Obesity in America: Facts and Fiction

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Overview: Key Questions
- What is obesity?
- How common is it?
- How serious is it?
- What causes it?
- What treatments work?
- What can be done to improve dissemination to underserved communities?

Fact or fiction?
The majority of Americans are overweight or obese.
It's a fact!

About 2 of 3 adults are overweight or obese

Body Mass Index (kg/m²)

- 18.5 to 24.9 = Desirable Range
- 25 to 29.9 = Overweight
- 30 to 34.9 = Class I Obesity (mild)
- 35 to 39.9 = Class II Obesity (moderate)
- 40 or more = Class III Obesity (severe)

Example: BMI and Weight Ranges for a Person who is 5 feet 4 inches tall

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5 to 24.9</td>
<td>108 to 145 lbs</td>
<td>(Desirable Range)</td>
</tr>
<tr>
<td>25 to 29.9</td>
<td>146 to 175 lbs</td>
<td>(Overweight)</td>
</tr>
<tr>
<td>30 to 34.9</td>
<td>176 to 204 lbs</td>
<td>(Class I Obesity)</td>
</tr>
<tr>
<td>35 to 39.9</td>
<td>205 to 233 lbs</td>
<td>(Class II Obesity)</td>
</tr>
<tr>
<td>40 or more</td>
<td>234 or more</td>
<td>(Class III Obesity)</td>
</tr>
</tbody>
</table>
Example: BMI and Weight Ranges for a Person who is 5 feet 10 inches tall

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5 to 24.9</td>
<td>132 to 174 lb</td>
<td>Desirable Range</td>
</tr>
<tr>
<td>25 to 29.9</td>
<td>175 to 207 lb</td>
<td>Overweight</td>
</tr>
<tr>
<td>30 to 34.9</td>
<td>208 to 243 lb</td>
<td>Class I Obesity</td>
</tr>
<tr>
<td>35 to 39.9</td>
<td>244 to 278 lb</td>
<td>Class II Obesity</td>
</tr>
<tr>
<td>40 or more</td>
<td>279 or more</td>
<td>Class III Obesity</td>
</tr>
</tbody>
</table>

The prevalence of obesity in adults has doubled over the past 30 years

Source: CDC, 2006

The prevalence of pediatric obesity has more than tripled over the past 30 years

Source: CDC, 2006
Fact or Fiction?

Physical inactivity is the major cause of the rise in obesity

It’s a fiction!

Increased consumption is the major cause of the rise in obesity

FACE FACTS

The numbers tell the story. According to a new study by the Centers for Disease Control and Prevention, we’re consuming more calories, on average, than we were just 30 years ago.

1971
Men: 2,490
Women: 1,542

2000
Men: 2,618
Women: 1,877

Fact or Fiction?

The foods we currently eat contain more calories than they did 20 years ago.

It’s a fact!
Consider the typical bagel

<table>
<thead>
<tr>
<th>20 Years Ago</th>
<th>Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>140 calories</td>
<td>350</td>
</tr>
<tr>
<td>3-inch diameter</td>
<td>4-inch diameter</td>
</tr>
</tbody>
</table>

How many calories are in this bagel?

Difference: 210 calories
20 Years Ago
333 calories

Today
How many calories are in today’s cheeseburger?

20 Years Ago
333 calories

Today
590 calories

Difference: 257 calories

Fact or Fiction?
Excess body weight can shorten life by 1 to 10 years
It’s a fact!

- Obesity can shorten life by 1 to 10 years
- Associated with 5 of the 10 leading causes of death in the U.S.
- Linked to heart disease, stroke, diabetes, certain cancers, and pulmonary disease
- More than 300,000 deaths per year are attributed to obesity

Fact or Fiction

Depression is a major cause of obesity

It’s a fiction!

- The prevalence of clinical depression is not higher among obesity individuals, but…
- Obese persons experience discrimination and bias based on their size
- Obese women have very high rates of body image dissatisfaction
  - Negative impact on mood and self-esteem
Fact or Fiction?

Diet pills are the most common method used for weight management.

It’s fiction!

To manage their weight, most people choose to diet and exercise on their own.

Fact or Fiction?

Most people who join a commercial weight-loss program drop out within 3 months.
It’s a fact!
Most drop out in the first 3 months

Professional Treatment Options
- Behavioral or “lifestyle” treatment
- Pharmacotherapy (medication)
- Bariatric surgery

Lifestyle Treatment Approach
- Focus on lifestyle changes (not a diet)
- Based on behavior modification principles
- Long-term changes in eating habits
- Long-term changes in exercise habits
Behavioral Treatment: Key Components

- Setting specific goals for eating and exercise
  - 1200 calories per day intake (for women)
  - 150 minutes per week of exercise
- Keeping a written log of progress
- Developing healthy approach to eating (decrease saturated fats; increase complex carbs and fiber)
- Avoiding triggers for overeating (e.g., skipping meals, eating out, alcohol, snack foods)
- Enlisting help of others
- Decreasing negative thoughts and developing positive mindset

Effects of Lifestyle Treatments

- Attrition rates are low (<20% over 6 mo)
- Average losses of about 15 to 25 lbs

Fact or Fiction?

A 10-pound weight loss can prevent the onset of diabetes
It’s a fact!

The Diabetes Prevention Program Study showed:
- Modest weight losses can prevent the type 2 diabetes in overweight persons

Diabetes Prevention Program

3,000 overweight adults

Lifestyle Treatment      Medication (Metformin)      Placebo

Mean Weight Changes

Placebo
Medication
Diet
New Cases of Diabetes

44%  31%  18%

Medications for Weight Loss

Reserved for people who have not succeeded in lifestyle interventions

Current Weight-Loss Medications

- Sibutramine (Meridia)
  - Suppresses appetite and increases satiety

- Orlistat (Xenical – 120mg/d; Alli – 60mg/d)
  - Reduces the absorption of fats by 30%
**Fact or Fiction?**

All weight-loss medications have side effects

**It’s a fact!**

All weight-loss medications have side effects

**Effects of Sibutramine (Meridia)**

- Usual dose of 10-15 mg/day
  - total body weight reductions of 12 to 20 lbs

- Significant side-effects
  - insomnia and nausea
  - may increase blood pressure and pulse
  - can be lethal if combined with certain anti-depressant medications
Effects of Orlistat (Xenical)

- Usual dose 120mg (three times per day)
  - total body weight reductions of 10 to 15 lbs

- Significant side effects
  - malabsorption of fat-soluble vitamins (A, D, E, and K)
  - fecal urgency/soiling

Fact or Fiction?

Bariatric surgery can “cure” diabetes

It’s a fact!

Bariatric surgery can “cure” diabetes
- Reserved for those 100 lbs or more overweight
- Produces average weight losses of 60-100 lbs
- Can “cure” diabetes, hypertension, and sleep apnea
- Has operative mortality rate of 1 in 200
- Requires major lifestyle changes

**Fact or Fiction?**

Lost weight usually will be regained.

**It’s a fact!**

“Lost weight usually will be regained unless a weight maintenance program consisting of dietary therapy, physical activity, and behavior therapy is continued indefinitely.”

-National Heart, Lung, and Blood Institute
The “Maintenance Problem”

The “Dissemination Problem”

“Efficacy” Versus “Effectiveness”

**Efficacy studies**
- Conducted under “ideal” conditions
- Academic centers
- Interventions led by doctoral-level experts
- Highly selected middle-class volunteers from urban and suburban areas

**Effectiveness studies**
- Conducted under “real world” conditions
- Community settings
- Interventions led by usual care providers
- Participation open to most members of the community
Treatment of Obesity in Underserved Rural Settings (TOURS)

Supported by the National Heart, Lung and Blood Institute: Grant # 1R18 HL 073326

Geographic Disparities in Health

Rural counties
- 20% of U.S. population (~56 million people)
- 75% of the medically underserved areas
- Higher rates of poverty
- Higher proportion of residents without health insurance
- Greater percentage of people with chronic diseases

Urban/Rural Death Rates From Ischemic Heart Disease

![Chart showing urban and rural death rates from ischemic heart disease.](chart)
Contributors to the Urban/Rural Disparity in Heart Disease Mortality

- Poverty and low SES
- Limited access to medical care
- Neglect of preventive health services
- Lifestyle factors
  - Smoking
  - Sedentary behavior
  - High-fat, high calorie diets
  - Obesity

Prevalence of Obesity in Men by Level of Urbanization

Legend
A = large metro
B = suburb
C = small metro
D = rural with a city
E = rural without a city

Prevalence of Obesity in Women by Level of Urbanization

Legend
A = large metro
B = suburb
C = small metro
D = rural with a city
E = rural without a city
Bringing Obesity Treatment to Rural America

The Potential of Cooperative Extension Service (CES)
- Partnership of federal + local governments and land-grant universities (Smith-Lever Act of 1914)
- Mission targets application of agricultural research and includes “nutrition education”
- CES offices are in > 3,000 counties of the U.S.
- High visibility in rural communities
- Culturally acceptable place to get assistance

The TOURS Study
- A randomized effectiveness trial
- Conducted in nonacademic, nonmedical community centers
- Treatment provided by bachelors-level personnel
- Participants drawn from medically underserved rural counties with high rates of poverty

TOURS Goal # 1
Evaluate whether Cooperative Extension Service (CES) Offices can serve as a resource for bringing weight-management interventions to rural America

Would obese women from rural areas attend and benefit from weight management programs offered through CES offices?
TOURS Goal # 2

Conduct an experimental study of “extended care problem solving” approach to improving the maintenance of lost weight

Evaluate the effectiveness of extended care programs delivered via
- Mail
- Individual telephone counseling
- Face-to-face group counseling

Study Outcomes

- Body weight (primary outcome)
- Risk factors for heart disease
  - blood pressure
  - lipid profile
  - glucose levels
- Eating and physical activity patterns
- Quality of life
- Cost effectiveness

Treatment of Obesity in Underserved Rural Settings (TOURS) Study

Initial lifestyle program of diet + exercise

- Face-to-face counseling
- Telephone counseling
- Mail (Control)
% of Participants Achieving Different Degrees of Weight Change

Blood Pressure

Lipids: LDL-C and TRIG
**Glycemic Control (HbA1C) and Inflammation (C-RP)**

- Pre: 5.4
- Post: 3.9

**Phase II:**

12 Months of Extended Care

- Mail (Control)
  - Twice monthly newsletters
- Telephone Counseling
  - Twice monthly scheduled telephone contacts using problem-solving therapy
- Face-to-Face Group Counseling
  - Twice monthly, office-based group sessions using problem-solving therapy

**Results from the TOURS Study**
TOURS Summary

1. CES Offices can serve as excellent venues for bringing lifestyle interventions to rural communities
2. Bachelors-level providers can deliver weight-management interventions in an effective manner
3. Women from rural counties demonstrate a good response to treatment
4. Extended care programs delivered either in person or by phone can improve outcome

The “Take Home” Messages

- The last 30 years have witnessed a major increase in overweight/obesity
- Over-consumption is the main contributor to the obesity “epidemic”
- Modest changes in diet, exercise, and body weight can improve health
- BUT...more work is needed on the translation of research to underserved community settings
- AND...much more research is needed on prevention
Thank you!

Questions?