

School practices and children's physical activity during school

University of California, San Diego
Family and Preventive Medicine

Jordan A. Carlson
James F. Sallis
Gregory J. Norman
Brian E. Saelens
John P. Elder
Karen Glanz
Lawrence D. Frank
Kelli Cain



Funded by The California Endowment and NIH

Health organizations recommend physical activity during school for children's health

Elementary schools

- ≥ 30 minutes/day of MVPA
- ≥ 150 minutes/week of PE
- $\geq 50\%$ of PE in MVPA
- ≥ 20 minutes/day of recess



Study participants

- Existing physical activity data from 2 studies
 - Neighborhood Impact on Kids (NIK; San Diego and Seattle)
 - MOVE (San Diego)
- Retrospective assessment of school practices as part of dissertation

Final sample

172 child participants from 97 elementary schools

- 63% response
- 25 districts represented
- Children were 10 ± 1.5 years old
- 51% were girls
- 31% were Hispanic or non-White
- 27% were overweight or obese

School physical activity practices survey:

Adapted from S-PAPA

Respondents were PE teachers or principals

PE practices

Minutes of PE per week
PE class size
Who teaches PE
MVPA training in PE

Recess practices

Minutes of recess per session
Number of students/supervisor
Who supervises recess
Are activities provided

Classroom practices

Training of MVPA in classroom
Implementation of MVPA in classroom

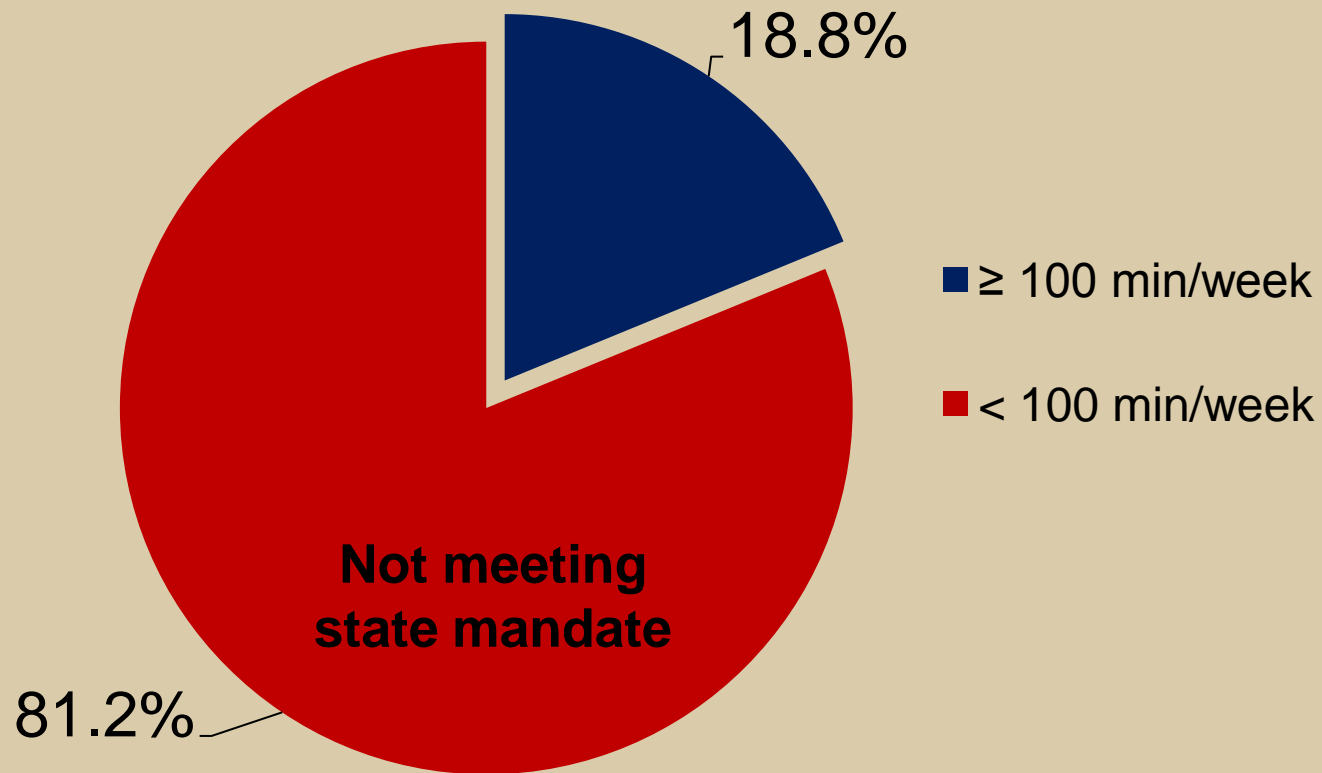
Objective physical activity measurement (accelerometers)

- Students wore Actigraphs for 2-5 school days
- Freedson 4-MET age specific cut points divided by 2 for 30-second epochs; sedentary = <50 counts/epoch
- Valid days included no more than 20 minutes of nonwear during school

Dependent variable

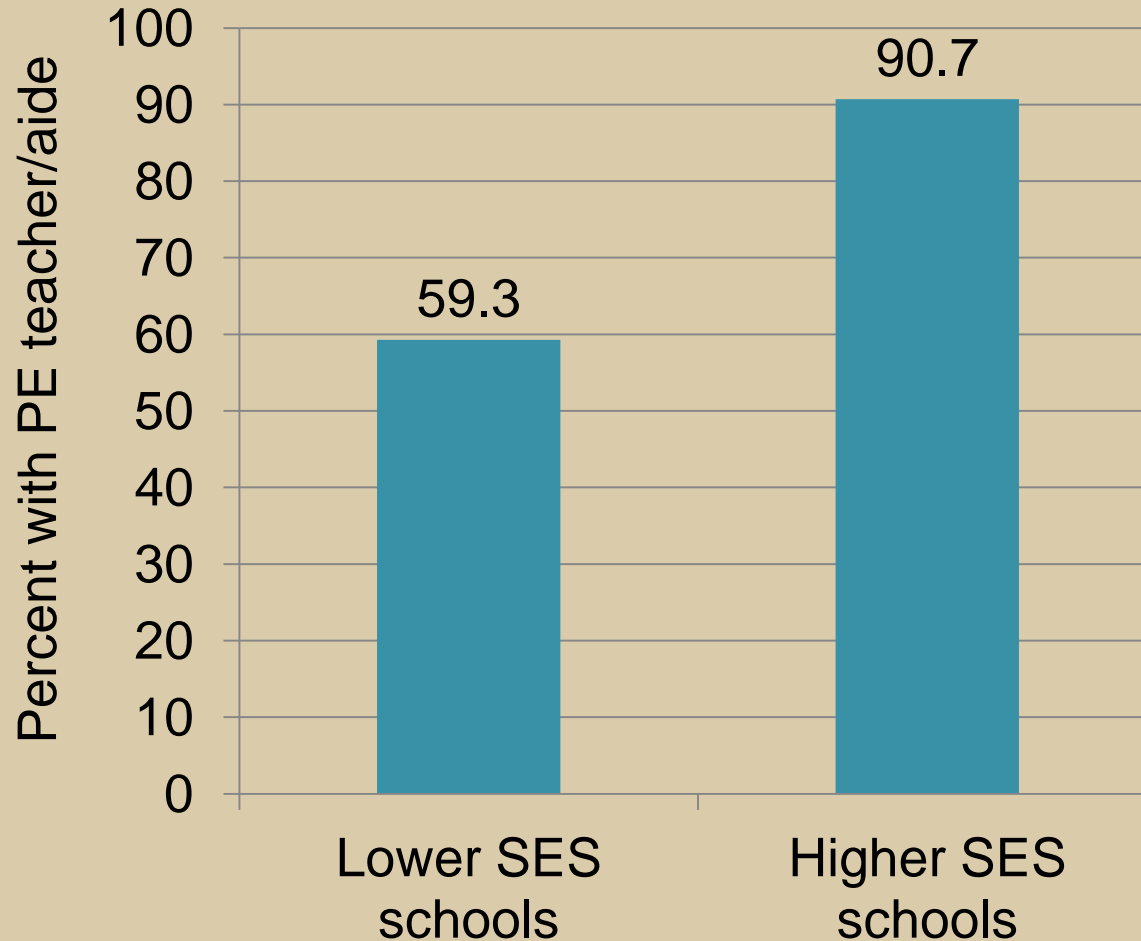
MVPA during school
scored using each school's
unique start and end times

Percent of schools surveyed that provided the required amount of PE



Percent of schools with PE teacher or aide by school SES

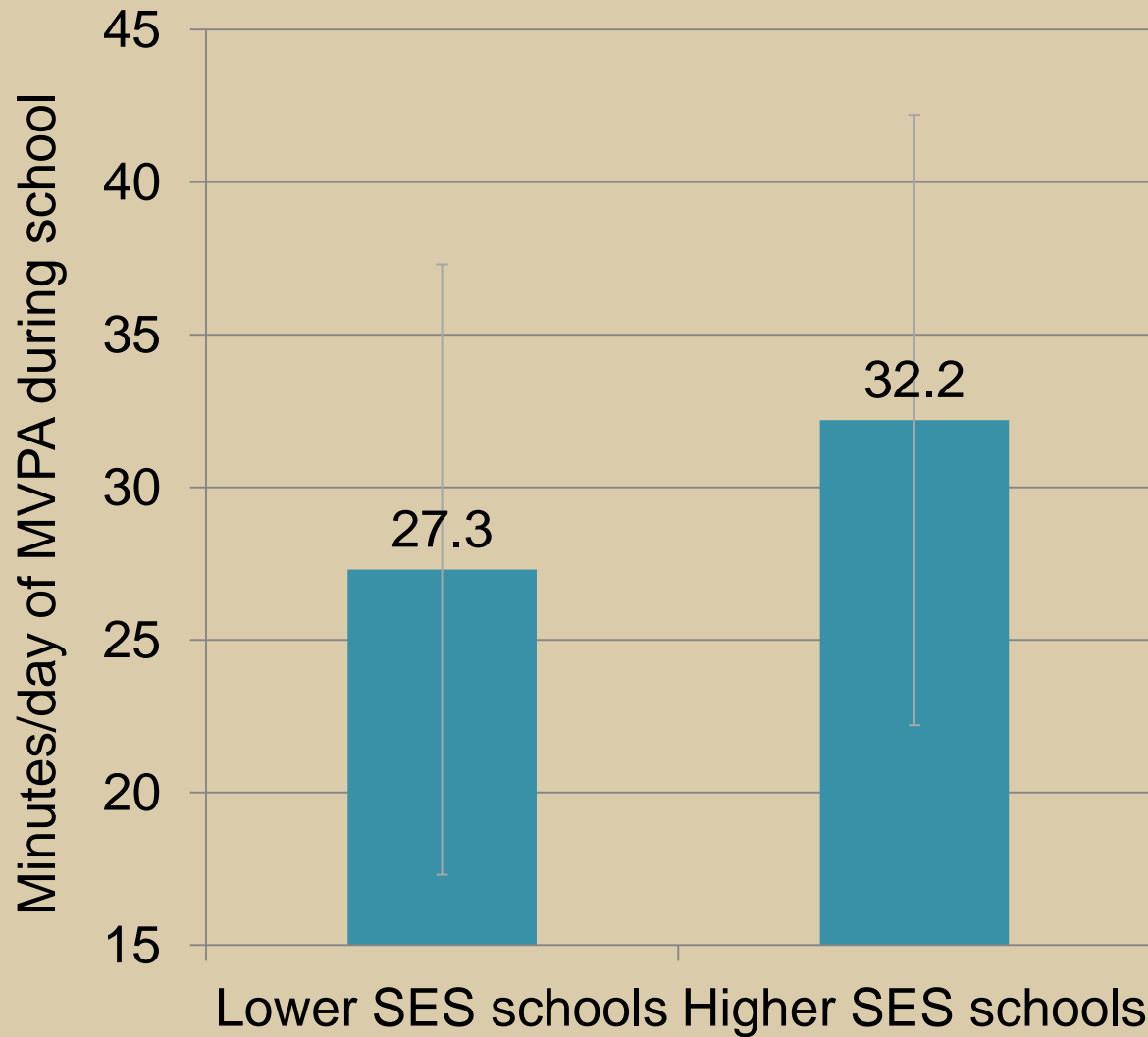
SES was split at $\pm 20\%$ FRPL eligible



$p < .05$

School SES and MVPA during school

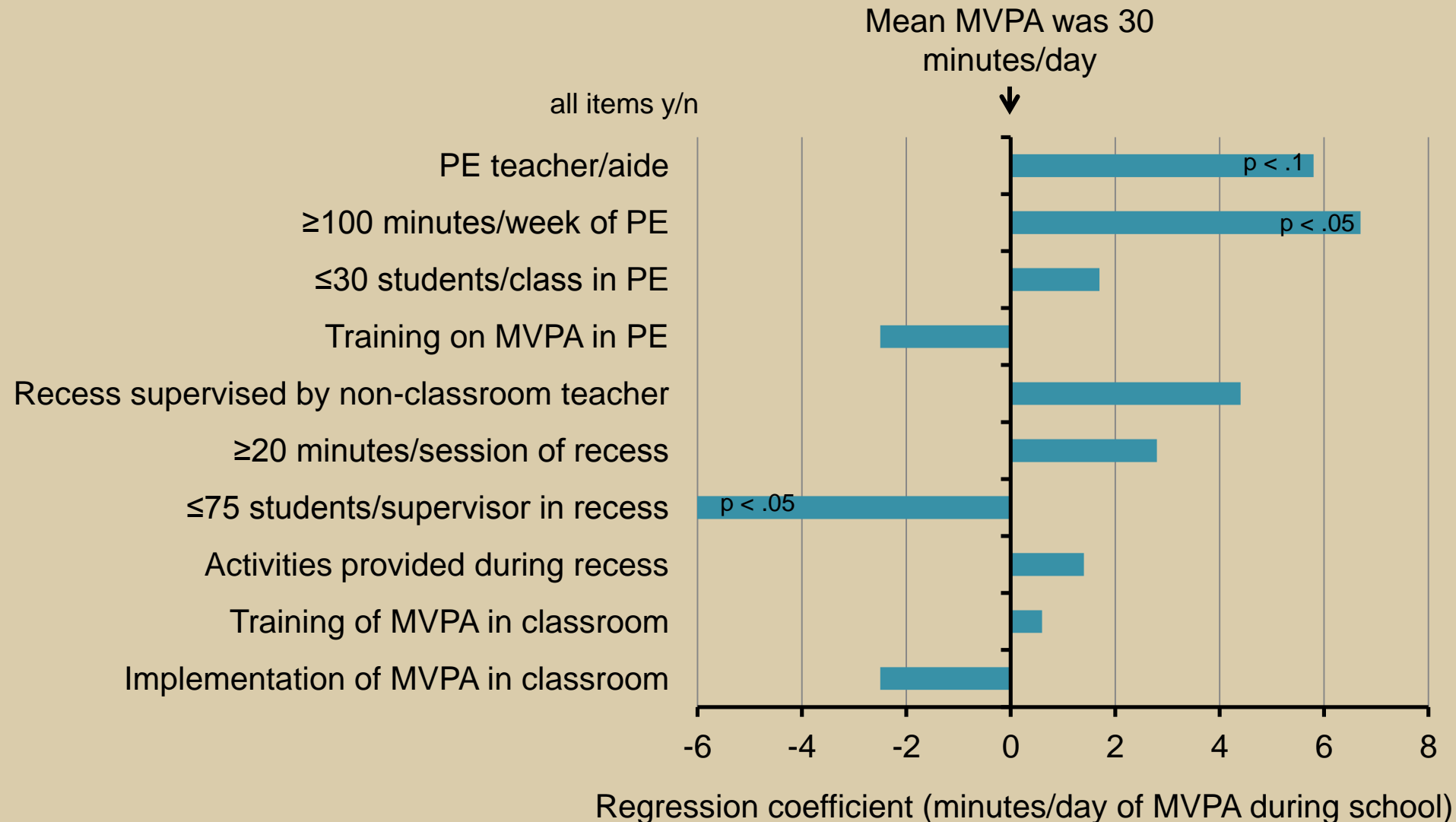
SES was split at $\pm 20\%$ FRPL eligible



$p < .1$

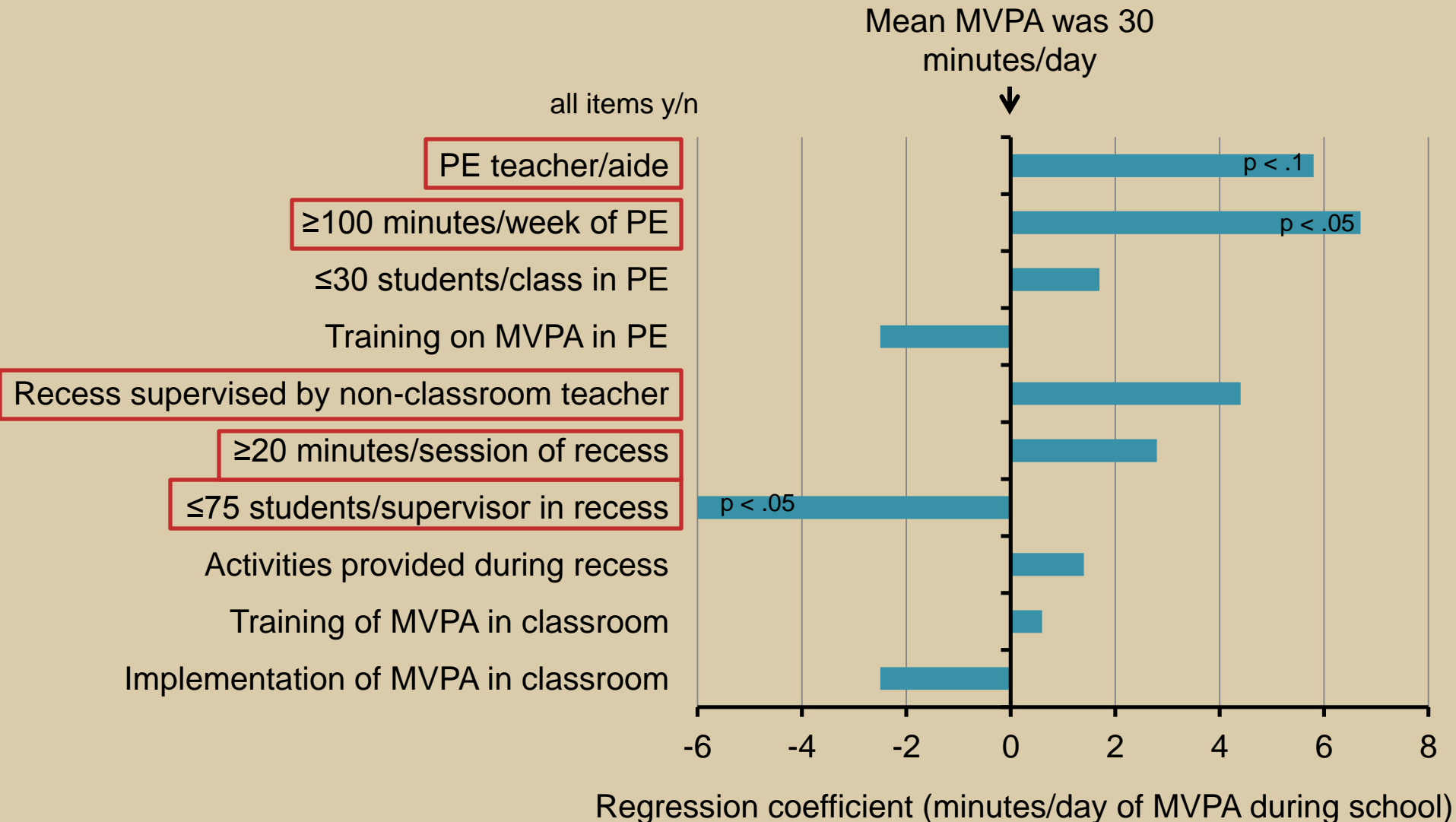
School practices and MVPA during school

From multivariate mixed effects regression model

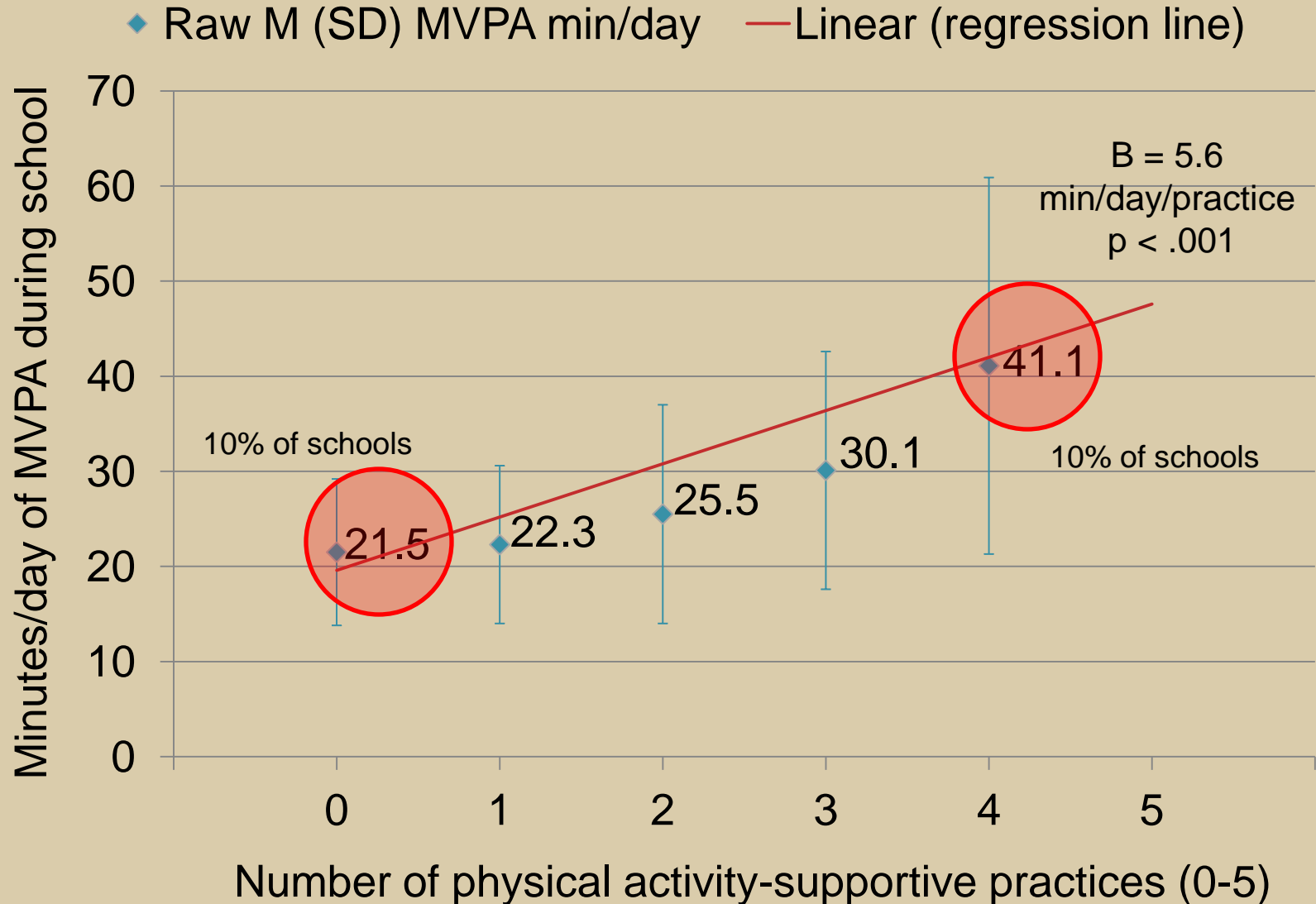


School practices and MVPA during school

From multivariate mixed effects regression model



School practices index and MVPA during school



Limitations

- Refusal of large San Diego districts
- Few kids per school
- Social desirability bias with survey questions
- Time between accelerometer and school practice data collection

Strengths

- Objectively measured physical activity
- Large number of schools
- MVPA specific to school start and end times
- Package of practices

Conclusions

- Schools implementing 3-4 practices exceeded the recommendation to provide 30 minutes per day of physical activity during school.
- Over 10% of schools were implementing 4 of the 5 practices, suggesting this approach is feasible.
- Most effective practices appear to be hiring certified PE teachers and ensuring at least 100 minutes per week of PE lesson time.

Implications for policy

- Classroom teachers responsible for instructing PE need better training and monitoring to effectively support children's physical activity through PE.
- Recess supervisors should be trained to encourage physical activity. Encouraging safety without regard to physical activity may actually inhibit physical activity – this could be why kids who had smaller student:teacher ratio in recess had less physical activity.
- More training and support are needed for classroom teachers to be effective at incorporating physical activity breaks in the classroom.
- Lower-income schools could benefit from funding for physical activity opportunities to reduce health disparities.