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Research Article

## CORRELATION BETWEEN CHILDHOOD FOOD AND PHYSICAL ACTIVITIES ON THE OLD AGE HEALTH IN SANGLI DISTRICT

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### Abstract

The food in childhood determines the health in old age. We analyzed the difference in the food habit and physical activities of urban and rural children and their effect in the development of old age diseases. The consumption of breakfast is more in urban area than rural children, similarly the consumption of meals is more in rural children comparing to urban one and the consumption of dinner is more in urban than rural one. The leafy vegetable and non-leafy vegetable consumption is more by rural children as compared to urban, but underground stem consumption is more by urban children than rural one. Fish and mutton consumption is also more in the case of urban children as compared to rural children. The consumption of chicken is less in urban children as compared to rural children. This difference in the underground stem and non-vegetable food consumption may be reason behind the excess weight gain and more old age diseases in the urban area. These facts must be cross checked with other factors for better interpretation. Our study indicates that urban children involved in physical activities less time comparing to rural one (51, 37 minutes) respectively for less than 30 minutes. But rural people involved in physical activities greater than 1 hour or two hour is more. This shows that rural children getting better physical work than the urban counterpart. This difference in physical activity will correlate the old age disease. Therefore to prevent various diseases in old age and provide better old age life a well planned awareness program must be initiated in all the preprimary and primary educational institutes without delay.

**Keywords:** childhood; physical activities; food

### Introduction

Early childhood food and food habit turn the wheel of health in old age (Ashokan *et al.*, 2009). Eating behaviors are learned and established in childhood and early adolescence (Luepker *et al.*, 1996) and hence it is important to maintain a healthy food and eating habit in the childhood. Evidence also indicates that dietary habits acquired in childhood persist through out the adulthood (Kelder *et al.*, 1994; Nicklas, 1995; Steptoe *et al.*, 1995). Research finding further shows that childhood food affects the adult health (Hales *et al.*, 1991; Moller *et al.*, 1994; Berenson *et al.*, 1998) Overweight children are much more likely to become overweight adults unless they adopt and maintain healthier patterns of eating and exercise. In fact, 30% of adult obesity begins in childhood. Obesity accounts for more than 300,000 deaths in a year and the annual cost to society for obesity is estimated at nearly \$100 billion. Recent reviews of the literature regarding the health benefits of fruits and vegetables show their consumption to be associated with reduced risks of adult onset diseases such as some cancer, heart disease, diabetes, and stroke (Steinmetz and Potter, 1996; Van Duyn and Pivonka, 2000). It is also observed that picky eating toddlers can grow up to be picky eating

children and perhaps picky eating young adults (Carruth and Skinner, 2000). As food physical activities in childhood is also one of the determining factors of adulthood ailment and health. It is observed that physical activity is an important factor in the prevention of childhood obesity and can provide a protective effect in adulthood (Hills *et al.*, 2011). CDC reports that rates of childhood obesity have more than tripled in the past 30 years, with one third of children and adolescents identified as being overweight or obese (Centers for Disease Control and Prevention, 2012). As a result of increases in sedentary lifestyle, urbanization and changes in the modes of transportation, levels of physical activity are dropping in children and youth (WHO, 2012). Declining physical activity levels in children are also predicted to have a significant future economic and social impact due to associated chronic disease risk and increased health care costs (Tremblay *et al.*, 2010). In order to reverse this trend, promotion of physical activity to children is paramount. The U.S. Department of Health and Human Services (2008) recommends that those 6-17 years old participate in at least 60 minutes a day in order to improve cardiorespiratory endurance and muscular fitness; bone health; cardiovascular and metabolic health biomarkers; and to improve body composition. As children are not always

able to achieve these levels of activity independently, significantly others may be vital to the adoption and adherence to regular physical activity participation. One of the most significant role in a child's life is his or her parents. Dixon, Warner and Bruening (2008) suggest that parents have the most direct impact of sport socialization, particularly in young children. Parents not only have a significant role in potential sport involvement, they can also affect a child's sport-related beliefs (Kanters, Bocarro & Casper, 2008). The majority of studies related to parental sport and physical activity involvement have demonstrated positive effects of on youth physical activity (Fridlund Dunton *et al.*, 2012). Parental influence can impact the choice to participate in physical activity, structured exercise, or organized sports

## Materials and methods

The method adopted for this research is questionnaires method. Questionnaires method is a common interface method applied in social science research. Structured questioners lend themselves to large quantitative surveys that collect factual data, such as census. They are used commonly for perception studies and provide a base for systematic longitudinal studies. Questioners are often used as face-to-face interview schedules. The questions used in questioners method is of two types-open response type and closed response type. We, here, employed closed response type. Closed response questions have pre-determined options for answers. Sample and sample size is one of the basic criterions for a good questioner's method. The selection of the sample is followed by face to face meeting of the individuals of the sample for collecting response. This is followed by analyzing the sample by statistical parameters and drawing conclusions.

### Sample

#### Sampling area

The samples were collected form Sangli district proper and Kavathe Mahankal tehsil.

In the present study the sample is randomly selected from rural and urban people. The sample consists of 400 adult people with age group 40 years and above. This group consists of randomly selected male and female subjects. The samples were selected by confirming that they will give accurate and true information as per the questioners. Those subject not or unwilling to give true facts are rejected after casual discussion with them. Thos are willing to give elaborate answer to the questioners are subjected for collecting answer for the pre-framed questioners. Half of the sample was residents of urban background and the remaining was rural. The sample were included both

educated and illiterates. It also included poor and wealthy peoples, and common man and sophisticated one.

Kavathemahankal is a Tehsil in Sangli District of Maharashtra State, India. Kavathemahankal Tehsil Head Quarters is Kavathe Mahankal town. It is located 40 KM towards East from District headquarters Sangli. 360 KM from State capital Mumbai towards North. Kavathemahankal Tehsil is bounded by Tasgaon Tehsil towards west, Miraj Tehsil towards west, Khanapur-Vita Tehsil towards North, Sangli Tehsil towards west. Tasgaon City, Miraj City, Sangli City, Sangole City are the nearby Cities to Kavathemahankal. Questionnaires method is employed to collect the response from the population.

### Statistical analysis

The data collected was analyzed statistically by using Open stat software. Open Stat contains a large variety of parametric, nonparametric, multivariate, measurement, statistical process control, financial and other procedures.

## Results

### Various food items Included by urban and rural people in Sangli district

The various food items included in the daily serving of urban and rural peoples are listed (Table1).The study reveals that urban population eats more food in the breakfast than rural people. The breakfast includes *upitt, Idli, dosa, chaptai, shira, pohe*, milk, sweet, coffee and tea. All these items are about double consumed by urban people than rural one (Table1). This may be due to the fast and hurry life style of the people who mostly involved in small scale or large scale employment in urban area. The urban people get more time in the morning by getting early. But in the rural background they get up later and involved mostly in the farm and other such duties.

When we analyze the food items consumed in the meal it shows rural people consume all the items like *upitt, Idli, dosa, chaptai, shira, pohe*, milk, sweet, coffee and tea more comparing to urban people. Some of the items shows double in quantity that the urban population (Table 1). This may be due to the fact that urban people get out of their home for the purpose of job and getting less time to prepare the food for their wards in the meal section. Most of the under aged wards are depends on outside food.

When we analyze the dinner, it shows urban people getting more food comparing to rural one (Table 1). The reason may correlate the batter time management by urban people to make better food for their ward to compensate the poor food of their wards in the meal. Rural background lack proper electricity supply and lack of amenities may cause less importance for the dinner.

**Table1: Different Food items in urban and rural children under the age group 3-15**

Breakfast	Food Items →	Upit (1unit=200g)	Idli (1unit=50g)	Dosa (1unit=100g)	Chapati (1unit=200g)	Shira (1unit=100g)	Pohe (1unit=100g)	Milk (1 unit=100ml)	Sweet (gm)	Coffee (ml) (1Unit=575ml)	Tea (ml) (1Unit=575ml)	
	Urban		1.07 (214)	1.93 (96.5)	1.18 (118)	1.59 (318)	1.23 (123)	1.17 (117)	1.00 (100)	1.9 (106)	1.22 (91.5)	2.19 (164.25)
Rural		0.934 (185)	1.54 (50)	1.02 (100)	1.3 (256.8)	1.12 (226.32)	1.1 (188)	0.9 (179)	1.7 (103.3)	1.1 (575)	2.9 (1012)	
Meal	Food Items →	Rice (1unit=200g)	Chapati (1unit=200g)	Dhal (1unit=50g)	Veg gm	Butter (1unit=50g)	Papd (1unit=5g)					
	Urban	1.20 (240)	1.67 (334)	1.06 (53)	1.2 (127.06)	1.16 (58)	1.09 (5.45)					
Rural	1.76 (352)	1.78 (356)	1.38 (69)	1.1 (175)	1.07 (53.5)	1.19 (5.95)						
Dinner	Food Items →	Rice (1unit=200g)	Chapati (1unit=200g)	Baakri (1unit=200g)	Egg (1unit=100g)	Fish gm	Mutton gm	Dhal (1unit=50g)	Veg gm	Butter (1unit=50g)	Papad (1unit=5g)	Pickle (1unit=20g)
	Urban	1.16 (232)	1.51 (302)	1.27 (254)	1.15 (115)	1.23 (134.04)	1.6 (179.18)	1.01 (50.5)	1.7 (110.24)	1.17 (58.5)	1.39 (6.95)	1.163 (23.26)
Rural	1.3 (260)	1.14 (228)	1.84 (368)	1.87 (187)	1.1 (190.9)	1.2 (198.8)	1.76 (88)	1.3 (176.3)	2.91 (145.5)	1.01 (5.05)	1.01 (20.2)	

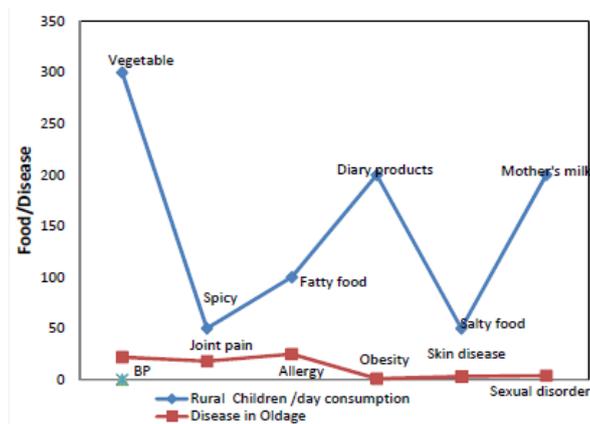
Parenthesis indicate the quantity of food

**Physical activities in urban and rural children**

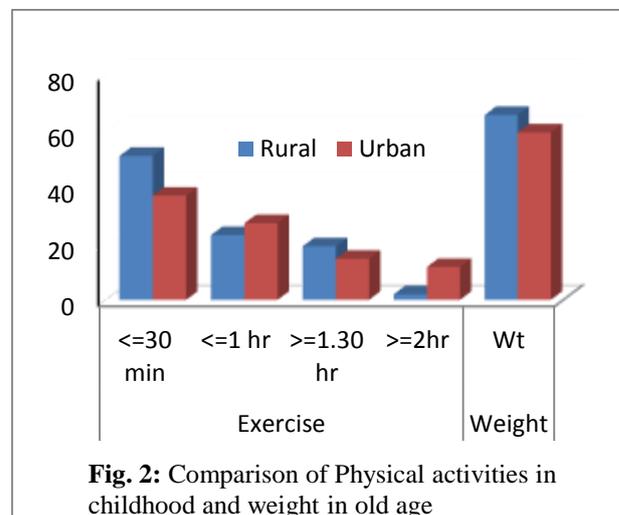
Our study indicates that urban children involved in physical activities less time comparing to rural one (51, 37 minutes) respectively for less than 30 minutes. But rural people involved in physical activities greater than 1 hour or two hour is more. This shows that rural children getting better physical work than the urban counterpart (Table 2). This difference in physical activity will correlate the old age disease (Fig. 1 and 2).

**Table 2: Comparison of physical activity among children of urban and rural area**

Population	<=30min In %	<=1hr In %	>=1.30hr In %	>=2hr In %
Urban	51	23	19	2
Rural	36.9	27.18	14.56	11.65



**Fig. 1: Correlation between childhood food, physical activity and old age disease**



**Fig. 2: Comparison of Physical activities in childhood and weight in old age**

To find out more reason behind the weight gain and old age diseases in urban people we analyzed the correlation of type of food they eaten (Table 3). The leafy vegetable and non-leafy vegetable consumption is more by rural children as compared to urban, but underground stem consumption is more by urban children than rural one. Fish and mutton consumption is also more in the case of urban children as compared to rural children. The consumption of chicken is less in urban children as compared to rural children. This difference in the underground stem and non-vegetable food consumption may be reason behind the excess weight gain and more old age diseases in the urban area. These facts must be cross checked with other factors for better interpretation.

**Table 3:** Comparison of vegetable and non-vegetable food consumption between urban and rural under the age group 3-15

Sl.No	Vegetables	Quantity: Average /day in gm		Non-vegetable	Quantity Average/Day in gm	
		Urban	Rural		Urban	Rural
1	Leafy	200g	500	Fish	100	nil
2	Non leafy	200	400	Mutton	50	100
3	Underground stem/root	200	100	Chicken	100	200

Old age diseases commonly observed in Sangli district (Urban) and Kavathe Mahankal (Rural) area are blood pressure, diabetes, joint pain/ body pain, weakness and allergy (Table 4).

**Table 4:** Comparison of old age diseases in urban and rural population

Diseases	Urban in %	Rural
Joint pain	42	11
Diabetes	21	10
Blood pressure	43	21
Allergy	56	16
Obesity	5	1
Urinary infection	9	8

Blood pressure appears more and about twice in urban area comparing to rural population. Joint pain and body pain also shows the same trend but three times more in urban area than in rural area. Weakness and allergy is near about same both condition. Diabetes shows no variation in urban and rural back ground. High energy consumption shows positive relation with blood pressure. The same relationship is observed in diabetes, weakness, allergy, body pain and joint pain.

**Discussion**

Surprising new research by University of Calgary, Faculty of Kinesiology researcher Dr. Raylene Reimer, published in an international journal, indicates a direct connection between an adult's propensity to put on weight and our early childhood diet. Researchers in this area believe our pre-natal and early childhood environment influences our

future risk of developing conditions like cardio vascular disease, obesity and diabetes (Reimer, 2009). This finding is substantiated by our research observation I both urban and rural part of Sangli district. It is observed that those children eat more fatty food consequently develop many life threatening diseases like obesity, BP, many other heat ailments, diabetes, joint pain , body ache etc. We studied the various items of food included by urban and rural people. It is observed that a considerable difference in the diet patterns of urban and rural children is existed. These changes in diet pattern and lack of proper physical exercise cause considerable difference in the health of urban and rural people in the late part of the life.

Urban children get nutritious food in the breakfast as compared to the rural one. This may be due to the change in the life style. Rural people get up early and went to their daily routine like caring cattle, watering the farm and other farm related work. This causes less care to their wards. But in the case of urban area people getting everything ready to prepare in the next morning because they have preplan to go their office duty on time in the next day. So everything is planned in the rural area but that is not practicable in the rural area.

The same pattern is found in the case dinner. In rural area due to the lack of proper electricity and lack of easy access to the readymade grocery items make them to sleep their wards with available food. But in the case of urban area the parents have ample time to prepare their wards better nutrient foods after their daily office work.

In Rural area the children get their food better in the meal section, but as they are in the school and getting midterm meals in the school parents are again careless to their wards. The after all effect is poor, and unhealthy rural children. This discrepancy reflects in the health of the older generation in the rural area with more ailments including diabetes, joint pain, BP and other boy problems.

The energy consumption also shows the same trend as the urban children get more energy food as compared to the rural. Therefore an action plan from the Government bodies and NGOs is needed to upgrade the health of children and their by the health of adults and old in the future.

Considering the physical activities, it is observed that urban children getting more physical exercise as compared to the rural children. The main reason for this may be urban people has planned life and they find more time to provide their children proper exercises like running, swimming, golfing and other such activities. In urban back ground all these are available easily. In the case of rural area the availability of this facility is limited as they are more involved in farming and other such activities. An extensive counseling for the rural population considering this aspect is essential.

The study shows that there is a well-established correlation between physical activities, early childhood food and diseases in the later part of the life. Those children getting good food and physical activities shows better diseases free life in the old age and vice versa. Non-vegetarian getting more disease that vegetarian is also a finding of this project.

Lack of proper physical activities and low calorie food in the rural children causes diseased adult generation in rural area. But in the urban the condition is reverse as they get better food, good physical activities and medical care, the old age diseases are low as compared to the urban. It is a warning to the Government to provide better food and physical activity facility in the rural areas like primary and secondary schools.

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