Association of special health care needs and parental mental health and parenting stress with sedentary lifestyles in children

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BACKGROUND AND CONCEPTUAL FRAMEWORK

Bandura’s Triadic Reciprocal Determinism: Individual, Environment, Behavior

- Physical Activity
- Screen Time

Child

Parent
National Survey of Children’s Health
2007

- Nationally representative
- Phone survey
- Parent reports
- Wide range of questions about children’s health, behavior, activities, families
- 64,076 children aged 6-17
- 15,049 children with special health care needs
- Publicly available dataset (de-identified)
Defining Sedentary Lifestyle

Low Physical Activity
Child engages in at least 20 minutes of physical activity less than 6 days a week

AND

High Screen Time
Total screen time (TV, videos, video games and recreational computer use) > 120 minutes on typical weekday

Population Prevalence

- Low physical activity: 64.2%
- High screen time: 48.4%
- Sedentary lifestyle: 33.3%

Percent
Special Health Care Needs Categories

- Does child meet at least one of five criteria in CSHCN screener?
  - Needs prescription meds, extra services, therapy, counseling, or has functional limitations

- Does child have emotional, behavioral or developmental (EBD) condition?
  - Needs treatment or counseling for any EBD problem, OR
  - Currently has at least one listed EBD condition (ADHD, depression, anxiety, autism spectrum disorder, behavior or conduct disorder, developmental delay, Tourettes’ syndrome)

All 6-17 yr-olds (64,076)

CSHCN?

No

No “No SCHN” (49,027)

Yes CSHCN (15,049)

EBD?

No

No “SHCN without EBD” (7527)

Yes

Yes “SHCN with EBD” (7522)
Measuring Parental Mental Health and Parenting Stress

“Coping Index” (Range 0 to 5; Dichotomized 0 vs 1-5)

– Parent’s self-rated mental health
  - Excellent
  - Very Good
  - Good
  - Fair
  - Poor

– How well are you coping with day-to-day demands of parenthood?
  - Very well
  - Somewhat well
  - Not very well
  - Not very well at all

– During the past month, how often have you felt

  - Child is much harder to care for than other children his age?
  - Child does things that really bother you a lot?
  - Angry with child?

  - Never
  - Rarely
  - Sometimes
  - Usually
  - Always
Statistical analysis

• SAS 9.2
• Survey procedures
  – PROC SURVEYFREQ to calculate prevalences
    • Rao Scott chi square to test for significant differences
  – PROC SURVEYLOGISTIC for multiple logistic regression to determine adjusted odds ratios
    • Wald chi square to test for significance of effects in models
• Applied weights based on probability of selection and probability of non-response
• Domain analysis to look at subpopulations
• “Don’t know” and “Refused” recoded as “missing”
• Observations with missing data for relevant variables were excluded from analysis
Variation in prevalence of sedentary lifestyle with special health care needs and parental coping problems

US 6-17 year olds. Data from 2007 National Survey of Children’s Health

Bar graphs showing percent with sedentary lifestyle by SHCN status and by coping index score. Percent with sedentary lifestyle is significantly greater among CSHCN (36.4%) and CSHCN with EBD (37.8%) than among children with no SHCN (32.4%). Percent with sedentary lifestyle is significantly greater among children whose parents report at least one coping problem (39.9%) than among those reporting none (31.5%)
Variation in proportion of parents reporting coping problems with child’s SHCN status

US 6-17 year-olds. Data from 2007 National Survey of Children’s Health

Bar graph showing percent children whose of parents report one or more coping problem by SHCN status. Percent of children with parents reporting coping problem is significantly greater among CSHCN (33\%) than children with no SHCN (18.4\%). Percent of children with parents reporting coping problem is significantly greater among CSHCN with EBD (44.7\%) than among CSHCN without EBD (20.9\%) or children with no SHCN.
Change in odds of sedentary lifestyle with special health care needs status

US 6-17 year-olds. Data from 2007 National Survey of Children’s Health

Bar graph showing increased odds of sedentary lifestyle for CSHCN vs. No SHCN. (AOR=1.2)

Model 1 adjusts for age, gender, race-ethnicity, respondent education

Model 2 adjusts for age, gender, race-ethnicity, respondent education, coping index

*p<.05
Change in odds of sedentary lifestyle when parent reports one or more coping problem
US 6-17 year-olds. Data from 2007 National Survey of Children’s Health

Bar graph showing increased odds of sedentary lifestyle with coping index $\geq 1$ vs 0. Model 1 adjusts for age, gender, race-ethnicity, respondent education. Model 2 adjusts for age, gender, race-ethnicity, respondent education, SCHN status.

*p<.05
Joint effects of special health care needs and parental coping problem on odds of sedentary lifestyle

Bar graph showing significantly increased odds of sedentary lifestyle among CSHCN with parents reporting at least one coping problem compared with children with neither SHCN nor parent reporting coping problem. Relationship persists after adjusting for age, gender, race/ethnicity and respondent’s education (AOR 1.5).
What’s New?

• Sedentary lifestyle includes both PA and screen time; screen time includes computer use
• New look at coping problems as factor that might impact parents’ ability to support school-aged children’s active lifestyles
• Use of CSHCN designation to look at subpopulation at increased risk of comorbidities related to sedentary lifestyle
• New focus on CSHCN with and without EBD
Limitations

• Cross-sectional; no causal inference
• Parental reports
• Overall response rate 46.7%
• Parents with coping problems may be less likely to participate in the survey
• PA question not well aligned with guidelines
• Screen time measure makes no adjustments for multi-tasking or double-counting
• Coping index not validated
Conclusions

- A third of US 6-17-year olds have both low physical activity and high screen time.
- Odds of sedentary lifestyle increases slightly with presence of special health care needs.
- Odds of sedentary lifestyle increases slightly when parents report one or more coping problem.
- Odds of sedentary lifestyle increases further with presence of both SHCN and parental coping problem.
- Surveillance data can illuminate determinants of modifiable factors that impact health; good measures of sedentary behavior are important.
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