

Real Time Data Capture:  
Ecological Momentary Assessment  
of Behavioral Symptoms Associated  
With The Eating Disorders

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**The University of Michigan**

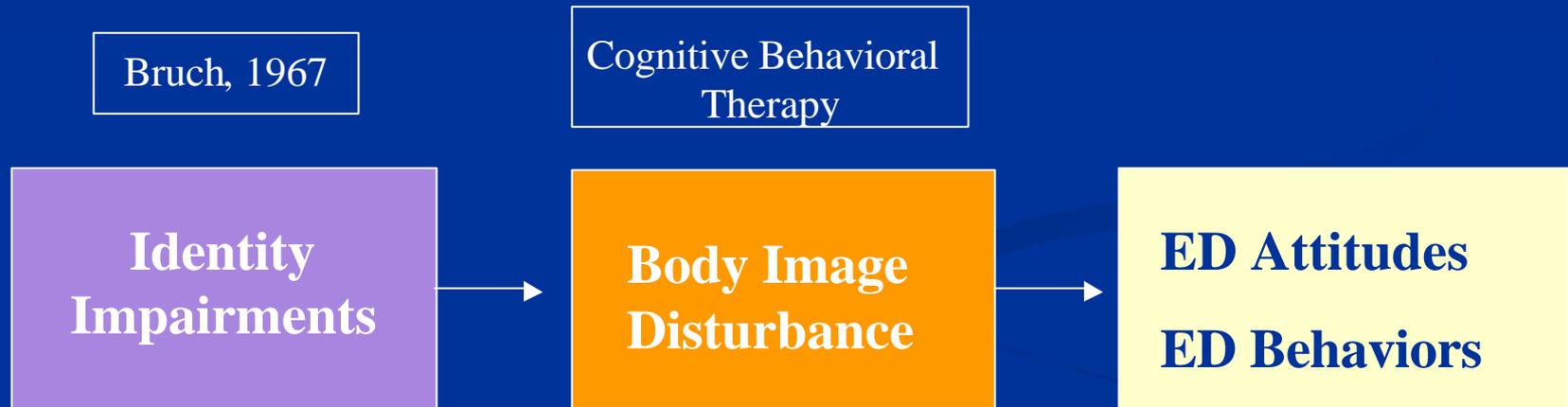
## Bulimia Nervosa DSM-IV Criteria (APA,2000)

- **Recurrent episodes of binge eating**
- **Recurrent inappropriate compensatory behavior**
- **The binge-eating and compensatory behaviors occur at least twice a week for 3 months**
- **Self-evaluation is unduly influenced by body shape and weight**

# Anorexia Nervosa DSM-IV Criteria (APA, 2000)

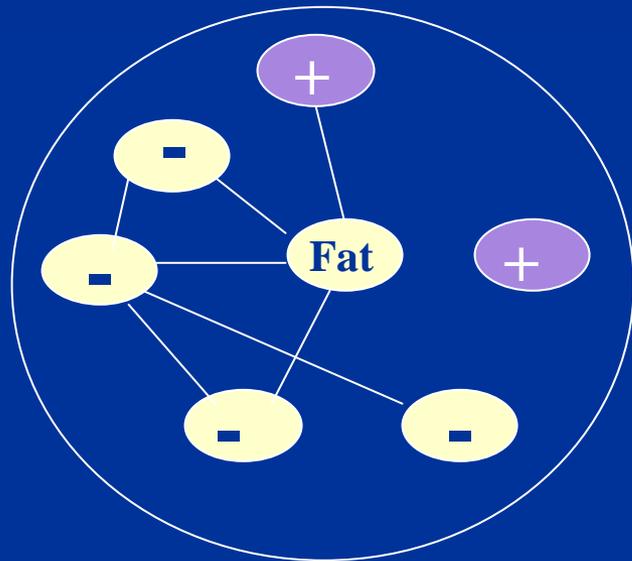
- **Refusal to maintain body weight at or above a minimally normal weight for age and height**
- **Amenorrhea for 3 months**
- **Intense fear of gaining weight or becoming fat**
- **Disturbance in the way one's body weight or shape is experienced**

# Etiological Models of Eating Disorders

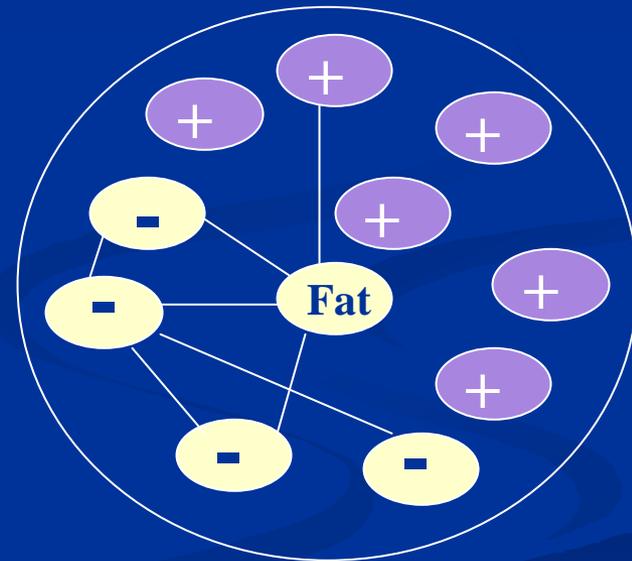


# Effects of the Identity Intervention Program on the Self-Concept

Pretreatment



Post-treatment



IIP

# Compromising Factors of Retrospective Measurement

- Participant expectation and awareness
- Poorly defined target behaviors
- Poorly worded interview questions
- Characteristics of eating disorder behaviors

**Ecological Momentary  
Assessment of Eating Disorder  
Behaviors:  
A Pilot Study**

**Stein and Corte (in press)  
Funded by a UROP faculty grant**

# Purpose

- **To develop a computerized questionnaire to measure eating disordered behaviors.**
- **To determine the feasibility and reliability of using EMA to measure eating disordered behaviors.**
- **To examine the pattern of correspondence between EMA and a retrospective interview method of measuring eating disordered behaviors.**

# EMA Menu-Driven Interview

## First Screen

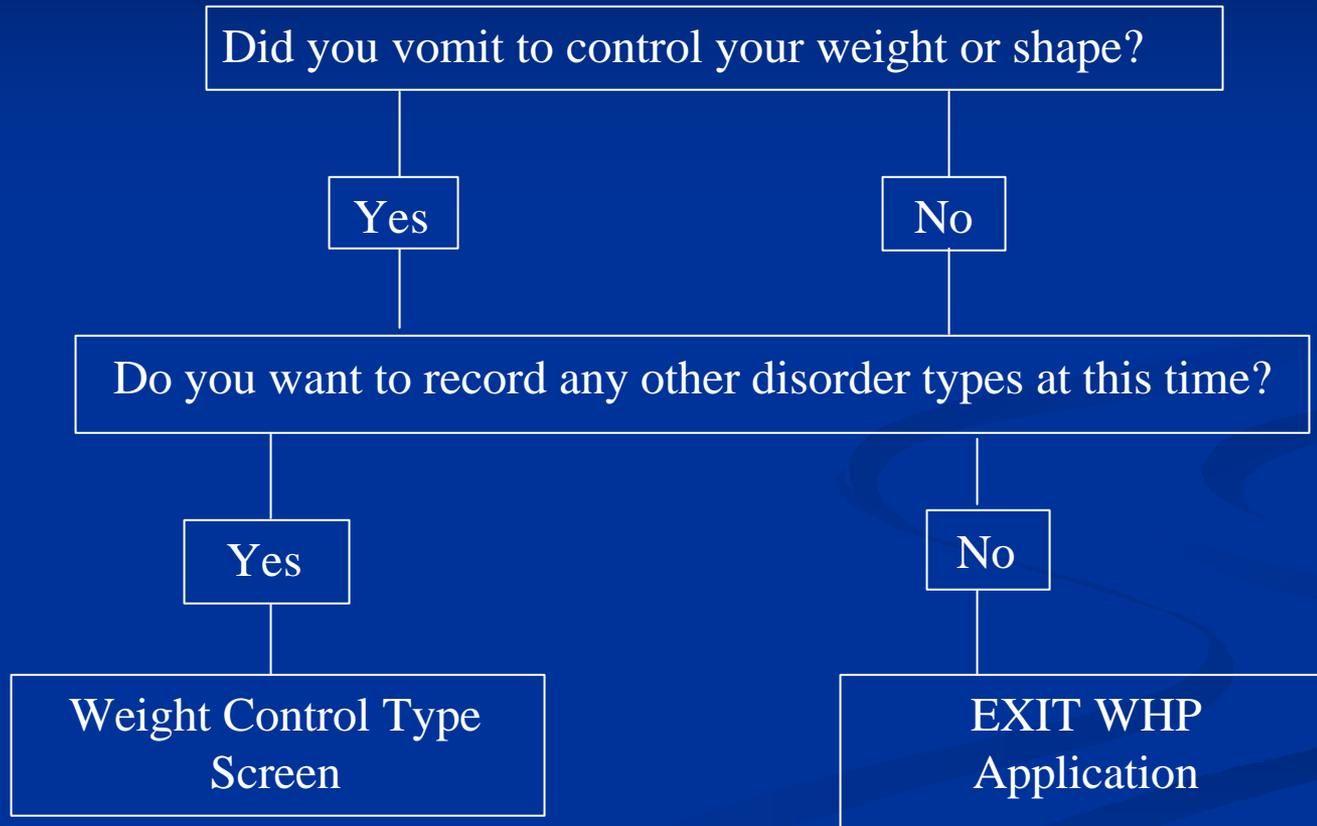
Please select a type of behavior to record:

- Vomiting
- Laxative Misuse
- Diuretic Misuse
- Exercising
- Binge Eating

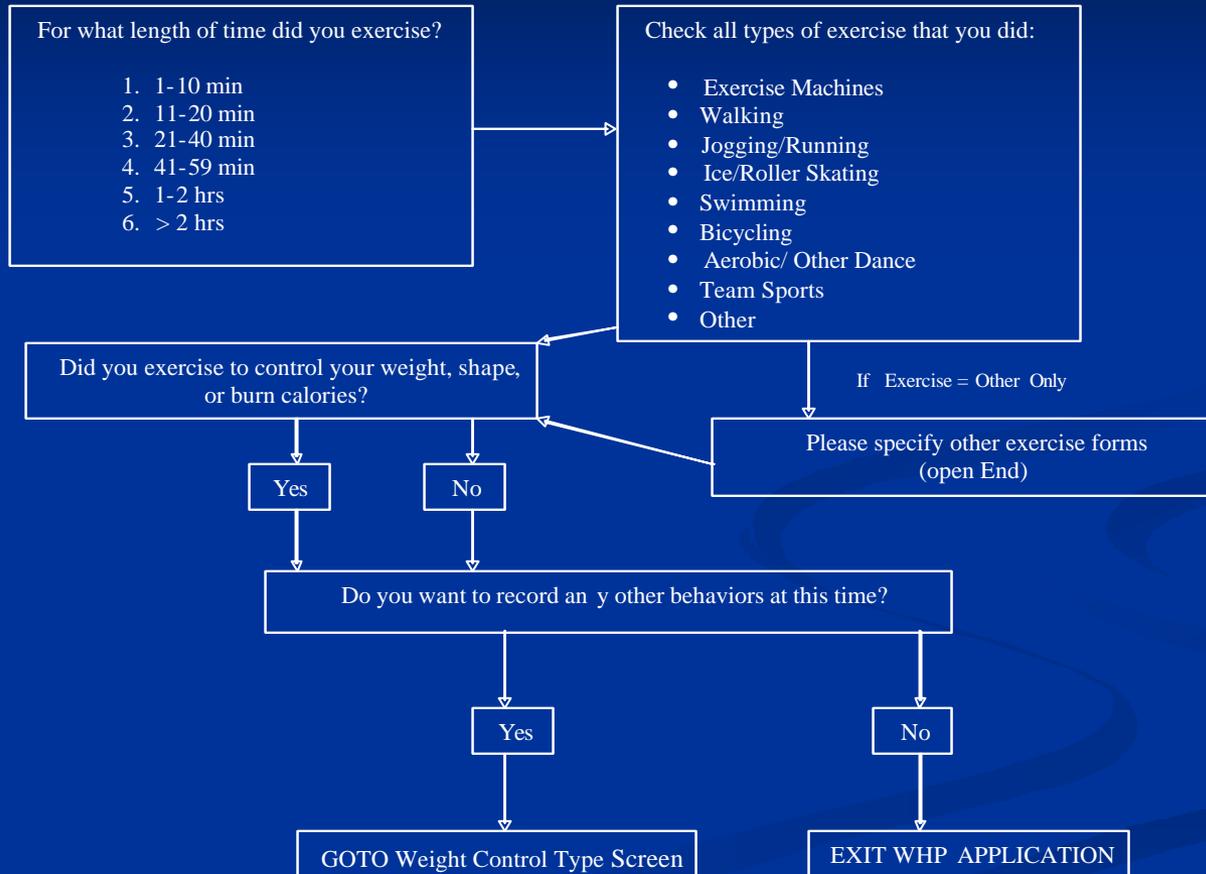
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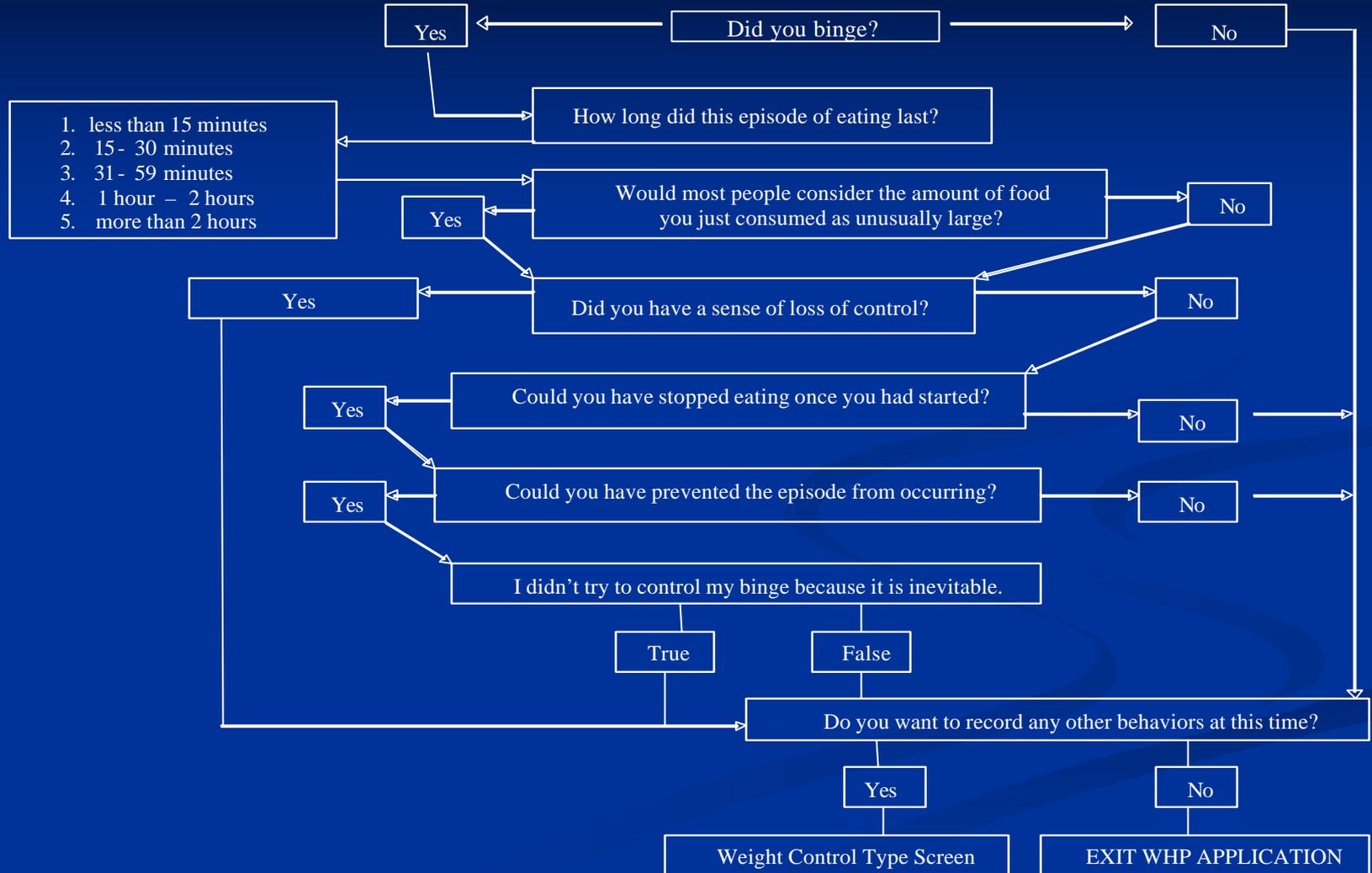
# EMA Vomiting Algorithm



# EMA Exercise Algorithm



# EMA Binge Algorithm



# Event-Contingent Recording

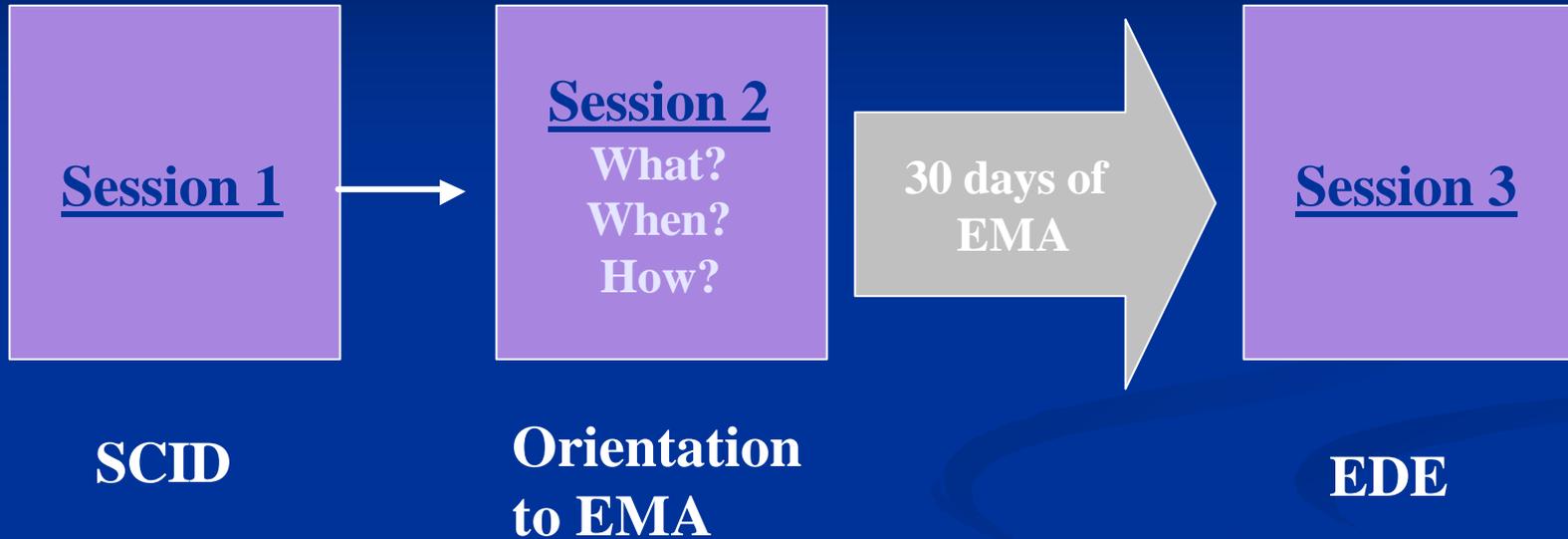
- Low frequency of ED behaviors
- Reduce participant burden
- Decrease social embarrassment
- Avoid study-related activation of body weight/ED cognitions

# Sample Characteristics

- AN threshold and subthreshold (Binge/Purging subtype) ( $n=5$ )
- BN threshold and subthreshold ( $n=11$ )

|                          |                       |
|--------------------------|-----------------------|
| Age                      | $M=23.2$ ( $SD=4.8$ ) |
| Race                     |                       |
| White                    | 87.5% ( $n=14$ )      |
| Asian                    | 12.5% ( $n=2$ )       |
| Education                |                       |
| College degree or higher | 37.5% ( $n=6$ )       |
| Some college             | 56.3% ( $n=9$ )       |
| Completed HS             | 6.3% ( $n=1$ )        |

# Procedure



# Adherence with EMA Methodology

**Mean # of Recorded Episodes**

**M=24.9 (SD=29.7)  
R=5-101**

**How often did you accurately record behaviors?**

**38.5% all of the time  
61.5% most of the time**

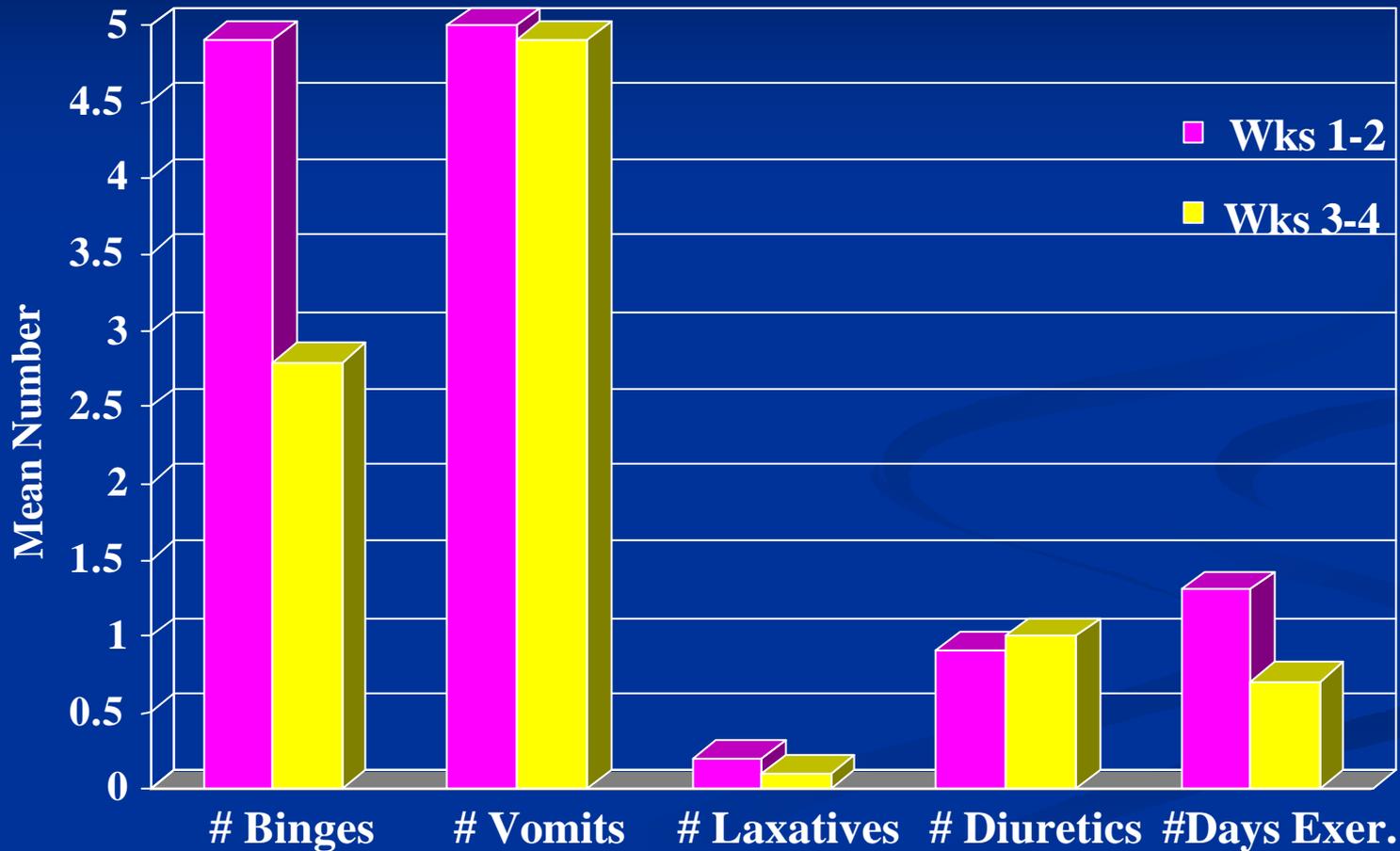
**How many times did you fail to record a behavior?**

**M=1.9 (SD=2.5)  
R=0-8**

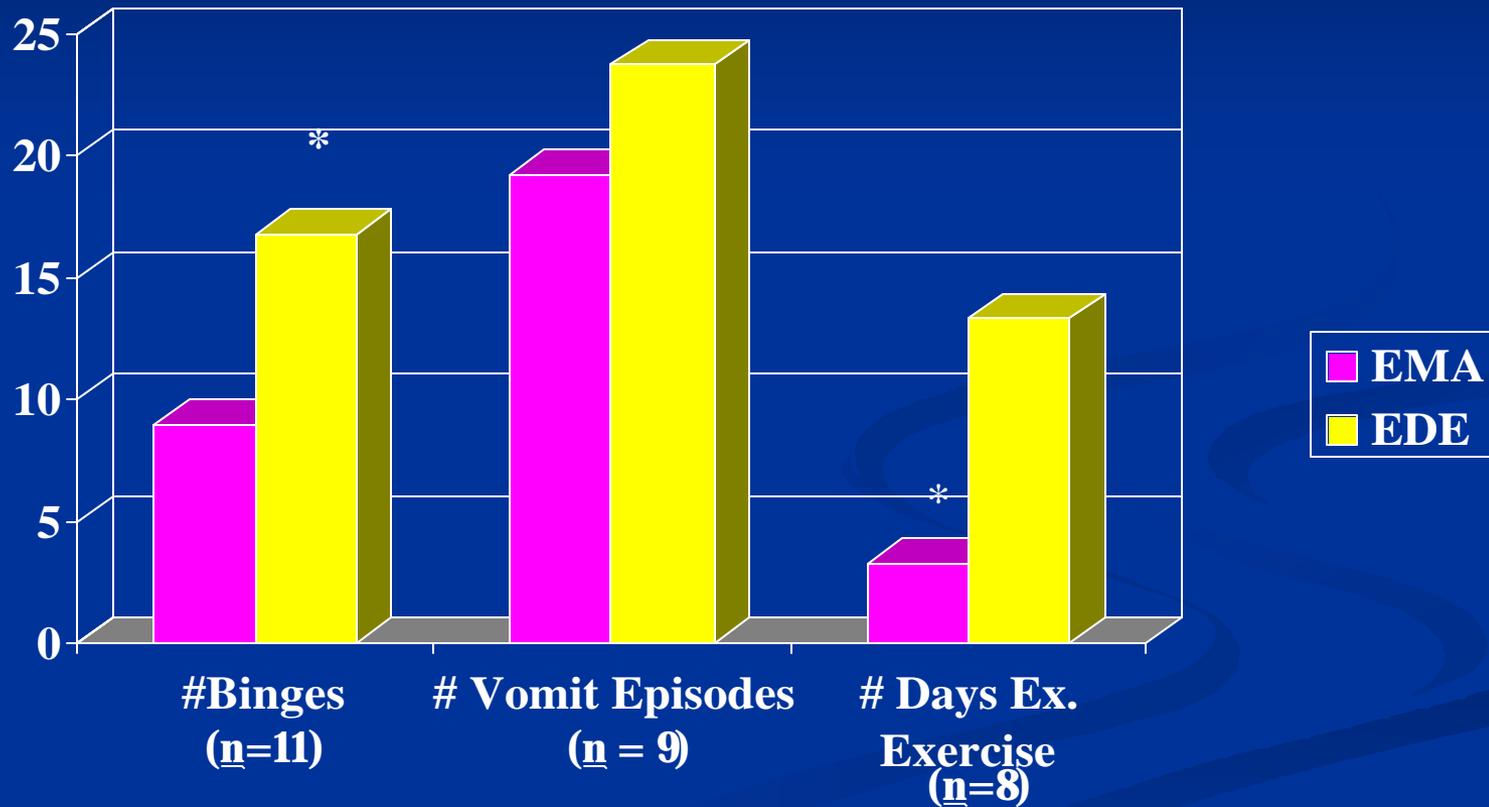
**How much of an inconvenience was recording your ED behaviors?**

**46.2% not at all  
30.8% somewhat  
23.1% neutral**

# Frequencies of EMA-Measured ED Behaviors: Weeks 1-2 vs Weeks 3-4



# Comparison of Mean ED Behavior Scores Measured by EMA and EDE †



† Laxatives and Diuretics not shown due to small number of occurrences

# Developing Identity: An Eating Disorders Nursing Therapy

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**NIH NINR R29 NR03457**

# EMA Menu-Driven Interview

## First Screen

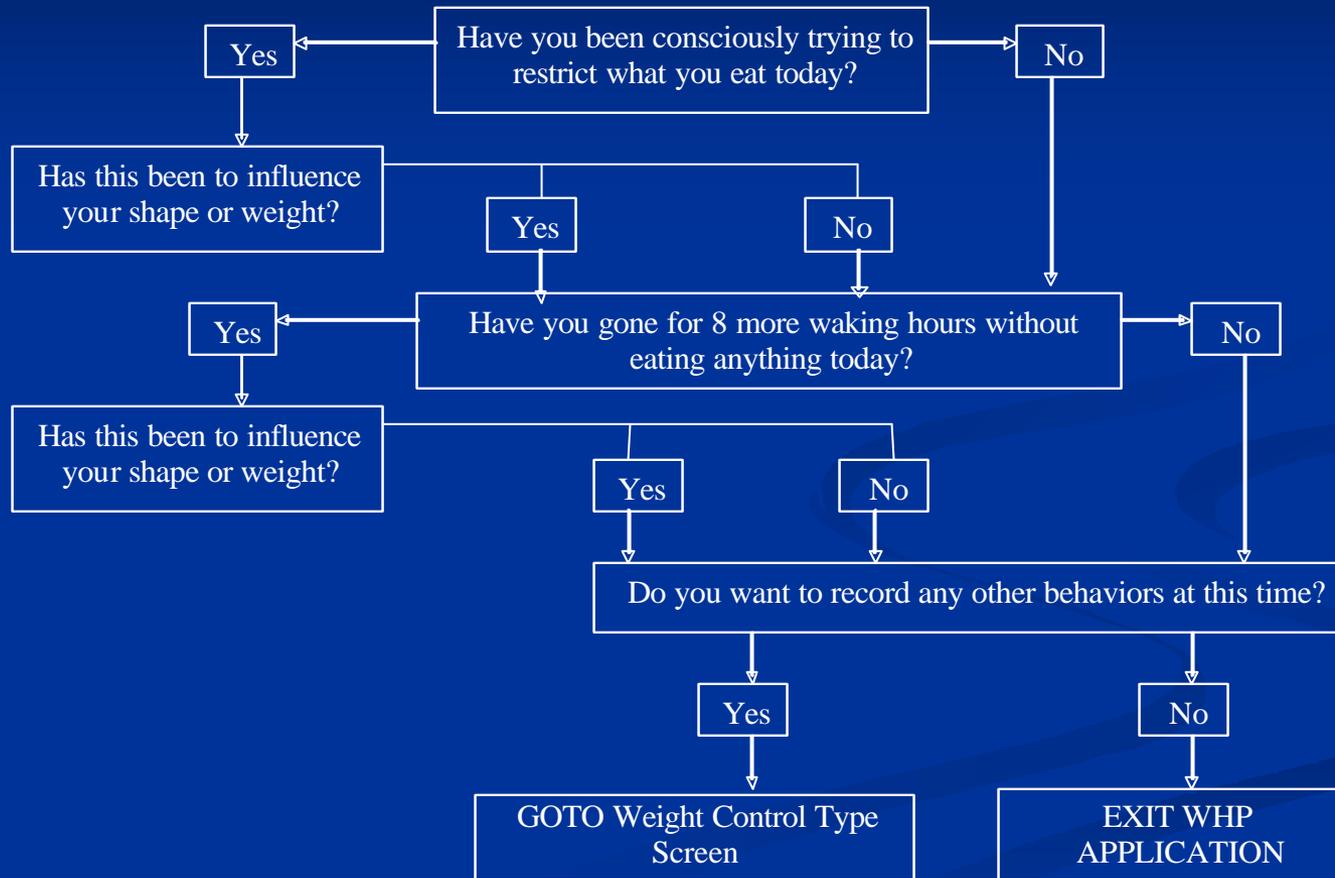
Please select a type of behavior to record:

- Vomiting
- Laxative Misuse
- Diuretic Misuse
- Diet Pills/Appetite Suppressant
- Exercising
- Binge Eating
- End of the Day Question

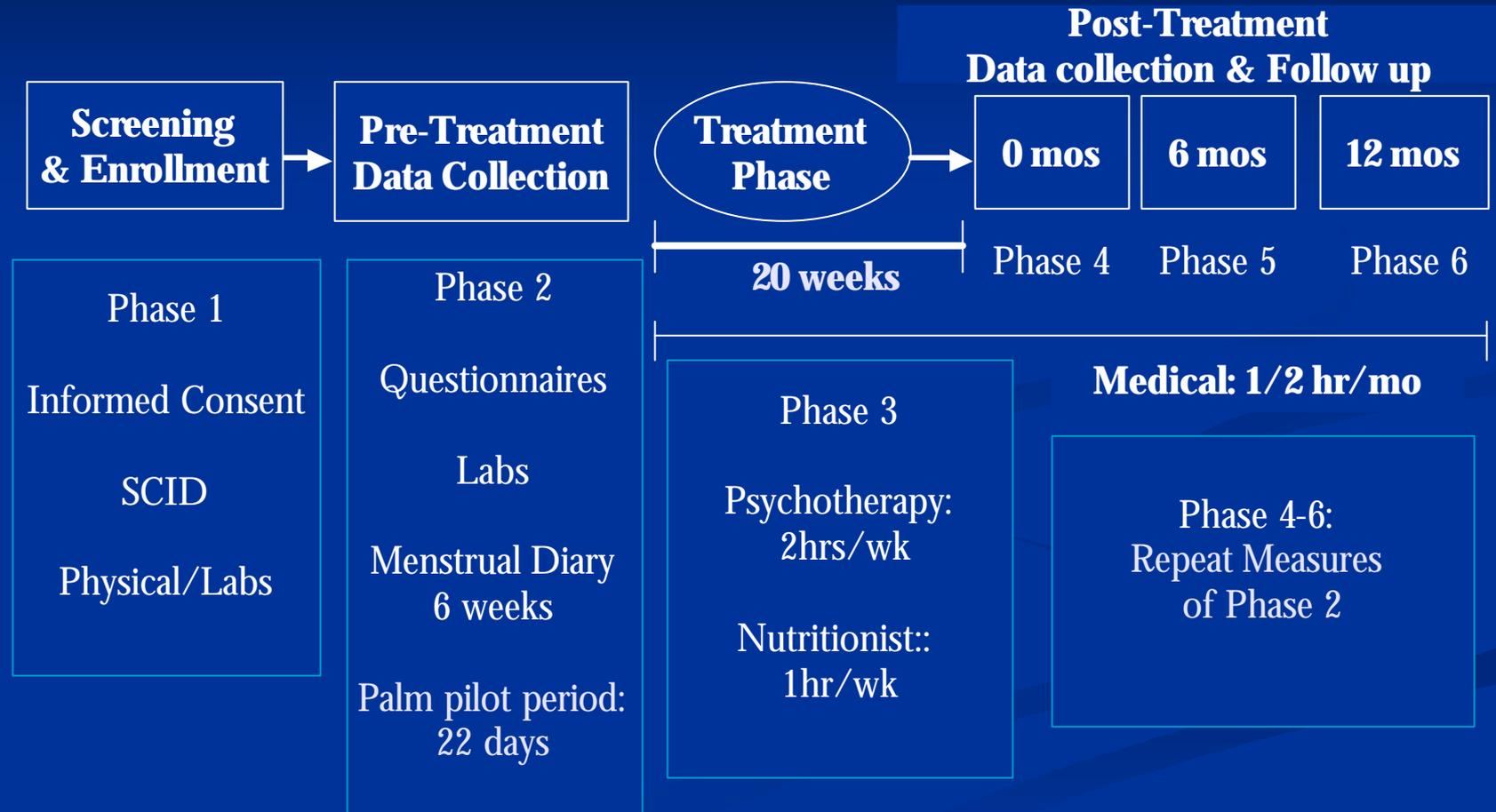
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# EMA End of Day Algorithm



# Procedure



# Sample Characteristics

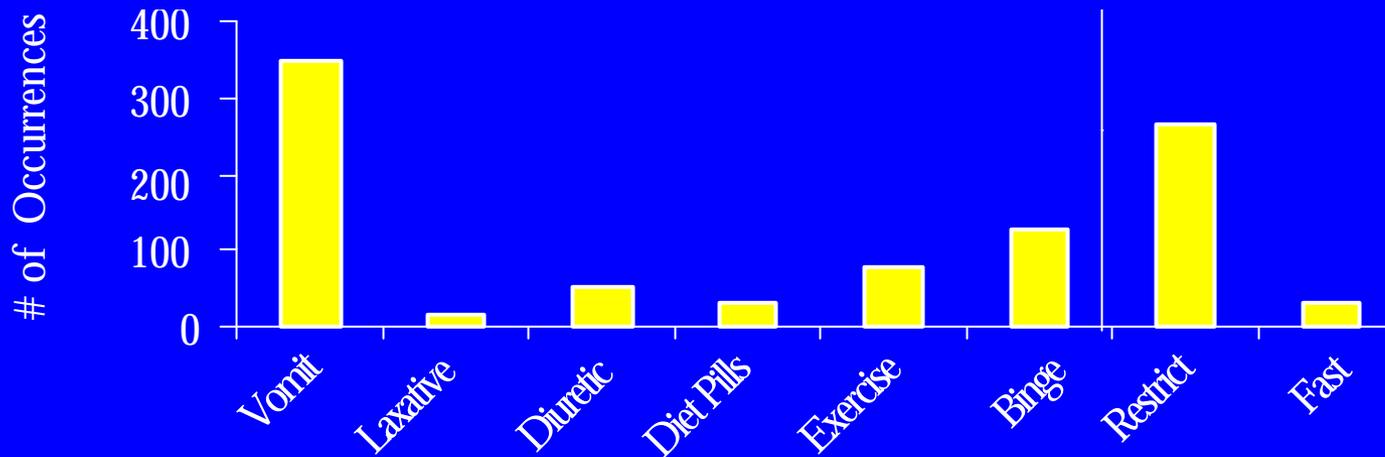
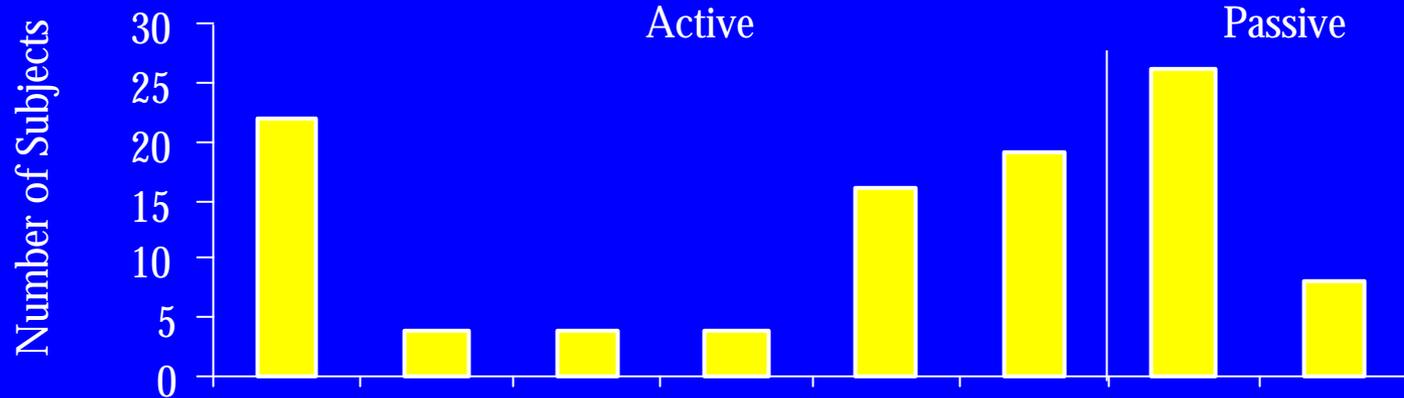
- AN threshold and subthreshold (n=1)
- BN threshold and subthreshold (n=27)

|                   |                         |
|-------------------|-------------------------|
| Age<br>(in years) | Mean = 24.7, S.D. = 5.2 |
| Education         |                         |
| Some College      | 57.1 % (n = 16)         |
| College Degree    | 21.4 % (n = 6)          |
| Post-Graduate     | 21.4 % (n = 6)          |

# Reporting Compliance

|                              | <b>Mean</b> | <b>sem</b> | <b>Minimum</b> | <b>Maximum</b> |
|------------------------------|-------------|------------|----------------|----------------|
| <b>End of Day Reports</b>    | 13.75       | 5.57       | 4              | 23             |
| <b># Days had Palm Pilot</b> | 22.50       | 0.17       | 6              | 34             |
| <b>Reporting Compliance</b>  | 62.6 %      | 0.86       | 17 %           | 95.5 %         |

# Eating Disorder Behaviors



# What Worked Well

- Questionnaire: simple, clear and not burdensome; measures both active and passive behaviors
- Depth of information collected: obtained detailed characteristics of eating disordered behaviors
- Time Stamp: enables exploration of patterns of behavior
- Orientation and case manager approach: participants adherent, no drop-outs during EMA

# Insights

- EMA is feasible with populations of women with eating disorders
- Retrospective measures result in over-reporting of binge eating and exercise behaviors
- Specific patterns of eating disordered behaviors can be identified and differential responses to treatment can be explored

# Difficulties with EMA

- Palm pilot maintenance: staff hired for clinical expertise vs technical competence
- Data management: inexperience of staff and staff change-over resulted in difficulty maintaining procedures for palm pilot handling and data storage
- Data structure: inconsistency in data structure, due to changes in software and hardware
- Data hoarding

# Hindsights

- More extensive staff training
- More extensive program testing
- Increased technical support
- Ongoing data importation and analysis