouth or dentures?
-Is there any situation when you are not able to speak clearly due to problems with your teeth...
-Has there been any occasion that your speech was not clear because of...

25. Have people misunderstood some of your words becasue of problems with your teeth , mouth or dentures ?
-Has other people ever had difficulty in understanding your speech due to problems...
-has there been any occasion that your speacking could not be understood due to problems with...

26. Have you felt that there has been less flavour in your food because of problems with your teeth ,mouth or dentures?
-Do you think you have lost your sense of taste due to problems with your ...
-In your feeling, have you had no taste because of problems in

27. Have you been unable to brush your teeth properly because of problems with your teeth, mouth or dentures?
Have you ever experienced difficulty in brushing your teeth properly due to problems with your...
-Has there been any occasion that you cant brush well your teeth because of problems with...

28.Have you had to avoid eating some foods because of problems with your teeth, mouth or denture?
-Have you ever avoided certain foods due to problems with your...
-Has there been any time that you avoided a food because of problems in your...

29. Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?
-Have you ever experienced not being able to eat the right food due to problems with your...
-Has there been any time that you cant eat the right food because of problems with...

30. Have you been unable to eat with your dentures because of problems with them.
-Have you ever had difficulty eating with your dentures due to problems brought about by these dentures?

-Has there been any time that you had difficulty eating with your dentures because of pain caused by the denture ?(marked with question mark)

31. Have you avoided smiling because of problems with your teeth, mouth or dentures?
- Have you ever avoided smiling due to problems with your teeth...
-Have you avoided smiling because of problems...

32. Have you had to interrupt meals because of problems with your teeth, mouth or dentures?
-Have you ever had to stop eating due to problems with your teeth...
-Have you ever experienced stopping to eat because of problems...

Psychological Disability

33. Have your sleep been interrupted because of problems with your teeth , mouth or dentures?

- Have you had trouble with your sleeping due to problems with your teeth...
- Have you ever been distrubed in yur sleep because of problems with your teeth..

34. Have you been upset because of problems with your teeth , mouth or dentures?
- Have you ever felt bad due to problems with your teeth, mouth or dentures?
-Has there been an occasion that you had bad feeling due to problems...

35. Have you found it diffiicult to relax because of problems with your teeth , mouth, or dentures?
-Have you had trouble in trying to get some rest due to problems with ...
-Have you ever had difficulty in breathing due to ...

36. Have you felt depressed because of problems with your teeth , mouth or dentures?
-Have you been depressed due to pain in your teeth, mouth or dentures
-Has there been any occasion that you were moody because of...

37. Have your concentration been affected because of problems with your teeth , mouth or dentures?
-Was there ever a chance when your concentration has been distrubed due to problems of your teeth, mouth or dentures.
-Has there been an occasion that your concentration was affected due to ...

38. Have you been a bit embarassed becaused of problems with your teeth , mouth or dentures?
- Have you ever experienced feeling embarassed , even just slighly due to problems with your teeth...
-Have you evern been embarassed ,even slightly becasue of problems...

Social disability

39. Have you avoided going out because of problems with your teeth , mouth or dentures?
-Have you avoided going out due to problems with your teeth...
-Have you ever avoided going out because of ...

40. Have you been less tolerant of your spouse or family because of problems with your teeth , mouth or dentures ?
-Have you ever lost your patiences to your wife or family due to problems...
-Has there been an occasion that you lost your patiences with your husband or family because of...

41. Have you had any trouble getting along with poeple because of problems with your teeth , mouth or dentures?
-Have you ever experienced difficulty in dealng with other people due to problems with...
-Has there been an occasion that you had difficulty going with other people due to ...

42. Have you been a bit irritable with other people because of problems with your teeth , mouth or dentures.
-Have you ever been irritable due to problems...
-Have you ever had bad temper to others because of problems ...

43. Have you had dififficulty doing your job because of problems with your teeth, mouth or dentures?
-Have you experienced difficulty with your work due to problems with...
-Have you ever had difficulty at work due to...

Handicap

44. Have you felt that your general health has worsened because of problems with your teeth , mouth or dentures.
-Do you think your general health status has deteriorated due to problems with...
-In your feeling , is your general health getting worse or serious because of problems with...

45. Have you suffered any financial loss because of problems with your teeth , mouth or dentures?
-Have you ever lost an income or the chance to earn an income due to problems with your teeth...
-Have you ever had an occasion that you lost the chance/opportunity of earning because...

46.Have you been unable to enjoy other peoples company because of problems with your teeth , mouth or dentures?
-Have you ever missed any happenings with yourr friends due to...
-Has there been any occasion that you were not abe to go and enjoy with your friends

47. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures ?
-Have you ever felt bad about life due to problems with your ...
-Has there been an occasion that you felt life was not worthwhile because of problems...

40. Have you been less tolerant of your spouse or family because of problems with your teeth , mouth or dentures ?
-Have you ever lost your patiences to your wife or family due to problems...
-Has there been an occasion that you lost your patiences with your husband or family because of...

41. Have you had any trouble getting along with poeple because of problems with your teeth , mouth or dentures?
-Have you ever experienced difficulty in dealng with other people due to problems with...
-Has there been an occasion that you had difficulty going with other people due to ...

42. Have you been a bit irritable with other people because of problems with your teeth , mouth or dentures.
-Have you ever been irritable due to problems...
-Have you ever had bad temper to others because of problems ...

43. Have you had dififficulty doing your job because of problems with your teeth, mouth or dentures?
-Have you experienced difficulty with your work due to problems with...
-Have you ever had difficulty at work due to...

Handicap

44. Have you felt that your general health has worsened because of problems with your teeth , mouth or dentures.
-Do you think your general health status has deteriorated due to problems with...
-In your feeling , is your general health getting worse or serious because of problems with...

45. Have you suffered any financial loss because of problems with your teeth , mouth or dentures?
-Have you ever lost an income or the chance to earn an income due to problems with your teeth...
-Have you ever had an occasion that you lost the chance/opportunity of earning because...

46.Have you been unable to enjoy other peoples company because of problems with your teeth , mouth or dentures?
-Have you ever missed any happenings with yourr friends due to...
-Has there been any occasion that you were not abe to go and enjoy with your friends

47. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures ?
-Have you ever felt bad about life due to problems with your ...
-Has there been an occasion that you felt life was not worthwhile because of problems...

APPENDIX B

Comparison of prevalence of impacts experienced 'occasionally" and 'fairly often',' very often' by Australian and Filipino workers.

Subscale	The Australian workers		The Filipino workers	
	Cut off: occasionally %	Cut off 'fairly often' and 'very often" %	Cut off: occasionally	Cut off 'fairly often' and 'very often"
Functional limitation	88.9	39.2	91.7	57.9
Physical pain*	75.8	16.7	82.2	34.9
Psychological discomfort*	46	8.5	62.5	23.5
Physical disability*	26.9	4.2	53.5	18.8
Psychological disability*	19.2	2.1	39.6	8.4
Social disability*	22.3	0.5	23.3	3.9
Handicap*	12.0	1.9.	29.6	5.7
Overall prevalence	93.0	46.5	96.0	64.5

*Prevalence of impacts experienced 'occasionally' by the Filipino workers is higher than prevalence of impacts experienced 'occasionally' by the Australian workers. Chi sq. $p<0.01$. Prevalence of impacts experienced "fairly often" by the Filipino workers is higher than prevalence of impacts experienced fairly often by the Australian Worker for all subscales. Chi sq. $p<0.01$.

APPENDIX C Questions and weights used for the OHIP

Functional Limitation	
1. Have you had any difficulty chewing any food because of problems with your teeth mouth or dentures?	1.854
2. Have you had any trouble pronouncing any words because of problems with your teeth mouth or dentures?	1.534
3. Have you noticed a tooth that doesn't look right because of problems with your teeth mouth or dentures?	1.106
4. Have you felt that your appearance has been affected because of problems with your teeth mouth or dentures?	1.568
5. Have you felt that your breath has been stale because of problems with your teeth mouth or dentures?	1.709
6. Have you felt that your sense of taste has worsened because of problems with your teeth mouth or dentures?	1.379
7. Have you had food catching in your teeth or dentures?	1.749
8. Have you felt that your digestion has worsened because of problems with your teeth mouth or dentures?	1.729
9. Have you felt that your dentures have not been fitting properly?	2.179
Physical Pain	
10. Have you had painful aching in your mouth?	1.796
11. Had you had a sore jaw?	1.387
12. Have you had headaches because of problems with your teeth mouth or dentures?	1.604
13. Have you had sensitive teeth, for example due to cold food or drinks	1.560
14. Have you had a toothache?	2.015
15. Have you had painful gums?	1.610
16. Have you found it uncomfortable to eat any food because of problems with your teeth, mouth, or dentures?	1.478
17. Have you had sore spots in your mouth?	1.872
18. Have you had uncomfortable dentures?	1.484
Psychological Discomfort	
19. Have you been worried about a dental problem?	1.650
20. Have you been self conscious because of problems with your teeth mouth or dentures? ...	1.564
21. Have dental problems made you miserable?	1.852
22. Have you felt uncomfortable about the appearance of your teeth, mouth or dentures?	1.493
23. Have you felt tense because of problems with your teeth mouth or dentures?	1.666

48.Have you been totally unable to function because of problems with your teeth , mouth or dentures?
-Have you been unable to fulfill your everyday tasks due to problems with your ...
-Has there been any occasion that you were not able to do your daily chores/work because of problems with...

49. Have you been unable to work to your full capacity because of problems with your teeth , mouth o dentures?
- Have you failed to fulfill to to the best of your ability , your duties/ responsibilities at home or at work due to problems with your teeth, mouth or dentures.
-Has there been any occasion that you were not able to do well , and to the best of your ability the activities at home or in the office due to problems with...

APPENDIX C Questions and weights used for the OHIP(continuation)

Physical Disability	
24. Have your speech been unclear because of problems with your teeth mouth or dentures?	1.641
25. Have people misunderstood you because of problems with your teeth mouth or dentures?	1.645
26. Have you felt that there has been less flavor in your food because of problems with your teeth mouth or dentures?	1.556
27. Have you been unable to brush your teeth properly because of problems with your teeth mouth or dentures?	1.581
28. Have you had to avoid eating some food because of problems with your teeth mouth or dentures?	1.874
29. Has your diet been unsatisfactory because of problems with your teeth mouth or dentures?	1.514
30. Have you been unable to eat with your dentures because of problems with your teeth mouth or dentures?	2.000
31. Have you avoided smiling because of problems with your teeth mouth or dentures?	1.585
32. Have you had to interrupt meals because of problems with your teeth mouth or dentures?	1.409
Psychological Disability	
33. Has your sleep been interrupted because of problems with your teeth mouth or dentures?	1.925
34. Have you been upset because of problems with your teeth mouth or dentures?	1.375
35. Have you found it difficult to relax because of problems with your teeth mouth or dentures?	1.625
36. Have you felt depressed because of problems with your teeth mouth or dentures?	1.911
37. Has your concentration been affected because of problems with your teeth mouth or dentures?	1.616
38. Have you been a bit embarrassed because of problems with your teeth mouth or dentures?	1.418

APPENDIX C Questions and weights used for the OHIP (continuation)

Social Disability	
39. Have you avoided going out because of problems with your teeth mouth or dentures?	1.293
40. Have you been less tolerant of your spouse or your family because of problems with your teeth mouth or dentures?	2.101
41. Have you had trouble getting on with other people because of problems with your teeth mouth or dentures?	1.507
42. Have you been a bit irritable because of problems with your teeth mouth or dentures?	1.839
43. Have you had difficulty doing your usual job because of problems with your teeth mouth or dentures?	1.484
Handicap	
44. Have you felt that your general health has worsened because of problems with your teeth mouth or dentures?	2.085
45. Have you suffered financial loss because of problems with your teeth mouth or dentures?	1.402
46. Have you been unable to enjoy other peoples company as much because of problems with your teeth mouth or dentures?	1.525
47. Have you felt that life in general was less satisfying because of problems with your teeth mouth or dentures?	1.547
48. Have you been totally unable to function because of problems with your teeth mouth or dentures?	1.855
49. Have you been unable to work to your full capacity because of problems with your teeth mouth or dentures?	1.457

APPENDIX D

Prevalence of reported impacts experienced "very often" and "fairly often" for the Australian and the Filipino workers.

OHIP Items	Australian Sample	Filipino Sample]
Functional Limitation		
1. Have you had any difficulty chewing any food because ...	3.5	11.6
2. Have you had any trouble pronouncing any words because...	1.2	6.7
3.Have you noticed a tooth that doesn't look right because ...	9	23.9
4. Have you felt that your appearance has been affected because...	6.1	17.8
5. Have you felt that your breathe has been stale because ...	5.9	13.1
6. Have you felt that your sense of taste has worsened because ...	1.2	7.4
7. Have you had food catching in your teeth or dentures?	29.1	46.9
8. Have you felt that your digestion has worsened because	0.7	6.1
9. Have you felt that your dentures have not been fitting properly?	0.9	7.6
Physical Pain		
10. Have you had painful aching in your mouth...	1.9	3.7
11. Had you had a sore jaw?	2.4	2.9
12. Have you had headaches because	1.9	3.3
13. Have you had sensitive teeth, for example due to cold food or drinks	11.7	16.5
14. Have you had a toothache?	0.7	8.6
15. Have you had painful gums?	1.9	5.8
16. Have you found it uncomfortable to eat with your teeth , mouth, or dentures?	1.9	14.3
17. Have you had sore spots in your mouth...	2.6	10.9
18. Have you had uncomfortable dentures?	0.5	5.8

APPENDIX D (continuation)

Prevalence of reported impacts experienced "very often" and "fairly often" for the Australian and the Filipino workers.

OHIP Items	Australian Sample	Filipino Sample
Psychological Discomfort		
19. Have you been worried about a dental problem?	3.1	15.5
20. Have you been self conscious because ...	6.1	15.1
21. Have dental problems made you miserable?	0.7	7.6
22. Have you felt uncomfortable about the appearance of your teeth, mouth or dentures?	3.3	8.8
23. Have you felt tense because	1.6	5.1
Physical Disability		
24. Have your speech been unclear because	0.7	6.1
25. Have people misunderstood you because ...	0.5	3.1
26. Have you felt that there has been less flavor in your food because...	0.0	4.7
27. Have you been unable to brush your teeth properly because	1.4	6.1
28. Have you had to avoid eating some food because	1.9	9.8
29. Has your diet been unsatisfactory because of	0.0	3.5
30. Have you been unable to eat with your dentures because of ...	0.0	2.9
31. Have you avoided smiling because...	1.4	3.9
32. Have you had to interrupt meals because ...?	0.2	2.0

...of problems with your teeth, mouth or dentures?

APPENDIX D (continuation)

Prevalence of reported impacts experienced "very often" and "fairly often" for the Australian and the Filipino workers.

OHIP Items	Australian Sample	Filipino Sample
Psychological Disability		
33. Has your sleep been interrupted because ...	0.5	1.6
34. Have you been upset because...	0.5	2.1
35. Have you found it difficult to relax because ...	0.5	1.4
36. Have you felt depressed because ...	0.7	4.9
37. Has your concentration been affected because of	0.2	3.9
38. Have you been a bit embarrassed because...	1.4	2.5
Social Disability		
39. Have you avoided going out because of problems with your teeth, mouth or...	0.0	0.6
40. Have you been less tolerant of your spouse or your family because of...	0.2	0.6
41. Have you had trouble getting on with other people because ...	0.2	1.2
42. Have you been a bit irritable because	0.2	1.8
43. Have you had difficulty doing your usual job because	0.0	1.6
Handicap		
44. Have you felt that your general health has worsened because ...	0.0	1.8
45. Have you suffered financial loss because ...	1.4	0.6
46. Have you been unable to enjoy other peoples company as much because of	0.5	1.4
47. Have you felt that life in general was less satisfying because ...	0.7	2.9
48. Have you been totally unable to function because	0.0	1.6
49. Have you been unable to work to your full capacity because ...	0.2	1.8

... of problems with your teeth, mouth or dentures.

APPENDIX E Delayed Dental Treatment

Frequency distribution of those who delayed dental treatment

	Australian sample		Filipino sample	
Delayed Dental Treatment	Nos.	%	Nos.	%
Yes	206	49.4	344	70.3
No	211	50.6	145	29.7
Total	418	100%	489	100%

Mean OHIP scores by delayed dental treatment (Australian Sample)*

	No (n=211)		Yes (n=206)	
	Mean	S.D	Mean	S.D
Functional	8.7	5.5	12.2	6.0
Physical pain	11.2	5.6	14.4	6.2
Psychological discomfort	4.3	4.6	7.2	5.7
Physical disability	3.0	3.5	5.3	5.9
Psychological disability	2.0	3.3	4.5	5.4
Social disability	0.5	1.7	1.6	3.3
Handicap	0.7	1.7	2.1	4.0
Overall OHIP	30.4	20.0	47.4	30.0

*Those who delayed dental treatment had significantly higher mean OHIP scores for all subscales $p<0.001$

Mean OHIP scores by delayed dental treatment (Filipino Sample)*

	Filipino workers			
	No(n=145)		Yes(n=344)	
Subscales	Mean	S.D	Mean	S.D
Functional limitation	12.6	6.5	17.1	8.1
Physical Pain	13.9	7.0	18.4	8.5
Psychological discomfort	6.9	5.8	10.6	7.0
Physical disability	9.3	8.3	12.4	9.6
Psychological disability	5.9	5.8	8.5	6.5
Social disability	2.5	3.3	4.3	4.9
Handicap	4.1	5.2	6.2	5.9
Overall OHIP	55.3	34.7	77.6	42.0

***$p<0.001$ Those who delayed dental treatment had significantly higher mean OHIP scores for all subscales

Appendix F Comparison of mean OHIP scores by dental status category -Bonferronni Test

	Complete natural dentition					Missing teeth ,with no dentures					Missing Teeth, with denture				
	Australia (209)		Filipino (53)			Australia (170)		Filipino (503)			Australia (41)		Filipino (227)		
Subscales	Mean	S.D	Mean	S.D	p value	Mean	S.D	Mean	S.D.	p value	Mean	S.D	Mean	S.D	p value
Functional Limitation	9.2	5.7	9.8	5.8	0.43	11.1	6.0	14.6	7.8	0.00	13.0	6.3	17.6	7.3	0.00
Physical pain	12.5	5.6	10.6	5.1	0.03	12.8	6.3	15.9	8.0	0.00	13.3	7.6	19.2	8.3	0.00
Psycho discomfort	4.8	5.0	4.7	4.8	0.97	6.5	5.7	8.9	6.8	0.00	7.2	5.5	10.8	6.7	0.00
Physical disability	3.4	4.4	5.8	6.1	0.00	4.2	4.8	9.1	8.4	0.00	6.9	7.1	14.2	9.3	0.00
Psycho disability	2.5	4.2	3.8	4.8	0.05	3.7	5.0	7.5	6.5	0.00	4.3	4.5	8.6	6.3	0.00
Social disability	0.6	2.1	1.9	3.5	0.00	1.4	3.1	3.8	4.7	0.00	1.3	2.8	4.1	4.4	0.00
Handicap	1.3	2.9	7.1	7.1	0.00	1.5	3.4	5.9	5.6	0.00	2.0	4.2	5.2	5.9	0.00
Overall OHIP	34.3	22.6	43.8	26.8	0.01	41.1	25.6	65.8	36.7	0.00	48.1	28.6	79.8	35.2	0.00

	Full Dentures				
	Australian (4)		Filipino(16)		
Subscales	Mean	S.D	Mean	S.D.	p value
Functional Limitation	13.2	8.7	20.0	8.2	0.16
Physical pain	19.3	9.3	19.6	9.1	0.95
Psycho discomfort	5.7	6.5	12.8	8.3	0.13
Physical disability	9.3	8.0	21.2	11.6	0.07
Psycho disability	7.2	8.4	11.3	7.1	0.33
Social disability	2.3	2.8	6.2	6.1	0.25
Handicap	1.1	1.3	2.4	3.6	0.49
Overall OHIP	58.1	39.8	93.4	44.9	0.17