

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

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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)

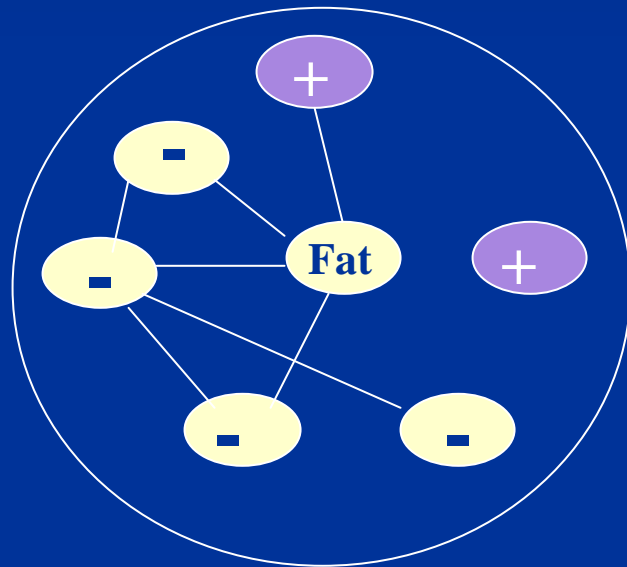
- **Refusal to maintain body weight at or above a minimally normal weight for age and height**
- **Amenorrhea for 3 months**
- **Intense fear of gaining weight or becoming fat**
- **Disturbance in the way one's body weight or shape is experienced**

Etiological Models of Eating Disorders



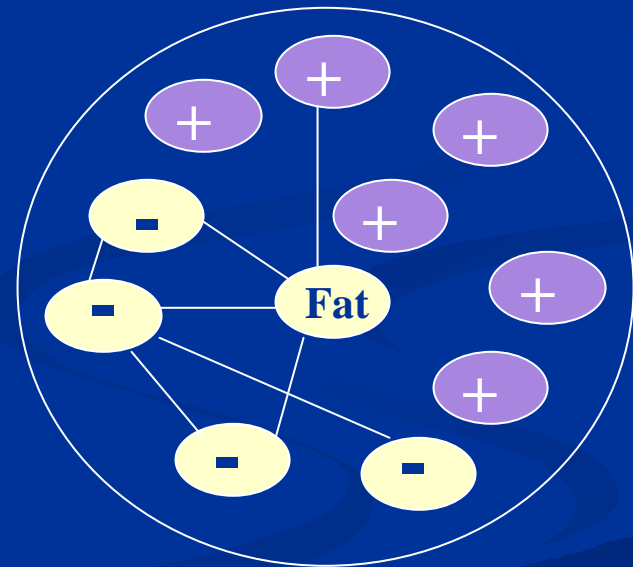
Effects of the Identity Intervention Program on the Self-Concept

Pretreatment



↑
IIP

Post-treatment



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

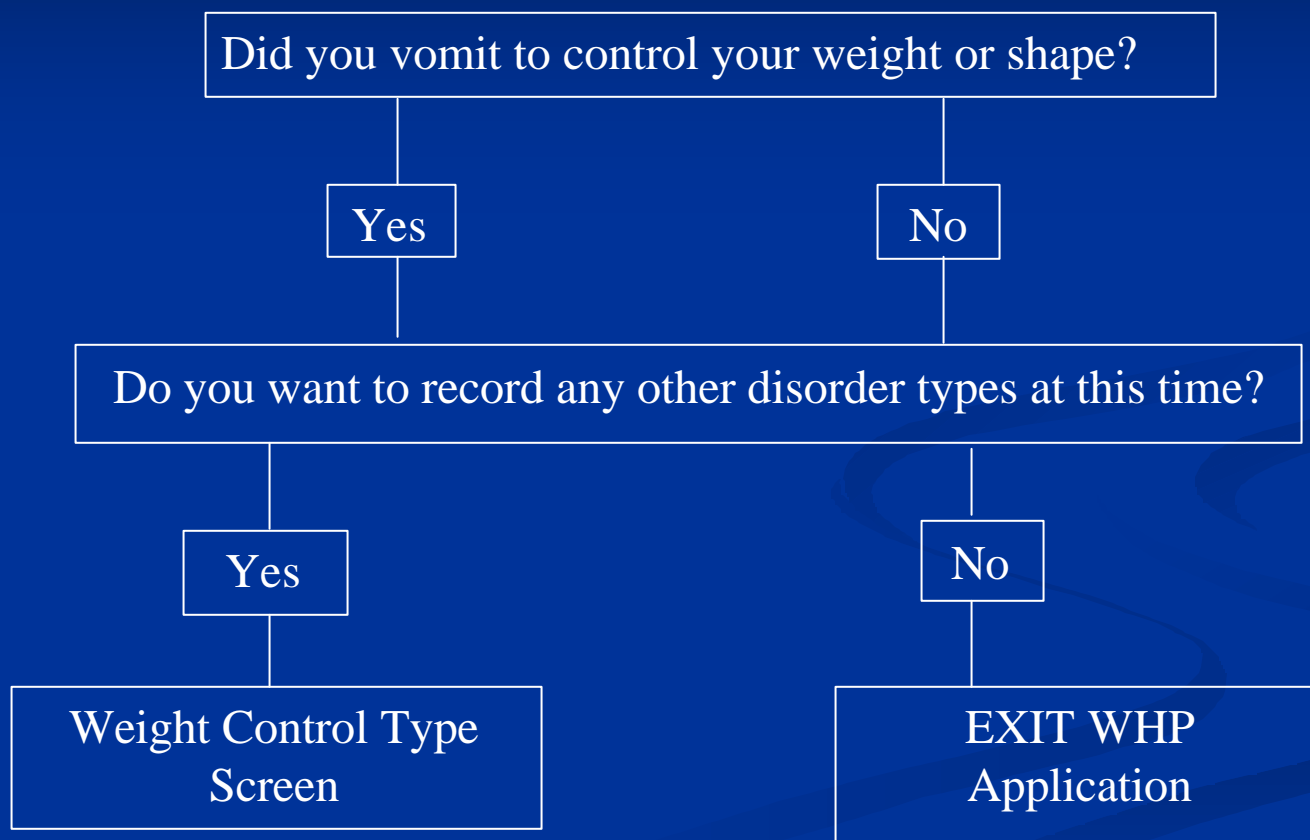
Please select a type of behavior to record:

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

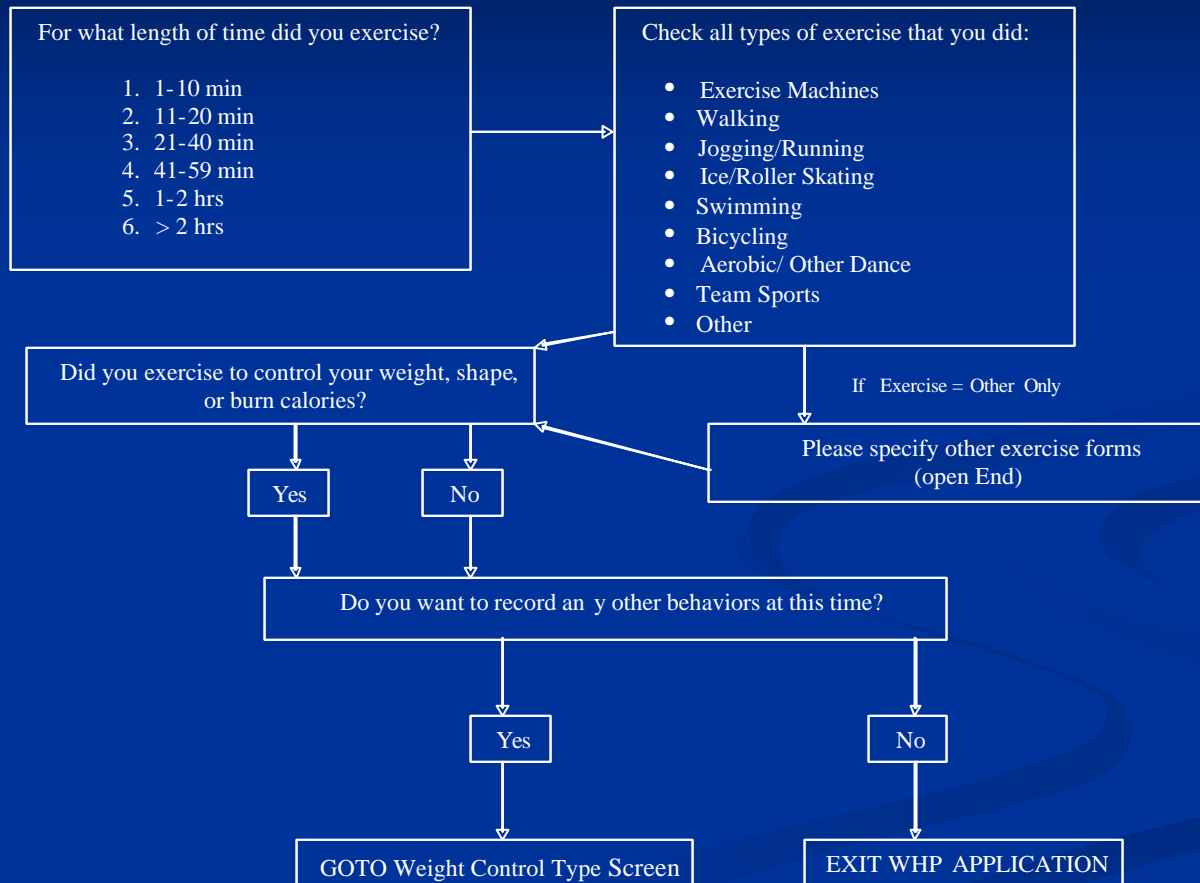
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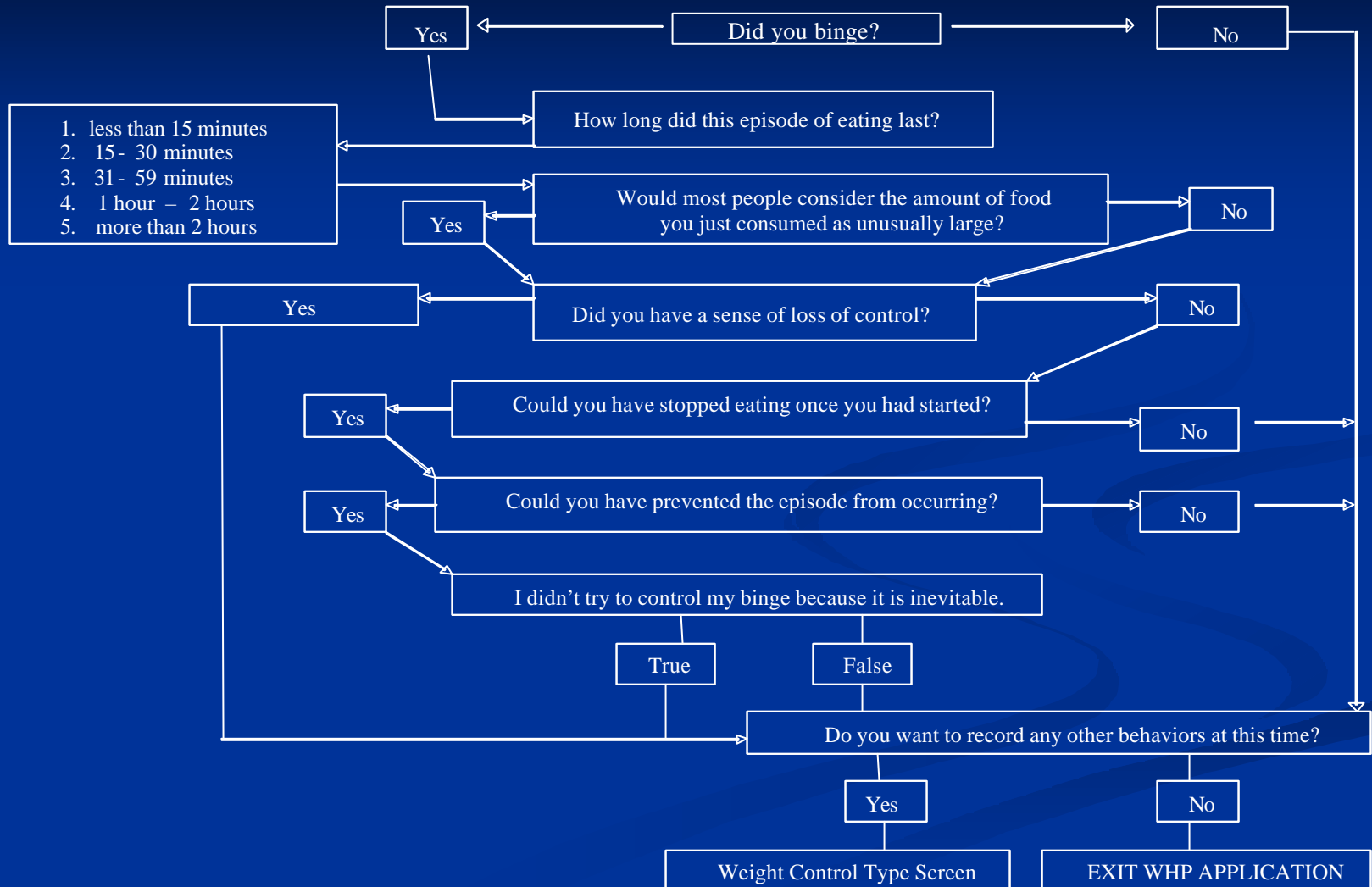
EMA Vomiting Algorithm



EMA Exercise Algorithm



EMA Binge Algorithm



Event-Contingent Recording

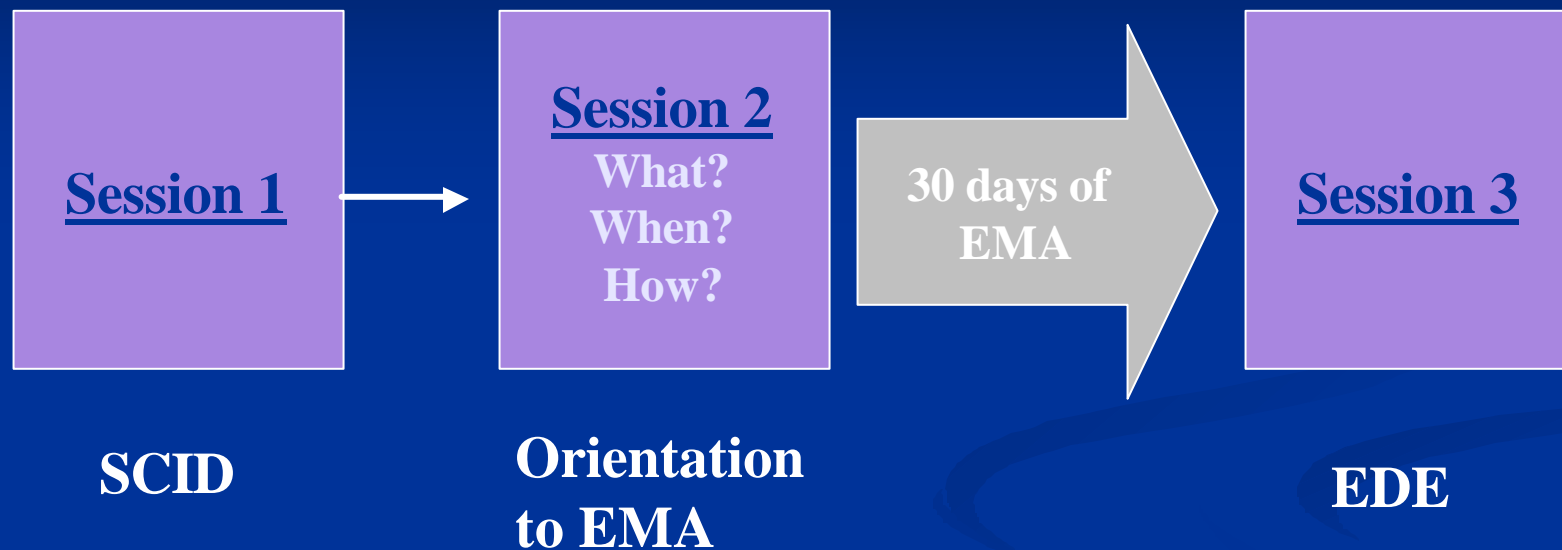
- Low frequency of ED behaviors
- Reduce participant burden
- Decrease social embarrassment
- Avoid study-related activation of body weight/ED cognitions

Sample Characteristics

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

Age	<u>M</u> =23.2 (<u>SD</u> =4.8)
Race	
White	87.5% (<u>n</u> =14)
Asian	12.5% (<u>n</u> =2)
Education	
College degree or higher	37.5% (<u>n</u> =6)
Some college	56.3% (<u>n</u> =9)
Completed HS	6.3% (<u>n</u> =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**

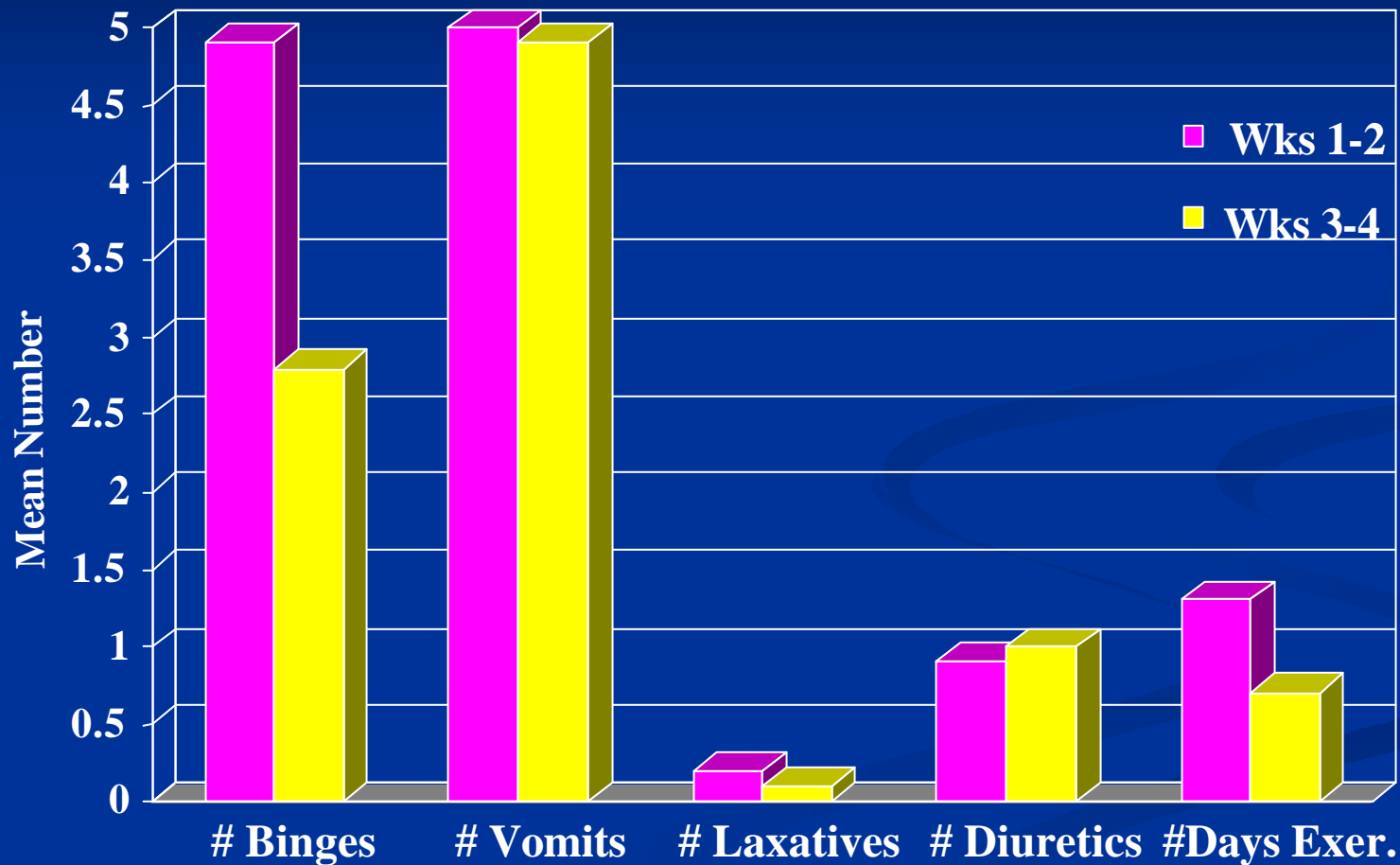
How many times did you fail to record a behavior?

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

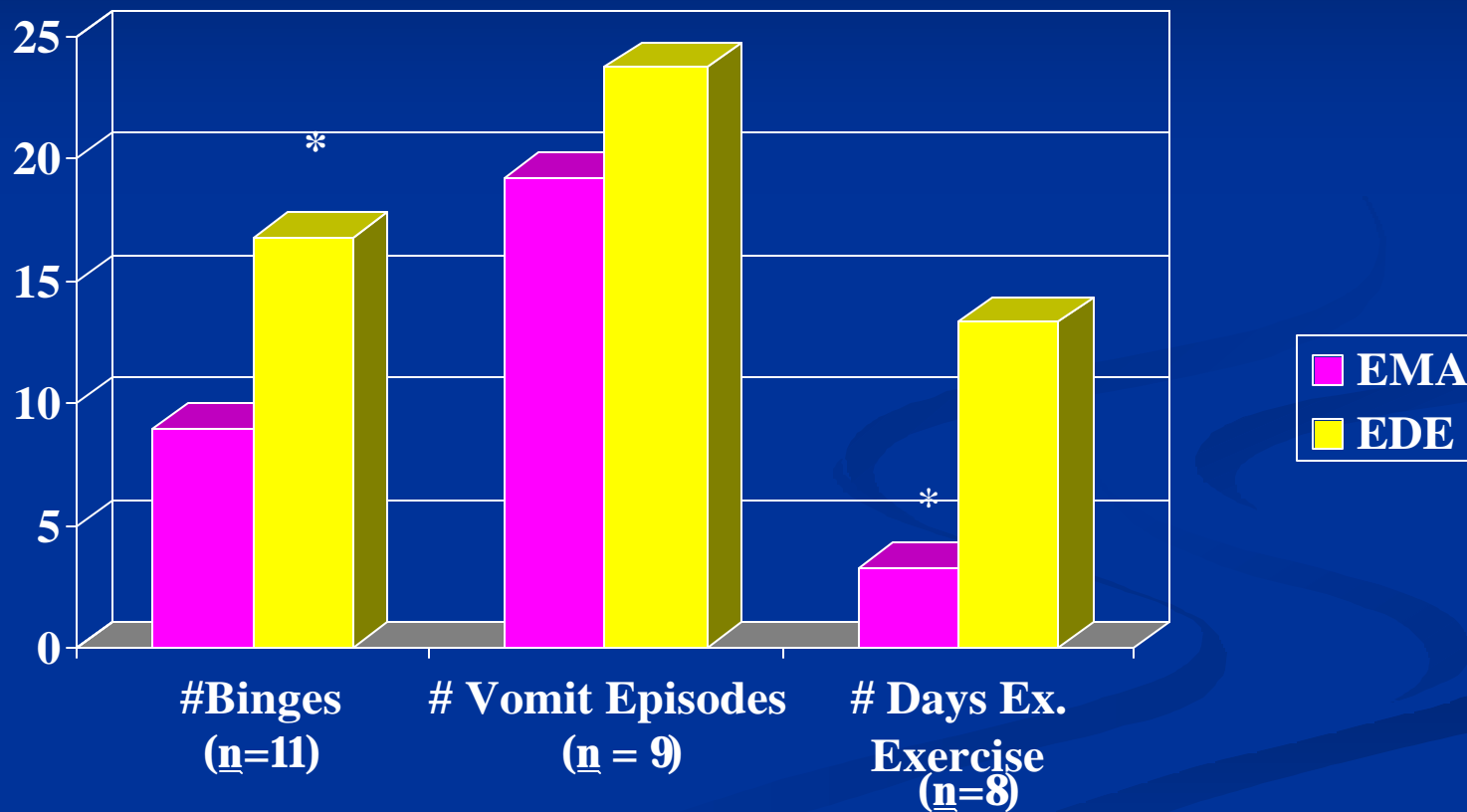
How much of an inconvenience was recording your ED behaviors?

**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

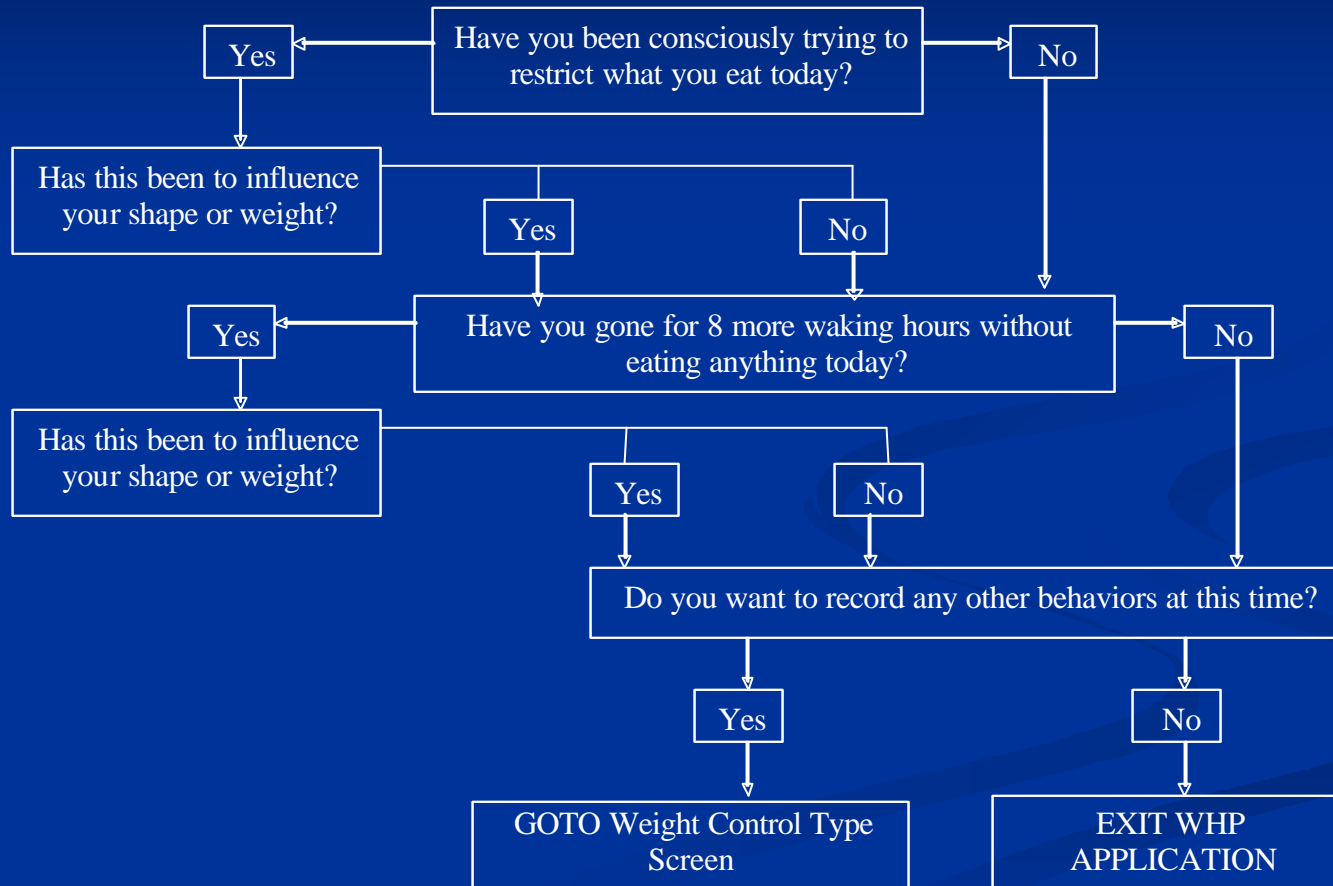
Please select a type of behavior to record:

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

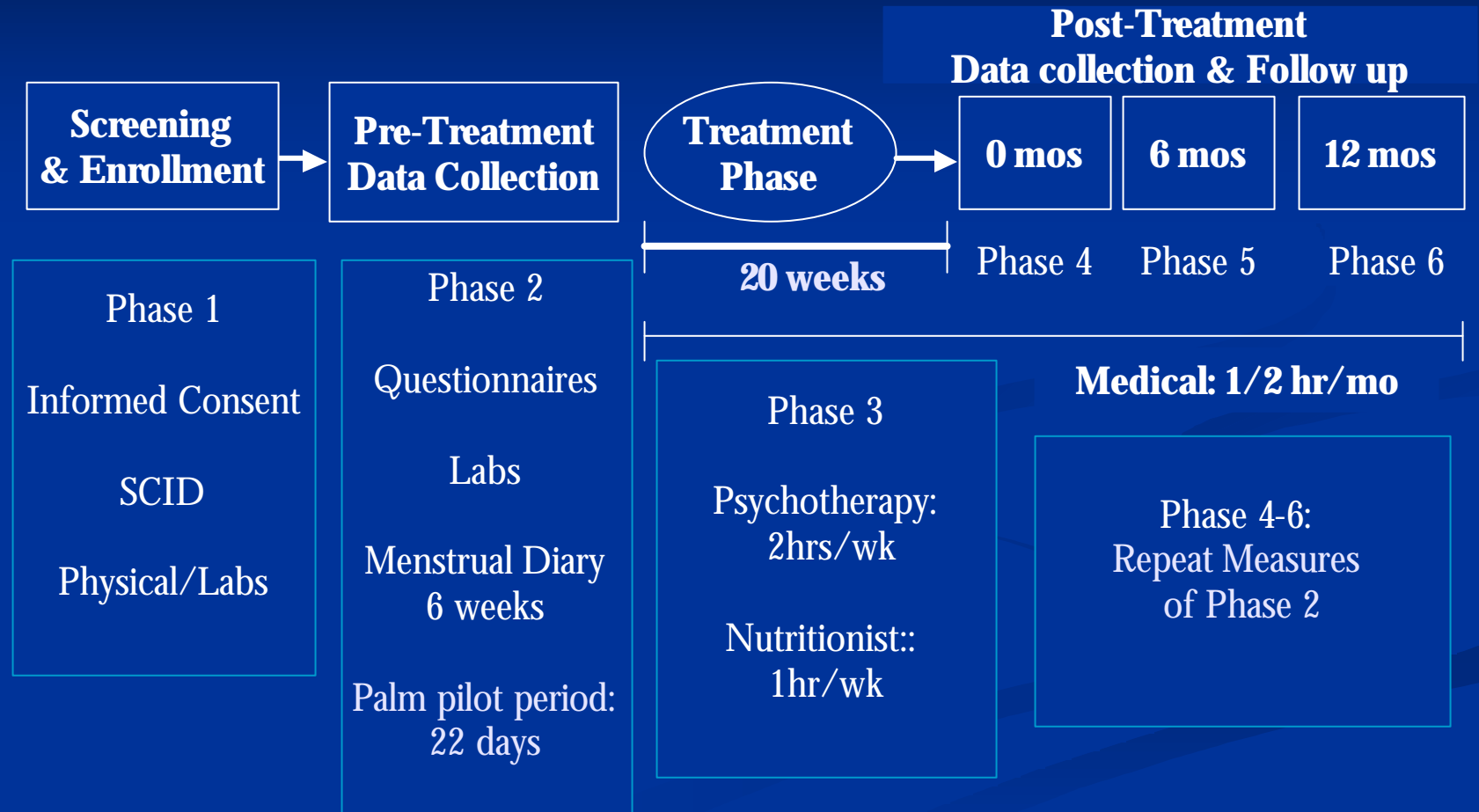
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EMA End of Day Algorithm



Procedure



Sample Characteristics

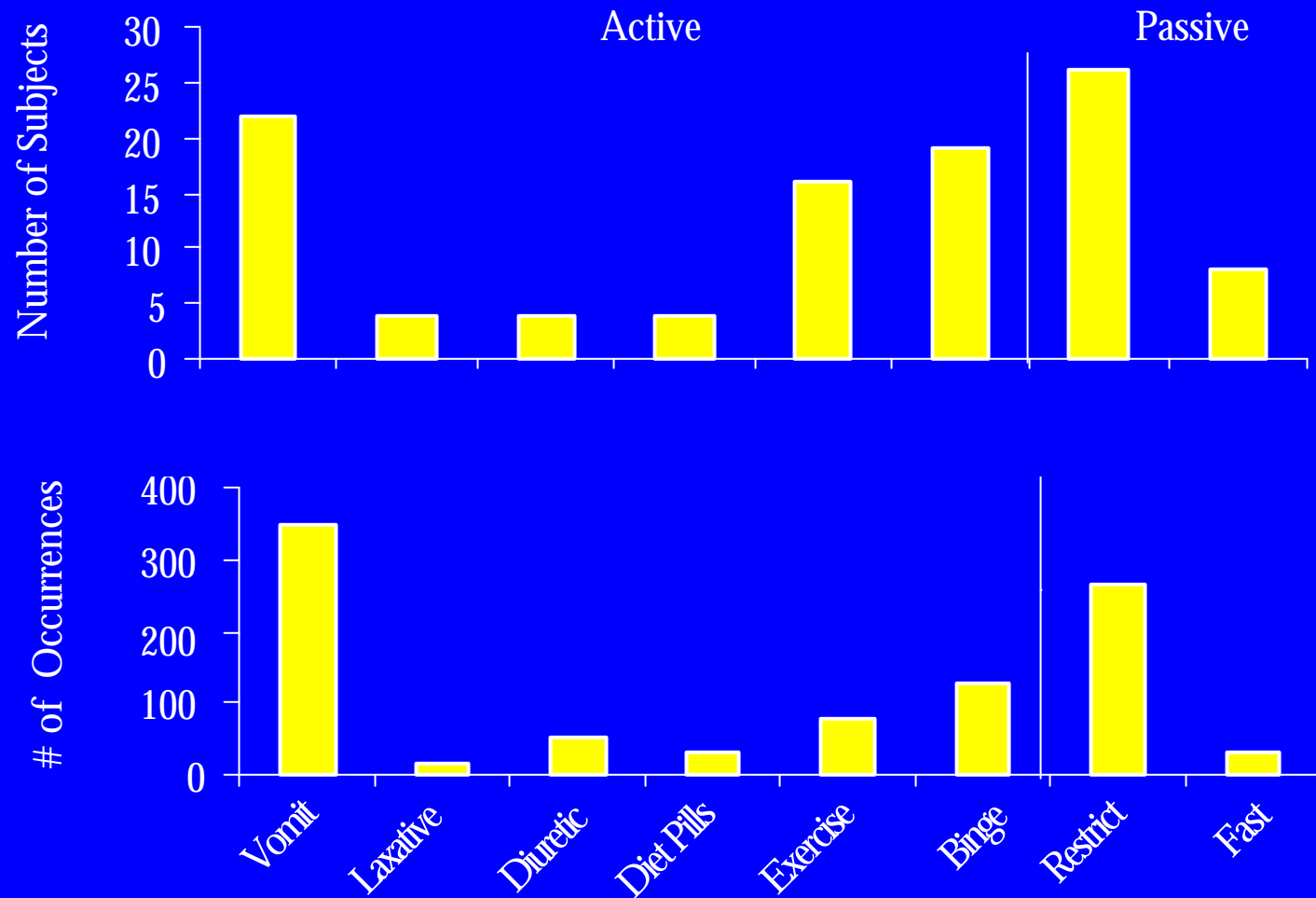
- AN threshold and subthreshold (n=1)
- BN threshold and subthreshold (n=27)

Age (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

	Mean	sem	Minimum	Maximum
End of Day Reports	13.75	5.57	4	23
# Days had Palm Pilot	22.50	0.17	6	34
Reporting Compliance	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