

# Prevalence of lactose intolerance amongst patients with irritable bowel syndrome



# IBS

- Irritable bowel syndrome is GI disorder characterized by abdominal pain , bloating and altered bowel habits.
- There are three types of IBS :
  - D-IBS .
  - C-IBS.
  - M-IBS .

# Prevalence

- IBS affects around **11%** of the population globally .
- IBS In Palestine : The prevalence of IBS among **middle-aged** and **elderly residents** is high .

# Risk factors

1 ) Postinfection in GI .

2) Female gender, younger age .

3) Psychological stress, and current smoking .

# Diet's Role

IBS symptoms are triggered by the consumption of the poorly absorbed **(FODMAPs)** and insoluble fibre

# Diet's Role..cont

- **Salicylate**
- **Milk**
- **Wheat**

# Study Design

Exclusion Criteria :

- 1) **Other** GI disorders .
- 2 ) Has IBS symptoms for **less than 6 months** .
- 3) Age **< 18**.
- 4) **Undiagnosed** by a specialist.

# Method

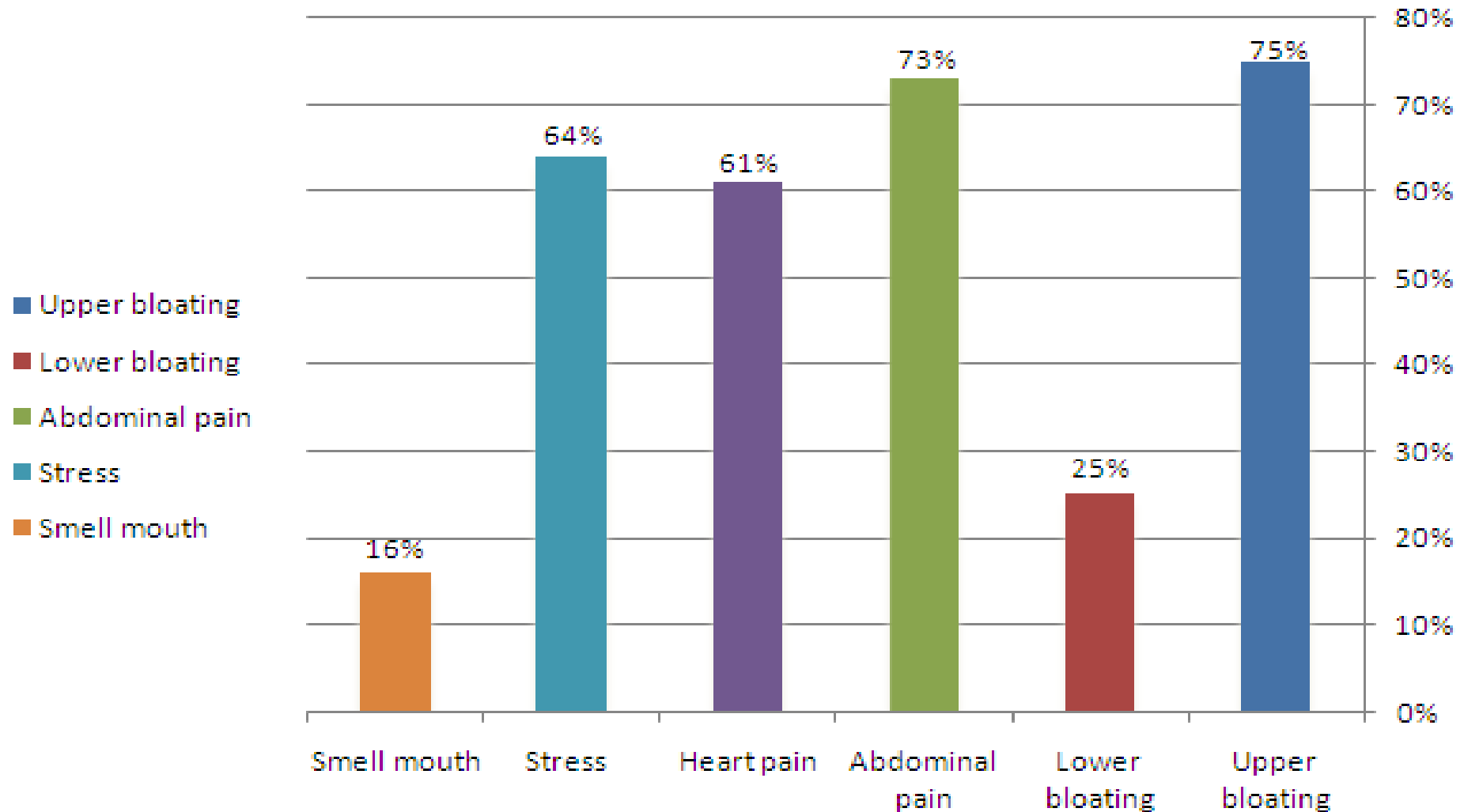
- FFQ was used to obtain the information.
- The sample size included 50 patients with IBS.
- Independent T-test.



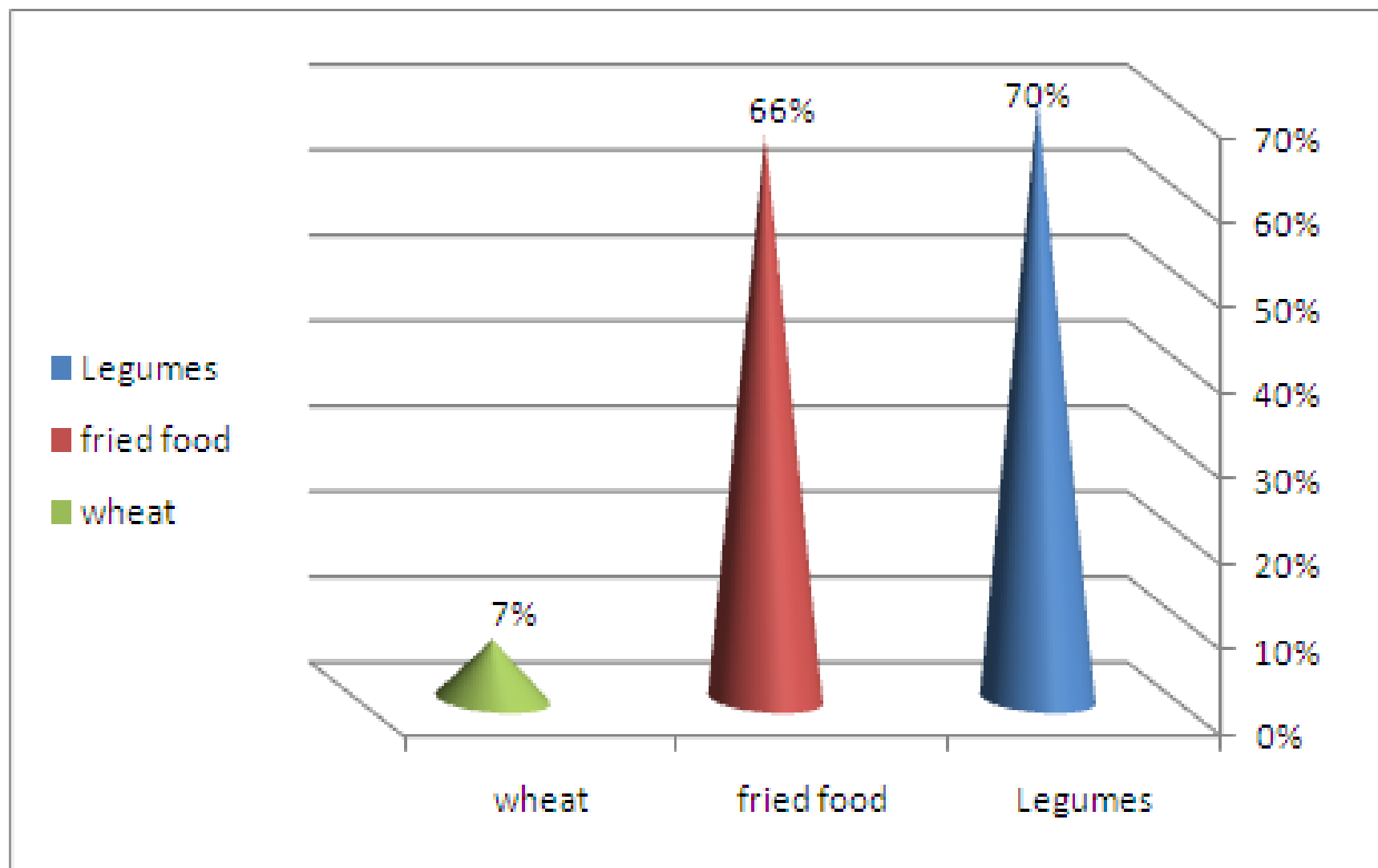
# Results and Discussion

	<b>Lactose intolerance</b>	<b>Lactose tolerance</b>	
IBS	<b>57%</b>	43%	
IBS-D	40%	<b>42%</b>	
IBS-C	20%	<b>32%</b>	
IBS-M	<b>16%</b>	5%	
age	<b>most of them &gt;40</b>	most of them <40	<b>P-value &lt;0.05</b>
post-inflammatory IBS	<b>56 %</b>	42%	

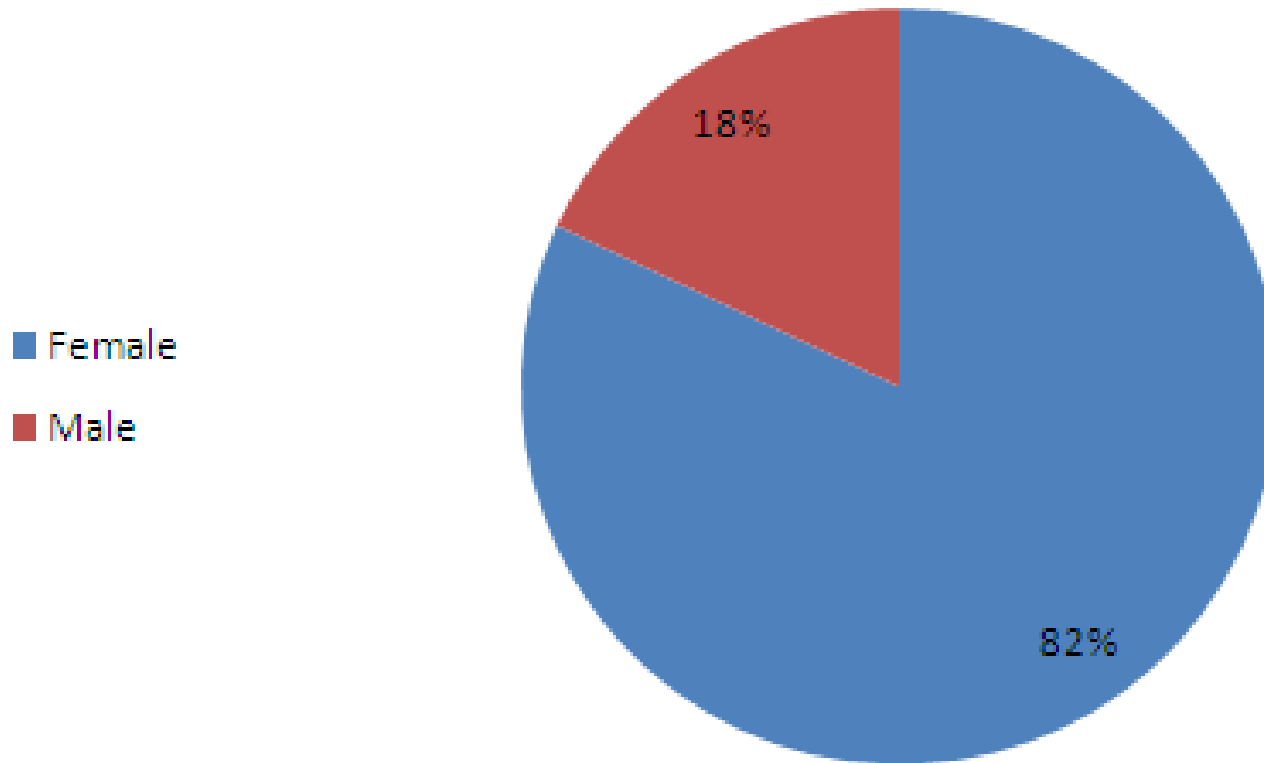
# Results..Symptoms



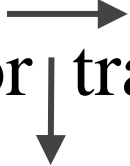
# Results



# Female Vs. Male




# Lactose Intolerance Vs. IBS

- Lactose malabsorption occurs in three main types:
  - Primary adult hypolactasia.
  - **Secondary hypolactasia**  GI illness that damages the brush border or transit time in the jejunum mucosa.
  - Congenital alactasia: Lifelong complete absence of lactase is rare.

# Altered microbiota

Lactose can be a food source for harmful bacteria such as :

- **Gas-producing organisms** : result in flatulence.
- **Firmicutes** : causes abdominal pain.
- **Methanogenic bacteria** : IBS-C &  intestinal transit.

# Inflammation's role

## **Post-infectious IBS :**

- ↑ EC cells in the rectal mucosa.
- ↑ Postprandial serotonin levels.

# Antibiotic's role

Broad spectrum antibiotics:-

- Bacteria **killers**.
- **Disturb** the balance of good to bad bacteria in the intestines causing diarrhea and other problems.
- **C. difficile** infections → toxins
  - 1- Destroy cells.
  - 2- Produce patches of inflammatory cells.
  - 3- Decaying cellular debris inside the colon cause watery diarrhea.



# Pathophysiology

- Brain-Gut Axis that constitutes **ENS** and **Gut** wall becomes dysfunctional .
- Alterations in **secretions of hormones** that play a key role in the digestion :
  - Motilin.
  - Gastrin.
  - Cholecystokinin (CCK).
  - Peptide YY .

# Pathophysiology

One of the mechanisms trigger IBS symptoms is luminal distension that results from :

- short chain carbohydrate (SCC) are **osmotically active** thus increase luminal water .
- SCCs are substrates for **colonic bacterial fermentation.**

# Role of mast cells

- **Visceral Hypersensitivity and Intestinal Dysmotility**
- **Serotonin Signaling**
- **Intestinal Secretion and Permeability**

- Alterations in intestinal secretion & permeability .
  - can be induced by MC mediators .
  - Activated MC → ↑ intestinal permeability .

- **Visceral hypersensitivity** : is the term used to describe the experience of pain within the inner organ
- foods and stress can activate mast cells
- mediators such as histamine and protease have been reported to induce hypersensitivity in the nerve terminals

● ↑ Mast cells & activity in the lower GI which are activated by **serotonin**.

- Release mediators ( histamine and protease )  
altering **peristalsis** thus cause diarrhea or  
**constipation**

- Impact **intestinal transit** and **fluid content**.

# IBS-D

- ↑ E.coli & ↓ Bifidobacterium → leads to altered bile acid metabolism .
- ↓ Butyrate-producing bacteria : is a protective factor against visceral sensitivity.

# Anxiety and Depression

- ↑ Activity of the autonomic nervous system.

- Stimulate motility alterations through mast cell mediator release.



# Heartburn & IBS

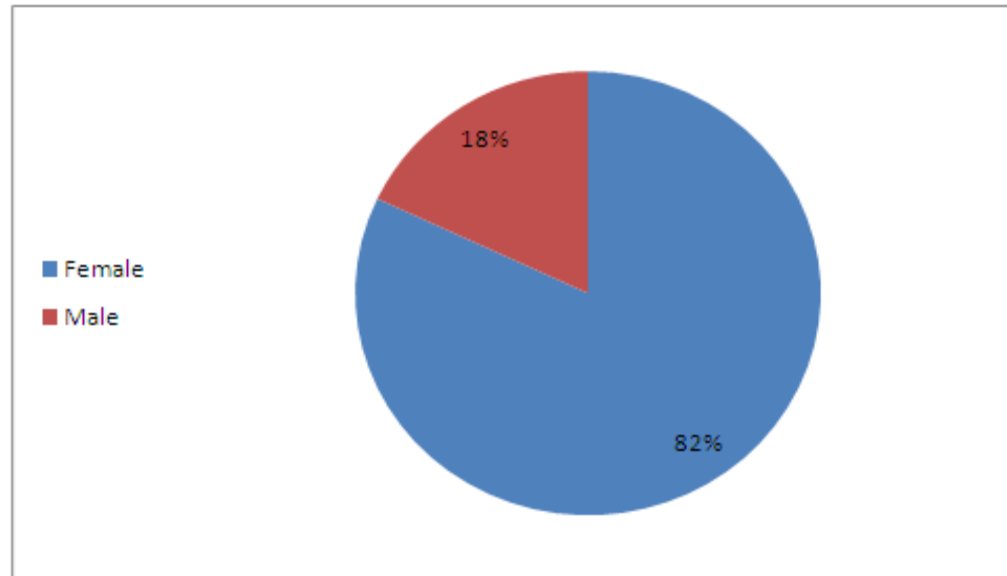
↑ Serotonin → Heartburn.

- Relaxation of esophageal sphincter.
- ↓ Gastrointestinal motility.
- ↑ Visceral hypersensitivity.

# Gender & IBS..

Changes in female hormone levels(menstrual cycle):

-Hormones affect the transit time of food through the digestive tract.



# Conclusion

Most of patients with irritable bowel syndrome are lactose intolerant . Most of whom are IBS-D that positively associated with age . additionally , most of patients with postinflammatory IBS are lactose intolerant .