

# Using Facebook to Influence Adolescent Physical Activity: A Pilot Randomized Controlled Trial

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# Physical Activity in Youth

- < 1/5 adolescents report being regularly physically active (CDC, 2011)
  - Active Transport
  - Physical Education
  - Sedentary Behaviors
  - Obesity Epidemic
  - Function of Age
- Many health-related consequences
- Identify effective strategies to promote physical activity



# Internet-Based Interventions

- Can lead to improvements in behavior change outcomes (Lau et al., 2011)
- Web 2.0
  - Socially interactive, virtual environment that fosters the creation and exchange of user-generated content
  - Has gained universal acceptance among Internet users
  - Evaluation of social media as a means to influence health behaviors is warranted (AHA, 2013; CDC, 2013; SBM, 2013)
  - Social Networking Sites are the most popular Web category
    - 57% look to their SNS for advice (e.g., health, diet, fitness) (Nielsen, 2009)



# *The SMART Trial*



- 8-week, randomized design PA program
  - Delivered entirely over social media
  - Goal to influence PA behaviors in sedentary and low-active adolescents
- Objectives
  1. Test the feasibility of a social media-delivered PA intervention for increasing lifestyle PA
  2. Compare the effects of a progressive behavioral training condition to a simple information-based condition





# Hypotheses



1. Trial would provide initial support for the feasibility of using social media to deliver a PA intervention
2. Behavioral training condition (i.e., intervention group) would experience greater improvements in PA


# Recruitment & Eligibility

**FREE** Physical Activity Program for

**TEENS** on **facebook.**

Does your teenage son or daughter need help becoming more physically active?

If so, they may be eligible to participate in a **FREE**, 8-week physical activity research program delivered via Facebook!



13-15 Years Old

Resident of Champaign County

< 60 Minutes of PA per Day

Internet Access, Facebook Account

$N = 21$  Parent-Child Dyads



# Behavioral Assessments

- Conducted at baseline and program end (i.e., Week 8)
  - Accelerometry  
(Health One Technology, Fort Walton Beach, FL)
  - Godin Leisure-Time Exercise Questionnaire  
(Godin & Shephard, 1985)



# Treatment Conditions

- *Behavioral* ( $n=10$ )
  - 8 unique PA-related modules (via YouTube)
  - Privately delivered on a weekly basis via FB Messages



- *Informational* ( $n=11$ )
  - 8 generic messages sent

Mod1 - Getting Started with the SMART Program  
Mod2 - Physical Activity Definitions and Benefits  
Mod3 - Physical Activity Guidelines  
Mod4 - Goal-Setting for Physical Activity  
Mod5 - Individual Expectations and Physical Activity  
Mod6 - Social Support for Physical Activity  
Mod7 - Overcoming Barriers to Physical Activity  
Mod8 - Maintaining a Physically Active Lifestyle





# The SMART Facebook Group

- *SMART FB Group*
  - Study-specific, restricted access
  - Interactive community that revolved around the topic of physical activity for adolescents
- **Two Group Posts/Day**
  1. PA-Related Websites
  2. Infographics
  3. Video PSAs
  4. Tech & Mobile Apps
  5. Local Parks & Facilities
  6. Motivational Quotes
  7. Miscellaneous



# SMART Facebook Group Post

**Tom Wojcicki**  
PSA | Stay fit and healthy by accumulating at least 60 minutes of physical activity each day!

**Physical activity - It All Adds Up**  
www.youtube.com  
'It all adds up!' campaign aims to encourage children to become more active. Physical activity is especially important for children if they are to grow

Like · Comment · Unfollow Post · Share · February 13 at 5:08pm near Champaign

and 2 others like this.  Seen by everyone

This is true we should get 60 minutes of physical activity a day  
February 13 at 5:51pm · Unlike · 1

**Tom Wojcicki** indeed, ...and the best part is that it doesn't all have to all be done at once! 😊  
February 14 at 8:29am · Like

i think this could help a lot of kids  
February 15 at 5:45pm · Unlike · 1

Write a comment...

# Data Analyses

- 2 (treatment condition) by 2 (time) repeated measures design
- Effect sizes (Cohen's  $d$ ) calculated within groups to determine differential treatment effects outcomes



# Sample Demographics



13.48 Years Old  
42.90% 8<sup>th</sup> Grade  
57.20% OW/Obese

61.90% White  
52.40% Female  
71.40% > \$100K AHI



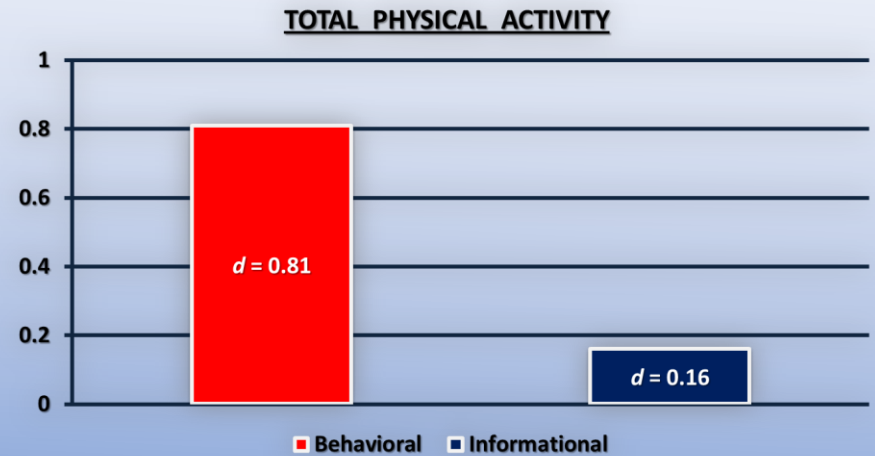
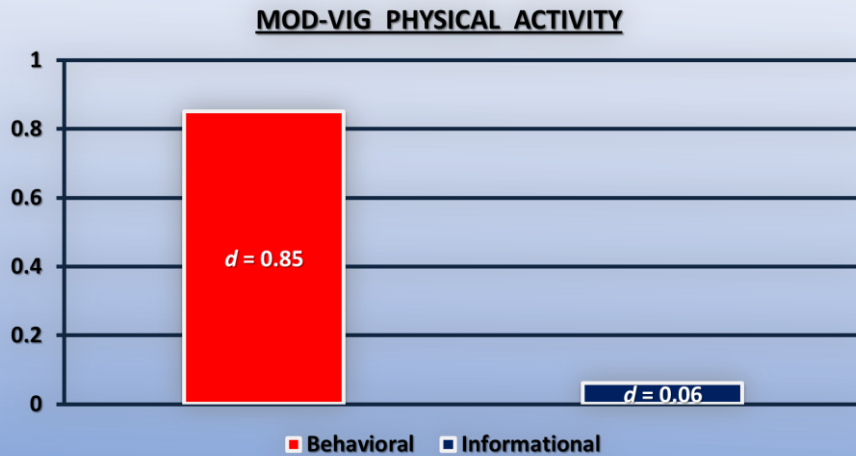
# Intervention Effects

- 2x2 repeated measures design revealed improvements over time on subjectively reported:
  - Weekly leisure-time PA ( $F = 8.426, p = .009, \eta^2 = .319$ )
  - MVPA approached significance ( $F = 4.186, p = .056, \eta^2 = .189$ )
  - Significant time and/or interaction effects not present in remaining behavioral outcomes
- Effect sizes calculated to identify patterns of change within each treatment condition





# Effects on Objective PA

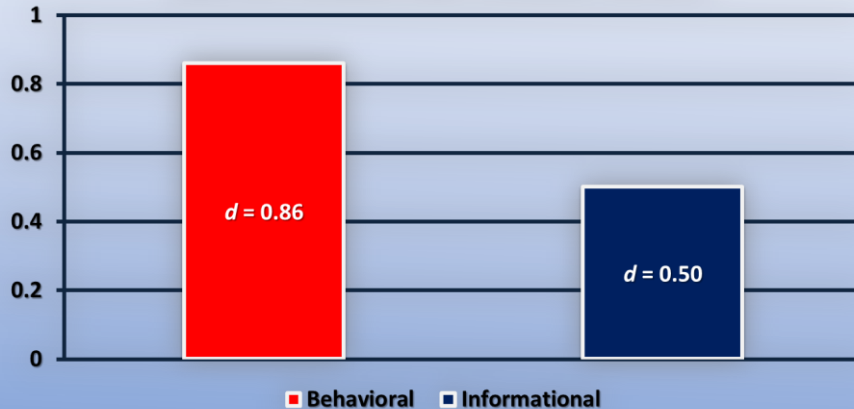


Effect Sizes  
Small = .20    Medium = .50    Large = .80

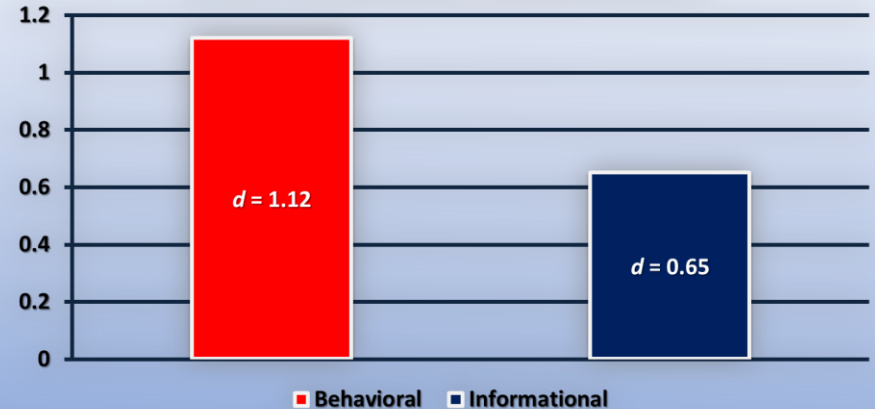


# Effects on Subjective PA

MOD-VIG LEISURE-TIME PHYSICAL ACTIVITY



WEEKLY LEISURE-TIME PHYSICAL ACTIVITY



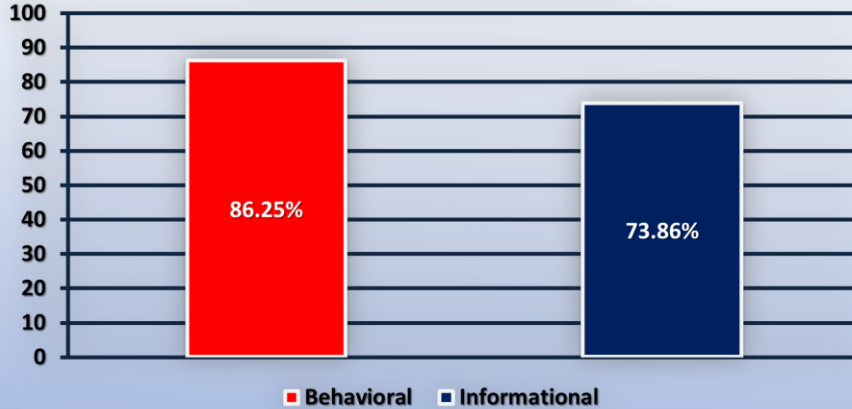
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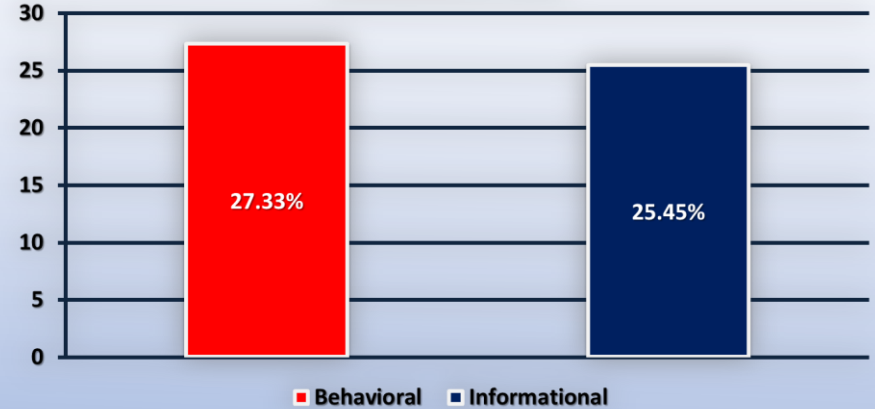


# Participation in FB Group

**PERCENTAGE OF POSTS VIEWED**



**ENGAGEMENT RATE**



# Preferred Wall Post Categories



- 1) Technology/Apps
- 2) Websites
- 3) Miscellaneous/Topical
- 4) Quotations
- 5) Local Resources & Facilities
- 6) Public Service Announcements
- 7) Infographics



# Discussion

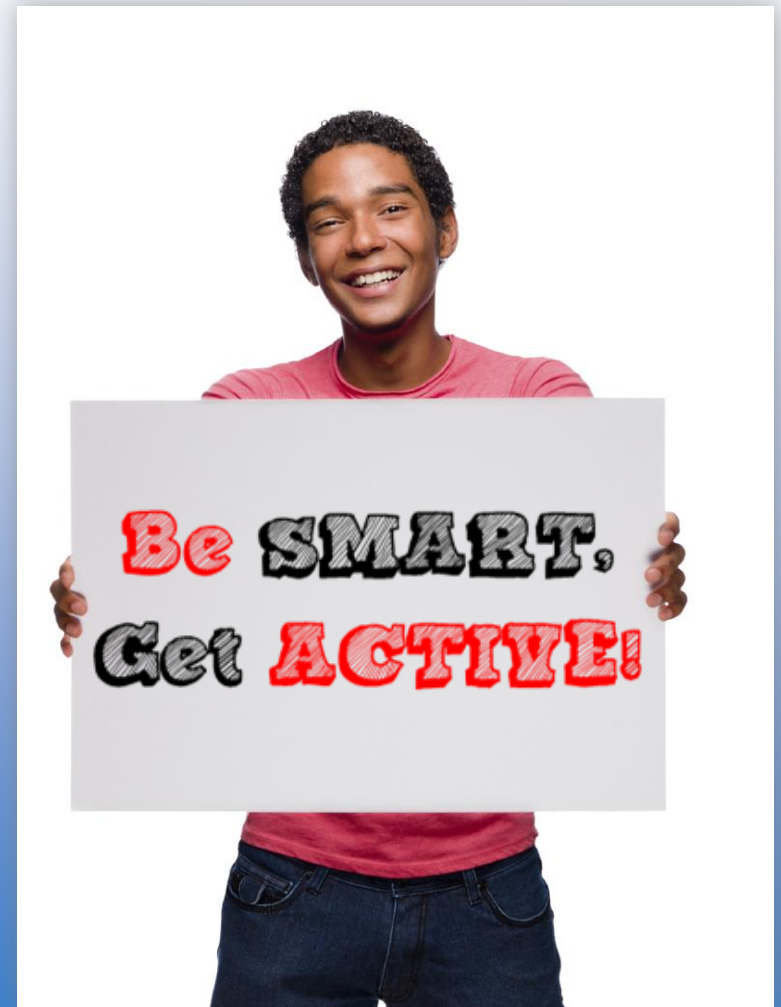
- Changes in the behavioral outcomes were not statistically significant between groups
- Behavioral group effect sizes: moderate – large
- Informational group effect sizes: small – moderate
- Intervention effects were larger than those typically found in traditionally-delivered PA programs and web-based interventions
- Difference in behavioral effects may be specific to program delivery
  - Inherently social and interactive in nature
  - Readily available, instant access to content





# Discussion

- Delivering a behavioral intervention via social media is both feasible and well-accepted
- Advances in Web 2.0 design may:
  - Influence health education and behaviors
  - Overcome many research-related barriers
  - Implications for public health



# Strengths & Limitations

- Strengths
  - Among the first to examine the feasibility of delivering a PA RCT over social media
  - Subjective *and* objective assessment of behavioral outcomes
  - Fairly even split between males and females
  - ~ 40% minority participants
- Limitations
  - Small study sample, lack of statistically significant findings
  - Predominantly higher SES households
  - Inability to track the viewership of the weekly behavioral modules

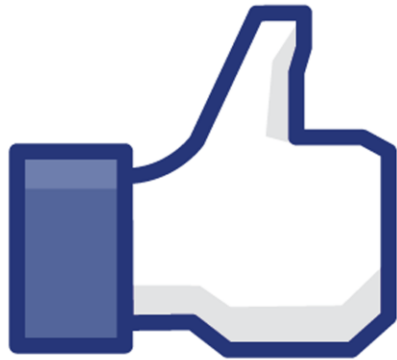


# Future Directions

- Larger trials to establish efficacy
- Evaluate in other populations
- Examine behavioral maintenance
- Identify strategies to increase rate of engagement with shared content
- Examine of the utility of various interactive features
- Explore the potential of other social media services



**Thank You!**



**PHYSICAL  
ACTIVITY**

