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A CASE CONTROL STUDY ON REGULARITY OF MEAL TIMING AND ITS IMPACT ON HEALTH STATUS AMONG THE WORKING WOMEN WHEN COMPARED TO HOUSEWIVES

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Abstract :

Women are playing multiple roles in the family as a care giver mother and a money earner as well. Lack of time and strenuous pressure at work and home can affect their diet and health. Therefore, present study was taken to assess to nutritional status of working and non-working women. Cross-sectional study design with dietary recall method employed to collect data. Results showed that mean Body mass index of working women is significantly higher than non-working women. The study aimed to assess the meal timing regularity on nutritional status of working women among non-working women. A comparative study was conducted online mode via Google forms the study was conducted on 100 samples (50 working women and 50 non-working). A detailed questionnaire was developed and interview was done the data collected was tabulated and analyzed statistically using the formula paired t test. The result shows that the 'P' values are significant at t 0.010 and hence alternate hypothesis is proved. It is concluded that working women follow meal timing regularly when compared to non-working women.

KEY WORDS:-Working Women, Non-Working Women, Meal Timing Regularity, Diet Pattern, Health Status.

I. Introduction

Many metabolic processes in the body—such as appetite, digestion, and the metabolism of fat, cholesterol, and glucose—follow patterns that repeat every 24 hours.

Eating on time is essential as circadian rhythms are believed to influence eating habits and digestion among other things

- It regulates our body cycle
- Boosts metabolism
- Helps in detoxification of the body
- The ideal gap between breakfast, lunch and dinner
- The best time to have your breakfast, lunch and dinner

Breakfast: According to experts, one should eat their breakfast within two hours of getting up. Not doing so can slow down your metabolism. The sooner you eat your breakfast after getting up, the better it is for your metabolism and overall health.

Lunch: Our digestive power is the strongest between 12 pm to 2 pm. At this time, the body is able to digest the highly nutritious meal and absorb all the nutrients properly.

Dinner: One should eat their dinner latest by 8 pm maintaining a gap of 4 hours between lunch and dinner time. There should also be a gap of 2 hours between your bedtime and dinner. This gap helps in better digestion and in getting a good night's sleep.

"Eat like a king in the morning, a prince at noon, and a peasant at dinner".

Daily breakfast consumption may help prevent chronic disease:- The researchers **suggest** that if adults were to eat breakfast every day, the adverse effects associated with glucose and insulin metabolism would be reduced. They also suggest that comprehensive dietary advice that supports daily breakfast consumption may help people to maintain healthy dietary habits throughout the day.Larger studies needed to confirm how meal timing impacts disease risk

"We suggest eating mindfully, by paying attention to planning both what you eat and when you eat meals and snacks, to combat emotional eating. Many people find that emotions can trigger eating episodes when they are not hungry, which often leads to eating too many calories from foods that have low nutritional value".

"It's not just what you eat, but when you eat "that affects your health".

Here's what happens when you skip your meals:

1) Binge eating later

2) Your metabolism can change.

3) You are likely to get hungry.

4) Can cause hormonal changes.

5) Can be at risk of Nutritional Deficiencies.

6) Your organs go into overdrive.

7) You get constipated.

8) Your anxiety levels go way up.

9) You'll feel fatigued.

II.AIM AND OBJECTIVES:

AIM – To study the regularity of meal timing and its impact on health status among working women in comparison to housewives.

OBJECTIVES-

- To assess the impact of meal timing on nutritional status of the sample.
- To study the meal timing and its regularity among the sample.
- To create the awareness about the importance of meal timing.
- To evaluate the meal regularity among the working and housewives.

III.REVIEW OF LITERATURE:-

Women are playing multiple roles in the family as a care giver mother and a money earner as well. Lack of time and strenuous pressure at work and home can affect their diet and health. Therefore, present study was taken to assess to nutritional status of working and non-working women. Cross sectional study design with dietary recall method employed to collect data. Results showed that mean Basal metabolic index of working women (22.21) is significantly higher than non-working women (21.65). Cereal, fruit and milk consumption was higher in non-working women. The working women were taking more nuts/oil, sugar and other vegetables than non-working group. Also, working women were taking significantly high energy, carbohydrate and fat but lower calcium and fiber than non-working women. It can be concluded that working women should choose their meal wisely and nutritional awareness program for healthy food choices need to be introduced in the society.

The influence of meal frequency and timing on health and disease has been a topic of interest for many years. While epidemiological evidence indicates an association between higher meal frequencies and lower disease risk, experimental trials have shown conflicting results. Furthermore, recent prospective research has demonstrated a significant increase in disease risk with a high meal frequency (≥6 meals/day) as compared to a low meal frequency (1–2 meals/day). Apart from meal frequency and timing we also have to consider breakfast consumption and the distribution of daily energy intake, caloric restriction, and night-time eating. A central role in this complex scenario is played by the fasting period length between two meals. The physiological underpinning of these interconnected variables may be through internal circadian clocks, and food consumption that is asynchronous with natural circadian rhythms may exert adverse health effects and increase disease risk. Additionally, alterations in meal frequency and meal timing have the potential to influence energy and macronutrient intake.A regular meal pattern including breakfast consumption, consuming a higher proportion of energy early in the day, reduced meal frequency (i.e., 2–3 meals/day), and regular fasting periods may provide physiological benefits such as reduced inflammation, improved circadian rhythmicity, increased autophagy and stress resistance, and modulation of the gut microbiota

Keywords: time-restricted feeding, fasting, meal frequency, meal timing, obesity, cardiovascular health, diabetes

Background/objectives: While many obesity studies have pointed out the importance of meal regularity, few have conducted empirical analyses using data from food diaries. We examined the association between meal regularity (*i.e.*, meal time regularity [MTR] and calorie intake regularity [CIR]) and weight loss.
Subjects/methods: We collected food diary data from 637 women who had participated in commercial weight loss programs for 28-168 days (4-24 weeks). This study defined "meal regularity" in terms of two concepts: MTR and CIR. MTR refers to how regularly people eat their meals (*i.e.*, at certain times each day), whereas CIR refers to how regularly people consume a certain amount of calories at each meal. We conducted multiple regression analyses.
Results: MTR (model 1: β = -2,576.526, $P < 0.001$; model 2: β = -1511.447, $P < 0.05$; model 3: β = -1,721.428, $P < 0.05$) and CIR (model 1: β = -1,231.551, $P < 0.01$; model 2: β = -2,082.353, $P < 0.001$; model 3: β = -1,343.490, $P < 0.01$) turned out to be significant determinants of the amount of weight loss in breakfast, lunch, and dinner contexts. While meal regularity (*i.e.*, MTR and CIR) was significantly associated with weight loss, daily calorie intake from meals was not significantly associated with the amount of weight loss (model 1: β = 0.13, $P > 0.05$; model 2: β = 0.11, $P > 0.05$; model 3: β = 0.14, $P > 0.05$). Subjects who consumed an equal amount of calories per meal throughout the day lost more weight than those who did not (model 4: β = -3,675.51, $P < 0.001$).
Conclusions: Eating each meal (*i.e.*, breakfast, lunch, and dinner) at a certain time every day may increase weight loss success. Also, consuming the same amount of calories at each meal may help weight loss success.
Keywords: Dietary habits; health behavior; mealtimes; obesity; weight loss.

Background-The irregular meal pattern and meal-skipping might be related to irritable bowel syndrome (IBS), however, findings of previous investigations are contradictory. We aimed to examine the relation of meal regularity with IBS in Iranian adult population.
Methods-Data on 4599 adults who worked in 50 different health centers were used in this cross-sectional study. Dietary habits were measured using a pretested questionnaire. IBS identification was performed through the use of a modified version of Rome III questionnaire.
Results-IBS was prevalent among 18.6% of men and 24.1% of women. After adjustment for potential confounders, those with regular meal pattern, in comparison to those with irregular meals, had 40% lower odds for IBS (OR:0.60, 95%CI: 0.41–0.87). Individuals with regular meals had also 82 lower risk for IBS-Mixed, in comparison to those who had irregular meals (OR:0.18, 0.95%CI: 0.08–0.43). Stratified analysis by gender revealed that women with regular meals, compared with those who did not, had 44% lower risk for IBS (OR: 0.56, 0.95%CI: 0.34–0.91). Normal-weight individuals who had regular meal pattern, compared to those who did not, had 63% lower risks for IBS (OR:0.37, 95%CI: 0.22–0.64). Furthermore, subjects who had regular meal pattern had 53% lower risk for severe symptoms of IBS (OR:0.47, 95%CI: 0.30–0.71).
Conclusion-We found that participants with regular meal pattern had reduced odds of IBS, IBS-Mixed and the syndrome severity. Meal regularity was also linked to reduced IBS prevalence in women, and in normal-weight individuals. More prospective studies are needed to affirm these associations.

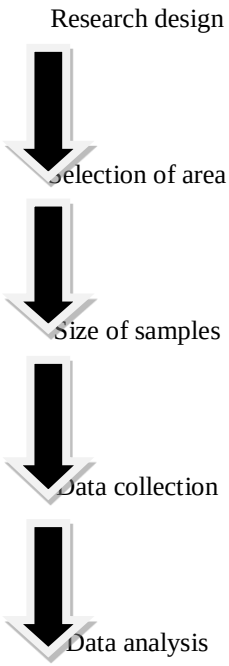
Background: Eating is fundamental to survival. Animals choose when to eat depending on food availability. The timing of eating can synchronize different organs and tissues that are related to food digestion, absorption, or metabolism, such as the stomach,

gut, liver, pancreas, or adipose tissue. Studies performed in experimental animal models suggest that food intake is a major external synchronizer of peripheral clocks. Therefore, the timing of eating may be decisive in fat accumulation and mobilization and affect the effectiveness of weight loss treatments.
Results: We will review multiple studies about the timing of the three main meals of the day, breakfast, lunch and dinner, and its potential impact on metabolism, glucose tolerance, and obesity-related factors. We will also delve into several mechanisms that may be implicated in the obesogenic effect of eating late.
Conclusion: Unusual eating time can produce a disruption in the circadian system that might lead to unhealthy consequences.
Keywords: circadian rhythms, food timing, melatonin, nutrigenetic, obesity, weight loss.

IV.METHODOLOGY

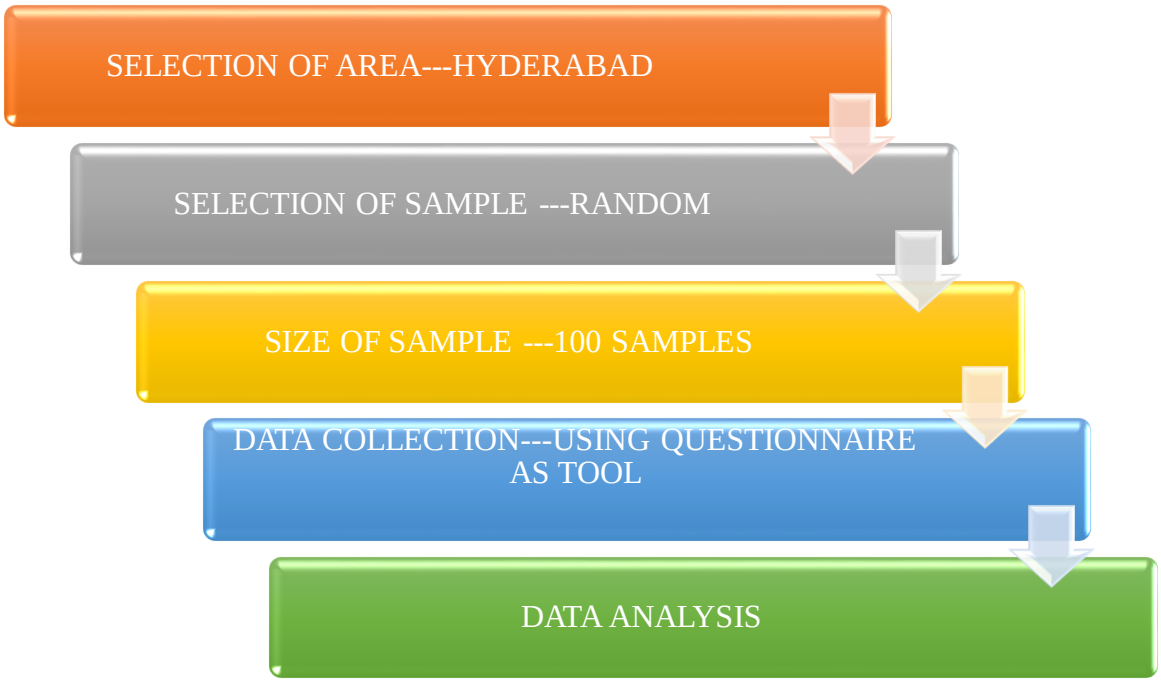
Methodology is the systemic, theoretical analysis of methods applied in the field of study.

It enables the research to project a blue print of research undertaken.



RESEARCH DESIGN:

Research design of the study is shown in the following flow chart.



RESEARCH APPROACH:

SELECTION OF AREA: Islamia Degree and PG College, Princess Durre Shehvar Hospital.

TARGET POPULATION: For the study 100 samples of Working women and Non Working women were selected.

SAMPLING: Random sampling procedure was adopted to collect the data. An attempt was made to cover 50 Working and 50 Non-Working women.

DURATION OF STUDY: The study has been carried for a period of 2 months.

COLLLECTION OF DATA: The content of the questionnaire contains general information, anthropometric measurements, hygiene, sanitation, meal pattern and its regularity and level of physical activity. The questionnaire contains close ended questions.

GENERAL INFORMATION: General information was collected to get the following details from the Working women and Non-Working women like personal information of the individual that is name, age, gender and profession of mothers.

EDUCATION: The samples were educated about healthy eating habits and meal timing, importance of its regularity, proper of hygiene and sanitation. Awareness was created to consume less junk food. Importance of physical activity and importance of packed lunches was explained.

FORMULA:

$$t=\frac{\sum d}{\sqrt{(\sum d2)-(\sum d2)/n-1}}$$

Where:

∑d:issumofthedifference

d: difference per paired value ,

n: number of sample.

V.RESULT AND DISCUSSION

Table-1 NO. OF MEALS CONSUMPTION PER DAY

CATEGORY	WORKING		NON-WORKING	
	FREQUENCY	PERCENTAGE %	FREQUENCY	PERCENTAGE %
LESS THAN 3	1	1	5	5
3	46	46	45	45
5	3	3	0	0
7	0	0	0	0

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 1% consume <3,46% consume 3 meals per day , 3%consume 5 meals per day and among non-working women 5% consume <3 meals per day , 45% consume 3 meals per day .

Table-2-CONSUMPTION OF CEREALS

CATEGORY	WORKING		NON-WORKING	
	FREQUENCY	PERCENTAGE %	FREQUENCY	PERCENTAGE %
DAILY	33	33	35	35
ALTERNATELY	7	7	5	5
WEEKLY	5	5	5	5
MONTHLY	4	4	5	5
YEARLY	1	1	0	0
NEVER	0	0	0	0

DISCUSSION:- :- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 33% consume it daily,7% consume it alternately,5% consume it weekly,4% consume it yearly and among non-working women 35% consume it daily, 5% consume it alternately,5% consume it weekly, 5% consume it monthly.

Table-3-CONSUMPTION OF PULSES

CATEGORY	WORKING		NON-WORKING	
	FREQUENCY	PERCENTAGE %	FREQUENCY	PERCENTAGE %
DAILY	9	9	6	6
ALTERNATELY	33	33	35	35
WEEKLY	6	6	8	8
MONTHLY	2	2	1	1
YEARLY	0	0	0	0
NEVER	0	0	0	0

DISCUSSION:- :- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 9% consume it daily,33% consume it alternately,6% consume it weekly,2% consume it monthly and among non-working women 6% consume daily ,35% consume alternately,8% consume weekly,1% consume monthly.

Table-4-CONSUMPTION OF FRUITS

CATEGORY	WORKING		NON-WORKING	
	FREQUENCY	PERCENTAGE %	FREQUENCY	PERCENTAGE %
DAILY	17	17	15	15
ALTERNATELY	14	14	12	12
WEEKLY	17	17	20	20
MONTHLY	1	1	3	3
YEARLY	1	1	0	0
NEVER	0	0	0	0

DISCUSSION:- :- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 17% consume it daily,14% consume alternately, 17% consume weekly, 1% consume monthly,1% consume yearly and among non-working women 15% consume it daily , 12% consume alternately,20% consume weekly,3% consume monthly.

Table-5-CONSUMPTION OF VEGETABLES

CATEGORY	WORKING		NON-WORKING	
	FREQUENCY	PERCENTAGE %	FREQUENCY	PERCENTAGE %
DAILY	26	26	47	47
ALTERNATELY	23	23	0	0
WEEKLY	1	1	0	0
MONTHLY	0	0	3	3
YEARLY	0	0	0	0
NEVER	0	0	0	0

DISCUSSION:- :- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 26% consume them on daily basis,23% consume alternately,1% consume weekly and among non-working women 47% consume daily ,3% on monthly .

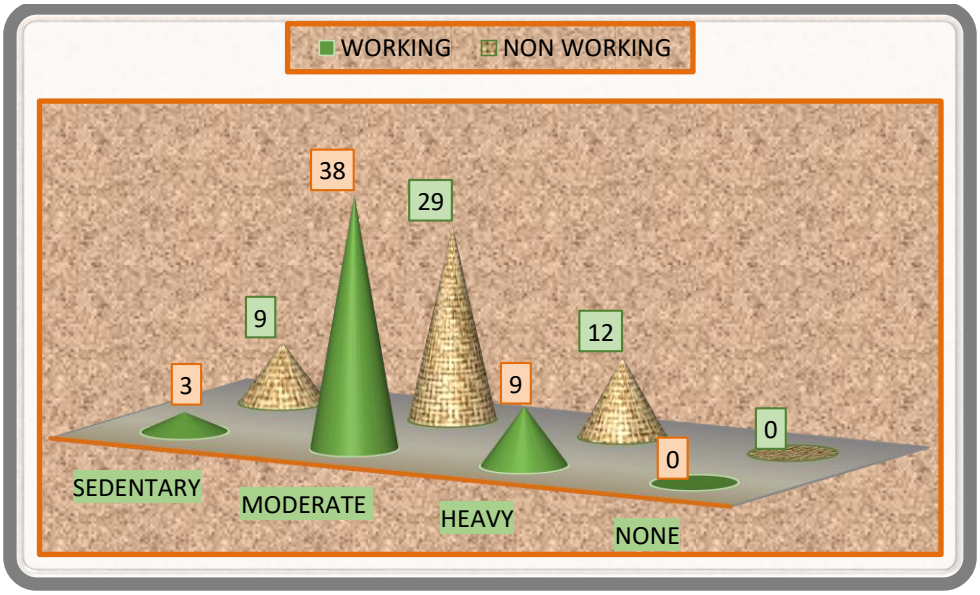


FIGURE- TYPE OF WORK THEY DO

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 3% women do sedentary type of work,38% women do moderate type of work,9% women do heavy type of work and among non-working women 9% do sedentary type of work,29% women do moderate type of work and 9% of women do heavy type of work.

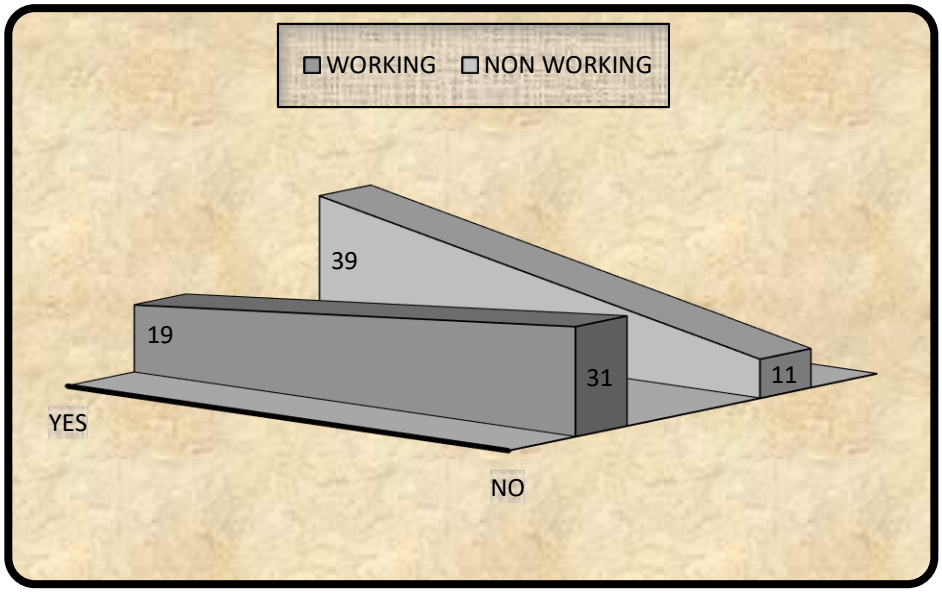


FIGURE- SKIPPING OF MEALS

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 19% women agreed to YES,31% women for NO and among non-working women 39% agreed for YES and 11% for NO.

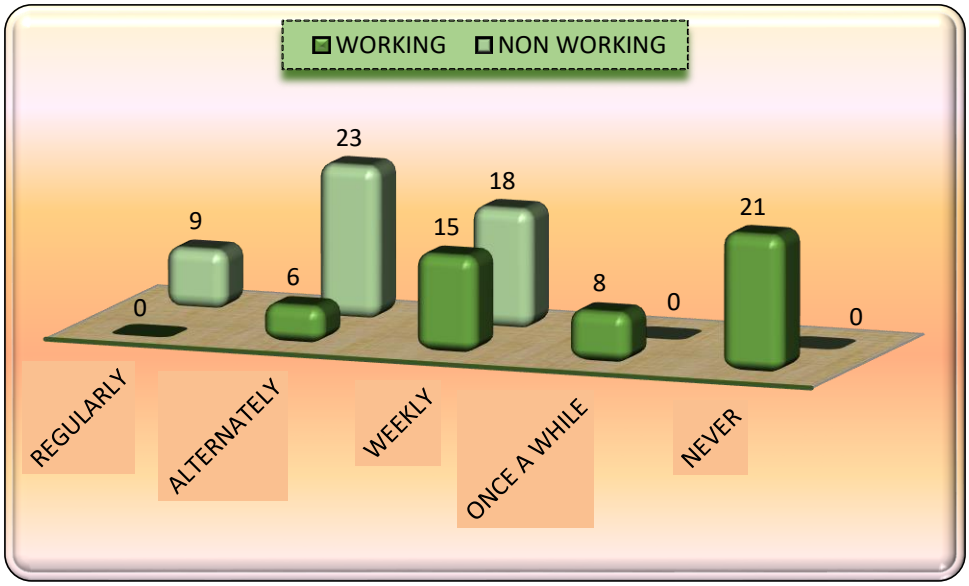


FIGURE- OFTENLY SKIPPED MEALS

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 6% skip their meal alternately, 15% skip weekly,8% skip once a while, 21% women never skip their meal and among non-working women 9% skip their meal daily,23% skip alternately,18% skip weekly.

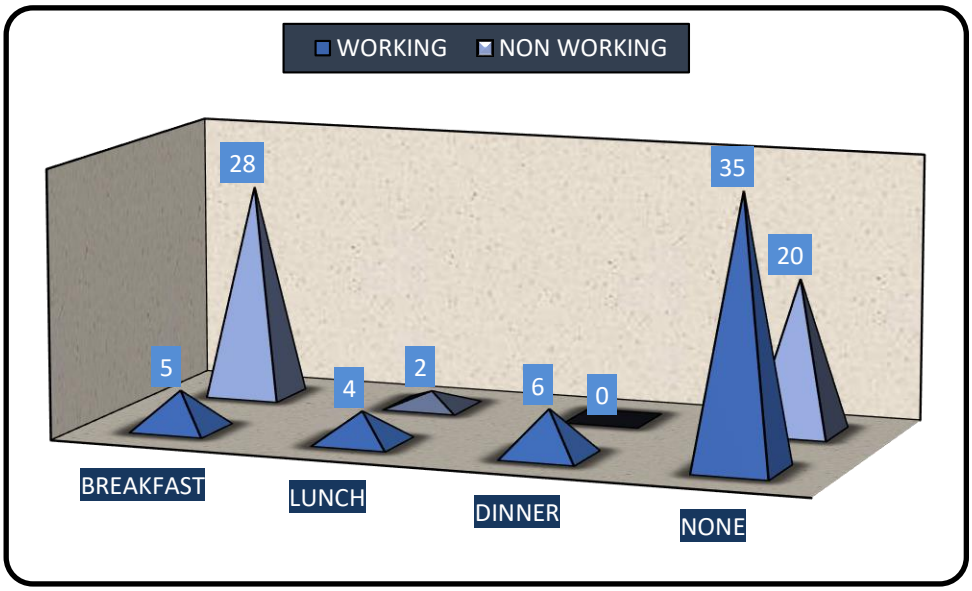


FIGURE-MOSTLY SKIPPED MEAL

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 5% women skip their breakfast,4% skip their lunch,6% skip their dinner, 35% don't skip any of their meals and among non-working women 28% skip their breakfast, 2% skip lunch,20% women don't skip any of their meals.

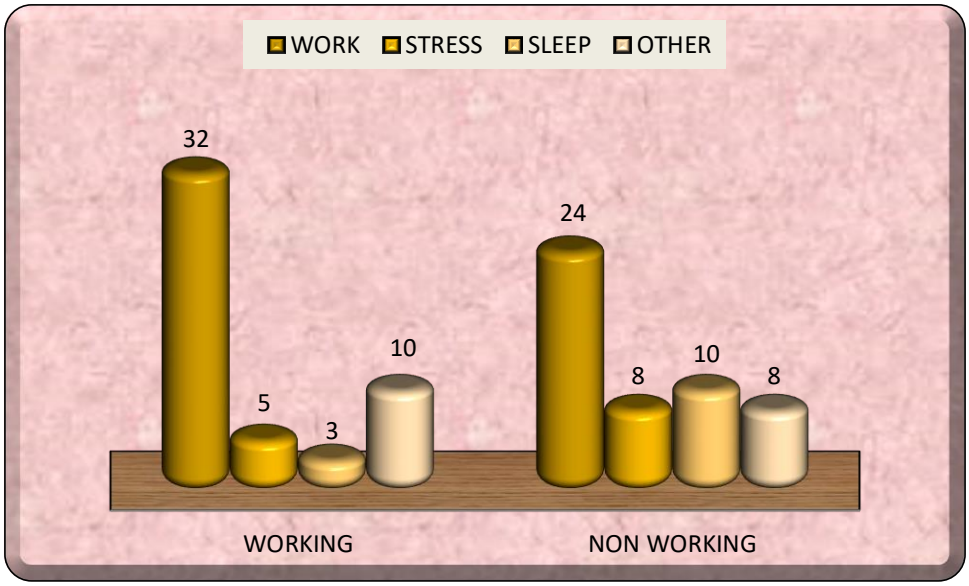


FIGURE-REASON FOR SKIPPING MEALS

DISCUSSION:- The above table represents that out of 100 subjects (50% working women and 50% non-working women) among working women 32% women reason is work,5% skip because of stress,3% because of sleep,10% skip because some other reasons and among non-working women 24% skip their meals because of work,8% because of stress,10% because of sleep, 8% because of some other reasons.

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