

**EFFECTIVENESS OF SNAKE AND LADDER GAME  
ON LEVEL OF KNOWLEDGE REGARDING ORAL  
HYGIENE AMONG SCHOOL CHILDREN IN  
SELECTED SCHOOLS, SALEM**

**BY**

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**-2 Corinthians 9:15**

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## ABSTRACT

A Study was done to Assess the Effectiveness of Snake and Ladder game on Level of Knowledge regarding Oral Hygiene among School children in selected Schools, Salem.

A Quasi experimental pre test post test with control group design was adopted. The 60 school children was selected from Veerapandi and Palampatti Government Elementary School, Salem through systematic random sampling technique and assigned 30 children from Palampatti school as experimental group and 30 children from Veerapandi school as control group. Data was collected from 14.07.11 to 07.08.11. Semi structured interview schedule was used to assess the knowledge of children regarding oral hygiene. Health teaching regarding oral hygiene through flashcard was given and then children were made to play snake and ladder game for 7 days under the supervision of the investigator. Post test was conducted on the 8<sup>th</sup> day of the intervention for experimental group. The findings of the study revealed that in pre test, majority of the children 22(73.33%) in experimental group and 20(66.66%) in control group had moderately adequate knowledge and none of them had adequate knowledge in both groups whereas in post test 22(82.8%) children in experimental group and none of them in control group had adequate level of knowledge. The overall mean pre test score was  $10.07 \pm 2.69$  and post test mean score was  $20.25 \pm 2.86$  revealing the difference in mean score percentage of 39.2. Significant difference was found between area wise and overall scores of post test between experimental and control group ( $t = 13.79$ ) at  $P < 0.001$  level. There was no significant association between the level of knowledge and the demographic variables in experimental group whereas in control group, significant association for demographic variables such as educational status ( $\chi^2 = 16.52$ ) and family monthly income ( $\chi^2 = 10.94$ ) at  $P < 0.05$  level. The study implies that the play way method of teaching children with snake and ladder board is an effective intervention to increase the knowledge of the children.

# CHAPTER I

## INTRODUCTION

*“Tell me and I forget, Teach me I remember*

*Involve me and I learn ”*

*(Chinese Proverb)*

Human rights, which are essential for total personal development, belong to everyone including children, adults, men and women, well and ill person, and individuals of all races. Children having rights in the area, specific to their knowledge state of health or illness in taking decisions regarding treatment modalities and also counseling. **(Yadhav Manoj, 2010)**

Children accounts for 40% of the total population. Ensure that the children health can be seen as an investment not only as their future but also it will treasure as country's future. Even though the economic status of India has been improved dramatically, the country expenditure on health and education is about 5% of the total expenditure, the health, particularly of children is yet to meet expectations. **(Paul Vinod, RekhaSwarna, 2009)**

Every child in the world deserves good dental health. Yet dental decay remains the most common childhood disease, with every child around the world suffering with oral cavity disorders. In health care planning, there is no priority is being given to children and even neglected. It has been proved that effective preventive measures considerably reduce dental cavities and even eliminate in children. **(Bedi, 2007)**

Oral health means, being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum)

disease, tooth decay and tooth loss and other diseases or disorders that affect the mouth and oral cavity. **(WHO, 2007)**

The consequence of dental disease is differing for adult and pediatric. The target organs are the same like teeth, gingival, etc., but the etiological factor and pathogenesis are quite different. It may be due to morphologically differed primary dentition, differed food habits from that of adult and also poorer control over oral hygiene. Professionals should remember that they are in a position in influencing the dental health of the person in future. **(Baskar. P.K, 2002)**

The effect of common chronic disease including dental caries affects growth and well-being of young children. Also in case of abscess and caries related pulpitis, it is known to suppress growth of hemoglobin production by depressing erythrocyte production. . Treating dental caries earlier in primary dentition itself increased the growth rates and quality of life for the millions of children. The reason behind is, the caries related pain subsided or reduced after the exact treatment which inturn, increase the quantity of food intake. **(Sheiham, 2006)**

There is a wrong attitude and practice that the education is a serious matter of concern and if it is enjoyable means it's not the actual learning. Personal hygiene is not such a habit is to be inculcated by force or punishment. There is a way is to learn as well as to enjoy. Among those ways, games are the best way to do it. **(Kim Su Lee, 2002)**

#### **Need for the Study:**

*“Cradle habits persists to grane”*

The condition of the mouth indicate the general health as well as the quality of life of the individual (WHO).When the mouth maintained in poor condition, it will interfere the person's ability in verbal communication, eating or drinking and it will

be more uncomfortable. Oral hygiene is to be implemented to ensure that the mouth remains healthy. **(Holtman.et al., 2005)**

Oral health is the essential component of overall health and wellbeing. If it is not maintained, it affect numerous aspect of a child's health status from the ability to eat and speak to quality of life including self-esteem, learning, social relationship and levels of usual activity. **(Drum, Chen & Duffy, 2002)**

Dental caries is one of the most common chronic childhood diseases. It is 5 times more common than asthma. The report indicates that the impact of oral disease on children is substantial; also more than 51,000,000 school working hours are lost each year due to dental related disorders. **(Berg Joel Howard, 2006)**

The main reason of oral health problems in children all over the world is that their parents are too busy in their own lives, and they don't seem to spend enough time on taking proper oral care of their children. Children don't know how to care their oral health and consequence of poor oral hygiene. Therefore many children facing common dental problems like tooth decay, yellow teeth, bad smelling mouth, gum swelling and gum diseases like gingivitis. **(Nzapalinda Selia, 2009)**

National centre for health statistics conducted survey among preschoolers in finding incidence of dental caries. It was found that, out of ten preschoolers three children had caries in their teeth, an eleven percent increase in a decade earlier. **(Malolely, 2011)**

National health survey 2001 shows that decay experience is increasing from the age of 5 years in Ireland, however in U.K, survey of children oral health carried out in 2003, 8 year as well as 5 year old are showing an increased prevalence of dental decay.**(Hemingway. C.A, Parker. D.M, 2006)**

Tooth decay is an infection that left untreated can cause abscesses and tooth loss, low self-esteem, and weight issues in children. Untreated oral abscess spreads to brain and lead even to death **(Wynn Albert, 2008)**

Caries frequently progress through the enamel as wedge shaped lesions that spread laterally to the dentine enamel interface, then they spread undermine the enamel requiring removal of the pulp or extraction of the tooth. Although the inflammation can localize around the tooth, it can cause bone expansion and pain. Cellulitis is the most serious consequence of infection spreading in to the soft tissues. If the infection involves the sub-mandibular, sublingual and sub-mental spaces, elevation of tongue and floor of the mouth may obstruct the children airway. Also the children might not eat properly as a result of pain on mastication or sensitivity to hot or cold. **(Oski, 2006)**

Globally the medical profession has been wedded to the high risk approach in disease prevention for many decades. A key element of this approach is to start intervention by identifying ‘high risk individual’ at the tail ends of the disease distribution. Once identified, these individuals are offered preventive support or treatment. Such an approach has a common sense appeal, and indeed school dental programme has been one of the key functions of the community dental service for many years. **(Milsom, et.al., 2006)**

School age child understands an abstract definition of health and sometimes the factor causing illness, but this understanding differs from that of an adult. Most school age children perceive symptoms and show an ability to participate in health promoting behavior if taught in school and at home ways to prevent illness and stay healthy. Effective health promotion teaching meets the preschool and school age child’s cognitive level (concrete operation) and moral level (external rules and



forces). Teaching strategies using cognitive, psychomotor and affective senses can help children learn responsibility for their own health. This knowledge may provide excellent foundation of health promotion behaviors during the school years. **(Edelman, Mandle, 2006)**

Gaming is an educational strategy that facilitates and reinforce child learning in a stimulating and dynamic format. Good health habits (dental health) begin at home and child day care or preschool environment should support them. **(Carla Snuggs, 2009)**

By using snake and ladder game, we can educate a child and even change an entire generation. Moreover, educate the child through snake and ladder by means of win or lose approach , but any way we will definitely walk away with valuable information about how to react swiftly safely. **(Mankeekar Parag,2011)**

The moral development of the preschool children was pre conventional morality (4-7years) which is characterized by punishment and obedience orientation. Since snake and ladder game insist about both good and bad aspects, it is easy to make school children to understand that get bite by snake is the punishment where they should not follow that practice and stepping up in ladder is like getting award where they have to follow that practice. **(Kyle Theresa & Kyle Terri, 2008)**

Fluoride plays a main role in protection of tooth enamel from decay. Fluoridation of water supply, dietary fluoride supplements and topical application of fluoride agents either professionally or by the child (Fluoride toothpaste) are beneficial in prevention of caries. Fluoride also posses the capacity to aid remineralization of incipient demineralization of tooth structure where cavitation has not taken place yet. So it is essential to teach the child regarding fluoride tooth paste. **(Gupte Suraj, 2007)**

February has been designated as National Children's Dental Health Month by the American Dental Association and Shelby County Health Department. The main focus of theme is to offer health education regarding oral hygiene to all children irrespective of their economic status. They are conducting several outreach activities during the month of February. The purpose of these events is to teach children and their parents about the importance of oral hygiene to improve overall health **(Poonamn Alaigh, 2001)**

Nurses play an integral role in preventing oral health problems. Nurse can be active members of preventive educational program and serve as counselor to the families regarding the importance of regular dental care, oral hygiene and dietary management. Nurses should encourage good oral hygiene and teach correct brushing technique to both children and their parents. Restriction of carcinogenic foods is important to prevent dental caries, but should not be communicated in such a way, that the child interprets the withholding of sweets as a punishment. School nurses have an excellent opportunity to participate in community dental needs identification, to educate children regarding dental hygiene and to make referral. She should prepare the children for dental services in such a way that visits to the dentist are a positive experience. **(Wong's, 2003)**

Oral hygiene though, a very cheap form of preventive health measure, surprisingly, has remain most neglected in the rural communities. Before providing oral health education, it is necessary to find out the state of knowledge and oral habit of children. Therefore, investigator felt that there is an urgent need to investigate the oral health status of children in the rural communities and identify strategies to improve on them. The investigator strongly believes that oral health practices and care

during childhood will determine the lifetime oral health status. This study has attempted to do this through educating children using Snake and Ladder game.

**Statement of the Problem:**

A Study to Assess the Effectiveness of Snake and Ladder Game on Level of Knowledge regarding Oral hygiene in School Children at Selected Schools, Salem.

**Objectives:**

1. To assess the level of knowledge regarding oral hygiene among school children in experimental and control group.
2. To assess the effectiveness of snake and ladder game on the level of knowledge regarding oral hygiene among school children in experimental group.
3. To associate the post test level of knowledge regarding oral hygiene among school children in experimental and control group with their selected demographic variable.

**Operational Definition:**

**Effectiveness:**

It is the significant difference in the pre test and post test knowledge scores of school children regarding oral hygiene as measured through semi structured interview schedule.

**Snake and ladder game:**

It refers to a game played by children, comprises of a check board with the numbers 1-100. The checks are inscribed with positive and negative sentences about oral hygiene. The positive points lead to higher level through ladder and negative point to bring down through snake. The coin moves with the corresponding numbers on the dice.

**Level of Knowledge:**

It refers to the correct responses given by school children to the knowledge items in the semi structured interview schedule.

**Oral hygiene:**

Oral hygiene involves the cleanliness of oral cavity after each and every meal and correct brushing, ensure removal of food particles that may form focal points for tooth decay, contributes to healthy teeth.

**School children:**

Children at 6-8 years of age.

**Assumption:**

1. Dental carries is a common problem among School children (6-8years).
2. Teaching through play way method (snake and ladder game) may have effect on knowledge about oral hygiene among school children.
3. Demographic variables influence the knowledge of children regarding oral hygiene in school children.

**Hypotheses:**

**H<sub>1</sub>:** There will be significant difference between the post test level of knowledge regarding oral hygiene among school children in experimental and control group at  $P \leq 0.05$  level.

**H<sub>2</sub>:** There will be significant association between the level of knowledge regarding oral hygiene in experimental and control group among school children with their demographic variables at  $p \leq 0.05$  level.

**Delimitations:**

The study is limited to

1. school children who are 6 – 8 years old
2. the school children of selected rural schools, Salem
3. only 4 weeks
4. only 60 samples

**Projected Outcome:**

The study was conducted to assess the effectiveness of snake and ladder game on the level of knowledge regarding oral hygiene among children. Finding of this study will help the school health nurse to practice in schools and community and it can be used by the teachers.

**Conceptual Framework:**

The conceptual frame work of the study is based on modified Imogene King Goal Attainment theory. Imogene King explains the concept of the nurse and the patient mutually communicating information, establishing goals and taking action to attain goals

**Components:**

## 1. Perception:

Respondents/Participants: Has gained information regarding oral hygiene by parents, sibling, mass media and professional worker or previous exposure to oral health problems.

Researcher: Perceived the needed information through health education regarding oral hygiene due to inadequate knowledge as a result of pretest among school children.

2. Judgment:

Participants: Accepted to participate in the study.

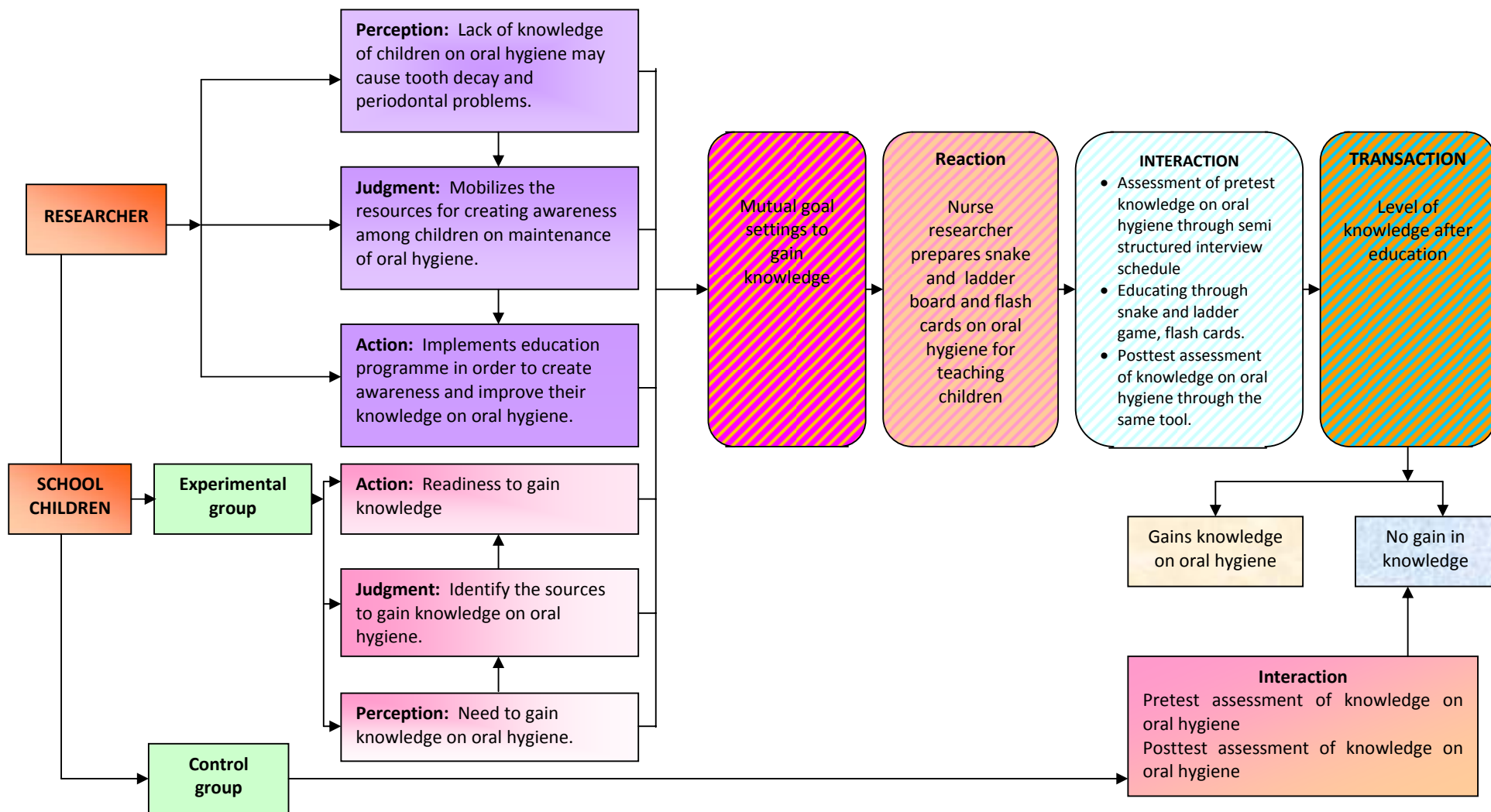
Researcher: Decision made to teach oral hygiene for school children.

3. Interaction:

Individuals come together for a purpose. Both researcher and participants communicate verbal and nonverbal action by playing game and showing visual aids to achieve the goal.

4. Transaction:

Two individuals mutually identify goal and means to achieve. The investigator identifies the level of knowledge of school children regarding oral hygiene. Make the participants (experimental group) to play the snake and ladder game and teach regarding oral hygiene as the dice throwing. The respondent must mentally and physically ready to gain knowledge.



**FIGURE- 1.1: CONCEPTUAL FRAME WORK BASED ON MODIFIED IMOGENE KING GOAL ATTAINMENT THEORY REGARDING ORAL HYGIENE AMONG SCHOOL CHILDREN**

**Summary:**

This chapter dealt with introduction, need for the study, statement of the problem, objectives, operational definitions, assumption, delimitation, projected outcome and conceptual framework.



## **CHAPTER – II**

### **REVIEW OF LITERATURE**

A literature review involves the systematic identification, location, scrutiny and summary of written materials that contain information on a research problem. **(Polit and Hungler, 2008)**

The literature review was collected theoretically and empirically. It was organized under the following as,

Review related to,

- oral health and its problem for school children
- effectiveness of teaching school children on oral health.
- effectiveness of game in improving knowledge among school children.
- effectiveness of snake and ladder game in improving the knowledge of school children

#### **I. Review related to oral health and its problem for school children:**

An evaluative study was done to assess the relationship between obesity, sugar consumption and dental caries among children in Udipi district, India. The sample size was 463 children aged between 13-15 years. Self administer questionnaire was used as a tool to identify demographic data include type of school attending, frequency of sugar consumption. The results found that majority of the children had normal weight, 18.6% had overweight and 3.5% are obese. The positive co-relation ( $r=0.8$ ) exist between dental caries, DMFT scores and obesity. Regression analysis showed that significant association was found with children who consumed sugar more than 3 times (odd ratio= 3.13, confidence interval = 7.85). Also it emphasized that obese children had sweet and fatty snacks compared to normal weight children. **(Pentapati, 2011)**

A study was done to assess the prevalence of dental caries and treatment need of school children (7-12 years) among 722 rural children population in Uttaranchal. The objective of the study was to find out the incidence rate of dental caries among children. To examine the dental health of the children WHO criteria was used. The result found that 77.7% in school children had oral health problem, 79.08% need dental intervention, 55.95% require one surface filling and 16.34% needs extraction of tooth. This reflected about poor hygiene and low awareness on oral health. **(Grewal, Verma and Kumar, 2009)**

A study was done to assess the connection between diet and dental caries among 1036 preschool children in United Arab Emirates. The objective of study was to confirm that diet as the major reason for dental caries. The result found that children who had sweet snacks more than 3 times, had 3 times more Decayed, Missing, Filled Teeth in secondary dentition (DMFT) score and children who drank tea with more sugar three times per day had mean DMFT score 25% compare to children less than 2 times. Also children who consumed soft drinks and fruit juices frequently had the highest DMFT score than children who take less. It concludes that the diet plays a major role in causing dental caries. **(Hashim.R, et.al, 2009)**

An evaluative study was done to assess the overall health status of the dental patients in North America. The purpose of the study was to evaluate the general condition of the patients who had oral health problems. The data obtained from 90 clients through 2045 individual medical history questionnaire (regarding health status). The result found that nearly 14.7% of patients are suffering with cardiovascular problem and 13.1% had the incidence of allergic disease and whereas 1.5% had developed a viral hepatitis. The mean score was  $1.15 \pm 0.77$  for both sex, majority of women taking medicine (0.87) and statistically significant at  $p < 0.001$

level. It revealed that though dental caries is the minor and well spread condition but the consequence is severe and the investigator concluded with proverb “catch them young’. (Sotosek Jasna, et.al, 2007)

A cross sectional study was done to assess the oral hygiene and nutritional status of 236 children aged 1 – 7 years in a rural community in Australia. The study aimed at reviewing the oral hygiene, nutrition and immunization status of children. The result found that 23.9% had plaque index of 1 and 55.2% had plaque index of 2 and 12.6% had plaque index of 3 and mostly 84.3% were malnourished. Statistically significant association was found between oral hygiene status and age of the children ( $\chi^2 = 3.40$ ) at  $P < 0.05$  level. This reflects that poor oral hygiene, malnutrition were common in the rural children and in need of oral and nutrition awareness programme. (Okolo.S.M.et.al., 2005)

An evaluative study was done to evaluate the caries experiences in 3-6 year old children in Asia. The purpose of the study was to find out the prevalence of dental caries among 608 children. In East Asia it has been showed that 36 – 85% of children from 3-6 year had dental caries where in India it has been reported that 44% of children are affected. The result found that 12% of primary school children had experienced tooth ache, systematic infection and abscess and the mean index was 1.82 and there was the significant association was found between dental caries incidence and age at  $p < 0.05$  level. Hence poor oral health had a significant impact on the growth and intellectual development of child. (Chawla, et.al, 2000)

## **II. Review related to effectiveness of educating school children on oral health:**

A Quasi experimental study was done to assess the effectiveness of child to child programme between elder children to younger child on dental hygiene among school children in selected matriculation schools, Erode. The objective of the study

was to find out the level of knowledge and practice regarding dental hygiene before and after intervention. The teaching was given to younger child by elder child using model and flash card. The result of the study indicated that the pretest mean percentage was 65.6% whereas posttest knowledge score was 83.47%. And in practice aspect of dental hygiene, it found peak rise of mean percentage score 87.2%. **(Sadiq Ali.N, 2009)**

An experimental study was done to determine the effectiveness of structured teaching program on dental hygiene among primary school children in Trichy. The purpose of the study was to find out the level of knowledge and practice regarding dental hygiene among primary school children before and after intervention. The result found that 70% of children had inadequate knowledge in pretest whereas in posttest majority 60% of children had adequate knowledge and 40% children had moderately adequate knowledge regarding dental hygiene. In the field of practice 76.7% of children had unhealthy practices in pretest whereas in posttest 73.3% followed healthy practices, 26.7% had followed moderate healthy practices and none of them followed unhealthy practice of dental hygiene. **(Vanichitra Devi, 2006)**

A Quasi experimental study was done to assess the effectiveness of structured teaching programme on dental caries among 100 school children in selected Government schools, Kancheepuram. The objective of the study was to find out the level of knowledge of school children regarding the causes, effect and prevention of dental caries by structured teaching programme. The result was found to be more effective in improving the level of knowledge of children 86.7% from the pretest mean score percentage of 42%. This study concluded that even though the rural people have no or little accessibility to dentistry and getting less or no information

regarding oral health if we give education to school children by simple teaching had good effectiveness. **(Oliver Jinslin, 2004)**

### **III. Review related to effectiveness of game in improving knowledge among school children:**

Class room is the place where children learn new things. The environment in the classroom must be conducive for interaction between the teacher and the students. Involving the students in physical, social, psychological activities and the use of stimulating picture, stories, games which are age appropriate will improve their attention span and will keep them engaged in the educational activities with full vigour. **(Hammer, 2010)**

An experimental study was done to assess the effectiveness of games in teaching language. True experimental research design was used. The sample size was 225 and they were assigned in to 2 groups as experimental and control group. The experimental group learned English through game and control learned through traditional method. 13 games such as adjective game, adverb game, sentence game etc., was provided for the period of 45 minutes for 16 weeks. The result found that, control group mean score was  $32.92 \pm 7.86$  and they scored 18-58 and experimental group mean score was  $41.79 \pm 10.1$  and they scored 18-68. The findings showed that there is a significant difference ( $t= 4.281$ ) at  $p<0.05$  level found between teaching through game and without game. **(Meizaliana, 2009)**

An interventional study was done to find out the association between mathematics skill and preschool board game for 4-6 year of children among 88 preschoolers. The objective of the study was to find out the effectiveness of linear board Vs circular board game in improving the numerical knowledge of preschoolers. The findings of the study suggest that the board games boost up the children math's

skill such as number identification, counting, numerical magnitude comparison etc. and thereby they get good scores later in life. The estimated t value was 2.49 at  $p < 0.05$  level for linear board and 3.39 for circular board at  $p < 0.001$  level. Similar results were associated with video games and card games but to a lesser degree. **(Ramani & seigler,2008)**

An evaluative study was done to evaluate knowledge, attitude and self-reported behavior regarding health and nutrition among 90 school children in Indore. The objective of the study was to find out the knowledge and attitude of school children through age and developmentally appropriate materials and technique. The intervention given for 8 to 10 minutes and test were designed to teach health and nutrition themes supported by props designed to stimulate the child recall of the material and assess outcome variables of interest. The children respond to the prop based intervention by indicating happy and sad cartoon face. The results found that the mean percentage of pre test score was 59.6% whereas 77.3% during post test regarding oral health behaviour. However oral health attitude pre test score was 72.3% and posttest score 82.8%. There is positive correlation exist between the pre test and post test score (  $r = 0.71$ ). This shows that early health teaching and training of children could also have long term positive benefits as well. **(Jonalle et.al, 2007)**

A quasi experimental study was done on the topic of game as educational strategy regarding the control of *Aedes aegypti* in Venezuelan school children. The objective of the study was to assess the effectiveness of a game Jugando en Salud: in mosquito control and dengue prevention activity. The sample size was 210 students, group no.1 received theoretical information about dengue and played card game three times a week and group no.2 received only theoretical information and group no.3 was consider as control group. The results found that the children who played game

the acceptability rate was high. The score obtained by 1<sup>st</sup> group was 6.5 and 18.4 during pretest whereas 8.25 and 22.9 during post test at  $p < 0.05$  level and it is higher than 2<sup>nd</sup> and 3<sup>rd</sup> group. It shows that game was effective strategy in improving knowledge of the children regarding health concepts. **(Vivas.E, et.al, 2003)**

A contemporary study was done to assess the effectiveness of caries prevention in first grade school children in Zagreb. The study aimed at including all first grade age children and making them familiar with the basis of oral health protection through the educational program. Education regarding oral health prevention given by investigator through lecture and immediately after the lecture children was made to participate in the workshop by colouring the colouring books. Post test conducted after 2 months the result found that children had caries free primary teeth is 26.8% and 76.2% of the children had caries free secondary teeth. It concluded that rather simply hearing the lecture if they involved means the results will be more effective. **(Furtinger Barac.et.al, 2003)**

#### **IV. Review related to effectiveness of snake and ladder game in improving the knowledge of school children**

An experimental study was done to assess the effectiveness of chutes and ladder game to teach mathematics among school children. The sample size was 124 and they were assigned to 2 group as experimental group I and II. Experimental I group learned maths through chutes and ladder game and II group learned through colour board. It was played by children in 4 sessions for 15-20 minutes each. Numerical skill was tested before and after the intervention. The result shows that the children played game board improved in mathematical numbering than the children played colour board game. **(Siegler & Ramani, 2008)**

A pre experimental study was done to evaluate the effectiveness of snake and ladder game on the level of knowledge regarding common ailments among school children in Bangalore. Purposive sampling technique was used and the data collected using structured questionnaire regarding knowledge on selected common ailments. The result showed that children had adequate knowledge (75.3%) in the area of dental carries and moderately adequate knowledge (42.5%) in the area of worm infestation. The post test knowledge score was higher than knowledge score of pre test. The estimated 't' value was 19.16 at  $p < 0.05$  level. It concluded that snake and ladder game was an effective method of imparting information to the children regarding common ailments. **(Prasanthi Lakshmi, 2007)**

An intervention done to determine game as an alternative for teaching basic health concepts and the objective of the study was to determine the effectiveness of an educational strategy based on traditional children games (Mexican). The samples are 300 samples from 9-11 years old and divided into experimental and control group by random sampling technique. The experimental group played a modified version of a Mexican popular game called Serpientes y Escaleras (snakes and ladders) that consist of message regarding basic health concept and control group was not participated in game. After the intervention the scores obtained by experimental group was  $9.3 \pm 0.8$  whereas control group  $7.5 \pm 1.1$  for the maximum score of 10 at  $p < 0.001$  level. It concluded that game was the alternative method of teaching health concepts for school children. **(Castillo et.al., 2001)**

### **Summary:**

This chapter dealt with review of literature related to oral health and its problem, effectiveness of teaching school children on oral health using games and snake and ladder game.



### CHAPTER III

### METHODOLOGY

The methodology of research indicates the general pattern of organizing the procedure for gathering valid data for the purpose of investigation. **(Polit and Hungler, 2003)**

This chapter deals with the research design, description of setting, variables, population and sample, sample size, sampling technique, criteria for sample selection, description of the tool, validity and reliability, data collection procedure, pilot study and data analysis. It describes the methodology adopted for assessing the effectiveness of Snake and ladder game on the level of knowledge regarding oral hygiene among school children.

#### **Research Approach:**

Quantitative evaluative approach was adopted for this study.

#### **Research Design:**

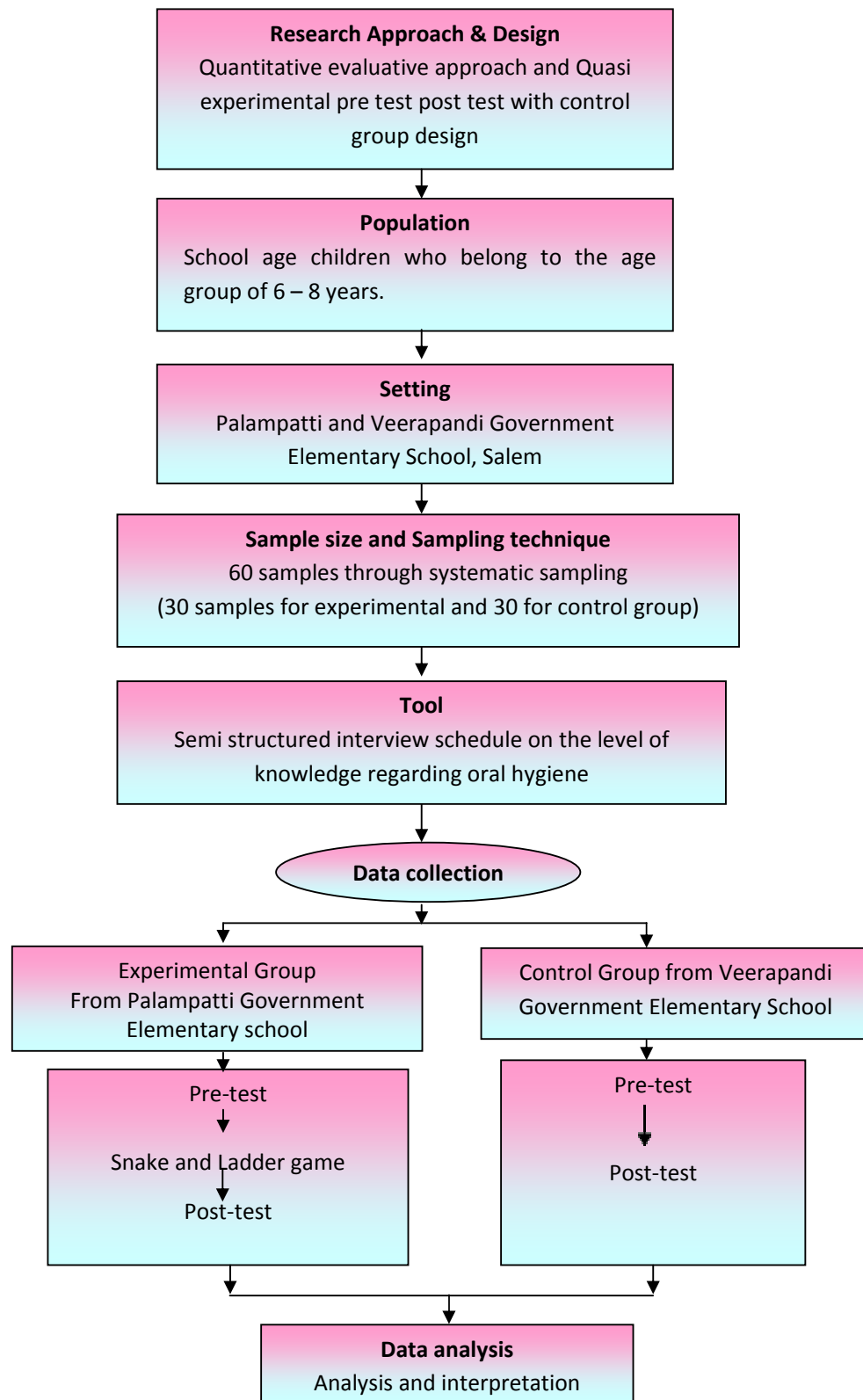
The overall plan for addressing a research questions, including specification for enhancing the study's integrity. **(Polit. F. Denise, 2004)**

The research design chosen for this study was Quasi experimental pre and post test with control group design

<b>E</b>	<b>O<sub>1</sub></b>	<b>X</b>	<b>O<sub>2</sub></b>
<b>C</b>	<b>O<sub>1</sub></b>		<b>O<sub>2</sub></b>

#### **Key:**

- E : Experimental Group
- C : Control Group
- O<sub>1</sub> : Pre-test.
- X : Snake and ladder game.
- O<sub>2</sub> : Post-test.



**Figure – 3.1: Schematic Representation of Research Methodology**

## **Population**

The entire set of individuals having some common characteristics, sometimes called universe. **(Polit. F. Denise, 2004)**

The population for the study is children studying in Government elementary schools.

## **Description of Setting**

The study was conducted in Veerapandi and Palampatti Government Elementary School, Salem. The control group setting is Veerapandi Government Elementary School, 120 children are studying from the age group of 6-10 years. It is 8 km away from Sri Gokulam College of Nursing and the experimental group setting is Palampatti Government Elementary School consisting of 163 children studying from the age group of 6 – 10 years. It is 9 Km away from Sri Gokulam College of Nursing. The areas were selected based on availability of subjects, economy of time and money access, feasibility in terms of co operation given by headmaster, teachers and school children in Veerapandi and Palampatti Government Elementary School, Salem.

## **Sampling**

The process of selecting a portion of the population to represents the entire population. **(Polit. F. Denise, 2004)**

- **Sample:**

A subset of a population, selected to participate in a study. **(Polit. F. Denise, 2004)**

The sample of the study comprises of children who are studying and who fulfill the inclusion criteria in the selected schools.

### **Sampling Technique:**

The technique adopted for this study was systematic random sampling. It means the selection of study participants such that every K<sup>th</sup> person in a sampling frame or list is chosen. (Polit. F. Denise, 2004)

92 children were studied from the age group 6-8 year in control group and 94 children in experimental group. Every 3<sup>rd</sup> child was selected in both groups to obtain 60 children.

- **Sample Size**

Sample size consisted of 60 school children. In those 30 children each for control and experimental group were chosen in the selected schools, Salem.

- **Criteria for Sample Selection**

#### **Inclusion criteria**

Children in the school,

- who were aged between 6 – 8 years.
- who can understand and speak Tamil.

#### **Exclusion criteria**

Children in the school,

- those who not willing to participate in the study.

### **Description of Variables**

**Independent Variable:** Snake and Ladder game.

**Dependent Variable:** Level of knowledge regarding oral hygiene.

### **Description of the Tool**

The tool was prepared by the investigator after extensive study of the related literature and with the guidance of the experts. The tool consists of 2 sections,

### **Section-I: Demographic variables**

The demographic profile consists of 9 items such as age, sex, class of studying, education, occupation of parents, family monthly income, type of family, birth order of child and previous information regarding oral hygiene and source of information.

### **Section-II: Semi structured Interview schedule to assess the level of knowledge regarding Oral hygiene of school children.**

The tool consisted of 26 questions under 3 headings namely Oral health, Brushing and diet. Each item has 3 options.

#### **Scoring key**

Total score is 26

Each correct response carries 1 mark.

Each wrong response carries 0 mark.

**Table- 3.1: Interpretations of the level of knowledge regarding oral hygiene**

<b>LEVEL OF KNOWLEDGE</b>	<b>MARKS</b>	<b>PERCENTAGE</b>
Inadequate	0 – 8	0 – 33%
Moderately adequate	9 – 17	34 – 66%
Adequate	18– 26	67 – 100%

#### **Validity and Reliability**

##### **Validity:**

Validity of the tool was obtained from 5 experts in the field of Child Health Nursing, a pediatrician and a dentist. The tools were found adequate and minor suggestions given by the experts were incorporated.

##### **Reliability:**

Reliability was established by using Test retest method and the reliability value was  $r = 0.8$  which revealed that the tool was reliable.

### **Pilot Study**

Pilot study was conducted to determine the feasibility of the study, to refine and modify the instrument and to establish the sample size. Pilot study was conducted at Karipatti and Minnampalli Government Elementary school Salem from 27-6-11 to 02-07-11 with a sample size of 6. Snake and ladder game was taught and made them to play for 3 days and the post test was conducted on 3-7-11. The finding of the pilot study revealed the feasibility of proceeding to the main study.

### **Method of Data Collection**

#### **Ethical consideration:**

Written permission was obtained from the Assistant Elementary Education Officer, Ariyanoor to conduct the study and permission obtained from the head master. Informed oral consent was taken from school children who were willing to participate in this study.

#### **Data collection procedure:**

Data collection was done from 11-7-11 to 7-8-11. The investigator personally visited the selected school and introduced herself. The researcher collected the details of the school children through semi structured interview schedule. Pretest was conducted for both experimental and control group for 2 days. The intervention was started from the third day and includes health education through flashcard and then investigator explained the rules for snake and ladder game and made them to play daily for 7 days (6 times per day). Post test was conducted on the 8th day of intervention for each child for experimental group and for control group on the last day of data collection (07.08.11) post test was conducted.

**Plan for Data Analysis**

The data will be collected, arranged, tabulated. Independent 't' test will be used to find out the effectiveness of snake and ladder game and chi-square test will be used to find the association between the level of knowledge with their selected demographic variables.

**Summary**

This chapter consists of research approach, research design, population, description of the setting, sampling, variables, and description of the tools, validity, reliability, pilot study, method of data collection and plan for data analysis.

## CHAPTER IV

### DATA ANALYSIS AND INTERPRETATION

Analysis is the process of organizing and synthesizing in such a way that question can be answered and hypothesis tested. (Polit & Hungler, 2003)

This chapter deals with analysis and interpretation of data collected to evaluate the effectiveness of snake and ladder game on level of knowledge of children regarding oral hygiene in Salem.

**The findings are presented under the following sections**

#### **Section-A:**

- a) Distribution of children according to their demographic variables in experimental and control group.
- b) Distribution of children according to their demographic variables of their parents in experimental and control group

**Section-B:** Distribution of children according to the pre test level of knowledge regarding oral hygiene in experimental and control group.

#### **Section-C:**

- a) Comparison of pre and post test level of knowledge score of children regarding oral hygiene in experimental and control group.
- b) Comparison of areas wise mean, SD, mean percentage & difference in mean percentage of pre and post test knowledge score of children regarding oral hygiene in experimental group.
- c) Comparison of area wise mean, SD, Mean percentage & difference in mean percentage of knowledge score of children regarding oral hygiene in control and experimental group after intervention.



- d) Comparison of mean, S.D & mean difference of post test knowledge score of children in experimental and control group with their selected demographic variables.

**Section-D:** Hypotheses Testing

- a) Effectiveness of snake and ladder game on post test level of knowledge of children regarding oral hygiene in experimental group and control group.
- b) Association between the post test level of knowledge of children regarding oral hygiene and their selected demographic variables in experimental and control group.

## Section-A

### a) Distribution of children according to their demographic variables

**Table – 4.1:**

**Frequency and percentage distribution of children according to their demographic variables in experimental and control group**

**n = 60**

S. No	Demographic variables	Experimental group		Control group	
		F	%	F	%
<b>1.</b>	<b>Age of the child</b>				
	6.1 – 7 yrs	9	30	8	26.67
	7.1 – 8 yrs	21	70	22	73.33
<b>2.</b>	<b>Sex</b>				
	2.1) Male	19	63.33	16	53.33
	2.2) Female	11	36.67	14	46.67
<b>3.</b>	<b>Class of studying</b>				
	3.1) 1 <sup>st</sup> Std	9	30	8	26.67
	3.2) 2 <sup>nd</sup> std	12	40	12	40
	3.3) 3 <sup>rd</sup> std	9	30	10	33.33
<b>4.</b>	<b>Birth order</b>				
	4.1)first	12	40	6	20
	4.2)second	11	36.67	16	53.3
	4.3) third and above	7	23.33	8	26.7
<b>5</b>	<b>Previous information regarding oral hygiene</b>				
	5.1)Yes	28	93.33	30	100
	5.2)No	2	6.67	-	-
<b>5.1</b>	<b>If yes, source of information</b>				
	5.1.1)Family member	26	92.86	29	96.67
	5.1.2)Any others teachers)	2	7.14	1	3.33

Distribution of children in experimental and control group according to their age shows that more or less similar percentage of children 21(70%) in experimental group and 22(73%) in control group belong to 7.1 – 8 years of age and more or less similar percentage of children 9(30%) in experimental group and 8(27%) in control group belong to the age group of 6.1 – 7 years. This reveals that the majority of the children in experimental and control group belong to 7.1 – 8 years of age (Table 4.1).

Distribution of children in experimental and control group according to the gender shows that majority of children 19(63%) in experimental group and 16 (63%) in control group were males and more or less similar percentage of children 11(37%) in experimental group and 14(47%) in control group were females. This depicts that majority of children were males in both experimental and control group (Table 4.1).

Distribution of children in experimental and control group according to the class of studying shows that similar percentage of children 12(40%) in experimental and control group were studying in II std and more or less similar percentage of children 9(30%) in experimental and 8(27%) in control group were in I std and 9 (30%) in experimental and 10 (33%) in control group were in III std. This displays that majority of children were studying in II std in both experimental and control group (Table 4.1).

Distribution of children according to the birth order of children shows that higher percentage 12(40%) in experimental group were 1<sup>st</sup> born child & 16(53.3%) children in control group were 2<sup>nd</sup> born child and more or less similar percentage 7(23.33%) children in experimental group & 8(26.67%) in control group were 3<sup>rd</sup> or above born child. This shows the a higher percentage of children were 1<sup>st</sup> and 2<sup>nd</sup> born child in both experimental and control group (Table 4.1).

Distribution of children according to the previous information acquired regarding oral hygiene depicts that almost all of the children 28(93%) in experimental group and all children 30(100%) in control group got information regarding oral hygiene. Further among the children who received information in experimental group (n=28) & control group (n=30), almost all the children 26(92%) in experimental group and 29(97%) in control group got information from family members. This highlighted that most of the children acquired knowledge regarding oral hygiene from family members (Table 4.1).

**b) Distribution of Children according to the Demographic variables of the Parents**

**Table – 4.2:**

**Frequency and Percentage Distribution of the Children according to their Demographic variables of their Parents in Experimental and Control group**

**n=60**

S. No	Demographic variables	Experimental group				Control group			
		Father		Mother		Father		Mother	
<b>1</b>	<b>Education level of parents</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>
	Graduate	-	-	-	-	1	3.33	1	3.33
	Intermediate	2	6.67	-	-	2	6.67	1	3.33
	High school	9	30	4	13.33	11	36.6	5	16.67
	Middle school	15	50	9	30	9	30	7	23.33
	Primary school	4	13.33	14	46.67	6	20	15	50
	Illiterate	-	-	3	10	1	3.33	1	3.33
<b>2</b>	<b>Occupation of the parents</b>								
	Clerical	1	3.58	-	-	2	6.67	-	-
	Skilled worker	-	-	-	-	-	-	-	-
	Semiskilled	10	35.71	-	-	10	33.3	2	6.67
	Unskilled	17	60.71	28	96.56	18	60	23	76.67
	Unemployed	-	-	1	3.44	-	-	5	16.66
<b>3</b>	<b>Family income per month</b>	<b>F</b>		<b>%</b>		<b>F</b>		<b>%</b>	
	Rs. 4894- 7322	4		13.33		5		16.6	
	Rs.2936 – 4893	14		46.67		20		66.7	
	Rs.1980 – 2935	11		36.67		5		16.7	
	< Rs.1979	-		3.33		-		-	
<b>4.</b>	<b>Type of family</b>								
	Nuclear family	22		73.33		18		60	
	Joint family	8		26.67		12		40	

Distribution of children according to the educational status of parents shows that the higher percentage of fathers 15 (50%) in experimental group had studied up to middle school & 11 (36%) in control group had studied up to high school. However similar percentage of fathers 2 (6.67%) in experimental group and control group had studied up to intermediate level of education. Further, higher percentage of mother 14 (46.67%) in experimental group and 15 (50%) in control group had studied up to primary school and the lower percentage of mother 3 (10%) in experimental group & 1 (3.33%) in control group were illiterates. This shows that majority of fathers had studied up to middle school and mothers had studied up to primary school in both experimental and control group (Table 4.2).

Distribution of children according to the occupation of the parents shows that majority of fathers 17 (60.71%) in experimental group & 18 (60%) in control group were unskilled workers and the similar percentage of fathers 10 (35.71%) in experimental and control group were semiskilled workers and lower percentage of fathers 1(3.57% )in experimental group and 2 (6.67%) in control group were clerical workers. However, almost all mothers 28 (96.56%) in experimental group and most of the mothers 23 (76.7%) in control group were unskilled workers and the lower percentage of mothers 1 (3.44%) in experimental group and 5 (16.67%) mothers in control group were unemployed. This shows that majority of fathers and almost all mothers in experimental and control group were unskilled worker (Table 4.2).

Distribution of children according to the family income per month reveals that higher percentage of children 14 (46.67%) in experimental group and majority of children 20 (66.7%) in control group belong to the income group of Rs. 2936- 4893 per month, and 11 (36.67%) in experimental group and lower percentage of children 5 (16.7%) in control group belong to the income group of Rs. 1980 – 2935. However

more or less similar percentage of children 4 (13.33%) in experimental group and 5(16.7%) in control group belong to the age group of Rs. 4894-7322. This reveals that majority of children belong to middle income group in both experimental and control group (Table 4.2).

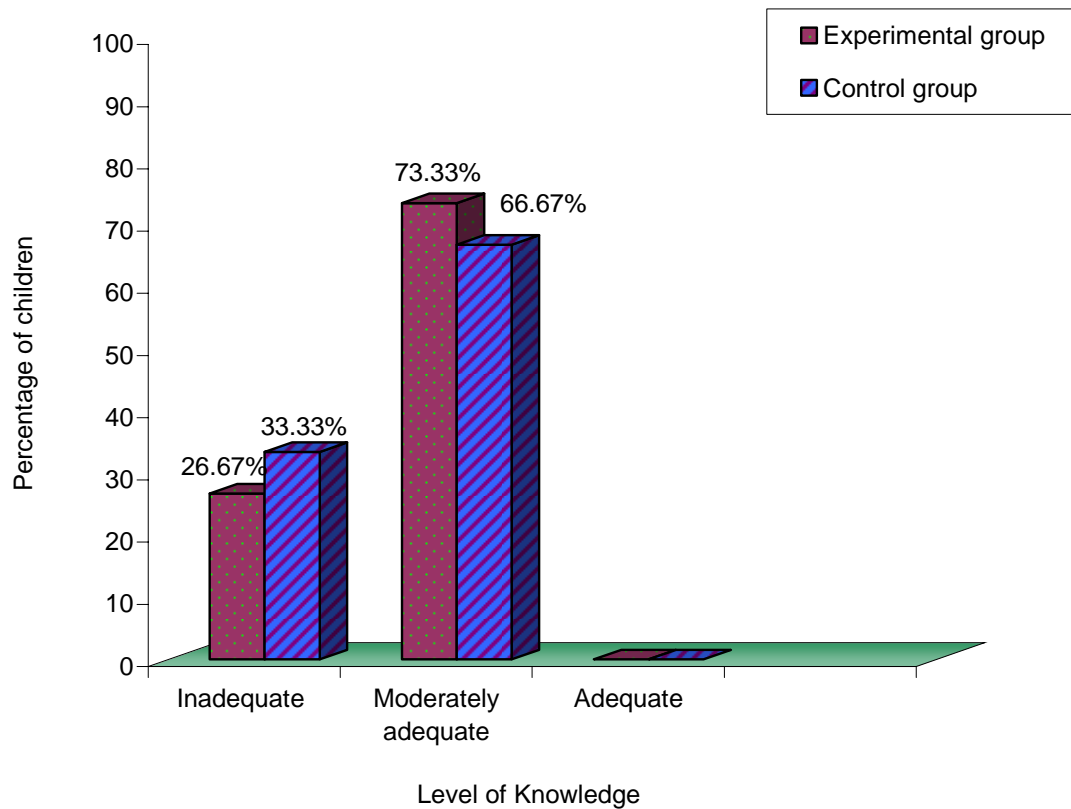
Distribution of children according to the type of family reveals that the majority of children 22 (73.39 3) in experimental group and lower percentage of children 12 (40%) in control group belong to nuclear family, however 8 (27%) children in experimental group and 12(40%) children in control group belong to joint family. This unveil that most of the children belong to nuclear family in both experimental and control group (Table 4.2).

## Section-B

### Distribution of Children according to the Pretest level of Knowledge regarding Oral hygiene in Experimental and Control group.

Figure-4.1:

Frequency and Percentage distribution of Children according to the Pretest level of Knowledge regarding Oral hygiene in Experimental and Control group



The above figure shows that majority of the children 22 (73.33%) in experimental group and 20(66.66%) in control group had moderately adequate knowledge whereas 8(26.66%) in experimental group and 10(33.33%) in control group had inadequate knowledge and none of them had adequate knowledge in both the groups during pretest. This highlights that majority of the children had moderately adequate knowledge and they are in need of information regarding oral hygiene



**Section –C**

**a) Comparison of Pre and Posttest level of Knowledge of Children regarding Oral hygiene in Experimental and Control group**

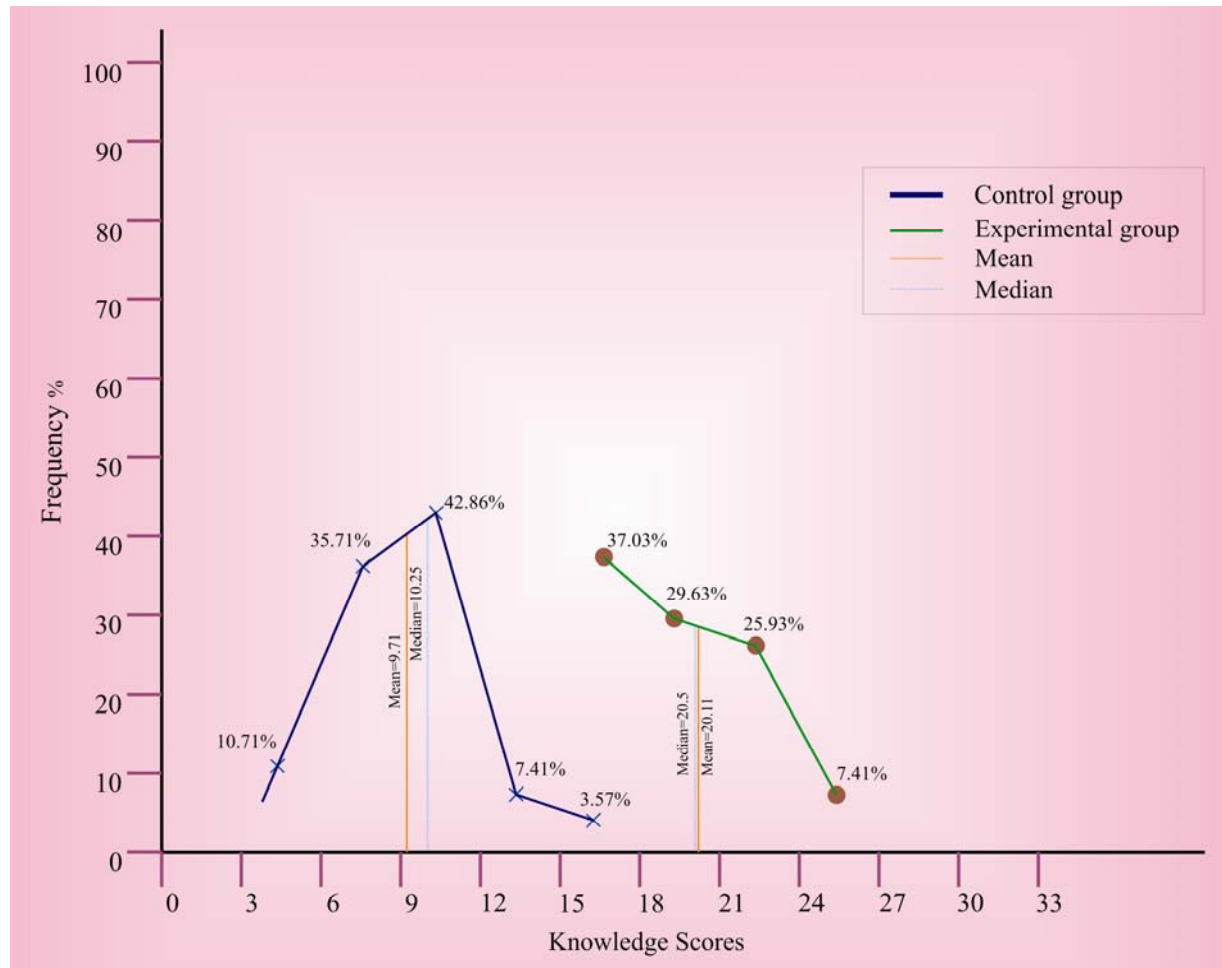
**Table-4.3:**

**Frequency and Percentage distribution of Children according to their Pre and Post-test level of Knowledge on Oral hygiene in Experimental and Control group.**

**n=60**

S. No	Level of knowledge	Experimental group				Control group			
		Pre-test		Post-test		Pre-test		Post-test	
		F	%	F	%	F	%	F	%
1	Inadequate	8	26.66	-	-	10	33.33	10	35.71
2	Moderately adequate	22	73.33	5	18.51	20	66.66	18	64.28
3	Adequate	-	-	22	81.48	-	-	-	-

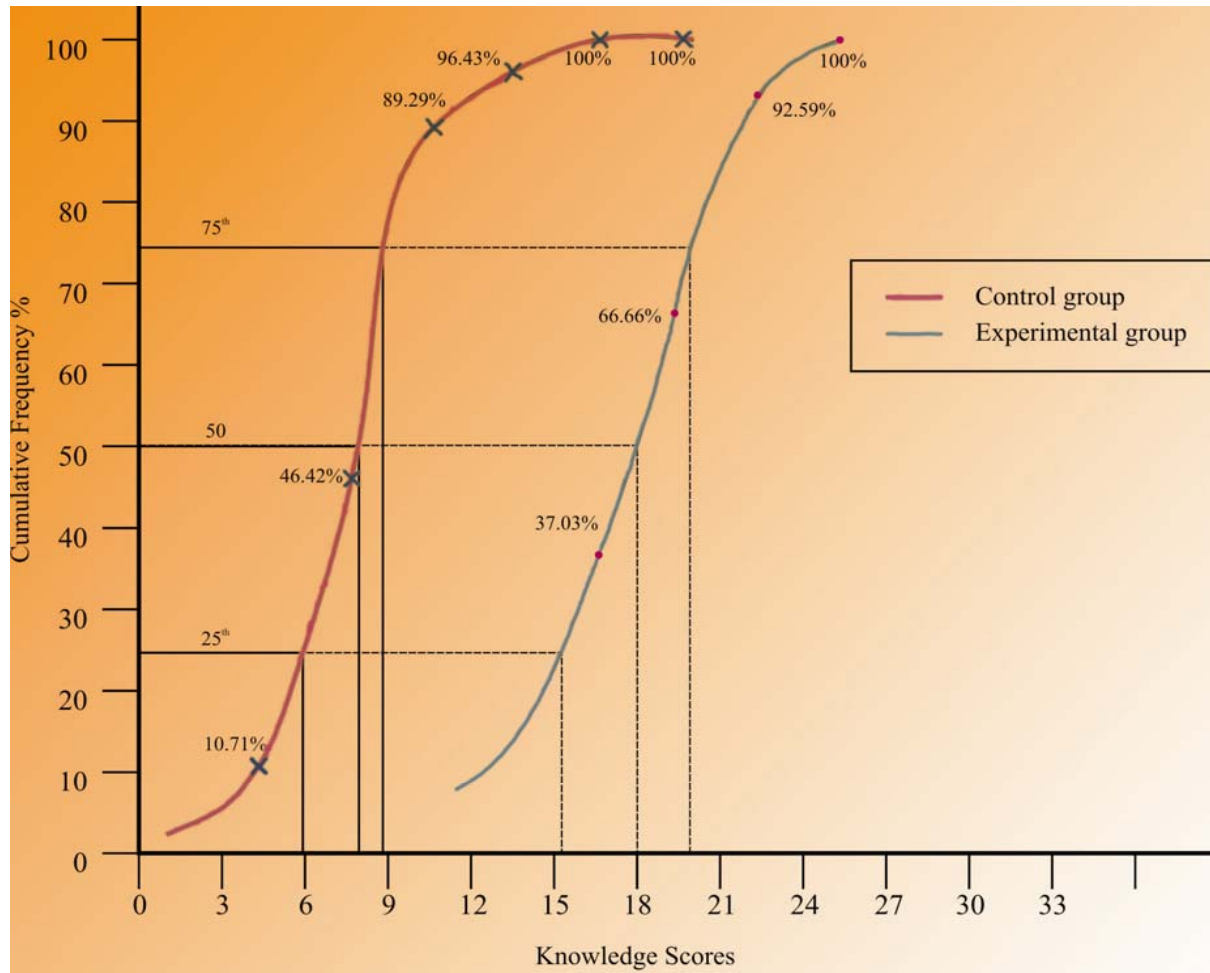
The above table shows that majority of children 22 (73.33%) in experimental group and 20 (66.66%) in control group had moderately adequate knowledge during pre test. However during post test most of the children 22 (81.48%) in experimental group and none of the children in control group had adequate knowledge. Further none of the children in experimental group and 10 (33.33%) of children in control group had inadequate knowledge during post test. It seems that the knowledge of the children regarding oral hygiene has improved after playing snake and ladder game.



**Figure -4.2:** Line graph shows the frequency percentage of post test knowledge score of children regarding oral hygiene in control and experimental group

Line graph showing the comparison of posttest knowledge scores of experimental and control group reveals that the highest score of control group lies between 15-18 and the lowest score lies between 3-6, whereas in experimental group the highest score is between 24-27 and the lowest score is lies between 15-18. The highest percentage of children (48.86%) scored between 9-12 and the lowest percentage between 15-18 in control group whereas in experimental group highest percentage of children (37.04%) scored between 15-18 and the lowest percentage of children score lies between 24-27.

The mean and median plotted on the graph shows that the control group posttest mean and median scores are 9.71 and 10.25, whereas in experimental group it was 20.11 and 20.4 respectively revealing a difference of 10.69 and 9.86. (Fig.4.2)



**Figure -4.3:** O-give curves shows the cumulative frequency percentage of post test knowledge scores of children regarding oral hygiene in control and experimental group

O-give curve of experimental group lies to the right of control group, over the entire range showing that the experimental group posttest scores are consistently higher than control group posttest scores.

In the control group the 25<sup>th</sup> percentile score is 6, whereas in experimental group it is 16 revealing the difference of 10. The 50<sup>th</sup> percentile score for the control group is 8 and the experimental group is 18 revealing the difference of 10. The 75<sup>th</sup> percentile score is 9 in the control group and 20 in the experimental group reveals the difference of 11. It shows that the difference in the three quartiles (25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup>) is more or less similar for experimental and control group revealing effectiveness of snake and ladder game. (Fig. 4.3)

b) Comparison of areas wise mean, SD, mean percentage & difference in mean percentage of pre and post test knowledge score of children regarding oral hygiene in experimental group.

**Table:-4.4:**

**Areas wise Mean, Standard deviation, Mean percentage and difference in Mean percentage of Pre and Post test Knowledge score of Children regarding Oral hygiene in Experimental group.**

**n=60**

Level of knowledge	Max. score	Experimental group						Difference in mean score %
		Pre-test			Post-test			
		Mean	SD	Mean score %	Mean	SD	Mean score %	
Oral health	5	1.13	1.13	22.66	3.37	.83	67	44.43
Brushing	13	5.26	1.33	40.46	10.44	1.31	80	39.54
Diet	8	3.66	1.37	45.83	5.44	1.47	68	22.17
Overall	26	10.07	2.69	38.72	20.25	2.86	77.92	39.2

The above table shows that during pre test higher percentage of mean score  $3.66 \pm 1.37$  which is 45.83 of the maximum score obtained in the area of “Diet”, whereas the post test mean score  $5.47 \pm 1.47$  which is 68% of maximum score was also lower, revealing a lowest difference in mean percentage (22.17).

However, a highest difference in mean score percentage 44.43% is obtained in the area of “Oral health” might be due to lowest pretest mean score  $1.13 \pm 1.13$  which is 22.66%.

Further, the overall pre test mean score is  $10.07 \pm 2.69$  which is 38.72% and the post test mean is  $20.25 \pm 2.86$  which is 77.92 with a difference in mean score percentage of 39.2%.

It reveals that Snake and Ladder game is effective in the area “Oral health”.

c) Comparison of area wise mean, SD, Mean percentage & difference in mean percentage of knowledge score of children regarding Oral hygiene in Experimental and Control group after intervention.

**Table:-4.5:**

**Area wise Mean, Standard deviation, Mean percentage and Post test difference in Mean percentage of Knowledge score of Children regarding Oral hygiene in Experimental and Control group.**

Level of knowledge	Max. score	Experimental group (n=27)			Control group (n=28)			Post test difference in mean score %
		Post-test			Post-test			
		Mean	SD	Mean score %	Mean	SD	Mean score %	
Oral health	5	3.37	.83	67	1.03	0.92	20.6	46.4
Brushing	13	10.44	1.31	80	5.11	1.42	39.3	40.7
Diet	8	5.44	1.47	68	3.78	1.14	46.88	21.12
Overall	26	20.25	2.86	77.92	9.64	2.62	37.07	40.85

The above table shows that in experimental group, lowest mean score  $3.37 \pm 0.83$  which is 67% obtained in the area of “oral health” which is lowest  $1.03 \pm 0.92$  in the control group also revealing a highest difference in mean percentage of 46.4.

However, a lowest difference in mean percentage (21.12%) is obtained in the area “Diet”, might be due to a highest mean score  $3.78 \pm 1.14$  in control group.

This reveals that the Snake and Ladder game is effective in improving the knowledge in the area “oral health”.

d) Comparison of mean, S.D & mean percentage and difference in mean percentage of posttest knowledge score of children in experimental and control group with their selected demographic variables.

**Table – 4.6:**

**Comparison of Mean, SD, Mean percentage and difference in mean percentage of post test knowledge score of children regarding oral hygiene in experimental and control group according to their age.**

Age in years	No. of children	Experimental Group n = 27			No. of children	Control group n = 28			Difference in mean score %
		Mean	SD	Mean score %		Mean	SD	Mean score %	
6.1 – 7	8	20.66	3.27	79.46	8	9.63	2.85	37.04	42.42
7.1 – 8	18	20.05	2.71	77.12	20	9.65	2.46	37.12	40
Over all	27	20.25	2.86	77.88	28	9.64	2.62	37.08	40.08

The above table shows that more or less similar mean score  $20.66 \pm 3.27$ ,  $20.05 \pm 2.71$  obtained by 6.1-7 and 7.1-8 years of children in experimental group and in control group  $9.63 \pm 2.85$ ,  $9.65 \pm 2.46$  also reveals more or less similar mean score percentage 37.04 & 37.12 respectively. However the greater difference in mean score percentage 42.42% obtained by 6.1-7 year of children obtained due to higher mean score percentage 79.46% in experimental group.

This reveals that snake and ladder game had more impact on children in the age group of 6.1- 7 years.



**Table – 4.7:**

**Comparison of Mean, SD , Mean percentage and difference in mean percentage of post test knowledge score of children regarding oral hygiene in experimental and control group according to their sex.**

Sex	No. of children	Experimental Group n = 27			No. of children	Control group n = 28			Difference in mean score %
		Mean	SD	Mean score %		Mean	SD	Mean score %	
Male	17	20.18	2.85	77.62	15	9.07	1.99	34.88	42.74
Female	10	20.4	3.03	78.46	13	8.73	0.55	33.58	44.04
Over all	27	20.25	2.86	77.88	28	9.64	2.62	37.08	40.08

The above table shows that more or less similar mean percentage 77.62% and 78.46% in the experimental group and 34.88% and 33.58% in the control group was obtained by male and female children revealing that the snake and ladder game was effective for both the gender.

**Table – 4.8:**

**Comparison of Mean, SD, Mean percentage and difference in mean percentage post test knowledge score of children regarding oral hygiene in experimental and control group according to their class of studying.**

Class of studying	No. of children	Experimental Group n = 27			No. of children	Control group n = 28			Difference in mean %
		Mean	SD	Mean %		Mean	SD	Mean %	
I std	9	20.66	3.28	79.46	6	8.75	2.99	33.65	45.81
II std	10	20.11	3.41	77.34	12	9.17	2.43	35.27	42.07
III std	8	20	1.69	76.92	10	10.9	1.81	41.92	35
Over all	27	20.25	2.86	77.88	28	9.64	2.62	37.08	40.08

The above table shows that in the experimental group more or less similar mean percentage of 79.46%, 77.34% and 76.92% were obtained by children who are studying I<sup>st</sup>, II<sup>nd</sup>, III<sup>rd</sup> standard respectively and in the control group more or less similar mean percentage of 45.81% and 42.07% were obtained by children in the I<sup>st</sup>, II<sup>nd</sup>, III<sup>rd</sup> standard and lower mean percentage was obtained by children in the III<sup>rd</sup> std revealing that snake and ladder game is more effective for children in I<sup>st</sup> and II<sup>nd</sup> standard.

**Table – 4.9:**

**Comparison of Mean, SD and Mean percentage of post test knowledge score of children regarding oral hygiene in experimental and control group according to their previous information regarding oral hygiene.**

Previous Information regarding oral hygiene	No. of children	Experimental Group n = 27			No. of children	Control group n = 28			Difference in mean %
		Mean	SD	Mean %		Mean	SD	Mean %	
Yes	25	20.35	2.94	78.27	30	9.64	2.62	37.08	41.9
No	2	19.5	2.12	75	-	-	-	-	75
Over all	27	20.25	2.86	77.88	28	9.64	2.62	37.08	40.08

The above table shows that the higher mean percentage  $20.35 \pm 2.94$  which is of 78.27 % of the total score in experimental group and in control group lower mean percentage  $9.64 \pm 2.62$  which is of 37.08% of the total score revealing the difference in mean percentage of 41.9% is obtained by the children who received information regarding oral hygiene previously whereas  $19.5 \pm 2.12$  which is 75% of the total score in experimental group and none of them in experimental group didn't receive information regarding oral hygiene previously revealing the difference of 75%.

This reveals that the snake and ladder game created an impact in children who didn't receive the information regarding oral hygiene previously also.

## Section-D

### Hypotheses Testing

**H<sub>1</sub>:** There is significant difference between the level of knowledge regarding oral hygiene among children in experimental and control group at  $p < 0.05$  level.

**Table-4.10:**

**a) Effectiveness of Snake and ladder game on post test level of Knowledge score of children regarding Oral hygiene in experimental and control group**

Variable	Max score	Experimental group		Control group		Post test 't' value
		Post test		Post test		
		Mean	S.D	Mean	S.D	
Oral health	5	3.37	0.83	1.03	0.92	9.36*
Brushing	13	10.44	1.31	5.11	1.42	13.99*
Diet	8	5.44	1.47	3.78	1.14	4.46*
<b>Over all</b>	<b>26</b>	<b>20.25</b>	<b>2.86</b>	<b>9.64</b>	<b>2.62</b>	<b>13.79*</b>

\*significant at  $p < 0.001$  level ,  $df_{53}$ ; table value = 3.29

The above table shows that, there is highly significant difference found between the overall and area wise score values of post test between experimental and control groups. Hence the research hypothesis ( $H_1$ ) is retained.

**H<sub>2</sub>:** There is significant association between the level of knowledge regarding oral hygiene among children in experimental and control group with their demographic variables at  $p \leq 0.05$  level .

**Table-4.11:**

**b) Association between post test level of knowledge score of children in experimental group and control group regarding oral hygiene with their selected demographic variables.**

**n = 27**

S. No	Demographic variables	Experimental group			Control group		
		Df	Chi square value	Table value	df	Chi square value	Table value
1	Age in years	1	0.12	3.84	1	1.38	3.84
2	Sex	1	0.29	3.84	1	0.88	3.84
3	Class of studying	2	0.30	5.99	2	5.58	5.99
4	Birth order of the child	2	0.10	5.9	2	4.28	5.99
5	Previous information regarding oral hygiene	1	0.49	3.84	1	0	3.84
6	Source of information	1	0.25	3.84	1	3.94	3.84
7	Educational status of father	3	0.12	7.81	5	16.52*	11.1
8	Educational status of mother	2	1.32	5.99	5	5.80	11.1
9	Occupation of the father	3	4.69	7.81	2	1.40	5.99
10	Occupation of the mother	1	0.23	3.84	2	3.54	5.99
11	Family income per month	3	1.69	7.81	2	10.94*	5.99
12	Type of family	1	0.01	3.84	1	0.04	3.84

**\* Significant at  $p < 0.05$  level**

The above table shows that there is no significant association between the post level of knowledge of school children and their selected demographic variables such as age, sex, educational and occupational status of parents, family income per month and type of family, class of studying, previous information regarding oral hygiene and

the source of information in experimental group, whereas in control group there is significant association between the level of knowledge and their selected demographic variables such as educational status of the father and their family monthly income. Therefore  $H_2$  is accepted for the above demographic variable in control group at  $P < 0.05$  level.

### **Summary**

This chapter dealt with data analysis and interpretation in the form of statistical values based on the objectives. Here the frequency and percentage were used to distribute the school children according to their demographic variables and to classify them based on the level of knowledge regarding oral hygiene. The independent 't' test was used to evaluate the effectiveness of snake and ladder game on level of knowledge regarding oral hygiene. The chi-square test was used to associate the pre and post test level of knowledge with their selected demographic variables.

## CHAPTER V

### DISCUSSION

This chapter discusses the findings of the study derived from the descriptive and inferential statistics. This study was conducted to assess the effectiveness of snake and ladder game on the level of knowledge regarding oral hygiene among school children, Salem.

#### **Description of the demographic variables:**

The demographic variables were collected through semi structured interview schedule and knowledge of the children was assessed before and after snake and ladder game.

The investigator found that,

- Majority of the children 21 (70%) in the experimental group and in control group 22(73.3%) were in the age group of 7.1-8 years of age.
- Majority of the children 19(63.3%) in the experimental group and 16(53.3%) in the control group were males.

**Census report (2010)** shows that the sex ration was 940 females per 1000 males in Tamil Nadu. (**Government of India, Provisional Population Data**)

- Similar percentage of children 12(40%) in experimental group and control group were studying second standard.
- Higher percentage of children 12(40%) in experimental group were first born and 16(53.3%) in control group were second born.
- Most of the children 28 (93.3%) in experimental group and all children 30(100%) had received information regarding oral hygiene. Among them most

of the children 26(92.86%) in experimental group and 29(96.7%) in control group received information from the family members.

This study was opposed by **Jinslin oliver (2004)**, who did a study on effectiveness of STP on dental carries among school going child in Kancheepuram. In her study, 92(92%) didn't receive any information regarding dental hygiene and 8(8%) children received information regarding dental hygiene. However among them most of them 7(87.5%) received information on dental hygiene from the parent and least 1(12.5%) received from health workers.

- The higher percentage of fathers 15(50%) in experimental group had studied up to middle school and 11(36%) fathers in control group had studied up to high school whereas 14(36.7%) in experimental group and 15(50%) in control group had studied up to primary school.

The present study was supported by the **World Population Survey (2010)** of ranking of states and union territories by literacy rate shows that majority (82.33%) of male are literates and 64.55% of females are literates in Tamil Nadu. (**World Population and Housing Census Programme**)

- Majority of fathers 17(60.7%) in experimental group and 18(60%) in control groups were unskilled workers and almost all mothers 28(96.5%) in experimental group and 23(76.7%) in control group were unskilled workers.
- The higher percentage of parents 14(46.7%) in experimental group and 20(66.7%) in control group belongs to the income group of Rs.2936-4893.

The present study supported by **Global trends 2030** shows that the Income per capita in the world GNI found that 47% are belong to middle class



income group and 37% are low income group and whereas 16% are belong to high income group. ( Lewis, 2011)

- Majority of children 22(73.33%) in experimental group and 18(60%) in control group were belong to nuclear family.

**The first objective of the study was to assess the level of knowledge regarding oral hygiene among school children in experimental and control group.**

Majority of the children 22 (73.3%) in experimental group and 20(66.7%) in control group had moderately adequate knowledge during pre test. However during post test most of the children 22(81.5%) in experimental group and none of them in control group had adequate knowledge. Further none of the children in the experimental group and 10(33.3%) of children in control group had inadequate knowledge during post test.

The present study finding was supported by **Vanichitra Devi, (2006)** in her study she assessed the effectiveness of STP regarding dental hygiene among school children in Trichy. The result found that higher percentage of the children 12(40%) in experimental group and 10(33%) in control group had moderately adequate knowledge during pre-test and 1(3%) in control group and 18(60%) in experimental group had adequate knowledge. Further none of them in the experimental group and 19(63%) in the control group had inadequate knowledge during post test.

**The second objective of the study is to assess the effectiveness of snake and ladder game on the level of knowledge regarding oral hygiene among school children in experimental group.**

The investigator found that the post test mean score percentage was  $20.25 \pm 2.86$  in experimental group and  $9.64 \pm 2.62$  in control group. The estimated 't' value was 13.79 which is significant at  $p < 0.001$  level. Hence the research hypothesis

H<sub>1</sub> is retained. This shows that snake and ladder game on the level of knowledge was effective in improving the knowledge of children.

The present study findings were supported by **Lakshmi Prasanthi. K, (2004)** conducted an experimental study on the effectiveness of snake and ladder on knowledge of common ailments among 100 school children in Bangalore. The findings of the study shows that post test mean score was higher than the pre-test mean score and the estimated 't' value was 19.16 scores at p<0.05 level. It proved that snake and ladder game was effective in improving the knowledge of children.

**The third objective of the study is to associate the post test level of knowledge regarding oral hygiene among school children in experimental group with their selected demographic variables.**

The present study reveals that in there is no association between the post test level of knowledge and the demographic variables in experimental group, whereas in control group there is significant association found between the level of Knowledge and demographic variables such as educational status of father and family monthly income.

The experimental group finding of this study opposed by **Vanichitra Devi (2006)** done a study on effectiveness of STP on level of knowledge of children regarding oral hygiene at Trichy. The result found there is an association found between level of knowledge and demographic variables such as age, sex, education, occupation, type of family and source of information in experimental group.

The control group findings of this study supported by the **Dharmarath Nakara, (2009)** conducted a study on promotion of oral hygiene through child to child programme in Pune. It shows that there is an association between the level of

knowledge and demographic variables such as age, type of family and education level of mother. Hence  $H_2$  is retained in control group.

**Summary:**

This chapter dealt with the discussion of the study with reference to the other studies. All the objectives and hypotheses were retained in this study.

## CHAPTER VI

### SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter consists of summary, conclusion, and implication for nursing practice and the recommendations for further research.

#### Summary

A Quasi experimental study was conducted to assess the effectiveness of snake and ladder game on the level of knowledge on oral hygiene among 60 school children selected by systematic random sampling technique. Semi structured interview schedule was used to assess the knowledge of school children on oral hygiene. The data collected were analyzed by using descriptive and inferential statistics. The conceptual frame work was used based on “Modified Imogene king goal attainment model”.

#### The major findings are summarized as follows,

- In experimental group 21(70%) children and in control group 22(73.33%) children were belonging to 7.1-8 years of age.
- In experimental group 19(63.33%) children and in control group 16(53.33%) children were male.
- In experimental group and in control group similar percentage of children 12(40%) were studying second standard
- In experimental group 28(93.33%) children and almost all children in control group i.e., 30(100%) received information regarding oral hygiene previously.
- In experimental group most of the children 26(92.85%) and in control group 29 (96.6%) had received information from family members.
- In experimental group 15(50%) fathers of children had studied up to middle school and in control group 11(36.6%) studied up to high school. However

majority of mothers 14(46.66%) of children in experimental group and 15(50%) in control group had completed primary schooling.

- Majority of fathers 17(60.71%) in experimental group and 18(60%) in control group were unskilled worker and most of the mothers 28(96.55%) in experimental group and 23(76.6%) in control group were skilled workers.
- In experimental group 14(46.66%) family and in control group 20(66.6%) family belong to the income group of Rs.2936-4893 per month.
- Majority of the children 22(73.33%) in experimental group and 20 (66.66%) in control group had moderately adequate knowledge and none of them had adequate knowledge in both experimental and control group during pretests. This indicated that they need information regarding oral hygiene.
- The post test mean and median score were 9.71 and 10.25 in control group whereas 20.11 and 20.4 in experimental group revealing the difference of 10.6 and 9.86 respectively.
- The 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentile score were 6,8 &9 in control group whereas 16, 18 & 20 in experimental group revealing the similar difference of 10.0 shows that improvement in knowledge score after the intervention.
- The mean, standard deviation, mean percentage and difference in mean percentage of post test knowledge of children regarding oral hygiene reveals that mean for experimental group was  $20.25 \pm 2.86$  which was 77.92% of the total score whereas in control group it was  $9.64 \pm 2.62$  which was 37.07% of the total score revealing that snake and ladder game had been effective in creating the awareness and knowledge regarding oral hygiene.
- The mean score status of children regarding oral hygiene in experimental group was  $20.25 \pm 2.86$  and in control group was  $9.64 \pm 2.62$ . The estimated 't'

value was 13.79 which is significant at  $p < 0.001$  level. Hence the research hypothesis  $H_1$  was retained.

- In experimental group there is no association between the knowledge and the demographic variables such age, sex , educational status, birth order , previous information regarding oral hygiene , source of information, educational and occupational status of parents and family income per month. Hence  $H_2$  was rejected.

### **Conclusion**

This experimental study done to assess the effectiveness of snake and ladder game on the level of knowledge regarding oral hygiene among school children in selected schools, Salem. The findings of the study showed that the snake and ladder game was more effective in improving the knowledge of the children regarding oral hygiene. There was no association between the post test knowledge score and the demographic variables in experimental group whereas in control group, the association found between post test knowledge score and demographic variables such as father educational status and family monthly income. Oral hygiene is essential for every human being and Play way was the effective and simple way to teach the children regarding oral hygiene. As a health care professional we are in the position to educate children and thereby to adopt good and healthy practice.

### **Implications**

“A stitch in time saves nine” is a saying and is true. It is the responsibility of health professional to educate the child as it grows will help them to live a healthy life in future. Majority of the health problems can be prevented if people get adequate information and essential precaution. The findings of the study have implication in different branches of nursing (i.e.,) nursing practice, nursing education, nursing

administration and nursing research by effectiveness of snake and ladder game board in increasing the knowledge level of school children regarding oral hygiene . The investigator received a clear idea regarding the different steps to be taken in different fields to improve the same.

There are several important implication for nursing practice.

**Nursing Practice:**

- A game is an effective and efficient way to improve the knowledge of children. School health nurse can use this snake and ladder game to teach the children regarding ill effects of poor oral hygiene.
- Nurse can plan the goal of nursing management for oral health problems.
- Student nurse can use this intervention to create awareness regarding way to maintain proper oral hygiene.
- School health nurse can use snake and ladder game to teach other health habits such as personal hygiene, hand washing
- Training program can be arranged for school teachers in order to impact the healthy life style to the students.
- Regular screening of school children to detect the dental caries earlier and refer them to dentist before the complication arises.

**Nursing Education:**

- Nursing curriculum have to be updated by including topics like educating children by play way.
- Oral hygiene have to included as a part of curriculum with more emphasis on preventive and promotive aspects of health care practice.

- Seminars, workshops and conferences can be arranged regarding assessment of oral hygiene and prevention of dental caries to make nursing professional competent enough to take care of the future generation healthier.

#### **Nursing Administration:**

- The nurse administrator have to organize educational programme for school health nurses regarding maintenance of oral hygiene..
- The nurse administrators have to motivate the school health nurse to incorporate various simple and cost effective method to educate children rather than traditional method of teaching.

#### **Nursing Research:**

- The various innovative ideas can be invented and implement to improve the oral health outcomes
- The present study serves as a evidence based practice for the further studies.

#### **Recommendations**

1. A similar study can be done on a large sample to generalize the findings.
2. A comparative study can be done between rural and urban children on the level of knowledge, attitude and practice regarding oral hygiene
3. A similar study can be done to determine the effectiveness of snake and ladder game among school children for various topics
4. A comparative study can be performed to evaluate the effectiveness of snake and ladder game with health education and game without health education on oral hygiene.
5. A study can be done to assess the effectiveness of structured teaching programme on oral hygiene among school children.



6. A descriptive study can be done to find out the incidence of dental carries among school age children.
7. A similar study can be done to assess the effectiveness of teaching oral hygiene to school children through child to child programme.

**Limitation:**

Two children in control group and 3 children in experimental group were absent on the day of post test. Hence they were excluded from the study.

**Summary**

This chapter dealt with summary, conclusion, implications for nursing practice and recommendations.

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**ANNEXURE – A**

**LETTER SEEKING PERMISSION TO CONDUCT THE RESEARCH  
PROJECT**

From

Ms.Saraswathy. J,  
M.Sc (N) II Year,  
Sri Gokulam College of Nursing,  
Salem.

To

The Principal,  
Sri Gokulam College of Nursing,  
Salem.

Respected Madam,

**Sub: Permission to conduct research study – reg.**

I **Ms.SARASWATHY.J** II Year M.Sc., (Nursing) student of Sri Gokulam College of Nursing, is conducting a research project in partial fulfilment of the TamilNadu Dr.M.G.R. Medical University, Chennai as a part of the requirement for the award of M.Sc(Nursing) Degree.

**Topic: “A Study to Assess the Effectiveness of Snake and Ladder Game on Level of Knowledge regarding Oral hygiene in School Children at Selected Schools, Salem.”.**

I request you to kindly do the needful.

Thanking you,

Yours obediently,

Place : Salem

Date :

**(SARASWATHY.J)**



ANNEXURE – B

LETTER GRANTING PERMISSION TO CONDUCT THE RESEARCH  
PROJECT



**SRI GOKULAM COLLEGE OF NURSING**

3/836, Periyakalam, Neikkarapatti, Salem - 636 010.

Phone : 0427 - 6544550, 2272240, 2272250 Fax : 0427 - 2270200, 2447077

Email : sgcon2001@yahoo.com, sgcon2001@gmail.com

Date : .....

To  
The Assistant Elementary Education Officer,  
Veerapandi,  
Ariyanoor,  
Salem.

Respected Sir/Madam,

**Sub: Permission to conduct Research project-Reg.**

This is to introduce Ms. J. Saraswathy, a final year M.Sc (Nursing) student of our college. She is to conduct a research project which is to be submitted to the Tamil Nadu Dr. M.G.R. Medical University, Chennai in partial fulfilment of University requirement for the award of M.Sc (Nursing) Degree.

Topic“ A Study To Assess The Effectiveness Of Snake And Ladder Game On Level Of Knowledge Regarding Oral Hygiene Among School Children At Selected Schools, Salem.”


I request you to kindly permit her to conduct the research study in Panchayat Union Middle School, Palampatti and Government Elementary School, Veerapandi from 14.7.11 to 7.8.11. She will adhere to the institutional policies and regulations.

Thanking you,

Yours sincerely,

Date : 13.07.11

Place :Salem

  
(Dr. A. Jayasudha)  
PRINCIPAL  
Sri Gokulam College of Nursing  
SALEM - 636 010.

**LETTER GRANTING PERMISSION TO CONDUCT THE RESEARCH  
PROJECT**



**SRI GOKULAM COLLEGE OF NURSING**

3/836, Periyakalam, Neikkarapatti, Salem - 636 010.

Phone : 0427 - 6544550, 2272240, 2272250 Fax : 0427 - 2270200, 2447077

Email : sgcon2001@yahoo.com, sgcon2001@gmail.com

13.7.11

Date : .....

To  
The Assistant Elementary Education Officer,  
Veerapandi,  
Ariyanoor,  
Salem.

Respected Sir/Madam,

**Sub: Permission to conduct Research project-Reg.**

This is to introduce Ms. J. Saraswathy, a final year M.Sc (Nursing) student of our college. She is to conduct a research project which is to be submitted to the Tamil Nadu Dr. M.G.R. Medical University, Chennai in partial fulfilment of University requirement for the award of M.Sc (Nursing) Degree.

**Topic“ A Study To Assess The Effectiveness Of Snake And Ladder Game On Level Of Knowledge Regarding Oral Hygiene Among School Children At Selected Schools, Salem.”**

I request you to kindly permit her to conduct the research study in Panchayat Union Middle School, Palampatti and Government Elementary School, Veerapandi from 14.7.11 to 7.8.11. She will adhere to the institutional policies and regulations.

Thanking you,

Yours sincerely,

Date : 13.07.11

Place :Salem

Permitted  
Sri Gokulam  
ச.ந.ப.அ.ப.அ. - 636 308  
ச.ந.ப.அ.ப.அ. - 636 308  
ச.ந.ப.அ.ப.அ. - 636 308

(Dr. A. Jayasudha)  
PRINCIPAL

Sri Gokulam College of Nursing  
SALEM - 636 010.

**ANNEXURE – C**  
**LETTER REQUESTING OPINION AND SUGGESTIONS OF EXPERTS**  
**FOR CONTENT VALIDITY OF THE RESEARCH TOOLS**

From

Saraswathy.J  
Final Year M.Sc (N)  
Sri Gokulam College of Nursing  
Salem

To

Respected Sir / Madam

**Sub: Requesting opinion and suggestions of experts for content validity  
of the research tools**

I, **Saraswathy.J**, Final Year M.Sc (N) student of Sri Gokulam College of Nursing, Salem. I have selected the topic mentioned below for the research project to be submitted to The Tamilnadu Dr.M.G.R.Medical University, Chennai for the partial fulfilment of Master's Degree in Nursing.

**Topic: “A Study to Assess the Effectiveness of Snake and ladder game on Level of Knowledge regarding Oral hygiene among School children in selected schools, Salem”.**

I wish to request you kindly validate the tool and give your expert opinion for necessary modification. I will be grateful to you for this.

Thanking you

Place : Salem

Yours sincerely,

Date:

**(SARASWATHY.J)**

**Enclosed:**

1. Certificate of validation
2. Semi structure Interview schedule
3. Procedure

**ANNEXURE - D**

**SEMI-STRUCTURED INTERVIEW SCHEDULE TO ASSESS THE LEVEL  
OF KNOWLEDGE REGARDING ORAL HYGIENE AMONG SCHOOL  
CHILREN**

**Instruction to the Interviewer:**

The interviewer is required to ask the following question to the respondents. Read the various options mentioned under the corresponding questions. Allow the respondent to answer, repeat the options till they understand. The investigator will tick (✓) the answer stated by the respondent for the corresponding questions.

**Instruction to the Participant:**

This interview schedule contains questions related to knowledge regarding oral hygiene. It has 2 sections.

Section -A: Requires information related to your personal data

Section-B: Includes question regarding oral hygiene.

**SECTION – A**

**DEMOGRAPHIC DATA**

Sample No:

Date

**Demographic data for child:**

1) Age of the child

1.1) 6 years [ ]

1.2) 7 years [ ]

1.3) 8 years [ ]

2) Sex of the child

2.1) Male [ ]

2.2) Female [ ]

- 3) Class of studying
- 3.1) I standard [ ]
- 3.2) II standard [ ]
- 3.3) III standard [ ]
- 4) Birth order of the child
- 4.1) One [ ]
- 4.2) Two [ ]
- 4.3) Three and above [ ]
- 5) Previous information regarding oral hygiene
- 5.1) Yes [ ]
- 5.2) No [ ]
- 5.1) If yes, source of information
- 5.1.1) Health professionals [ ]
- 5.1.2) Family members [ ]
- 5.1.3) Electronic media [ ]
- 5.1.4) Any other [ ]

**Demographic data for parents:**

- | 6) Education level of parents | Father | Mother |
|-------------------------------|--------|--------|
| 6.1) Profession               | [ ]    | [ ]    |
| 6.2) Graduate                 | [ ]    | [ ]    |
| 6.3) Intermediate             | [ ]    | [ ]    |
| 6.4) High school              | [ ]    | [ ]    |
| 6.5) Middle school            | [ ]    | [ ]    |
| 6.6) Primary school           | [ ]    | [ ]    |
| 6.7) Illiterate               | [ ]    | [ ]    |

7) Occupation of the parents		Father	Mother
7.1) Profession		[ ]	[ ]
7.2) Semi profession		[ ]	[ ]
7.3) clerical.		[ ]	[ ]
7.4) Skilled worker		[ ]	[ ]
7.5) Semi-skilled worker		[ ]	[ ]
7.6) Unskilled worker		[ ]	[ ]
7.7) Unemployed		[ ]	[ ]
8) Family income / monthly in Rupees			
8.1) above 19575			[ ]
8.2) 9788- 19574			[ ]
8.3) 7323– 9787			[ ]
8.4) 4894 - 7322			[ ]
8.5) 2936 – 4893			[ ]
8.6) 980 – 2935			[ ]
8.7) Below 979			[ ]
9) Type of family			
9.1) Nuclear			[ ]
9.2) Joint			[ ]
9.3) Extended			[ ]

## SECTION – B

### Note:

Each question has three options for the respective questions in which one will be the correct answer. Kindly answer whichever you feel is correct. All information, which is provided by you, will be kept confidential.

### I. RELATED TO ORAL HEALTH:

1. What is oral hygiene?
  - 1.1) Absence of tooth decay [ ]
  - 1.2) Clean and healthy mouth, gums, teeth and lips [ ]
  - 1.3) Clean and aligned teeth [ ]
2. Why oral hygiene important?
  - 2.1) To Prevent oral cancer [ ]
  - 2.2) For Overall wellbeing [ ]
  - 2.3) For Eruption of new teeth [ ]
3. What is dental caries?
  - 3.1) Tooth ache [ ]
  - 3.2) Decayed teeth [ ]
  - 3.3) Discoloured teeth [ ]
4. What causes tooth decay?
  - 4.1) Fever [ ]
  - 4.2) Poor oral hygiene [ ]
  - 4.3) Eating sugary food with meals [ ]
5. How often do we need to visit a dentist ?
  - 5.1) Once in a year [ ]
  - 5.2) Once in 6 months [ ]
  - 5.3) Whenever necessary [ ]

## II. Related to Brushing

6. What are the methods used to maintain oral hygiene?

6.1) Brushing only [ ]

6.2) Brushing and rinsing [ ]

6.3) Brushing, rinsing, diet and dental visit [ ]

7. What is to be done after getting up in the morning?

7.1) Eating biscuits [ ]

7.2) Tooth brushing [ ]

7.3) Taking milk with sugar [ ]

8. What is the purpose of brushing teeth?

8.1) To keep the teeth clean [ ]

8.2) To helps in eruption of teeth [ ]

8.3) To treat bleeding gums [ ]

9. What material is used to clean the teeth?

9.1) Tooth brush [ ]

9.2) Neem stick [ ]

9.3) Finger [ ]

10. Which technique cleanses the teeth better?

10.1) Use horizontal stroke [ ]

10.2) Use back and forth [ ]

10.3) Circular stroke [ ]

11. How often teeth is to be brushed?

11.1) Once daily [ ]

11.2) Twice daily [ ]

11.3) Thrice daily [ ]



12. How many minutes teeth is to be brushed?
- 12.1) ½ - 1 min at each brushing [ ]
  - 12.2) 2– 3 min at each brushing [ ]
  - 12.3) 5 -6 min at each brushing [ ]
13. How frequently tooth brush must be changed?
- 13.1) Once in 3 months [ ]
  - 13.2) Once in 6 months [ ]
  - 13.3) Yearly once [ ]
14. When the toothbrush needs to be changed?
- 14.1) After recovering from illness [ ]
  - 14.2) Once in 2 month [ ]
  - 14.3) If the tooth brush fell down [ ]
15. How to take care of brush after brushing the teeth?
- 15.1) wash well and keep in horizontal position [ ]
  - 15.2) Keep in clean, dry place in upright position [ ]
  - 15.3) keep in brush stand with other brushes [ ]
16. Which substance is the best dentrifice?
- 16.1) Tooth powder [ ]
  - 16.2) Tooth paste [ ]
  - 16.3) Coal [ ]
17. Which toothpaste to be used for brushing?
- 17.1) Fluoride containing toothpaste [ ]
  - 17.2) Coloured toothpaste [ ]
  - 17.3) White coloured toothpaste [ ]

18. How much of paste is to be used for brushing?
- 18.1) Full length of bristles [ ]
  - 18.2) Half-length of bristles [ ]
  - 18.3) Pea sized amount [ ]
19. When the mouth need to be rinsed?
- 19.1) Before every meal [ ]
  - 19.2) Before going to sleep [ ]
  - 19.3) After every meal [ ]
- III) Related to diet:**
20. What is to be done after eating sticky chocolates?
- 120.1) Rinsing the mouth [ ]
  - 20.2) Drinking water [ ]
  - 20.3) Eating fruits [ ]
21. How to remove the food particle that is present in between teeth?
- 21.1) Using pin and needle [ ]
  - 21.2) Tooth picks [ ]
  - 21.3) Gargling the mouth [ ]
22. Which is good for oral health?
- 22.1) Coloured drinks [ ]
  - 22.2) Milk with sugar [ ]
  - 22.3) Fruits [ ]
23. Which is more preferential liquid drink before going to bed?
- 23.1) Milk with less sugar [ ]
  - 23.2) Carbonated fizzy drinks [ ]
  - 23.3) Tea [ ]

24. How does calcium help the teeth?
- 24.1) Healthy gums [ ]
  - 24.2) Maintain the tooth enamel [ ]
  - 24.3) Increases tooth sensitization [ ]
25. What diet is needed to have a strong teeth?
- 25.1) Sweets and fruit juice [ ]
  - 25.2) Green leafy vegetables and calcium rich food [ ]
  - 25.3) White bread and candies [ ]
26. Which one of the following is a cause for tooth decay?
- 26.1) Sweets and chocolates [ ]
  - 26.2) Fruit salad and vegetables [ ]
  - 26.3) Rice and wheat [ ]

## SCORING PROCEDURE

### Interpretations:

Each correct response carries 1 mark.

Each wrong response carries 0 mark.

LEVEL OF KNOWLEDGE	MARKS	PERCENTAGE
Inadequate	0 – 8	0 – 33%
Moderately adequate	9 – 16	34 – 66%
Adequate	17 – 24	67 – 100%

### KEY:

QUESTION NO.	ANSWER	QUESTION NO.	ANSWER
1	1.2	14	14.1
2	2.2	15	15.2
3	3.2	16	16.2
4	4.2	17	17.1
5	5.2	18	18.3
6	6.3	19	19.3
7	7.2	20	20.1
8	8.2	21	21.3
9	9.1	22	22.3
10	10.3	23	23.1
11	11.2	24	24.2
12	12.2	25	25.2
13	13.1	26	26.1

**பள்ளி குழந்தைகளுக்கிடையே வாய்சுத்தம் தொடர்பான அறிவுதிறன்**

**தொடர்பான நேர்காணல் பட்டியல்**

**நேர்காணல் செய்பவருக்கான வழிமுறைகள்:**

நேர்காணல் செய்பவர் குழந்தைகளிடம் கீழ்வரும் கேள்விகளை கேட்டல் வேண்டும். கேள்விகளின் கீழ்வரும் அனைத்துவிதமான பதில்களை வாசித்தல் வேண்டும். குழந்தைகள் பதில் கூற அனுமதித்தலுடன் அவர்களுக்கு நன்கு புரியும் வரை பதில்களை எடுத்துரைக்கவேண்டும். நேர்காணலில் பங்கு பெற்ற குழந்தைகள் கூறும் பதிலை ஆராய்ச்சியாளர் (✓) குறியிடவேண்டும்.

**நேர்காணலில் ஈடுபடுவோருக்கான வழிமுறை:**

இந்த நேர்காணல் பட்டியலில் வாய்சுத்தம் தொடர்பான 2 பகுதிகள் உள்ளன.

பகுதி-அ: தனிநபர் பற்றிய விபரம்

பகுதி-ஆ: வாய்சுத்தம் தொடர்பான கேள்விகள்

**பாகம் - அ**

**தனிநபர் பற்றிய விபரங்கள்**

**அன்பார்ந்த பங்கேற்பாளர்களே,**

இப்பகுதியில் கொடுக்கப்பட்ட கேள்விகள் உங்களின் தனிப்பட்ட விபரங்களை அறிந்து கொள்ள பயன்படுத்தப்படுகிறது. நீங்கள் அளிக்கும் விபரங்கள் பத்திரமாக பாதுகாக்கப்படும்.

மாதிரி எண்:

**குழந்தையின் விபரம்**

1. குழந்தையின் வயது

1.1) 6 வயது

1.2) 7 வயது

1.3) 8 வயது

2. குழந்தையின் பாலினம்

2.1) ஆண்

2.2) பெண்

3. படிக்கும் வகுப்பு

3.1) முதலாம் வகுப்பு

3.2) இரண்டாம் வகுப்பு

3.3) மூன்றாம் வகுப்பு

4. குழந்தையின் பிறப்பு வரிசை?

4.1) ஒன்று

4.2) இரண்டு

4.3) மூன்று அல்லது மேல்

5.வாய் தூய்மை சம்பந்தமான விவரங்கள் இதற்கு முன் கேட்டறிந்ததுண்டா?

5.1) ஆம்

5.2) இல்லை

5.1. ஆம் என்றால், அதன் விவரங்கள்

5.1.1) மருத்துவர்கள்

5.1.2) குடும்ப உறுப்பினர்கள்

5.1.3) தொலைத்தொடர்பு

5.1.4) வேறு ஏதேனும்

**பெற்றோரின் விபரம்**

6. பெற்றோரின் கல்வித்தகுதி

தந்தை

தாய்

6.1) தொழிற்கல்வி

6.2) பட்டதாரி

6.3) நடுநிலை

6.4) மேல்நிலை

6.5) இடைநிலை

6.6) ஆரம்பநிலை

7.7) கல்வியறிவின்மை

7. பெற்றோரின் தொழில்

தந்தை

தாய்

- 7.1) தொழிற்கல்வி
- 7.2) தொழிற்பயிற்சி அளிக்கப்பட்ட வேலை
- 7.3) கடை முதலாளி/ கடை உரிமையாளர்
- 7.4) துறைச்சார்ந்த வேலை
- 7.5) பயிற்சி அளிக்கப்பட்ட துறைச்சார்ந்த வேலை
- 7.6) தினக்கூலி
- 7.7) வேலையில்லாதவர்

8. குடும்பத்தின் மாத வருமானம்

- 8.1) ரூ.19575க்கு மேல்
- 8.2) ரூ.9788 - 19574
- 8.3) ரூ.7323 - 9787
- 8.4) ரூ.4894 - 7322
- 8.5) ரூ.2936 - 4893
- 8.6) ரூ.980 - 2935
- 8.7) ரூ.975க்கு கீழ்

9. குடும்பத்தின் வகை

- 9.1) தனி
- 9.2) கூட்டு
- 9.3) பெரிய

## பகுதி - ஆ

### வாய் சுத்தம் தொடர்பான கேள்விகள்

#### குறிப்பு:

கீழே கொடுக்கப்பட்ட ஒவ்வொரு கேள்விகளுக்கு மூன்று பதில்கள் கொடுக்கப்பட்டுள்ளன. அவற்றில் ஒரு பதில் மிகச் சரியானதாகும். அனைத்து கேள்விகளையும் நன்கு கேட்டு சரியான பதிலை அளிக் குமாறு கேட்டுக்கொள்ளப்படுகிறது. நீங்கள் அளிக்கும் தகவல்கள் அனைத்தும் பத்திரமாக பாதுகாக்கப்படும்.

1. "வாய் சுத்தம்" என்றால் என்ன?

1.1) பல் சொத்தை இல்லாமை

1.2) சுத்தமான, ஆரோக்கியமான வாய், ஈறுகள், பற்கள் மற்றும் உதடுகள்

1.3) சுத்தமான மற்றும் வரிசையான பற்கள்

2. "வாய் சுத்தம்" ஏன் முக்கியம்?

2.1) வாய் புண் வராமல் இருக்க

2.2) ஒட்டுமொத்த உடல் நலன்

2.3) புது பற்கள் முளைப்பதற்கு

3. பற்களில் என்ன பாதிப்புகள் ஏற்படுகிறது?

3.1) பல் வலி

3.2) பற்சிதைவு

3.3) நிறம் மங்கிய பற்கள்

4. என்ன காரணங்களினால் பற்சிதைவு ஏற்படுகிறது?

4.1) காய்ச்சல்

4.2) வாய் தூய்மையின்மை

4.3) அதிக இனிப்பு வகைகளை உணவு வேளையில் உட்கொள்வதால்



5. பல் மருத்துவரை எவ்வளவு கால இடைவெளியில் ஆலோசிக்க வேண்டும்?

5.1) வருடத்திற்கு ஒரு முறை

5.2) ஆறு மாதத்திற்கு ஒரு முறை

5.3) எப்போது தேவைப்படுகிறதோ அந்த நேரங்களில்

6. வாய் சுத்தத்திற்கு கடைப்பிடிக்க வேண்டிய வழிமுறைகள்?

6.1) பல் துலக்குவது மட்டும்

6.2) பல் துலக்குவது மற்றும் வாய் கொப்பளிப்பது

6.3) பல் துலக்குவது, வாய் கொப்பளிப்பது, உணவு கட்டுப்பாடு,

மருத்துவ ஆலோசனை

7. காலையில் எழுந்தவுடன் செய்ய வேண்டிய வேலை என்ன?

7.1) வாய் கொப்பளித்தல்

7.2) பல் துலக்குதல்

7.3) சர்க்கரை கலந்த பாலை சாப்பிடுதல்

8. பல் துலக்குவதன் நோக்கம் என்ன?

8.1) பல்லை சுத்தமாக வைத்திருத்தல்

8.2) புது பற்கள் முளைப்பதற்கு

8.3) பல்லில் இரத்தம் வடிதல் சிகிச்சைக்காக

9. எதனை வைத்து பல்துலக்க வேண்டும்?

9.1) பல்தூரிகை

9.2) வேப்பங்குச்சி

9.3) விரல்

10. எந்த உத்தி பல்லை சிறந்த வகையில் சுத்தமாக்கும்?

10.1) இடது வலமாக தேய்ப்பது

10.2) முன்னே பின்னே தேய்ப்பது

10.3) சுழற்சி முறையில்

11. எத்தனை முறை பல்துலக்கவேண்டும்?
- 11.1) ஒரு நாளைக்கு ஒரு முறை
- 11.2) ஒரு நாளைக்கு இரண்டு முறை
- 11.3) ஒரு நாளைக்கு மூன்று முறை
12. எவ்வளவு நேரம் பல்லை சுத்தப்படுத்த வேண்டும்
- 12.1) ½ - 1 நிமிடம்
- 12.2) 2-3 நிமிடங்கள்
- 12.3) 5-6 நிமிடங்கள்
13. எத்தனை மாத இடைவெளியில் நாம் நமது பல்தூரிகை மாற்ற வேண்டும்?
- 13.1) மூன்று மாதங்களுக்கு ஒரு முறை
- 13.2) ஆறு மாதங்களுக்கு ஒருமுறை
- 13.3) வருடத்திற்கு ஒரு முறை
14. எப்போது பல்தூரிகை கண்டிப்பாக மாற்றவேண்டும்?
- 14.1) உடல் நலக்குறைவிலிருந்து திரும்பிய பின்
- 14.2) இரண்டு மாதங்களுக்கு ஒரு முறை
- 14.3) பல்துடைப்பான் கீழே விழுந்தால்
15. பல் தூரிகை உபயோகப்படுத்திய பின் எவ்வாறு பாதுகாக்க வேண்டும்?
- 15.1) நன்றாக கழுவி மட்டமான நிலையில் வைக்கவேண்டும்
- 15.2) நன்றாக சுத்தம் செய்து, உலர்ந்த இடத்தில் செங்குத்தாக வைக்கவும்
- 15.3) எல்லா துடைப்பானோடு பல் துடைப்பானையும் சேர்த்து  
மட்டமான நிலையில் வைக்கவும்
16. பல் சுத்தத்திற்கு உபயோகப்படுத்த வேண்டிய பொருள் என்ன?
- 16.1) பற்பொடி
- 16.2) பற்பசை
- 16.3) கரி

17. எந்த பற்பசை பல் துலக்க சிறந்தது?
- 17.1) ப்ளோரைடு கலந்த பற்பசை
  - 17.2) நிறமேற்றிய பற்பசை
  - 17.3) வெள்ளைநிற பற்பசை
18. பல் துலக்குவதற்கு தேவைப்படும் பற்பசையின் அளவு என்ன?
- 18.1) தூரிகை முழுவதும்
  - 18.2) தூரிகை பாதி அளவு மட்டும்
  - 18.3) பட்டாணி அளவு மட்டும் வைத்தல்
19. எப்பொழுதெல்லாம் வாய் கொப்பளிக்க வேண்டும்?
- 19.1) சாப்பிடுவதற்கு முன்
  - 19.2) தூங்க செல்வதற்கு முன்
  - 19.3) சாப்பிட்ட பின்
20. ஓட்டும் தன்மை கொண்ட சாக்லெட், மற்றும் வேறு இனிப்பு வகைகள் சாப்பிட்ட பின் என்ன செய்ய வேண்டும்?
- 20.1) வாய் கொப்பளித்தல்
  - 20.2) நீர் அருந்துதல்
  - 20.3) பழங்களை உண்ணுதல்
21. பற்களின் நடுவே இருக்கும் உணவு பொருட்களை எவ்வாறு நீக்கவேண்டும்?
- 21.1) ஊசிகளை பயன்படுத்துதல்
  - 21.2) பல் குத்தும் குச்சி
  - 21.3) வாய் கொப்பளித்தல்
22. பல் சுத்தத்திற்கு எந்த வகை உணவு உகந்தது?
- 22.1) குளிர் பானங்கள்
  - 22.2) சர்க்கரை கலந்த பால்
  - 22.3) பழங்கள்

23. படுக்கைக்கு போகும் முன் விருப்பமான திரவ உணவு என்ன?

23.1) சிறிது சர்க்கரை கலந்த பால்

23.2) கரிமம் ஏற்றிய பழங்கள்

23.3) நீர்

24. எந்த சத்து பல் வளர்ச்சிக்கு உதவுகிறது?

24.1) கால்சியம்

24.2) குளோரைடு

24.3) மக்னீசியம்

25. உறுதியான பற்கள் கிடைக்க எந்த வகையான உணவு கட்டுப்பாடு அவசியம்?

25.1) இனிப்புகள் மற்றும் பழச்சாறுகள்

25.2) பச்சை இலை காய்கறிகள் மற்றும் கால்சியம் நிறைந்த உணவு

25.3) வெள்ளை ரொட்டி, மிட்டாய்

26. பல் சொத்தைக்கான காரணங்கள்?

26.1) இனிப்பு மற்றும் சாக்லெட்டுகள்

26.2) பழ கலவை மற்றும் காய்கறிகள்

26.3) அரிசி மற்றும் கோதுமை உணவு

## ANNEXURE – E

100	99	97	96	95	94	93	92	91	
81	82	84	85	86	87	88	89	90	
80	79	78	77	76	75	74	73	72	71
61	62	63	64	65	66	67	68	69	70
60	59	58	57	56	55	54	53	52	51
40	42	43	44	45	46	47	48	50	50
40	39	38	37	36	35	34	33	32	31
21	22	23	24	25	26	27	28	29	30
20	19	18	17	16	15	14	13	12	11
1	2	3	4	5	6	7	8	9	10

**100** பல்சொத்தை கிறந்த பின்பும் பல்மருத்துவரிடம் செல்லாமல் இருத்தல்

**97** பல்சொத்தை கிறந்த பின்பும் பல்மருத்துவரிடம் செல்லாமல் இருத்தல்

**74** பால், தயிர் குறைந்த அளவு சர்க்கரையுடன் உட்கொள்ளுதல்

**73** அளவிற்கு அதிகமான இனிப்புகளை உட்கொள்ளுதல்

**71** காய்கறி மற்றும் பழங்கள் அதிகமாக உட்கொள்ளுதல்

**64** ஊசி கொண்டு பற்களில் சிக்கியுள்ள உணவுகளை எடுத்தல்

**52** இனிப்பு உணவு உண்ட பின் வாய் கொப்பளித்தல் மறத்தல்

**43** உணவு உட்கொண்ட பின் வாய்கொப்பளித்தல்

**36** 6 மாதத்திற்கு மேல் பல் துடைப்பான் உபயோகித்தல்

**35** சிறிதளவு ப்ளோரைடு பற்பசை உபயோகித்தல்

**24** பல் துடைப்பானை மற் றவரிடம் பகிர்தல்

**11** இருவேளை 2-3 நிமிடங்கள் பல் துடைக்குதல்

**2** பற்களின் ஆரோக்கியத்தை கவனித்தல்

**5** பல் துடைப்பான் கொண்டு தினமும் பல் துடைக்குதல்

## DESCRIPTION OF SNAKE AND LADDER GAME

### **Introduction:**

Snake and Ladder game is the excellent game to teach the children regarding oral hygiene. Snake Ladder game helps to teach the child about aspiration, success and disappointment. The child will gain experience with both winning and losing and learn that no matter what the result, next time the child will tries begin again with a clean slate. Games also give you the opportunity to teach the children about rules, about integrity and honesty and about luck. Games also can increase child's ability to focus her / his attention. Playing board games also is a very social occasion.

### **Aim:**

The theme of the snake and ladder board design in playground equipment-children climb ladder to go up and snakes to go down. The art work on the board teaches a morality lesson, the square on the bottom of the ladders show a child doing a good or sensible deed at the top of the ladder there is an image of the child enjoying the reward. At the bottom of the snake, there are picture of children engaging in mischievous or foolish behavior and the images on the bottom show the child suffering the consequences.

### **Explanation:**

- *Players:*
  - Snakes and Ladder is played by 2-4 players, each with their own token to move around a board
- *Moving:*
  - Players roll a die or spin a spinner, then move the designated number o spaces, between one and six. Once they land on a space, they have to perform any action designated by the space

- *Ladders:*
  - If the space a player lands on is at the bottom of a ladder (measure that helps to maintain oral hygiene), he/she should climb the ladder, which brings them to a space higher on the board.
- *Snakes*
  - If the space a player lands on is at the top of a snake (measure that bad for oral hygiene), he/ she must slide down to the bottom of it, landing on a space closer to the beginning.
- *Winning:*
  - The winner is the player who gets to the last space on the board first (attaining oral hygiene), whether by landing on it from a roll, or by reaching it with a ladder.

**Rules:**

There are different rules for how this square can be reached

- ❖ 2-4 player may participate in a game of Snake and Ladder
- ❖ Play takes on a snake and ladders board where the spaces are numbered from 1-100.
- ❖ The position and effects of Snake and Ladder will be consistent
- ❖ Each player starts off the board at space0.
- ❖ To decide who starts the game. The player take turns in rolling the dice, the player with the highest score starts, and rolls the die again to move. The race to the end of the board begins.
- ❖ The winner is the first player to end a turn on 100, if more than one player satisfied this condition in the same turn; the player who would have travelled furthest past space 100 will be the winner. Tie for this honor result in draw.

- ❖ The exact number needs to be rolled on the dice. Rolling of six plays important role in the see-saw nature of the game. If a player rolls a six, he/ she may advance six squares and then roll the dice again. However, if a player rolls three sixes in a row. She/he is forced to return to the first square (Which is where the famous term “back to the square one” comes from), and is not allowed to move again until she has rolled another six.
- ❖ More than one can occupy the same square.

**Role of the investigator:**

The investigator have to explain the reason to the children while they climbing in the ladder and slide down in the snake that good oral health measures leads to oral hygiene and bad oral health measures leads to causation of oral health problems respectively. There is the chance for missing some numbers while they climb up. So the investigator has to make the children to play more than 2-3 times as it helps them reinforcing the importance of oral hygiene.



## **ANNEXURE – F**

### **LESSON PLAN ON ORAL HYGIENE THROUGH SNAKE AND LADDER GAME**

TOPIC	: Oral Hygiene
GROUP	: School age children residing in rural areas (6-8 years).
DURATION	: 20 min
METHOD OF TEACHING	: Play way, lecture cum discussion
MEDIUM	: Tamil
A.V.AIDS	: Snake and ladder game board, flash cards
PLACE	: Palampatti Government Elementary School.

Central objective:

At the end of the game the children will be able to understand about the effects of improper oral hygiene and gain adequate knowledge on oral hygiene and dietary practice and develop positive attitude and skill towards the same.

SPECIFIC OBJECTIVES	CONTENT	TEACHERS ACTIVITY WITH A.V.AIDS	STUDENTS ACTIVITY
<p>The group will be able to define oral hygiene</p> <p>The group will be</p>	<p><b>Introduction:</b></p> <p>Oral health is the essential component of total health. If the eyes are the window into people's innermost being, the mouth is a mirror that reflects the health condition of their body. Recent researches indicate that there is a link between periodontal (gum) disease and heart diseases such as stroke. Moreover, 90% of all systemic health problem have manifestation in the mouth.</p> <p><b>Oral hygiene:</b></p> <p>Oral hygiene is the practice which enables to keep the oral cavity clean in order to prevent the onset and progressions of common problems like dental caries, gingivitis, periodontitis, halitosis, and other dental disorder.</p> <p><b>Aspects of oral hygiene:</b></p>	<p>The investigator show the snake and ladder game and motivate the child to play</p> <p>Defining the oral hygiene</p> <p>Listing down the aspects of</p>	<p>The children show eagerness in playing the game</p> <p>Understand the meaning of oral hygiene</p> <p>Gain knowledge on the</p>

<p>list down the aspect of oral hygiene</p> <p>The group will be able to justify about tooth brushing</p>	<p>To maintain good oral hygiene three things are necessary. They are</p> <ul style="list-style-type: none"> <li>• Tooth brushing and dental visit</li> <li>• Rinsing</li> <li>• Diet</li> </ul> <p><b>I)Tooth brushing:</b></p> <p>Mothers are often seeing running around their children to brush.children are lazy and mothers get tired after the daily running around. So the best way is, teach the children regarding the importance of oral hygiene, thereby they able to take care of themselves by own.</p> <p><b>Purposes of tooth brushing:</b></p> <ul style="list-style-type: none"> <li>✓ Brushing removes plaque</li> <li>✓ Gives clean teeth, gums and fresh breathe</li> <li>✓ Prevent halitosis</li> <li>✓ Remove food debris</li> </ul> <p><b>Techniques for tooth brushing:</b></p> <p>The circular brushing method or Fone’s technique is a natural</p>	<p>oral hygiene</p> <p>Justifies the importance of tooth brushing</p>	<p>aspects of oral hygiene</p> <p>By means snake and ladder game the children gain knowledge on brushing teeth</p>
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	<p>brushing method to use with young children.</p> <p>It is a method of toothbrushing</p> <ul style="list-style-type: none"> <li>• In which the brush is held horizontally with the bristles lying against the teeth and gingivae and pointed in a coronal direction at 45 degrees so that the bristles lie half on the teeth and half on the gingivae.</li> <li>• A vibratory cycle of a very constricted diameter is negotiated so that the brush head moves in a circular movement but the brush bristles remain fairly stationary while being agitated.</li> <li>• The circular vibration loosens debris and pumps the bristles into interproximal areas to massage the tissues.</li> </ul> <p><b>Frequency of tooth brushing:</b></p> <ul style="list-style-type: none"> <li>✓ Daily brushing should be done</li> <li>✓ Tooth brushing twice daily is recommended by most of the dentists in order to improve plaque control.</li> <li>✓ Brushing at night is very important because <ul style="list-style-type: none"> <li>• the food particles which are there in the mouth will be fermented by the bacteria to produce the acid and this will cause the decay of the teeth.</li> <li>• At night while sleeping the saliva flow is less. The self-</li> </ul> </li> </ul>		
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<p>the group will</p>	<p>cleansing property of saliva is less</p> <ul style="list-style-type: none"> <li>• Absence of intake of food reduces the swallowing reflex.</li> </ul> <p>These all factors add in and the incidence of caries increases. So brush the teeth before going to bed.</p> <p><b>Duration for brushing:</b></p> <ul style="list-style-type: none"> <li>✓ Brushing should be done for 2- 3 minutes each time.</li> </ul> <p><b>Frequency of changing tooth brushing:</b></p> <ul style="list-style-type: none"> <li>✓ Change the tooth brush once in 3 months.</li> <li>✓ replace tooth brush after illness.</li> </ul> <p><b>Substance used to clean teeth:</b></p> <ul style="list-style-type: none"> <li>✓ Tooth powder is a mild abrasive powder that erodes the tooth enamel. So prefer fluoridated tooth paste</li> </ul> <p><b>amount of paste :</b></p> <ul style="list-style-type: none"> <li>✓ Pea sized amount of paste is recommended for children.</li> </ul> <p><b>Visit to dentist:</b></p> <ul style="list-style-type: none"> <li>✓ A child should first visit the dentist within six months of eruption of the first tooth and no later than 12 months of age.</li> <li>✓ After that, a child should visit a dentist every 6 months or</li> </ul>	<p>Explains the importance of</p>	<p>The game moves towards</p>
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<p>able to explain the importance of dental visit</p>	<p>whenever need arises.</p>	<p>dental visits</p>	<p>the end they learn about the need of dental visit.</p>
<p>the group will be able to describe about rinsing</p>	<p><b>II) Rinsing mouth:</b>  Rinse mouth</p> <ul style="list-style-type: none"> <li>▪ After every meal</li> <li>▪ After drinking coffee</li> <li>▪ After intake of sweets or sticky chocolates</li> <li>▪ If food particles present in between the teeth.</li> </ul> <p>Pins should not be used to remove the food particles that is present in between the teeth.</p>	<p>Describes the need for rinsing</p>	<p>As the game proceeds the children learn about rinsing</p>
<p>the group will be able to brief about diet</p>	<p><b>III) Dietary pattern:</b>  Solid and retentive sucrose containing food are more cariogenic than sugar containing foods that are liquid and non retentive.  The frequency and time of ingestion of foods are also important.  The sucrose containing food becomes more dangerous if it is eaten more frequently. Food eaten at meals produces less caries than the same eaten in between meals.</p> <p><b>Food items to be avoided for oral health:</b></p> <ul style="list-style-type: none"> <li>➤ Food containing sugar in solution:</li> </ul>	<p>Briefing the health dietary practices</p>	<p>The ladders claim towards healthy dietary practices</p>

	<ul style="list-style-type: none"><li>▪ Soft drinks</li><li>▪ Sweetened condensed milk</li><li>▪ Powdered drink mixes</li><li>▪ Fruit drinks</li><li>➤ Solid retentive food containing sugar:<ul style="list-style-type: none"><li>▪ Hard candy</li><li>▪ Lollipops</li><li>▪ Sugar coated gum</li><li>▪ Chocolates</li><li>▪ White bread candies.</li></ul></li><li>➤ <b>Food to be taken for oral health:</b><ul style="list-style-type: none"><li>▪ Fish</li><li>▪ meat</li><li>▪ Vegetables</li><li>▪ Fruits</li><li>▪ Sugar free gums</li><li>▪ Fresh milk</li><li>▪ Cheese</li><li>▪ Vitamin c rich food</li><li>▪ Fibre rich food</li></ul></li></ul>		
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	<p><b>Summary:</b></p> <p>By means of gaming the children learned about the major aspects of oral hygiene</p> <p><b>Conclusion:</b></p> <p>Gaming is an important aspect of the childrens learning technique here also the children move along with each block of the board and play and learn hand in hand about oral hygiene.</p>		
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## பாடத்திட்டம்

தலைப்பு	: வாய் சுத்தம்
குழு	: 6 - 8 வயதுள்ள கிராம பள்ளி மாணவர்கள்
நேரம்	: 20 நிமிடங்கள்
பயிற்றுவிக்கும் முறை	: விரிவுரைத்தல், கலந்தாலோசித்தல், விளையாட்டு வழி
பயிற்றுவிக்கும் மொழி	: தமிழ்
பயிற்றுவிக்கும் வழி	: விளக்கப்படங்கள், பாம்பு ஏணி விளையாட்டு அட்டை
இடம்	: ஊராட்சி ஒன்றிய தொடக்கப்பள்ளி, பாலம்பட்டி

பொதுக்குறிக்கோள்:

விளையாட்டின் முடிவில், குழந்தைகள் வாய்சுத்தம் என்றால் என்ன என்பதையும், எவ்வாறு வாய்சுத்தம் கடைப்பிடிக்க வேண்டும் என்றும், சுத்தமின்மையால் வரும் தீமைகள் பற்றியும் அறிந்து கொண்டு, அதனை பயிற்சி செய்யவேண்டும்.

சிறப்பு குறிக்கோள்	மையப்பொருள்	ஆசிரியர் செயல் மற்றும் பயிற்றுவிக்கும் வழி	மாணவர் செயல்
	<p>முன்னுரை: வாய்சுத்தம் முழு உடலின் நலனுக்கு ஒரு முக்கிய காரணியாகும். கண்கள் ஒரு மனிதனின் இருதயத்தை விளக்கி சொல்லுமானால் வாய் கண்ணாடியை போல மனிதன் உடல்நலத்தை விளக்கி கூறும் அண்மையில் ஆராய்ச்சியாளர்கள் பற்களின் பிரச்சினைக்கும், இருதயம் தொடர்பான பிரச்சனைகள் (முடக்குவாதம்) தொடர்பு இருப்பதாக கண்டறிந்துள்ளனர்.</p>	<p>ஆராய்ச்சியாளர் விளக்கப்படத்தை காண்பித்து குழந்தைகளை விளையாடும்படி ஊக்குவிக்கவேண்டும்.</p>	<p>குழந்தைகள் விளையாடுவதில் ஆர்வம் காட்ட வேண்டும்.</p>
<p>குழு மாணவர்கள் வாய் சுத்தத்தை பற்றி வரையறுத்தல்</p>	<p>வாய் சுத்தம் என்பது சுத்தமான மற்றும் ஆரோக்கியமான வாய், ஈறுகள், பற்கள் மற்றும் உதடுகள் இருப்பவையே ஆகும்.</p>	<p>வாய் சுத்தத்தை பற்றி வரையறுத்தல்</p>	<p>வாய் சுத்தத்தின் அர்த்தத்தை புரிந்து கொள்ளுதல்</p>
<p>குழு மாணவர்கள் வாய் சுத்தத்தின் முறைகளை பட்டியலிடுதல்</p>	<p>வாய் சுகாதாரம் என்பது வாய், ஈறுகள், பற்கள் மற்றும் உதடுகளை சுத்தமாக வைத்திருக்க செய்யும் பயிற்சியே ஆகும். வாய் சுத்தத்திற்கு கையாள வேண்டிய நான்கு முக்கியமான முறைகள் உள்ளன. அவை,</p>	<p>வாய் சுத்தத்தின் முறைகளை பட்டியலிடுதல்</p>	<p>வாய் சுத்தத்தின் முறைகள் பற்றி அறிந்து கொள்ளுதல்</p>

<p>குழு மாணவர்கள் பல் துலக்கும் முறையினை பற்றி வலியுறுத்தல்</p>	<ul style="list-style-type: none"> <li>• பல் துலக்குதல், பல் மருத்துவரை சந்தித்தல்</li> <li>• வாய் கொப்பளித்தல்</li> <li>• உணவு</li> </ul> <p><b>பல்துலக்குதல்</b> தாய்மார்கள் தன் குழந்தை பல் துலக்குவதற்காக ஓடுவதை பல நேரங்களில் கண்டுள்ளோம். குழந்தைகளின் சோம்பேறி தனத்தினாலும், தினமும் ஓடுவதினாலும் அன்னையர்கள் மிகவும் சோர்ந்து விட்டனர். எனவே குழந்தைகளுக்கு வாய் சுகாதாரம் பற்றி எடுத்துக் கூறுவதே மிகச் சிறந்தவழி. மேலும் அவர்களே தங்கள் நலனை பார்த்துக் கொள்வர்.</p> <p><b>பல்துலக்குதலின் பயன்கள்</b></p> <ul style="list-style-type: none"> <li>• பல்துலக்குதல் பற்களின் படிந்து கொண்டிருக்கும் கிருமியை அகற்றுகிறது.</li> <li>• சுத்தமான பற்கள், ஈறுகள் மற்றும் புத்துணர்ச்சியான சுவாசத்தை அளிக்கிறது.</li> <li>• வாய் துர்நாற்றத்தை தடுக்கிறது.</li> <li>• உணவு துணுக்குகளை அகற்றுகிறது.</li> </ul>	<p>பல் துலக்கும் முறையினை வலியுறுத்தல்</p>	<p>குழந்தைகள் பரமபத விளையாட்டின் மூலமாக பல் துலக்குதல் பற்றிய அறிவினை அடைவர்.</p>
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	<p><b>பல் துலக்கும் முறைகள்</b>  சுழற்சி முறையில் பல் துலக்குதல்/ பான் முறையே இயற்கையாக குழந்தைகள் கையாள வேண்டிய முறையாகும்.</p> <p><b>பல் துலக்க முறை</b></p> <ul style="list-style-type: none"> <li>• பல் துடைப்பானை செங்குத்தாக பிடித்துக் கொண்டு, பல் துடைப்பான குச்சியை 45 டிகிரி அளவில் பல் மற்றும் ஈறுகள் மீது வைத்தவாறு பல்துலக்க வேண்டும்.</li> <li>• சுழற்சி முறையில் பல் துடைப்பான கொண்டு பல் துலக்கவேண்டும்.</li> <li>• சுழற்சி முறையில் பல் துலக்குவதினால் பற்களின் இடையில் சிக்கியுள்ள உணவு பொருட்கள் தொய்வடைய செய்யவேண்டும். பிறகு பல் துடைப்பானின் குச்சிகளை கொண்டு ஈறுகளுக்கிடையில் தடவிக் கொடுக்கவேண்டும்.</li> </ul> <p><b>பல் துலக்குவதின் அளவுமுறை:</b></p> <ul style="list-style-type: none"> <li>• தினமும் பல்துலக்குதல் வேண்டும்.</li> <li>• ஈறுகளில் தங்கும் கிருமியினை ஒழிக்க தினமும் இருவேளை பல்துலக்குவதை பல பல் மருத்துவர்கள் வேண்டுகோள் விடுக்கின்றனர்.</li> </ul>		
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	<ul style="list-style-type: none"> <li>• இரவில் உறங்க செல்லும் முன் பல் துலக்குதல் மிக அவசியம், ஏனென்றால்,</li> <li>• பற்களின் இடையில் மாட்டியுள்ள உணவு பொருட்கள் பாக்டீரியாக்களினால் கரைக்கப்பட்டு அமிலத்தை உருவாக்குகின்றன. இதனால் பற்கள் சேதமடைகின்றன.</li> <li>• இரவில் தூங்கும் போது எச்சில் மிகக் குறைவாக சுரக்கும். எனவே எச்சிலின் சுயசுத்தம் மீண்டும் தன்மை குறைகிறது.</li> <li>• உணவு உட்கொள்ளாமல் இருப்பதினால், விழுங்கும் தனிச்சை செயல் இல்லாமல் போகிறது.</li> </ul> <p>மேற்கூறிய அனைத்து காரணிகளும் பற்களின் சொத்தையை அதிகரிக்கிறது. எனவே உறங்கச் செல்லும் முன் பல்துலக்குக.</p> <p><b>பல்துலக்கும் காலஅளவு:</b></p> <ul style="list-style-type: none"> <li>• 2 - 3 நிமிடங்கள் ஒவ்வொரு முறையும் பல் துலக்க வேண்டும்.</li> </ul> <p><b>பல்துடைப்பாணை மாற்றும் காலஅளவு:</b></p> <ul style="list-style-type: none"> <li>• 3 மாதத்திற்கு 1 முறை பல் துடைப்பாணை மாற்ற வேண்டும்.</li> </ul>		
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<p>குழு மாணவர்கள் வாய் கொப்பளித்தல் பற்றி விளக்கி கூறுதல்</p>	<ul style="list-style-type: none"> <li>• உடல்நல குறைவிற்கு பின்னும் பல் துடைப்பானை கண்டிப்பாக மாற்ற வேண்டும்.</li> </ul> <p><b>பல் சுத்தத்திற்கு உபயோகப் படுத்தவேண்டிய பொருள்:</b></p> <ul style="list-style-type: none"> <li>• பற்பொடி ஒரு மெல்லிய அரிப்பான். அது பற்களில் மேலுள்ள எனாமல் என்ற மேலுறையை அரித்துவிடும். எனவே ப்ளோரைடு பற்பசையே உகந்தது.</li> </ul> <p><b>பற்பசையின் அளவு</b></p> <ul style="list-style-type: none"> <li>• பட்டாணி அளவு பற்பசையே குழந்தைகளுக்கு ஏற்றது.</li> </ul> <p><b>2. வாய்கொப்பளித்தல்</b></p> <p>வாய் கொப்பளிக்கும்பொழுது,</p> <ul style="list-style-type: none"> <li>• உணவு உட்கொண்ட பின்</li> <li>• தேநீர் அருந்திய பின்</li> <li>• இனிப்பு மற்றும் ஒட்டும் தன்மையுள்ள இனிப்புகளை உண்டபின்</li> <li>• பற்களுக்கு இடையில் உணவு பொருட்கள் சிக்கிக் கொண்டால் ஊசி மற்றும் கூரிய முனை கொண்ட பொருட்களைக் கொண்டு பற்களுக்கு இடையில் மாட்டிக் கொண்டிருக்கும் உணவுகளை எடுக்கக்கூடாது.</li> </ul>	<p>வாய் கொப்பளித்தல் பற்றி விளக்கி கூறுதல்</p>	<p>விளையாட்டு செல்ல செல்ல குழந்தைகள் வாய் கொப்பளித்தல் பற்றி அறிந்து கொள்ளுதல்</p>
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<p>குழு மாணவர்கள் உணவினை பற்றி விளக்கமாக எடுத்துரைத்தல்</p>	<p><b>3. உணவு முறை</b> திட மற்றும் சுக்ரோஸ் கொண்ட உணவுகள் திரவ மற்றும் மெல்லிய சர்க்கரை உணவுகளை விட பல் சொத்தையை உருவாக்கும். உணவு எடுத்துக் கொள்ளும் விதம் மற்றும் நேரம் மிக முக்கியம். சுக்ரோஸ் கொண்ட உணவு அதிகளவில் உட்கொண்டால் அபாயத்தை வருவிக்கும். உணவு வேளையின் போது உண்ணும் இனிப்புகள், உணவு இடைவெளியின் போது உண்ணும் இனிப்புகளை விட குறைந்த சொத்தை பற்களை உருவாக்கும் நிலை உள்ளது. <b>பல் சுத்தத்திற்கு தவிர்க்க வேண்டிய உணவுகள்</b> <b>திரவ இனிப்பு</b></p> <ul style="list-style-type: none"> <li>• கலர் பானங்கள்</li> <li>• இனிப்பான பால்</li> <li>• பொடி கலந்த இனிப்பு திரவம்</li> <li>• பழச்சாறு</li> </ul> <p><b>திரவ இனிப்பு உணவுகள்</b></p> <ul style="list-style-type: none"> <li>• திடமான சாக்லெட்</li> </ul>	<p>உணவினை பற்றி விளக்கமாக எடுத்துரைத்தல்</p>	<p>ஆரோக்கியமான உணவு பயிற்சிகளை ஏணியின் முடிவில் தெரிந்து கொள்ளுதல்</p>
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	<ul style="list-style-type: none"> <li>• குச்சி மிட்டாய்</li> <li>• இனிப்பி தடவிய</li> <li>• சாக்லெட்</li> <li>• வெள்ளை ரொட்டி மிட்டாய்</li> </ul> <p><b>பல் சுத்தத்திற்கு உட்கொள்ள வேண்டிய உணவுகள்</b></p> <ul style="list-style-type: none"> <li>• மீன்</li> <li>• இறைச்சி</li> <li>• காய்கறிகள்</li> <li>• பழங்கள்</li> <li>• இனிப்பு இல்லா சாக்லெட்</li> <li>• புதிய பால்</li> <li>• வைட்டமின் “சி” சத்து உணவுகள்</li> <li>• நார்ச்சத்து நிறைந்த உணவு</li> </ul> <p><b>பல் மருத்துவரிடம் சென்று பரிசோதிக்கும் நேரம்</b></p> <ul style="list-style-type: none"> <li>• குழந்தை பல் முளைத்த ஆறுமாதத்தில் ஒரு முறையேனும் பல் மருத்துவரிடம் சென்று காண்பிக்க வேண்டும்.</li> </ul>		
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<p>குழு மாணவர்கள் பல் மருத்துவரின் ஆலோசனையின் முக்கியத்துவத்தை அறிந்து கொள்ளுதல்</p>	<ul style="list-style-type: none"> <li>• அதற்கு பின் 6 மாதத்திற்கு 1 முறை அல்லது தேவை ஏற்படும் நேரங்கள் அணுகவேண்டும்.</li> </ul> <p><b>பாடச்சுருக்கம்</b> விளையாட்டு மற்றும் விளக்கப்படங்களின் மூலமாக வாய் சுகாதாரத்தின் பல்வேறு முறைகளை கற்று அறிந்துள்ளோம்.</p> <p><b>முடிவுரை</b> விளையாட்டு மூலமாக குழந்தைகளுக்கு எளிதாக பயிற்றுவிக்கலாம். இங்கு கூட ஒவ்வொரு கட்டமாக நகர்த்தி விளையாடிக் கொண்டு வாய் சுகாதாரத்தையும் பற்றியும் அறிந்து கொண்டோம்.</p>	<p>பல் மருத்துவரின் ஆலோசனையின் முக்கியத்துவத்தை விளக்குதல்</p>	<p>பல் மருத்துவரிடம் அணுகும் முறையினை அறிந்து கொள்ளும் நேரம் விளையாட்டு முடிவிற்கு வந்து விடும்.</p>
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# பற்களின் ஆரோக்கியம்

1



### முன்னுரை

சுத்தமான மற்றும் ஆரோக்கியமான வாய், ஈறுகள், பற்கள் மற்றும் உதடுகள் இருப்பவையே வாய் சுகாதாரம் எனப்படும். வாய் சுத்தம் பற்களின் நலனக்காகமட்டுமல்ல ஒட்டுமொத்த உடல் நலனுக்காகவும் உதவும். வாய் சுத்தம் எனபது பல்விலக்குவது வாய் கொப்பளிப்பது, உணவு மற்றும் பல் மருத்துவ ஆலோசனையும் உள்ளடக்கியது ஆகும்.

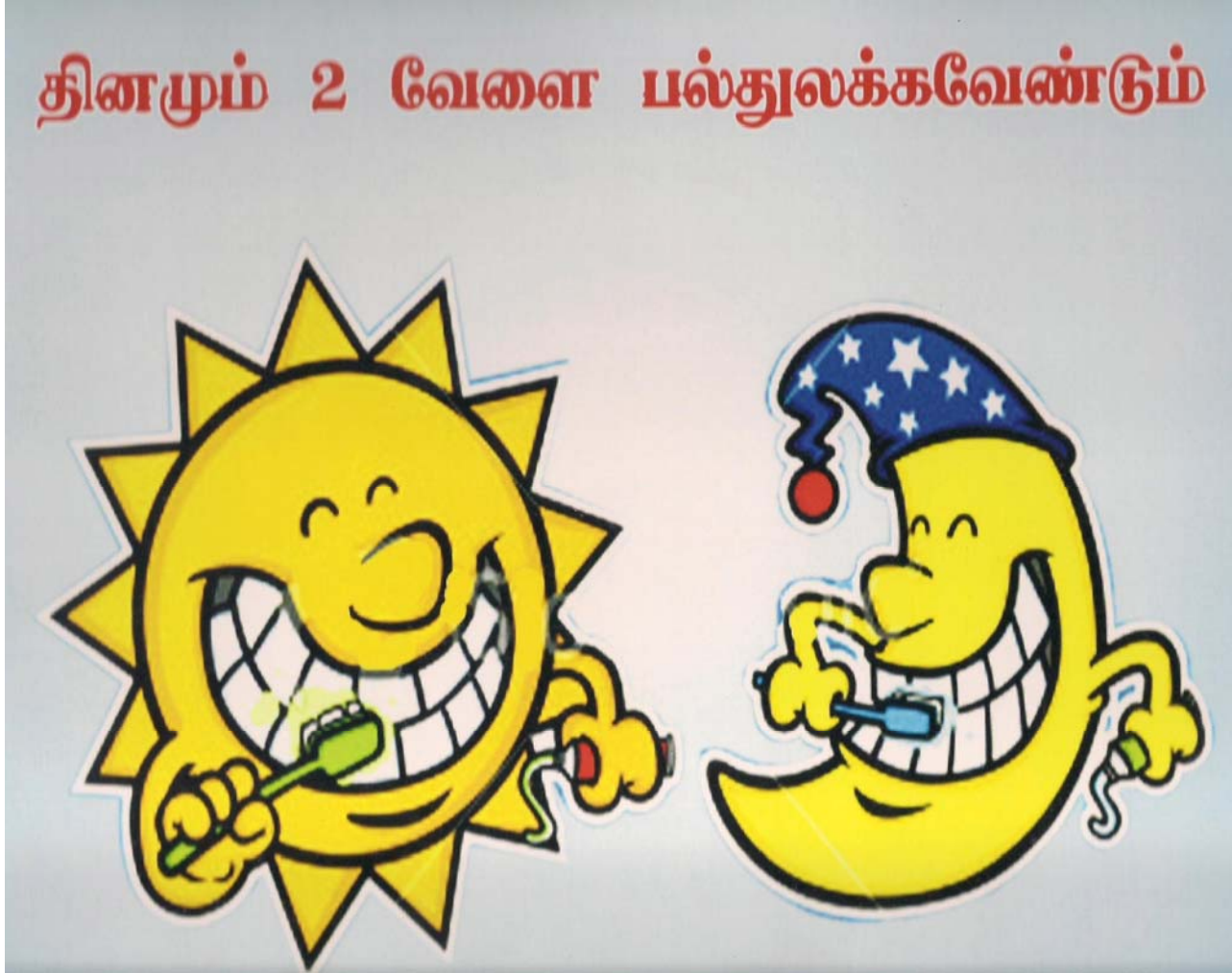
# தினமும் பல்துலக்கவேண்டும்

3



தினமும் 2 வேளை பல்துலக்கவேண்டும்

4





# பற்பசையின் அளவு



5

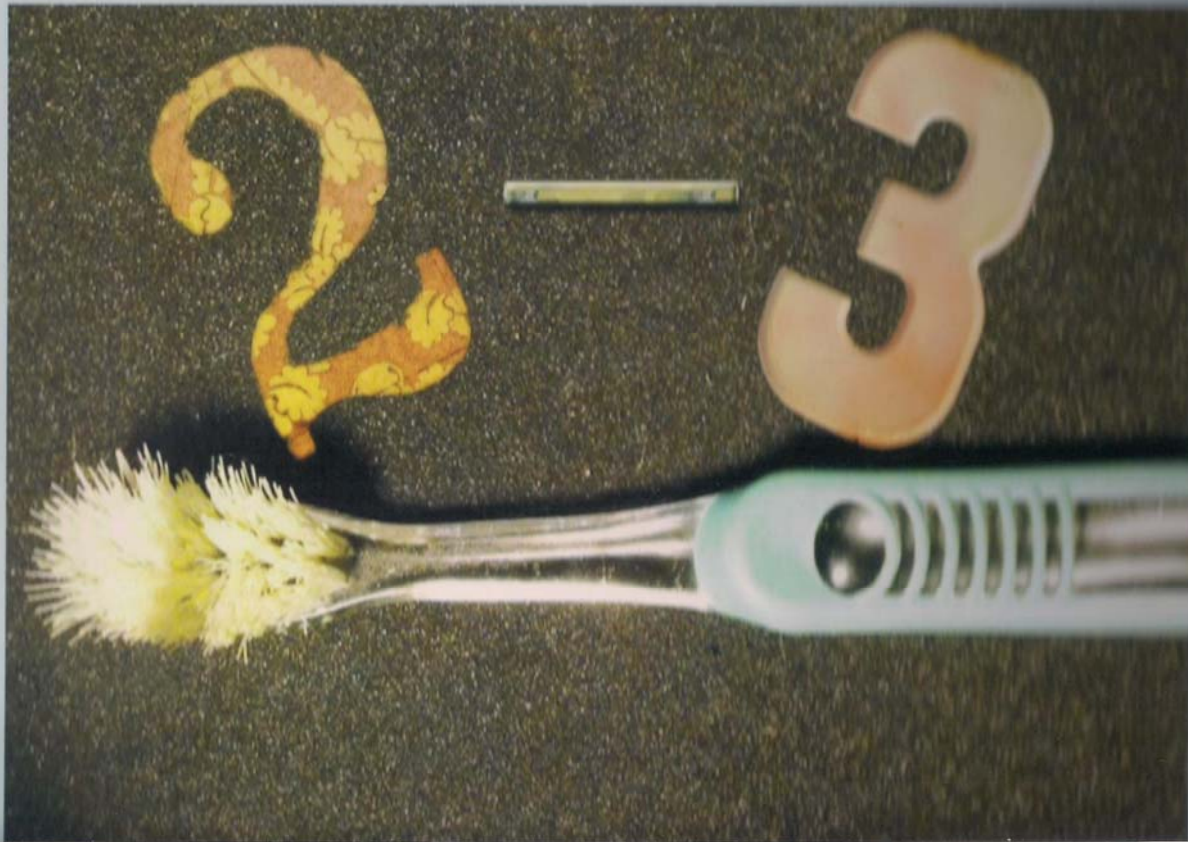
# பஸ்துலக்கும் முறை

6



பல்துடைப்பானை மாற்றும் நேரம்

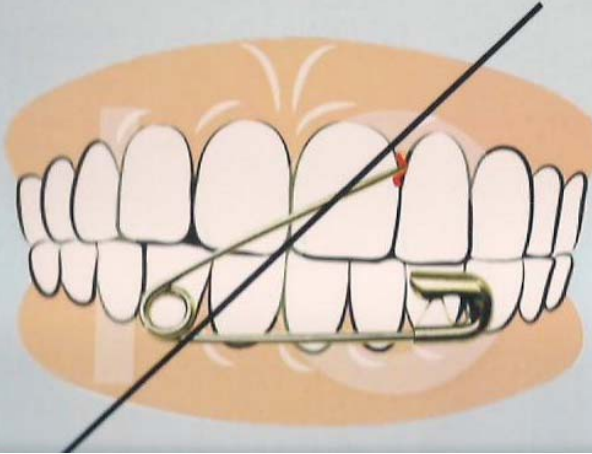
7





பற்களின் இடையில் உள்ள உணவுகளை  
எடுக்கும் முறை

8



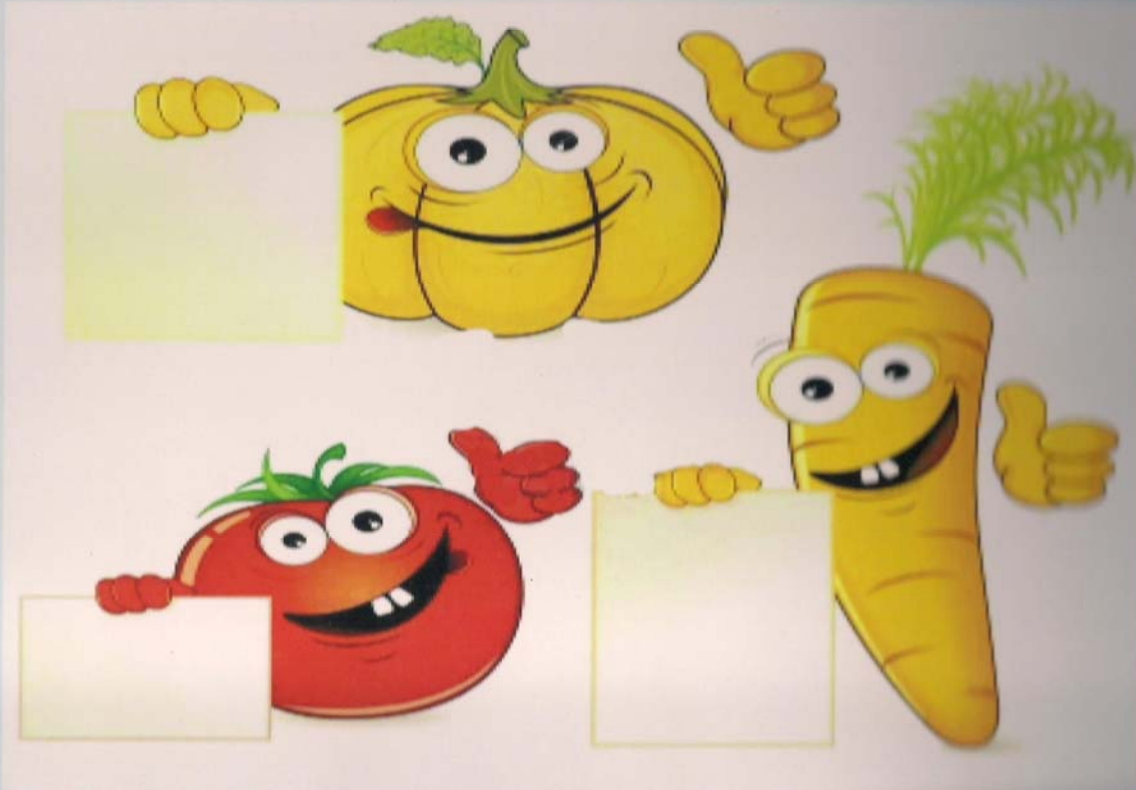
# தவிர்க்கவேண்டிய உணவுகள்

9



# உட்கொள்ளவேண்டிய உணவுகள்

10



# பல் துடைப்பானை பரிமாறுதல்

11



# பல்மருத்துவரை அணுகும் நேரம்

12



**ANNEXURE- H**  
**CERTIFICATE OF VALIDATION**

This is to certify that the tool developed by Ms. Saraswathy.J., Final year M.Sc. Nursing student of Sri Gokulam College of Nursing, Salem (affiliated to The Tamil Nadu Dr. M.G.R. Medical University) is validated and can proceed with this tool and content for the main study entitled “**A Study to assess the Effectiveness of Snake and Ladder game on Level of Knowledge regarding Oral hygiene among School children in selected Schools, Salem.**”.

**Signature:**

**Name:**

**Designation:**

**Date:**

## ANNEXURE - I

### LIST OF EXPERTS FOR VALIDITY

1. **Dr. R. Ramalingam, M.D., DCH., F.A.A.P. (USA)**  
Pediatric Consultant,  
Sri Gokulam Hospital,  
Salem.
2. **Dr. Uma Kumaran, B.D.S., M.D.S.,**  
Pediatric Dentist,  
Dr. Kumaran Dental care,  
Salem.
3. **Dr. Maheshwari, Ph.D.,**  
Vice Principal  
Vinayaka Mission Annapoorna College of Nursing,  
Salem.
4. **Mrs. Shanmuga Priya, M.Sc (N),**  
Assistant Professor,  
Department of Pediatrics,  
Vinayaka Mission Annapoorna College of Nursing,  
Salem.
5. **Mrs. Sathya Lawrence, M.Sc (N),**  
Associate Professor  
Department of Pediatrics,  
Apollo College Of Nursing  
Chennai.
6. **Mrs. Malathy, M.Sc(N),**  
Associate Professor,  
Department of Community Health Nursing,  
Vinayaka Mission Annapoorna College of Nursing,  
Salem.
7. **Mrs. Beryl Mohan Raj, M.Sc(N),**  
Principal,  
Servite College of Nursing, Trichy.



**ANNEXURE – J**

**CERTIFICATE OF EDITING**

Certified that the dissertation paper titled “**A Study to assess the Effectiveness of Snake and Ladder game on Level of Knowledge regarding Oral hygiene among School children in selected Schools, Salem.**” by **Ms.Saraswathy.J.**, has been checked for accuracy and correctness of English language usage in the tool is lucid, unambiguous, free of grammatical / spelling errors and apt for the purpose.

Signature : *Sr. G. Sujja*  
*English Teacher*  
Date : *9.12.12*

**St. Joseph's Mat. Hr. Sec. School**  
Adaikala Nagar, Alangulam-627851.



## CERTIFICATE OF EDITING

Certified that the dissertation paper titled “**A Study to assess the Effectiveness of Snake and Ladder game on Level of Knowledge regarding Oral hygiene among School children in selected Schools, Salem.**” by **Ms.Saraswathy.J.**, has been checked for accuracy and correctness of Tamil language usage in the tool, and that the language used in snake and ladder game board is lucid, unambiguous, free of grammatical / spelling errors and apt for the purpose.

V. Jath  
தமிழ் ஆசிரியர்

Signature :

Date :

St. Joseph's Mat. Hr. Sec. School  
Adaikala Nagar,  
Alangulam-627851.

**ANNEXURE - K**

**PHOTOS**



**HEALTH EDUCATION THROUGH FLASH CARDS REGARDING ORAL HYGIENE**



**PLAYING SNAKE AND LADDER GAME**