

Chapter 6

RESULTS

6.1 DISTRIBUTION OF STUDY POPULATION BASED ON GROUPS

A total of 980 subjects constituted the study population out of which 500 (51.2%) were marble mining employees and 480 (48.98%) were general population constituting comparative group. (Table 1/Graph 1)

6.2 DISTRIBUTION OF MARBLE MINING EMPLOYEES BASED ON WORK UNITS

A total of 500 Marble mining employees were segregated according to the work assigned and the number of employees in each group were; 43 (8.60%) administrative staff(A), 45 (9.0%) maintenance staff(M), 140 (28.0%) transportation unit workers(T), 140 (28.0%) cutting unit workers(C) and 132(26.40%) polishing unit workers(P) (Table 2/Graph 2).

6.3 DISTRIBUTION OF STUDY POPULATION ACCORDING TO AGE GROUPS IN YEARS

The age ranges of marble mining employees and the general population was between 15-54 years.

The study population was categorized in to four age groups ranging from 15-24 years, 25-34 years, 35-44 years and 45-54 years.

The results reveal that a majority of the mining employees (52.40%) and general population (47.92%) were between 25-34 years when compared to other age groups. Comparison of distribution of study participants under different age groups between mining employees and general population did not reveal statistical significance (P=0.070).

Among mining employees 46.51% of the employees in administrative division, 60.0% in case of maintenance staff, 61.43% of transportation unit, 42.86% of cutting unit and 52.27% of polishing unit were in between 25 – 34 years which formed the majority. Comparison of distribution of study participants under different age groups between different mining employee units showed very high statistical significance ($P < 0.000$). (Table 3/Graph 3)

6.4 DISTRIBUTION OF STUDY POPULATION ACCORDING TO LITERACY LEVELS

Among the total study population 42.04% were illiterates, 11.12% had primary level of education, 17.55% had high school level of education, 14.39% had PUC level, 6.33% had diploma level, and 8.57% had degree qualification.

Among marble mining employees, about 62.60% of the subjects were illiterates as against 20.63% of the general population. Among mining employees and general population 11.20% and 24.17% respectively had high school level of education which formed the majority compared to other levels of education in both the groups. The differences of distribution between mining employees and general population according to different education levels showed very high statistical significance ($P = 0.000$) (Table 4/Graph 4).

A significant association was observed between educational level and the employment status among mining employees. Most of the transportation, cutting and polishing unit workers had lower levels of education compared to other units who had higher educational level which is evident from the frequency table. The differences between mining units with regard to education level revealed very high statistical significance ($P = 0.000$) (Table 4/Graph 4).

6.5 DISTRIBUTION OF STUDY POPULATION ACCORDING TO SOCIO ECONOMIC STATUS (SES) –(Modified Kuppuswamy’s SES classification scale)

According to Modified Kuppuswamy’s socioeconomic status (SES) classification, the study population was sorted in to five SES classes namely Upper class, Upper middle class, Middle class, Upper lower and Lower class.

Similarly, among mining employees and general population about 39.0% and 33.33% respectively belonged to middle class followed by 30.40% and 34.58% respectively belonged to lower middle class. Statistically significant difference was observed between mining employees and general population in regard to different SES classes (P=0.000)

Within the mining employees, a majority of administrative staff (60.47%) belonged to higher SES class of upper middle class. Whereas, a majority of maintenance staff (73.33%) cutting unit workers (51.43%) and polishing unit workers (53.03%) belonged to middle class. While major portion of transportation unit workers (67.86%) belonged to lower class. Comparison between mining units according to different SES classes showed statistical significant difference (P < 0.001) (Table 5, Graph 5)

6.6 DISTRIBUTION OF STUDY POPULATION ACCORDING TO DIET

Forty odd percent of mining employees were vegetarians as against only 37.71% of vegetarians in general population and about 62.29% of mining employees were on mixed diet when compared to 61.02% of general population on mixed diet. The differences in prevalence of dietary habits between mining employees and general population were statistically significant not significant (P=0.424)

Within mining employees, a majority of administrative group (69.77%) belonged to vegetarian diet whereas a major portion of transportation unit (77.14%), cutting unit (58.57%), and polishing unit (56.82%) belonged to mixed group. The differences in prevalence of dietary habits between different mining units were statistically significant (P=0.001). (Table 6/ graph 6)

6.7 DISTRIBUTION OF STUDY POPULATION ACCORDING TO SWEET CONSUMPTION

About 56.20% of the marble mining employees were consuming sweets occasionally as against 42.50% of general population. However, 10.51% of

general population was consuming sweets daily in contrast to 11.40% of subjects among mining employees. The difference in frequency of sweet consumption between mining employees and general population was found to be statistically significant ($P=0.001$).

A majority of administrative staff (46.51%), maintenance staff (46.67%), transportation employees(42.29%), cutting (63.57%) and polishing (62.12%) units were consuming sweets at the rate of 2-3 times/ week. But prevalence of daily sweet consumption was higher in transportation (18.57%) and Maintenance staff (11.11%) when compared to administrative staff (6.98%). The difference in frequency of sweet consumption between the various mining units was statistically significant ($P=0.000$). (Table 7/Graph 7)

6.8 DISTRIBUTION OF STUDY POPULATION ACCORDING TO USE OF TOBACCO PRODUCTS

It is found that the 79.40% (339) and 61.67% (303) of marble mining employees and general population respectively were found to be tobacco users. The difference in prevalence of tobacco habit between mining employees and general population showed high statistical significance ($P=0.000$).

Within mining employees highest prevalence of tobacco habit was found in transportation unit workers (85.71%) compared to other units but the difference was not statistically significant ($P=0.211$). (Table 8A/graph 8A)

6.9 DISTRIBUTION OF STUDY POPULATION ACCORDING TO THE TYPE OF TOBACCO PRODUCTS AND ALCOHOL USE

The results revealed that the commonly used tobacco products among the study population were cigarette, bidi, tobacco leaf, pan, and gutkha.

Among mining employees a majority were using gutkha (38.60%) followed by tobacco chewing (19.20%) and bidi smoking (16.0%). Whereas among general population a majority were gutkha chewing (22.08%) followed by tobacco chewing (15.42%) and bidi smokers (13.75%). Comparison of prevalence

of various tobacco habits between mining employees and general population yielded statistically significant differences in the prevalence of pan chewing ($P=0.004$), and gutkha chewing ($P=0.000$).

Within mining employees highest prevalence of gutkha (52.14%) was seen among of transportation unit workers. While highest prevalence of bidi smoking was seen among polishing unit workers (28.79%) compared to other units. Whereas prevalence of cigarette smoking and pan chewing was highest among administrative unit. The differences in use of tobacco products among mining employees were statistically significant for all the tobacco products ($P<0.001$) except for the tobacco leaf.

Overall 70.82% of the study population had alcohol habit. Whereas among mining employees 80.80% and among general population 60.42% had alcohol consuming habit respectively. The difference in the prevalence was statistically significant ($P= 0.000$) (Table 8B/Graph 8B).

Within mining employees there was statistically significant difference in the prevalence of alcohol habit between various mining units ($P=0.004$) with 89.29% of cutting unit employees consuming the alcohol.

6.10 DISTRIBUTION OF STUDY POPULATION ACCORDING TO THEIR ORAL HYGIENE HABITS

6.10.1 Frequency of cleaning the teeth

Among marble mining employees 83.8% had once frequency of brushing and rest had twice brushing habit. Among general population 97.73% had once brushing habit and 1.16% had twice brushing habit and none of the participants was brushing after every meal. On comparison the difference in the frequency of brushing between mining employees and general population was found to be statistically significant ($P=0.005$) (Table 9/Graph 9).

The difference in frequencies of brushing between various mining units was not applicable as frequency of cleaning in all the sub-groups is “once” (Table 9/Graph 9).

6.10.2 Mechanical aids for cleaning the teeth

Among marble mining workers 68.74% (288) were using brush, 21.0% (88) were using finger, and 10.26% (43) were using other materials for cleaning their teeth. Among general population 85.68% (377) were using brush, 11.59% (51) were using finger and 2.73% (12) using other aids for cleaning their teeth. The prevalence of various aids used for cleaning teeth among mining employees and general population showed statistically significant difference ($P=0.000$) (Table 9/Graph 9).

Among mining employees highest prevalence of use of brush was seen among of Administrative (95.35%) compared to other units. Whereas prevalence of using finger and other materials to clean the teeth was high among transportation workers 30.23% (29) and 23.26% (20) compared to other units. The prevalence of use of various aids for cleaning teeth between different units yielded statistically very high significant difference ($P=0.000$) (Table 9/Graph 9).

6.10.3 Materials used for cleaning teeth

Tooth paste was used by 72.08% (302) of mining employees and 75.0% (330) of general population. Whereas 10.74% (45) and 15.0% (66) of mining employees and general population were using tooth powder respectively and 8.59% (36) and 8.64% (38) of mining employees and general population respectively were using other materials. Whereas 8.59% of mining employees did not use any material to clean their teeth as against to only 1.36% of general population. The differences showed high statistical significant ($P=0.001$) (Table 9/Graph 9).

Among the mining employees 13.95% of transportation workers were not using any cleaning material and 10.85% were using other materials to clean their teeth whose prevalence was higher compared to other units. Tooth paste prevalence was highest among administrative staff (88.37%) compared to other units. The differences between the mining units in the prevalence of various

materials to clean the teeth was statistically not significant ($P=0.243$) (Table 9/Graph 9).

6.11 DISTRIBUTION OF THE MARBLE MINING EMPLOYEES ACCORDING TO USE OF PERSONAL PROTECTIVE MEASURES (PPM)

Except for the administrative and maintenance staff all other mining units are continuously exposed to dust and noise in their work environment and tend to use personal protective measures.

Face cloth and Ear Plugs

Overall among the mining employees a majority of 93.40% (467) and 94.60% (473) were not using face cloth/mask and earplug respectively.

Within the mining unit relatively higher percentage of maintenance (13.33%, 17.78%) and polishing unit workers (7.58%, 4.55%) were utilizing face cloth and ear plugs respectively compared to other units. But the differences were not statistically significant for the usage of face cloth, whereas for the usage of ear plug among the mining employees there was statistically significant difference (Table 10/Graph 10).

6.12 DISTRIBUTION OF THE MARBLE MINING EMPLOYEES ACCORDING TO DURATION OF EMPLOYMENT IN THE MINING

The duration of employment of the marble mining employees in the factories were grouped in to five categories including less than 5 years, 5-10 years, 11-15 years, 16-20 years, more than 20 years.

Overall a majority of 40.60% of the mining employees belonged to 5-10 years duration group compared to other groups.

Further analysis revealed a similar trend among all the mining units where a larger proportion of administrative staff (36.8%), transportation workers (53.5%), cutting unit workers (50.0%) and polishing unit workers (53.7%) were in

5-10yearsgroup except for the maintenance group (31.11%) which had most of the employees in the less than five year experience category (Table 11/ Graph 11).

6.13 DISTRIBUTION OF STUDY POPULATION ACCORDING TO DENTAL VISIT

Among mining employees 37.20% (186) visited dentist compared to 47.50% (228) of general population and the differences was highly significant (P=0.001).

Among mining units, prevalence of dental visits was relatively higher for administrative staff (60.4%) and maintenance staff (53.3%) compared to other units and revealed very high statistically significant difference (Table 12/ Graph 12).

6.14 DISTRIBUTION OF STUDY POPULATION ACCORDING TO REASONS FOR DENTAL VISIT

Dental extractions was the most commonest reason for visiting the dentist and 64.52% (185) and 57.02% (150) of mining workers and general population respectively had visited dentists for the same and the differences were statistically significant (P=0.020). Replacement of teeth was got done by 6.99% (13) and 9.65% (22) of mining employees and general population respectively. Whereas 14.52% (27) of mining employees and 28.51% (65) of general population had undergone restorative procedures. While 1.32% of mining employees and 5.07% of general population visited dentist for oral prophylaxis which showed no statistically significant difference (P<0.001) (Table 13, Graph 13).

Within mining employees large percentage of maintenance (41.6%), transportation (90.3%), cutting (70.18%) and polishing unit workers (68.75%) visited dentists for extraction of teeth, compared to only 34.62% of administrative staff and the differences revealed statistical very high significance (P=0.192). Whereas 19.2% and 19.2% of administrative staff had visited dentist for replacement of teeth and restoration of teeth respectively which was higher compared to other units but the results did not revealed statistical significance (P=0.625) (Table 13, Graph 13).

6.15 DISTRIBUTION OF STUDY POPULATION ACCORDING TO REASONS FOR NOT VISITING THE DENTIST

Among marble mining employees a majority of 31.85% gave the response of ‘no problem in their teeth’ as a reason for not visiting dentist, where as 23.81% stated high cost of dental treatment, while 23.42% (59) responded fear as the cause of not visiting the dentist. Among general population 23.02% felt that they don’t have problem in their teeth, which is followed by reason of high cost of dental treatment (23.81%). While 23.41% answered fear as the reason for not visiting the dentist. The differences in response rate of various reasons between mining employees and general population revealed statistical significance ($P < 0.05$) except for no dentist nearby and the lack of time or permission (Table 14/Graph 14).

Between different units of mining employees no problem with my teeth remains the reason for not visiting the dentist. However 26.51% of cutting unit responded that they had no interest in visiting the dentist and No dentist nearby remained the second commonest choice for not visiting the dentist and the differences for these two showed statistical significance ($P = 0.023$ and $P = 0.008$) (Table 14/Graph 14).

6.16 DISTRIBUTION OF STUDY POPULATION ACCORDING TO SYSTEMIC DISEASES

Among marble mining employees most common systemic disease was respiratory diseases with 23.39% prevalence which was followed by diabetes (21.05%) and heart problem (11.7%). Whereas, in general population, eye problem was the most prevalent systemic disease with 27.78%, followed by diabetes in 22.22% examined population. The differences in prevalence of various systemic diseases on comparison between mining employees and general population revealed no statistical significant difference ($P = 0.412$).

Within mining employees 38.46% of Administrative unit reported diabetes and which was higher compared to other units. While 32.79% of polishing unit reported respiratory diseases which was more than other units. But the Intra group comparison of prevalence of systemic diseases yielded no statistically significant difference ($P=0.738$) (Table 15/Graph 15).

6.17 DISTRIBUTION OF STUDY POPULATION ACCORDING TO PREVALENCE OF TMJ DISORDERS:

There was statistically significant difference in the prevalence of TMJ disorder between Mining employees (16.40%) and general population (10.42%) ($P= 0.006$).

Within the mining employees there was higher prevalence of TMJ disorder among maintenance workers (20.93%) compared to administrative unit (20.93%), transportation unit (14.29%), cutting unit (15%) though there was no statistically significant difference ($P=0.659$) between the different units (Table 16/Graph 16).

6.18 DISTRIBUTION OF STUDY POPULATION ACCORDING TO ORAL MUCOSAL LESIONS:

Among mining employees the prevalence of oral mucosal lesions was 31.6% and among general population it was 17.8%. The differences were statistically significant ($P<0.001$).

The prevalence of ulcer among mining employees was 6.00% followed by oral submucous fibrosis (OSMF) (5.20%) and abscess (3.60%). Whereas among general population the prevalence of ulcers was 3.54% followed by oral submucous fibrosis (3.75%) and abscess (2.08%).

Within mining employees leukoplakia had the highest prevalence compared to other lesions among all the units and it was highest among transportation staff (20.0%) followed by cutting unit workers (19.29%) and maintenance unit workers (17.78%) than compared to administrative unit (11.63%) and polishing unit (11.36%) though the differences were statistically insignificant. ($P=0.649$) (Table 17/Graph17).

6.19 DISTRIBUTION OF ORAL MUCOSAL LESIONS ACCORDING TO LOCATION IN ORAL CAVITY AMONG STUDY POPULATION

Among marble mining employees 67.09% of all the lesions appeared in buccal mucosa followed by 15.82% in commissures and 5.6% in alveolar ridges. Among general population, 56.0% of lesions were seen in buccal mucosa and 16.0% occurred on the tongue. The difference in the site wise prevalence of oral mucosal lesions between the general population and the mining employees was statistically significant ($P=0.017$) (Table 18/Graph 18).

6.20 DISTRIBUTION OF STUDY POPULATION ACCORDING TO PREVALENCE OF LEUKOPLAKIA:

Out of the various oral mucosal lesions among mining employees, leukoplakia had the highest prevalence of about 16.60% against only 7.71% of general population with leukoplakia. The differences were statistically significant ($P=0.000$), however the difference in between the different mining employees was statistically insignificant ($P=0.255$) (Table 19/Graph 19)

6.21 DISTRIBUTION OF STUDY POPULATION ACCORDING TO PREVALENCE OF DENTAL FLUOROSIS AND ENAMEL OPACITIES

Among mining employees 74.40% (372) had dental fluorosis, whereas only 52.08% (250) of general population showed dental fluorosis. The differences were statistically significant ($P=0.000$). Within mining employees 78.57% of transportation unit, 77.14% of cutting unit, 73.48% of polishing unit, 66.67% of Maintenance staff, and 62.79% of administrative staff workers were showing dental fluorosis. Difference in prevalence was statistically insignificant ($P=0.175$). (Table 20/Graph 20).

6.22 DISTRIBUTION OF STUDY POPULATION ACCORDING TO COMMUNITY PERIODONTAL INDEX (CPI) SCORES

Among marble mining employees only 7.60% (38) had healthy periodontium while 17.80% (89) and 39.0% (195) had bleeding and calculus scores respectively, while 29.20% (146) and 6.4% (32) had 4-5 mm and 6 mm or more pocket depth respectively. Among general population 10.425 (50) had healthy periodontium, 24.17% (116) and 35.63% (171) showed bleeding and calculus scores. Whereas, only 26.04% (125) and 3.75% (18) showed 4-5 mm and 6 mm pocket depths respectively. On comparison the difference in prevalence of various CPI scores between mining employees and general population was statistically significant ($P=0.018$).

Within mining employees, the prevalence of higher CPI score of 4-5 mm pocket depth was higher in cutting unit workers (39.2%) and transportation unit workers (32.86%) compared to other units, whereas healthy periodontium had higher prevalence among administrative unit (23.26%) compared to other units. The difference in prevalence showed statistical significance ($P=0.001$) (Table 21/ Graph 21).

6.23 DISTRIBUTION OF STUDY POPULATION ACCORDING TO LOSS OF ATTACHMENT (LOA) SCORES

Among marble mining employees 23.20% (116) showed 0-3 mm LOA as against to 30.83% of general population. 29.40% (147) and 27.00% (135) of mining employees showed 4-5 mm and 6-8 mm LOA scores respectively as compared to 29.58% and 28.33% of 4-5 mm and 6-8 mm LOA scores respectively among general population. 13% and 7.40% showed higher LOA scores of 9-11 mm and 12 mm or more respectively among mining employees when compared to 9.17% (44) and 2.08% (10) among general population respectively. The intergroup comparison between mining employees and general population did not reveal any statistical significance ($P=0.000$).

Within mining employees higher LOA scores of 9-11mm and 12mm or more, had high prevalence among administrative unit (20.93% and 11.63%) and

transportation unit workers (16.43%, 7.86%) compared to other units. The intra group comparison between mining units in regard to prevalence of various LOA scores revealed statistically insignificant difference ($P=0.733$) (Table 22/ Graph 22).

6.24 DISTRIBUTION OF CPI SCORES AMONG USER AND NON-USER OF TOBACCO PRODUCTS AMONG STUDY POPULATION

Among marble mining employees it was found that the prevalence of higher CPI scores of 4-5 mm and 6 mm or more deep pockets were more among the tobacco users which was 33.0% and 7.30% respectively when compared to the tobacco non-users which was 14.56% and 2.91% respectively. Whereas the prevalence of healthy periodontium was higher among the tobacco non-users (29.13%) compared to the tobacco users (2.02%). The differences revealed statistical significance ($P=0.000$). A Similar trend was seen among the individual mining units.

Similar trend was seen among the general population where the prevalence of higher CPI scores of 4-5 mm and 6 mm or more deep pockets was more among the tobacco users which was 38.18% and 4.05% respectively when compared to the tobacco non-users which was 4.1% and 0% respectively. Whereas the prevalence of healthy periodontium was higher among the tobacco non-users (23.91%) compared to the tobacco users (2.03%). The differences in prevalence between tobacco users and tobacco non-users yielded statistical significance ($P=0.000$) (Table 23/Graph 23).

6.25 DISTRIBUTION OF LOA SCORES AMONG USER AND NON-USER OF TOBACCO PRODUCTS AMONG STUDY POPULATION

Among marble mining employees it was found that the prevalence of higher LOA scores of 6-8 mm , 9-11 mm, 12mm or more was more among the tobacco users which was 33.75%, 14.61% and 6.30% respectively when compared

to the tobacco non-users which was 14.56%, 8.75% and 4.85% respectively. Whereas the prevalence of lower LOA scores of 0-3mm was higher among the tobacco non-users (44.66%) compared to the tobacco users (14.11%). The differences revealed statistical significance ($P=0.000$). A similar trend was seen among the individual mining units.

Similar trend was seen among the general population where the prevalence of higher LOA scores of 6-8 mm, 9-11 mm, 12mm or more was more among the tobacco users which was 42.23%, 14.19% and 2.03% respectively when compared to the tobacco non-users which was 1.4%, 0% and 0% respectively. Whereas the prevalence of lower LOA scores of 0-3mm was more among the tobacco non-users (53.26%) compared to the tobacco users (11.82%). The differences in prevalence between tobacco users and non-users yielded statistical significance ($P=0.000$) (Table 24/Graph 24).

6.26 DISTRIBUTION OF STUDY POPULATION ACCORDING TO DECAYED, MISSING & FILLED TEETH

6.26.1 Decay Component (D)

D component had prevalence of 58.33% (280) among general population compared to only 41.20% (206) among mining employees which was found to be statistically significant ($P=0.000$).

Within mining employees highest prevalence of D component was among transportation unit which was 55.0% followed by maintenance unit (37.7%) and polishing units (37.8%). Whereas, administrative unit had the least prevalence of decay which was 27.9%. On comparison between mining units, the differences in the prevalence of decay was statistically significant ($P=0.002$). (Table 25/Graph 25)

6.26.2 Missing Component (M)

Thirty four percent (170) and 29.58% (142) of mining employees and general population respectively had missing component. But the differences did not show any statistical significance ($P=0.138$).

Within mining units, transportation unit (39.2%) had a higher prevalence of missing component followed by maintenance unit (33.3%) and polishing unit (32.5%). The differences between the mining units did not reveal statistical significance ($P=0.592$). (Table 25/Graph 25)

6.26.3 Filled Component (F)

Among mining employees 13.80% had filled component as compared to 17.71% of general population. The differences were not statistically significant. ($P=0.093$)

Within mining units, administrative (27.9%) and maintenance units (31.1%) showed higher prevalence of filled component compared to other units which was statistically significant ($P=0.000$). (Table 25/Graph 25)

6.27 AGE WISE DISTRIBUTION OF MEAN NUMBER OF DECAYED TEETH AMONG THE STUDY POPULATION

It was found that mean decay was higher among the older age groups compared to the younger age groups in both mining employees and general population which was statistically significant ($P=0.005$). The difference noted in between the mining employees and the general population for the decayed tooth were statistically significant for the age group 25-3 years and for the rest of the age group the difference remained insignificant. However, in between the mining employees there existed a statistically significant difference between the administrative unit workers and the cutting, polishing and the transportation unit employees for the age group less than 25 years ($P<0.05$) and in between the maintenance unit and the cutting unit, between the transportation and cutting unit there existed a highly significant difference ($P<0.01$) for the age group more than 45 years (Table 26, Graph 26).

6.28 PREVALENCE AND MEAN OF DENTAL CARIES IN STUDY POPULATION ACCORDING TO SWEET CONSUMPTION FREQUENCY

The mean decay of mining employees and general population in daily sweet consuming group was 6.07 ± 1.66 and 5.67 ± 1.30 respectively whereas in

occasional sweet consuming group it was 1.99 ± 1.24 and 1.55 ± 0.83 respectively. The differences in mean decay noted was statistically highly significant in both Mining employees ($P < 0.01$) and general population ($P < 0.01$) for daily and 2 to 3 times a week sweet consuming units (Table 27/Graph 27)).

6.29 PREVALENCE OF DENTAL CARIES IN STUDY POPULATION ACCORDING TO SOCIOECONOMIC STATUS

Prevalence of caries was more in the upper class mining employees with 50%, followed by upper lower (46.05%) and lower (68.57%) and the difference was statistically significant ($P = 0.000$) (Table 28/Graph 28).

In general population, dental caries was more prevalent in 71.43% and was least prevalent in upper class with 45.0%. However, the difference noted was statistically insignificant ($P = 0.133$) (Table 28/Graph 28).

6.30 DISTRIBUTION OF STUDY POPULATION ACCORDING TO TREATMENT NEEDS

6.30.1 Restoration of Teeth

Among mining employees 29.20% needed restoration as against to 43.75% among general population. The difference in prevalence was statistically significant ($P = 0.000$).

Within mining employees, the need for restoration was highest in transportation unit (39.29%) followed by of maintenance unit (31.11%). The difference between mining units was significant ($P = 0.033$). (Table 29/Graph 29)

6.30.2 Extraction of Teeth

Among mining employees 12.00% needed extraction as against to 14.58% among general population. The differences were not statistically significant ($P = 0.233$)

The need for extraction was highest among the transportation unit workers which was 15.71% followed by 13.64% of polishing unit and 10.71% of cutting units and it was least required among the administrative unit (4.65%). The

difference between individual units were statistically significant ($P=0.215$). (Table 29/Graph 29)

6.30.3 Pulp Care Treatment

Among mining employees 12.60% needed pulp care treatment as against 18.75% among general population. The differences were statistically significant ($P=0.008$)

Among marble mining employees, pulp care was required in 17.86% of transportation unit workers followed by 12.86% of polishing unit and 11.11% of maintenance unit employees. Whereas pulp care was least required among the administrative (6.98%). The difference was found to be statistically insignificant ($P=0.176$). (Table 29/Graph 29)

6.31 DISTRIBUTION OF STUDY POPULATION ACCORDING TO PROSTHETIC NEEDS AND PROSTHETIC STATUS

6.31.1 Prosthetic Needs

Only 29.58% of the general population needed upper prosthesis as compared to 34.0% of mining employees. The difference was statistically insignificant ($P=0.138$).

Within the marble mining employees 39.29% of Transportation unit followed by 33.33% of maintenance unit workers needed prosthesis whereas only 27.91% of the administrative unit was requiring prosthesis. But the difference between units did not show statistically significant ($P=0.592$). (Table 30/Graph 30)

6.31.2 Prosthetic Status

7.29% of general population had prosthesis compared to 6.20% of mining employees. The differences were not statistically significant ($P=0.495$).

Among mining employees, 7.14% of transportation unit, 6.67% of maintenance unit, 6.06% of cutting unit had prosthesis as compared to only 4.65 % of administrative unit. The difference was statistically insignificant ($P=0.495$) (Table 30/Graph 30).

6.32 MEAN TREATMENT NEEDS OF STUDY POPULATION

Mean restoration needed in the mining workers was 2.14 ± 0.79 and the mean restoration need in the general population was 2.13 ± 0.60 and the difference found was statistically non-significant.

The mean extraction need was 1.72 ± 0.69 and 1.64 ± 0.76 in mining population and general population respectively. The difference noted was statistically insignificant.

The difference in the mean pulp care need was statistically insignificant. The mean pulp care need of the mining population was 1.70 ± 0.78 and in the general population was 1.59 ± 0.76 (Table 31/Graph 31).

6.33 DISTRIBUTION OF STUDY POPULATION ACCORDING TO DAI (DENTAL AESTHETIC INDEX) SCORE

There was no statistically significant difference in DAI score between general population and mining employees ($P=0.122$) (Table 32/Graph 32).

6.34 DISTRIBUTION OF STUDY POPULATION ACCORDING TO GRADES OF TOOTH SURFACE LOSS IN ANTERIOR TEETH (Eccle's and Jenkin's criteria)

Marble mining employees had 33.8% of tooth surface loss when compared to only 11.46% of general population. The difference was statistically significant ($P=0.000$).

Within mining employees highest prevalence of Grade 1 tooth surface loss was observed among polishing unit (30.30%) followed by cutting unit (25.00 %) compared to administrative unit (13.95%), maintenance unit (22.22%) and transportation unit (15.71%) which was found to be statistically significant ($P=0.002$).

Grade 2 and Grade 3 tooth surface loss was also highly prevalent in case of polishing unit compared to other units which was statistically significant. (P=0.002) (Table 33/Graph 33)

6.34.1 Comparison of Mean Grades of Anterior Teeth Surface Loss According to the Mean Duration of Employment among Mining Employees

It was seen that the mean loss of tooth surface was 1.81 ± 1.02 in the 20 years of work experience group and in the group of 15 to 20 years of work experience the mean tooth surface loss was 1.40 ± 0.80 . The difference noted was statistically very highly significant for the different employee groups. The high mean of 2.60 ± 0.89 was noted for polishing unit employees than the administration employees who had the mean tooth loss of 0.80 ± 0.45 . This trend of increased tooth surface loss as the work experience increased was noted for the polishing unit employees followed by the cleaning unit employees (Table 34/Graph 34)

6.34.2 Mean Grades of Anterior Teeth Surface Loss According to the Mean Duration of Employment among Mining Employees

When the trend of tooth loss with respect to the years of experience was checked it was seen that as the years of experience increased the anterior tooth loss increased. This increase in the tooth loss is statistically very highly significant with P value less than 0.001. The tooth wear was seen more in the group of more than 20 years of experience in all the mining employees unit, however it was greater in polishing (2.60 ± 0.89) and cutting unit employees (2.11 ± 1.05) (Table 35, 36/Graph 35, 36)

6.35. COMPARISON OF PARTICULATE MATTER VALUES IN DIFFERENT AREAS OF UDAIPUR CITY

The particulate matter level obtained in different parts of the Udaipur showed that the PM level was more in the mining areas (254.00) and the regional office of Madri industrial area (212.00). The difference noted in different regions is statistically significant with P=0.000.