



Socio-demographic and Parenting Correlates of 24-Hour Behavior Compositions in Preschool Children

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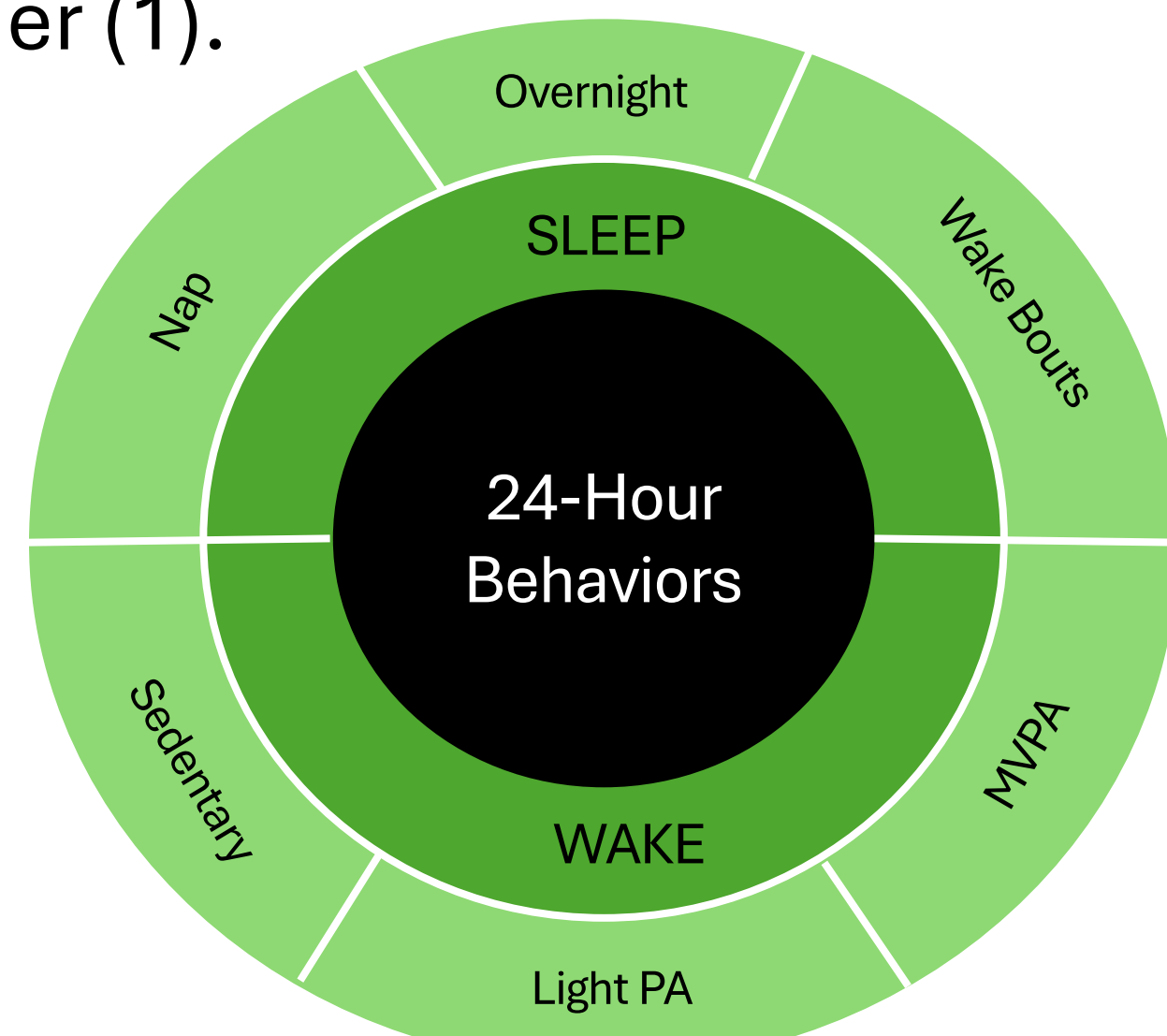
ABSTRACT

INTRODUCTION: Early childhood is an important period for establishing and building healthy habits, including regular physical activity (PA), adequate sleep, and limited sedentary behavior (collectively known as 24-hour behaviors). While socio-demographic and caretaking factors influencing individual health behaviors in children have been identified, the interactions among these 24-hour behaviors have been less extensively explored. **PURPOSE:** To identify socio-demographic and parenting correlates of 24-hour behavior compositions in a sample of preschool children. **METHODS:** Children ($n=233$, 50.8 ± 9.5 months, 46.6% female) wore accelerometers on their wrists for 9.5 ± 3.4 days and 9.7 ± 3.4 nights to estimate 24-hour behaviors. Behavior compositions consisted of sedentary time, light PA, moderate-to-vigorous PA (MVPA), sleep duration, and wake time in bed. Caregivers reported socio-demographic measures, including children's age, sex, race, ethnicity, socioeconomic status, number of children in the household, and their marital status. Parenting factors included parenting style, household chaos, and emotional health. Relations were explored with multivariate regression models using compositional data analysis. **RESULTS:** Children's age ($p<0.001$), sex ($p<0.001$), race ($p=0.04$), and the number of children in the household ($p=0.04$) were associated with 24-hour compositions. Older children were more likely to have shorter sleep duration, less sedentary time, and more MVPA. A greater number of children in the household was associated with less wake time in bed and more light PA. Males were more likely to engage in less light PA but more MVPA. Children identifying as Black or multiracial were more likely to engage in less light PA, while Asian children were more likely to engage in less MVPA. Parenting factors were not associated with 24-hour compositions. **CONCLUSION:** These findings suggest that interventions to promote healthy 24-hour behaviors in children should consider age, sex, race, and household dynamics, but future studies with greater behavior variability may be warranted.

INTRODUCTION

Early childhood is a vital time for development and establishing healthy 24-hour activity cycle behaviors (1).

These behaviors can be categorized into waking and sleeping components, contributing to a 24-hour composition where behaviors are co-dependent with one another (1).



Socio-demographic factors (SDF) and parenting styles (PS) are known correlates of sedentary behaviors, physical activity, and sleep when explored independently (2, 3).

However, associations between these factors and 24-hour behaviors collectively have been explored limitedly in young children (4).

Approaches such as compositional data analysis (CoDA) can be used to consider each behavior while accounting for the others (5).

PURPOSE

To identify socio-demographic and parenting correlates of 24-hour behavior compositions in a sample of preschool children.

METHODS

Design: Cross-sectional secondary data analysis

Participants: 233 children (33-70 mo, 44% female)

SDF & PS: Caregiver survey (parenting style, household chaos, emotional health)

24-hour behaviors: Actiwatch wrist monitors (sedentary time, light PA, MVPA, sleep, wake during sleep)

CoDA: 24-hour behaviors were transformed into isometric log-ratio coordinates

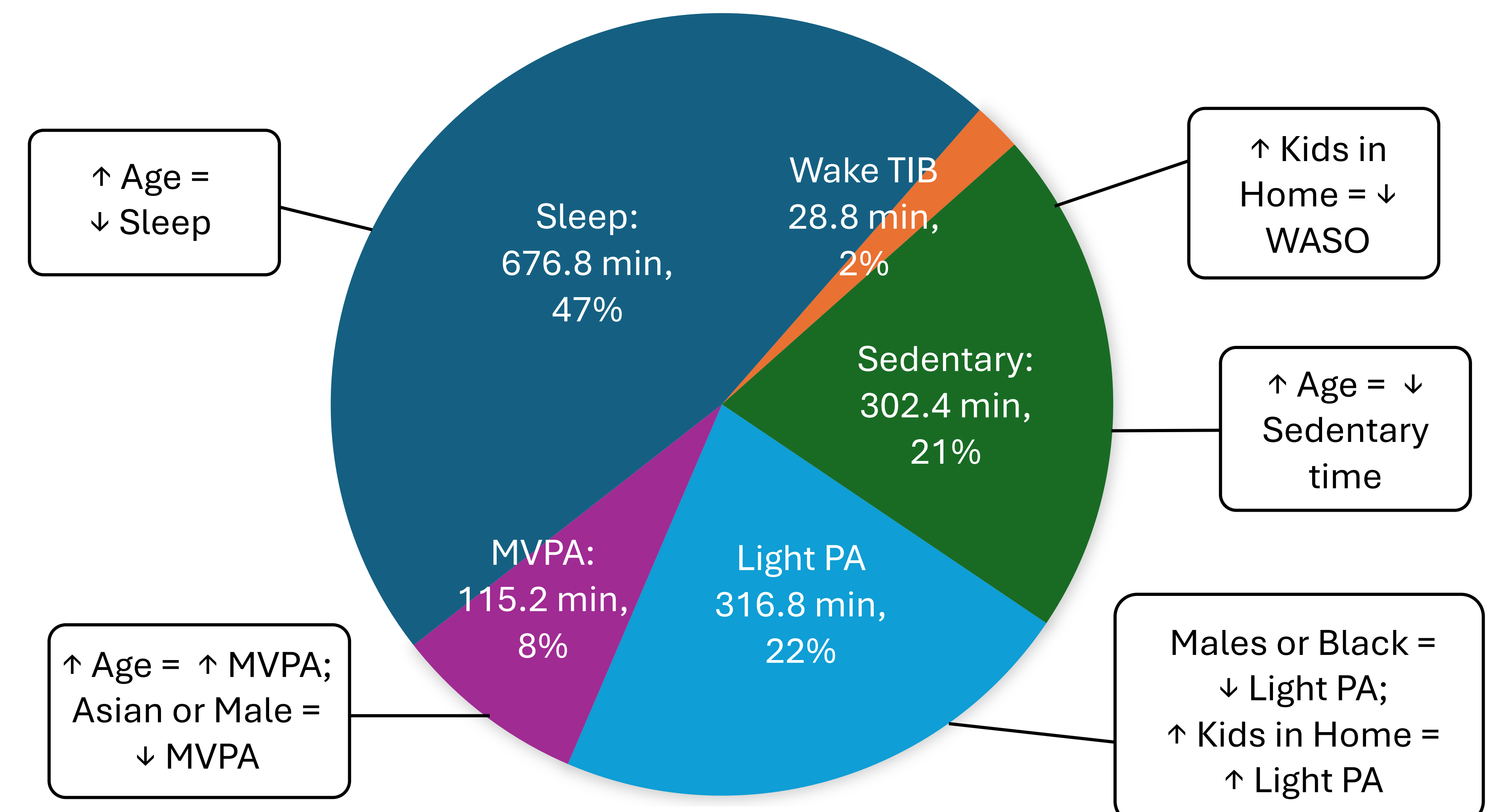
Multivariate Linear Regression Models:

Model	DV	IVs
1	24-hr composition	Parenting style, sex, SES, child's age/sex
2	24-hr composition	Home chaos, sex, SES, child's age/sex
3	24-hr composition	Emotional health, sex, SES, child's age/sex
4*	24-hr composition	Child's age, sex, race, ethnicity, SES, # of kids in household, marital status

DV = dependent variable; independent variables

*Model ran 4 times with different sets of ILRs, each with different 24-hour behavior the one of interest

RESULTS



CONCLUSIONS

None of the parenting factors were associated with children's 24-hour behavior compositions in this sample.

However, there were several associations between age, sex, race, ethnicity, and number of children in households to varying 24-hour health behaviors.

Our findings suggest that socio-demographic factors are linked to 24-hour behavior composition, with varying influences on the different behavior components.

These considerations may be important regarding constructing developmental recommendations for children in different housing or caretaking environments.

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