

Vol 4 Issue 9 June 2015

ISSN No : 2249-894X

---

*Monthly Multidisciplinary  
Research Journal*

*Review Of  
Research Journal*

---

Chief Editors

---

**Ashok Yakkaldevi**  
A R Burla College, India

**Flávio de São Pedro Filho**  
Federal University of Rondonia, Brazil

**Ecaterina Patrascu**  
Spiru Haret University, Bucharest

**Kamani Perera**  
Regional Centre For Strategic Studies,  
Sri Lanka

---

## Welcome to Review Of Research

**RNI MAHMUL/2011/38595**

**ISSN No.2249-894X**

Review Of Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

### Advisory Board

Flávio de São Pedro Filho Federal University of Rondonia, Brazil	Delia Serbescu Spiru Haret University, Bucharest, Romania	Mabel Miao Center for China and Globalization, China
Kamani Perera Regional Centre For Strategic Studies, Sri Lanka	Xiaohua Yang University of San Francisco, San Francisco	Ruth Wolf University Walla, Israel
Ecaterina Patrascu Spiru Haret University, Bucharest	Karina Xavier Massachusetts Institute of Technology (MIT), USA	Jie Hao University of Sydney, Australia
Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	May Hongmei Gao Kennesaw State University, USA	Pei-Shan Kao Andrea University of Essex, United Kingdom
Anna Maria Constantinovici AL. I. Cuza University, Romania	Marc Fetscherin Rollins College, USA	Loredana Bosca Spiru Haret University, Romania
Romona Mihaila Spiru Haret University, Romania	Liu Chen Beijing Foreign Studies University, China	Ilie Pinteau Spiru Haret University, Romania
Mahdi Moharrampour Islamic Azad University buinzahra Branch, Qazvin, Iran	Nimita Khanna Director, Isara Institute of Management, New Delhi	Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai
Titus Pop PhD, Partium Christian University, Oradea, Romania	Salve R. N. Department of Sociology, Shivaji University, Kolhapur	Sonal Singh Vikram University, Ujjain
J. K. VIJAYAKUMAR King Abdullah University of Science & Technology, Saudi Arabia.	P. Malyadri Government Degree College, Tandur, A.P.	Jayashree Patil-Dake MBA Department of Badruka College Commerce and Arts Post Graduate Centre (BCCAPGC), Kachiguda, Hyderabad
George - Calin SERITAN Postdoctoral Researcher Faculty of Philosophy and Socio-Political Sciences Al. I. Cuza University, Iasi	S. D. Sindkhedkar PSGVP Mandal's Arts, Science and Commerce College, Shahada [ M.S. ]	Maj. Dr. S. Bakhtiar Choudhary Director, Hyderabad AP India.
REZA KAFIPOUR Shiraz University of Medical Sciences Shiraz, Iran	Anurag Misra DBS College, Kanpur	AR. SARAVANAKUMARALAGAPPA UNIVERSITY, KARAIKUDI, TN
Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur	C. D. Balaji Panimalar Engineering College, Chennai	V.MAHALAKSHMI Dean, Panimalar Engineering College
	Bhavana vivek patole PhD, Elphinstone college mumbai-32	S.KANNAN Ph.D , Annamalai University
	Awadhesh Kumar Shirotriya Secretary, Play India Play (Trust), Meerut (U.P.)	Kanwar Dinesh Singh Dept.English, Government Postgraduate College , solan

More.....

EARLY CHILDHOOD CARIES AND GENERAL HEALTH OF CHILDREN



Anil Gupta

Reader, Department of Biochemistry, Eklavya Dental College & Hospital, Kotputli, Rajasthan.

Short Profile

Anil Gupta is a Reader at Department of Biochemistry in Eklavya Dental College & Hospital, Kotputli, Rajasthan.



**ABSTRACT:**

Dental & General health are consistently connected with each other. To assess it, cross-sectional and descriptive study was conducted in & around Fazilka city in Punjab. It comprised of total 440 children under age of five years, selected from schools, anganwadi and slum areas through random multi stage sampling method. Prevalence of 11.6% of early childhood caries was detected in children. Further, study showed that early childhood caries were significantly, ( $p < 0.001$ ) associated with pallor, diarrhea and habit of geophagy in children.

**KEYWORDS**

*Pallor, Geophagy, Early childhood caries.*

Article Indexed in :

DOAJ  
BASE

Google Scholar  
EBSCO

DRJI  
Open J-Gate

## 1. INTRODUCTION

Early childhood caries is a chronic and microbial disease of milk teeth of children. It is responsible for the damage and consequent loss of teeth. It's a noteworthy child oral health hazard. Earlier, oral health was not considered much relevant for the well being of body. Today, extensive research has revealed that good oral health is the essential component of general health (Dunning, 1986).

Children with decayed teeth are more prone to irritative & anxious behavior. Their appetite, growth and cognitive functions are deprived (Chakraborty et al., 1997).

Inter-relationship between oral & systemic disease is well established. Diabetes mellitus and cardio-vascular diseases have their oral manifestations (Grossi & Genco, 1998).

## RATIONALE

Early childhood caries is a dental disease of primary teeth. It is of bacterial origin. Data of its association with systemic disease is scanty. Thus present study was conducted to obtain reference values at regional level.

## AIM & OBJECTIVES

### Aim

The study was focused to explore the prevalence of early childhood caries and its association with systemic diseases in children under the age of five years.

### Objectives

1. To assess overall prevalence of early childhood caries in children.
2. To assess its association with systemic disease in children.

## MATERIALS & METHODS

### Research Design

Descriptive and Cross sectional study design.

### Sample Source and Sampling Units

Children below the age of five years, residing in and around Fazilka, Punjab, according to the inclusion and exclusion criteria, constituted the sample source and sampling units.

## Sample Selection Criteria

### Inclusion Criteria

1. Children between 2 years to below the age of 5 years.
2. All the children who were physically fit so as to co-operate in the study.

### Exclusion Criteria

1. Children who were critically ill.
2. The children who were crying and agitated, did not participate.

### Dental examination

Dental examination was carried out by using mouth mirror and probe in day light. Children were sitted on ordinary chair. Caries were recorded by deft index (Greubbell, 1944).

### Early childhood caries definition

ECC was defined by using AAPD criteria (AAPD, 2008).

Presence of one or more decayed, missing (due to caries) or filled tooth surfaces in any primary tooth in 71 months old child or younger.

### Anatomical sites were inspected to elucidate Pallor:

Conjunctiva  
Crease of palm  
Nail beds

Diarrhea is defined as passage of three or more loose stools per day or more frequently than is normal for an individual. It is an infection of GIT caused by bacteria, virus or parasites (WHO, 2009)

### Statistical Design

#### Descriptive study

Early childhood caries was taken as dependent variable and pallor, diarrhea and habit of geophagy were established as independent variables.

#### Variables were expressed as prevalence, as shown in following formula:

(Prevalence of a variable) = number of participants affected / total number of participants × 100

Inferential analysis

Inference was deduced by Chi square test for independence. (p) value of 0.005 taken as statistically significant.

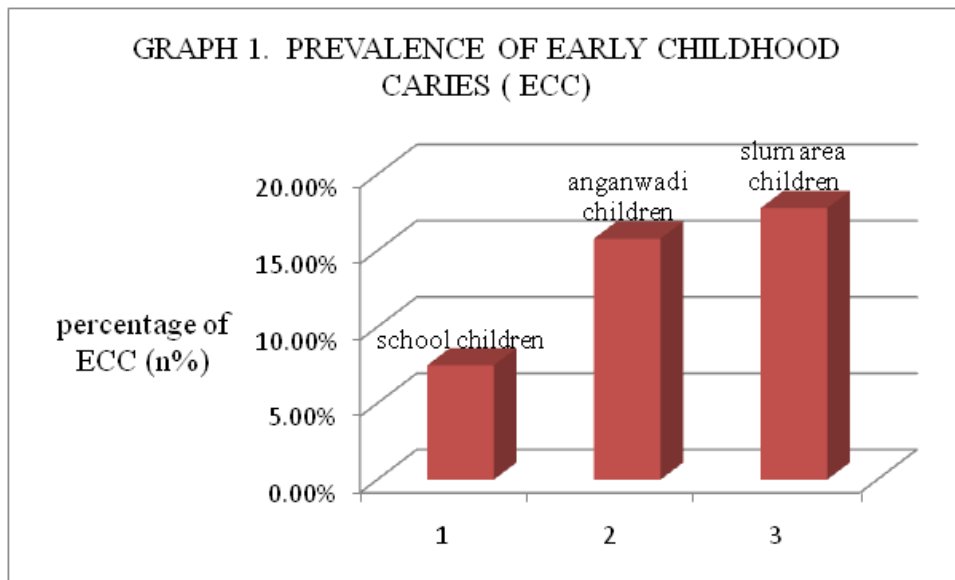
**RESULT**

**1. Prevalence of early childhood caries (ECC) in children in different strata**

Study revealed a prevalence of 11.6% of early childhood caries in children. Segmental prevalence of 7.5%, 15.8% & 17.8% of ECC was observed in schools, anganwadi and slum areas respectively, as in table 1, graph 1.

**Table 1. Prevalence of early childhood caries in children in different strata**

Characteristics	School children	Anganwadi children	Slum area children	Over all prevalence of ECC
Early childhood caries (N)	18/240	20/127	13/73	(51/440)
Early childhood caries (%)	7.5%	15.8%	17.8%	11.6%



**2. Prevalence of early childhood caries in children suffering from pallor**

Children, who suffered from pallor had 22% prevalence of ECC, whereas, normal children showed 7% prevalence of early childhood caries, as in table 2.

Further, inferential analysis showed, ( $\chi^2$ ) value of 18.44 at significance level, ( $p < 0.0001$ ), as in table 3.

Table 2. . Prevalence of early childhood caries in children suffering from pallor

Characteristics	Pallor in children	Normal
ECC (n)	26/115	25/315
ECC (%)	22%	7%

ECC---- early childhood caries

Table 3. Chi square test of independence for prevalence of early childhood caries in children suffering from pallor

Characteristics	ECC	No ECC	Chi square value ( $\chi^2$ )	P value
Pallor	26	89	18.44	(<0.001)  highly significant
Normal	25	300		

ECC---- early childhood caries

### 3. Prevalence of early childhood caries in children suffering from diarrhoea

Prevalence of 20% early childhood caries was seen in children, who suffered from diarrhea, in comparison to 11% prevalence in children, who were healthy as in table 4. Inferential analysis furnished, ( $\chi^2$ ) value of (2.1)1 at ( $p = 0.14$ ) as in table 5.

Table 4. Prevalence of early childhood caries in children suffering from diarrhoea

Characteristics	Diarrhoea in children	Normal
ECC (n)	5/24	46/416
ECC (%)	20%	11%

ECC---- early childhood caries

Table 5. Chi square test of independence for prevalence of early childhood caries in children suffering from diarrhoea

Characteristics	ECC	No ECC	Chi square value ( $\chi^2$ )	P value
Diarrhoea	5	19	2.11	(0.14)  not significant
Normal	46	370		

ECC---- early childhood caries

#### 4. Prevalence of early childhood caries in children with habit of geophagy

Descriptive analysis provided prevalence of 27% of early childhood caries in children who had habit of geophagy, whereas, the healthy children had 10% prevalence of ECC as in table 6.

Inferential analysis revealed high association, ( $\chi^2$ ), value (6.06) at significance level ( $p=0.014$ ) between early childhood caries and habit of geophagy as in table 7.



Table 6. Prevalence of early childhood caries in children with habit of geophagy

Characteristics	Geophagy children	Normal children
ECC caries (n)	11/41	40/399
ECC (%)	27%	10%

ECC---- early childhood caries

Table 7. Chi square test of independence for prevalence of early childhood caries in children with habit of geophagy

Characteristics	ECC	No ECC	Chi square value ( $\chi^2$ )	P value
Geophagy	11	30	6.06	(0.014) significant
Normal	51	348		

ECC---- early childhood caries

## DISCUSSION

1. This study concluded higher prevalence, 22% of early childhood caries in those children who were anemic in comparison to healthy children. ECC was associated with anemia (pallor) significantly, ( $p < 0.0001$ ).

In another study by Clarke et al., 2006, it had been proved that low serum ferritin in (80%), iron depletion in (24%) and iron deficiency anemia (11%) in children existed with severe early childhood caries.

Both these studies put forward a probability that early childhood caries might be a risk factor for nutritional anemia and other associated health problems. It further needs a longitudinal and cohort

study to verify the cause and effect relationship.

2. In this study, early childhood caries were significantly, ( $p=0.014$ ) associated with habit of geophagy in children.

In another study by Adani et al., 2014, it was found that geophagy habit was associated with teeth attrition, dental caries.

Early childhood caries result in pain, infection, decreased food intake. So it ends into malnutrition, nutritional anemia and habit of eating soil.

### CONCLUSION

Early childhood caries, definitely, predispose to pallor, under nutrition, and habit of soil eating. This is a myriad of problems, which inter-digitate & inter-link among themselves. Longitudinal & cohort study can explore & establish the cause and effect relationship between early childhood caries on one side and pallor, diarrhea, geophagy and malnutrition on other side.

### REFERENCES

1. Adani S., Kochhar G., Chachra S., Dhawan P., 2014. Eating everything except food (PICA): A rare case report and review. *J Int Soc Prev Community Dent*, 4(1), 1–4.
2. Chakraborty M., Saha J.B., Bhattacharja R.N., Roy A., Ram R., 1997. Epidemiological correlates of dental caries in an urban slum of India. *Indian J of Pub Hlth*, 41(2), 56, 198-1.
3. Clarke M., Locker D., Berall G., Pencharz P., Kenny D.J., Judd P., 2006. Malnourishment in a Population of Young Children With Severe Early Childhood Caries, *Pediatric Dentistry*, 28 (3), 254-60.
4. Dunning J.M, 1986. *Epidemiology: Dental Caries. Principles of Dental public Health*. 4th edn. Cambridge.
5. Grossi S.G., Genco R.J., 1998. Periodontal disease and diabetes mellitus: A two way relationship. *Ann periodontal*, 3, 51-61.
6. W. H. O., 2009. WHO : documents on diarrhea.  
Available at: <http://www.who.int/topic/diarrhoea/en>.

# Publish Research Article

## International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper, Summary of Research Project, Theses, Books and Books Review for publication, you will be pleased to know that our journals are

### Associated and Indexed, India

- ★ Directory Of Research Journal Indexing
- ★ International Scientific Journal Consortium Scientific
- ★ OPEN J-GATE

### Associated and Indexed, USA

- DOAJ
- EBSCO
- Crossref DOI
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Database
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database

Review Of Research Journal  
258/34 Raviwar Peth Solapur-413005, Maharashtra  
Contact-9595359435  
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com  
Website : www.ror.isrj.org