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# A Study to Assess the Prevalence of Malnutrition & its Association with Dental Caries among Pre-schoolers at Selected Anganwadies of Vadodara City

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## Abstract

**Background of the study:** Nutrition is an input to and a foundation for health and development. Brawler et al. (2009) stated that the interaction of infection and malnutrition is well-documented. Better nutrition means stronger immune system. In this research descriptive approach with non-experimental research design is used, data is collected from the sample who were attending the selected anganwadies such as Parsuram sayajiganj, Rampura akota, Govardhan ni haveli.

**Objectives of the Study:**

1. To assess the prevalence of malnutrition among pre-schoolers at selected anganwadies of Vadodara city.
2. To assess the prevalence of dental caries among pre-schoolers at selected anganwadies of Vadodara city.
3. To find out correlation between malnutrition and dental caries among pre-schoolers at selected anganwadies of Vadodara city.
4. To find out the association between malnutrition and with selected demographic variables among pre-schoolers at selected anganwadies of Vadodara city.

**Material & Method:** In this research study a quantitative research approach with non-experimental descriptive survey research design is used. The sampling techniques was non probability convenient sampling is used to collect the 80 samples of pre-schooler children and data collection done by assessment of anthropometric measurement. Data is analyzed by using descriptive and interferential statistics such as median, frequencies and chi-square test.

**Result:** With regards to the assessment, out of 80 pre-schooler children 59 (73.8%) had grade-I malnutrition, 12 (15%) had grade-II malnutrition, 9 (11.3%) had grade-III malnutrition and 80 pre-schoolers, and 10 had dental caries. Researcher found that there is no significant association between malnutrition with selected demographic variables except, the child having illness in the last month hence, hypothesis $H_2$ is rejected. The observed r value is + 0.79 that means there is a positive correlation between dental caries and malnutrition, Hence, $H_1$ is accepted.

**Discussion and Conclusion:** The purpose of the study is to assess the prevalence of malnutrition and its association with dental caries among pre-schoolers at selected anganwadies of Vadodara city. The findings of the study concluded that there is significant correlation between malnutrition and dental caries. Most of the pre-schooler having grade-I malnutrition and few pre-schooler had dental caries.

***Keywords:*** *Malnutrition, dental-caries, anthropometric assessment, pre-schoolers, anganwadies.*

## Introduction

"*Today's children are the citizens of tomorrow's world*"

Children are one of the most valuable groups of the society. Their development and wellbeing is influenced by a variety of factor including economic condition of family, education status of parents, availability of water, food and other facility approachability to health care service and availability of educations. Food is the prime necessity of life.[1]

Their survival protection and development is prerequisites for the future development of humanity. Children are the important part of communities. Children can affect the health of the community and the community can affect them (John 1974). A child's entire life is determined in large measures by the food given to him during first five years of his life, because childhood is a period of rapid growth &development. Nutrition is a one of the influencing factor in this period (shills & young 1998).The health of children is of great importance as rapid growth occur during this period (SHASHI-1990).Good nutrition is basic requirement for good health and a living organism is a product of nutrition. Nutrition is a one of the influencing factor in this period (SHILLS &YOUNG).[2]

## Need of the Study

Nutrition is an input to and a foundation for health and development. **Brawler et al.(2009)** stated that the interaction of infection and malnutrition is well-documented. Better nutrition means stronger immune system. Less illness and better health. **Tripathi et al, (2006)** quoted that the children between 1 to 6 year of age in India constitute 15% of the total population as against 7% in the developed countries of the world. Nutrition of these children between 1 to 6 year of age is of prime importance as they are most vulnerable to deficiencies or malnutrition. [8]

Malnutrition is a serious global issue and is considered a health problem in developing countries. The World Bank estimates that India is ranked 2nd in the world of the number of children suffering from malnutrition, and the prevalence of underweight children in India is among the highest in the world. A report by WHO states that socioeconomic inequality in childhood malnutrition existed throughout the developing world.[9]

The primary causes of morbidity and mortality among children aged less than 5 years are pneumonia, diarrhea diseases, low birth weight, asphyxia and in some parts of the world. One out of every two such deaths has malnutrition as the underlying cause (Murray and Lopez,1997). However, malnutrition is rarely cited as being among the leading causes of death even though it is prevalent in developing countries (WHO.2000). Malnutrition is currently the leading cause of global burden of disease (Ezzati et al, 2002) and has been identified as the underlying factor in about 50% of deaths of children under 5 years of age in developing countries (Black et al, 2003).The condition may result from lack of food or from infections that cause loss of appetite while increasing the body's nutrient requirements and losses. Children between 12 and 59 months old are especially at risk since they are the most vulnerable to infections such as gastroenteritis and measles (WHO,2000) it is estimated that, in developing countries, more than one-quarter of all children younger than 5 years of age are malnourished (UNACC,2000)[10]

**Research Design:** Non-experimental descriptive survey research design is used for this study.

**Sample:** Sample is the representative part of the population, in this study samples 80 Pre schooler who were attending the selected Anganwadies of Vadodara.

## Selection Criteria

1. **Inclusion Criteria**

- The pre-schooler who are regularly attending the selected Anganwadies.

2. **Exclusion Criteria**

- The parents of pre-schooler who doesn't allow their child to participate in study.
- The pre-schooler who are not available at the time of data collection.

**Section 1:** Demographic variables such as age, Gender, residential area, Income, food preference, History of consanguineous marriage, Duration of month of exclusive breast feeding of the child, When did you stop breast feeding, Did the child have any illness of the last month?.

**Section 2:** Assessment of malnutrition and dental carries.

## Data Collection Procedure

The data for main study was collected from 80 pre-schoolers who were attending the selected Anganwadies

of Vadodara, who fulfilled the inclusive criteria by convenient sampling technique and the anthropometric measurement tool is used to assess the "Prevalence of malnutrition and its association with dental caries among pre-schoolers at selected Anganwadies Vadodara. The data for main study is collected from 1/10/2018 to 10/10/2018. Consent was taken from the participants.

## Statistical Desing

Data were verified prior to computerized entry, The statistical package for social science (SPSS version 20.0) was used,.

**Section I:** Analysis of socio demographic characteristics of the respondent

The distribution of pre-schoolers children according to their age shows that among 80 participants 12(15%) belonged to the 3 years, 36(45%) belonged to the 4 years, 5 year 31(38.7%) belonged to the 5 years,1(1.3%) belonged to 6 years,

The distribution of pre-schoolers children according to their gender shows that among 80 participants 42 (52.5%) belonged to the male group, 38(47.5%) belonged to the female group.

The distribution of pre-schoolers children according to their residential area shows that among 80 participants 80 (100%) belonged to urban area and, 0(0%) belonged to rural area.

The distribution of pre-schoolers children according to their income shows that among 80 participants 16(20.0%) belonged to the5000-10000, 37(46.3%) belonged to the 10000-15000,belonged to the m 27(33.7%) belonged to the more than,

The distribution of pre-schoolers children according to their food preference shows that among 80 participants 50 (62.5%) belonged to the vegetarian, 30(37.5%) belonged to the mix diet.

The distribution of pre-schoolers children according to their history of consanguineous marriage shows that among 80 participants 15 (18.8%) had history of consanguineous marriage whereas, 65(81.2%) didn't have history of consanguineous marriage.

The distribution of pre-schoolers children according to their duration of month of exclusive breast feeding of child shows that among 80 participants 61 (76.2%) belonged to the 6-8 month, 19(23.8%) belonged to the 9-10 month. 0(0%) belonged to the more than 11> month.

The distribution of pre-schoolers children according to when they stopped taking breast feeding shows that among 80 participants 69(86.3%) have stopped taking breast feeding at the one year of age after birth, 6(7.4%) have stopped taking breast feeding at 2 year after birth, 5(6.3%) have stopped taking breast feeding after 2 year of age.

The distribution of pre-schoolers children according to their recent illness in last month shows that among 80 participants 23(28.7%) had illness in recent times and 57(71.3%) doesn't had any recent illness.

**Table 1: To assess the prevalence of malnutrition and dental caries among pre-schoolers at selected Anganwadies of Vadodara city**

| Sr. No. | Malnutrition | Frequency | Percentage |
|---|---|---|---|
| 1. | Grade-1 | 59 | 73.8% |
| 2. | Grade-2 | 12 | 15.0% |
| 3. | Grade-3 | 9 | 11.3% |
| 4. | Grade-4 | 0 | 0% |
| | **Total** | **80** | **100%** |

**Table 2: Correlation between malnutrition and dental Caries among Pre Schoolers**

| Sr. No. | Variables | Mean score | Mean percentage | "r" value |
|---|---|---|---|---|
| 1. | Malnutrition($Y^-$) | 1.37 | 1.72% | +0.79 |
| 2. | Dental caries($Y^-$) | 1.12 | 1.4% | |

Table 3: To find out the association of malnutrition with selected demographic

The obtained $\chi^2$ value for recent child illness is 8.173,that is more than the table value 7.815 at 0.05 level. Hence the obtained $\chi^2$ value is significant at 0.05 level. That shows there is significant association between recent illness of child and malnutrition.

It shows only one variable, recent child illness is significant to the malnourishment of child, and all other variables ; age, gender, residential area, income, food preference history of consanguineous marriage, duration of month of exclusive breast feeding of child, when did you stop breast feeding, are not associated with the malnourishment of child .So except one variable $H_2$ is

rejected. The observed r value was + 0.79 that means there is a positive correlation between dental caries and malnutrition. Hence $H_1$ is accepted.

## Discussion

The present study was conducted to assess the prevalence of malnutrition & its association with dental caries among pre schooler at selected Anganwadies of Vadodara city This chapter discuss the major findings of the study and reviews them in terms of results from other studies.

## Conclusion

The study undertaken to assess the prevalence of malnutrition & its association with dental caries among pre schooler at selected Anganwadies of Vadodara city. The size of sample 80 and selection of the sample was done according to inclusion criteria. The results were analyzed by using both descriptive and inferential statistics.

**Conflcts of Interest:** The authors declare that there is no conflict of interest statement

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**Ethical Clenarance:** Ethical clearance for this dissertation was obtained from the ethical committee SVICE of Sumandeep Vidyapeeth University.

## Reference

1. World Health Organization, WHO Global School Health Initiative. Research to improve implementation and effectiveness of school health programmes. World Health Organization; 1996.
2. Williams CL, Berry JW. Primary prevention of acculturative stress among refugees: application of psychological theory and practice. American psychologist. 1991 Jun;46(6):632
3. Ashok NC, Kavitha HS, Kulkarni P. A comparative study of nutritional status between government and private primary school children of Mysore city. International Journal of Health & Allied Sciences. 2014 Jul 1;3(3):164.
4. Sahu SK, Kumar SG, Bhat BV, Premarajan KC, Sarkar S, Roy G, Joseph N. Malnutrition among under-five children in India and strategies for control. Journal of natural science, biology, and medicine. 2015 Jan;6(1):18.
5. Gunjalli G, Kumar KN, Jain SK, Reddy SK, Shavi GR, Ajagannanavar SL. Total salivary anti-oxidant levels, dental development and oral health status in childhood obesity. Journal of international oral health: JIOH. 2014 Jul;6(4):63.
6. Yasuda Y, Takada K, Kitai N, Kuriyama R, Sakuda M, Hirase E, Kitaguchi T, Sakamoto M. Prevalences of malocclusions and dental caries in molars in female adolescents. The Journal of Osaka University Dental School. 1990 Dec;30:139-47.
7. Lenters L, Wazny K, Bhutta ZA. Management of severe and moderate acute malnutrition in children. Reproductive, Maternal, Newborn, and Child Health. 2016 Apr 11;205.
8. Shanks NH, editor. Introduction to health care management. Jones & Bartlett Publishers; 2016 Mar 28.
9. Shakya A, Shenoy R, Rao A. Correlation between malnutrition and dental caries in children. Journal of Nepal Paediatric Society. 2013 Oct 7;33(2):99-102.
10. Kanté AM, Nathan R, Helleringer S, Sigilbert M, Levira F, Masanja H, De Savigny D, Abdulla S, Phillips JF. The contribution of reduction in malaria as a cause of rapid decline of under-five mortality: evidence from the Rufiji Health and Demographic Surveillance System (HDSS) in rural Tanzania. Malaria journal. 2014 Dec;13(1):180.
11. Figueiredo MJ, De Amorim RG, Leal SC, Mulder J, Frencken JE. Prevalence and severity of clinical consequences of untreated dentine carious lesions in children from a deprived area of Brazil. Caries research. 2011;45(5):435-42.
12. Thompson C, James K, Holder-Nevins D, Willie-Tyndale D, Eldemire-Shearer D. Sinking Teeth into Dental Health of Older Adults in Jamaica. West Indian Medical Journal. 2018 Nov 1;67(5).