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A STUDY ON THE LIFESTYLE, PHYSICAL ACTIVITY AND DIETARY PATTERN AMONG ADULTS IN URBAN AND RURAL AREAS IN MAHARASHTRA: A COMMUNITY-BASED COMPARATIVE STUDY

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Abstract: In Urban adults overweight and obesity are the most significant problems. The consumption of fruits and vegetables is low in Urban areas as compared with Rural areas. High intake of outside foods, junk foods, unhealthy foods, and lesser physical activity is seen in Urban areas which is mostly associated with a sedentary lifestyle.

Objective: To study the lifestyle, physical activity, and Dietary pattern among adults in urban and rural areas in Maharashtra.

Methodology: A total of 177 participants (Rural- 91; Urban- 86) from Dawargaon, Dongargaon, and mevhna Dist. Jalna (Rural) and Aurangabad, Nashik, and Mumbai (Urban) were selected for the study. The personal interview cum questionnaire method was used to collect the data from Rural and some Urban participants and the google form was used to collect the data from the remaining Urban participants. International Physical Activity Questionnaire (IPAQ) was used to assess physical activity and 3 days 24 hours dietary recall was used to assess the dietary status. SPSS (version 20) software was used to analyze the data and p-value < 0.05 was considered statistically significant.

Results: Statistically significant difference was found in lifestyle, physical activity and dietary patterns in the Rural and Urban participants. All the anthropometric measurements were higher in Urban participants as compared with Rural participants (p=<0.05). Urban participants lived a sedentary lifestyle (60.5%) and Rural participants mostly were heavy workers (65.9%). Almost all the Rural participants (97.8%) work outside the home as they do farm work, because of that their vigorous (Rural- 92.3%: Urban- 32.6%) and moderate (Rural- 86.8%: Urban- 25.6%) physical activity at work was higher than Urban participants (p=<0.05). Frequency of eating seasonal fruits and vegetables and milk and milk products was high in Rural participants as compared with Urban participants (p=<0.05). Outside food consumption (Urban- 93%; Rural- 20.9%) and junk food consumption (Urban- 83.7%; Rural- 31.9) was higher in urban areas (p=<0.05).

Conclusion: Rural participants lifestyle, physical activity and dietary patterns were better than Urban participants. However, in the Rural areas, there is a need for good educational infrastructure facilities and in Urban participants, there is a need for more promotion of nutrition information and education about overall physical activity, healthy lifestyle and healthy balanced diet.

Index Terms - Urban, Rural, Lifestyle, Dietary pattern, Physical activity.

I. INTRODUCTION

Employment in rural areas is limited to agricultural activities. Jobs in the urban areas revolve around the manufacturing industry, service industry, along with trade and commerce (Vishwesh Ravishankar, 2020). Overweight and obesity were increasing in Urban areas. The important reason for obesity and overweight is an energy inequality amongst calories expended and calories consumed. An amplified consumption of high energy foods that are high in sugars and fat and an upsurge in physical inactivity due to the progressively sedentary nature of many forms of work in Urban areas (WHO, 2020). A sedentary lifestyle is associated with non-communicable diseases like obesity and cardiovascular diseases. The maximum duration of time spent sitting or low physical activity is associated with an increase in body fat and body mass index and directly to obesity, CVD, and diabetes. (R W Jakes, et.al; 2003). In the rural areas, the main source of energy is cereals, pulses, milk, and milk products. High consumption levels of refined animal fat, refined sugar, animal-based products, edible oil, and alcohol characterize diets in urbanized civilizations with advanced economic growth (Thomas Kastner, et.al, 2012). It is related to a shift in dietary patterns to more 'Western' diets rich in refined foods saturated fat, and sugar, and low in fiber (Prakash S Shetty, et.al; 2002). Intake of processed foods and packet foods are increasing in urban areas (Bhartendu Pandey, et.al, 2020). urban families spend more on processed foods and consume more than rural families. Most of this alteration can be attributed to different demographic and socioeconomic factors, such as smaller urban household sizes and higher incomes (C. Bren d'Amour, 2020). Poor diet generates a bigger non-communicable disease (NCD) problem than tobacco, physical inactivity, and alcohol (L Hyseni, et.al; 30 November 2016). The insufficient intake of fruits and vegetables and 5 times lesser physical activity was seen in urban adult's male and female than in rural adults (K Yadav, et.al; 2008).

II. RESEARCH METHODOLOGY

A total of 177 participants (Rural- 91; Urban- 86) from Dawargaon, Dongargaon, and mevhna Dist. Jalna (Rural) and Aurangabad, Nashik, and Mumbai (Urban) were selected for the study. Ethical clearance was obtained from the Institutional Ethical Committee (IEC) of Dr. BMN College of Home Science, Matunga, Mumbai. The inclusion criteria included both male and female participants in the age group of 20 to 60 years from rural and Urban areas and participants suffering from any major illness were excluded from the study. From the Urban areas 49 males and 37 females and from Rural areas 40 males and 51 females have participated in the study. The personal interview cum questionnaire method was used to collect the data from Rural and some Urban participants and the google form was used to collect the data from the remaining Urban participants. The different aspects included in the questionnaire were General information, Socio-demographic data, Anthropometric measurements, medical history, Medications, Lifestyle pattern, physical activity, Nutritional supplements, Eating habits, 3day 24hour dietary recall. Data regarding their physical activity duration and patterns was obtained through the International Physical Activity Questionnaire and 3 days 24 hours dietary recall of the participants was recorded to assess nutrient intake (Energy, Protein, Carbohydrate and Fat) of the participants.

Statistical analysis:

The data was analysed by using the Statistical Set of Social Software programme for Windows (SPSS, version 20). The analysation of data involved t-tests and Chi-Square tests. p value less than 0.05 was considered statistically significant.

III. RESULTS AND DISCUSSION

3.1 socio-demographic data of Urban and Rural participants

Table no 1: socio-demographic data of Urban and Rural participants (p=<0.05) *

Categories	Options	Urban (%) N=86	Rural (%) N=91	p
Gender	Male	57	44	0.08
	Female	43	56	
Education	Below 10th	2.3	49.4	0.00
	10th	1.2	22.8	
	12th	7	10.1	
	Graduate	62.8	13.9	
	Post-graduate	26.7	3.8	
Employment	Yes	53.5	2.2	0.00
	No	46.5	97.8	
Occupation	Service	52.3	3.3	0.00
	Business	2.3	0.0	
	Housewife	19.8	3.3	
	Students	25.6	5.5	
	Farmer	0.0	87.9	
Family Income	Less than 10,000	1.2	3.3	0.00
	10,000 to 20,000	10.5	37.4	
	21,000 to 30,000	14	42.9	
	31,000 to 40,000	8.1	11	
	41,000 to 50,000	11.6	5.5	
	Above 50,000	54.	0.0	
Marital Status	Married	65.9	87.9	0.00
	Unmarried	34.1	9.9	
	Widow	0.0	1.1	
	Divorced	0.0	1.1	

From table no 1, it can be shown that Among 86 participants from urban areas, 57% were males and 43% were females and amongst 91 participants from the rural area 44% were males and 56% participants were females. Most of the Rural participants were (49.4%) educated less than 10th and most of the Urban participants were graduated (62.8%). Because of less education, almost all the Rural participants were farmers and their family income was lesser than Urban participants.

When Chi square test was applied to the collected data from Urban and Rural participants, it was observed that educational status was significantly high in Urban participants as compared to Rural participants (p= <0.05). Employment status was significantly high in Urban participants as compared to Rural participants (p= <0.05). There was significant difference observed in occupation of Urban and Rural participants (p= <0.05) as, almost all the participants from the Rural area were working as farmers as compared to Urban participants. Urban participants having significantly higher family income as compared to rural participants (p= <0.05) as shown in (table no 1).

3.2 Anthropometric Measurements of Urban and Rural participants

Table No 2: Anthropometric Measurements of Urban and Rural participants (p=<0.05) *

Anthropometric Measurements		Areas		t-value	p
		Urban N= 86	Rural N= 91		
Weight (kg)	Mean ± SD	64.77 ± 9.79	55.26 ± 9.11	6.694	0.00
Height (cm)	Mean ± SD	161.74±10.11	156.10 ± 8.54	3.58	0.00
BMI	Mean ± SD	24.81 ± 4.46	23.14 ± 7.57	1.77	0.07
Waist Circumference	Mean ± SD	84.65 ± 10.82	79.17 ± 10.75	3.37	0.00
Hip circumference	Mean ± SD	92.82 ± 12.14	90.85 ± 8.75	1.23	0.21
Waist to hip ratio	Mean ± SD	0.91 ± 0.05	0.87 ± 0.10	3.14	0.00
Waist to height ratio	Mean ± SD	0.52 ± 0.07	0.50 ± 0.05	2.02	0.04

From table no 2, it can be shown that the anthropometric measurements like mean weight (Urban- 64.77 ± 9.79; Rural- 55.26 ± 9.11), mean height (Urban- 161.74 ± 10.11; Rural- 156.10 ± 8.54), mean BMI (Urban- 24.81 ± 4.46; Rural- 23.14 ± 7.57), mean waist circumference (Urban- 84.65 ± 10.82; Rural- 79.17 ± 10.75), mean waist to hip ratio (Urban- 0.91 ± 0.05; Rural- 0.87 ± 0.10), mean waist to height ratio (Urban- 0.52 ± 0.07; Rural- 0.50 ± 0.05) was higher in Urban participants as compared with Rural participants.

When t-test was applied to collected data of anthropometric measurements in Urban and Rural participants, it was revealed that Urban participants having significantly higher weight as compared to Rural participants (p= <0.05). Urban participants having significantly higher height as compared to Rural participants (p=< 0.05). Urban participants having significantly higher waist circumference as compared with Rural participants (p=<0.05). Urban participants having significantly higher waist to hip and waist to ratios as compared with Rural participants (p= <0.05) as shown in (table no 2).

The study conducted on the anthropometric differences among the urban and Rural communities in 2013 and revealed that all the anthropometric measurements like weight, height, BMI, waist to hip ratio, and etc. were higher in Urban area than in Rural area. Because of that overweight and obesity also high in Urban area than in Rural area (Olufemi Sola Adediran, et.al., 2013).

The study conducted in Gujrat between Urban and Rural participants to see prevalence of risk factor of non-communicable diseases and the study was revealed that prevalence of Overweight and Obesity was high in Urban participants as compared with Rural participants (Aroor Bhagyalaxmi, et.al, 2013).

3.3 Prevalence of Diseases in Urban and Rural participants

Table no 3: Prevalence of Diseases in Urban and Rural participants (p=<0.05) *

Diseases	Options	Urban (%) N=86	Rural (%) N=91	P
Blood Pressure	Yes	19.5	8.7	0.04
	No	80.5	91.3	
Diabetes	Yes	14	2.2	0.00
	No	86	97.8	
Thyroid	Yes	11.6	3.3	0.03
	No	88.4	96.7	
Lung disease	Yes	17.4	7.7	0.04
	No	82.6	92.3	
Cancer	Yes	0.00	0.00	-
	No	100	100	
Any surgery within 6 months	Yes	1.2	1.1	0.96
	No	98.8	98.9	

Form table no 3, it was revealed that 19.5% of Urban participants and 8.7% of rural participants reported that they were having blood pressure. 14% Urban participants and only 2.2% of Rural participants were having diabetes. 11.6% of Urban participants and 3.3% of Rural participants reported that they were facing thyroid problems. 17.4% of Urban participants and 7.7% of Rural participants were having lung diseases.

When chi square test was applied to the given data it was revealed that Urban participants having significantly higher blood pressure, diabetes, thyroid problems and lung diseases as compared to Rural participants (p=<0.05) as shown in (table no 3).

The study conducted in Yangon Region, Myanmar on Urban and Rural differences in the prevalence of non-communicable diseases and the study was concluded that Urban participants had a higher metabolic risk factors for all non-communicable disease like diabetes, thyroid, lung diseases etc, and also moderate or high ten-year risk of coronary heart diseases as compared with the Rural Participants (Aung Soe Htet, et.al, 2016).

3.4 Lifestyle of Urban and Rural participants

Table no 4: Lifestyle of Urban and Rural participants (p=<0.05) *

Lifestyles	Options	Urban (%)	Rural (%)	P
Patterns	Sedentary	60.5	2.2	0.00
	Moderate	37.2	31.9	
	Heavy	2.3	65.9	
Habits	Smoking	12.10	8.10	0.38
	Tobacco	3.50	22	0.00
	Gutka	0.00	5.50	0.02
	Alcohol	30.80	25.70	0.12
Frequency of Alcohol consumption	Heavy	0.00	0.00	0.36
	Moderate	14.80	9.90	
	Occasionally	85.20	75.30	
Stress	Yes	31.4	20.9	0.11
	No	68.6	79.1	
Type of Stress	Emotional	37	26.3	0.10
	Physical	7.4	31.6	
	Both	55.6	42.1	
Level of Stress	Low	7.4	78.9	0.00
	Moderate	77.8	21.1	
	Sever	14.8	0.0	
Night Sleeping hours	6 hours	15.1	0.0	0.00
	7 hours	38.4	3.3	
	Less than 6 hours	11.6	2.2	
	More than 7 hours	34.9	94.5	
Sleeping time	Before 7 Pm	0.0	3.3	0.00
	Around 7 to 8 Pm	0.0	45.1	
	Around 8 to 9 Pm	1.2	26.4	
	After 9 Pm	98.8	25.3	
Sleeping disturbance	Yes	24.4	13.2	0.05
	No	75.6	86.8	
Morning wake up time	Before 6 Am	30.2	51.6	0.01
	Around 7 to 8 Am	54.7	42.9	
	Around 8 to 9 Am	10.5	4.4	
	After 9 Am	4.7	1.1	
	Yes	19.8	17.6	

Afternoon nap	No	43.0	19.8	0.00
	Sometimes	37.2	62.6	
Afternoon sleeping hours	Less than 1 hour	36.7	74.0	0.00
	1 to 2 hours	59.2	26.0	
	More than 2 hours	4.1	0.0	

From table no 4, it was revealed that Urban participants live sedentary lifestyles (60.5%) and Rural participants mostly were heavy workers (65.9%). Habits like Tobacco consumption (Urban- 3.5%; Rural- 22%), Gutka consumption (Urban- 0%; Rural- 5.5%) was high in Rural participants and Smoking (Urban- 8.1%; Rural- 12.1%), Alcohol consumption (Urban- 19.8%; Rural- 29.7%) was higher in Urban participants. The stress level was (Urban- 31.4; Rural- 20.9%) higher in Urban participants.

When Chi square test was applied to the collected data it was revealed that lifestyle patterns of Urban and Rural participants were significantly different (p=<0.05). Rural participants having significantly higher level of tobacco and gutka consumption as compared with Urban participants (p= <0.05). Urban participants having significantly higher level of stress as compared to Rural participants (p=<0.05) as, most of the Urban participants were moderately stressed as compared to Rural participants. Night sleeping hours of Rural participants were significantly high as compared to Urban participants (p= <0.05). There was a significant difference in sleeping time (night) of Urban and Rural participants (p= <0.05) as, Urban participants were sleep late at night as compared with Rural participants. There was a significant difference in afternoon nap and afternoon sleeping hours of Urban and Rural participants (p=<0.05) as, most of the Rural participants sometimes take afternoon nap as compared to Urban participants but sleeping Hours of afternoon nap was more in Urban participants as compared to Rural participants. Urban participants were facing significantly more sleeping disturbances as compared to Rural participants (p=<0.05). There was also significant difference in morning wake up time of Rural and Urban participants (p= < 0.05) as, almost all Rural participants woke up early in the morning as compared to Urban participants as shown in (table no 4).

The study conducted on sleeping quality of Urban subjective in Iran, random 3400 samples was studied for sleeping quality and the study concluded that the sleeping quality was poor and prevalence rate of sleeping complaints was high in studied population (Alimohamad Asghari, et.al, 2012).

Another study conducted on sleeping quality of Urban and Rural adults in 2018 and the study revealed that the sleeping quality of Urban participants was slightly poor than Rural participants, especially Urban females were suffering more poor sleep quality than males (Himel Mondal, et.al, 2018).

The study conducted in Urban and Rural regions of Tamil Nadu on prevalence of risk factors of non-communicable diseases revealed that tobacco, smoking and alcohol consumption is higher in Rural areas as compared with the Urban areas (Anu Mary Oommen, et.al, 2016).

3.5 Physical activity of Urban and Rural participants

Table no 5: Physical activity of Urban and Rural participants (p=<0.05) *

Physical activity	Options	Urban (%) N=86	Rural (%) N=91	p
Job or unpaid work outside home	Yes	44.2	97.8	0.00
	No	55.8	2.2	
Job related Vigorous physical activity (7 days)	1 to 2 days per week	3.5	35.2	0.00
	3 to 4 days per week	9.3	28.6	
	5 to 6 days per week	8.1	24.2	
	Everyday	11.6	4.4	
	No vigorous Job-related Physical activity	67.4	7.7	
Job related moderate physical activity (7 days)	1 to 2 days per week	12.8	17.6	0.00
	3 to 4 days per week	9.3	33.0	
	5 to 6 days per week	3.5	29.7	
	Everyday	0.0	6.6	
	No moderate Job-related Physical activity	74.4	13.2	
Walking as a part of work (7 days)	1 to 2 days per week	10.5	0.0	0.00
	3 to 4 days per week	11.6	1.1	
	5 to 6 days per week	12.8	8.8	
	Everyday	5.8	84.6	
	No job-related walking	59.3	5.5	
Travelling in a motor vehicle (7days)	1 to 2 days per week	8.1	23.2	0.02
	3 to 4 days per week	7.0	17.4	
	5 to 6 days per week	4.7	6.6	
	Everyday	49.5	10	
	No travelling in a motor vehicle	30.7	42.9	
Bicycle riding	1 to 2 days per week	3.5	0.0	0.38
	3 to 4 days per week	5.8	5.5	
	5 to 6 days per week	0.0	1.1	
	Everyday	7.0	6.6	
	No bicycle riding	83.7	86.8	
Walking from place to place (7 days)	1 to 2 days per week	10.5	2.2	0.00
	3 to 4 days per week	14.0	2.2	
	5 to 6 days per week	8.1	3.3	
	Everyday	26.7	90.1	
	No walking from place to place	40.7	2.2	
Vigorous physical activities in the garden or yard (7 days)	1 to 2 days per week	11.6	15.4	0.00
	3 to 4 days per week	3.5	45.1	
	5 to 6 days per week	2.3	17.6	
	Everyday	2.3	3.3	
	No vigorous physical activity	80.2	18.7	
Moderate physical activities in the garden or yard (7 days)	1 to 2 days per week	11.6	12.1	0.00
	3 to 4 days per week	3.5	11.0	
	5 to 6 days per week	1.2	24.2	
	Everyday	1.2	45.1	
	No moderate physical activity	82.6	7.7	
Physical activities in side home (7 days)	1 to 2 days per week	11.6	1.1	0.00
	3 to 4 days per week	11.6	2.2	
	5 to 6 days per week	2.3	0.0	
	Everyday	10.5	52.7	
	No physical activity inside home	64.0	44.0	
Leisure time	1 to 2 days per week	7.0	0.0	0.00
	3 to 4 days per week	15.1	3.3	

walking (7 days)	5 to 6 days per week	8.1	1.1	
	Everyday	19.8	3.3	
	No leisure time walking	50.0	92.3	
Leisure time vigorous physical activity (7 days)	1 to 2 days per week	2.3	0.0	0.01
	3 to 4 days per week	3.5	1.1	
	5 to 6 days per week	4.7	0.0	
	Everyday	4.7	0.0	
	No leisure time vigorous physical activity	84.9	98.9	
Leisure time moderate physical activity (7 days)	1 to 2 days per week	9.3	3.3	0.08
	3 to 4 days per week	3.5	13.2	
	5 to 6 days per week	7.0	4.4	
	Everyday	5.8	7.7	
	No leisure time moderate physical activity	74.4	71.4	
Time spent sitting on a week day	Less than 2 hours	0.00	0.00	0.00
	2 to 3hours	0.0	7.7	
	4 to 5 hours	10.5	54.9	
	6 to 7 hours	36.0	31.9	
	More than 7 hours	53.5	5.5	
Time spent sitting on a weekend	Less than 2 hours	0.0	0.0	0.00
	2 to 3hours	0.0	2.2	
	4 to 5 hours	3.5	56.0	
	6 to 7 hours	18.6	36.3	
	More than 7 hours	77.9	5.5	

From table no 5, it was revealed that almost all the Rural participants (97.8%) work outside the home as they do farm work, because of that their vigorous (Urban- 32.6%; Rural- 92.3%) and moderate (Urban- 25.6%; Rural- 86.8%) physical activity at work was higher than Urban participants. Traveling in a motor vehicle (Urban- 69.3%; Rural- 57.1%) was low in rural areas as compared with urban areas. Urban participants leisure-time vigorous physical activity (Urban- 15.8%; Rural- 1.2%) and leisure time walking (Urban- 50%; Rural- 7.7%) was seen high as compared with Rural participants.

When Chi Square test was applied to collected data of Urban and Rural participants it was revealed that all the job or work related moderate and vigorous physical activities were significantly higher in Rural participants as compared to Urban Participants ($p = <0.05$). Walking form place to place was significantly higher in Rural participants as compared to Urban participants ($p = <0.05$). Vigorous and moderate physical activities in the garden or yard were significantly high in Rural participants as compared to Urban participants ($p = <0.05$). House work related physical activities were significantly high in Rural participants as compared to Urban participants ($p = <0.05$). Leisure time walking (7 days), Time spent sitting on weekdays, and Time spent sitting on a weekend all of these were significantly higher in Urban participants as compared to Rural participants ($p = <0.05$). Traveling in a motor vehicle was significantly higher in Urban participants as compared to Rural participants ($p = <0.05$). Leisure time vigorous physical activities were significantly higher in Urban participants as compared to Rural participants ($p=<0.05$), as shown in (table no 5).

The study conducted on the physical activity of Rural and Urban participants revealed that low level of physical activity was seen in Urban areas as compared with the Rural areas. The participants who were not working and those who were taking higher education had a lower level of physical activity (Carol Susan Devamani, et.al., 2019).

Another study conducted on physical activity in Rural and Urban areas in Africa and it was reported that the Urban residents have a lower outdoor physical activity level than in Rural residents, Urban residents do outdoor physical activities only on weekends, the barrier for that was lack of time (Chibuike Ogwuegbu Chigbu, 2020).

3.6 Dietary patterns of urban and rural participants

Table no 6: Dietary patterns of urban and rural participants (p=<0.05) *

Dietary patterns	Options	Urban (%) N=86	Rural (%) N=91	p
Types of diet	Vegetarian	64.0	56.0	0.16
	Non-vegetarian	32.6	44.0	
	Vegan	00.0	00.0	
	Ovo-vegetarian	02.3	00.0	
	Jain	01.2	00.0	
Breakfast	Yes	50.0	50.5	0.69
	No	27.9	23.1	
	Sometime	22.1	26.4	
Skipping meals	Breakfast	29.7	33.2	0.00
	Lunch	0.0	0.00	
	Snacks	20.0	44.8	
	Dinner	0.0	0.00	
	None	50.3	20.0	
Seasonal fruits	Yes	73.3	100	0.00
	No	26.7	0.0	
Frequency of eating seasonal fruits (7 days)	1 to 2 times	43.8	8.8	0.00
	3 to 4 times	45.3	50.5	
	Everyday	10.9	40.7	
Frequency of eating seasonal vegetables (7 days)	1 to 2 times	30.2	0.0	0.00
	3 to 4 times	41.9	28.6	
	Everyday	27.6	71.4	
Coffee or tea in a day	None	16.3	8.8	0.00
	1 to 2 cups	60.5	38.5	
	3 to 4 cups	19	41.8	
	5 to 6 cups	3.5	11.0	
Outside food consumption	Daily	5.8	0.0	0.00
	Once a week	25.6	0.0	
	Once a month	43.0	16.5	
	More than once a month	18.6	4.4	
	Never	7.0	79.1	
Carrying tiffin	Yes	37.1	50.5	0.00
	No	41.9	8.8	
	Sometimes	20.9	40.7	
Junk food consumption	Sever	3.5	1.1	0.00
	High	5.8	0.00	
	Moderate	27.9	3.3	
	Mild	46.5	27.5	
	Not at all	16.3	68.1	
Nutritional supplements consumption	Yes	8.1	5.5	0.48
	No	91.9	94.5	
Milk consumption	Yes	83.7	98.9	0.00
	No	16.3	1.1	
Milk consumption in a week	1 to 2 times	41.7	5.6	0.00
	3 to 4 times	33.3	12.2	
	Everyday	25	82.2	
Consumption of milk products	1 to 2 times / week	32.6	1.1	0.00
	3 to 4 times / week	41.9	8.8	

	Everyday	25.6	90.1	

From the table no 6, it was revealed that skipping of breakfast (Urban- 29.7%; Rural- 44.8%) and snacks (Urban- 20%; Rural- 44.8) was high in rural areas as they eat large meals at Lunch and Dinner. Frequency of eating seasonal fruits and vegetables was high in Rural participants as compared with Urban participants. Outside food consumption (Urban- 93%; Rural- 20.9%) and junk food consumption (Urban- 83.7%; Rural- 31.9) was higher in urban areas. Milk and milk products consumption was high in Rural participants as compared with Urban participants (Urban:- 83.7; Rural:- 98.9).

When Chi square was applied to collected data, it was revealed that skipping meals was significantly higher in Rural participants as compared to Urban participants ($p = < 0.05$). Frequency of seasonal fruits and vegetable consumption was significantly higher in Rural participants as compared to Urban participants ($p = <0.05$). Coffee or tea consumption was significantly higher in Rural participants as compared to Urban participants ($p = < 0.05$). Outside food consumption and junk food consumption was significantly higher in Urban participants as compared to Rural participants ($p = <0.05$). Milk and milk products consumption was significantly higher in Rural participants as compared to Urban participants ($p = <0.05$). as shown in (table no 6).

The study conducted by Felicity J. Pendergast, et.al in 2016 on the correlation of meal skipping in young adults reported that the rural areas young adults are more likely to skipping meals as compared with the Urban area's young adults (Felicity J. Pendergast, et.al, 2016).

The study conducted on consumption of tea in rural and urban areas of North Gujarat Region in 2018 revealed that regular tea is highly consumed in rural areas as compared with the Urban areas (Javed S. J. Khorajia and Dr. Sejal Christian, 2018).

The systematic review of cohort and cross-sectional studies conducted in 2014 on the Socioeconomic determinants of dietary patterns showed that there is a higher intake of calories, cholesterol and saturated fats in Urban population (Ana-Lucia Mayén, et.al., 2014).

3.7 Three day 24 hours dietary recall of Urban and Rural participants

Table no 7: Three day 24 hours dietary recall of Urban and Rural participants (p=0.05)*

Nutrients		Areas		t-value	p
		Urban N= 86	Rural N= 91		
Energy (3 Days Average) Kcal	Mean ± SD	1668.6 ± 287.4	1633.5 ± 248.0	0.87	0.38
Protein (3 Days Average) Gm	Mean ± SD	53.56 ± 9.160	56.68 ± 13.490	-1.79	0.07
Carbohydrate (3 Days Average) Gm	Mean ± SD	274.76±195.663	222.15 ± 41.263	2.50	0.01
Fat (3 Days Average) Gm	Mean ± SD	53.73 ± 12.231	47.34 ± 9.486	-3.86	0.00

From table no 7, it was revealed that mean energy (Urban:- 1668.6 ± 287.4; Rural 1633.5 ± 248), mean carbohydrate (Urban: - 274.76 ± 195.663; Rural: - 222.15 ± 41.263) and mean fat (Urban: - 53.73 ± 12.231; Rural: - 47.34 ± 9.486) consumption was high in Urban participants but mean protein (Urban: - 53.56 ± 9.160; Rural: - 56.68 ± 13.490) consumption was high in Rural participants.

When Chi square test was applied to the collected data it was revealed that Urban participants were consuming significantly higher amount of carbohydrates and fat as compared to Rural participants ($p = <0.05$). Rural participants were consuming significantly higher amount of proteins as compared with Urban participants ($p = >0.05$) and there was no significant difference in energy consumption of Urban and Rural participants, as shown in (table no 7).

IV. Conclusion:

From the study it can be concluded that Rural participant's lifestyle, physical activity, and dietary patterns were better than Urban participants because the overall prevalence of non-communicable diseases was lower in Rural participants. The consumption of fruits and vegetables and job related moderate and vigorous physical activities were high in Rural participants. Anthropometric measurements like weight, BMI, waist circumference, waist to hip ratio and waist to height ratio were lower in Rural participants. Outside and junk food consumption was lesser and milk and milk products consumption were high in Rural participants. Carbohydrates and fats consumption was limited and protein consumption was high in Rural participants. Only the educational status was low in Rural participants as in Rural areas educational and infrastructure facilities were not easily available. Leisure-time physical activities were also less in Rural areas because their job-related and traveling-related physical activities were much higher as compared with Urban participants.

The results from the study majorly highlight, in the Rural areas, there is a need for good educational infrastructure facilities and in the Urban areas poor dietary patterns, sedentary lifestyle, and lower physical activity in Urban participants and because of that, there is a need for more promotion of nutrition information and education about overall physical activity, healthy lifestyle, and healthy balanced diet to Urban participants.

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