

# Predictors of Adherence to Sport Injury Rehabilitation Programs: A Multi-center Trial

**J. Jordan Hamson, MS, ATC, ETT**  
**DePaul University**  
**Chicago, Illinois**

# The Problem

- Injured athletes not adhering to rehabilitation programs
  - adverse effect on rehabilitation goals
  - unfavorable rehabilitation outcomes
  - increased time missed from competition
  - depression & other mood disturbances

# The Problem (cont.)

- Many variables can influence rehab adherence
  - Over 200 (Meichenbaum, 1987)
- Psychologically based issues relating to sports-injury are not well understood and have yet to be explained

# Predictors of Adherence

- Subject Level Variables
  - Social Support
  - Self-Motivation
  - Perceived Exertion
  - Pain Tolerance
  - Scheduling
  - Environment
    - Predictors were selected from previous research:  
Duda et al. (1989), Fisher et al. (1988), Byerly et al. (1994), Udry (1997), Fields et al. (1995) & Hamson & Sheu (in preparation)

# Predictors of Adherence (cont.)

- Clinic Level Variable
  - Patient Volume
  
- Definition of Adherence
  - Adhere: attended all rehabilitation sessions
  - Non-Adhere: did not attend all sessions

# Data Composition

- 6 clinics in the Chicagoland area
- Mixed sample of recreational & collegiate athletes
  - Male and female subjects
    - (39F, 55M, Ages 18-80 years)
  - Injury sustained from participation in sport
  - Rehab criterion:  $\geq 6$  visits (6-51, mean=20.5)
  - Injuries included: knee(53%), shoulder(16%), ankle(15%), hip(6%) & back(10%)

# Data Composition (cont.)

- Instrument
  - Rehabilitation Adherence Questionnaire (RAQ)
    - 4-point scale (1-4)
    - 40 questions
      - pain tolerance (11), scheduling (6), environment (3), social support (10), perceived exertion (2), self-motivation (8)
  - Patient Demographic Survey
    - gender, age & athletic participation level
  - Attendance at rehabilitation sessions

# Descriptive Statistics

- Response Variables

- Adherence Overall

- Adhere (A) = 38
    - Non-Adhere (NA) = 56
    - Overall adherence rate = 40%

- Clinic      A      NA      Total Pt Vol

- C1    12    7    19    147
    - C2    4    8    12    305
    - C3    5    11    16    298
    - C4    8    8    16    57
    - C5    6    8    14    192
    - C6    3    14    17    251

# Descriptive Statistics (cont.)

- Predictors: Adhere vs. Non-adhere (ave)
  - Environment: 3.58 2.14
  - Perceived Exertion: 3.12 1.85
  - Social Support: 2.73 1.64
  - Self-motivation: 3.30 2.02
  - Pain Tolerance: 3.43 1.98
  - Scheduling: 2.96 1.73

# Sample Question from the RAQ

**Table 1. Sample Items from the Rehabilitation Adherence Questionnaire and Scoring**

	<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>
<b>Perceived Exertion: I nearly always work at 100% effort.</b>	<b>(4)</b>	<b>(3)</b>	<b>(2)</b>	<b>(1)</b>
<b>Pain Tolerance: My rehab program was physically painful.</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Self-motivation: I enjoyed doing my rehab program.</b>	<b>(4)</b>	<b>(3)</b>	<b>(2)</b>	<b>(1)</b>
<b>Social Support: I found rehab to be very lonely and isolating.</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Scheduling: My rehab program took up too much of my time.</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Environment: The training room makes me nervous.</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>

**SA= strongly Agree**

**A= Agree**

**D= Disagree**

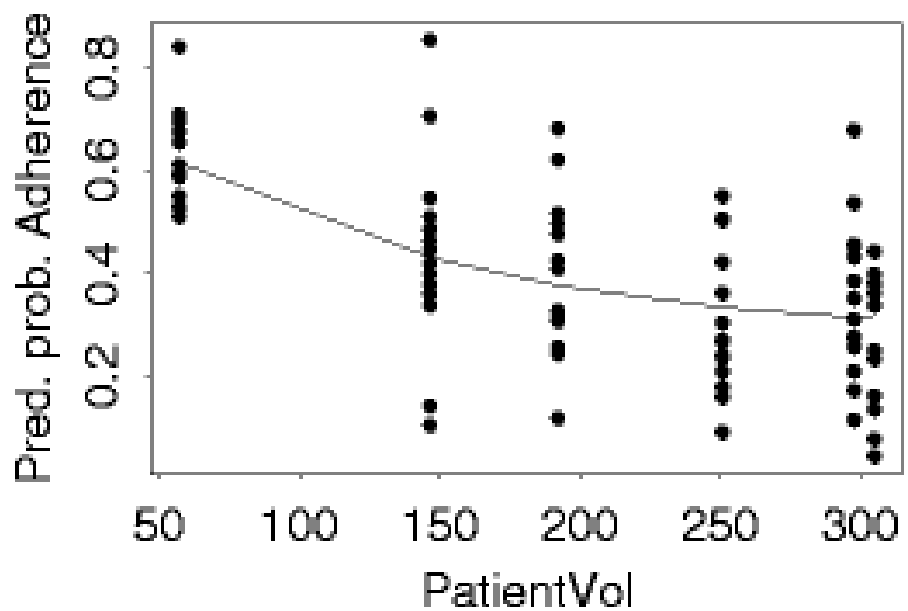
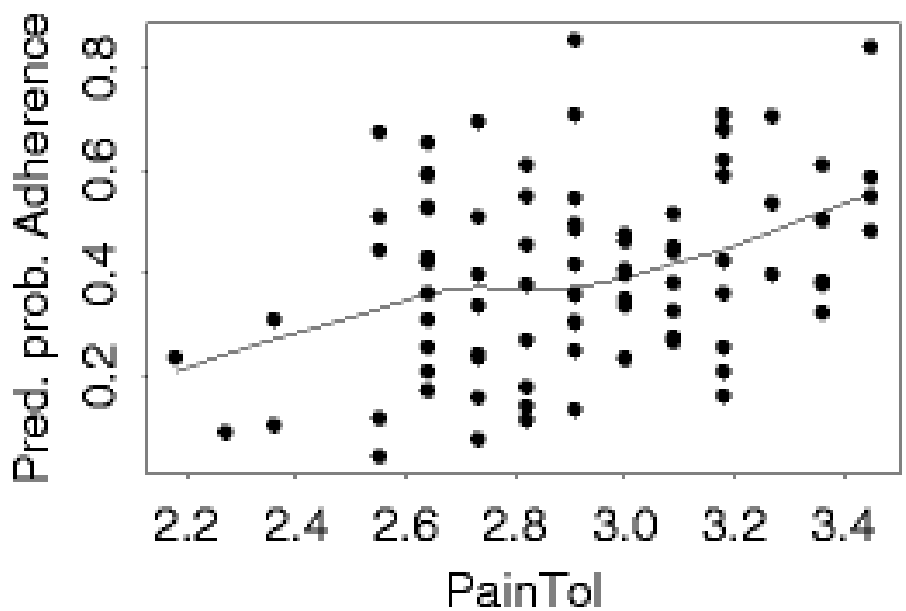
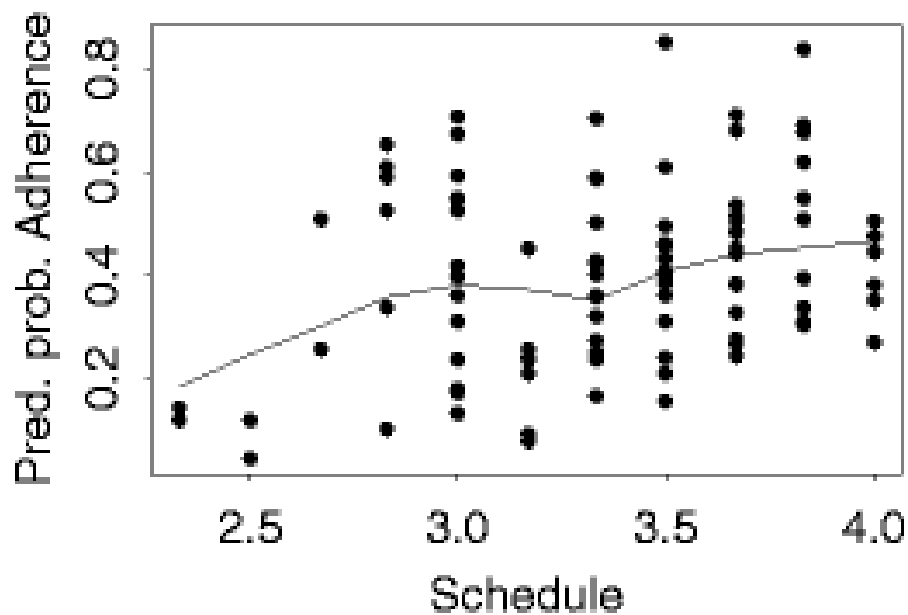
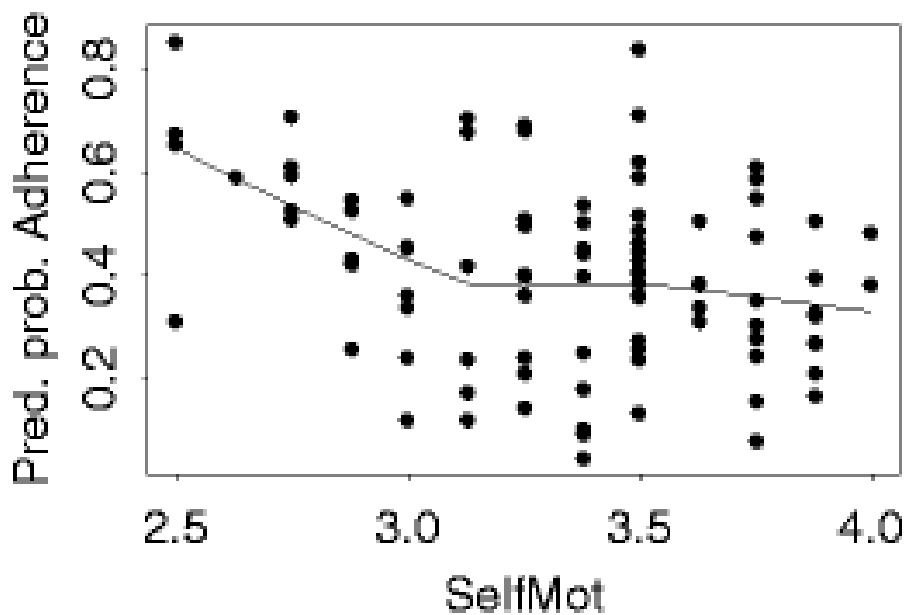
**SD= Strongly Disagree**

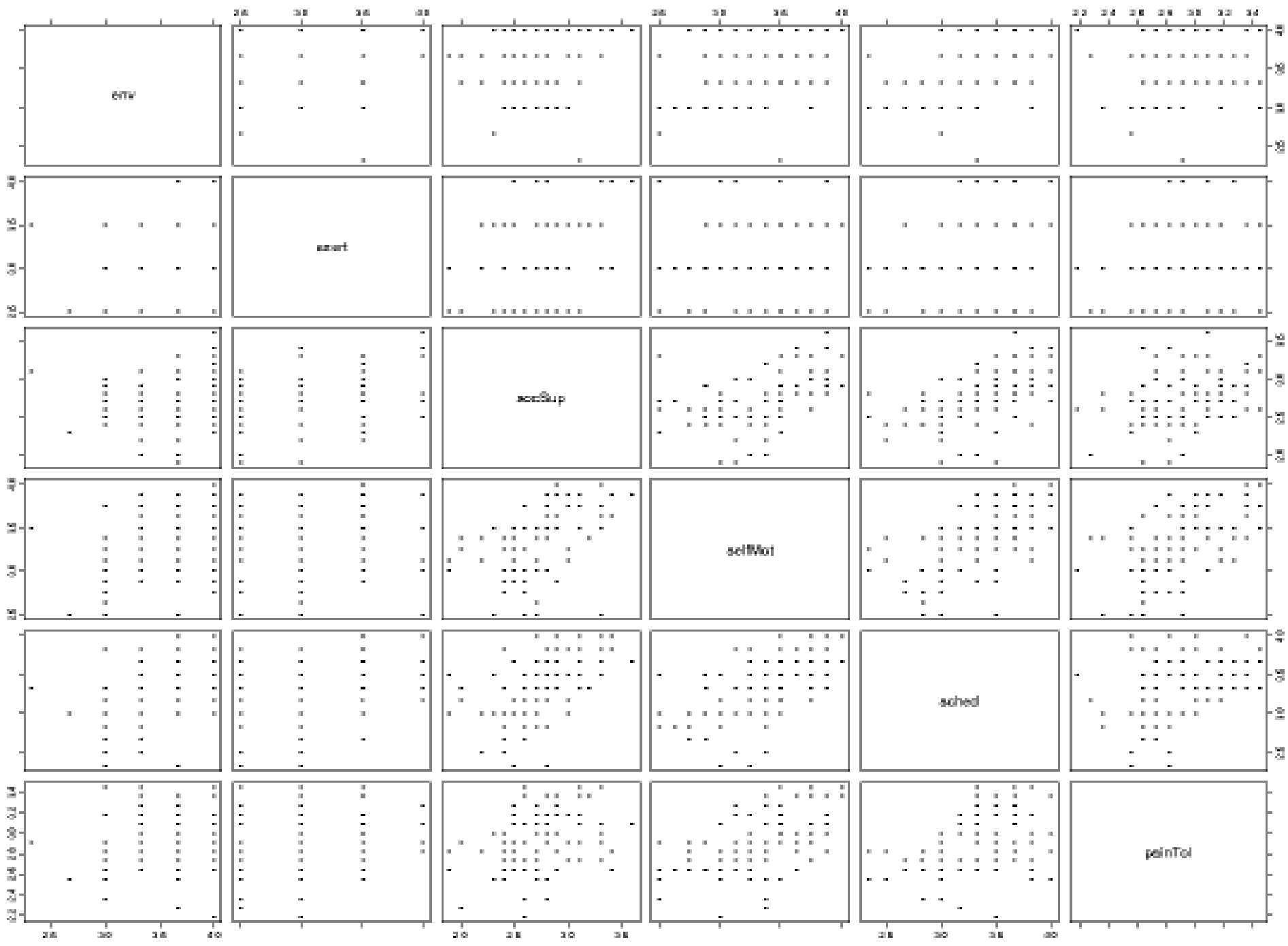
# Hypothesis #1

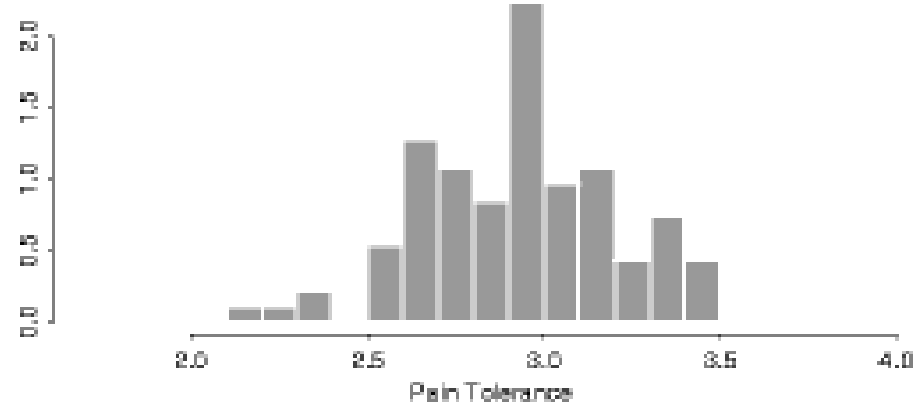
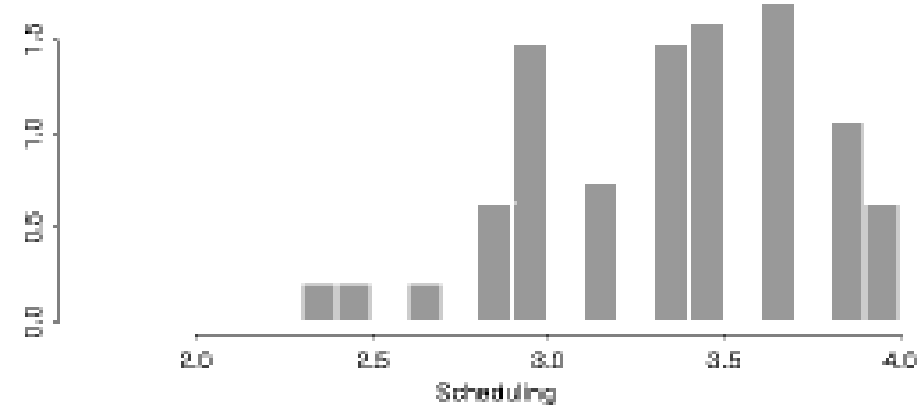
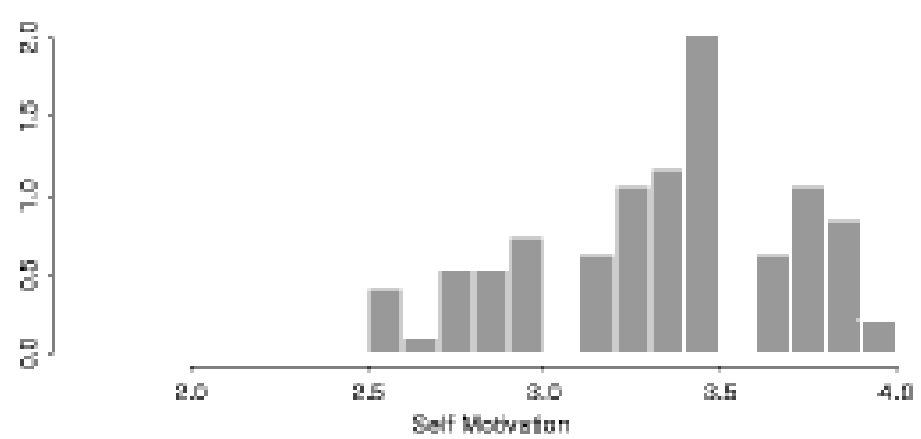
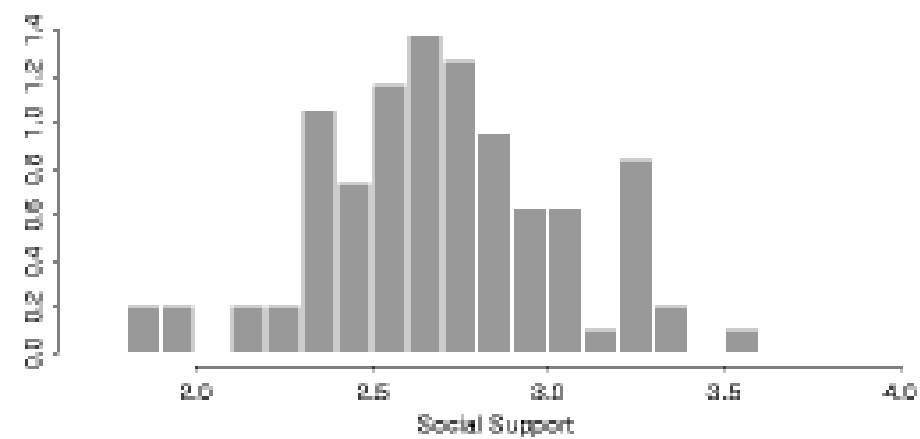
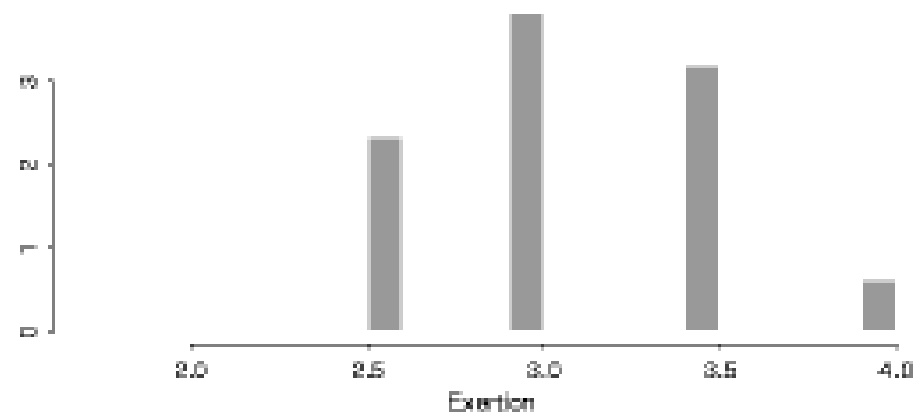
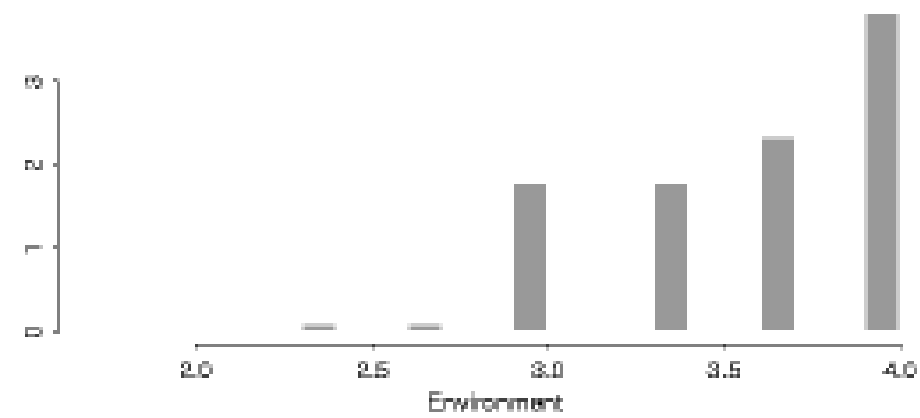
- Predictors of adherence in the clinically rehabilitated recreational athlete will be:
  - Social Support
  - Self-motivation
  - Pain Tolerance
    - Listed in order of importance

# Hypothesis #2

- The multi-center trial will reflect differences between the clinics in the following ways:
  - Patient Volume
    - Clinics with higher patient volumes will have higher non-adherence rates







# Conclusion

- 4 predictors composed a model to predict sport-injury rehabilitation adherence
  - self-motivation
  - pain tolerance
  - scheduling
  - patient volume (clinic level)

# Conclusion (cont.)

- Hypotheses Review
  - H1: not supported
    - Social support did not make the model
    - Scheduling makes sense in the clinical population
  - H2: supported
    - As the patient volume increases, adherence rates decrease
    - Class Size Theory (site this!)

# Implications: Exercise Program Adherence

- The same set of predictors may shed light on why individuals don't adhere to exercise programs: self-motivation, pain tolerance, scheduling
- Where does social support fit into this picture?

# Future Research Direction

- Additional predictors
  - Mood state
  - Level of Participation
- Individual v. Team sport athletes
  - Golf v. Basketball
- Differences in Gender
- Cultural Differences
  - Asian athletes