CHAPTER 6

DISCUSSION

The results and analysis of the study presented in the previous chapter are compared with the studies done elsewhere and discussed in this chapter. It has been arranged according to the order of the five objectives of the present study.

6.1 PROFILE OF ORAL HEALTH PROBLEMS

6.1.1 Oral Health Problems

The study reveals the fact that there are profound and complex interactions between oral health problems and socioeconomic status of the population studied. About 360 (90.0%) respondents of the study reported they had dental decay or caries problem and about 80 (20.0%) respondents reported gum disease as another major problem. According to Petersen et al., (2005) dental caries and periodontal diseases are the most common oral diseases that have burdened the majority of populations with heavy treatment needs. The generally held view is that Asians are predominantly susceptible to periodontitis (gum diseases) and among them poor oral hygiene and calculus are widespread (Corbet, 2006).

In our study, it has been found out that there is no statistically significant difference between the chosen dental problems and rural/urban residence. So the first hypothesis of this study that ‘there is no significant difference between the prevalence of oral health problems and area of residence’ is accepted.

Krustrup and Petersen (2007) in their study in Denmark showed that significantly more untreated decay was found among men, in rural areas and in low income groups.
Another systematic study performed by Vargas et al., (2002) concluded that oral health disparities exist among U.S. adults living in rural and urban areas.

But according to the National Oral Health Survey and Fluoride Mapping – Tamil Nadu 2002-03, there was no marked gender or rural/urban related differentiation. The pattern of distribution of caries by DMFT values was similar in rural and urban areas and in between different regions in Tamil Nadu as well. This concept is also confirmed by this study.

Generally dental problems are associated with advancement of age. In our study, 360 (90.0%) respondents have reported to have dental decay or dental caries as the major problem. Of them 169 (42.2%) are less than 34 years and 191 (47.8%) are ≥ 34 years of age. From this, one can say that when a person becomes older, there is every possibility of appearance of dental problems. There is also statistically significant difference between dental decay and age (p < 0.001). Tiller et al., (2001) performed a study on oral health status and dental service use of adults with learning disabilities in Sheffield, UK. They proved that people living in residential care were significantly older (43.2 years) than those based in the community (36.3 years) (p < 0.05).

Dental decay and gum diseases which are the major dental problems are not reported to have any significant association with gender difference. But bleeding gums, trauma and stained teeth are significantly associated with male gender. This is consistent with the study done by Krusterup and Petersen (2007) in Denmark which confirmed that significantly more untreated decay was found among men.

6.1.2 Treatment Pattern
Out of the 400 patients, 153 (38.3%) have extracted their teeth. About 133 (33.2%) patients have filled their teeth instead of extraction. About 74 (18.5%) patients have extracted their teeth and fixed with dentures. Other treatments have been taken by 40 (10.0%) patients. Other treatments include correcting the crooked teeth by fixing appliances, cleaning the teeth (scaling), consultation etc.

A majority of the population goes for only extraction which is also proved consistent with the systematic study performed by Sofolo et al., (2002). Their study to assess the knowledge, attitude and practices of primary school teachers in Lagos state, Nigeria revealed that majority of them have a poor attitude to oral health issues and those who have attended a dental clinic mostly had extractions done.

Regarding the treatment type and residential area, there is statistically significant difference in extraction of tooth among rural and urban patients (p < 0.01). Other treatments seem to have no significant association. This can be explained that rural patients are not yet fully aware of the consequences of doing only extraction (i.e. poor oral health related quality of life OHRQOL) and also they are not willing to pay for further treatment.

Regarding the treatment choice and influence, extraction only group and the treatments group other than filling and denture have significant association with influence. The extraction only group has significant association with self influence and the treatments group other than filling and denture has significant association with influence by the Doctor.

Direct or only extraction is the simple method and requires only less money and effort. So the risk factors associated with only extraction are analyzed. Among the socio
demographic factors, rural dwelling, living in non–concrete houses, education lesser than graduate, occupation- employed and income $\leq$ Rs.8000 per month are significantly associated with extraction.

Various oral health practices observed by the patients were found to affect their oral health and treatment pattern. The practices such as not having previous RCT, not having regular checkup, smoking, vegetarian food, brushing with finger, using of powder as brushing material, not rinsing always, not using hygienic aids have the significant association with extraction. In multivariate analysis, the variables such as education, occupation, monthly income, previous exposure to root canal treatment and regular check up with the dentist are statistically significant.

**6.2 ORAL HEALTH KNOWLEDGE, ATTITUDE AND PRACTICES**

**6.2.1 Knowledge and Awareness**

A huge majority (93%) of the respondents reported that tooth decay was the major problem and gum disease was the other important problem. Moreover foul breath was also found to be another important problem. A few of the patients were of no idea of the problems of oral health of any kind. This scenario is similar to the findings of the study conducted by Preston et al., (2000).

**6.2.2 Factors causing Dental Problems**

Among the respondents, about 301 persons (75.3%) reported eating sweets/ice-cream/ chocolates as the main factor; 276 (69.0%) persons reported that irregular brushing was the other major reason; 90 (22.5%) persons reported that not rinsing regularly was the another main factor and 20 (5.0%) persons had no reason at all for dental problems. Kassim et al., (2006) made a study and found out the following facts:
Regarding the oral health knowledge, 43% had no idea of causes of dental diseases and 36%, 17% and 12% of population were able to explain that diet, diet on teeth and bacteria respectively were the responsible causes.

According to the National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002-2003), 37.8% reported eating sweets/ice-cream/chocolates; 18.7% not brushing regularly; 3.1% not rinsing regularly and 45.3% had no reasons for dental problems. The values observed are more favoured for the study population having awareness which can be explained by the collected data being hospital based.

### 6.2.3 Prevention of Dental Problems

Pertinent to prevention of dental problems, around 308 (77.0%) persons reported that by cleaning the teeth regularly, dental problems can be avoided; 296 (74%) reported that avoiding of sweets/ice-creams/chocolates; 72 (18.0%) persons reported that regular visit to the dentists; 59 persons (14.8%) reported that not consuming tobacco; 21 persons (5.3%) had no idea of prevention of dental problems. In a study done by Kassim et al. (2006), 50% did not know any preventive measures for dental diseases while the rest indicated abstention from the consumption of sugary foods; and only 0.8% mentioned use of standard toothpaste as a preventive measure of dental caries.

### 6.2.4 Factors associated with Non-Exposure to Oral Health

About 238 (59.5%) patients reported that they have been exposed to oral health awareness programme. Of them 220 (92.4%) reported they had it through watching television. Male sex, rural residence, non-concrete housing, education < graduate,
employed and monthly income \( \leq \) Rs. 8000 are significantly associated factors with non-exposure to the oral health programme by the univariate analysis. But in the logistic regression analysis of factors associated with non-exposure to oral health awareness programme, housing is the only statistically significant factor. This can be explained that television remains the major source of creation of awareness on oral health programmes.

6.2.5 Oral Health Practices

With reference to the habit of brushing, nearly 89.2% (357) of the study population used tooth brush and only 10.8% (43) used finger as method for cleaning the teeth. There was statistically significant difference found between rural and urban areas regarding using finger and brush for cleaning the teeth \((p < 0.001)\). According to the National Oral Health Survey & Fluoride Mapping, Tamilnadu 2002-03, 60.4% of people use brush and 28.0% of population use finger for cleaning the teeth. In India, 61.0% use brush and 23.4% use finger for cleaning. The study conducted by Tanwir et al., (2008), also concluded that a substantial proportion of individuals (27%) used their fingers for cleaning the teeth. The values observed in this study are more favouring the use of brush rather than the finger which can be explained by the data being hospital based and from the section of educated.

Majority of respondents (215, 53.8%) reported that they used to clean their teeth only once a day and other 185 (46.2%) respondents reported to clean twice a day. There was a significant association between area of residence and frequency of cleaning \((p < 0.05)\). According to the National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002-2003), 93.9% clean their teeth once a day and 5.7% clean twice a day. According to the National Oral Health Survey & Fluoride Mapping- India (2002-2003), 89.1%
clean once a day and 9.6% clean twice a day. Paik et al., (1994) showed 97% of the Koreans brushed their teeth only once a day. Syrjala et al., (1992) in a study on Singapore adults aged 20-65 years found that 72% brushed twice a day.

In this study, majority of the respondents -344 persons (86.0%) were found to use paste for cleaning and only 56 patients (14%) used powder for cleaning the teeth. The association between material for cleaning and area of residence was statistically significant (p < 0.001). According to the National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002-2003), 64.0% use paste and 30.7% use tooth powder for cleaning their teeth. According to the National Oral Health Survey & Fluoride Mapping-India (2002-2003), 65.5% use paste and 25.3% use powder.

Nearly 61.5% (246) of the respondents brushed their teeth for more than 3 minutes whereas 38.5% (154) of the respondents brushed their teeth for less than 3 minutes. There is no statistical significant association with area of residence and time spent on brushing. A study done by Zhu et al., (2005) at China shows that 88% brushed their teeth less than 3 minutes and only 12% brushed more than 3 minutes. The study population shows better practices regarding the duration of brushing.

Frequency of changing of toothbrush is so much important in dental health management. Around 249 (62.2%) of the respondents changed their tooth brush within 3 months, 89 (22.2%) changed their tooth brush once in 4 and 6 months and 19 (4.8%) changed their brush after a period of 6 months. Nearly 10.8% (43) of the respondents didn’t use brush. The area of residence and the frequency of changing brush have statistically significant association (p < 0.001). According to the National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002-2003), 58.5% change their brush within 3
months, 31.0% change their brush between 4 and 6 months and 9.3% change only after 6 months. According to the National Oral Health Survey & Fluoride Mapping- India (2002- 2003), 30.4% change their brush within 3 months, 32.3% change their brush between 4 and 6 months and 35.3% change only after 6 months. This scenario shows that the oral health practices in the study population are much better compared to India and Tamilnadu.

Regarding method of brushing only 10% (40) of the respondents brushed their teeth vertically which is the correct method of brushing. 12.3% (49) brushed horizontally 73.2% (293) of the respondents brushed both horizontally and vertically whereas 4.5% (18) brushed without following any systematic methods. There is a statistically significant relationship between method of brushing and the area of residence (p < 0.05). A study done by Zhu et al., (2005) in China shows that 30% brushed their teeth vertically, 49% horizontally and 21% didn’t follow any systematic method. The study population needs oral health education regarding the method of brushing.

Around 210 (52.5%) of the study population always had the habit of rinsing the mouth after every meal. 164 (41.0%) had the habit of rinsing sometimes and 26 (6.5%) had never had the habit of rinsing the mouth after meals. The association between rinsing the mouth and area of residence was not statistically significant. According to the National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002- 2003), 55.4% has the habit of rinsing the mouth after every meal, 37.7% has the habit of rinsing sometimes. According to the National Oral Health Survey & Fluoride Mapping- India (2002- 2003), and 58.4% has the habit of rinsing the mouth after every meal, 31.9% has the habit of rinsing sometimes.
With regard to the usage of oral hygiene aids a majority 89.8% (359) of them had never used any oral hygiene aids. Only 22 (5.5%) patients claimed they used mouth wash. A study done by Zhu et al., (2005) in China shows, 4% use dental floss, 36% use tooth picks and 29% use mouth wash and the study population needs oral health education regarding the use of oral hygiene aids.

Most of the oral health practices observed in this study are as good as or better than which are observed in National Oral Health Survey & Fluoride Mapping-Tamilnadu (2002- 2003) and National Oral Health Survey & Fluoride Mapping- India (2002- 2003). This can be explained by the data being hospital based and from the section of educated.

6.2.6 Injurious Personal Habits

Smoking even among young adults with rather few (6) years of smoking experience, was reported as a major factor for periodontal destruction (Al–Wahadni and Linden, 2003). Periodontal disease progression among smokers is approximately 3 to 9 years faster than that of non-smokers (Torrungruang et al., 2005). Smoking is the most potent factor for periodontal diseases; quitting smoking reduces the odds of having periodontitis (Nishida et al., 2005; Yamamoto et al., 2005).

About 20% of the study population had the habit of smoking; 22.5% had the habit of alcohol intake, and 6.8% consumed pan masala. All of them were males. It was also found that difference between these bad habits (Smoking and Alcohol) and area of residence is statistically significant (p < 0.05). These values are higher than the prevalence in Tamilnadu according to the National Oral Health Survey and Fluoride Mapping 2002-03, but it is comparable with some other recent studies done by Jindal et
al., (2006) and Gunaseelan et al., (2007). This can be explained by the fact that cigarette consumption is rising internationally, markedly in developing countries.

6.2.7 Sugary Food Intake in the last 24 Hrs.

In our study 77.8% patients reported taking fresh fruits, 39.6% took soft drinks, 53.3% had intake of sweets and around 91.7% had taken tea or coffee within the last 24 hrs. These values are higher than the prevalence of sugar intake in Tamilnadu according to the National Oral Health Survey and Fluoride Mapping - Tamilnadu 2002-03, but the data pertain to all ages. In the present study these sugary foods intake habit hasn’t affected their oral health.

6.3 SOCIO DEMOGRAPHIC FACTORS AND ORAL HEALTH PRACTICES

6.3.1 Socio-demographic Factors and Behaviour of Cleaning with Finger

Of the 400 patients a majority 89.2% (357) of them reported that they have used brush for cleaning their teeth and 10.8% (43) reported that they have used finger for cleaning their teeth. In the logistic regression analysis age, area, education and income are significantly associated with using finger for cleaning the teeth.

Petersen and Mzee (1998) have confirmed that the prevalence of use of traditional miswak was frequent in rural areas whereas tooth brushes were common in urban areas. This is also consistent with National Oral Health Survey and Fluoride Mapping – Tamil Nadu (2002-03) finding where use of brush is significantly more among urban population.

6.3.2 Socio-demographic Factors and Frequency of Changing Brush
The frequency of changing brush within 3 months is one of the good oral health practices. Among 400 patients, 62.2% (249) reported that they are changing the brush within 3 months. 27.0% (108) reported that they are changing the brush only after 3 months of usage. The factor age < 34 years has significant association with changing brush after 3 months. In the multiple logistic regression analysis no factor is statistically associated with duration of changing the brush.

6.3.3 Socio-demographic Factors and Tooth Loss

Normally, tooth loss occurs due to various bad oral health behaviours. Among the 400 patients, a majority 75.8% (303) had the problem of tooth loss and 24.2% (97) had no tooth loss. The factors age > 34yrs, education < graduate level and occupation-employed are said to have significant association with tooth loss. In logistic regression analysis also the variables like age, education and occupation are significantly associated with tooth loss.

This is consistent with a study done by Chaves and Vieira-da-Silva (2008) to analyze the oral health practices and access to dental care of individuals according to their position in social space. According to their study, poor living conditions and difficult access to restorative dental work in the public sector explain part of the pattern of tooth loss found in the adult Brazilian population.

6.3.4 Socio-demographic Factors and Not Rinsing Always

Rinsing the mouth after every meal is another good oral health practice. Among the 400 patients 52.5% (210) had rinsed their mouth always after every meals, 47.5% (190) had not rinsed their mouth always after every meals. Among the socio demographic
factors, house- non concrete, education < graduate, occupation- employed and income \leq\ Rs.8000 per month are having significant association with not rinsing mouth always after every meals. In the multiple logistic regression analysis, housing is the only factor significantly associated with not rinsing the mouth always after every meal.

These findings are comparable with a field investigation conducted by Dumitrescu and Kawamura (2009) on prevalence of caries in Bucharest, Romania. They found that hopeless participants who were apt to have lower educational level and higher financial problems were more likely to report more non-treated caries and to brush their teeth less than twice a day and never use mouth rinse.

6.3.5 Socio-demographic Factors and Duration of Brushing

Duration of brushing is also one of the important oral health behaviours. Among the 400 patients (38.5%) 154 brushed their teeth for less than 3 minutes and 246 (61.5%) brushed their teeth for more than 3 minutes. The factors age >34 yrs and Income \geq 8000 per month are found to have significant association with the practice of brushing less than 3 minutes. In the multiple logistic regression analysis also age and income are significantly associated.

A systematic study made by Al-Shammari et al., (2007) pointed out that adequate tooth brushing habits were significantly associated with female gender, educational level and history of recent preventive dental visits. Thomas et al., (2008), conducted a study on “oral and dental health care practices in pregnant women in Australia” and they demonstrated that there was a significant association between dental knowledge and practices with both education and socio-economic status.
6.3.6 Socio-demographic Factors and Not Using Hygiene Aids

Using oral hygiene aids is also one of the good oral health practices. Among the 400 patients, majority of 89.8% (359) are not at all using any oral hygiene aids and only 10.2% (41) are using oral hygiene aids. The factors house- non concrete, education < graduate level and income ≤ 8000 per month are found to have significant association with not using hygiene aids. In the multiple logistic regression analysis, education is the only statistically significant factor.

This is comparable with the study done by Abegg (1997), who analysed oral hygiene habits among Brazilian adults in an urban area of Southern Brazil and found that majority of the sample population (67.5%) reported using of dental floss that was associated with gender and socio-economic status. The use of tooth picks was frequent (54.6%) in the study group and their use was also associated with sex, age and social class.

From the discussion under socio-demographic factors and oral health practices, it is obvious that higher education is significantly associated with cleaning the teeth with brush, nil tooth loss, rinsing the mouth always after every meal and using hygiene aids. Hence, the second hypothesis of this study that ‘good oral health practices and education are directly related’ is accepted.

6.4 WILLINGNESS TO PAY ANALYSIS FOR RCT

In the present study, the range in WTP for an anterior RCT was Rs.1750 (from Rs. 1625 to Rs.3375). The mean WTP for an anterior RCT was Rs. 1954.37. The range in WTP for a posterior RCT was Rs. 1750 (from Rs.2125 to Rs.3875). The mean WTP for a posterior RCT was Rs.2381.25. The mean WTP for Anterior RCT is around 20% lesser
than what is reported to be the average treatment cost (Rs. 2500) in general practice. The mean WTP for posterior RCT is around 20% lesser than what is reported to be the average treatment cost (Rs. 3000) in general practice. Only 50 patients (12.5%) were WTP more than the average treatment cost in general practice for anterior RCT. In the same manner, only 33 patients (8.3%) were WTP more than the average treatment cost in general practice for posterior RCT. This indicates that there is lack of awareness on oral health or poor paying capacity of people for root canal treatment.

The factors such as age, area of residence, housing, education and income are significantly associated with WTP for anterior RCT. People of higher age group ($\geq 34$ yrs) are willing to pay more than the lower age group. The difference is statistically significant. This is contrary to the usual observation made in other studies (Smith et al., 2004). This may be explained by the other associated factors such as higher education and more income which are associated with higher age and thus they contribute to the decision making on willingness to pay. This fact is observed in the multiple regression analysis that only the factors such as age, education and income are still found significantly associated with WTP for anterior RCT. On the contrary the factor age doesn’t have a significant association with WTP for posterior RCT. Other socio demographic factors like area of residence, education and income are with significant association. This is consistent with studies made by Leung and Mc Grath (2010), Dror et al., (2007) and Yasunga et al., (2006).

Here the income of the family has statistically significant association with the WTP for anterior and posterior RCT. *Hence the third hypothesis of this study that ‘willingness to pay is determined by the income of the family’ is accepted.*
Educational status has the significant association with WTP for both anterior and posterior RCT. This is consistent with a similar study done at Hong Kong where educated people were willing to pay more than people with no formal or with only primary education (Chan Kit Ying et al., 2005). According to the study, WTP for both anterior and posterior root canal treatment was associated with socio-demographic factors: age (p < 0.05) and educational attainment (p < 0.05). With respect to oral health factors, self-reported number of teeth was associated with WTP for both anterior and posterior root canal treatment (p < 0.05). Socio-demographic factors such as age and educational attainment were associated with WTP values.

The WTP values obtained differed somewhat from average prices of root canal treatment in general practice. These patients are willing to pay less as compared to what they are paying now. This is because of the prevailing practice of giving subsidy or free provisions from government or voluntary agencies.

In comparison to the studies by Mathews et al., (1999) and Thomas et al., (2000), it can be concluded that while income has a significant association, education may serve as a proxy for income level, reflecting the material wealth and positive attitudes and behaviors.

Among the oral health factors, previous experience of RCT, regular check up, smoking and non-vegetarian food habit are having significant association with WTP for both anterior and posterior RCT. This is consistent with the study done by Birch et al., (2004). But in multiple regression analysis only non vegetarian food habit has significant association with WTP for anterior RCT and alcoholic and non-vegetarian food habit have significant association with WTP for posterior RCT. This can be explained that the
predominant non-vegetarian food habit may serve as proxy for income status and hence respondents are willing to pay for the treatment also.

There is a statistically significant difference between smokers and non-smokers with regard to WTP for both anterior and posterior RCT. Non-smokers are WTP significantly more compared to smokers. Habit of using pan masala has no significant association with WTP for both anterior and posterior RCT.

6.5 COST EFFECTIVENESS ANALYSIS OF FILLING Vs DENTURE

6.5.1 Cost Analysis

There is statistically significant association between the two types of filling and the direct medical cost \( p < 0.001 \). With regard to DNMC and IC, there is no statistical significant difference between the two types of filling for dental caries. But with regard to the total cost, there is a statistically significant difference between the two types of filling \( p < 0.001 \).

Kolker et al., (2006) made a study to determine the differences in costs and effectiveness of large amalgams (filling) and crowns over 5 and 10 years when catastrophic subsequent treatment (root canal therapy or extraction) was the outcome. They found that teeth with crowns had effectiveness values at a much higher cost than teeth restored with large amalgams. So root canal treatment warrants higher costs than conventional filling. Maryniuk et al., (1988) performed a study to compare cost-effectiveness of large amalgams (conventional filling) vs. crowns (root canal treatment and cover). According to the analyses, the optimum treatment decision is to attempt to replace failed first amalgam with another amalgam, instead of with a crown. When this amalgam restoration fails, then the subsequent replacement may be with a crown.
Potential lifetime cost saving estimates was between 11% and 24%, if the first replacement was an amalgam.

There is a statistically significant difference between the two types of dentures with regard to their direct medical cost ($p < 0.001$). With regard to direct non-medical cost and indirect cost, there is no statistically significant difference observed between the two types of dentures ($p > 0.05$). The total cost for one unit of RPD is Rs.618.49 and for FPD is Rs.1441.36. There is a statistically significant difference between the two types of dentures and the total cost ($p < 0.001$). Creugers and Kayser (1992) made a study to compare cost-effectiveness of dental treatments. They found out that cost-effectiveness of dental restoration depends primarily on the durability and the cost of the restoration. In their report, a method is described to compare the cost-effectiveness using the durability data of adhesive bridges and conventional bridges. The study also shows that, for the situation in the Netherlands, the break-even point for equal cost-effectiveness compared to conventional bridges is achieved when the 50% survival for adhesive bridges is approximately 6.5 years. Clinical data indicate a higher cost-effectiveness for anterior adhesive bridges. The method described in this report is considered to be useful for comparing cost-effectiveness of dental restorations in different situations.

While comparing the Filling and Denture, in the areas of direct medical cost and total cost there are statistical significant differences between the two treatment categories ($p < 0.001$). So the fourth hypothesis of this study that ‘there is no significant difference between costs incurred and the types of treatment (i.e. Filling and Denture)’ is rejected.

For the direct non medical cost and indirect cost, the differences between the two treatment categories are not statistically significant ($p > 0.05$). This means the difference
in the total cost between the two treatment categories is obviously due to the difference in
the direct medical cost which includes doctors’ fee, medicines and appliances. So it can
be concluded that this direct medical cost is the major factor deciding the total cost.

Among the socio-demographic factors determining the cost of the treatment
income is the only variable which has statistically significant association (p < 0.001). All
other variables are not having statistically significant association. The possible
explanation is that this study has been done among the patients who have got treatment at
the private clinics.

6.5.2 Effectiveness Analysis

The differences in the scores before and after the treatment in all the three
domains like physical, psychological and social are statistically significant. This is
consistent with a study performed by John et al., (2004) on oral health-related quality of
life in patients treated with fixed, removable, and complete dentures one month and six to
12 months after treatment. They found that OHRQOL changed substantially comparing
pretreatment scores with one and six to 12 months of follow-up in patients treated with
fixed, removable, and complete dentures.

The individual gains in scores of physical OHRQOL, psychological OHRQOL,
social OHRQOL and also total OHRQOL score in conventional filling are not
statistically different from root canal treatment. In the same way, individual gains in
scores of the three OHRQOL, and total OHRQOL with reference to removable partial
dentures are not statistically different from fixed partial dentures. But, when the scores
are compared for filling and denture, in all the factors like physical, psychological, social
and total scores the difference is statistically significant. From this, it is evident that there
is an obvious difference in the effectiveness between filling and denture. *Thus the fifth hypothesis of this study that ‘there is no significant difference between the types of treatment in the effectiveness of (OHRQOL) oral health related quality of life after treatment’ is rejected.*

In the univariate and multiple linear regression analyses, there is a statistically significant association between the variables age and education and effectiveness. All other variables have no significant association with effectiveness. Santhoshkumar et al., (2009) performed a study in Udaipur district, India and found that younger individuals had better OHRQOL than older ones and also found that skilled, semiskilled and unskilled individuals had poorer OHRQOL than professionals. The study also indicated that individuals with less education had poorer OHRQOL than those with higher education. The annual income was also found to affect OHRQOL directly. In other words individuals earning greater income have better OHRQOL than those with lower income.

**6.5.3 Cost Effectiveness**

Among filling, conventional filling is estimated to be 3.64 times cost effective as compared to RCT. Among partial dentures, RPD is 2.35 times cost effective as compared to FPD. While denture is significantly associated with after treatment problem filling has no such association. Hence, it may be concluded that filling is more effective as compared to dentures. Creugers and Kayser (1992) made a study to compare cost-effectiveness of dental treatments and described comparison of cost-effectiveness using the durability data of adhesive bridges and conventional bridges. The study shows that, for the situation in the Netherlands, the breakeven point for equal cost-effectiveness
compared to conventional bridges is achieved when the 50% survival for adhesive bridges is approximately 6.5 years. Clinical data also indicate a higher cost-effectiveness for anterior adhesive bridges.

In overall analysis, filling is found to be 2.71 times cost effective as compared to partial dentures. Bouchard et al., (2009) assessed the cost-effectiveness of dental implant first-line strategy vs. fixed partial denture strategy and found that mean cost-effectiveness of the bridge strategy is higher than the implant strategy. Hence it may be concluded that filling is cost effective than dentures and implant and it is assumed that earlier the intervention lesser the cost and better the outcome.