A Social Network Intervention that Promotes Physical Activity Among Adolescents by Using Vlogs: A Randomized Controlled Trial

Thabo van Woudenberg, Kirsten Bevelander, William Burk, Crystal Smit, Laura Buijs, and Moniek Buijzen

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Social network intervention:

Influence agents:

a) Selection
b) Training
RQ

Can a SNI increase physical activity in adolescents?

- SNI > Mass media intervention
- SNI > control

Vlogs!
Questionnaires
Self-efficacy
Social norms
Intentions
Motivations
Athletic Competence
Sociometric questions
Peer nomination

Advice
Leadership
Want to be like
Spending time with
Talking to
Sociometric questions
Weighted ties
Igraph()
Conditions

Social network intervention

Mass media intervention

Control
Sample

Participants:

- **446** participants (47% male)
- 9 to 16 years old ($M = 11.35$ years, $SD = 1.34$)
- 24 Classes

<table>
<thead>
<tr>
<th>Social Network</th>
<th>Mass media</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 (N=131)</td>
<td>7 (N=123)</td>
<td>10 (N=192)</td>
</tr>
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</table>
Social network condition:

- 15% of the participants
- Closeness centrality

Simulated Social Network Interventions to Promote Physical Activity: Who should be the Influence Agents?

Thabo J van Woudenbergl, Bojan Simoskil, Eric Fernandes de Mello Araújo2, Kirsten E Bevelander1, William J Burk3, Crystal R Smit1, Laura Buijs3, Michel Klein2 and Moniek Buijzen1

\[ \text{In-degree} = \text{Closeness} \]
Sample

Social network condition:

- 15% of the participants
- Closeness centrality
- Keyplayer package
  - But, gender balanced
Sample

Social network condition:
- 15% of the participants
- Closeness centrality
- Keyplayer package
  - But, gender balanced
- 4 or 6 influence agents per class
**Timeline**

<table>
<thead>
<tr>
<th>Pre-measure (February)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Daily PA</td>
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<td>Secondary variables</td>
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<td>Peer nominations</td>
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**Image:**
- A diagram showing the timeline with different events and variables.
### Timeline

<table>
<thead>
<tr>
<th>Pre-measure (February)</th>
<th>Intervention (April)</th>
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<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
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<td>Daily PA</td>
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<td>Secondary variables</td>
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<td>Peer nominations</td>
<td>V1 V2 V3 V4 V5 V6</td>
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</table>
Secondary outcomes

<table>
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<tr>
<th>Condition</th>
<th>Social network</th>
<th>Mass media</th>
<th>Control</th>
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<tbody>
<tr>
<td>Descriptive Norm</td>
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<tr>
<td>Injunctive Norm</td>
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<td>Enjoyment</td>
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<td>Self-efficacy</td>
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<td>Extrinsic Motivation</td>
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<td>Introjected Motivation</td>
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<td>Identified Motivation</td>
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<tr>
<td>Intrinsic Motivation</td>
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</tbody>
</table>

Wave

T1  T2  T3
Social network intervention

$$M = 15.69, \ SD = 20.60$$

$$t(1000) = 7.67, \ p < .001$$

Mass media intervention

$$M = 7.21, \ SD = 14.60$$
Social network intervention

\[ (M = 69.09, \ SD = 30.42) \]

\[ t(306.73) = 8.88, \ p < .001 \]

Mass media intervention

\[ (M = 40.20, \ SD = 32.72) \]
Mass media intervention

Social network intervention

**SCREENTIME**

1

IK VLOGGER(S)

7

IK VLOGGER(S)

\( t(739.75) = 9.54, \ p < .001 \)

\( (M = 4.68, \ SD = 1.61) \)

\( (M = 3.46, \ SD = 1.97) \)
Conclusions

- No evidence that the social network intervention is more effective than the mass media intervention or control

- Explorations suggest that a social network intervention increases the perceived descriptive social norm

- Explorations suggest that the intervention message is better received in the social network intervention compared to the mass media intervention
Limitation

- Increase during the intervention in all conditions
  - no idea why the control group also increased

- Intervention period is (too) short
  - Dependent on battery of the fitbit, and planning of schools

- The influence agents liked filming the vlogs
  - Needed some help in the filming process (primary school)
#daretoshare

- Summer = end of the project
  - Data publicly available

- Social network data
  - Peer nominations (e.g. friendship, leadership)
  - Proximity measures based on Bluetooth
  - Communications on social platform
  - Other data →

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