Rationale and Development of a School Functioning Index for Middle Schools

Amanda S. Birnbaum¹, Leslie A. Lytle¹, Cheryl L. Perry¹, Mary Story¹, David M. Murray²

¹ University of Minnesota; ² University of Memphis
Behavior-specific messages

Why create a School Functioning Index?

- Why create a School Functioning Index?
- Incentive of $100 check to school
- 16 middle schools in the Teens Eating for School Climate Measures
- Environment
- Important consideration in adolescent
- Institutional characteristics
- Data collected at the school level rather than from individuals
- Comprises variables hypothesized to affect and reflect the overall functioning and stability of the school
- Calls issued for a more "upstream" focus in public health:
  - Environment
  - Social
  - Physical
  - Institutional characteristics
  - Policies

Schools are a major part of adolescents' environment

Existing Measures

- School Health Indices
  - Focus on issues around specific health behaviors (nutrition, tobacco use, etc.)
  - May include some general climate items
  - Secular trends
- School Climate Measures
  - Education psychological assessment
  - Focus on individuals' perceptions of and satisfaction with school
  - Intra-school correlations low (more about respondent than about school)

Creating a New Measure

- Generate pool of potential constructs/indicators of school functioning
- Data availability:
  - Some were available in existing archives
  - Some required original data collection
- Download and extract archival data
- Develop School Information Form
  - Collect original data

Original Data Collection

- 16 middle schools in the Teens Eating for Energy and Nutrition at School (TEENS)

Rationale

- Like families, schools give explicit and implicit messages affecting multiple health behaviors
  - Role modeling
  - Incentives, reinforcements
  - Social norms, peer norms
- Behavior-specific messages and influences are important components of the school environment
  - Eating behaviors, cues, opportunities
  - Physical activity behaviors, cues, opportunities
  - Tobacco education, policies, cues, opportunities
- General institutional characteristics, climates, policy environments of schools may also influence adolescents' health behaviors
  - Overall school functioning
  - Stabilility of whole population
  - Availability of resources
  - Achievement, performance
  - Communication, interpersonal bonds

Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>SMATH</th>
<th>GPA</th>
<th>BPS</th>
<th>GEDS</th>
<th>SMOBI(R)</th>
<th>SMOBI</th>
<th>SHS</th>
<th>BLA</th>
<th>SFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMATH</td>
<td>1.00</td>
<td>0.71</td>
<td>0.69</td>
<td>0.68</td>
<td>0.74</td>
<td>0.71</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td></td>
<td>1.00</td>
<td>0.69</td>
<td>0.68</td>
<td>0.74</td>
<td>0.71</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPS</td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.69</td>
<td>0.74</td>
<td>0.71</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEDS</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.69</td>
<td>0.74</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOBI(R)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.69</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOBI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SFI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

School Functioning Index (SFI)

- Cronbach's alpha = 0.87
  - Suggests a common factor
- Index of overall functioning, stability and sociodemographic characteristics
- No implication of causality
  - Component variables not hypothesized to cause high or low functioning
  - Demographics included as indicators of social conditions
  - May influence resources, discrimination, language and cultural barriers

Lessons Learned

- Archival data easily obtained
  - Basic Standards meeting rates, state-mandated Basic Standards, reduced price lunch, limited English proficiency
- School Information Form
  - Overburdened administrators — required extensive outreach
  - Many questionable responses
  - Poor quality of suspension data
  - Aggregated data
  - School suspension data
  - Poor quality of disciplinary data
  - Confided by school staff
  - Inconsistent recordkeeping
- Archival data easily obtained
  - Basic Standards meeting rates, state-mandated Basic Standards, reduced price lunch, limited English proficiency

Issues for Further Consideration

- Is this type of measure too simplistic?
- What is the gold standard "high functioning school?"
- When is it appropriate to use an overall school functioning index versus a behavior-specific school-level measure?
- Is it a question of how prevalent and/or visible the behavior is?
- Easier to conceive a school-level index specific to eating, physical activity, smoking than sexual health, violence, and other substances?
- Are objective measures important?
- What additional institutional characteristics of schools are worth investigating?
- How do we overcome data collection obstacles?
- Overburdened administrators
  - Inconsistent recordkeeping
  - Possible perception of data collection as criticism or "expose"?

TEENS Schools (N=16) SFI Scores

Applications and Future Research

- Investigate associations between SFI & health risk: health-promoting behaviors
  - Analyses of TEENS data suggested SFI was negatively associated with past-year fighting and violent behavior among students with college aspirations
  - Does SFI predict health risk and health promoting behaviors equally well?
  - What are mechanisms for associations?
  - What are implications for intervention?
- SFI as a possible effect modifier in school-based intervention trials
  - Overall school functioning may affect staff ability to implement intervention
  - Staff turnover may weaken intervention
  - Students in lower functioning schools may be distracted, intervention may seem less salient
- Further studies
  - How stable is SFI over time?
  - Reliability of measure
  - Stability of true underlying construct
  - How is SFI distributed in larger samples?
  - Which components of SFI are most amenable to change?
  - How well do school staff and students think SFI reflects actual functioning?
- SFI reflects actual functioning?