Paths to Leisure Physical Activity among Adults with Intellectual Disabilities: Social Support and Self-Efficacy

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Overview

- Goal of the research study
- Background
- Methods
- Results
- Conclusions and directions for future research

Research Study Goal

- To examine social support and self-efficacy as potential determinants of leisure physical activity for adults with intellectual disabilities living in supported living settings

Intellectual Disability and Health Promotion Research

- Approximately 1% of the U.S. population has an intellectual disability (ID)

  (Lee *et al.*, 2000)

- Physical activity participation insufficient for health

  (Stanish, Temple, & Frey, 2006; Peterson, 2007)

Adults with Intellectual Disability and Chronic Disease

- As life expectancy has increased, chronic disease risks have increased

  (Sutherland, Murray, & Iacono, 2002)

- Also at risk for secondary conditions

  (Rimmer, 1999)

- High rates of obesity and cardiovascular disease

  (Draheim, 2006; Janicki *et al*., 2002; Rimmer & Yamaki, 2006)

Correlates of Physical Activity

- Social Cognitive Theory (SCT) – theoretical framework for this study (Bandura, 1986a)
- Self-efficacy
- Social support

Social support ➡ Self-efficacy ➡ Behavior

(Bandura, 1986b)

Correlates of Physical Activity among Adults with Intellectual Disabilities

- Correlates demonstrated in the literature:
  - Social influence variables
  - Residential setting
  - Perceived barriers to physical activity
    - cognitive-emotional barriers, access/physical barriers

  (Frey, Buchanan, & Sandt, 2005; Heller, Hsieh, & Rimmer, 2002; Heller, Ying, Rimmer, & Marks, 2002; Rimmer *et al.*, 1995; Robertson *et al*., 2000)

- No empirical studies examining role of self-efficacy or social support for physical activity for this population

The Supported-Living Setting

- Compared to those living in more restrictive settings, those living in community settings experience:
  - Worse cardiovascular disease risk profile
  - Lower levels of physical activity
  - Higher levels of obesity

    (Draheim, McCubbin, & Williams, 2002; Rimmer, Braddock, & Fujiura, 1994; Rimmer, Braddock, & Marks, 1995; Robertson *et al*., 2000)

- Appropriate setting for an intervention, with large numbers of individuals with shared needs

Participation

- Eligibility criteria
  - Receive at least 10 hours per week of staff support
  - Aged 18-60
  - Mild to moderate level of intellectual impairment
  - Able to participate meaningfully in study interview

- Recruitment and response
  - 480 in initial recruitment pool (from 13 agencies)
  - 179 total consented (39.0% of eligible)

Methods: Study Variables

- Survey: oral interview, self-report
  - Self-efficacy and social support
  - Leisure physical activity participation
    - Walking and bicycling for transportation and leisure, participation in exercise, sports, fishing, gardening
- Demographic/descriptive information collected from respective agencies, including:
  - Gender
  - Age
  - Level of intellectual impairment
  - Employment status

Participants

- Age: mean 37.2 years
- Community:
  - 31% urban
  - 45% mid-size
  - 24% rural
- Intellectual disability:
  - 67% mild
  - 33% moderate
- Gender: 52% male
- Employment:
  - 56% sheltered employ.
  - 38% community employ.
  - 6% unemployed/students
- Physical disability: 8%
- Down syndrome: 16%

Methods: Scale Development

- Item pools developed for:
  - Self-efficacy
  - Social support: family, staff, roommates with ID

- Item pool development
  - Initial item pool created from the literature, informed by focus groups of individuals with ID (n=12)
  - Content validation study by expert panel (n=3)
  - Items piloted with individuals with ID (n=6)

Methods: Scale Validity and Reliability

- Validity
  - Content validity study
  - Pearson correlations with leisure physical activity calculated as measure of construct validity
    - SS: r = .21 - .24; SE: r = .37 (all $p < .05$)
- Reliability
  - Test-retest of random sub-sample (n=25)
    - SS: .70 - .79; SE: .49; LPA participation: .75
  - Internal reliability: CFA and Cronbach's α
    - SS: α = .70 - .74; SE: α = .73

Methods: Survey methods

- Administered the scales and leisure physical activity participation measure as an oral interview
- All self-report, although individuals were assisted by support staff as needed/requested
- Items included to screen for acquiescence and recency response biases (Stancliffe & Parmenter, 1999)
- 152/171 eligible individuals completed survey
  - rejected 19/171 (11.1%) due to validity concerns

Analysis

- Utilized structural equation modeling (SEM) techniques to create path models
- Relationship between variables for:
  - Entire sample
  - Two different age groups

Pearson correlation matrix of study variables.

	1	2	3	4	5	6
1.Age	--					
2. SS family	-.32**	--				
3. SS staff	-.13	.44**	--			
4. SS peers	-.12	.44**	.59**	--		
5. Self-efficacy	-.05	.21**	.24**	.28**	--	
6. Leisure activity participation	-.32**	.32**	.31**	.30**	.33**	--

**p<.01

Model for Total Sample

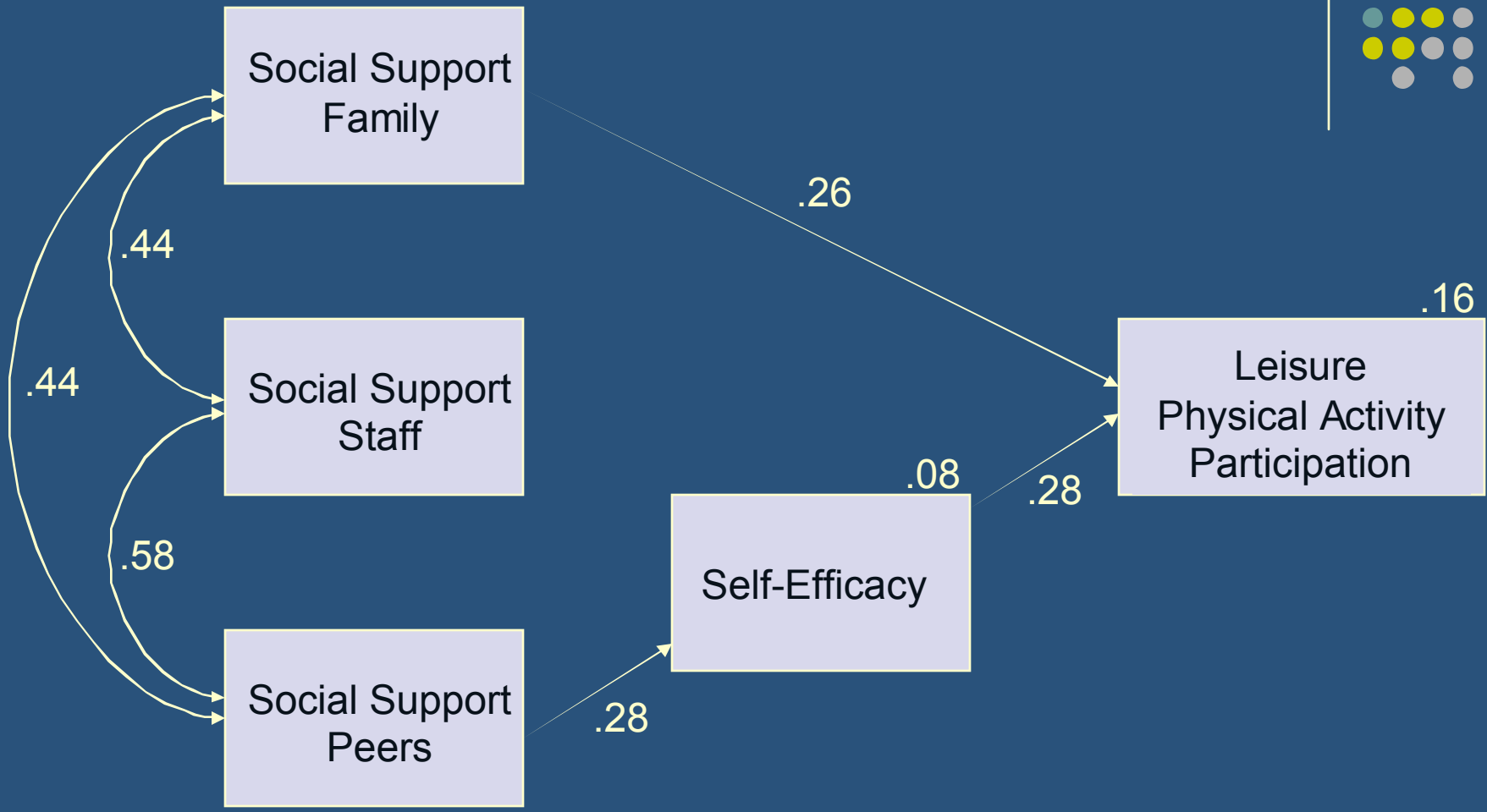

Figure 1. Path model predicting leisure physical activity participation score for the total sample. X^2 = 6.822, p=.15, ns; NFI = .96; RFI = .89.

Model for Younger Sub-Sample

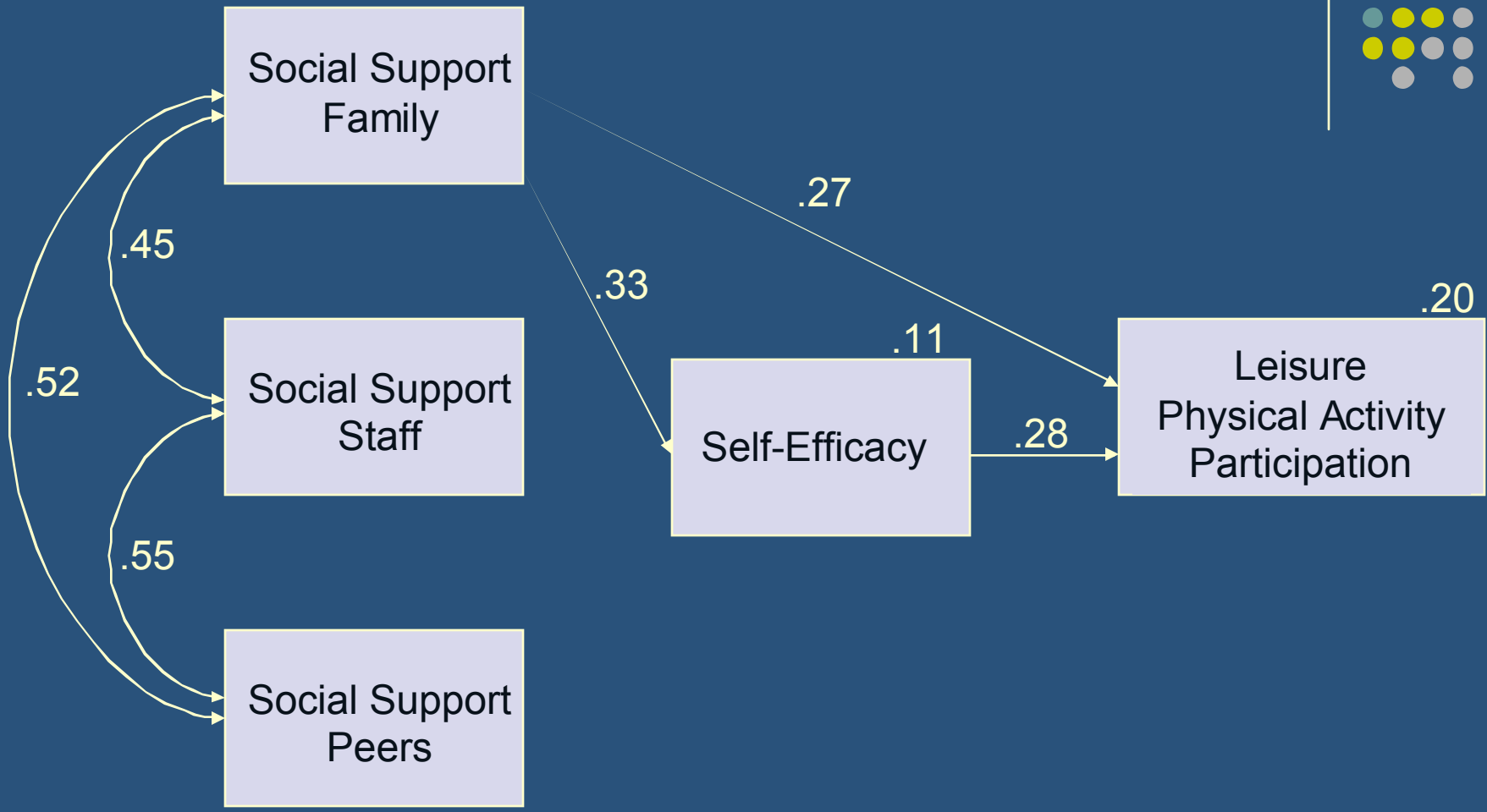

Figure 2. Path model predicting leisure physical activity participation score for the younger adult sub-group (ages 18-34 years). X^2 = 1.321, p=.86, ns; NFI = .98; RFI = .95.

Model for Older Sub-Sample

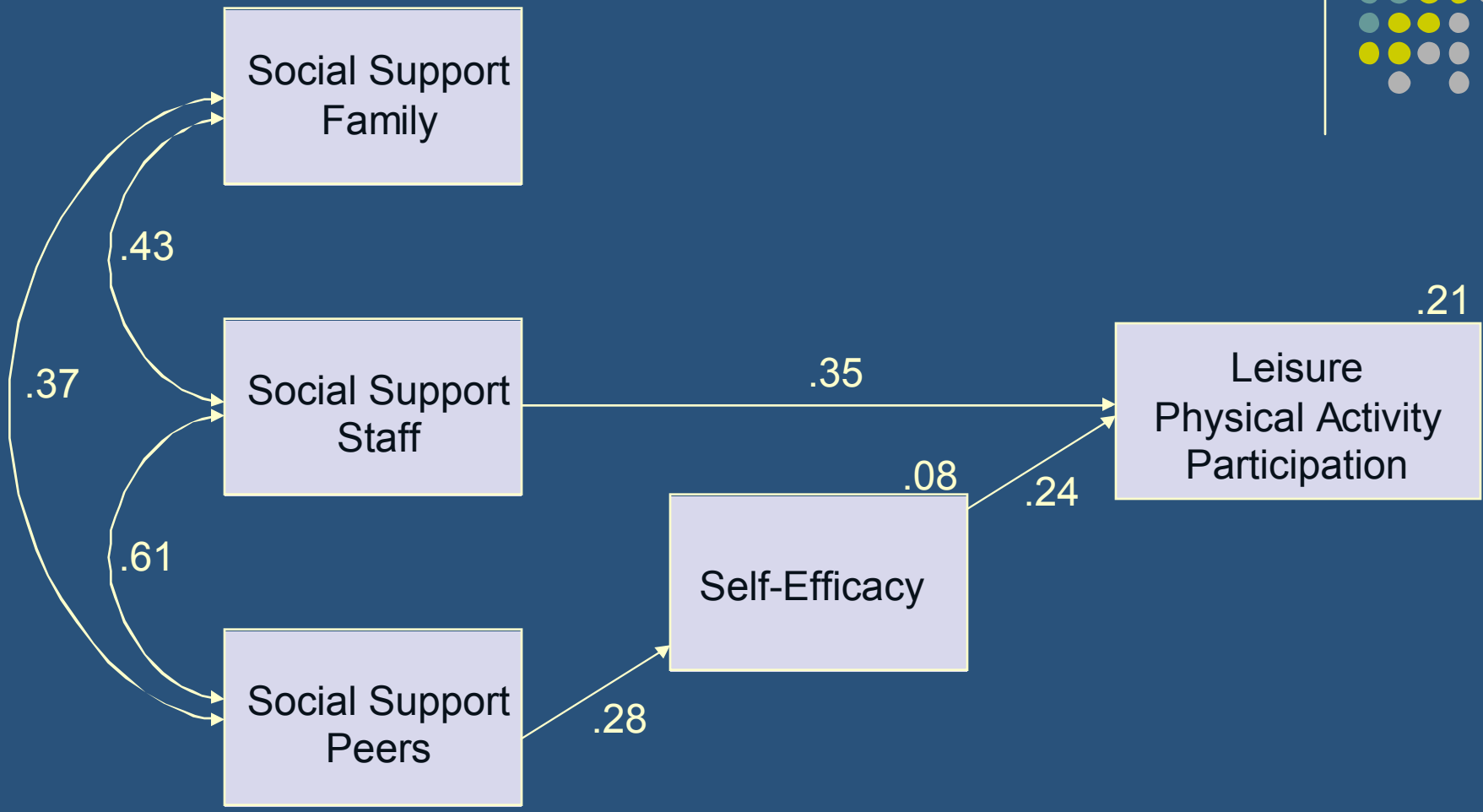

Figure 3. Path model predicting leisure physical activity participation score for the older adult sub-group (ages 35-60 years). X^2 = 2.066, p=.72, ns; NFI = .98; RFI = .94.

Conclusion – Social Support

- Social support from three different groups is related to physical activity participation
  - Family
  - Paid staff
  - Peers with ID
- Relative importance of three groups changes with age

Conclusion – Self-Efficacy

- Self-efficacy is a salient construct for this population

- Self-efficacy mediates the relationship between social support and practice of leisure physical activity participation

Social support ➡ Self-efficacy ➡ Behavior

(Bandura, 1986b)

Future Directions

- Development and evaluation of proposed intervention

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Pearson correlation matrix for younger subsample (18-34 years).

	1	2	3	4	5	6
1.Age	--					
2. SS family	-.17	--				
3. SS staff	.02	.45**	--			
4. SS peers	-.01	.52**	.55**	--		
5. Self-efficacy	-.14	.33**	.24	.28*	--	
6. Leisure activity participation	-.19	.36**	.17	.20	.37**	--

*p<.05, **p<.01

Pearson correlation matrix for older subsample (35-60 years).

	1	2	3	4	5	6
1.Age	--					
2. SS family	-.36**	--				
3. SS staff	-.21	.43**	--			
4. SS peers	-.15	.37**	.61**	--		
5. Self-efficacy	-.09	.15**	.24*	.28**	--	
6. Leisure activity participation	-.23*	.23*	.41**	.36**	.33**	--

*p<.05, **p<.01

Scale Validity

Partial correlation with leisure PA	r
Self-efficacy	.37**
Social support, family	.21*
Social support, staff	.24**
Social support, peers	.22**

*p<.05, **p<.01

- Partial correlation coefficients indicated construct validity
- Expert panel review established face validity

Scale Reliability

Name	α	ICC	X^2	p	X^2/df
Self-efficacy	.727	.494	10.438	.316	1.159
Social support, family	.730	.788	25.713	.028	1.840
Social support, staff	.740	.704	6.996	.638	.777
Social support, peers	.704	.760	3.010	.698	.602

Confirmatory factor analysis

Name	GFI	AGFI	TLI	CFI	RMSEA
Self-efficacy	.976	.944	.981	.989	.034
Social support, family	.949	.897	.886	.924	.079
Social support, staff	.982	.959	1.022	1.000	.000
Social support, peers	.991	.972	1.044	1.000	.000

Physical activity correlations: Self-report vs. Pedometry

- Physical activity correlates literature; Prochaska, Rodgers, & Sallis (2002)
- Self-report PA summaries (i.e. “Leisure physical activity participation” variable) do not correlate with pedometry variables
- Self-report frequency of several activities does positively correlate with pedometry variables:
  - Walking
  - Team sport
  - Weight lifting (some pedometry variables)
- Self-perception of activity level:
  - does not correlate with pedometry variables
  - does correlate with PA summaries, several individual activities
- Self-report scale test-retest reliability: ICC = .745

Scales

- Social Support
  - Family – 7 items; Staff – 6 items; Peers – 5 items
    - *"Does anyone in your family/your staff/your roommates do physical activities with you?"*
    - *"Does anyone in your family/your staff drive you somewhere to do physical activities?"*
- Self-efficacy – 7 items
  - *"Do you think you can do physical activities even when you are very busy?"*
  - *"Do you think you can do physical activities even when you are feeling sad or depressed?"*