



# **Theme:**

# **Good Health, Well Being and Nutrition – Part 1**

# Administration And Evaluation Of Diet And Exercise Intervention On Subjects Suffering From Metabolic Syndrome Of Punjabi Community

**Dhawan Deepika<sup>1</sup>**, Sharma Sheel<sup>2</sup>

1. Assistant Professor, Allied Health Sciences, Chitkara School of Health Sciences, Rajpura, Email ID: [deepikadhawan10@gmail.com](mailto:deepikadhawan10@gmail.com)

2. Professor, Department of Food Science and Nutrition, Banasthali Vidyapith, Rajasthan

## Introduction

- In metabolic syndrome (MetS), relationship between lifestyle and pathology, especially in Punjabi community,
- Intervention allows long-term effects, to manage MetS with an augmented awareness level and improved dietary and lifestyle practices.

## Aim

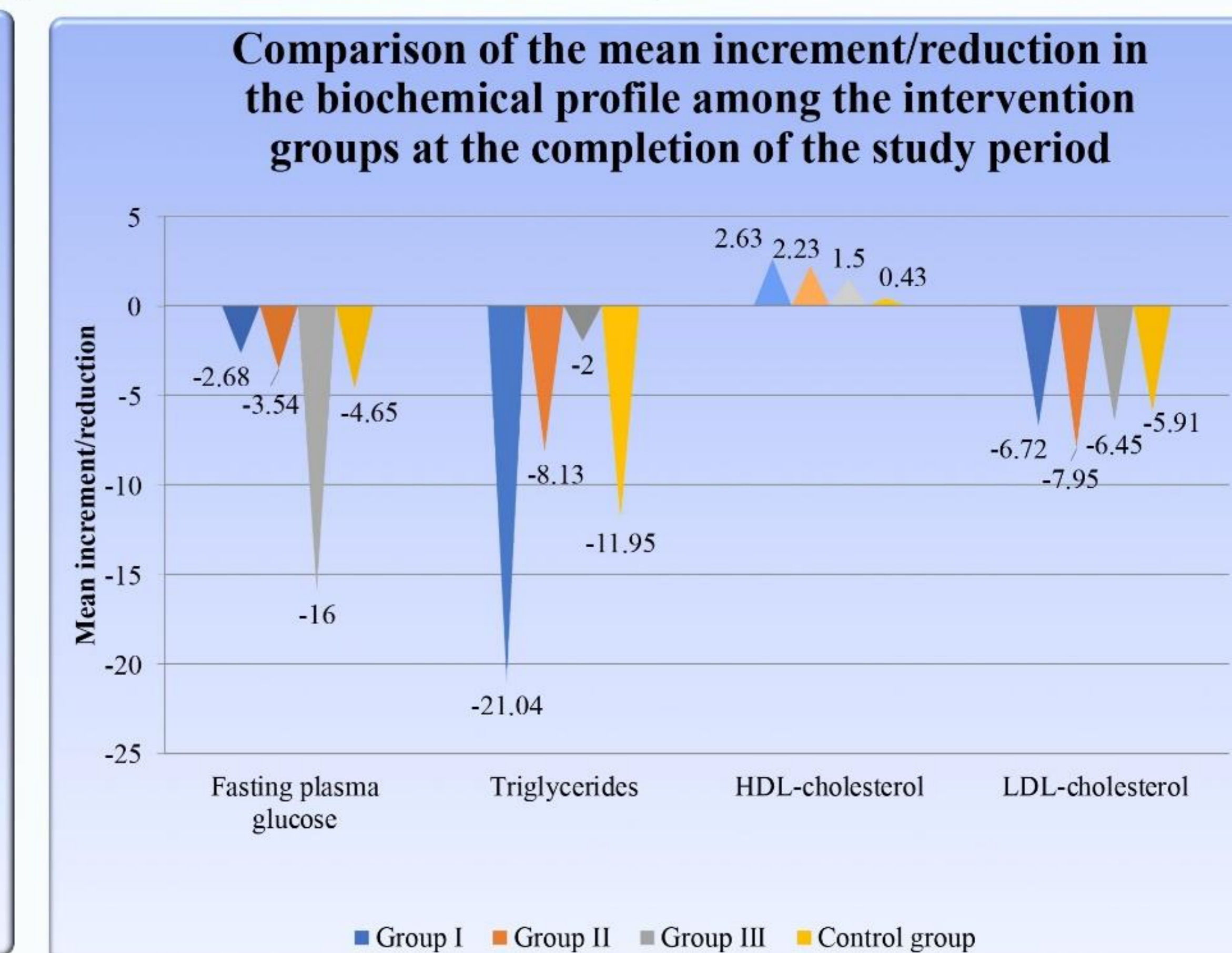
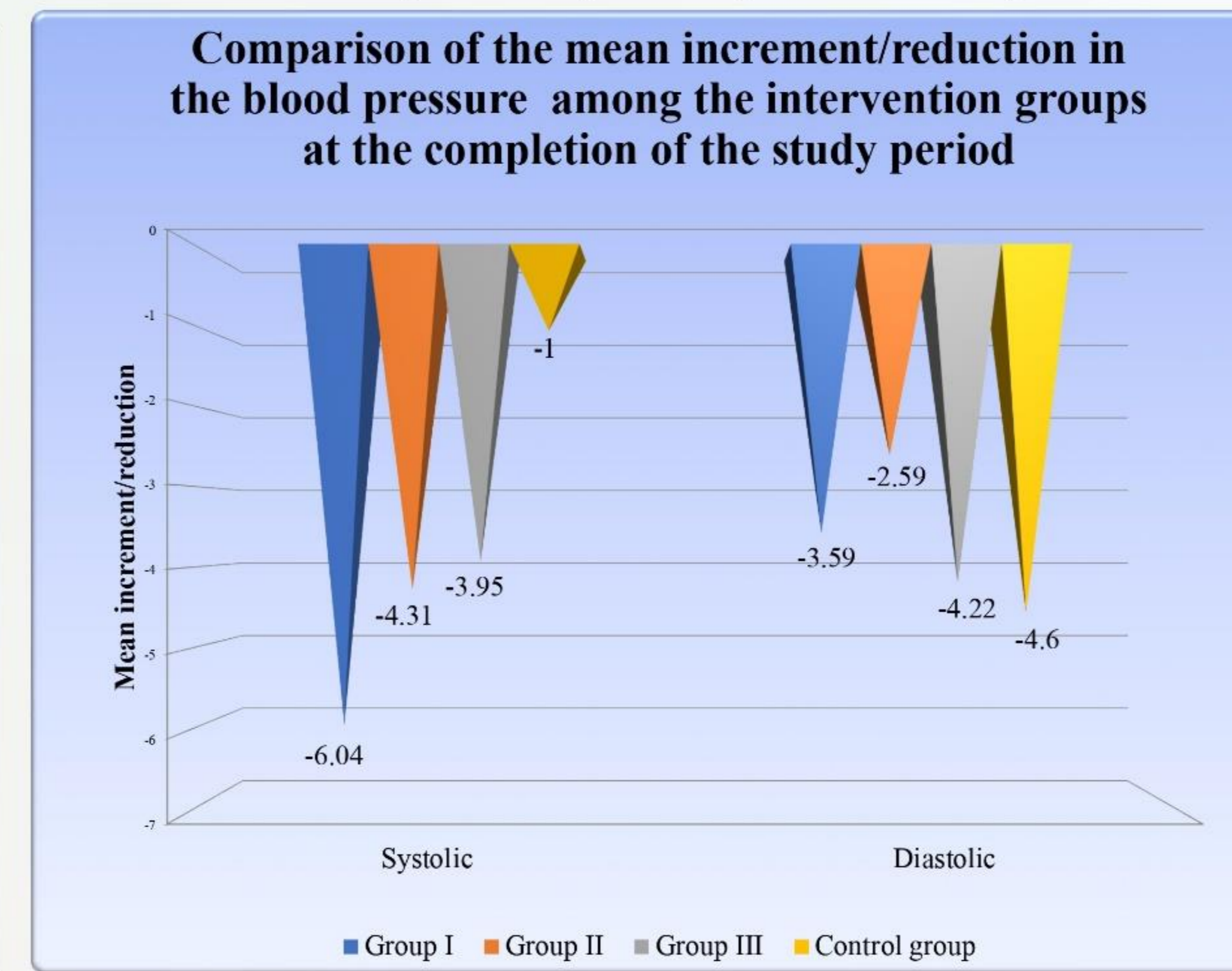
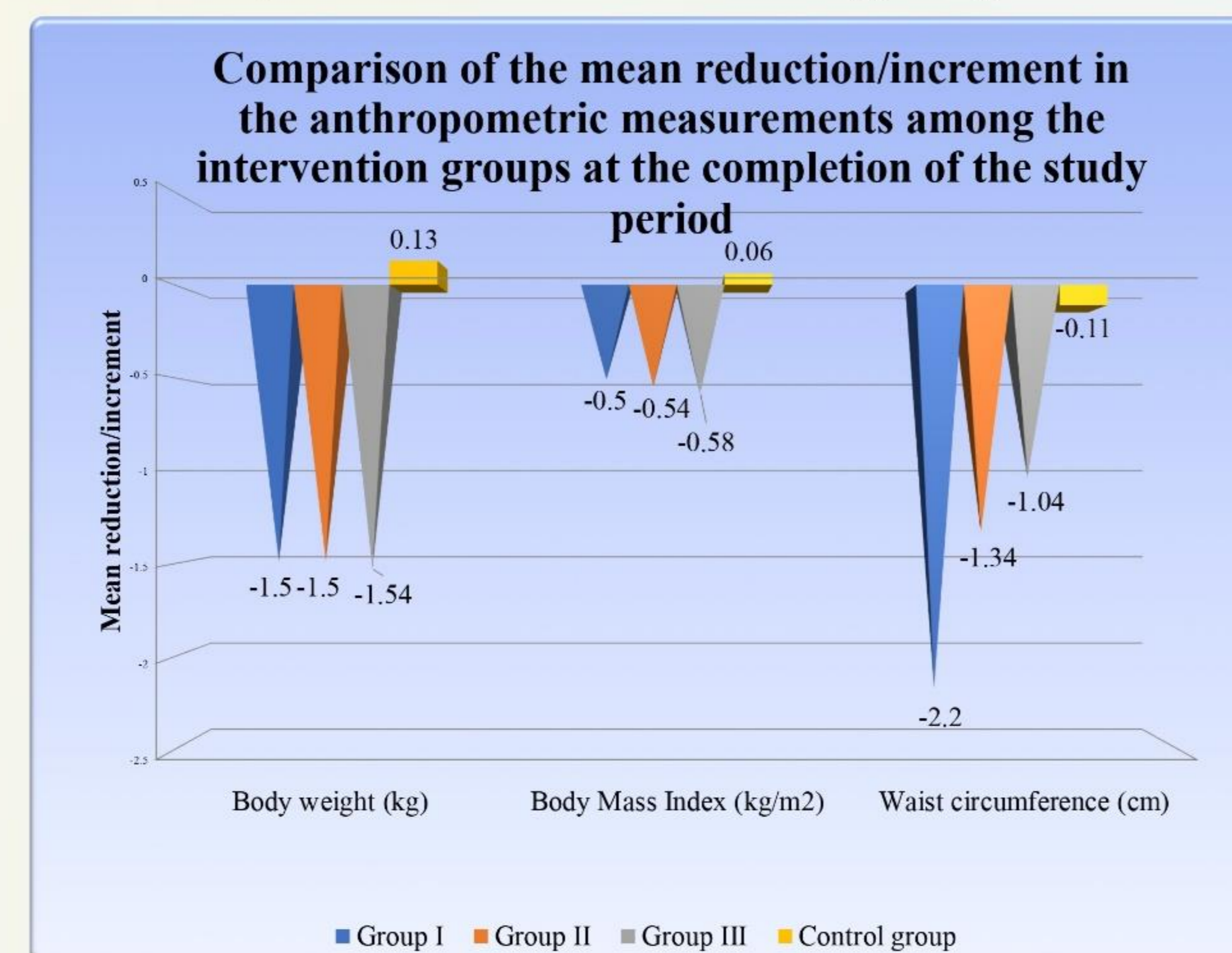
- The goal of this study was to find the separate and combined impact of dietary and exercise intervention on subjects (n=89) with MetS in Punjabi community.

## Methodology

- The MetS patients were randomly allocated into four groups diet, exercise, diet-exercise and control for 90days.
- After completion of intervention of 90days, they were assessed for MetS (IDF definition) and compared with preexperimental results.

## Results

The combined diet and exercise intervention showed highest significant reduction in MetS among all the groups after the study period was over, absence of MetS in groups include **diet-exercise; 50%, diet; 45.45%, exercise; 36.37% and control; 21.73%.**



## Conclusion

An improvement in symptoms of MetS was detected in intervention groups with the greatest outcome in combined diet and exercise group, suggesting a synergistic effect of the two.

## References

- Peiris, C. L., van Namen, M., & O'Donoghue, G. (2021). Education-based, lifestyle intervention programs with unsupervised exercise improve outcomes in adults with metabolic syndrome. A systematic review and meta-analysis. *Reviews in endocrine & metabolic disorders*, 1–14. Advance online publication. <https://doi.org/10.1007/s11154-021-09644-2>
- Anderssen, S. A., Carroll, S., Urdal, P., & Holme, I. (2007). Combined diet and exercise intervention reverses the metabolic syndrome in middle-aged males: results from the Oslo Diet and Exercise Study. *Scandinavian journal of medicine & science in sports*, 17(6), 687–695. <https://doi.org/10.1111/j.1600-0838.2006.00631.x>

## Acknowledgement

I would like to acknowledge Prof. Sheel Sharma for his research guidance and support.

**PREVALENCE OF ANEMIA AMONG ADOLESCENT GIRLS RESIDING IN URBAN SLUMS OF VADODARA: A COMMUNITY-BASED CROSS-SECTIONAL STUDY**

Dr. Shruti Kantawala & Ms Revti Prajapati

Ph.D & M.Sc(prajapatirevti@gmail.com)

Department of Foods and Nutrition, Faculty of Family and Community Sciences  
The Maharaja Sayajirao University of Baroda, Vadodara (Gujarat) India

**Introduction**

Anemia is a major public health problem worldwide. Iron deficiency anaemia was the second leading cause of years lost by adolescents to death and disability (WHO, 2020). According to UNICEF, 40% of adolescent girls in India are anemic due to Poor Dietary intake, Low iron Absorption Menstruation in Adolescent Age etc.

**Aim**

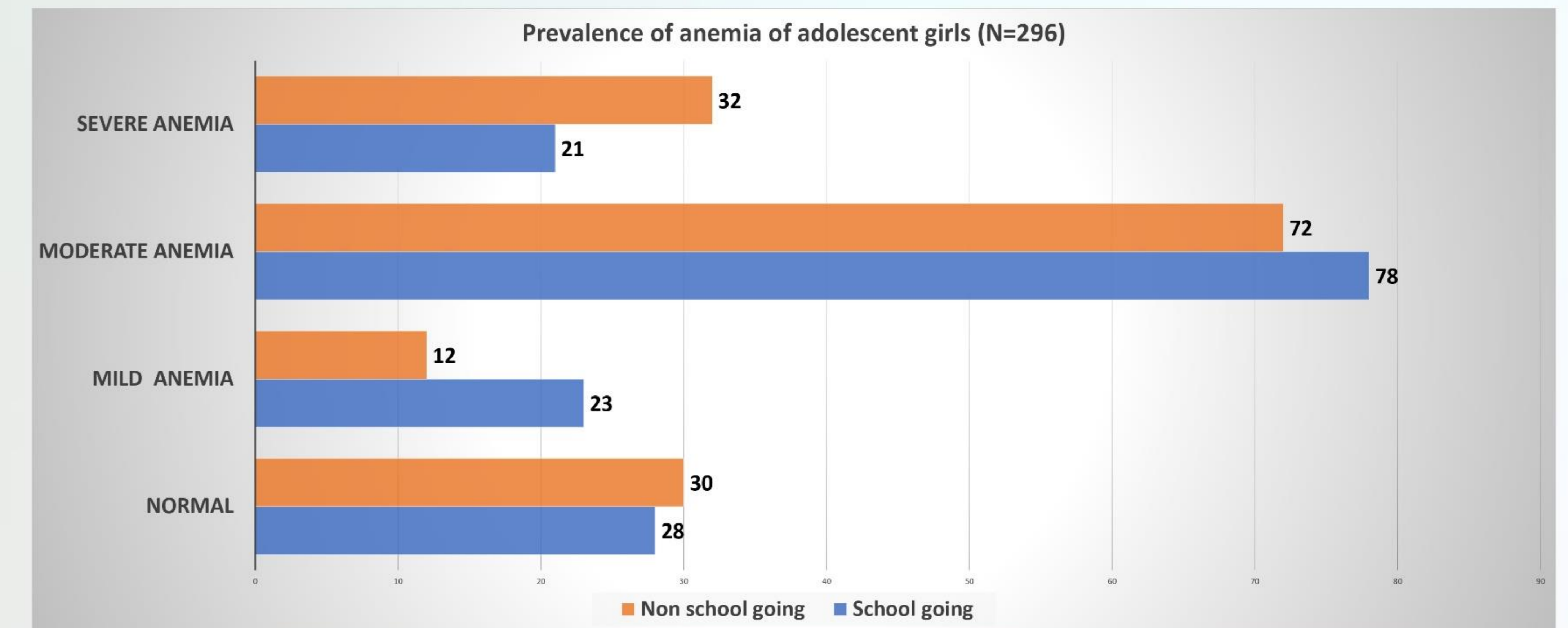
To assess the prevalence of anemia among adolescent girls residing in urban slums of Vadodara.

**Methodology**

A cross-sectional study was conducted to determine the prevalence of anemia among adolescent girls (11-19 years) in anganwadi centers and residing in urban slum area. 314 adolescent girls were enrolled in our study. Blood sample was collected among 296 (94.3%) study participants to assess the hemoglobin (Hb) value using Hemochromax machine. Hemochromax PLUS is an in vitro diagnostic device, easy to operate, convenient and provides accurate and reliable results compared with large analyzers. Microcuvettes and lancets were collected in a hard card board box in the field and was discarded at the health center.

**Results**

Hemoglobin was estimated on carried out on 296 girls (94.3%) out of which 150(50.7%) were School going and 146(49.3%) were Out of School going Adolescent Girls. The study data revealed prevalence of anemia among adolescent girls to be 80.4% of which 11.2% mild, 50.7% moderate and 17.9% severe anemic. The prevalence of anemia was slightly more in school going girls (81.3%) compared to out of school girls (79.5%). Severely Anemic adolescent were higher in out of school girls compare to school going Mean Hb of girls was found to be 10.1±2.4 gm/dl. The age wise means hemoglobin values decreases during late adolescent. 83.75% of girls had attained menarche and anemia more common among girls having regular periods.



**Conclusion**

The present study shows prevalence of anemia among adolescent girls is alarmingly high in urban slums of Vadodara. Hemochromax is very effective instrument to assess anemia status.

**References**

WHO, 2020 <https://www.who.int/health-topics/anaemia>  
UNICEF 2011 (<https://www.unicef.org/india/what-we-do/adolescent-nutrition>)

**Acknowledgement**

THE STUDY WAS FINANCIAL SUPPORTED BY UGC DSA SAP-III FUND.

# Optimization Of Protein Levels, Formulation And Organoleptic Evaluation Of Nutribars For Indian Athletes

**Baria Kanchi** \*, Chauhan Komal

Department of Foods and Nutrition, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara 390002, Gujarat, India.

\*Email id: Kanchi.baria-fn@msubaroda.ac.in

## Introduction

- Athletes have higher nutritional requirements
- During intense competition, sports foods are essential
- "Sports Foods" refers to specially manufactured food items designed exclusively for use by athletes
- Sports meals with an ideal composition that incorporates indigenous ingredients to help Indian athletes and sportspeople are in demand



## Aim

- 1) Optimise the protein formula using Response Surface Methodology (RSM) , 2) Develop high-protein bars of commercial value for Indian athletes with Whey Protein Concentrates, Soy Protein Isolate, cereals-pulses based crispies, and groundnuts and 3) Perform Organoleptic Evaluation of the Protein Bars on 9-point Hedonic Scale

## Methodology

1. The protein contents in *NutriBars* were designed using RSM (CCRD with 4 process variables at 4 levels )
2. Organoleptic Evaluation utilising a **9-point Hedonic Scale** was performed on qualities including appearance, taste, flavour, texture, and serving size by 40 semi-trained panel members

Using the design matrix of four components CCRD, we developed **NutriBars** with varying percentages of protein ingredients (Cereal-Pulses Crispies, WPC, SPI, and Ground nuts) while keeping the other ingredients the constant

There were 20 different RSM formulas, all of which were made similarly and tested for appearance, taste, flavour, texture, and serving size

It can be observed that mean scored of the frequency of the hedonic rating by the panel for the *NutriBars* shows high acceptance for appearance, taste and flavour. Serving Size deems to be appropriate for the Athletes as per the panel who are familiar with protein bars

## Conclusion

Based on the organoleptic evaluation results, the *NutriBars* with the optimized formula using RSM were deemed to have a high level of acceptance with regards to their overall likeability in the areas of appearance, taste, flavour, texture, and serving size

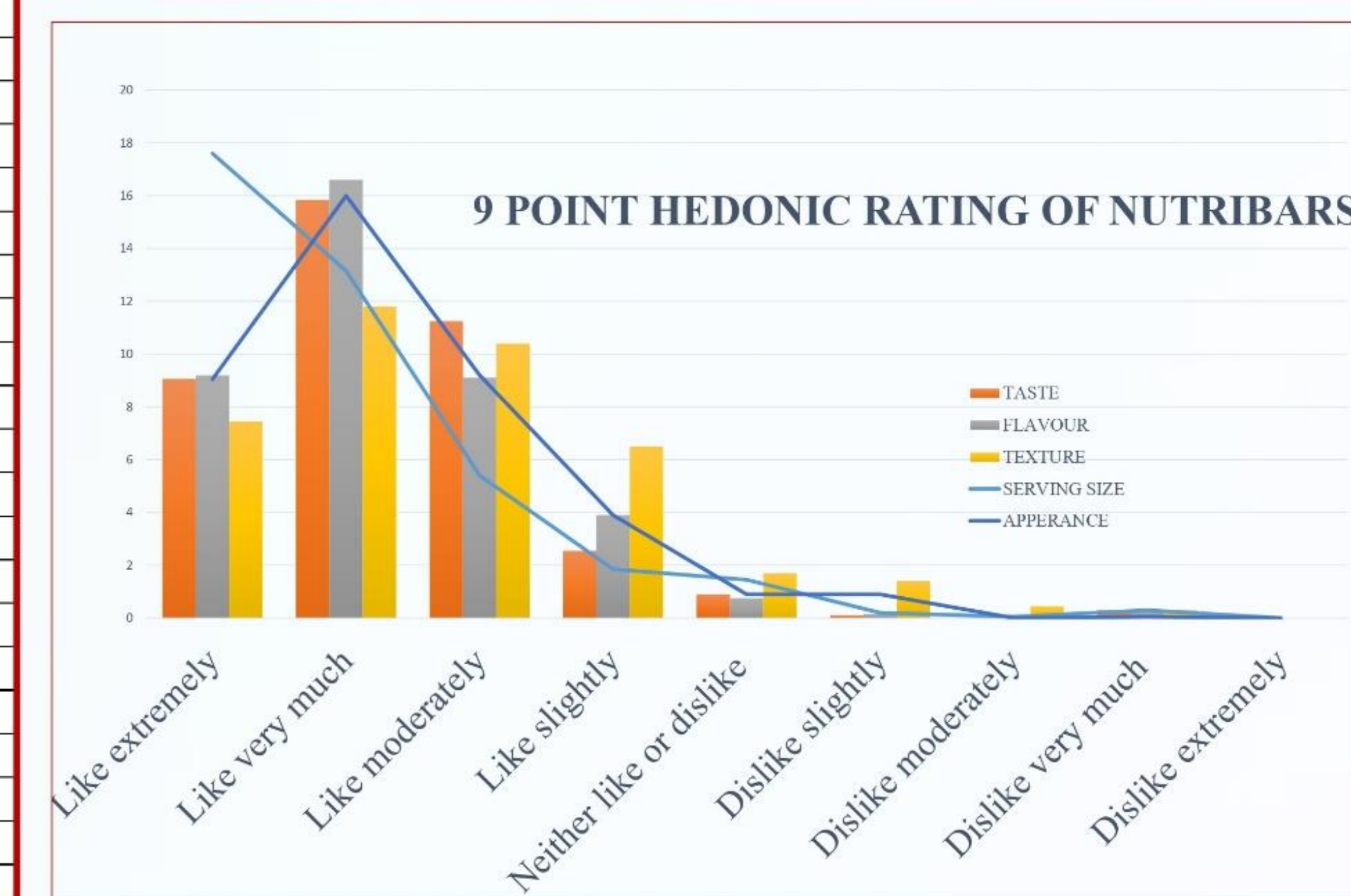


## Results

Experimental Design Matrix (CCRD) For Protein Ingredients In NutriBars

RUN	C-P CRISPIES	WPC-80	SPI	G.NUTS
1	7.26	14.52	14.52	6.45
2	7.26	15.32	14.52	5.65
3	7.26	14.52	14.52	6.45
4	7.26	13.71	14.52	7.26
5	6.45	15.32	13.71	7.26
6	7.26	14.52	15.32	5.65
7	7.26	14.52	13.71	7.26
8	8.06	13.71	13.71	7.26
9	7.26	14.52	14.52	6.45
10	6.45	13.71	13.71	8.87
11	7.26	14.52	14.52	6.45
12	8.06	13.71	15.32	5.65
13	7.26	14.52	14.52	6.45
14	6.45	14.52	14.52	7.26
15	8.06	15.32	13.71	5.65
16	6.45	13.71	15.32	7.26
17	8.06	14.52	14.52	5.65
18	8.06	15.32	15.32	4.03
19	6.45	15.32	15.32	5.65
20	7.26	14.52	14.52	6.45

Diagram showing the frequencies of responses based on the 9 point hedonic scale for sensory attributes for appearance, taste, flavour, texture and serving size of the bars



## References

- 1) Samakradhamrongthai, R.S., Jannu, T., & Renaldi, G. (2021). High-energy cereal bar physicochemical and sensory attributes and customer appeal. *Heliyon*.
- 2) Latika Yadav and Vibha Bhatnagar (2015). Cereal bar ingredient optimization. *6(2): 273-278*.
- 3) Sunita Mishra and Sonam Gupta (2016). Athletic Energy Bars. *IJSR 7. 845-846. 10.21275/ART20191962*.

## Acknowledgement

- This study was funded by The Maharaja Sayajirao University of Baroda's Research and Consultancy Cell
- S. M. C College of Dairy Science, Anand Agricultural University assisted for conducting RSM
- Sensory evaluation was performed by the Semi-trained panel of the Department of Foods and Nutrition, The MSU Baroda

# Breastfeeding Beliefs And Practices Among The COVID-19-Infected and Uninfected Mothers of the Delhi-NCR

Srishti Saklani<sup>1</sup> & Vandana Sabharwal<sup>2</sup>

<sup>1</sup>Research Student, <sup>2</sup>Assistant Professor, Department of Food and Nutrition, Institute of Home Economics, University of Delhi, New Delhi

Email Id: srishtisaklani90@gmail.com

## Introduction

- Breastfeeding is the **gold standard** for an **infant's growth and development** as well as a **cost-effective intervention to reduce IMR**.
- The **COVID-19 pandemic** raised concerns regarding the safety of breastfeeding. Lack of evidence and emerging **breastfeeding misconceptions** interrupted these practices.
- Hence, **achieving SDG of reducing IMR by 2030** might be delayed.

## Aim

Explore breastfeeding practices and myths of COVID-19 infected and uninfected mothers of Delhi-NCR.

## Methodology

**Study Design:** Exploratory Study

**Study Locale:** Delhi-NCR

**Sample Size:** 88 Mothers (40 Covid-19 infected and 48 Covid-19 uninfected)

**Data Collection:** Breastfeeding Practices and Myths

**Data Analysis:** Descriptive and inferential statistics using SPSS

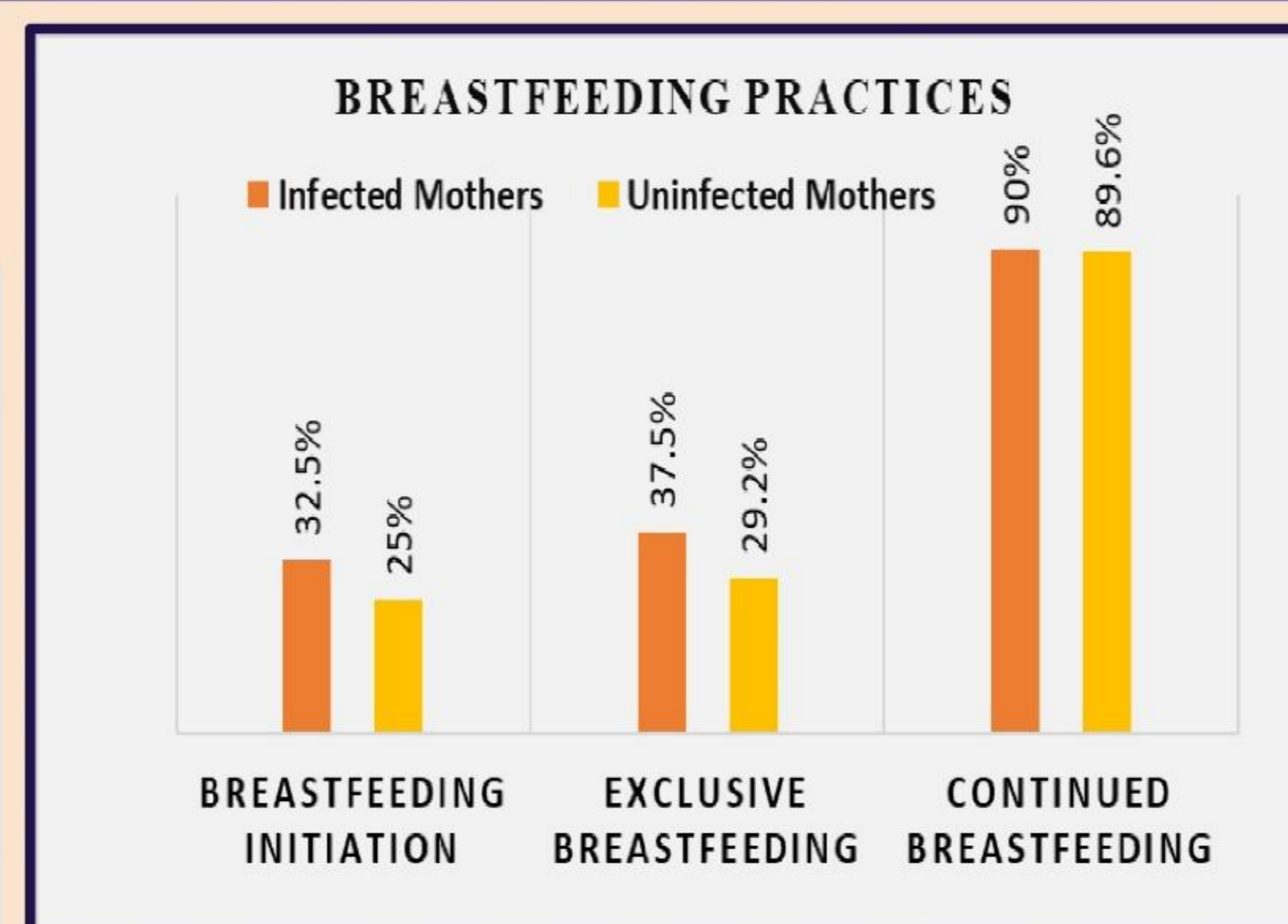
## Results

### SOCIO-DEMOGRAPHIC PROFILE

- The socio-demographic profile was collected through a semi-structured questionnaire. Participants were further classified into different **socioeconomic status** according to the **Kuppuswamy's Scale**.
- A major portion (64.8%) of the mothers were from the age group of 20-29 years, approximately three-fourths of them were educated and one-third of the mothers were employed.
- A total of **88.6 percent** mothers had more than **four antenatal visits**.

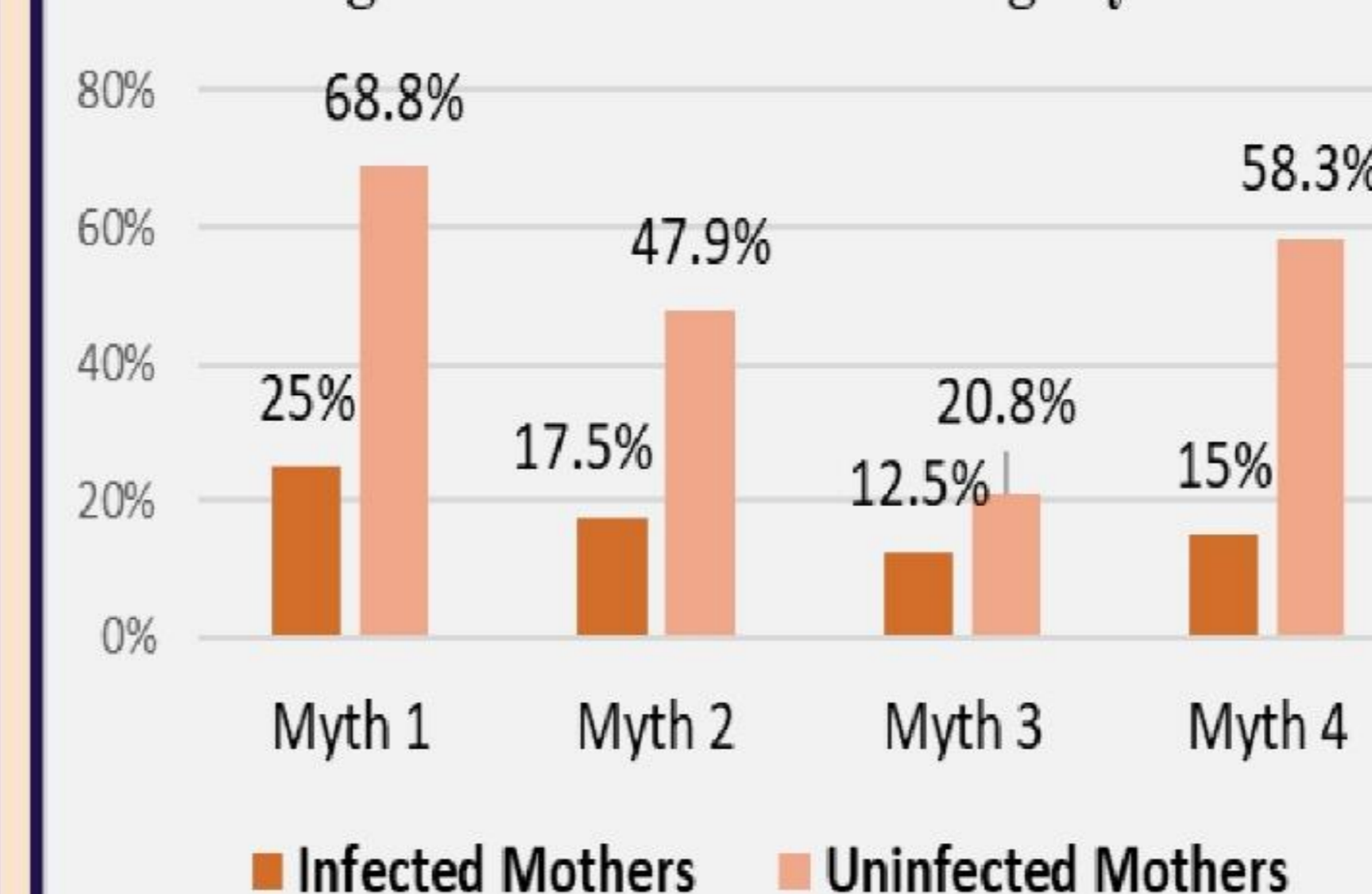
### BREASTFEEDING PRACTICES

- Breastfeeding initiation and EBF** rates were dismal in both the groups.
- However, COVID-19 positive mothers had **marginally better practices**



- The infected mothers received more **support and guidance** for breastfeeding than uninfected mothers.

### Agreement on Breastfeeding Myths



The acceptance rate to breastfeeding myths was **significantly lower** among the infected mothers ( $p < 0.05$ ) primarily because they were better counselled and informed.

### BREASTFEEDING MYTHS

The most **common breastfeeding myths** collected on a 5-point Likert scale included:

**Myth 1:** Mother-infant separation during COVID infection

**Myth 2:** Breastmilk can transmit the virus to the child

**Myth 3:** Lack of milk supply in the pandemic

**Myth 4:** Women on COVID-19 medication shouldn't breastfeed

## Conclusion

- The benefits of breastmilk are unequivocal.
- Yet, numerous challenges are faced to sustain breastfeeding.
- Information to mothers and social support can promote optimal breastfeeding practices.

## References

- Dadhich, J.P., et al., (2020). *Gaps in beliefs and practices of trained breastfeeding counsellors and lactating mothers facing COVID-19 pandemic in India*: BPNI
- New research highlights risks of separating newborns from mothers during COVID-19 pandemic*. WHO
- Breastfeeding and COVID-19:NHP  
[https://www.nhp.gov.in/breastfeeding-and-covid-19\\_pg](https://www.nhp.gov.in/breastfeeding-and-covid-19_pg)

## Acknowledgement

We would express our gratitude to Institute of Home Economics, University of Delhi for giving us the opportunity to conduct this research. Special thanks to our participants for their assistance in data collection.

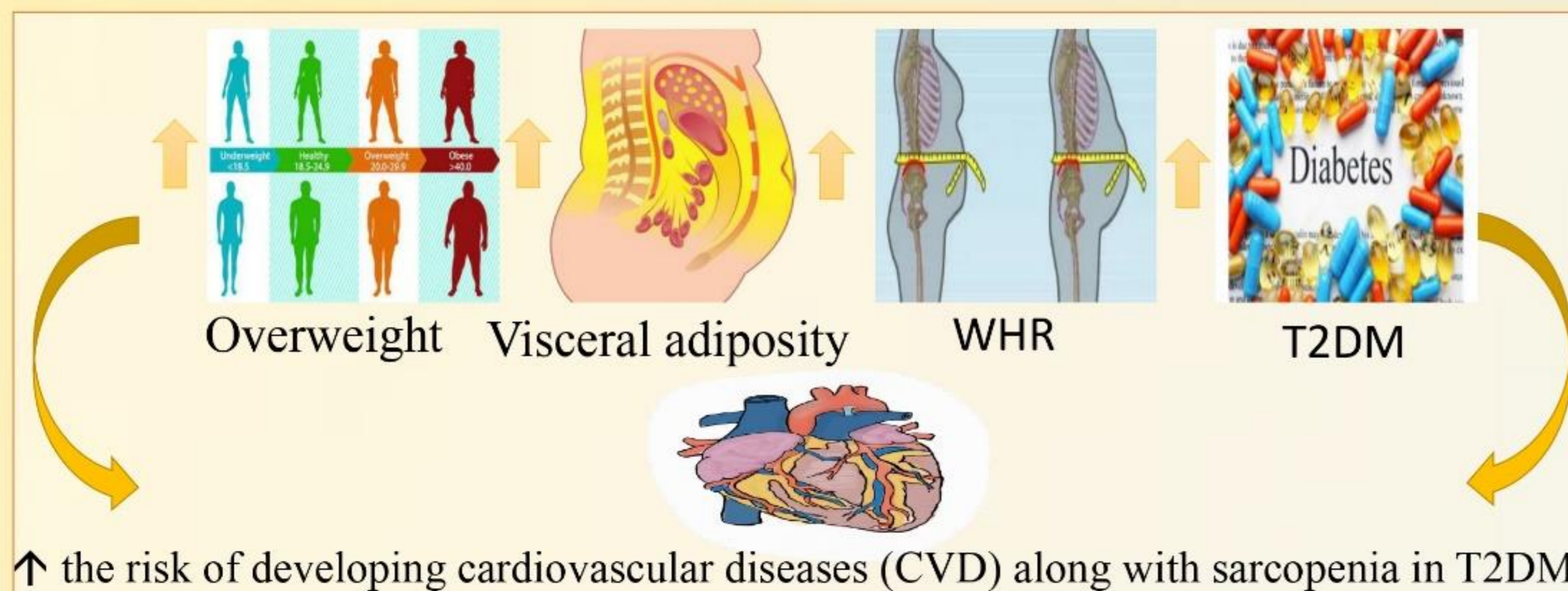
# COMPARISON OF BODY COMPOSITION PARAMETERS BETWEEN MEN AND WOMEN WITH TYPE 2 DIABETES MELLITUS

**Puneetha P<sup>1</sup>**, Asna urooj<sup>2</sup>

<sup>1</sup> Research Scholar, <sup>2</sup> Professor, Department of Studies in Food Science and Nutrition, University of Mysore, Manasagangothri, Mysuru, Karnataka, 570006

Email ID: [puneethap.26@gmail.com](mailto:puneethap.26@gmail.com)

## Introduction



## Aim

To compare the body composition parameters between men and women with type 2 diabetes subjects.

## Methodology



T2DM subjects, aged 25–75 years, N = 75

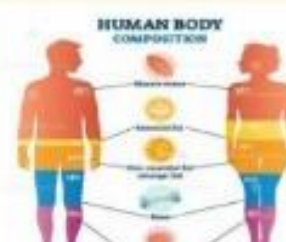
39 Men and 36 Women



University Health Centre, University of Mysore, Mysuru.



Informed consent was taken, IHEC-UOM No.174/PhD/2020-21.



Body composition: Multi-frequency analyzer Inbody 770.

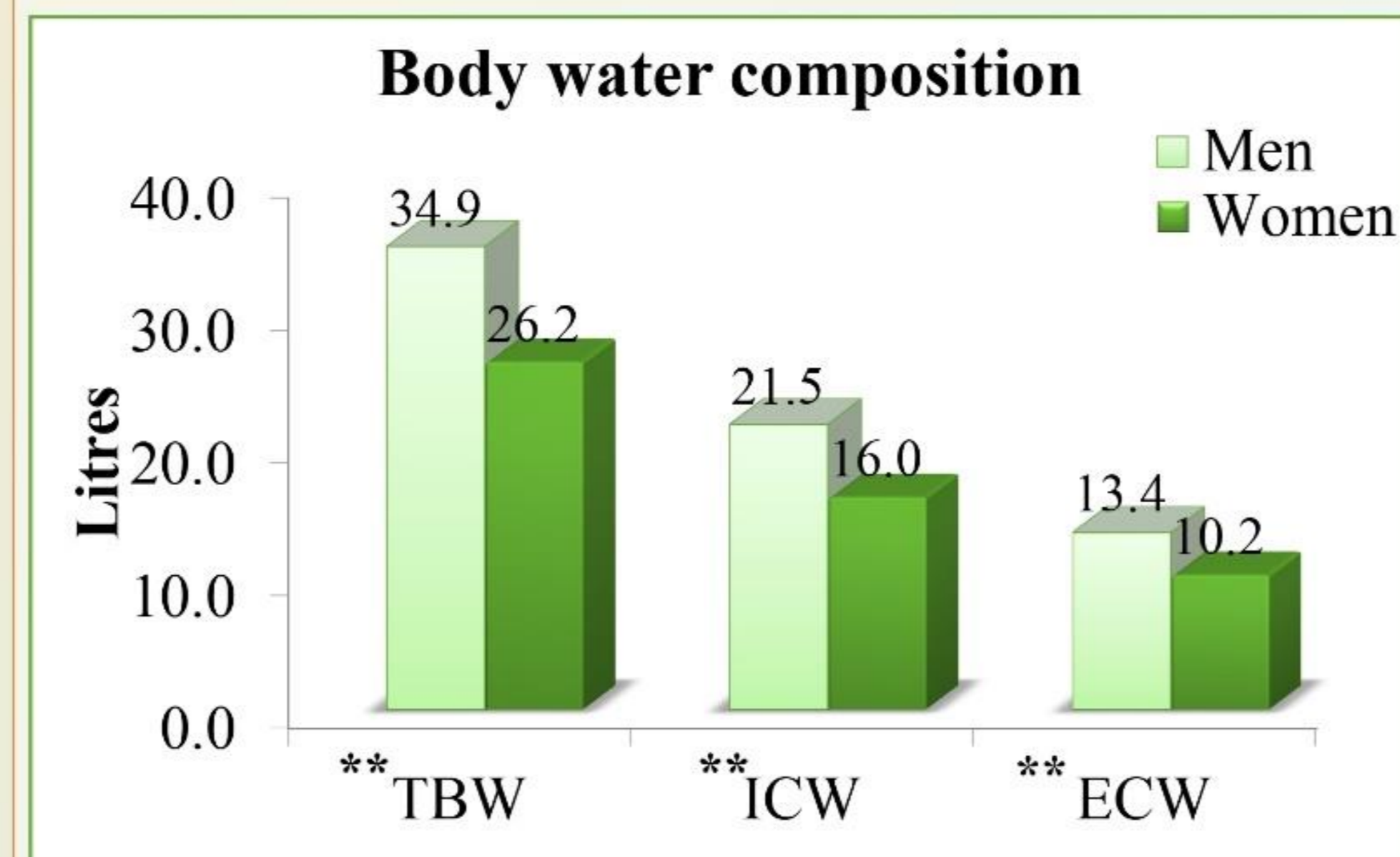


**Statistics:** Descriptive, Independent sample t test, 95% CI at p < 0.05 significant level by using SPSS 25.0 software

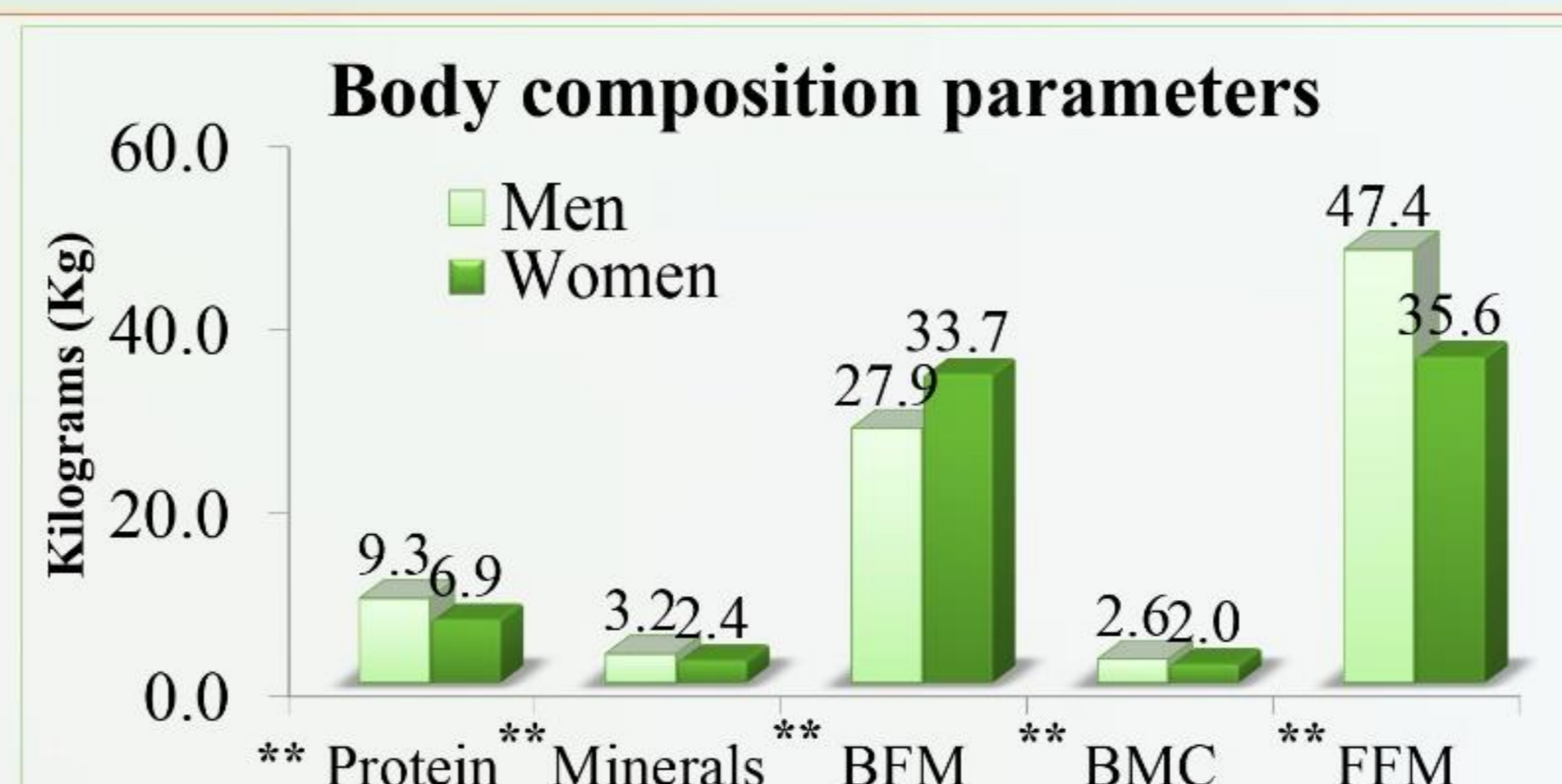
## Results

Characteristics	Men	Women	p-Value
	Mean ± SD	Mean ± SD	
Age	57.46 ± 9.36	56.27 ± 9.94	0.597
Height	165.8 ± 5.05	151.59 ± 5.5	0.000**
Weight	75.26 ± 9.78	69.23 ± 12.01	0.019**

\* p<0.05 \*\* p<0.01



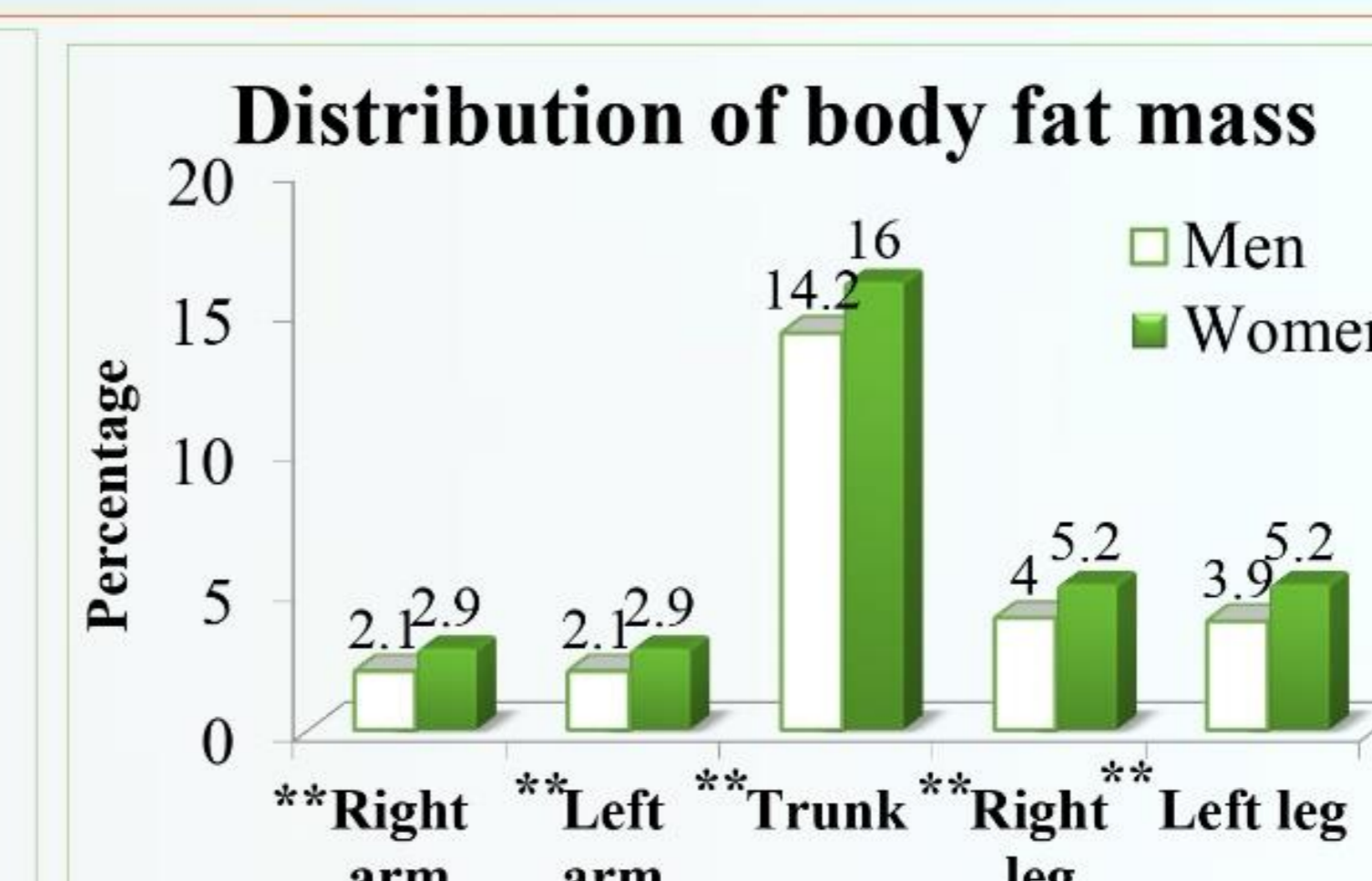
p<0.05 \*\* p<0.01, TBW- Total body water, ICW- Interstitial water, ECW- Extracellular water



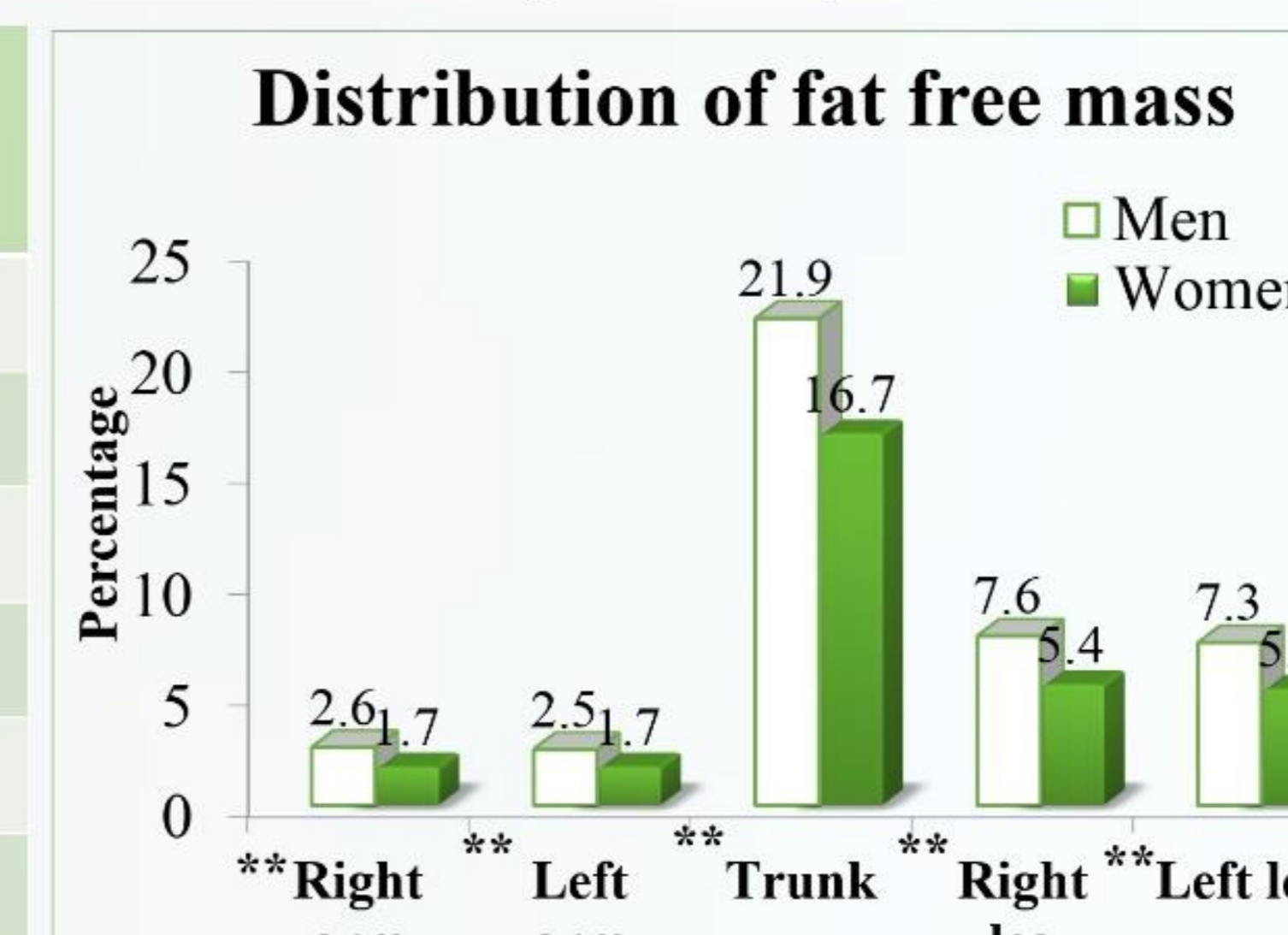
p<0.05 \*\* p<0.01, BFM- Body fat mass, BMC- Bone mineral content, FFM- Fat free mass

Parameters	Men	Women	p-Value
	Mean ± SD	Mean ± SD	
BCM	30.82 ± 3.28	22.94 ± 3.08	0.000**
BMR	1393.89 ± 108.72	1137.88 ± 100.77	0.000**
SLM	44.77 ± 4.75	33.53 ± 4.42	0.000**
SMM	26.07 ± 2.98	18.9 ± 2.8	0.000**
FFM	47.4 ± 5.03	35.55 ± 4.66	0.000**
PBF	36.63 ± 5.3	48.18 ± 4.5	0.000**

p<0.05 \*\* p<0.01, BCM- Body cell mass, BMR- Basal metabolic rate, SLM- Skeletal lean mass, SMM- Skeletal muscle mass, FFM- Fat free mass, PBF- Percent body fat



\* p<0.05 \*\* p<0.01



\* p<0.05 \*\* p<0.01

Characteristics	Men	Women	p-Value
	Mean±SD	Mean±SD	
WC	96.3 ± 8.6	93.4 ± 7.6	0.123
HC	100.2 ± 5.0	92.9 ± 1.1	0.461
Waist hip ratio	0.9 ± 0.0	0.9 ± 0.0	0.014**
Visceral fat area	137.0 ± 39.4	179.6 ± 29.6	0.000**

p<0.05 \*\* p<0.01, WC-Waist circumference, HC-Hip circumference

Characteristics	Men	Women	p-Value
	Mean±SD	Mean±SD	
Skeletal muscle index	7.3 ± 0.64	6.13 ± 0.84	0.000**
Fat mass index	10.15 ± 2.57	14.63 ± 3.47	0.000**
Fat free mass index	17.21 ± 1.38	15.44 ± 1.54	0.000**

\* p<0.05 \*\* p<0.01

## Conclusion

1. Women are at an increased risk of developing CVD and sarcopenia when compared to men in terms of increased body fat mass index, visceral fat area, body fat percentage, and reduced segmental muscle mass.
2. Men are at an increased risk of developing CVD due to their higher WHR.

## References

1. Pouliot, M. C., Després, J. P., Lemieux, S., Moorjani, S., Bouchard, C., Tremblay, A., ... & Lupien, P. J. (1994). Waist circumference and abdominal sagittal diameter: best simple anthropometric indexes of abdominal visceral adipose tissue accumulation and related cardiovascular risk in men and women. *The American journal of cardiology*, 73(7), 460-468.
2. Després, J. P. (2012). Body fat distribution and risk of cardiovascular disease: an update. *Circulation*, 126(10), 1301-1313.
3. Buch, A., Ben-Yehuda, A., Rouach, V., Maier, A. B., Greenman, Y., Izkhakov, E., ... & Eldor, R. (2022). Validation of a multi-frequency bioelectrical impedance analysis device for the assessment of body composition in older adults with type 2 diabetes. *Nutrition & diabetes*, 12(1), 1-7.

## Acknowledgement

1. Department of Studies in Food Science and Nutrition, University of Mysore, Mysuru.
2. University Health Centre, University of Mysore, Mysuru.
3. Subjects who have participated in this study.

## A REVIEW RESEARCH ON PCOS: COMPLICATIONS AND PREVENTIVE STRATEGIES

T Jolly, Thirumani Devi A

Department of Food Science and Nutrition, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamilnadu

### Introduction

- A typical endocrine condition affecting females of reproductive age is polycystic ovarian syndrome (PCOS).
- Numerous ovarian cysts, elevated androgen hormone levels, insulin resistance, and metabolic syndrome are common in PCOS-affected women.
- PCOS may be related to additional morbidities beyond from diabetes and hypertension.
- Numerous factors, such as unbalanced eating patterns, bad lifestyle choices, inadequate care and therapy, delayed diagnosis, and ignorance, affect the occurrence of this disorder in women.

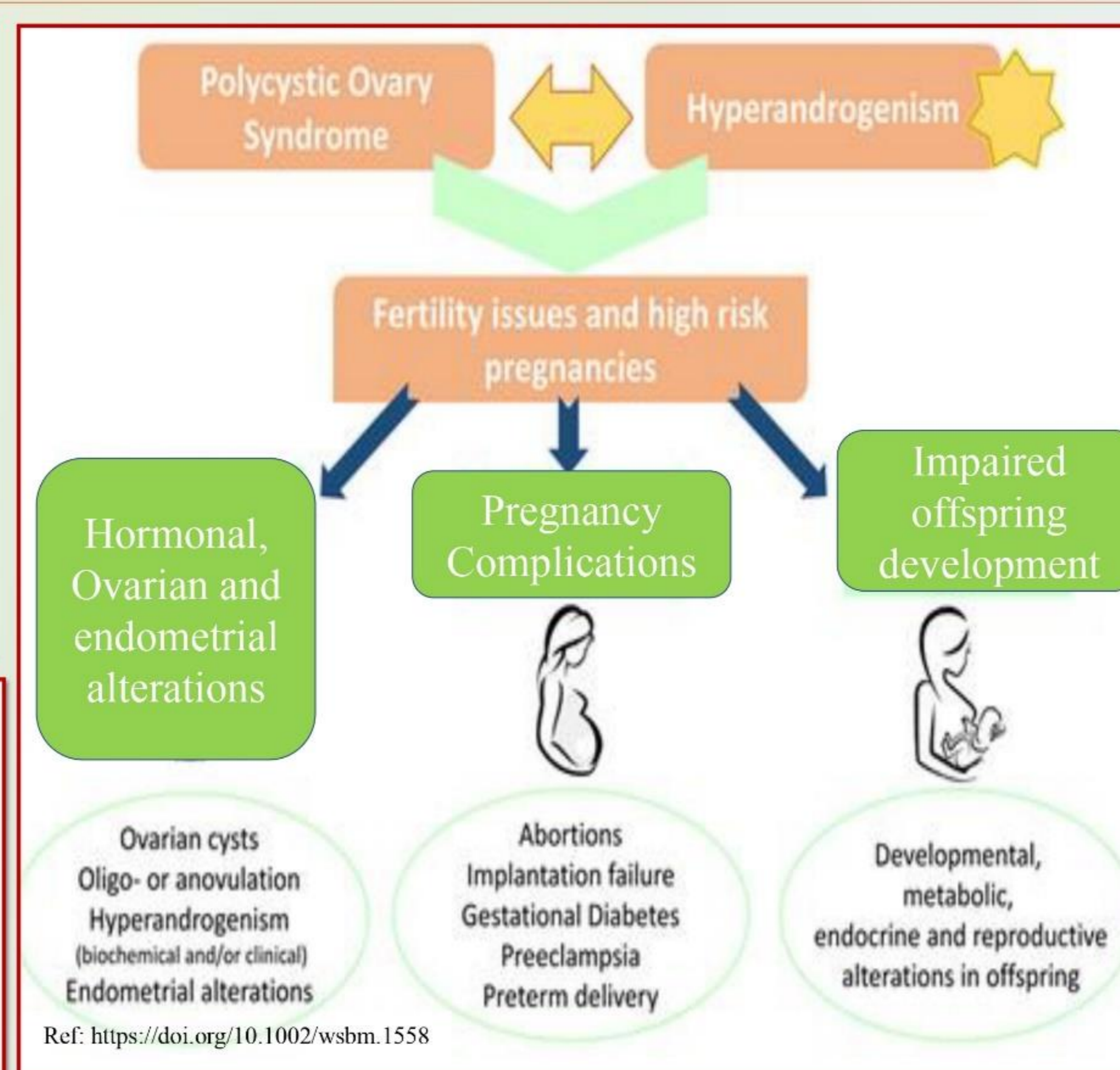
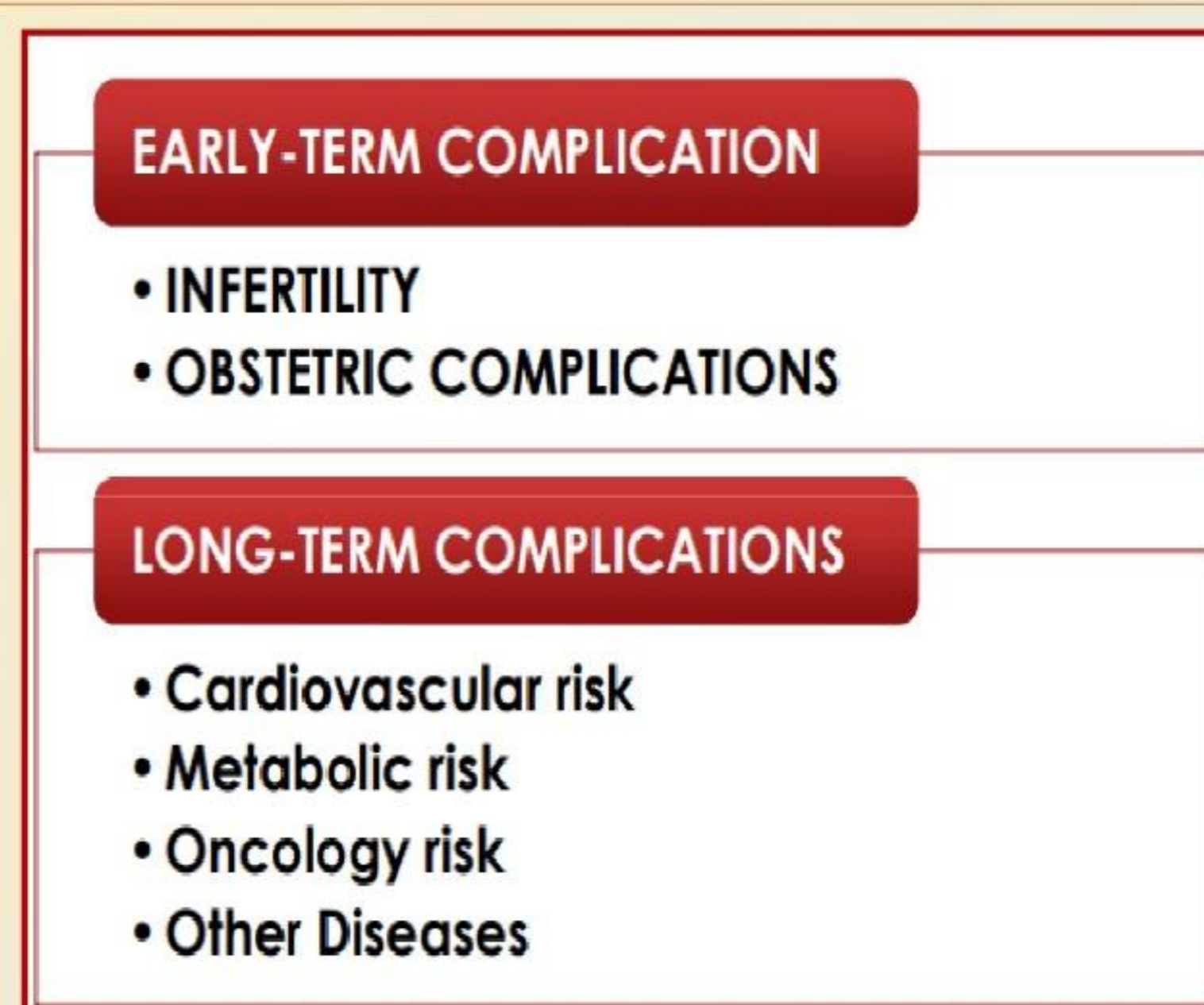
### Aim

- To learn about the complications of PCOS and its preventive options

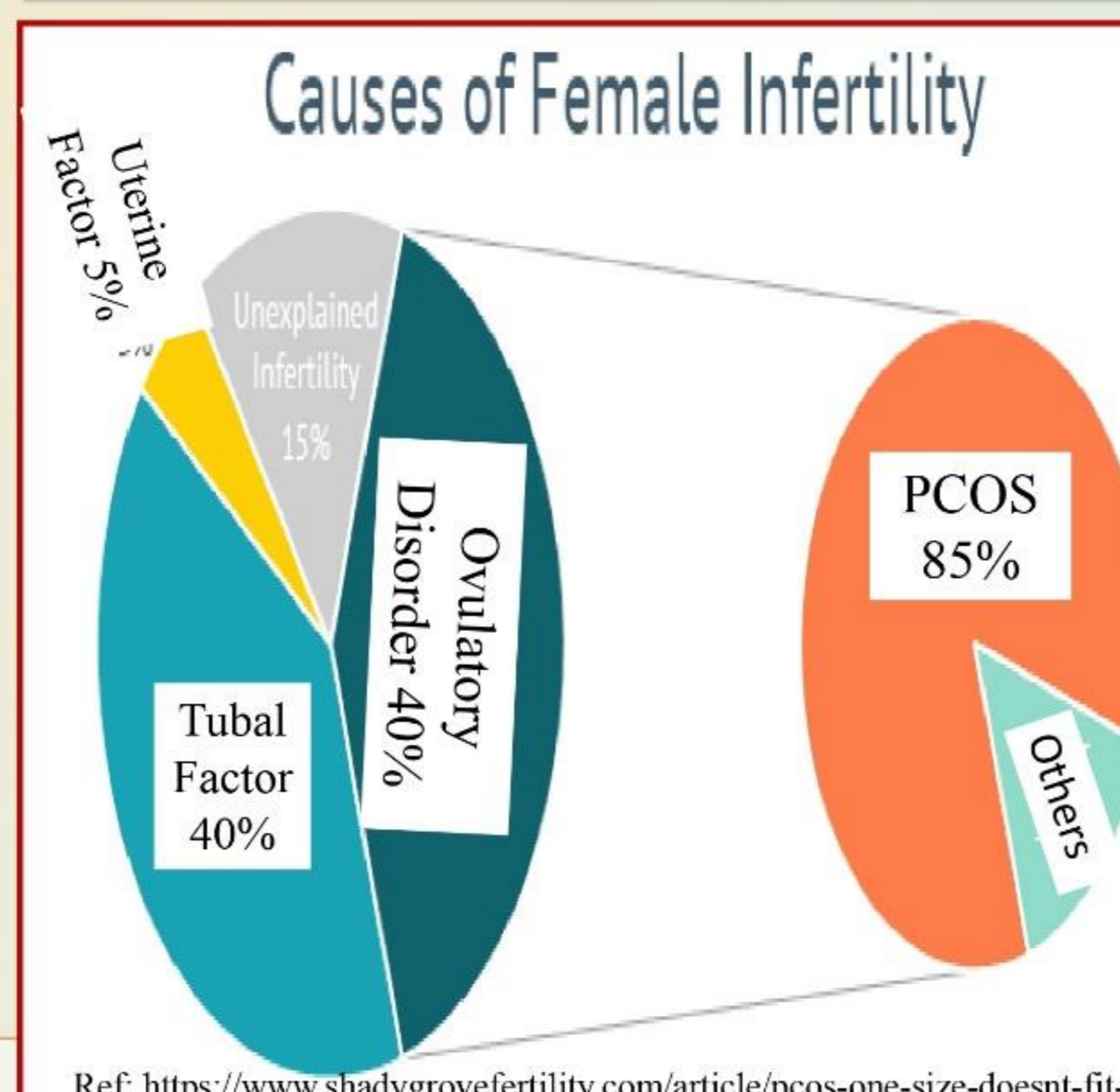
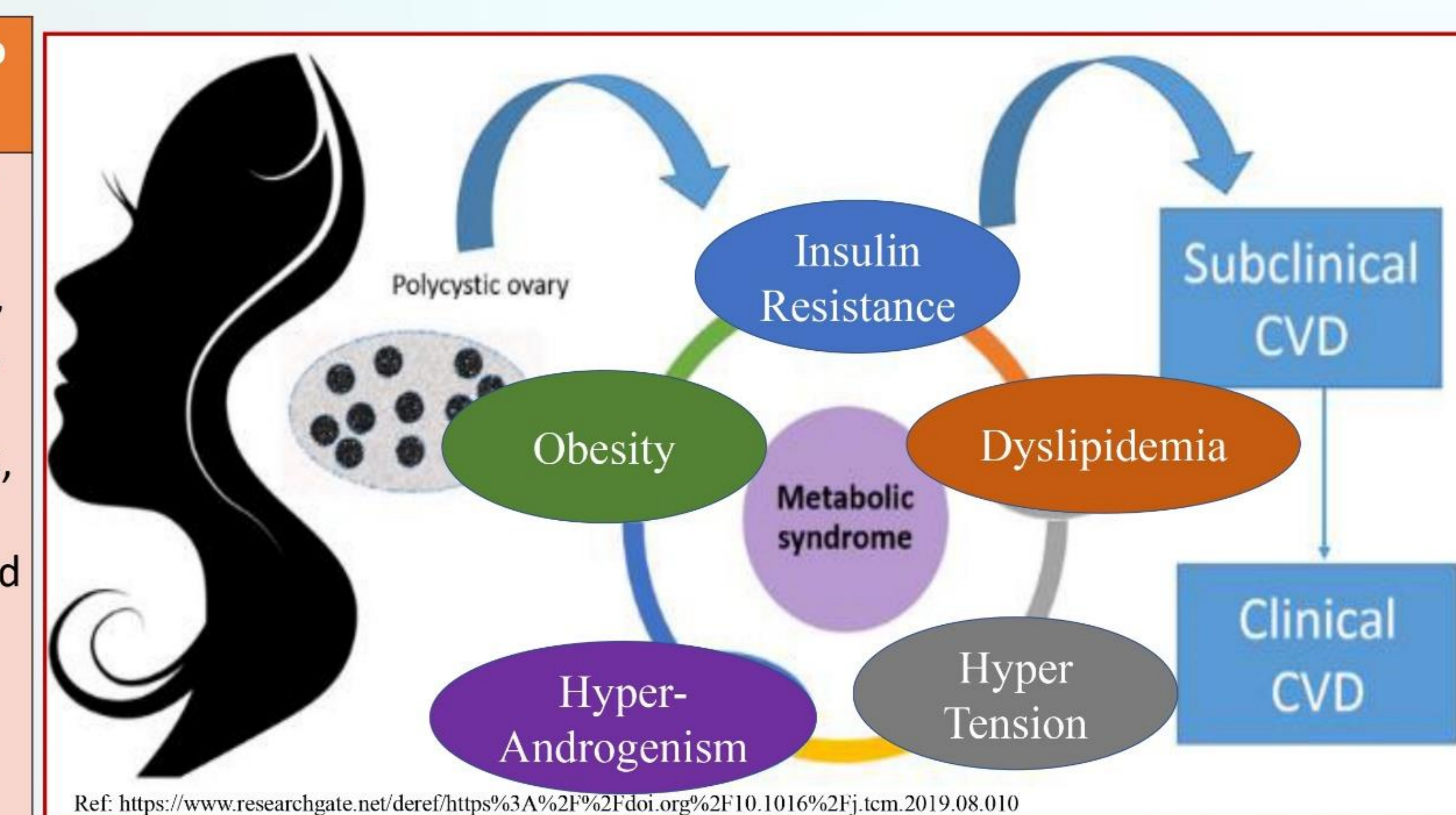
### Methodology

- An article type restriction on review articles was used to search the Scopus database in November 2022.
- 94 search results that discuss PCOS problems and PCOS prevention measures were found.
- Both "Complications" and "Polycystic Ovary Syndrome" were utilised as MeSH names.
- Using the title and abstract, articles were selected and assessed.

### Results



Foods to eat	Foods to Avoid
Cruciferous vegetables, Green and Red pepper, Beans and Lentils, Nuts, Chia seeds, Berries, pumpkin, Flax seed, Fenugreek	Refined Carbs, Bad fats, Alcohol, Dairy Products, Sugary drinks and Foods



### Conclusion

PCOS is a complicated disorder that affects the body, the psyche, and the reproductive system, and it affects a lot of women. It is a lifelong, persistent, expensive, and physically debilitating ailment. Changing one's diet and engaging in certain lifestyle activities is advised because it may help prevent PCOS.

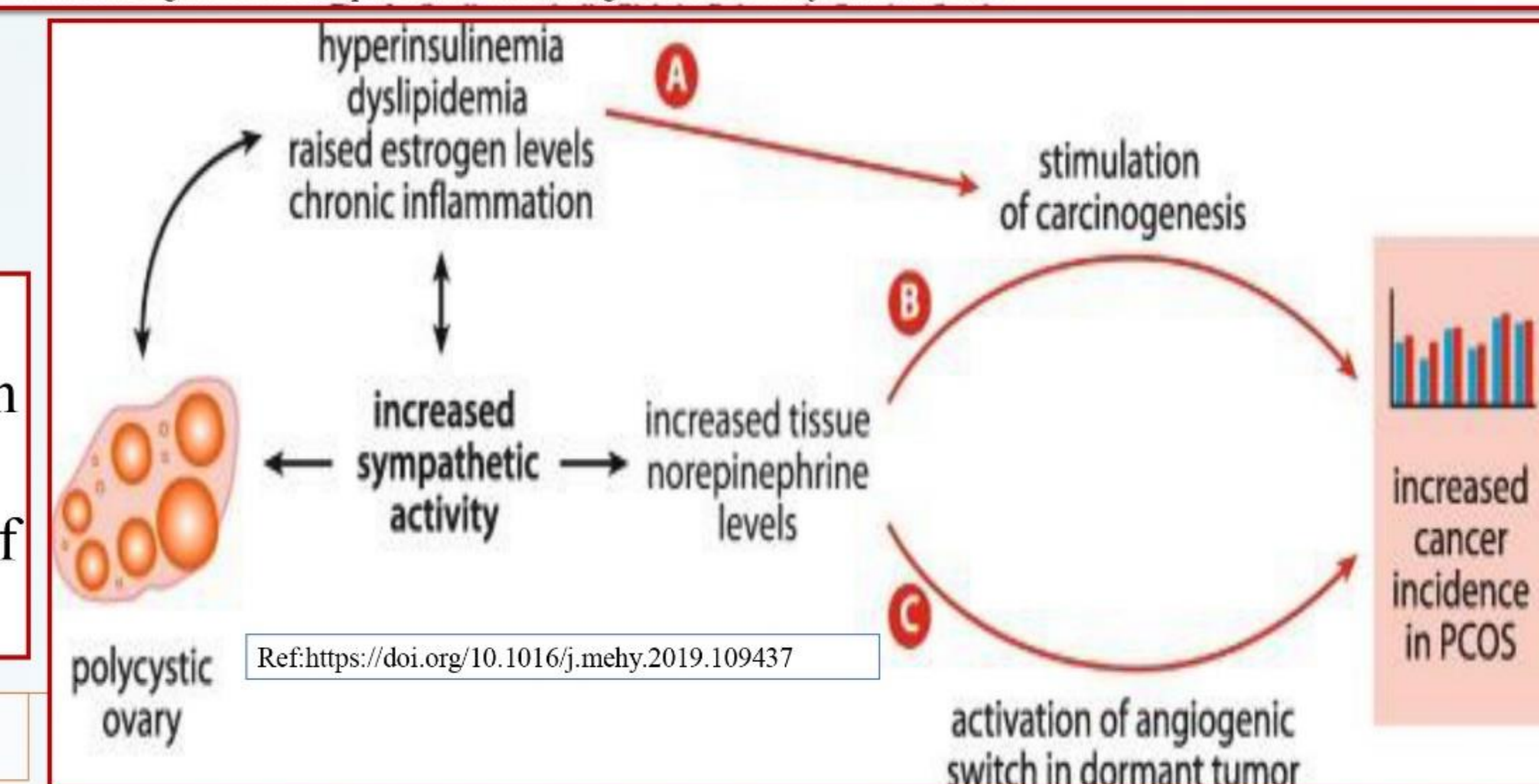
### EXERCISE AND PCOS

- Improvements in insulin and hormonal responses through exercise can significantly improve reproductive function in women with PCOS
- Long term lifestyle and exercise maintenance will help improve the symptoms of PCOS as well as reduce the risk for developing diabetes and other complications

### References

Palomba, S., Santagni, S., Falbo, A., & La Sala, G. B. (2015). Complications and challenges associated with polycystic ovary syndrome: Current perspectives. In *International Journal of Women's Health* (Vol. 7, pp. 745–763). Dove Medical Press Ltd. <https://doi.org/10.2147/IJWH.S70314>

Breyley-Smith, A., Mousa, A., Teede, H. J., Johnson, N. A., & Sabag, A. (2022). The effect of exercise on cardiometabolic risk factors in women with polycystic ovary syndrome: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, 19(3) doi:10.3390/ijerph19031386



**Good Health, Well Being and Nutrition**

**Prevalence And Etiological Factors Associated With Undernutrition Among Preschoolers Enrolled Under ICDS In Delhi (East Region): A Cross-Sectional Study**

\***Usmani A. Minhaj** and @ Jha Shilpi

\*Associate Professor, Department of Food and Nutrition, Era University, Lucknow, Uttar Pradesh, India -226003.

@ P.G. Research Scholar, M.Sc. DFSM, IGNOU, Lucknow.

\*Corresponding Author: E-mail: drminhaj21@gmail.com

**Introduction**

- Globally under-nutrition is one of the most common causes of morbidity and mortality among children.
- India is home to 46.6 million stunted children.
- Poor nutrition in the first 1000 days leads to stunted growth, with impaired cognitive ability and reduced school & work performance.
- There is a need to identify the important determinants of under-nutrition so that preventive and control measures can be implemented.

**Aim**

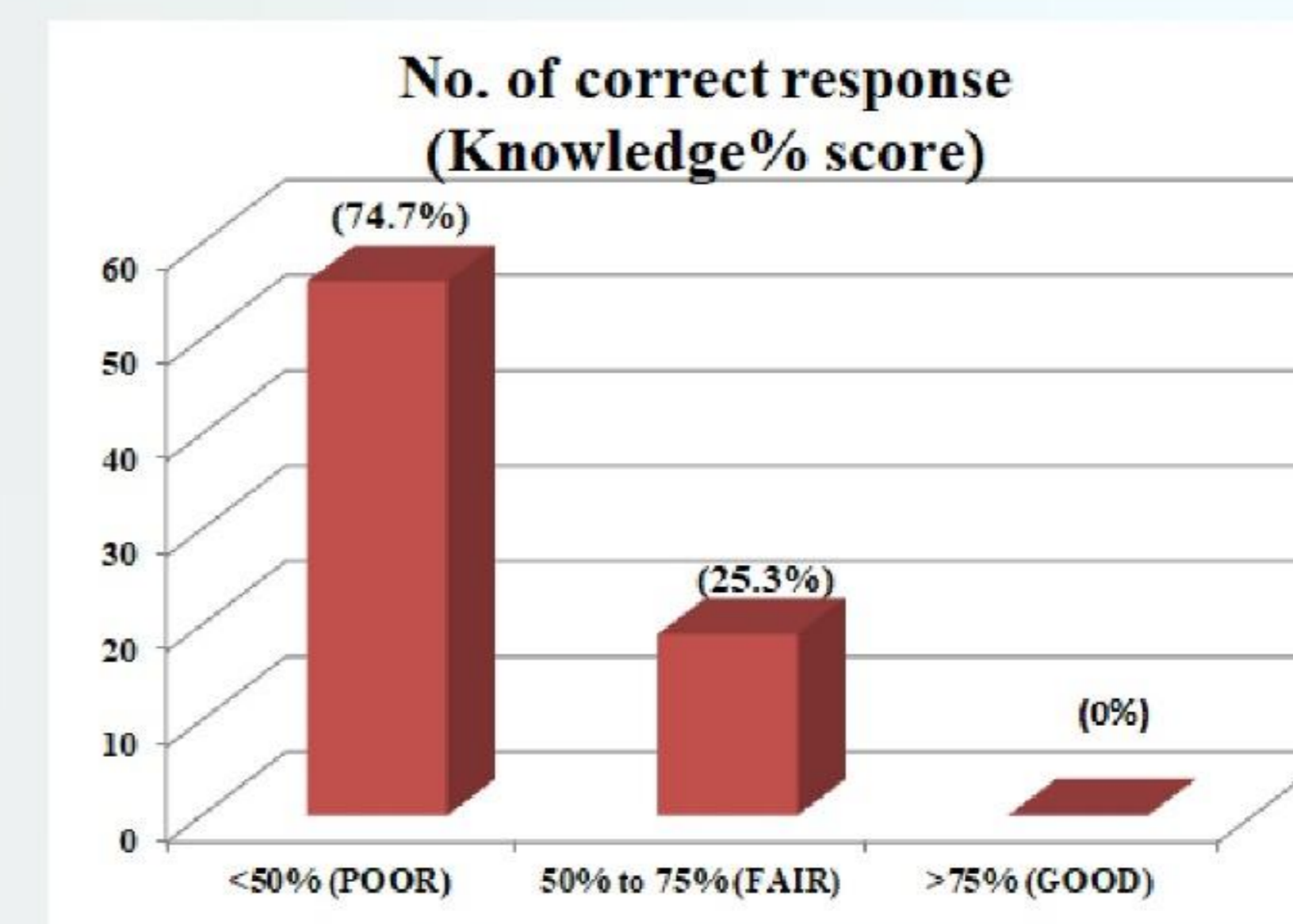
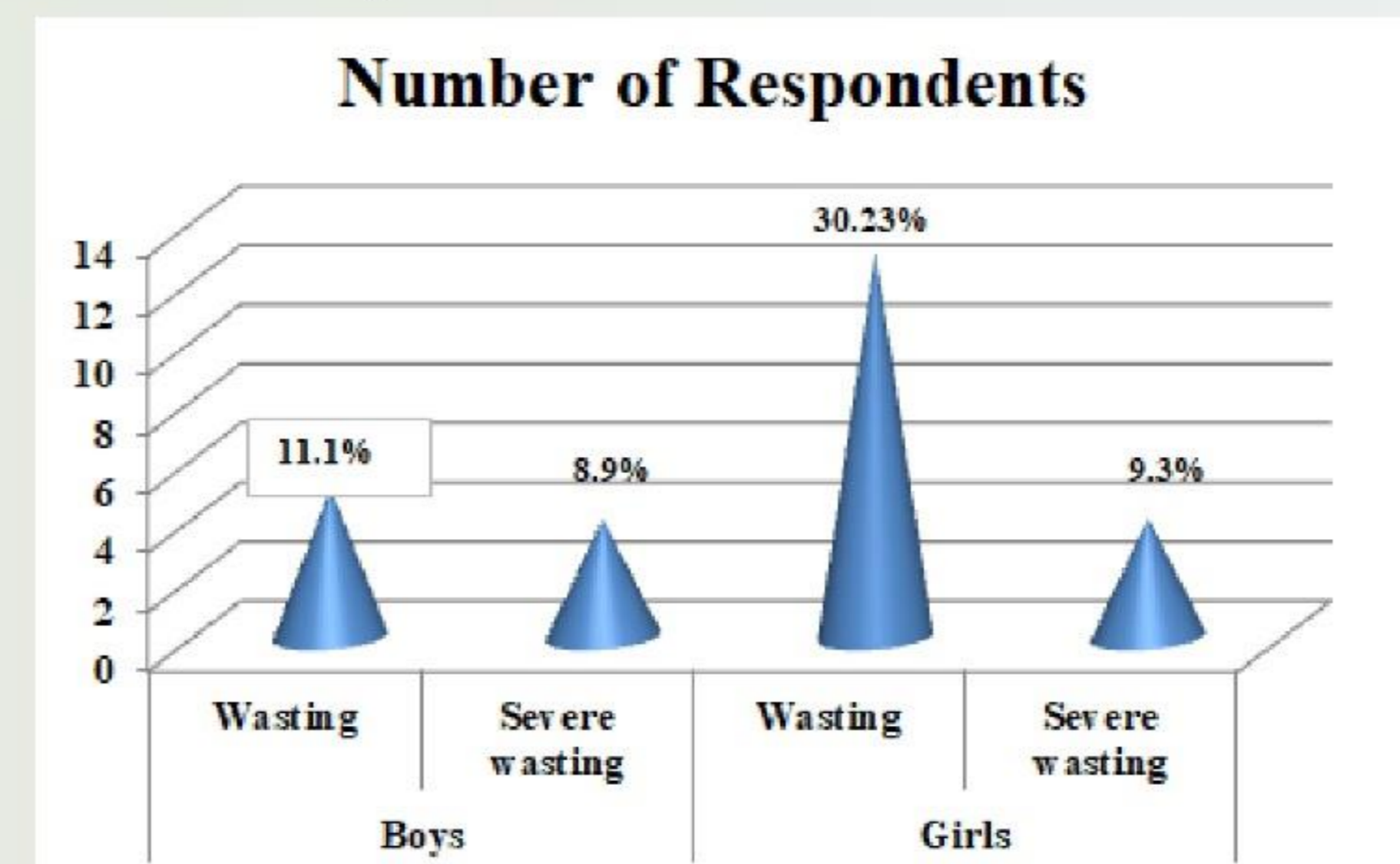
To assess the prevalence of under-nutrition, factors affecting the nutritional status of the preschool children (aged between 1.5 to 5 yrs) enrolled under ICDS in Shahdara, Delhi, India.

**Methodology**

The study was carried out among 75 (26 boys and 49 girls) preschool children (1-1.5 yrs) attending the Anganwadi centers and their mothers' in Shahdara, Delhi, India through multi stage random sampling technique and semi-structured questionnaire to identify the various socio-demographic variables and factors for under-nutrition.

**Results**

- The majority (40% and 36%) of the children in the study were in the age group of 1.5 to 3.0 years and 4 to 5 years, respectively.
- In the present investigation, about 51% of children were stunted, 57% were wasted and 16% were underweight.
- The prevalence of wasting in terms of MUAC was 11.1% in boys and 30.23% in the girls. Also the prevalence of severe wasting was 8.9% in boys and 9.3% in girls. This states that the prevalence of wasting was higher in girls than the boys.



The prevalence of wasting was higher in girls than boys at 60.5% and 53.3% respectively.

The prevalence of under-nutrition was more among the females (87.8%) than their male (80.8%) counterparts.

- Also, 74.7% participants possessed poor knowledge about various facet of under-nutrition.

**Conclusion**

Parental educations, childhood illness, type of weaning and complimentary food given to children were significant determinants of under-nutrition in study. However, it was shown that one of the main causes of the children's under nutrition was poverty.

**References**

1. Arepalli, S. and Rao, V.G. (2016). Study of nutritional status of preschool children in areas of Kallur Primary Health Center, Kurnool District. International Journal of Medical Science and Public Health, Vol 5, Issue 11.
2. Dongre, A.R., Deshmukh, P.R. and Garg, B.S. (2008). Eliminating childhood malnutrition- Discussion with mothers and Anganwadi works. Journal of health studies; 2(3).
3. Gupta, S. and Kumar, D. (2013). An intervention study in malnutrition among under five children in a rural area of Jammu. JK Science, Vol.15, No. 2.

**Acknowledgement**

Author is thankful to Organizing Committee of National Conference: Nutrition Society of India, Mumbai Chapter, IGNOU M.Sc.(DFSM) Course Coordinator, and Hon'ble Vice Chancellor, Era University, Lucknow.



## IMPACT OF HIGH PROTEIN DIET AND RESISTANCE TRAINING ON ANTHROPOMETRY AND BODY COMPOSITION OF MIDDLE AGE WOMEN OF RAJPIPLA, GUJARAT

**Pragna Pandav**

Dr. Bhavana Chauhan

School of Continuing Education, Indira Gandhi National Open University (IGNOU), New Delhi – 10068. [pagu7830@gmail.com](mailto:pagu7830@gmail.com)

### Introduction

- Overweight women try to lose weight by reducing their food intake and following some fad-diets which cause them to lose muscle quicker than fat.
- High protein diet (high thermal effect) and resistance training (increased metabolic rate) helps burn some extra calorie which creates caloric deficit without restricting energy intake during weight reduction while maintaining skeletal muscle mass

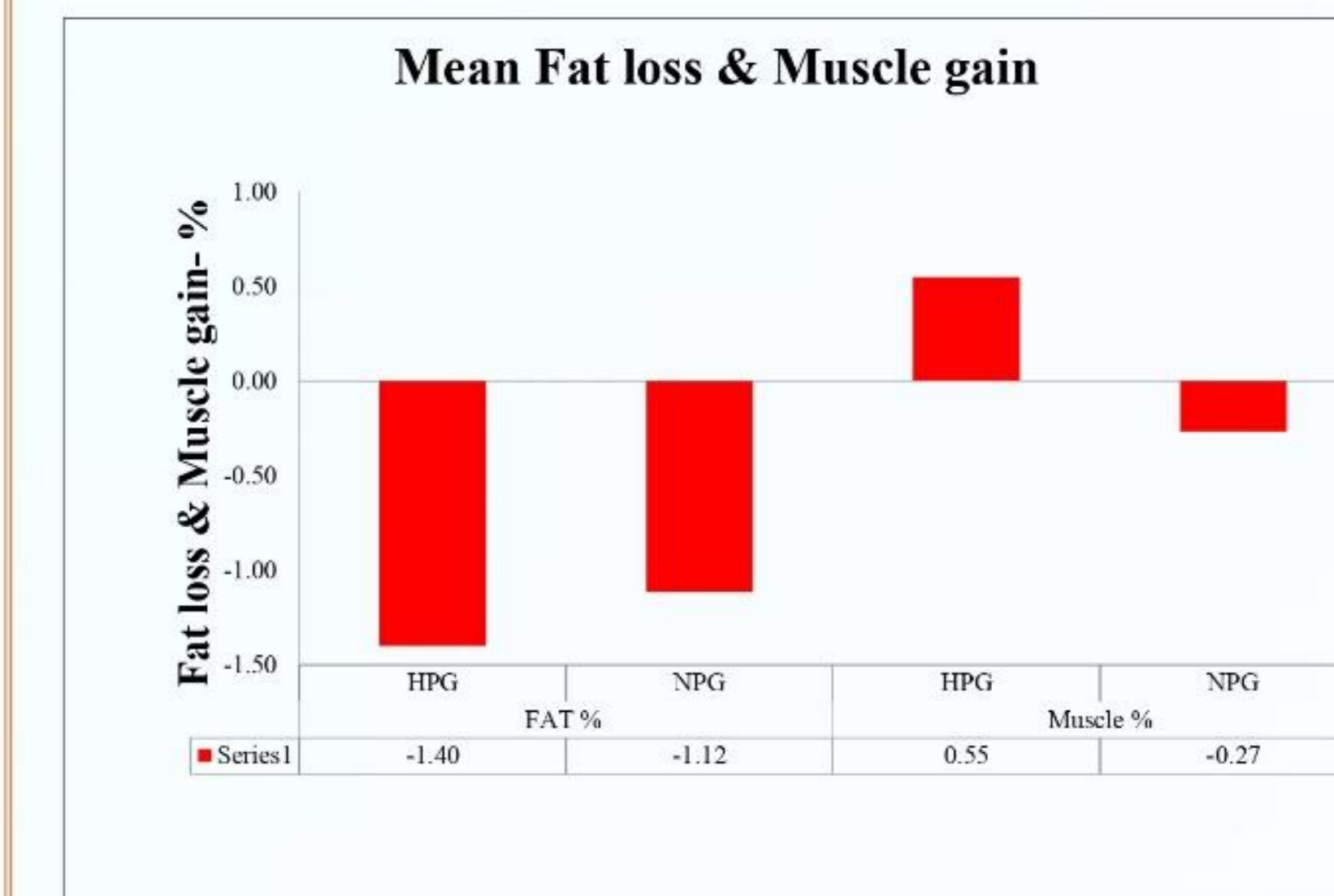
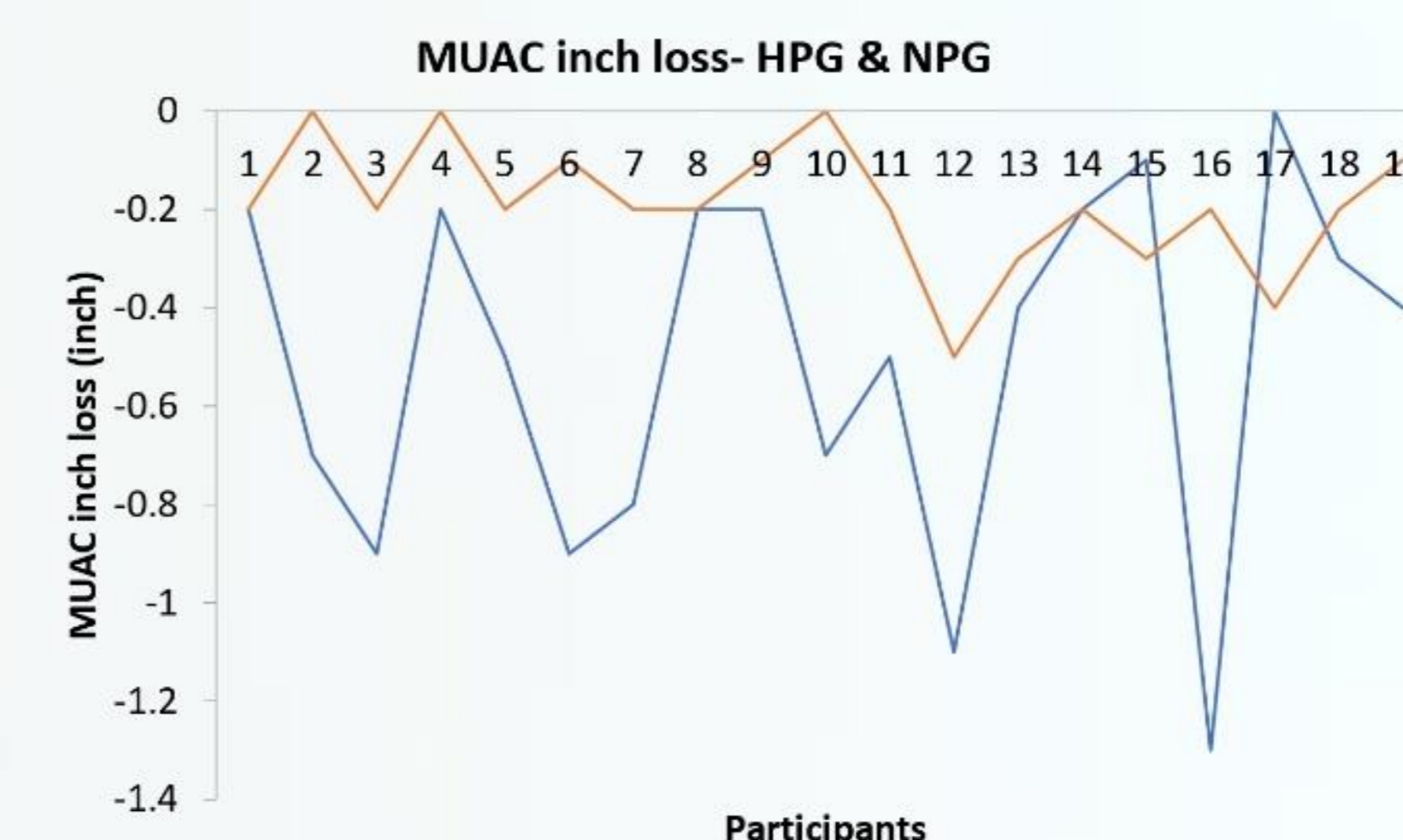
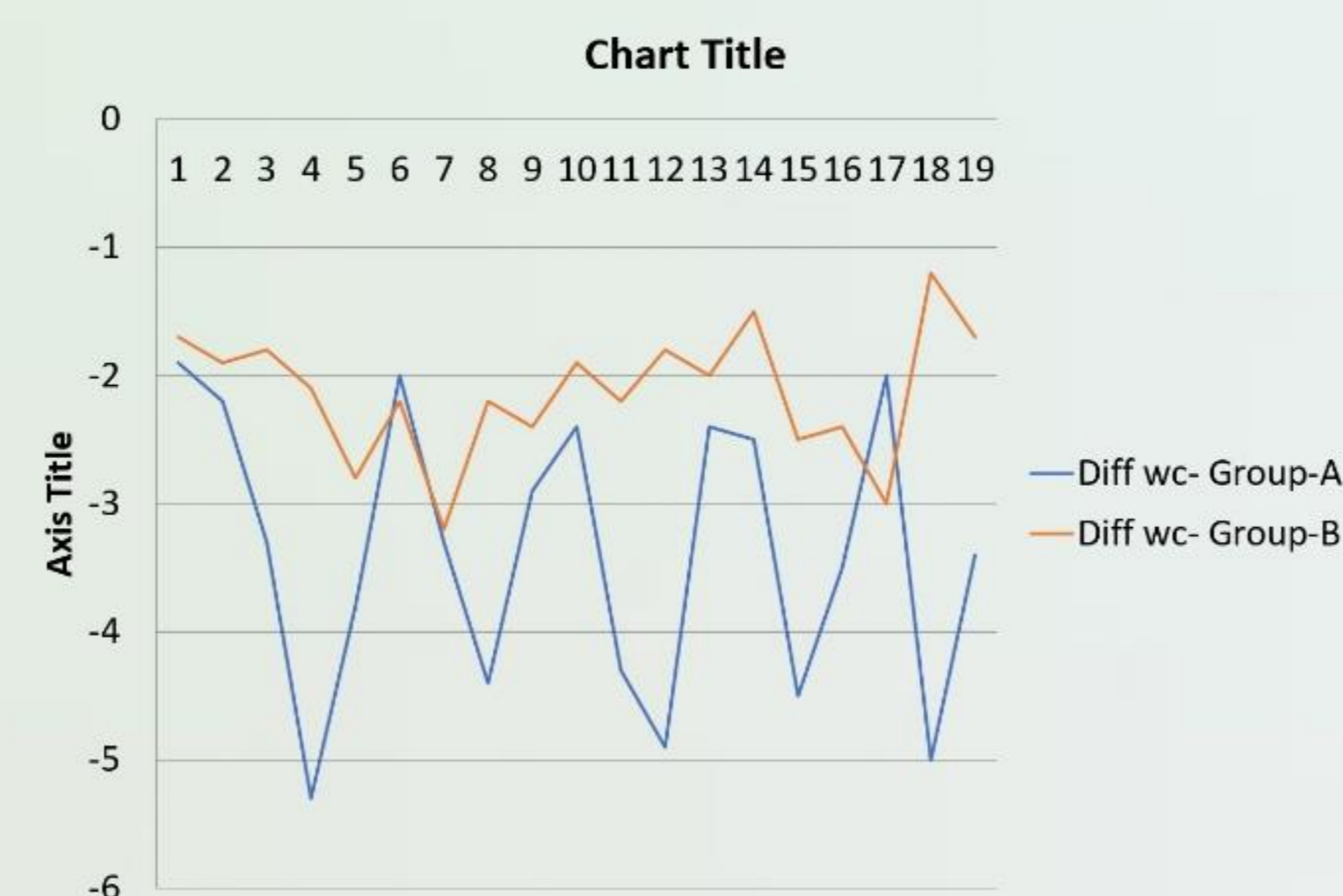
### Aim

- The aim of this study was to compare the effectiveness of high protein diet and normal protein diet combine with resistance training on weight loss, body composition (Body fat and skeletal muscles) and anthropometric parameters (weight, waist circumferences, Mid-upper arm circumferences) in middle age rural women.

### Methodology

- For sample selection 38 women age between 30 to 45yrs, non resistance trained, non pregnant and free from any musculoskeletal disease were selected using random sampling method for present study.
- Tool consist of for anthropometric digital weighing scale and non-stretchable tap were used and for body composition Bioelectric impedance analysis (BIA) device of brand Omron702T was used.
- 19 participants were assigned randomly to either high protein group (HPG) or normal protein group (NPG). HPG group was given 1.5g protein per kg and NPG was given 0.8g protein per kg body weight dietary plan. Energy and other macro nutrient intake were not controlled.
- Participants of both group performed 5days/week resistance training session for total of four weeks. Each training session comprise 4set of 12 repetition of 6 exercises with 30sec rest between sets. Data was collected 24hour pre- and post- intervention for this study

### Results



- HPG lost (mean= 2.2±1.4 s.d kg) significantly more weight compared to NPG (mean = 1.3±0.6 s.d kg). The highest weight loss observed in the HPG group is 5.2±1.4s.d and in NPG group is 2.5±1.4s.d. For T-test, p value = 0.01 which is <0.05 so there is a significant difference between weight loss of two groups.

- HPG lost (mean= 3.3±1.1 s.d ) more inches from waist compared to NPG (mean = 2.1±0.5 s.d). The p value is 0.02 which is <0.05 so significant difference in WC reduction was found.

- HPG (mean = 0.5±0.3s.d) showed the high decrease in MUAC compared to NPG (mean = 0.19±0.13s.d. ). p= 0.01 which is <0.05 so significant difference in MUAC reduction between HPG and NPG groups

- In HPG mean fat loss of (1.4±0.7s.d) is higher than NPG (1.1±0.7s.d). HPG has shown muscle gain % (mean = 0.5±0.3 s.d). NPG showed muscle loss (mean=0.2±0.2 s.d). p = > 0.05 and p=< 0.05 for fat% and muscle% respectively

### Conclusion

Resistance training with either normal protein or high protein seem to have positive effect on weight loss and anthropometric measurements. High protein diet with resistance training seem to show positive effect on body composition changes. Normal protein diet shows negative affect on body composition changes.

### References

Acheson, K. J. (2013). Diets for body weight control and health: the potential of changing the macronutrient composition. European journal of clinical nutrition, 67(5), 462-466.

### Acknowledgement

I would like to express my sincere gratitude to Associate Prof. Shazia Sharma and all staff member of S.M. Patel collage of home science for the continuous support of my thesis work

## Sustainability of Plant-based Diet in the prevention and management of Type 2 Diabetes Mellitus

Mahajan Anu\*, Muley Arti

Symbiosis Institute of Health Sciences, Symbiosis International (Deemed University), Lavale, Pune

### Introduction

- Plant-based diet has a remarkable effect on the prevention of T2DM
- **High in fiber, antioxidants, and minerals like magnesium**
- Improves insulin sensitivity
- Manage blood sugar level, improve lipid profile, limitation of animal diet

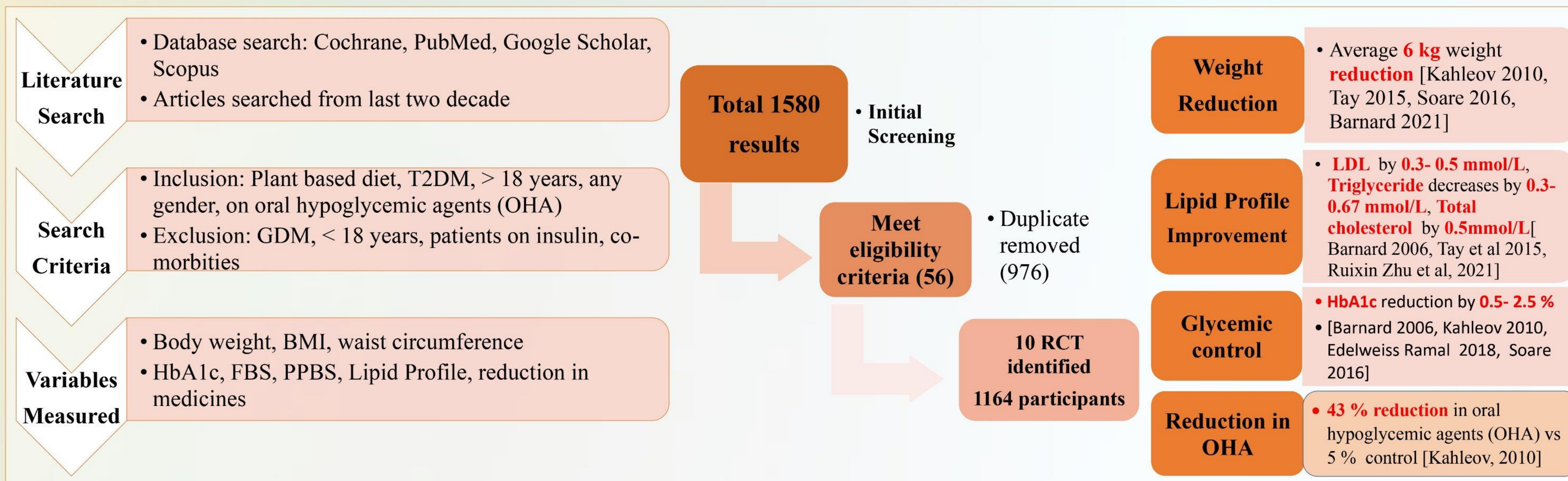
### Aim

- The aim of the present review is to explore the sustainability of a plant-based diet on diabetes control and management and to summarize its positive effect on human health.

### Methodology

- Databases PubMed, Google Scholar, Cochrane, and Scopus were searched.
- Keywords and MeSH terms: [diabetes management/treatment, glycemic control, lipid profile/ Plant-based/ Vegetarian/Vegan/ Fiber rich diet].
- Ten randomized control trials (RCT) were selected based on inclusion criteria where plant-based diet are followed for at least 6 months.

### Results



### Take Away

- **Improve glycemic control, significant reduction in HbA1c levels.**
- **Reduction of body weight and BMI.**
- **Improve Lipid Profile, Decrease LDL**
- **Reduction in Oral Hypoglycemic agents (OHA)**

### Conclusion

- Plant based diet when followed for a longer period of time ( $\geq 24$  weeks) proves better management of T2DM and reduces heart disease risk when compared with animal based diet.

### References

Cheryl L. Rock et al, Weight Loss, Glycemic Control, and Cardiovascular Disease Risk Factors in Response to Differential Diet Composition in a Weight Loss Program in Type 2 Diabetes: A Randomized Controlled Trial. Diabetes Care 1 June 2014; 37 (6): 1573–1580.

Papamichou, D et al, Dietary patterns and management of type 2 diabetes: A systematic review of randomised clinical trials. Nutrition, Metabolism and Cardiovascular Diseases, 29(6), 531-543.

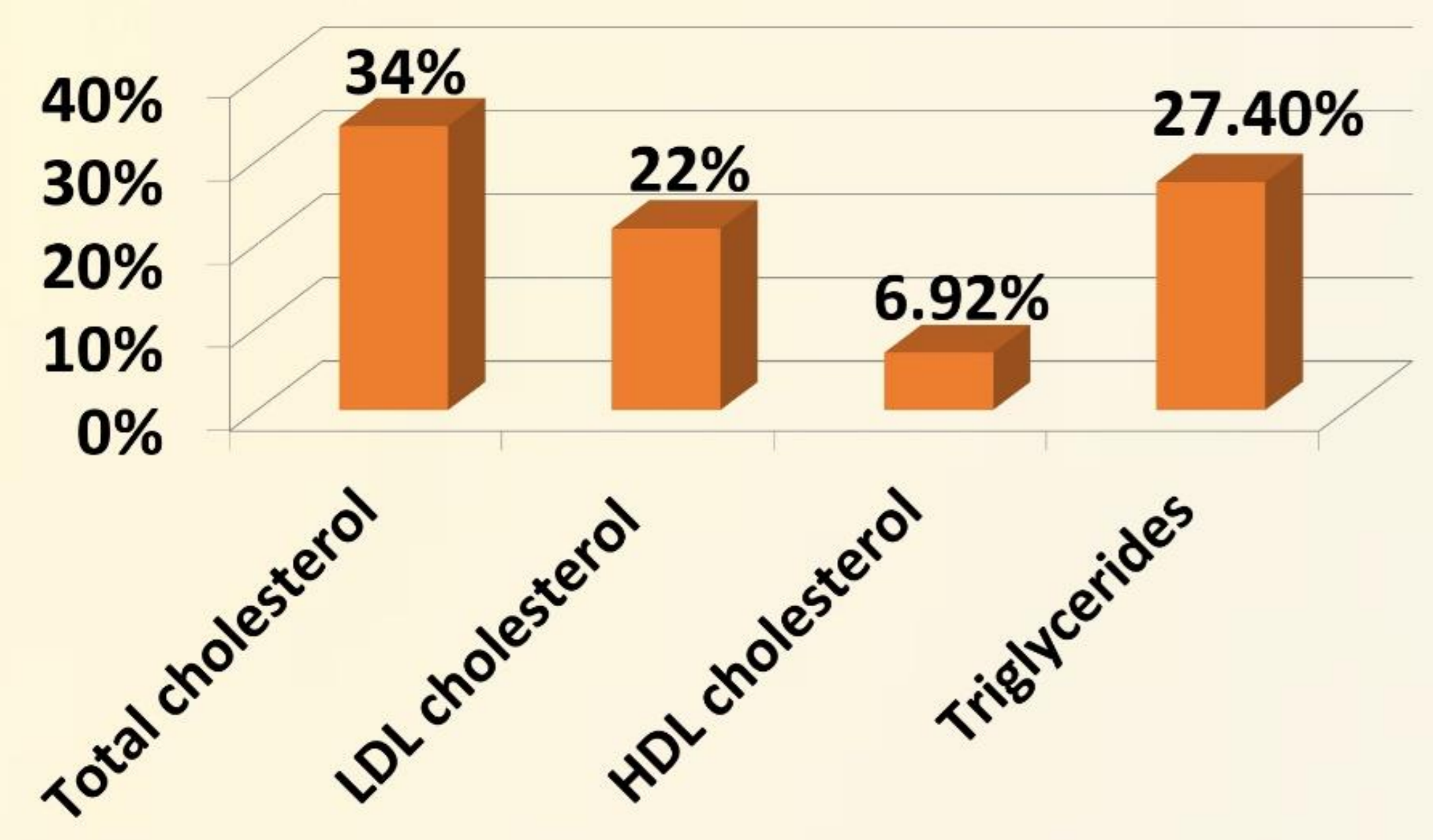
## DEVELOPMENT OF FOOD PRODUCTS WITH HYPOLIPIDEMIC CHARACTERISTICS

Ruhi Grewal and Dr. Tarvinder Jeet Kaur

Department of Home science, Kurukshetra University, Kurukshetra, (Haryana), India, mail id- [ruhigrewal05@gmail.com](mailto:ruhigrewal05@gmail.com)

### Introduction

Prevalence of Dyslipidemia among urban North Indians of 18-40 years of age



Dr. Ahmad S et al., (2022)

### Aim

Analyzing and considering the complicated circumstances of pervasive disturbed lipid profile among Indians a research project was planned ---  
*“to develop, standardize, sensory evaluate and nutritionally calculate the baked soya, whole wheat and makhana (S,W,M) cookies enriched with hypolipidemic characteristics”* so as to realistically initiate the hypolipidemic effect among subjects suffering from dyslipidemia.

### Methodology

Development of hypolipidemic mixture (HM) --- (cost factors were observed)  
 Development and standardization of baked food products enriched with hypolipidemic mixture at different percent incorporation level.  
 a) Organoleptic evaluation using 9 point hedonic scale  
 b) Nutritional calculation using RDA 2020 and IFCT 2017

Hypolipidemic mixture (HM)  
 Flax seeds: (1) : Almonds: (1) : Wheat Bran: (1.42) : Mango seed powder: (0.6)



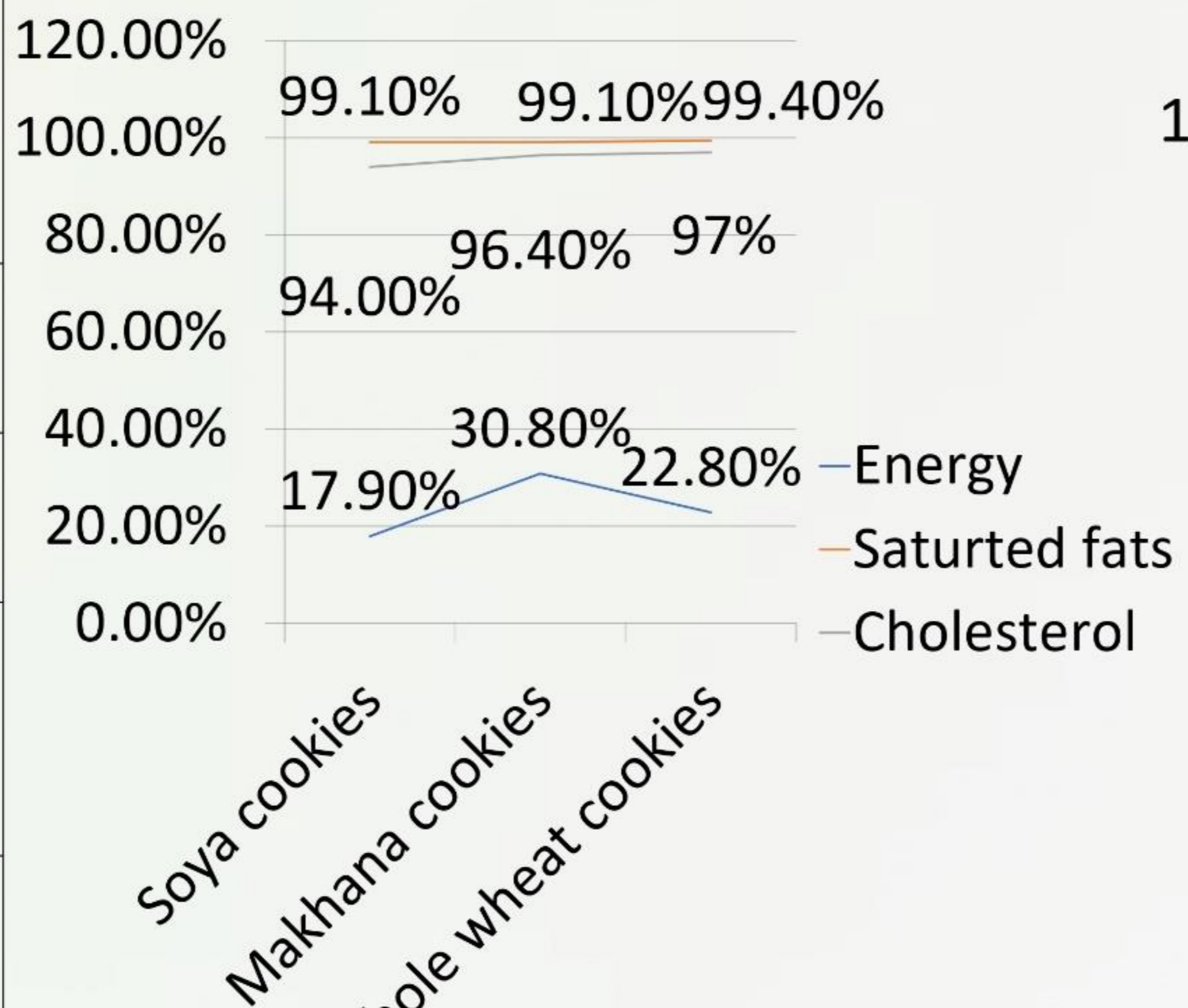
S/W/M cookies  
 S/W/M flour: Brown sugar : HM : Skimmed + Fat  
 Milk: Vanilla essence: Baking powder  
 1 : 1 : 0.25/ 0.5 / 0.75/ 1 : 2 :  
 0.4 : 0.25 (Diff. incorp level)

### Results

Organoleptic scores using 9 point Hedonic scale

Name of recipes	% incorporation level	Appearance	Color	Taste	Smell/odor	Texture/mouth feel	Overall acceptability
Developed Soya cookies	12%	7.87±0.89	7.84±0.83	7.84±0.83	7.93±0.78	7.93±0.78	7.75±0.75
Whole wheat cookies	13.3%	8.06±0.93	8.24±0.86	8±0.93	8±0.93	7.8±0.93	8.0±0.90
Makhan a cookies	15%	7.56±0.98	7.6±0.89	7.4±0.91	7.4±0.98	7.5±1.04	7.59±0.91

% improvement graph showing decreased value in nutrients



Control:- Refined wheat flour cookies

Percentage improvement graph of Dietary fiber, MUFA and PUFA



Significant improvement in nutritional value at 95% significance level where P ≤ 0.05 (paired t test).

### Conclusion

Developed food products like baked soya, makhana and whole wheat cookies with hypolipidemic characteristics show significant improvement in nutrients which are scientifically responsible for managing the ruined lipid parameters accompanied by acceptable organoleptic sensory scores

### References

1. Dr. Sharique Ahmad<sup>1\*</sup>, Dr. Saba Naziya<sup>2</sup>, Dr. Mohd Anwar<sup>3</sup>, Tanish Baqar<sup>4</sup>, Dr. Saeeda Wasim<sup>5</sup>, Dr. Huma Parveen (2022). Study on Urban North Indians Incidence of Dyslipidemia among Different Age Groups, Saudi Journal of Pathology and Microbiology 7(6): 240-244.
2. <https://www.sciencedirect.com/science/article/pii/S0019483216308999>

**ROC CURVE BASED MODELS OF METABOLIC RISK FACTORS AND ITS ASSOCIATION WITH BODY COMPOSITION INDICES AMONG WOMEN**

**Singh Zoomi** and Yadav Neelam

Centre of Food Technology, Institute of Professional Studies, University of Allahabad Prayagraj, Uttar Pradesh, India

[Email Id -zoomisingh@gmail.com](mailto:zoomisingh@gmail.com), Contact No. 8004791847

**Introduction**

- The prevalence of obesity has substantially increased in the past decades in both developed and developing countries.
- It may leads to myriad of health risks associated with it.

**Aim**

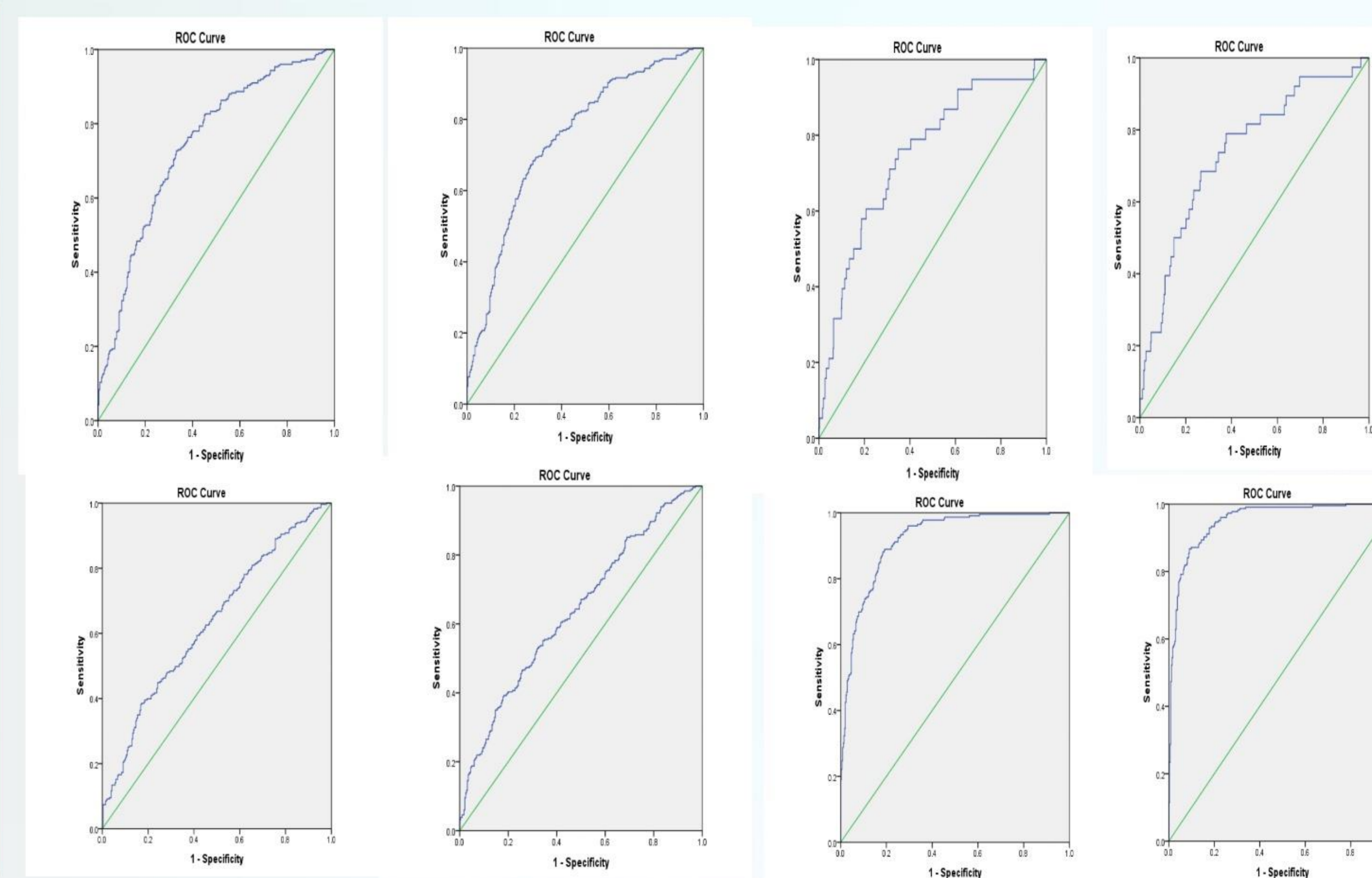
- The appropriate measure of obesity is still the subject of controversy. This study aims to evaluate the prevalence of obesity, anthropometrics, and body composition as screening tools for obesity and adiposity among urban Prayagraj adult women, as well as to precisely quantify the level at which it is associated with a metabolic risk.

**Methodology**

- A Cross-sectional study comprising 570 urban Prayagraj women aged 20-49 years, anthropometry, body composition analysis, blood pressure, random blood sugar, and haemoglobin were examined.

**Results**

The results of stepwise logistic regression shows ROC curve of models. Two models were created using stepwise logistic regression to exclude WC and WHR, respectively. Model 1 age, WHR, and VF for systolic blood pressure; age and TBW for diastolic blood pressure; age and VF for random blood sugar and WHR, BF%, FFM, and haemoglobin age were all substantially related to the existence of metabolic risk factors. In model 2, just age was significant to predict systolic blood pressure; age, TBW, and WC for diastolic blood pressure; age and VF for random blood sugar and BF%, WC, age, and FM for haemoglobin were shown to be substantially related to the existence of metabolic risk factors. Model 1 showed a greater area under the ROC (0.65) in systolic blood pressure, but models 1 and 2 had the same area under the ROC in diastolic blood pressure (0.63). Random blood sugar model 1 ROC (0.73) and model 2 ROC (0.72) and haemoglobin model 1 ROC (0.90) and model 2 ROC (0.94) have the largest area under ROC as compared to blood pressure and random sugar levels.



**Conclusion**

Two basic models for predicting metabolic risk in Asian Indians were studied. Both models can be used to assess metabolic risk in them.

**References**

Ghafoor, M. U., & Irshad, F. (2016). Screening Tools for Obesity: Evaluation of Waist Hip Ratio, Waist Circumference and BMI among Hypertensive Patients in a Tertiary Care Hospital. *The Professional Medical Journal*, 23(07), 844-857.

Chang, C. S., Liu, I. T., Liang, F. W., Li, C. C., Sun, Z. J., Chang, Y. F., ... & Wu, C. H. (2022). Effects of age and gender on body composition indices as predictors of mortality in middle-aged and old people. *Scientific reports*, 12(1), 1-9.

**Acknowledgement**

The authors would like to express their gratitude to the Food and Analysis Research Laboratory (FARL), Centre of Food Technology University of Allahabad Prayagraj-211002, Uttar Pradesh, India, for their assistance in completing this study.

## PLANT BASED PROTEIN : A SUSTAINABLE STRATEGY FOR MANAGEMENT OF CHRONIC KIDNEY DISEASE

**Ghosh Anindita**<sup>1</sup>: School of Beauty & Wellness, Symbiosis Skills and Professional University. Kiwle, Pune, India ; Email id: aninditaghosh29@gmail.com  
 Muley Arti<sup>2</sup>: Symbiosis Institute of Health Sciences, Symbiosis International University. Lavale Pune, India

### Introduction

Over the years a higher inclination towards meat intake in the presence of other non-communicable diseases has added on to the burden of CKD posing threats of early deaths and disability-adjusted life years.

A significant association of animal protein with diabetic nephropathy, higher excretion of albumin in urine, and increased progression of kidney disease was observed in many compiled literature surveys.

### Aim

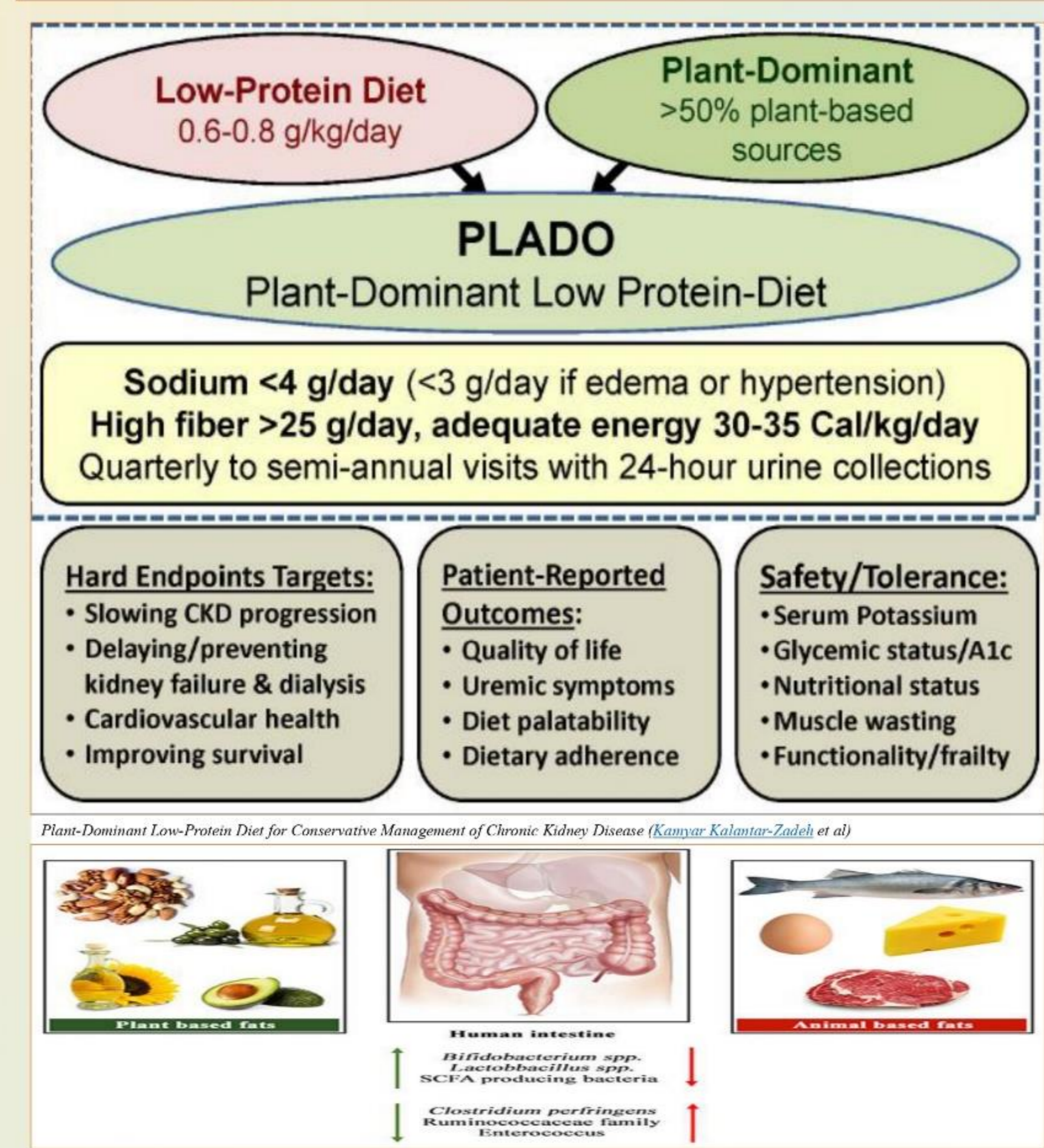
To review dietary substitution of animal-based proteins with plant proteins reduces the incidences of diabetic nephropathy and cardiovascular diseases a prime factor in chronic kidney disease.

### Methodology

A systematic review of the past 10 years (2012-2022) retrieved from the databases like “PubMed/Medline”, “Scopus”, “Web of Science” and “Google scholar”.

MeSH terms used were “plant proteins”, chronic kidney disease”, “Diabetic-nephropathy”, and “anti-inflammatory”.

### Results



- ❖ Plant Proteins slow the degeneration or progression of kidney impairment.
- ❖ Butyrate-producing bacteria stimulated by plant based diets have a high probiotic value that protects the endothelium, controlling hypertension and urinary protein loss.
- ❖ Improved nutritional status by combating the uremia and anorexia.
- ❖ Plant protein and fiber fermentation in the large bowel bacteria favor production of SCFAs that improve immune function and inflammation score by maintaining the integrity of the colorectal tissue through cellular mechanisms.
- ❖ Reduced inflammation rate unfavors malnutrition providing better quality of life and delayed progression of the diseased state.
- ❖ The bio availability of phosphate in plant based protein is around 30%-50% when compared to animal protein 70%-80% which makes plant based protein way more safer for consumption to maintain the serum phosphate levels.

- Close monitoring of Nephrologists and dietitians are required.
- Dietitian support education on culinary strategies to reduce excessive potassium content while preserving flavor and nutrition.
- Increased risk of hyperkalemia in advanced CKD. Need of Potassium binder/suspension remains.
- Cost per serving is less for plant proteins compared to animal protein.
- Dietitian driven “Self management Skills Program to effectively self-manage their diet and kidney disease.

### Conclusion

Plant proteins reduce the uremic load improving immune function and inflammation in the body.  
 Further researches are needed to declare Plant proteins as sole protein provider in renal diets.  
 Therefore, a plant-based protein is an ideal and sustainable strategy to manage chronic kidney disease.

### References

Kalantar-Zadeh K, Rhee CM, Joshi S, Brown-Tortorici A, Kramer HM. Medical nutrition therapy using plant-focused low-protein meal plans for management of chronic kidney disease in diabetes. *Curr Opin Nephrol Hypertens.* 2022 Jan 1;31(1):26-35. doi: 10.1097/MNH.0000000000000761. PMID: 34750331.

### Acknowledgement

Thank you to "Paushticon-2023" by the Nutrition Society of India, Mumbai Chapter, my research supervisor, and everyone else who helped me advance my research experience through advice and presentation possibilities.

# Prevalence Of Hypovitaminosis D Amongst Collegiate Athletes

**Saju Ansa**, Alwar Thiagarajan, Sivaraman Arumugam

Department of Arthroscopy and Sports Medicine, Sri Ramachandra Center for Sports Science, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Email: ansaann.saju@gmail.com

## Introduction

- Despite being a tropical country, reports suggest 50-90% of the general population in India has vitamin D deficiency.
- Gupta et al. have identified that **69.9%** of North Indian **athletes** had **vitamin D deficiency**, while only 16.3% of the subjects reported sufficient levels.
- Optimal cholecalciferol levels are essential for optimal musculoskeletal health and athletic performance.

## Aim

To understand the prevalence of hypovitaminosis D among South Indian collegiate athletes.

## Methodology

Institutional ethics committee approval from Sri Ramachandra Institute of Higher Education and Research, Chennai was obtained and ninety-one collegiate athletes were recruited. Data collected:

1. Anthropometry – Height, weight, Fat%, LBM and WHR
2. Serum 25(OH)D, Calcium and Parathyroid hormone

## Results

Ninety-one athletes (19.32 ± 1.45 years, 18-25 years) (≥30ng/ml).

participating in various sports [athletics (5), boxing (3), football (43), Basketball (22), Kabaddi (10 and Volleyball (8)] were recruited and the demographic details are presented in Table 1.

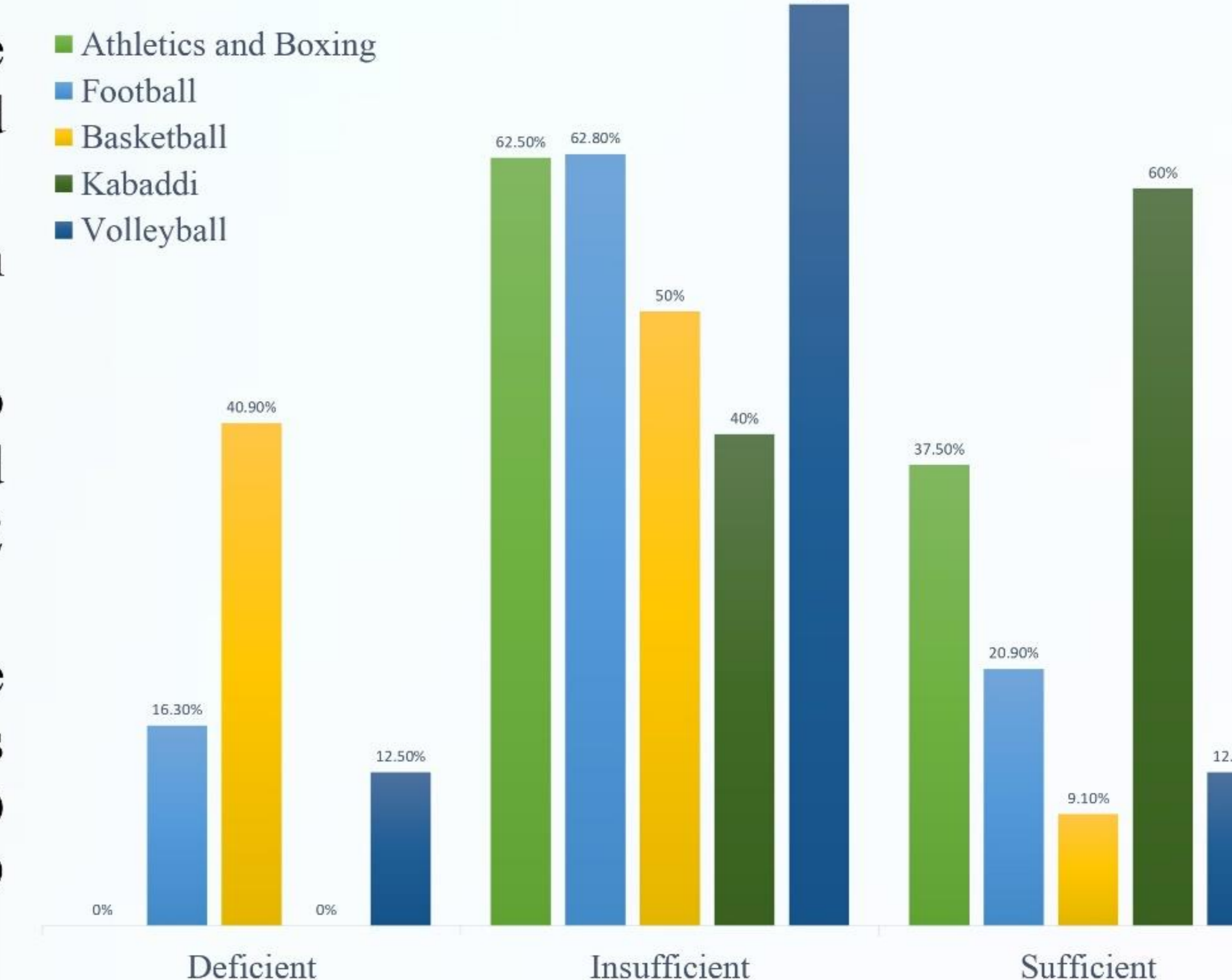
**Table 1. Participant demographics**

Height	172.46 ± 7.77cm
Weight	64.43 ± 8.65kg
Fat %	15.02 ± 4.66%
LBM	54.74 ± 7.67kg
WHR	0.80 ± 0.05
Gender	8(F), 83(M)

**Vitamin D status** was classified as deficient (<20ng/ml), insufficient (20-29ng/ml) and sufficient

- **Seventy athletes (76.9%)** were found to have hypovitaminosis D with 18.7% having deficient and 58.2% having insufficient cholecalciferol levels.
- Vitamin D status across various sports is depicted in figure 1.
- The mean value of serum vitamin D was found to be 25.65 ± 6.97 ng/ml with the minimum and maximum values reported as 10.96 ng/ml and 46.92 ng/ml respectively.
- Mean PTH and calcium values were reported to be 30.81±15.96 pg/ml and 7.26±2.34 mg/dl and levels did not vary significantly among the vitamin D classifications (p value, 0.175 and 0.849 respectively).

Figure 1: **Vitamin D status across various sports**



## Conclusion

Hypovitaminosis D is significantly prevalent among South Indian collegiate athletes. Identification of increasing rate of hypovitaminosis D amongst the athletic population demands attention towards improving screening and assessment of micronutrient deficiencies amongst the athletic population.

## References

1. Kamboj, P., et al., (2018). Prevalence of hypovitaminosis D in India & way forward. *IJMR*, 148(5), 548–556.
2. Gupta, R., et al., (2021). High Prevalence of Vitamin D Deficiency among North Indian Athletes. *IJCM*, 46(3), 559–561.

## Acknowledgement

BSc Sports and Exercise Science student interns and the multi disciplinary team at the Sri Ramachandra Centre for Sports Science, SRIHER, Chennai and all participants.

## Development And Organoleptic Evaluation of Value Added Enriched Biscuits For The Nutritional Management of Type 2 Diabetes



**Bala Suman**, Kaur Tarvinder Jeet, Department of Home Science, Kurukshetra University, Kurukshetra (Haryana), India  
E mail (suman\_81@yahoo.co.in)

### Introduction

- Nowadays, diabetes is one of the leading causes of death, representing a severe and growing threat to public health.
- The number of people living with diabetes is expected to rise from 537 million in 2021 to 783 million by 2045 worldwide.
- The therapeutic options for preventing diabetes are primarily the result of changes in dietary and lifestyle management..

### Aim

- Development of Value-added enriched biscuits with the standardized mixture of oats, barley, flaxseeds, and *tulsi* leaves.

### Methodology

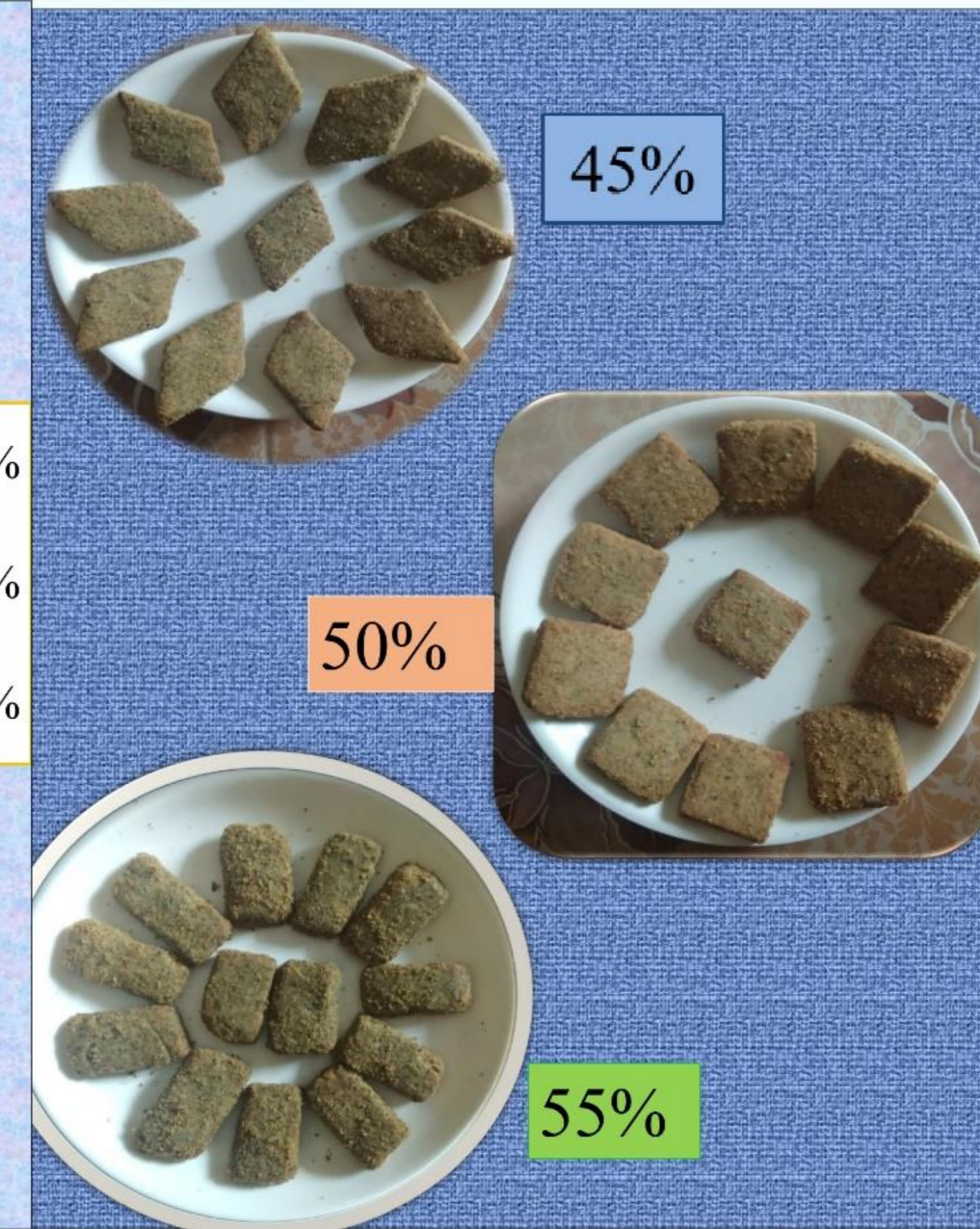
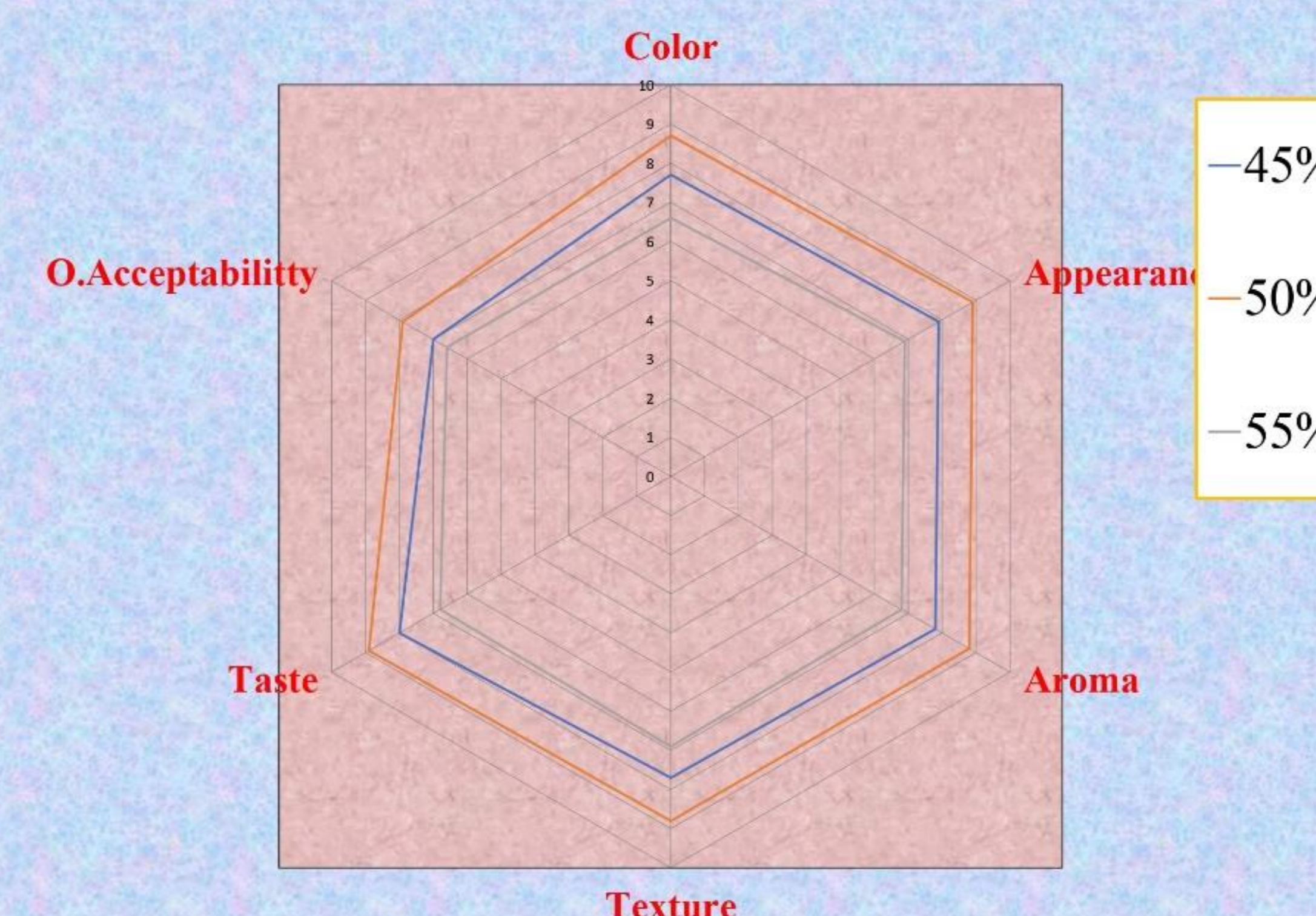
- Value added Enriched biscuits were standardized, prepared, and organoleptically evaluated by a panel of ten judges using nine-point hedonic scale.

### Results

#### Mean Sensory Scores of Value added Biscuits

Food Item	% level of incorporation	color	Appearance	Aroma	Texture	Taste	Overall acceptability
Biscuit	45	7.70±0.6	7.90±0.3	7.80±0.4	7.70±0.4	8.0±0.4	7.0±0.3
	50	8.70±0.6	8.90±0.3	8.80±0.4	8.80±0.4	8.9±0.3	7.9±0.3
	55	6.60±0.5	6.90±0.3	6.80±0.4	6.90±0.3	6.8±0.4	6.60±0.5
	F value	28.1	100	56.25	53.41	66.6	36.21

#### Mean Sensory Evaluation of Value added Biscuit



### Conclusion

The nutritional management of type 2 diabetes should involve consumption of these organoleptically acceptable value-added enriched biscuits, which may be a better option than biscuits made from refined flour.

### References

- Goel S, Kochar GK & Kaur T. Development and Organoleptic Evaluation of Food Preparations Incorporated with Selected Antidiabetic Medicinal Plants. *Stud. Ethno-Med.*2011;5(2): 101-106.
- Kaur K, Kaur H, Bains K. Development and Nutritional Evaluation of Cereals and pulse Biscuits for Diabetic Patients. *Bri J App Sci .Tech.*2017; 21(5):1-8.

### Acknowledgement

The authors would like to acknowledge the support of Food-Science laboratory of Department of Home Science of Kurukshetra University, Kurukshetra.

## HYPOGLYCEMIC EFFECT OF BARNYARD MILLET FLOUR INCORPORATED PIZZA

Shrestha Renu<sup>1</sup>, Shrivastava Sarita<sup>2</sup>

<sup>1</sup> Department of Dietetics & Applied Nutrition, Amity University Manesar, Haryana (India)

<sup>2</sup> Department of Foods & Nutrition, G.B.P.U.A.&T. Pantnagar, Uttarakhand (India)

Email id of presenting author: renu02@gmail.com

### Introduction

- Pizza is relished by almost every age group despite its low nutritional content.
- Use of refined wheat flour, high saturated fats, cheese products make it unsuitable for the people suffering from obesity, diabetes, cardiovascular diseases and other degenerative diseases.

### Aim

- The present study was conducted with the objective to incorporate barnyard millet flour in pizza to enhance the nutritional quality of the product and compare the glycaemic index of the formulated product with the traditionally consumed refined wheat flour pizza.

### Methodology

- 10 subjects were served with glucose, refined wheat flour pizza and barnyard millet flour incorporated pizza containing 50g carbohydrate on alternative day respectively. For estimating glycaemic response of each food product the area under the blood glucose response curve and G.I. were calculated according the formula given by **Wolever (1990)**.

### Results

**Table 1: Blood glucose levels at different time intervals for barnyard millet incorporated pizza and control refined wheat flour pizza against glucose (mean±SD)**

Time intervals (Minutes)	Glucose (mg/dL)	Barnyard millet incorporated pizza (mg/dL)	Refined wheat flour pizza (mg/dL)
0	80.2±1.62	77.8±3.26	81±2
30	148.2±4.29	86.5±4.58	91.1±4.07
60	128±5.05	100±8.68	102.8±4.49
90	106.5±5.66	115.1±11.17	126.6±5.79
120	96.1±4.68	87.8±3.77	98.1±2.64
150	83.5±2.42	73.6±1.89	84.5±3.63

The peak rise in blood glucose levels after intake of barnyard millet incorporated pizza and refined wheat flour pizza was seen after 90 minutes with the values of 115.1 and 126.6 mg/dl, respectively



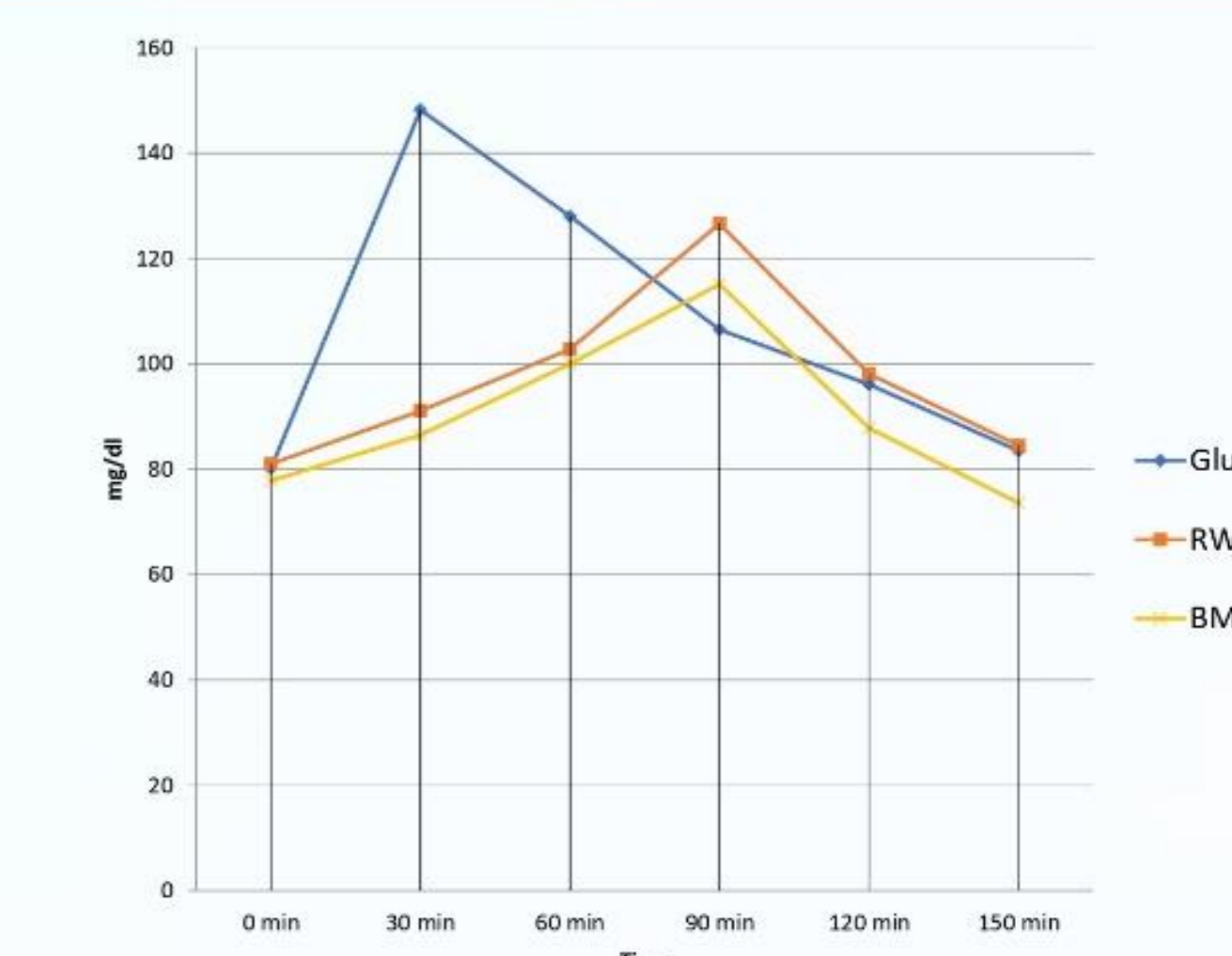
Refined wheat flour pizza



Barnyard millet flour incorporated pizza

**Table 2: Area under blood glucose response curve for glucose, barnyard millet incorporated pizza and control refined wheat flour pizza**

S.No.	Food Product	Area(mg min/100 ml) (mean±SD)	Per cent decrease in AUC
1	Glucose	4898±383.91 <sup>a</sup>	
2	Barnyard millet incorporated pizza	2157±238.62 <sup>b</sup>	55.96%
3	Refined wheat flour pizza	3000±374.17 <sup>c</sup>	38.75 %
	S.E.m.	96.83	
	CD at 5%	277.71	



**Table 3: Glycemic index of barnyard millet incorporated pizza and control refined wheat flour pizza**

S.No.	Food Product	Glycemic index (mean±SD)
1	Barnyard millet incorporated pizza	43.43±5.17 <sup>a</sup>
2	Refined wheat flour pizza	61.22±5.40 <sup>b</sup>
	S.E.m.	1.54
	CD at 5 %	4.48

### Conclusion

With the present study it is concluded that barnyard millet flour can be successfully incorporated in the pizza to enhance its nutritional quality. The lower Glycemic index of the formulated product proved its suitability not only to the normal population, but also to the population suffering from obesity, high blood sugar levels or insulin insensitivity.

### References

- **Wolever, T.M.S. 1990.** The glycaemic index. *World Review of Nutrition and Dietetics*. 62 : 120-185.

### Acknowledgement

UGC-NET JRF



Poster title

**Opinion and Practices Regarding Breakfast and Fasting Habits of Adolescent Girls in Rural Varanasi**

**Jaya Krishna** *Post Doctoral Fellow* Department of Community Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi jaya7021@gmail.com

**Introduction**

- Diets of Indian adolescent girls especially in rural areas are inadequate both in terms of quality and quantity.
- Breakfast consumption is of utmost importance for adolescents to attain nutritional adequacy.

**Aim**

- To assess the Opinion and practices regarding breakfast and fasting of adolescent girls.
- To determine the breakfast habits of study subjects.

**Methodology**

**Study Design:** A community based cross-sectional study.

**Study Sample:** 400 adolescent girls were selected from rural Varanasi.

**Sampling Methodology:** Multistage sampling technique was adopted for this study.

**Results**

- Only 12.3% adolescent girls take breakfast daily.
- In the opinion regarding breakfast 54.0% and 47.7% subjects respond that breakfast should be tasty and nutritious.
- Nearly half of study subjects (49.7%) were stated that their breakfast should be depend on whatever available.
- Nearly one third (72.7%) study subjects kept religious fast.
- Of those who practiced religious fast, majority (86 %) of them did so on yearly basis and 96.6% subjects decreased diet during religious fast.
- Opinion regarding fasting 83% study subjects are in the favour to kept religious fast while 17.0% subjects were not in favour of religious fast during adolescence.

**Conclusion**

Study shows poor breakfast consumption pattern among rural adolescent girls, which is not good for their health. There is a need and scope for improving good breakfast consumption pattern and correct nutritional behaviour of adolescent girls.

**References**

Thiruselvakumar D, Sinuvasan K, Chakravarthy RS. Factors affecting food choice and attitude of choosing food items among adolescents in South India. International Journal of Scientific and Research Publications. 2014;4(4):1-3.

**Acknowledgement**

I would like to thanks all study subjects who actively participated in this study

## A STUDY ON DIETARY HABITS OF COLLEGE STUDENTS FROM JUNAGADH DISTRICT

UMARALIYA BHOOMI BHARATBHAI

Email.id. - bbumaraliya@gmail.com

### Introduction

- There is a famous saying that 'health is wealth'. In the olden days, people worked hard for a living and had a balanced nutritional and traditional diet. This allowed him to live a healthy and long life of more than 100 years. Now, we are living in the digital age, and everything is moving very fast. Our lifestyle has also changed due to globalization and urbanization. Due to wrong eating habits, our young generation especially teenagers are affected by obesity and they are prone to many diseases.

### Aim

The investigator intended to find out what foods are eaten, how are they eaten, how much are they eaten and when are they eaten by the of college students and hence the study has been titled as “A study of dietary habits of college student from Junagadh district”.

### Methodology

Survey and questionnaire method was used to find out the dietary habits of under graduate college students. The sample consisted of 400 under graduate college students in Junagadh district. Stratified random sampling was used to form the sample from arts and home science colleges. A questionnaire was developed by the investigators to find out the dietary habits of college students. Percentage analysis and ‘t’ test were used for analysis.

### Results

1. Different between male and female college students in their dietary habits.  
The calculated ‘t’ value (2.52) is greater than the table value (1.96) for 340 df at 5% level of significance. Therefore, the null hypothesis is rejected. Hence, there is significant difference between male and female college students in their dietary habits.
1. Different between hosteller and day-scholar college students in their dietary habits.  
The calculated ‘t’ value (2.71) is greater than the table value (1.96) for 220 df at 5% level of significance. Therefore, the null hypothesis is rejected. Hence, there is significant difference between hosteller and day-scholar college students in their dietary habits.
1. Different between rural and urban college students in their dietary habits.  
The calculated ‘t’ value (1.65) is lesser than the table value (1.96) for 284 df at 5% level of significance. Therefore, the null hypothesis is accepted. Hence, there is no significant difference between rural and urban college students in their dietary habits.

### Conclusion

From this study we can conclude that female students show a higher level of dietary habits than male students. A healthy dietary habit helps an individual to stay fit and well throughout his life. Most college campuses have dining facilities that provide a variety of food options, which can lead to establishing either good or bad eating behaviours. So Students should be educated properly about healthy eating. A healthy dietary habit helps an individual to stay fit and well throughout his life.

### References

- BOOKS
  - 1) Aggarwal, J.C. (1966) Educational Research: An Introduction, Arya Book Depot., New Delhi.
  - 2) Cauvery, R., SudhaNayak, V.K., Girija, M., Meenakshi, R. (2007) Research Methodology, S. Chand Publishers, pp. 118 - 128.
- WEB RESOURCES
  1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3439579>

### Acknowledgement

Colleges and dining halls on campuses should acknowledge their crucial role in guiding healthy dietary habits, and be the first subjects to be interested in creating a healthy environment for the students. Unless they start understanding the reasons behind unhealthy eating behaviours of young adults, effective policies and managerial strategies to fight malnutrition (obesity, anorexia, and micro-deficiency) cannot be developed.

# Gender Analysis Of Health Status Of Children (0 To 42 Months) At Anganwadi Centers Of High Burden District Of Central Regions Of Uttar Pradesh, India

**Dr. PRIYANKA SURYAVANSHI**, ASSOCIATE PROFESSOR, CHILD DEVELOPMENT DISCIPLINE IGNOU DELHI (priyankagoldi@gmail.com)

## Introduction

- First three years are rapid amazing for growth and development of child.
- Stunting is a widespread health issue found in U.P. 39.7% children under five are stunted, 17.3% are wasted, 7.3% severely wasted, 32.1 % underweight and 3.1% overweight.
- Anthropometric measurements as weight and height of children is a simple and commonly used method to assess nutritional status of children.

## Aim

- To study malnutrition across gender in infants 0-42 months coming to anganwadi centers of high burden district of central regions of Uttar Pradesh, India.

## Methodology

**Research design:** Cross-sectional

**Tools:** Anthropometric measurement 1. Weight (kg) (Electronic weighing balance) 2. Length (cm)(Infantometer)/ Height(cm)(Stadiometer)

**Criteria for sample selection:** From the selected five districts one anganwadi center from urban and one from rural would be selected and thirty children (0-42 months) from each anganwadi center. Thus comprising 60 children from each district and total of 300 children from all five anganwadi centers.

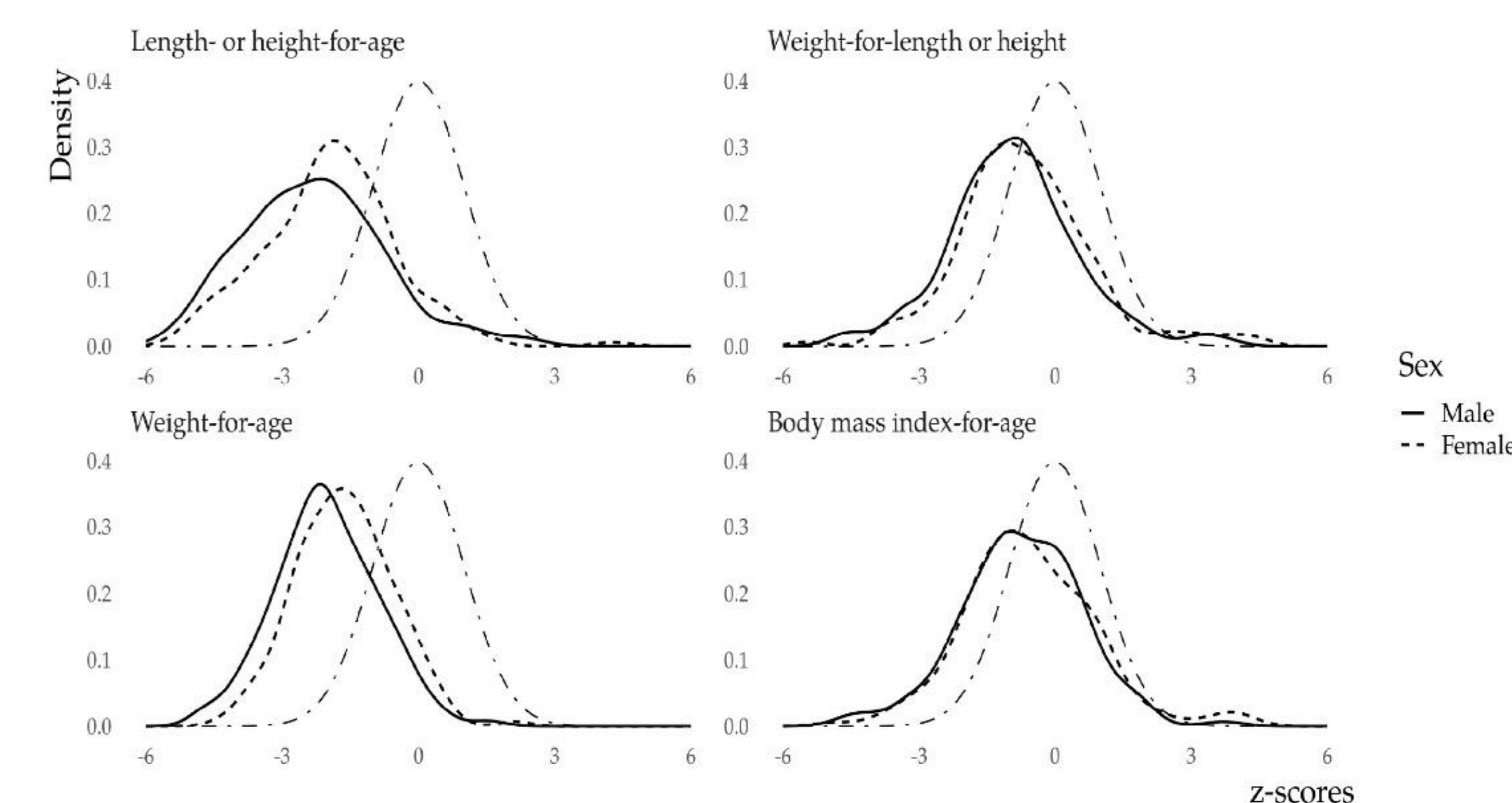
## Results

The malnourishment condition across both the genders was seen. Z scores for Stunting, wasting and BMI was analyzed and calculated. Combined sexes report was:

**HAZ (Z SCORE HIEGHT FOR AGE):** 54% children were stunted. 36 % boys and 23% girls were severely stunted (HAZ <-3), 25% boys and 25% girls were moderately stunted (-3 <HAZ <-2).

**WAZ (Z SCORE WEIGHT FOR AGE):** 46% children were malnourished. 18% boys and 7% girls were severely underweight/ malnourished (WAZ <-3), 37% boys and 31% girls were moderately underweight/ malnourished (-3 <WAZ <-2).

**WHZ (Z SCORE WEIGHT FOR HEIGHT):** 16% children were under wasting category. 10% boys and 8% girls were severely wasting (WHZ <-3), 11% boys and 8% girls were moderately wasting (-3 <WHZ <-2).



The standard normal density distribution curve is overlaid as a dashed-and-dotted line to provide a visual reference.

## Conclusion

Irrespective of sex the condition of mal nourishment is critical for both genders.

The reason, along with unavailability of food is also lack of information regarding importance of supplementary feeding. Most women extended breast feeding without sufficient inclusion of complimentary feeding after six months.

## References

- 1.Kugler, A.D., Kumar, S. 2017 Preference for Boys, Family Size, and Educational Attainment in India. Demography 54, 835–859. <https://doi.org/10.1007/s13524-017-0575-1>.
- 2.(NFHS-5) 2019-21: <http://rchiips.org/nfhs/>

## Acknowledgement

The author would like to thank **Indian Council Social Science Research** for providing financial assistance for the project. Thanks to aganwadi workers, helpers, supervisors and rural, urban mothers with their children for their participation.

## NUTRITIONAL STATUS AND DIETARY PRACTICES OF CHILDREN BELOW 5 YEARS OF AGE

Sengar Vijayata<sup>1</sup> and **Karud Tasnim<sup>1</sup>**

<sup>1</sup>Department of Foods and Nutrition, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.

tasnim.karud7@gmail.com

### Introduction

- Adequate nutrition during infancy and early childhood is critical for children's optimal growth, health, and development.
- Infant and young child feeding is an important aspect of improving child survival and promoting healthy growth and development (Drammeh W, Hamid NA and Rohana AJ, 2019).

### Aim

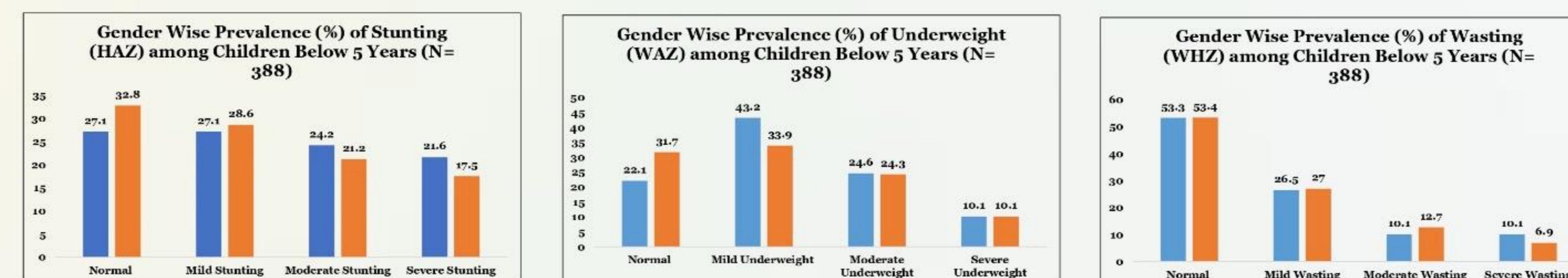
- To assess the nutritional status, nutrient intake and dietary diversity of children below 5 years

### Methodology

- Children below five years of age registered with the randomly selected Aanganwadi centres from four zones of Vadodara city were enrolled for the study. Data on socioeconomic status, anthropometric measurements along with dietary practices was obtained for the cross-sectional study from 384 children post ethical clearance.

### Results

- Stunting was the most prevalent form of undernutrition followed by underweight and wasting.

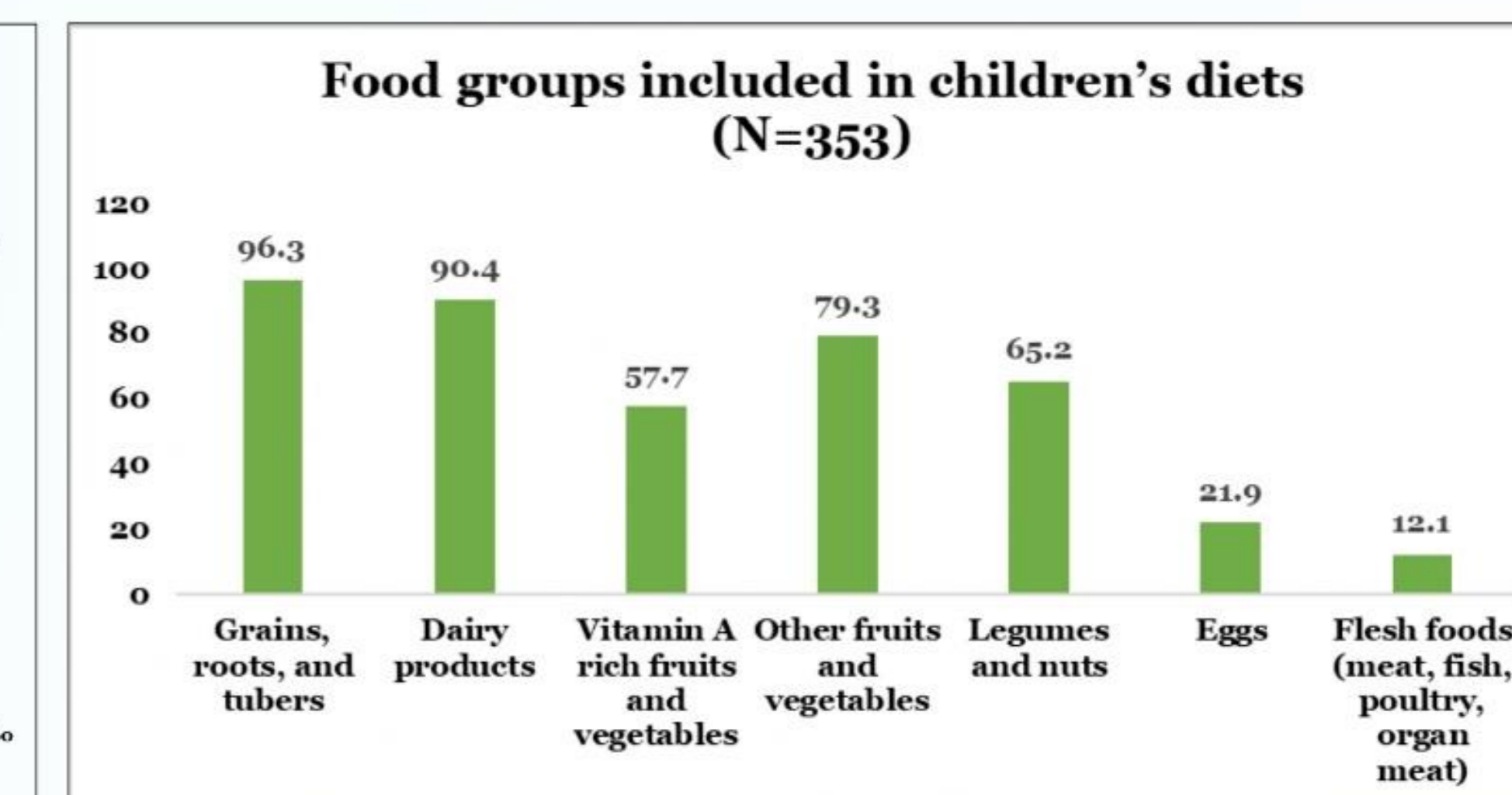
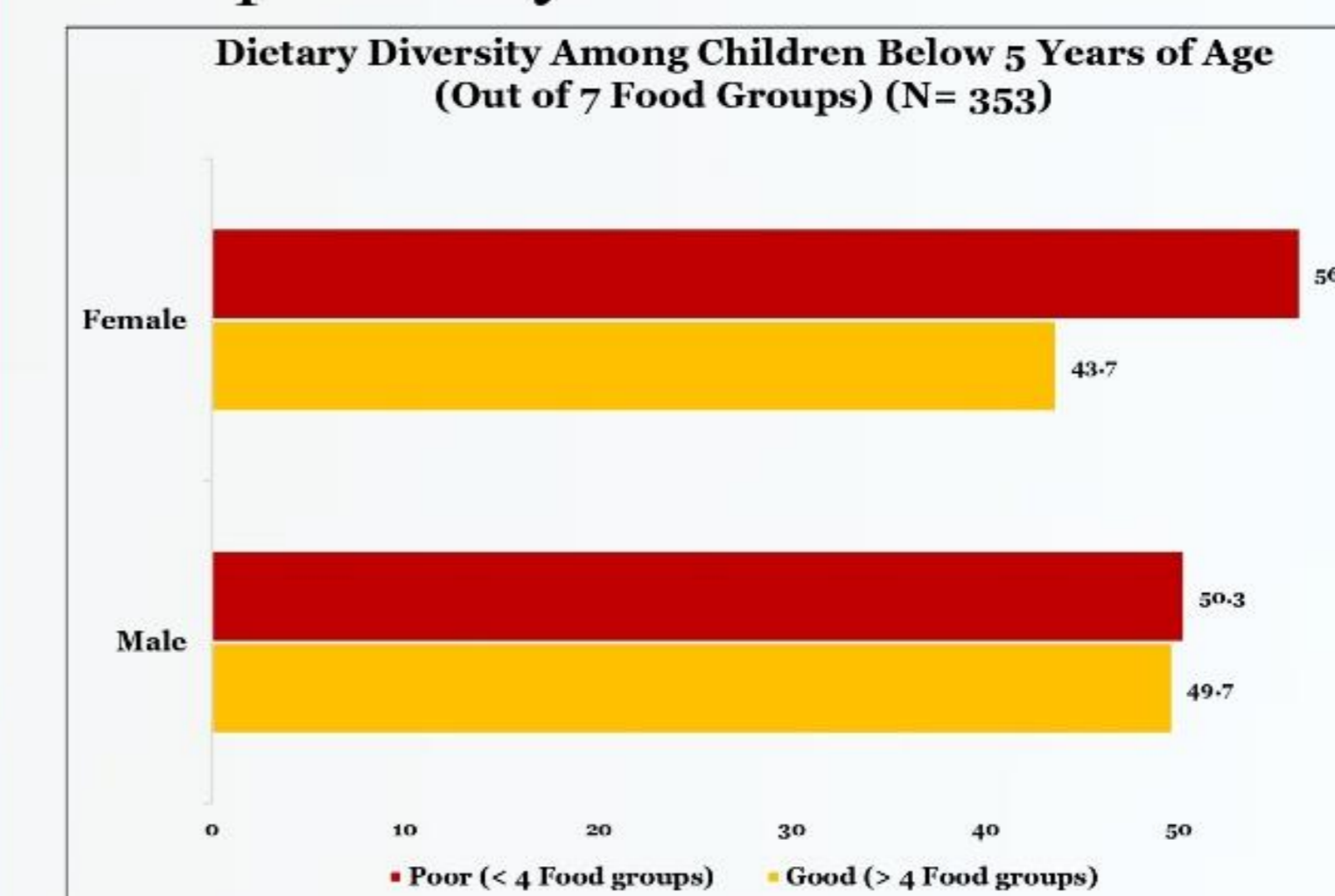


- Underweight and wasting were significantly higher in children above two years of age.

Indicator	Age	Mean	t-test
WHZ	< 2 years	-0.37 ± 1.35	5.778***
	> 2 years	-1.21 ± 1.41	
HAZ	< 2 years	-1.87 ± 1.88	1.571 NS
	> 2 years	-1.60 ± 1.46	
WAZ	< 2 years	-1.34 ± 1.29	3.338***
	> 2 years	-1.73 ± 0.99	

- Nutrient requirements remained unfulfilled for all age groups. Statistical analysis revealed a significant variation in energy ( $p < 0.01$ ), protein ( $p < 0.05$ ) and iron ( $p < 0.001$ ) intakes age wise indicating a fall in fulfilment of RDA as the children grew beyond 1 year.

- Nearly half of the children (53.2%) had poor dietary diversity (consuming  $\leq 4$  food groups out of 7).
- Grains, roots, and tubers were consumed by 96 % of children aged 6 to 59 months. Ninety percent of the children were consuming dairy products. Other fruits and vegetables were consumed by 79.3% of children whereas only 57.7% of children were consuming Vitamin A- rich fruits and vegetables.
- Consumption of eggs and flesh foods was quite low, at 21.9 % and 12.1 %, respectively.



### Conclusion

- Poor diets have been clearly shown to lead to poor nutritional status.
- Present study shows that children above 2 years are undernourished owing to the poor diets especially lack of diversity in diets. Thus, there is a strong need to correctly identify gaps in young child feeding practices and address them.

### Recommendations

- Strategizing social and behaviour change communication for improving nutritional status of these children is the need of the hour.
- Focus should be laid on mother's eating habits because household food environment plays a significant role in affecting the dietary habits of children.

### References

Drammeh W, Hamid NA, Rohana AJ. Determinants of household food insecurity and its association with child malnutrition in sub-Saharan Africa: A review of the literature. *Curr Res Nutr Food Sci.* 2019;7(3):610–623. 10.12944/CRNFSJ.7.3.02

## A STUDY ON BENEFICIAL EFFECTS OF WHOLESOME FOODS ON OBESITY IN ADOLESCENT'S AND YOUNG ADULTS IN HYDERABAD- PILOT STUDY

**Purwaja B.**, B.Sc. III yr, Microbiology, Nutrition & Dietetics and Chemistry,  
Dept. of Biochemistry & Nutrition, Bhavan's Vivekananda College,  
Sainikpuri, Secunderabad, Telangana. [bpurwaja@gmail.com](mailto:bpurwaja@gmail.com).

V. Revathi, Lecturer in Nutrition & Dietetics  
Dept. of Biochemistry & Nutrition,  
Bhavan's Vivekananda College, Sainikpuri, Secunderabad, Telangana.

### Introduction

- Eating patterns of the adolescents and adults have changed significantly with the advent of globalization and modernization, which has resulted greatly in the incidence of obesity.
- The pandemic pressurized to think regarding faulty and healthy habits dietary habits & its relationship to health.
- It is once again proven that bioactive compounds in foods increase immunity and stabilize health status.

### Aim

- To elevate and promote the consumption of wholesome foods and its beneficial aspects on obesity in adolescents and young adults.

### Methodology

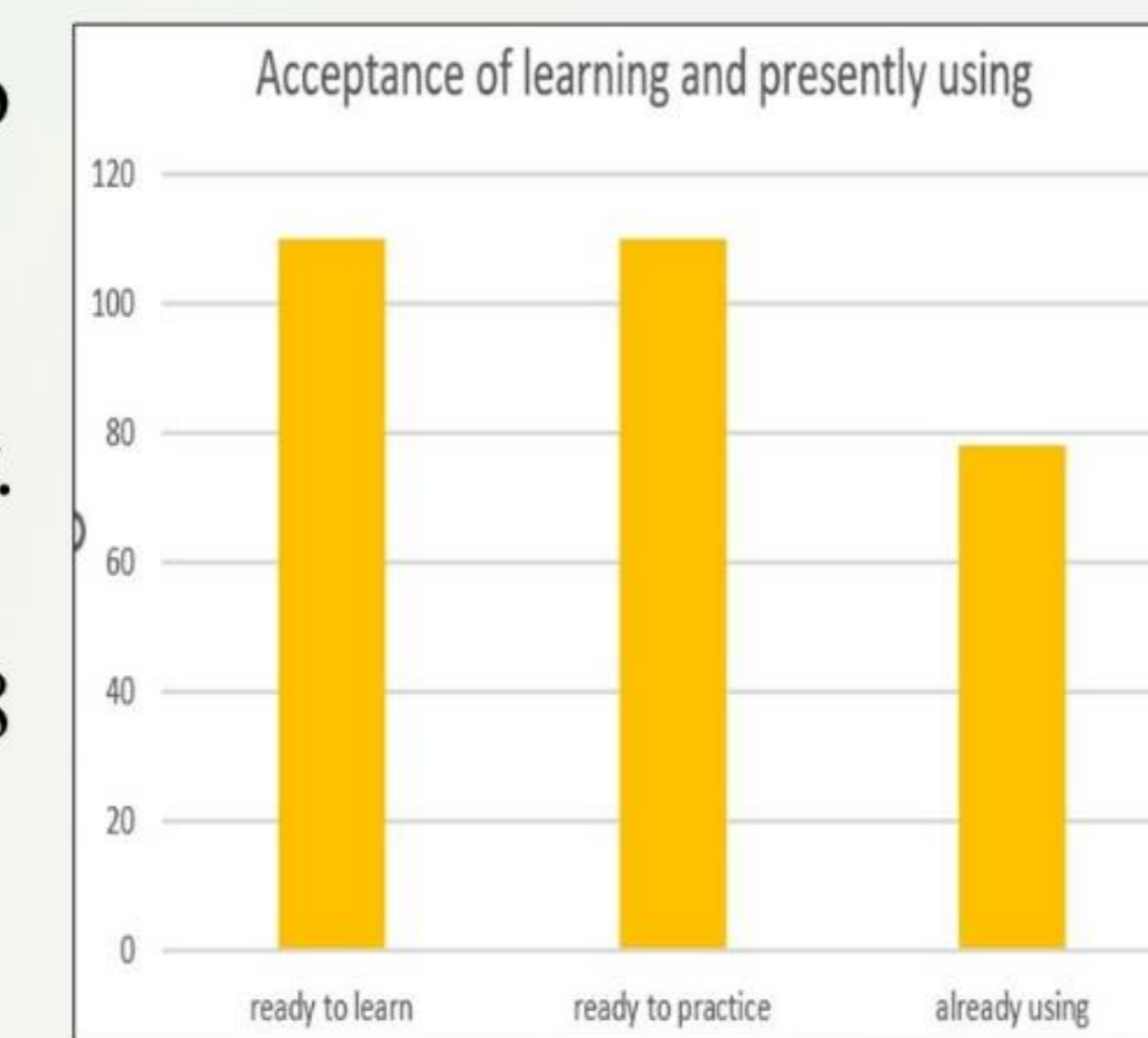
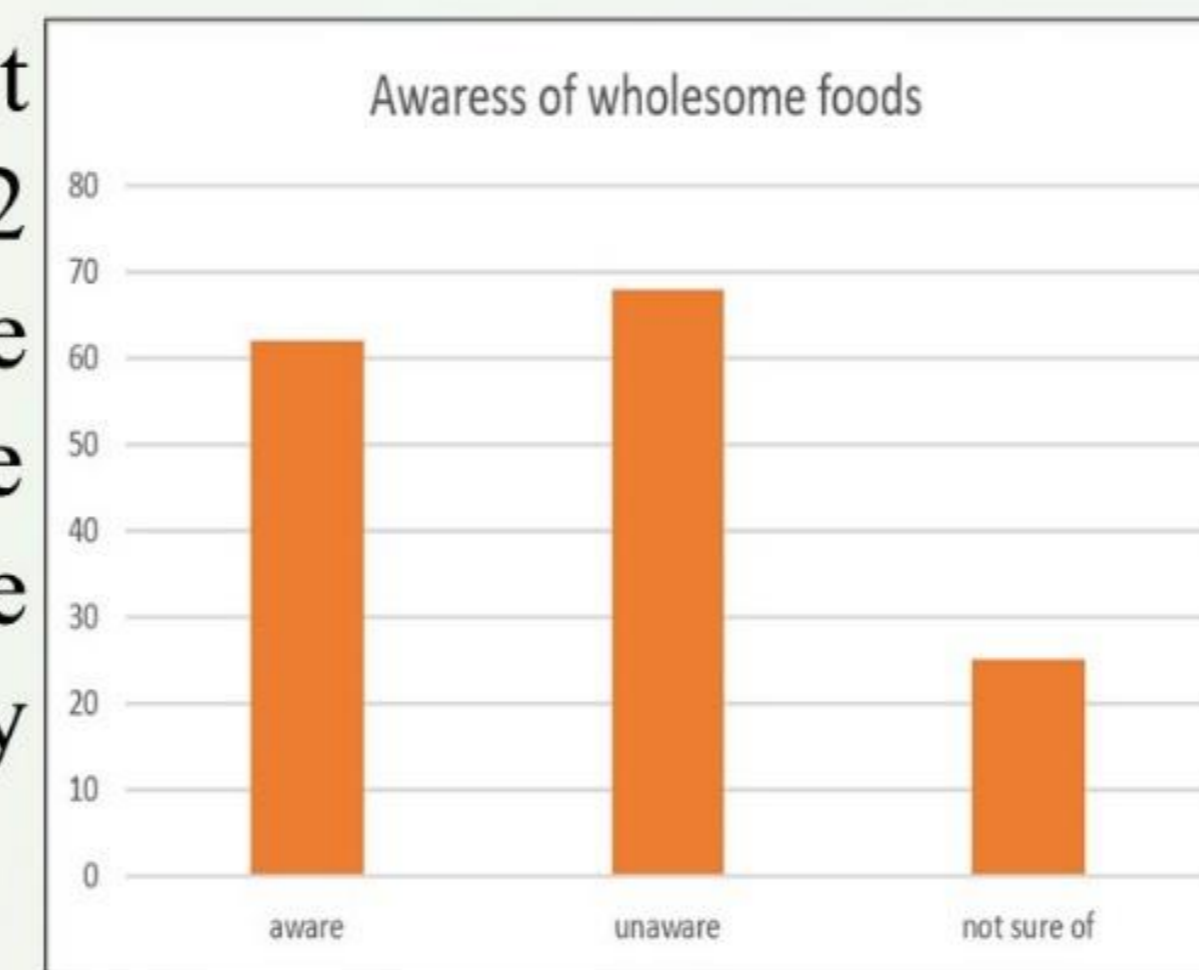
- A survey was conducted which included 155 participants regarding their knowledge, attitude and practice of wholesome foods.
- Google forms were circulated which helped to find out to analyze the awareness, frequency of consumption and their benefits.
- Simple statistics were used to draw the conclusions.

### Conclusion

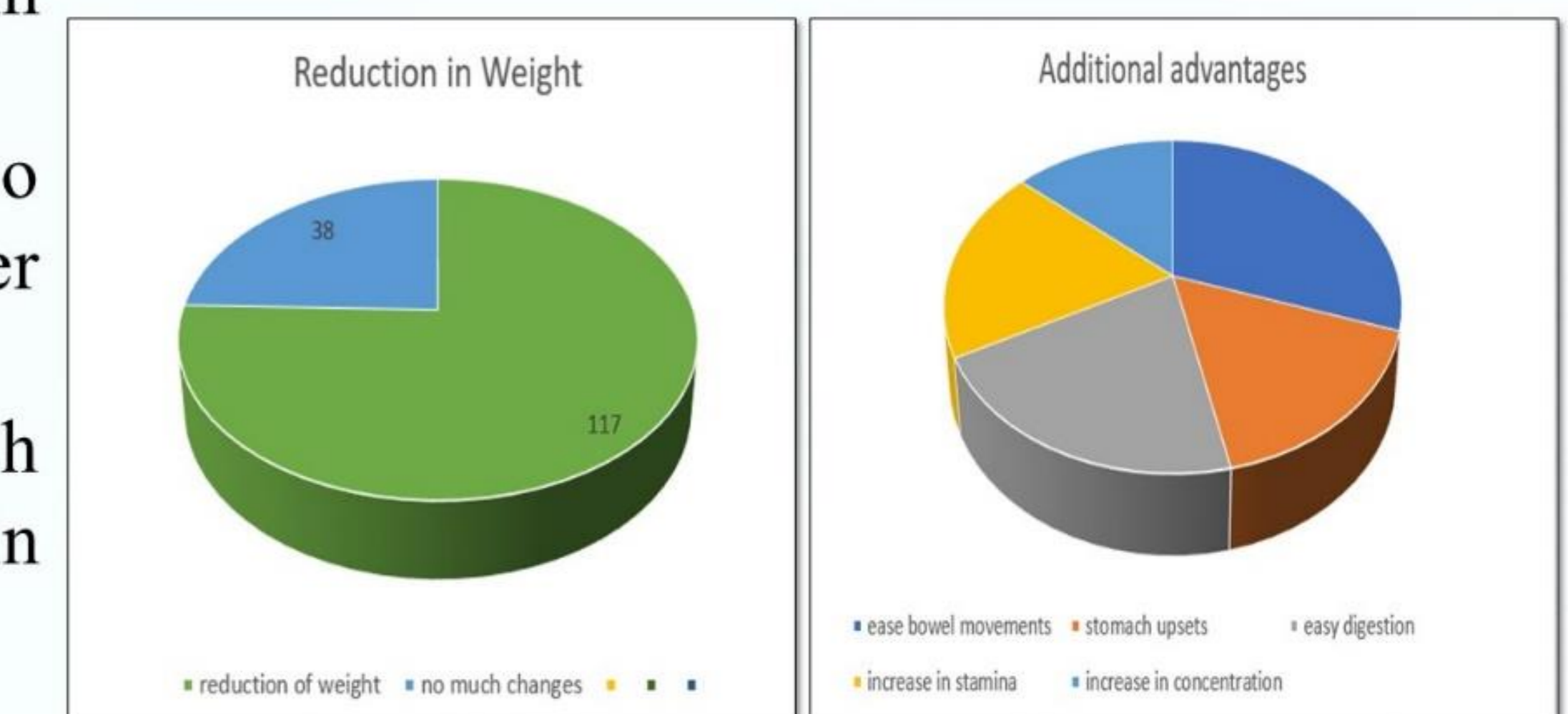
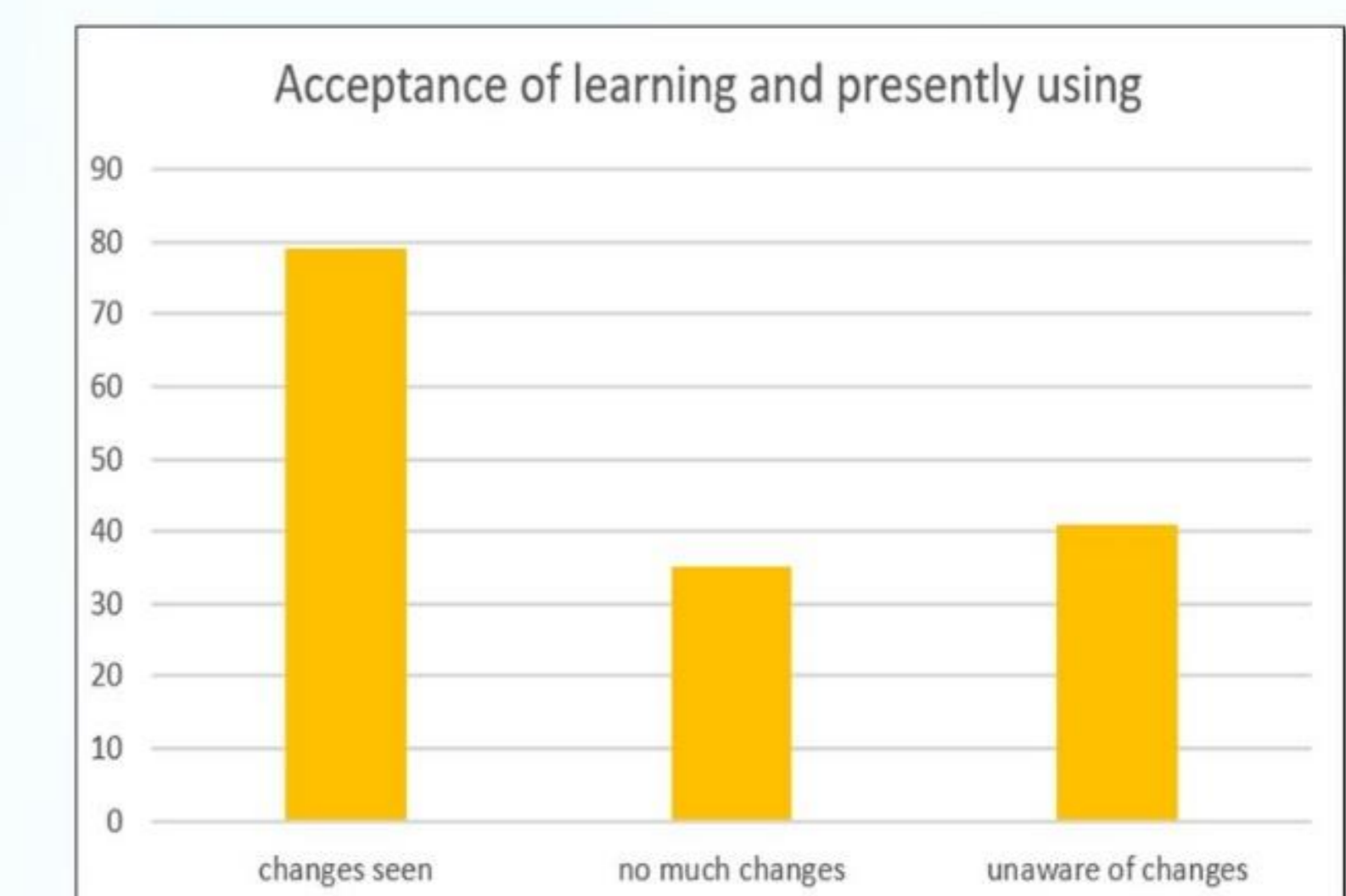
- The study clearly indicates the percentage of respondents benefiting the properties of wholesome foods in reducing the extra kilograms of fat deposited in their body and many of them have reduced their weight.
- Around 3/4<sup>th</sup> of the respondents benefited weight reduction and few noticed others benefits too.

### Results

- Results showed that out of 155 participants 62 participants were aware of the wholesome foods, 68 were unaware and 25 were not totally sure of it.
- The study shows openness among the participants who are ready to learn, put in practice and also use few wholesome foods presently.
- 110 participants are ready to learn and practice and 78 of them were presently using in their daily diet.



- The study also shows a significant change of the health status in the participants who were using the wholesome foods knowingly or unknowingly.
- 79 participants felt there was a significant change, 35 were not finding any changes and 41 were unaware of noticing any changes.
- It shows clearly the foods were better accepted by them than the supplements by few of them.
- It showed 117 (75.4%) participants had reduction in their weight and 38 (24.5%) had not seen any changes
- The study also showed that some of the participants also had an additional advantage in relieving few other health issues which were not seriously considered.
- Ease in their bowel movements (120), less stomach upsets (65), easy digestion (82), and increase in stamina (76) and concentration levels (54).



### References

- Kendall J. Eskine1, Wholesome Foods and Wholesome Morals? Organic Foods Reduce Prosocial Behavior and Harshen Moral Judgments, Social Psychological and Personality Science, 2012.
- Mary R. Yan et.al., A Sustainable Wholesome Foodstuff; Health Effects and Potential Dietotherapy Applications of Yacon, MDPI Nutrients, 2019.

### Acknowledgement

- I acknowledge Mrs. V. Revathi, my lecturer, who encouraged and guided me in attempting to write the article.
- I thank all the participants who spared time in answering the questionnaire with enthusiasm.
- Finally, I thank my parents and brother for their continuous support.