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Time Playing Outdoors Among Children Aged 3–5 Years: National Survey of Children's Health, 2021

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Abstract

Introduction: Federal guidelines recommend physical activity throughout the day for preschool-aged children. Time playing outdoors can support physical activity participation, health, and development. Estimates of time playing outdoors among U.S. children aged 3–5 years have not been published.

Methods: Parent/caregiver-reported data on children aged 3–5 years from the 2021 National Survey of Children's Health were analyzed in 2022–23. Chi-square tests were used to identify differences in time playing outdoors by sociodemographic and neighborhood characteristics. Multiple logistic regression analyses were conducted with significant characteristics for weekdays and weekend days.

Results: Among 11,743 children aged 3–5 years, 37% played outdoors for ≤1 hour on weekdays, and 24% played outdoors for ≤1 hour on weekend days. In 9 states, ≥40% of children played outdoors for ≤1 hour on weekdays. Adjusted models for weekdays and weekend days showed a greater likelihood of ≤1 hour playing outdoors among those in all racial/ethnic groups compared to non-Hispanic White, those who lived in metropolitan statistical areas, those who did not participate in child care, and those whose adult proxy disagreed with "we watch out for each other's children in this neighborhood." The weekday model showed additional differences by sex, with girls more likely to have ≤1 hour of time playing outdoors.

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SUPPLEMENTAL MATERIAL

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Conclusions: Nearly 40% of preschool-aged children play outdoors for ≤1 hour per day on weekdays, with differences by sociodemographic and neighborhood characteristics. Further study and interventions focused on building supportive, equitable communities might increase the amount of time preschool-aged children spend playing outdoors.

INTRODUCTION

Physical activity (PA) for children aged 3–5 years (henceforth, "preschool-aged children") is critical for their growth, health, and development.[1] The Physical Activity Guidelines for Americans, second edition (PAG) recommends that preschool-aged children be physically active throughout the day to support growth and development and that adults caring for children of this age encourage active play.[2] Although a specific amount of activity needed to support healthy weight and bone health is not well-defined and is not explicitly recommended by the PAG, the PAG suggests that a reasonable target for preschool-aged children might be 3 hours per day of activity of all intensities (light, moderate, or vigorous). For children who attend early care and education (ECE) programs, the National Caring for Our Children Standards for ECE Programs provide 11 best practice standards for supporting PA.[3] The best practices encourage active play outdoors 2–3 times daily for all children and 90–120 minutes of moderate-to-vigorous PA (MVPA) for preschoolers attending 8 or more hours of ECE daily.

For preschool-aged children, outdoor play can be a key component of PA. Preschool-aged children tend to engage in intermittent, sporadic activity patterns and rely on their caregivers for structured activity and play.[2,4,5] The outdoor environment provides unique opportunities for play due to exposure to sunlight, air, natural elements, and changing environments.[6] A systematic review found that time in nature among primarily school-aged children was associated with self-esteem, self-efficacy, resilience, cognition, and academic performance,[7] while several studies have found that daily time outdoors is associated with increased PA, increased cardiorespiratory fitness, and decreased sedentary time among preschool-aged children and children aged 3–12 years.[8,9]

Estimates of PA are available for older children and adults, but national and state estimates for preschool-aged children's PA have previously been unavailable.[10–13] The National Academies of Sciences, Engineering, and Medicine outlined strategies to improve PA surveillance in U.S. children aged 3–18 years, including incorporating accelerometry/wearable device measurement and identifying built environment features most likely to influence PA.[14] Notably, accelerometer-assessed bodily movement and acceleration are moderately associated with parent-reported time playing outdoors among preschool-aged children,[15] suggesting that time playing outdoors may be a useful indicator of PA. In 2021, the National Survey of Children's Health (NSCH) added questions that asked caregivers to report the amount of time preschool-aged children play outdoors on the average weekday and average weekend day, providing a unique opportunity to document the national prevalence of this important health behavior.

This study had two objectives. The first was to provide national and state estimates of preschool-aged children's time playing outdoors on weekdays and weekend days. The

second was to examine time playing outdoors by various sociodemographic, neighborhood, and geographic characteristics.

METHODS

Study Population

This study analyzed data from the 2021 NSCH.[16] The NSCH is funded and directed by the U.S. Health Resources and Services Administration, Maternal and Child Health Bureau and administered by the U.S. Census Bureau. It provides publicly available, de-identified national- and state-level data on the health of non-institutionalized U.S. children aged 0–17 years, and IRB approval is not required for analyses. NSCH randomly selects one child to be the subject of the survey in randomly sampled U.S. households with one or more children under 18 years old. Data collection occurred in all states simultaneously from June 25, 2021–January 14, 2022, during the COVID-19 pandemic.[16] Children aged 0–5 and children with special health care needs were oversampled. An adult in the household familiar with the child's health, such as a parent, grandparent, or caregiver (henceforth, "adult proxy"), completed the NSCH survey. In 2021, NSCH added two new questions regarding time playing outdoors among preschool-aged children, based on validated survey questions from Burdette et al.[15,16] Of 50,892 NSCH participants in 2021, 12,002 (23.6%) were aged 3–5 years. Of these, 237 who were missing weekday outdoor play data and an additional 22 who were missing weekend day outdoor play data were excluded, resulting in an analytic sample of 11,743 children. The analytic sample was further restricted to 10,200 children to exclude participants without responses to covariates, as necessary for the two models detailed later.

Measures

The outcomes of this analysis were time playing outdoors on weekdays and on weekend days. Adult proxies for preschool-aged children were asked, "On most weekdays, how much time does this child spend playing outdoors?" and "On an average weekend day, how much time does this child spend playing outdoors?" For each question, response options were "less than 1 hour per day," "1 hour per day," "2 hours per day," "3 hours per day," or "4 or more hours per day." The outcomes were collapsed into ≤1 hour/day (henceforth, "low time playing outdoors"), 2 hours/day, and ≥3 hours/day.

Sociodemographic and neighborhood variables were selected based on their associations with outdoor play in previous studies.[17,18] Children's sociodemographic characteristics were provided by their adult proxy and included: race/ethnicity (non-Hispanic White [White]; Hispanic/Latino; non-Hispanic American Indian or Alaska Native, Native Hawaiian and Other Pacific Islander, or Multiracial [AIAN/NHOPI/Multiracial]; non-Hispanic Asian [Asian]; or non-Hispanic Black or African American [Black]), age (3, 4, or 5 years), sex (male or female), receiving care from others ≥10 hours/-week (yes or no), presence of special health care needs (per NSCH definition; yes or no), and weekday screen time (≤1 hour/day or ≥2 hours/day). The highest education level of a household adult (high school or less, some college or an associate degree, or 4-year college degree or higher) was also included.

Eleven neighborhood characteristics were used.[19] Adult proxies reported the presence or absence of attributes in the child's neighborhood: sidewalks/walking paths, park/playground, recreation center, library/bookmobile, litter/garbage, poorly kept/rundown housing, and vandalism. Additionally, adult proxies indicated their level of agreement (definitely agree, somewhat agree, somewhat disagree, definitely disagree) with 4 statements: "people in this neighborhood help each other out," "we watch out for each other's children in this neighborhood," "this child is safe in our neighborhood," and "when we encounter difficulties, we know where to go for help in our community." For each statement, the responses were dichotomized (definitely/somewhat agree or definitely/somewhat disagree).

Finally, U.S. state of residence as well as whether the child lived in a Metropolitan Statistical Area (MSA) (yes or no) were used. MSAs, as drawn by the U.S. Office of Management and Budget, are urban geographic regions with relatively high core population density and economic ties.[16]

Statistical Analysis

All children aged 3–5 years who had complete data for outdoor play on both weekdays and weekend days were included in this analysis. Prevalence estimates and 95% CIs were calculated for time playing outdoors on weekdays and weekend days by sociodemographic, neighborhood, and geographic characteristics. Differences were assessed using chi-square tests. Two separate multiple logistic regression models estimated adjusted prevalence ratios (aPRs) and 95% CIs for low time playing outdoors on weekdays and on weekend days. Because the low time playing outdoors outcomes would be relatively common in this cross-sectional study, aPRs were used to avoid overestimating the strength of association. Sociodemographic and neighborhood characteristics that were statistically significant in chi-square tests were included in the models. Significance level was $p<0.05$. Based on NSCH analytic guidance, estimates were flagged for poor reliability if they had a 95% CI width >20 percentage points or relative standard error >30%.[16] State-level estimates of low time playing outdoors were used to produce maps (QGIS 3.14.16-Pi). SAS-callable SUDAAN (version 11.0; Research Triangle Institute, Research Triangle Park, NC) was used to account for complex survey design and weights.

RESULTS

On weekdays, 36.9% of preschool-aged children played outdoors for ≤1 hour, 34.3% for 2 hours, and 28.8% for ≥3 hours. On weekend days, 23.7% played outdoors for ≤1 hour, 27.0% for 2 hours, and 49.3% for ≥3 hours (Table 1).

On weekdays, time playing outdoors differed by race/ethnicity (e.g., low time playing outdoors: Asian 51.4%, Hispanic/Latino 45.3%, Black 43.0%, AIAN/NHOPI/Multiracial 40.4%, White 28.9%); receiving care from others (low time playing outdoors: <10 hours/week of care 42.1%, ≥10 hours/week of care 31.8%); weekday screen time (low time playing outdoors: ≥2 hours/weekday of screen time 38.8%, ≤1 hours/weekday of screen time 33.6%); and sex (low time playing outdoors: female 39.5%, male 34.5%).

On weekend days, time playing outdoors differed by race/ethnicity (low time playing outdoors: Asian 35.8%, Black 34.6%, Hispanic/Latino 33.9%, AIAN/NHOPI/Multiracial 25.1%, White 13.7%); receiving care from others (low time playing outdoors: <10 hours/week of care 27.9%, ≥10 hours/week of care 20.0%); weekday screen time (low time playing outdoors: ≥2 hours/weekday of screen time 25.6%, ≤1 hours/weekday of screen time 20.0%); and highest adult education level (low time playing outdoors: high school education or less 29.8%, some college or associate degree 24.6%, 4-year college degree or higher 20.2%). There were no significant differences by age or presence of special health care needs for weekdays or weekend days.

Of the neighborhood characteristics, the distribution of children's time playing outdoors varied by the presence or absence of sidewalks/walking paths and by agreement/disagreement with all statements except "this child is safe in our neighborhood" for both weekday and weekend days (Table 2).

Children's time playing outdoors also differed geographically. For example, children living in MSAs had a prevalence of low time playing outdoors of 38.6% (vs 26.4% in non-MSAs) on weekdays and 25.0% (vs 15.4% in non-MSAs) on weekend days (Table 1). Four states had ≥30% of children with low time playing outdoors on weekend days. Thirty states had ≥30% of children with low time playing outdoors on weekdays (Figure 1). On the other hand, 11 states, primarily in the U.S. North, had ≥40% of children playing outdoors for ≥3 hours on weekdays. Overall, children's time playing outdoors ranged widely by state. State estimates are in Appendix Table 1 (available online).

In the adjusted weekday and weekend day models, prevalence of low time playing outdoors was higher for all races/ethnicities (aPR: weekdays Asian 1.65, Hispanic/Latino 1.36, AIAN/NHOPI/Multiracial 1.35, Black 1.28; weekend days Asian 2.37, Black 1.94, Hispanic/Latino 1.93, AIAN/NHOPI/Multiracial 1.64) compared to White children; for children who do not receive ≥10 hours/week of care from others (aPR: weekdays 1.29, weekend days 1.21) compared to children who do; for children who live in MSAs (aPR: weekdays 1.27, weekend days 1.34) compared to children who do not; and for children whose adult proxy definitely/somewhat disagreed with the statement, "we watch out for each other's children in this neighborhood" (aPR: weekdays 1.27, weekend days 1.34) compared to those whose adult proxy definitely/somewhat agreed with it. Additionally, in the weekday model only, prevalence of low time playing outdoors was higher for girls (aPR: 1.18) compared with boys (Table 3).

DISCUSSION

This is the first study to provide national and state estimates of time playing outdoors among preschool-aged children in the U.S. Overall, about a third of preschool-aged children on weekdays and about a quarter on weekend days have low time playing outdoors. When adjusted, there were differences in low time playing outdoors by race/ethnicity, MSA status, sex (weekdays only), child care participation, and agreement with "we watch out for each other's children in this neighborhood." These results may be useful for establishing national

baseline values, and the disparities documented in this study could help identify priority populations for future study and intervention.

For example, this study observed differences in time playing outdoors by sex (on weekdays) and race/ethnicity. These findings have some similarities to disparities in older children's PA by sex and race/ethnicity documented elsewhere in the PA literature, where female sex and non-White race have been correlated with lower levels of physical activity.[20,21] In adjusted models, all minority racial/ethnic groups had higher prevalence of low time playing outdoors than their White counterparts, and non-Hispanic Asian children had the highest prevalence of low time playing outdoors, suggesting that supports for children of races/ethnicities that have less time playing outdoors could be considered.

The higher likelihood of low time playing outdoors among children who live in MSAs could be partly related to neighborhood characteristics such as safety and convenience of outdoor spaces.[17] These results suggest that community organizations, policymakers, and researchers can contribute to health equity by providing additional support to children living in MSAs. For example, neighborhood parks and greenspace have been associated with higher levels of outdoor play in preschool children, and community organizations, "park prescription" programs, and youth sports/activity programs can provide additional opportunities for outdoor time.[18]

A notable finding was that children who received care from others for ≥10 hours/ week tended to spend more time playing outdoors. Although non-parental child care arrangements, which 59% of U.S. children under age 5 years participate in at least once per week,[22] vary widely, it is possible that ECE settings provide additional opportunities for children to participate in outdoor play. For example, state child care licensing regulations might include minimum standards around PA and outdoor play opportunities from the National Caring for Our Children Standards for ECE Programs.[3] Studies have found that children in ECE programs with environments supportive of PA or outdoor play achieved more MVPA and spent less time in sedentary activities compared to programs with less supportive environments.[23] Additionally, scheduling multiple periods of outdoor free-play during an ECE program day can increase children's MVPA while in attendance.[24]

There were no significant differences in time playing outdoors by presence of special health care needs, which differs from the results of other PA studies in older age groups. While outdoor time data are limited for older age groups, PA studies of children and young adults have found that people aged 6–21 years with disabilities had lower odds of being sufficiently active compared to peers without disabilities.[25] In the present study, the oversampling of children with special health care needs in the 2021 NSCH provided an opportunity to understand this population's time playing outdoors. Future studies might assess the drivers of differences in PA or time playing outdoors as children with special health care needs or disabilities age and how to support their activity outdoors.

Additionally, low time playing outdoors on both weekdays and weekend days varied by agreement with the statement "we watch out for each other's children in this neighborhood." Other studies have suggested that mothers' perceptions of their neighborhoods as "a

good place to bring up children" are positively associated with 2-year-old children's time playing outdoors, and that children's PA levels are negatively correlated with parental anxiety about neighborhood safety.[26,27] Parents in these studies who perceived their neighborhoods negatively tended to have more negative attitudes toward PA, but building social relationships, camaraderie, and neighborhood cohesion can increase self-efficacy for PA for parents and their families.[28] Community-led, culturally-relevant interventions and community-based participatory research to build neighborhood cohesion and social support may be important for supporting outdoor play.[29]

Finally, geographic variation was observed, with nearly half of preschool-aged children in many southern states with low time playing outdoors on weekdays. Weather differs among states, and seasonality of survey administration could partially explain these geographic differences. However, the maps in Figure 1 show some similar geographic patterns to U.S. adult physical inactivity prevalence maps created using 2017–2020 Behavioral Risk Factor Surveillance System data.[11] Geographic variation highlights opportunities for interventions tailored to state and local context including to weather, physical environment, and norms around outdoor play.

Given the many physical health and socioemotional benefits of outdoor play in preschool-aged children, public health interventions such as patient education in pediatric primary care, outdoor play space enhancements, and technical assistance for preschool programs might be implemented to promote regular structured and unstructured opportunities for children to increase time playing outdoors. Interventions could focus on increasing outdoor play opportunities and reducing potential barriers for subgroups of children who have less outdoor time.

Limitations

There are several limitations to this study. First, these data were collected for the first time in 2021, during the COVID-19 pandemic. Literature suggests that the pandemic changed how much time preschool-aged children spend outdoors, and the Centers for Disease Control and Prevention's COVID-19 guidance for ECE programs and K–12 schools encouraged outdoor play, meals, and gathering.[30,31] Thus, 2021 estimates may differ considerably from non-pandemic years, but previous data years are not available for comparison. Second, the accuracy of adult proxy-report may differ based on care patterns (i.e., in or outside of home) and is subject to response bias. Third, there is a risk of Type I error given the large sample size and number of characteristics included. Fourth, outdoor play behaviors vary seasonally over the course of the year, and a respondent living in the same state may answer differently depending on the time of year. However, respondents in each state had the opportunity to answer the questionnaire across the June–January data collection window, so state estimates represent an average across several months. Finally, "time playing outdoors" is not equivalent to "physical activity time" for this age group. While time playing outdoors is a meaningful measure for preschool-aged children and has been correlated with accelerometer-measured PA,[15] it is not a direct measure of PA time and cannot be directly linked to meeting a guideline or recommendation.

This study also has several strengths. The NSCH is a large, nationally representative dataset that collects thorough information on child health in the U.S. Additionally, the oversampling of preschool-aged children and children with special health care needs in 2021 provided adequate sample size across sociodemographic, neighborhood, and geographic characteristics. Finally, this is the first time a survey of this size has included questions assessing time playing outdoors in this age group, so this analysis provides novel insight about preschool-aged children in the U.S.

CONCLUSIONS

Time playing outdoors contributes to the health and development of preschool-aged children, and this study provides the first national and state estimates of time playing outdoors among this age group. Using 2021 National Survey of Children's Health data, this study found that about a third of preschool-aged children on weekdays and about a quarter on weekend days play outdoors for 1 hour or less. Disparities across race/ethnicity, child care participation, MSA status, and sex, as well as the perception of a supportive neighborhood environment, suggest a need for future study and intervention to support caregivers and communities, strengthen neighborhood cohesion, and promote environments conducive to increased time playing outdoors and its many physical and socioemotional health benefits.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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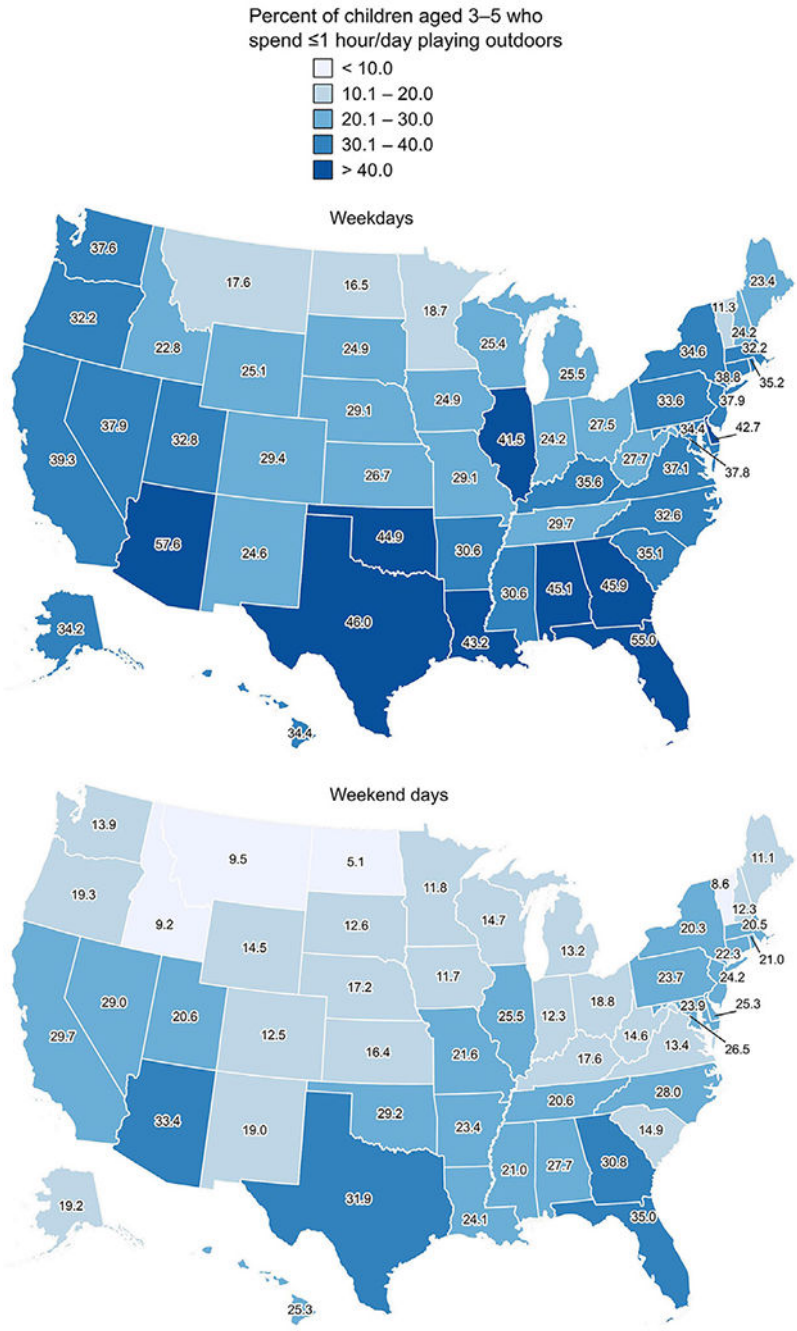

Figure 1.

Weighted prevalence of ≤1 hour/day of time playing outdoors, by state, children aged 3–5 years, National Survey of Children's Health, 2021.[a]

[a] Refer to Appendix Table 1 (available online) for 95% CIs and flags for poor reliability for state estimates.

Table 1.

Time Playing Outdoors by Sociodemographic Characteristics, Children 3–5 Years, National Survey of Children's Health, 2021

		Weekdays, hours/day spent playing outdoors [% (95% CI)]				Weekend days, hours/day spent playing outdoors [% (95% CI)]			
Characteristics	**Unweighted n**	**≤1**	**2**	**≥3**	***p*-value**	**≤1**	**2**	**≥3**	***p*-value**
Overall	11743	36.9 (34.7, 39.2)	34.3 (32.2, 36.5)	28.8 (27.0, 30.6)		23.7 (21.6, 25.9)	27.0 (25.0, 29.2)	49.3 (47.1, 51.5)	
Race/Ethnicity					**<0.0001**				**<0.0001**
Non-Hispanic White	7795	28.9 (26.7, 31.2)	35.4 (33.2, 37.7)	35.7 (33.5, 37.9)		13.7 (12.3, 15.3)	24.2 (22.0, 26.5)	62.1 (59.7, 64.4)	
Hispanic or Latino	1542	45.3 (39.2, 51.5)	33.4 (27.9, 39.5)	21.2 (17.4, 25.7)		33.9 (28.0, 40.3)	28.1 (22.9, 34.0)	38.0 (32.6, 43.7)	
Non-Hispanic American Indian or Alaska Native, Native Hawaiian and Other Pacific Islander, or Multiracial	997	40.4 (34.3, 46.9)	33.0 (26.9, 39.7)	26.6 (21.8, 31.9)		25.1 (19.3, 31.9)	27.7 (22.8, 33.1)	47.3 (40.9, 53.7)	
Non-Hispanic Asian	707	51.4 (43.5, 59.2)	33.2 (25.5, 42.0)	15.4 (11.2, 20.9)		35.8 (28.6, 43.8)	37.3 (29.8, 45.4)	26.8 (21.1, 33.5)	
Non-Hispanic Black or African American	702	43.0 (36.7, 49.6)	33.0 (26.7, 40.0)	24.0 (18.6, 30.3)		34.6 (28.8, 41.0)	31.4 (25.3, 38.1)	34.0 (27.9, 40.7)	
Age (years)					0.3497				0.6003
3	3811	36.3 (32.5, 40.3)	37.1 (33.3, 41.0)	26.6 (23.7, 29.7)		24.4 (20.9, 28.2)	28.8 (25.2, 32.6)	46.9 (43.0, 50.7)	
4	3992	37.7 (33.6, 42.0)	32.9 (29.2, 36.9)	29.4 (26.2, 32.8)		22.5 (18.7, 26.8)	26.2 (22.7, 30.1)	51.3 (47.1, 55.4)	
5	3940	36.7 (33.3, 40.2)	33.0 (29.6, 36.4)	30.4 (27.3, 33.6)		24.2 (21.1, 27.7)	26.1 (22.8, 29.6)	49.7 (46.2, 53.3)	
Sex					**0.0267**				0.0948
Male	6117	34.5 (31.6, 37.5)	34.6 (31.7, 37.5)	31.0 (28.4, 33.7)		21.9 (19.3, 24.7)	26.5 (23.9, 29.4)	51.6 (48.6, 54.6)	
Female	5626	39.5 (36.1, 43.0)	34.1 (30.9, 37.3)	26.4 (24.0, 29.0)		25.6 (22.4, 29.0)	27.6 (24.5, 30.8)	46.9 (43.6, 50.2)	
Receive care from others ≥ 10 hours/week					**<0.0001**				**0.0003**
Yes	6947	31.8 (29.1, 34.5)	37.5 (34.6, 40.4)	30.8 (28.3, 33.4)		20.0 (17.7, 22.4)	26.7 (24.1, 29.5)	53.4 (50.4, 56.3)	
No	4643	42.1 (38.6, 45.8)	31.3 (28.1, 34.6)	26.6 (24.0, 29.3)		27.9 (24.4, 31.7)	27.0 (23.9, 30.4)	45.1 (41.7, 48.5)	
Special health care needs					0.1870				0.0781
No	10016	36.2 (33.8, 38.8)	34.5 (32.2, 36.9)	29.3 (27.3, 31.3)		29.2 (24.5, 34.5)	27.3 (25.0, 29.6)	49.9 (47.5, 52.4)	
Yes	1727	41.3 (36.1, 46.7)	33.1 (28.0, 38.7)	25.5 (21.0, 30.7)		22.8 (20.5, 25.2)	25.6 (21.2, 30.5)	45.2 (39.8, 50.7)	
Weekday screen time					**0.0337**				**0.0371**
≤1 hour/day	5122	33.6 (30.1, 37.3)	35.0 (31.9, 38.3)	31.3 (28.5, 34.3)		20.0 (16.8, 23.6)	28.4 (25.4, 31.6)	51.6 (48.1, 55.1)	

Characteristics	Unweighted n	Weekdays, hours/day spent playing outdoors [% (95% CI)]			*p*-value	Weekend days, hours/day spent playing outdoors [% (95% CI)]			*p*-value
		≤1	2	≥3		≤1	2	≥3	
≥2 hours/day	6538	38.8 (36.0, 41.8)	34.2 (31.3, 37.2)	27.0 (24.7, 29.4)		25.6 (23.0, 28.4)	26.4 (23.7, 29.3)	48.0 (45.0, 50.9)	
Highest adult education level					0.0567				**0.0223**
High school or less	1651	40.4 (34.8, 46.3)	30.1 (25.2, 35.4)	29.5 (25.4, 33.9)		29.8 (24.5, 35.7)	25.5 (21.0, 30.6)	44.7 (39.4, 50.1)	
Some college or associate degree	2297	39.4 (34.8, 44.2)	31.9 (28.0, 36.1)	28.7 (25.2, 32.5)		24.6 (20.5, 29.3)	25.9 (22.0, 30.2)	49.4 (44.9, 54.0)	
College degree or higher	7795	34.3 (31.9, 36.7)	37.3 (34.7, 40.0)	28.4 (26.2, 30.8)		20.2 (18.1, 22.4)	28.2 (25.7, 30.9)	51.6 (49.0, 54.3)	
MSA status					**<0.0001**				**<0.0001**
Lives in MSA	8575	38.6 (36.0, 41.3)	34.6 (32.1, 37.2)	26.8 (24.8, 28.9)		25.0 (22.5, 27.5)	28.1 (25.7, 30.6)	47.0 (44.4, 49.5)	
Does not live in MSA	1940	26.4 (22.4, 30.8)	31.7 (27.6, 36.0)	42.0 (37.7, 46.4)		15.4 (12.3, 19.1)	20.6 (16.7, 25.0)	64.0 (59.3, 68.4)	

Note: Boldface indicates statistical significance ($p<0.05$) for chi-square test within each subgroup. Percentages are weighted prevalence.

Respondents with missing data for a specific characteristic were excluded from analysis of that characteristic, so denominators may not sum to overall total due to missing data. MSA, Metropolitan Statistical Area.

Table 2.

Time Playing Outdoors by Neighborhood Characteristics, Children 3–5 Years, National Survey of Children's Health, 2021

Characteristics	Unweighted n	Weekdays, hours/day spent playing outdoors [% (95% CI)]			*p*-value	Weekend days, hours/day spent playing outdoors [% (95% CI)]			*p*-value
		≤1	2	≥3		≤1	2	≥3	
Overall	11743	36.9 (34.7, 39.2)	34.3 (32.2, 36.5)	28.8 (27.0, 30.6)		23.7 (21.6, 25.9)	27.0 (25.0, 29.2)	49.3 (47.1, 51.5)	
Sidewalks or walking paths					**0.0174**				**0.0097**
Present	8745	37.5 (34.9, 40.2)	35.0 (32.4, 37.7)	27.5 (25.4, 29.7)		24.5 (22.1, 27.1)	27.7 (25.3, 30.3)	47.7 (45.1, 50.4)	
Absent	2791	33.1 (29.2, 37.3)	33.5 (29.8, 37.4)	33.4 (30.0, 36.9)		20.2 (16.7, 24.2)	24.1 (20.7, 27.9)	55.7 (51.6, 59.8)	
Park or playground					0.0993				0.4427
Present	8992	35.7 (33.3, 38.3)	35.5 (33.1, 38.1)	28.8 (26.7, 30.9)		22.8 (20.6, 25.2)	27.4 (25.1, 29.9)	49.7 (47.2, 52.3)	
Absent	2521	39.3 (34.3, 44.6)	32.0 (27.5, 36.7)	28.7 (25.1, 32.6)		26.1 (21.4, 31.5)	25.0 (21.0, 29.5)	48.9 (44.0, 53.8)	
Recreation center					0.6058				0.2797
Present	5056	35.5 (32.3, 39.0)	34.9 (31.8, 38.2)	29.5 (26.8, 32.5)		23.1 (20.0, 26.6)	27.3 (24.3, 30.6)	49.6 (46.2, 52.9)	
Absent	6453	37.4 (34.4, 40.6)	34.1 (31.1, 37.1)	28.5 (26.1, 31.0)		23.7 (21.0, 26.6)	26.5 (23.7, 29.4)	49.9 (46.8, 53.0)	
Library or bookmobile					0.3711				0.6170
Present	7559	35.3 (32.7, 38.0)	34.9 (32.3, 37.6)	29.8 (27.5, 32.2)		23.0 (20.5, 25.7)	27.8 (25.2, 30.5)	49.3 (46.5, 52.0)	
Absent	3949	38.9 (34.9, 43.1)	33.6 (29.9, 37.4)	27.5 (24.5, 30.7)		24.3 (20.9, 28.1)	25.5 (22.3, 29.1)	50.1 (46.1, 54.1)	
No litter or garbage					0.3155				0.3548
Present	9398	35.8 (33.4, 38.4)	34.5 (32.1, 36.9)	29.7 (27.6, 31.8)		23.4 (21.1, 25.8)	26.7 (24.5, 29.1)	49.9 (47.4, 52.4)	
Absent	2108	39.4 (34.1, 45.0)	34.8 (29.7, 40.3)	25.8 (21.8, 30.2)		24.2 (19.9, 29.2)	27.0 (22.2, 32.5)	48.7 (43.3, 54.2)	
No poorly kept or rundown housing					0.2884				0.0720
Present	10141	36.0 (33.8, 38.3)	34.5 (32.3, 36.9)	29.4 (27.5, 31.4)		22.5 (20.5, 24.6)	27.5 (25.3, 29.9)	50.0 (47.6, 52.3)	
Absent	1372	39.5 (32.2, 47.4)	35.1 (28.7, 42.0)	25.3 (20.3, 31.1)		30.0 (22.8, 38.3)	22.2 (17.3, 28.0)	47.8 (40.7, 55.1)	
No vandalism					0.5274				0.1442
Present	10818	36.3 (34.0, 38.6)	34.9 (32.7, 37.2)	28.8 (27.0, 30.6)		23.3 (21.3, 25.6)	27.4 (25.3, 29.7)	49.2 (47.0, 51.5)	
Absent	700	[a]39.6 (29.5, 50.6)	30.8 (22.4, 40.7)	29.6 (20.7, 40.3)		24.9 (16.3, 36.0)	20.7 (14.7, 28.3)	[a]54.4 (43.8, 64.6)	
People in this neighborhood help each other out					**0.0017**				**0.0009**
Definitely or somewhat agree	10276	34.6 (32.4, 37.0)	34.9 (32.7, 37.3)	30.4 (28.5, 32.4)		21.3 (19.2, 23.6)	27.5 (25.3, 29.8)	51.2 (48.8, 53.6)	

Characteristics	Unweighted n	Weekdays, hours/day spent playing outdoors [% (95% CI)]			*p*-value	Weekend days, hours/day spent playing outdoors [% (95% CI)]			*p*-value
		≤1	2	≥3		≤1	2	≥3	
Definitely or somewhat disagree	1230	46.4 (39.6, 53.3)	32.9 (26.8, 39.8)	20.7 (16.0, 26.3)		37.3 (30.8, 44.3)	24.1 (19.1, 30.0)	38.6 (32.1, 45.5)	
We watch out for each other's children in this neighborhood					**<0.0001**				**<0.0001**
Definitely or somewhat agree	9889	33.7 (31.4, 36.1)	35.0 (32.7, 37.3)	31.3 (29.3, 33.4)		20.7 (18.6, 23.1)	26.8 (24.6, 29.0)	52.5 (50.1, 54.9)	
Definitely or somewhat disagree	1597	48.6 (42.3, 54.9)	33.0 (27.1, 39.4)	18.5 (14.5, 23.2)		36.6 (30.9, 42.8)	28.5 (22.7, 35.0)	34.9 (29.4, 40.9)	
This child is safe in our neighborhood					0.0513				0.2963
Definitely or somewhat agree	11005	35.3 (33.1, 37.6)	35.1 (32.9, 37.3)	29.6 (27.8, 31.5)		22.7 (20.6, 24.9)	27.3 (25.2, 29.5)	50.0 (47.8, 52.3)	
Definitely or somewhat disagree	484	[a]50.3 (38.9, 61.7)	29.2 (20.4, 39.8)	20.5 (12.6, 31.7)		[a]36.1 (25.5, 48.2)	23.6 (15.7, 33.9)	[a]40.2 (29.5, 52.0)	
When we encounter difficulties, we know where to go for help in our community					**0.0033**				**0.0461**
Definitely or somewhat agree	9830	34.8 (32.5, 37.1)	34.5 (32.3, 36.8)	30.7 (28.7, 32.7)		22.0 (19.9, 24.2)	26.8 (24.6, 29.0)	51.2 (48.9, 53.6)	
Definitely or somewhat disagree	1658	43.7 (37.3, 50.3)	34.8 (28.8, 41.4)	21.5 (17.2, 26.4)		30.7 (24.6, 37.4)	28.3 (22.5, 34.8)	41.1 (35.2, 47.3)	

Source: The U.S. Census Bureau, Associate Director of Demographic Programs, National Survey of Children's Health. 2021 National Survey of Children's Health Frequently Asked Questions. January 2023. Available from: https://www.census.gov/programs-surveys/nsch/data/datasets.html.

Note: Boldface indicates statistical significance ($p<0.05$) for chi-square test within each subgroup. Percentages are weighted prevalence.

Respondents with missing data for a specific characteristic were excluded from analysis of that characteristic, so denominators may not sum to overall total due to missing data.

[a]Based on National Survey of Children's Health data presentation criteria, estimate flagged for poor reliability (i.e., 95% CI width > 20 percentage points or relative standard error > 30%).

Table 3.

Adjusted Prevalence Ratios of ≤1 Hour/Day Playing Outdoors, Children 3–5 Years, National Survey of Children's Health, 2021 (n=10,200)

Characteristics[a]	Weekdays, ≤1 hour/day spent playing outdoors aPR (95% CI)[b]	Weekend days, ≤1 hour/day spent playing outdoors aPR (95% CI)[c]
Race/ethnicity		
Non-Hispanic White	Referent	Referent
Hispanic or Latino	**1.36 (1.14, 1.61)**	**1.93 (1.54, 2.42)**
Non-Hispanic American Indian or Alaska Native, Native Hawaiian and Other Pacific Islander, or Multiracial	**1.35 (1.13, 1.61)**	**1.64 (1.21, 2.21)**
Non-Hispanic Asian	**1.65 (1.38, 1.97)**	**2.37 (1.84, 3.06)**
Non-Hispanic Black or African American	**1.28 (1.06, 1.54)**	**1.94 (1.50, 2.51)**
Sex		
Male	Referent	–
Female	**1.18 (1.04, 1.33)**	–
Receive care from others ≥ 10 hours/week		
Yes	Referent	Referent
No	**1.29 (1.14, 1.46)**	**1.21 (1.02, 1.44)**
Weekday screen time		
≤1 hour/day	Referent	Referent
≥2 hours/day	1.06 (0.93, 1.21)	1.06 (0.87, 1.30)
Highest adult education level		
High school or less	–	1.14 (0.91, 1.43)
Some college or associate degree	–	1.09 (0.87, 1.37)
College degree or higher	–	Referent
MSA status		
Lives in MSA	**1.27 (1.07, 1.50)**	**1.34 (1.04, 1.73)**
Does not live in MSA	Referent	Referent
Sidewalks or walking paths		
Present	1.04 (0.90, 1.20)	1.09 (0.88, 1.35)
Absent	Referent	Referent

Characteristics[a]	Weekdays, ≤1 hour/day spent playing outdoors aPR (95% CI)[b]	Weekend days, ≤1 hour/day spent playing outdoors aPR (95% CI)[c]
People in this neighborhood help each other out		
Definitely or somewhat agree	Referent	Referent
Definitely or somewhat disagree	1.08 (0.87, 1.36)	1.33 (0.98, 1.80)
We watch out for each other's children in this neighborhood		
Definitely or somewhat agree	Referent	Referent
Definitely or somewhat disagree	**1.27 (1.04, 1.54)**	**1.34 (1.02, 1.76)**
When we encounter difficulties, we know where to go for help in our community		
Definitely or somewhat agree	Referent	Referent
Definitely or somewhat disagree	1.05 (0.87, 1.27)	0.99 (0.75, 1.32)

Note: Prevalence ratios shown in bold are significantly different from 1.0 ($p<0.05$).

– Indicates that a characteristic did not have a statistically significant Chi-square test (see Tables 1 and 2) and was not included in the adjusted modeling process.

[a] Characteristics included due to statistically significant Chi-square test within each subgroup (see Tables 1 and 2).

[b] Prevalence ratios adjusted for race/ethnicity, sex, status of receiving care from others ≤10 hours/week, weekday screen time, MSA status, reporting of present or absent sidewalks or walking paths, agreement with "people in this neighborhood help each other out," agreement with "we watch out for each other's children in this neighborhood," and agreement with "when we encounter difficulties, we know whereto go for help in our community."

[c] Prevalence ratios adjusted for race/ethnicity, status of receiving care from others ≤10 hours/week, weekday screen time, adult education level, MSA status, reporting of present or absent sidewalks or walking paths, agreement with "people in this neighborhood help each other out," agreement with "we watch out for each other's children in this neighborhood," and agreement with "when we encounter difficulties, we know where to go for help in our community."

aPR, adjusted prevalence ratio; MSA, Metropolitan Statistical Area.