CHAPTER V

SUMMARY AND CONCLUSION
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5.1 SUMMARY:

Dental caries, defined by GOLDSTEIN (1932) as a small or large cavity caused by decay. This cavity is caused by localised destruction of tooth tissue by micro-organisms.

It is an undisputed fact that ancient and primitive races have been comparatively little affected by dental caries. Dental caries is said to be a disease of civilization (JAMES 1972). Dental caries shows a greater variation in prevalence rate in different parts of our country. This fact provides a good support to think that there must be some factor/factors in the altered mode of existence which has/have influenced the increased susceptibility of the individuals.

During the period of Second World War, there has been a marked reduction in caries incidence in European countries (TOVERUD 1949). So it would seem a reasonable deduction that there is some factor in the altered mode of existence that has influenced the susceptibility.

One difference is in the alteration in modern diet which now lacks roughage. The flour is more finely grounded
so that it tends to cling to the teeth in stagnation areas. This, together with the greater consumption of sugar and consequently of sweets and confectionary, probably increases the tendency to the localized production of acid on the teeth in stagnation areas.

The initiation and progression of carious lesions are brought about by the destruction of tooth substance at the site of lesion by microbiologically produced acids (SHAW, 1959). This acid demineralises the tooth substance and then the organic residue is liquefied by the enzymatic action of proteolytic bacteria.

A very close relationship between the fluoride content of domestic water supply and incidence of dental caries is found and increased prevalence rate of caries is noticed in the population living in areas of low fluoride level in domestic water.

The eruption of permanent teeth is genetically timed but their loss is not a direct consequence of aging, but is mostly attributed to diseases like dental caries (in younger people) and periodontal diseases (in older individuals).

All teeth and all surfaces of each of them are not equally susceptible to caries due to certain chemical and structural differences like presence of pits and fissures.
There are now evidences to prove that caries prevalence rate is low in areas where community preventive measures like water fluoridation and other preventive methods are employed.

This study is done in district Jalaun of Bundelkhand region of Uttar Pradesh. The fluoride level of the district varies from 0.1 to 0.8 ppm.

The detection of caries is done by clinical examination of oral cavities of people by the help of mouth mirror and explorer in sufficient day light. The initial lesion of caries is found as an opaque area or white slit. These areas in advance cases become pigmented or shallowed.

The observations are conducted by dividing the population in two groups. First group constitutes the children population from 5-16 years of age while second group is of adult population ranging from 17-40 years of age. The reason behind this grouping is to assess the relative differences in caries prevalence pattern in deciduous as well as permanent dentition, so one group of 6-16 years is taken which contains mixed dentition. While to assess the pattern in permanent teeth adult population taken as a separate group and compared with the permanent dentition in children.

Secondly the dietary habits, personal care awareness differs in these two groups considerably.
Total two thousand nine hundred thirty seven individuals are examined for the presence of dental caries out of which sixteen hundred eighty eight are adults (57.47%) of 17-40 years of age and twelve hundred forty nine are children (42.53%) of 5-16 years of age.

Caries prevalence rate in adult population is observed as 51.59% while in children it is 60.76%. The increased incidence in children is due to presence of majority of deciduous teeth which are most susceptible for carious lesion than permanent teeth.

DMF per person in adult is 1.98 in comparison to DMF per person in children for permanent teeth is 1.12 while DMF per 100 tooth in adults is 3.23 and in children for permanent teeth is 5.9 while for temporary teeth it is 28.16. These observations reveal that deciduous teeth are very highly susceptible for caries in comparison to permanent teeth and even permanent teeth are more susceptible for caries in children than in adults.

These observations are explainable because chemical structure of deciduous teeth is different than that of permanent teeth and lack of care of oral cavity and habit of frequent eating in children.

The children of 5-10 years are more susceptible
for dental caries while in adults caries prevalence rate increases after the age of 25 years. In children it is due to longer exposure time of deciduous teeth in 7-8 years age group and because shedding of deciduous teeth after 8 years and starting of eruption of permanent teeth. The other reason is increased awareness for cleaning of teeth as age progresses, while in adults the increased rate after 25 years is due to increase in tendency of carelessness and busy schedules of life.

When prevalence of caries was examined sex-wise it was noticed that the children boys were more prone for carious lesion (64.17%) in comparison to children girls (55.17%). This difference may be due to the tendency of society to permit male children to go freely outside the home with extra pocket money which is generally spent on sweets, ice creams and chocolates while girls were permitted only for school. Girls were also more careful for oral hygiene than boys due to cosmetic reasons.

In adults female were more prone for caries (56.67%) than males (48.03%). This difference in incidence rate may be due to poor attention towards dental care by females as age advances, frequent habit of eating in kitchen during meal preparation and some altered hormonal effect on dental morphology.
5.1.1 SUSCEPTIBILITY PATTERN OF TEETH:

In adults the teeth of lower arch (7.96%) were more prone for dental caries than of upper arch (4.97%). In children also lower arch (66.63%) was more susceptible than upper arch (44.94%).

In adults teeth of left lower quadrant (4.63%) were more prone followed by right lower quadrant (3.33%). In children also left lower quadrant (34.84%) was more prone followed by right lower quadrant (31.79%).

Low incidence rate of caries in maxillary teeth was due to increased salivary flow in upper quadrant due to close proximity of parotid gland.

In adults first molar were found more carious (10.97%) followed by second molars (5.88%) while premolars are less susceptible i.e. second premolar (3.85%), first premolar (2.53%). Third molar came next (1.37%) in susceptibility pattern while lateral incisors and central incisors were least susceptible (0.45% and 0.37% respectively).

In children first deciduous molar (39.38%) was most involved teeth closely followed by second deciduous molar (38.59%). Canine was less carious (7.63%). Lateral and central incisors were least involved (1.13% and 0.75% respectively).
First permanent molars are the first eruptable permanent teeth in oral cavity so they are oldest in cavity and are exposed for longest duration to environment, thus showing highest susceptibility pattern. Secondly molars are posteriorly located teeth so chances of proper cleaning are low.

When incidence of dental caries was measured surface wise distribution, it was observed that occlusal surface was most affected by dental caries (63.46%). Mesial and distal surfaces were showing the involvement of 18.57% and 15.85% respectively while lingual surface is least affected (1.97% and on vuccal surface no lesion was found. These were the surfaces which were not self cleaning areas thus more prone for dental caries.

When caries measurement was done by type of lesion than it was found that pits and fissures caries was most prevalent (63.6%) followed by proximal caries (34.48%) while caries on smooth surfaces and cemental areas was very rare. It was also due to non-self cleaning nature of these areas.

When comparison of oral hygiene status was done in various age groups it was found that 44-45% of population had average status while 28-30% had good oral hygiene while remaining people had poor oral hygiene. Status of oral hygiene
was related to socio economic status of population.

When incidence of caries was studied in different socio economic groups it was found that children belonging to class IV group are more prone for dental caries (64.40%) in comparison to children of class I (58.58%) while in adult population caries incidence was more in class IIIrd and Class IIInd peoples (53.58% and 52.30% respectively) while peoples of class I and class IV were less susceptible for caries (46.11% and 48.27% respectively).

This may be due to good oral hygiene and extra dental care by upper class while in lower class it may be due to lack of carbohydrate and sweet materials and roupahge nature of diet. While middle class is having drawbacks of lower class in showing negligence of oral hygiene and giving less attention towards teeth while their dietary habbits were of like upper class, consuming sticky food preparations in larger quantity.

When prevalence of dental caries was studied in rural areas it was noticed that there was no significant difference in incidence rate in adults while childrens of rural areas were showing high incidence of dental caries (67.35%) than children of urban area (57.21%). It was due to the negligence of teeth cleaning in children of rural area while
adult population belonging to rural areas were using Neem twigs (Datan) as cleaning method for their tooth. Neem twigs have a high fluoride contents (2.8 ppm) and have shown anticarious property.

There was no significant effect of vegetarian of non vegetarian diet on caries incidence. While effect of sweets. Chocolates, icecream etc. in diet clearly increases the caries incidence rate in both adults and children (55.02%) in comparison to 50.4% of non takers in adults and 79.42% incidence rate in consuming group of above articles than 53.65% in non takers in children.

Tobacco and Gutakha chewing habits increase the incidences of dental caries (74.4% and 63.80% respectively) because their residual tiny particles blocks the pits and fissures with residue of food particles. Smokers are also more susceptible for caries because of resultant dryness of mouth after smoking. Alcoholics are showing relatively low incidence of caries (44.11%) it may be due to increased salivation because of alcohol thus resulting an increase in self cleaning property.

Dental caries is more prevalent in school going children (63.48%) in comparison to non school going children (52.02%) may be due to increased tendency of sweet, chocolate consumption in school going children.
Sixty seven children who had carious lesions in their oral cavity, were instructed in school to bring their parents and next day oral examination of their parents was done. It was observed that parents of 67.18% carious children were also having carious lesion while patient of 32.86% carious children were found caries free. It shows that there must be some hereditary link in susceptibility of teeth for carious lesion.

One of the major factors affecting the incidence rate of dental caries is brushing habits of individual and it is found that 8 children having the habit of brushing after every major meal are found caries free. While only 30.95% incidence of caries was found in children who had the habit of brushing in morning and after dinner while 59.50% cases suffer from caries who had the habit of brushing only in morning. Highest incidence rate 76.28% is observed in those children who occasionally clean their teeth. Identical picture was found in adults also except that the persons having the habit of cleaning the mouth after every measure meal had also the incidence of dental caries (24.13%) although law in comparison in other groups. It may be due to negligence in their childhood.

Regarding the efficacy of dentifrice the use of datun is observed as an effective dentifrice. It is because of high fluoride content in Neem. While other dentifrice seems to be equally effective.
Incidence of caries in patients of tuberculosis, anemia, cardiac disorder is found more while in diabetics law incidence is recorded. In cardiac disorders, beta blockers are prescribed which had the tendency to decrease salivary secretions thus making oral cavity more susceptible for dental caries. Law incidence in diabetics is due to strict dietary schedule and law consumption of sugars by these patients.

Businessmen were found more susceptible for dental caries (67.98%) followed by housewives (56.68%). These groups are more prone to caries because of their tendency to take frequent snacks, tea, biscuits in between the two measure meals.

5.2 CONCLUSION:

The following conclusions are made on the basis of the present study by applying them in people, the present incidence rate of dental caries can be lowered.

1. Dietary Habits:

After the eruption of the teeth the consumption of sugars, chocolates, ice creams, confectionary should be kept law and any resultant reduction in nutritive value of diet should be replaced by and increased in take of milk, butter, eggs with the inclusion of vegetables and fruits. Roughage should be present. Snacks should not
be eaten between meals. Sweets, if eaten, should be taken at meal times only and the meal should be concluded with a detergent food such as apple of carrot.

2. CLEANING HABITS:

The teeth should be cleaned with a tooth brush in the correct manner three times a day, after every meal and no food should be taken after the final cleaning before retiring to bed. It is not affordable especially in poorer or rural population, brushing by Neem twigs should be done because it is easily and of course free of cost available.

3. FLUORIDATION:

The fluoride content in natural water of this district is law (0.1-0.8 ppm). So adjustment of the fluoride content of the public water supply between 1.0-1.2 ppm is the most promising public health measure for the control of dental caries. But the only short coming is that it can be implemented only in areas which have central pipe water supply system (30% of population). School water fluoridation is one of the potential
areas to be explored. The economic aspect of water fluoridation is also very encouraging. The approximate per capita cost shall be about Rs. 0.25 per individual per year and the caries reduction of 50%. Certain other methods can also be used to compensate lower water fluoride level such as

a. Salt and milk fluoridation.

b. Topical fluorides.

c. Fluoride dentifrices.

d. Fluoride mouth rinses.

However, with available dentifrices following precautions are must.--

1. For children of below four years of age, use of fluoride tooth paste is not recommended.

2. For children of 4-6 years, brushing once daily with fluoride tooth paste and other two times without a paste.

3. For children of 6-10 years, brushing twice daily with fluoride tooth paste and once without paste.

4. For children above 10 years, brusing three times with fluoride tooth paste.
5.3 SUGGESTIONS FOR FURTHER RESEARCH:

1. Similar studies like the present one should be conducted on all India basis.

2. Regular monitoring programmes should be launched to assess the clear situation of dental caries.

3. Research should be made for certain other factors that may influence dental caries.

4. The problem of dental caries deserves for much more research to find out new and more effective preventive and curative substances.

5. Peoples must be educated for dental care.

6. Research should be made for more effective dental care measures.