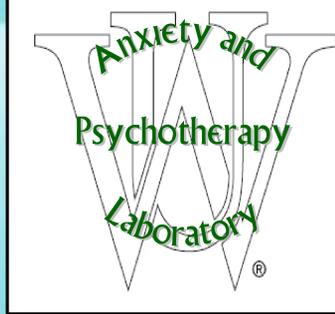# Development and Validation of the Social Exercise Self-Efficacy Measure (SESM): Assessing Fears of Social Exercise

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Abstract

Introduction: Physical activity is a major contributor to the improvement of both mental and physical health (Paxton et al., 2010). Some researchers have proposed that exercise should be included in standard treatment protocols (Strohle, 2008). However, it seems plausible that the public nature of many exercise opportunities may lead individuals with social anxiety disorder (SAD) to avoid exercise.

Method: In the current study we developed and examined the factor and convergent validity of the Social Exercise Self-Efficacy Measure (SESM) in two samples ($N = 416$; $N = 118$).

Results/Discussion: Our results suggest that the SESM has excellent factor and convergent validity. Clinicians treating individuals with SAD should consider using the SESM to assess fear of public exercise and create exposures designed to address this fear.

Introduction

- Physical activity is a major contributor to the improvement of both mental and physical health (Paxton et al., 2010)
  - Exercise reduces depression (Craft & Lander, 1998)
  - Exercise improves treatment outcomes in post-traumatic stress and panic disorder patients (Manger & Motta, 2005)
- Some researchers have proposed that exercise should be included in standard treatment protocols (Strohle, 2008)
- Individuals with social anxiety disorder (SAD) are more likely to have physical health impairments such as cardiovascular disease (CD) (Acarturk et al., 2008)
  - Prolific research documents lack of exercise as a risk factor for CD (Pollock et al., 2000)
- Given this existing research, it seems plausible that exercise may be beneficial for people with SAD
  - However, the public nature of many exercise opportunities may lead individuals with SAD to avoid exercise
- To our knowledge, there is no well-validated measure of exercise self-efficacy in a social setting
  - To test if people with SAD may avoid exercise in social settings we developed and examined the factorial and convergent validity of the Social Exercise Self-efficacy Measure (SESM)

Participants

Study 1:
- 416 undergraduates
  - Mostly female ($n = 297$; 72%)
  - Mostly white ($n = 367$; 90%)
  - Mean age of about 19 ($M = 19.12$; $SD = 1.64$)

Study 2:
- 118 undergraduates
  - Mostly female ($n = 73$; 62%)
  - Mostly white ($n = 84$; 71%)
  - Mean age of about 19 ($M = 19.31$, $SD = 1.20$)

Measures

Social Exercise Self-Efficacy Measure (SESM)
- Developed for this study
- 3 subscales:
  - Social Exercise Self-Efficacy (SES; 5 items; e.g., *I am confident that I could exercise with a group of people I do not know*)
  - Gym Avoidance (GA; 4-items; *I don't go to the gym because I feel like people are looking at me*)
- Exercise Importance (EI; 3 items; *How important to you is exercising?*)

Straightforward Social Interaction Anxiety Scale (S-SIAS; Mattick & Clarke, 1998)
- Describes anxiety-related reactions to a variety of social situations
- Good to excellent reliability, and good construct and convergent validity (Heimberg & Turk, 2002, for a review)

Straightforward Brief Fear of Negative Evaluation (BFNE; Leary, 1983)
- Brief version of the original FNE (Watson & Clark, 1969)
- Measures fear of being negatively evaluated
- Fear of negative evaluation is hypothesized to be a core component of SAD

Social Phobia Scale (SPS; Mattick & Clarke, 1998)
- 20-item measure that assesses *fear of scrutiny* (performance fears)

Measures Continued

Obligatory Exercise Questionnaire(OEQ; Passman & Thompson, 1988)
- 20-item measure that assesses attitudes toward exercise
- Example items are, *When I miss an exercise session, I feel concerned about my body possibly getting out of shape* and *When I don't exercise I feel guilty*

Frequency of Exercise in Public Setting
- One item self-report of number of times that exercise was completed in a public setting in the past week

Data Analyses

- Confirmatory Factor Analyses were conducted using Mplus Version 6 (Muthén & Muthén, 1998-2009)

- Methods suitable to categorical variables used

- Global model fit was evaluated using the:
  - Tucker-Lewis incremental fit index (TLI, 1973)
    - Values greater than .95 considered excellent
  - Comparative fit index (CFI, Bentler, 1990)
    - Values greater than .95 considered excellent
  - Root mean square error of approximation (RMSEA, Steiger & Lind, 1980)
    - Values less than .05 considered excellent

Results: Factor Analyses

Study 1:
- Fit ranged from very good to excellent for a 3-factor structure
- CFI = .98
- TLI = .98
- RMSEA = .06

Study 2:
- Excellent fit for a 3-factor structure
- CFI = 1.00
- TLI = .99
- RMSEA = .04

Results: Convergent Validity

Table 1.
Zero-order Correlations between the three subscales of the Social Exercise Self-Efficacy Measure, frequency of public exercise, social anxiety, and the Obligatory Exercise Questionnaire.

	Self Efficacy (SES)	Exer Impor (EI)	Gym Avoid (GA)	Pub Exer (PE)	S-BFNE	SPS	S-SIAS	OEQ
SES	.90							
EI	.27*	.77						
GA	-.61**	-.20	.89					
PE	.24*	.47**	-.31**	X				
S-BFNE	-.33**	-.06	.46**	-.10	.89			
SPS	-.42**	-.06	.54**	-.19	.69**	.93		
S-SIAS	-.34**	-.05	.46**	-.12	.69**	.73**	.91	
OEQ	.12	.70**	-.06	.49**	.12	-.04	.04	.89

Note. SES = Social Exercise Self-Efficacy; EI = Exercise Importance; GA = Gym Avoidance; PE = frequency of public exercise; S-BFNE = Straight forward Brief Fear of Negative Evaluation Scale; SPS = Social Phobia Scale; S-SIAS = Straightforward Social Interaction Anxiety Scale; OEQ = Obligatory Exercise Questionnaire; ** $p < .001$; * $p < .05$; Diagonal is Cronbach's Alpha.

Discussion

- Our results suggest that the SESM has excellent factor and convergent validity
- Social exercise self-efficacy and gym avoidance were highly correlated with three measures of social anxiety, whereas exercise importance was not
- Fear of exercising in public may lead to avoidance of exercise, which may contribute to poor physical health outcomes within individuals with SAD
- Clinicians treating individuals with SAD should consider using the SESM to assess fear of public exercise and create exposures designed to address this fear
- Treatment that decreases fear of exercising in public and its associated avoidance may lead to decreases in social anxiety and increases in physical and mental well-being