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Fears of Violence During Morning Travel to School

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Abstract
PURPOSE: Children's safety as they travel to school is a concern nationwide. We investigated how safe children felt from the risk of being assaulted during morning travel to school.

METHODS: Children between 10 and 18 years old were recruited in Philadelphia and interviewed with the aid of geographic information system (GIS) mapping software about a recent trip to school, situational characteristics, and how safe they felt as they travelled based on a 10-point item (1 = very unsafe, 10 = very safe). Ordinal regression was used to estimate the probability of perceiving different levels of safety based on transportation mode, companion type, and neighborhood characteristics.

RESULTS: Among 65 randomly selected subjects, routes to school ranged from 7 to 177 minutes (median = 36) and .1-15.1 street miles (median = 1.9), and included between 1-5 transportation modes (median = 2). Among students interviewed, 58.5% felt less than very safe (i.e.,8, for example, was .99 while in a car and .94 while on foot but was .86 and .87 when on a public bus or trolley. Probability was .98 while with an adult but was .72 while with another child and .71 when alone. Also, perceived safety was lower in areas of high crime and high density of off-premise alcohol outlets.

CONCLUSIONS: Efforts that target situational risk factors are warranted to help children feel safe over their entire travel routes to school.

Keywords
Adolescent, Child, Fear, Humans, Interviews as Topic, Male, Philadelphia, Safety, Schools, Students, Transportation, Violence

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Fears of Violence During Morning Travel to School

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Abstract

Purpose—Children's safety as they travel to school is a concern nationwide. We investigated how safe children felt from the risk of being assaulted during morning travel to school.

Methods—Children between 10 and 18 years old were recruited in Philadelphia and interviewed with the aid of geographic information system (GIS) mapping software about a recent trip to school, situational characteristics, and how safe they felt as they travelled based on a 10-point item (1 = very unsafe, 10 = very safe). Ordinal regression was used to estimate the probability of perceiving different levels of safety based on transportation mode, companion type, and neighborhood characteristics.

Results—Among 65 randomly selected subjects, routes to school ranged from 7 to 177 minutes (median = 36) and .1–15.1 street miles (median = 1.9), and included between 1–5 transportation modes (median = 2). Among students interviewed, 58.5% felt less than very safe (i.e., <10) at some point while traveling to school and one-third (32.5%) of the total person time was spent feeling less than very safe. Nearly a quarter of students, or 24.6%, felt a reduction in safety immediately upon exiting their home. The probability of reporting a safety of >8, for example, was .99 while in a car and .94 while on foot but was .86 and .87 when on a public bus or trolley. Probability was .98 while with an adult but was .72 while with another child and .71 when alone. Also, perceived safety was lower in areas of high crime and high density of off-premise alcohol outlets.

Conclusions—Efforts that target situational risk factors are warranted to help children feel safe over their entire travel routes to school.

Keywords

Adolescent health; Violence; Fear; Community health

The proportion of American children who walk to school is decreasing, contributing to sedentary lifestyles with long-term health consequences [1–3]. Parents cite physical barriers

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to walkability–cracked sidewalks, parked cars that block pedestrians' views, traffic signals that don't give pedestrians time to cross–as reasons for not letting their children walk to school [1–3]. Neighborhood violence is also a barrier [4]. In 2007, 5.5% of U.S. high school students reported not going to school one or more days in the past month because they felt unsafe at school or on their way to or from school [5].

Perhaps the best indicator that concern over children walking to school is widespread is the extent of community response. Creating "safe routes to school" has become a nationwide phenomenon. The Safe Routes to School National Partnership, funded by the Centers for Disease Control and Prevention (CDC) and the Robert Wood Johnson Foundation, is a network of nonprofit organizations, government agencies, schools, and professionals working to create safe routes to school in communities across the United States [6]. Examples include Flagstaff, Arizona and Austin, Texas, where parent-supervised Walking School Bus programs were introduced in areas notorious for their criminal activity in the hopes of ensuring pupils' safety on the way to school [7–9].

The value of using federal dollars for safe-route programs was recently questioned. In 2011, the House Transportation and Infrastructure Committee announced that a bill would eliminate the Safe Routes to School Program for being "not in the federal interest." A similar bill that would have seriously affected safe routes to school was introduced in the Senate [10]. Grant funding is only one type of investment that has made safe-route initiatives possible. Another is the time and effort of the thousands of dedicated program staff and adult volunteers who orchestrate the convoys that usher children from their homes to schools unharmed.

Despite this mobilization of efforts to create safe passage, little research effort has been dedicated to understanding the fear of neighborhood violence that children may experience as they traverse the environment between their home and their school. We investigated this issue, aiming to identify situational and environmental factors to target with interventions that promote feelings of safety and healthy development for children [11].

Methods

Design

We used interview data to study the minute-to-minute experiences of youth as they traveled to school.

Sample recruitment

We analyzed a subset of the data from the Space-Time Adolescent Risk Study (STARS) of violence. The STARS is set in Philadelphia, Pennsylvania, and uses a case-control design. The case subjects are 10–24-year-olds who were assaulted and treated in a hospital emergency department. Household random-digit dialing [12] was used to recruit 10–24-year-olds from the general population as control subjects. Because the STARS matches controls to cases by race and sex, and because almost all the case subjects were African-American and male, almost all of the controls were African-American and male. Other design issues were described previously [13].

Participants

The participants here are the 10–18-year-old control subjects who were interviewed about their activities on a day when they went to school. All are African-American and male. Remuneration was $50 for minors and $100 for 18-year-olds.

Technique for collecting activity paths and perceived safety

The interview included a questionnaire about the subjects and their neighborhoods. Of interest here is the 18-item Neighborhood Environment Scale, which uses true-false responses and has been found to have good internal consistency (Kuder-Richardson 20 reliability = .85) [14]. Results range from 0–18, where higher values indicate a greater degree of neighborhood disadvantage. Items include "I feel safe when I walk around my neighborhood by myself"; "There are plenty of safe places to walk or play outdoors in my neighborhood"; "Every few weeks, a kid in my neighborhood gets beat-up or mugged"; and "In my neighborhood, the people with the most money are drug dealers."

Next, the subject and interviewer viewed a tablet computer running a customized version of ArcEngine software (ESRI, Inc., Redlands, CA) that showed a street map of the subject's residential area and, when zoomed out, the entirety of Philadelphia. The subject was asked to sequentially report his daily activities by location and time, starting with the time he woke up in the morning. Using a stylus to draw points on the map, the interviewer created a minute-by-minute record of how, when, where, and with whom the subject spent time until going to bed, including the time he spent walking or otherwise travelling from location to location and activity to activity.

Subjects were asked to report their activities on a recent day within 3 days of the interview, determined randomly. Each subject was asked to report their status on several elements continually throughout their travel: transportation mode, who they were with, and how safe they felt in terms of their risk of being assaulted. Perceived safety was reported on a scale from 1 (very unsafe) to 10 (very safe). To encourage reporting repeatedly for each instance of a perceived change in safety, subjects were handed a cue card showing a 24-hour timeline with graphics representing response options for each item of interest. The perceived safety item was a horizontal visual-analogue scale numbered from 10 at the left to 1 at the right, with a smiling face symbol at the left and a frowning face symbol at the right end. Above it was written "How safe did you feel?" It was explained to subjects that this referred to safety from being "beaten up or hurt by other people." Subjects were asked to report their perceived safety starting with the first point of their day and report any change at the time it occurred, and they were frequently reminded to do so. Each time the subject reported a change in safety level or a change in transportation mode or companion type, a new path point was placed on the map. Afterward, the data were processed to represent minute-by-minute travel, with one row for each minute of each subject's travel, with each minute coded with the perceived safety level. Thus the working dataset had one row for each minute of each subject's travel time.

Environment factors

We accessed Philadelphia Census tract and block-group data on characteristics associated with violence [15–17] that we hypothesized could affect children's perceived safety [18]: percent of population below poverty, percent of female-headed households, percent African-American, and percent vacant buildings [13]. The prevalence of on-premise and off-premise alcohol outlets was obtained from the Pennsylvania Liquor Control Board. We included two variables McWayne et al. constructed using factor analysis of block-group data: structural dangers (fires on property, high lead, and dangerous property, such as boarded up homes) and social stresses (truant youth, children in poverty, teen births, and substantiated child abuse cases) [19]. We also included a crime variable that McWayne et al. (not published) derived with the same approach to represent Part I crimes (including homicide, robbery, and aggravated assault) [20]. Each of these three variables was standardized (z-score: mean = 0, standard deviation [SD] = 1). We linked each variable to each path point for each subject by latitude and longitude.

Analysis

We examined perceived safety for the portion of subjects' reporting periods that spanned from the moment they woke up until the moment they entered their school. Analysis involved descriptive statistics including the Kuder-Richardson 20 to evaluate the internal consistency of the Neighborhood Environment Scale. We graphed examples of subjects' perceived levels of safety during their travel and depictions of subjects' routes travelled, by latitude and longitude.

We analyzed the path-point data with ordinal logistic regression in generalized linear models with random intercepts to estimate perceived safety level based on characteristics of subjects' travel. Perceived safety was modeled after recoding it to a four-level variable representing safety levels of 10, 9, 8, and 7 or less. This was done for parsimony because most (93%) path points had a safety level greater than 6. Initially we analyzed each of the key exposure variables, transportation mode and companion type, alone in a model. To each model we then added variables representing characteristics of the environment where each path point of each subject was located (variables listed above; all were z-scores). Variables were retained if they contributed to the model based on a change in the log-likelihood value ($p < .05$). We report the regression coefficients for each model after including covariates, and report the marginal, cumulative predicted probability that subjects reported specific perceived safety levels based on transportation mode and companion type. The modeling used the GLLAMM programs with clustering by subjects, robust standard errors, and conventional diagnostics [21].

The software was ArcMap version 9.3 (ESRI, Inc., Redlands, CA) and Stata version 11 (StataCorp, College Station, TX). The study was approved by the relevant institutional review boards.

Results

Sixty-five subjects between 10 and 18 years of age were analyzed. Table 1 reports characteristics of the subjects, travel, and areas they lived and went to school. All were male and were African-American. Responses on the Neighborhood Environment Scale ranged from 1 to 18 (median = 9). When considering medians of Census track variables for Philadelphia overall, 20.8% of households were below the poverty level, 30% of households were female-headed, 9.1% of households were vacant, and 40.3% of the population was African-American. The Census tracts where the subjects lived were similar to Census tracts in Philadelphia overall (i.e., within 1 SD) in poverty, female-headed households, and vacancy, but were higher in percent of the population who were African-American (median = 91.6%).

The median number of points used to initially create maps of subjects' routes to school was 26. In total, 2,740 minutes of travel time were observed, thus the working dataset had 2,740 observations. Most subjects (76.9%) departed home between 7:00 A.M. and 7:59 A.M. The median distance (Euclidian) travelled was 1.9 miles and median travel time was 36 minutes (Table 1). Five transportation modes were observed: walking, school bus, public bus, trolley (including subway and elevated train), and car. The single most common mode of traveling to school was by walking the entire way (33.9%), followed by walking plus public bus (18.5%), walking plus car (16.9%), and walking plus trolley (15.4%).

Also reported in Table 1, 72.3% of subjects were alone for at least a portion of their time; however, no subjects remained alone for their entire travel period. Types of companions with subjects for at least a portion of their route were an adult familymember (90.8%), a

friend or classmate (67.7%), another adult (27.7%; e.g., bus monitor and large numbers of passengers, including adults and/or youth), and a sibling or cousin (23.1%).

For 4 in every 10 subjects (41.5%), school and home were located in different Census tracts (Table 1). We used Census block groups, which are smaller than Census tracts, to make withinsubject comparisons between these home and school locations. It was common to attend school where environmental risk factors were less prevalent. For example, for 30.8% of subjects, the prevalence of female-headed households where their school was located was one or more standard deviations lower than was the prevalence where they lived. The finding was similar for off-premise but not on-premise alcohol outlet density, indicating that 12.3% of subjects went to school in a location where takeaway alcohol vendors were less common than they were where they lived. For each environmental factor we examined, in no case did more than 5% of subjects have the opposite experience; that is, very few attended a school where the prevalence of a given condition was one or more standard deviations higher than at their home.

Table 2 reports perceived safety. Four of every 10 subjects (41.5%) reported that their minimum level of safety was 10 out of 10, meaning they felt “very safe” from the risk of being assaulted for their entire travel to school. Conversely then, 6 of every 10 subjects (58.5%) felt, at least to some extent at some point, afraid of being assaulted. Half (50%) of the subjects reported feeling 10 out of 10 in safety from assault for practically the entire time (97.7%) they travelled to school. However, 25% of subjects reported they felt very safe (10 out of 10) for only 13.2% or less of the period they spent travelling to school (Table 2). The minimum safety level that subjects reported was not associated with time required to travel to school. However, the level of safety reported by subjects just after exiting their home was inversely correlated with subjects’ responses on the Neighborhood Environment Scale (correlation = −.20, $p < .05$), indicating that living in a higher degree of neighborhood disadvantage corresponded with feeling less safe outside. The internal consistency of the Neighborhood Environment Scale in this sample was very good (Kuder-Richardson 20 = .80).

Figure 1 displays the safety timeline and activity path depiction for five example subjects. The timelines convey that the nature of subjects’ perceptions of safety was dynamic on a minute-to-minute basis. As reported in Table 2, fully one quarter (24.6%) of subjects perceived their safety decreased immediately upon stepping out their door in the morning; one subject (1.5%) had the opposite experience, feeling safer immediately upon exiting home. Twenty-seven percent (27.8%) of subjects felt safer as they entered school; however, doing so made 16.9% feel less safe. For one-third of subjects (33.8%), the level of safety felt in school was lower than that felt at home. In total, one-third (32.5%) of the total person time was spent feeling less than very safe (i.e., safety <10).

Table 3 reports the ordinal logistic regression modeling. Model 1 focused on transportation mode and revealed that subjects’ safety levels were inversely associated with levels of crime and with the prevalence of off-premise alcohol outlets, with higher values corresponding to lower safety. Controlling for these environmental features, subjects felt significantly safer while travelling in a car and significantly less safe when on a bus or a trolley compared with when travelling on foot. The predicted cumulative probabilities from this and the other models are reported in Table 3 and Figure 2. These values indicate the probability of reporting a safety of >8, for example, was .99 while in a car and .94 while on foot but was .86 and .87 when on a public bus or trolley. The probability of reporting a safety of >9 was .98 while in a car and .84 while on foot but was .70 and .73 when on a public bus or trolley. That is, subjects’ perceived safety was >9 on the scale of 1 to 10 (i.e., safety was 10 out of

10) during almost all (98%) of the time they spent in a car but during only 84% of the time they spent on foot and during 70% of time on a bus.

Off-premise and on-premise alcohol outlets were highly correlated (r = .81) and thus were not modeled simultaneously. We did find that the prevalence of on-premise alcohol outlets was also associated inversely with perceived safety in Model 1 and that including this variable yielded results for the other variables that were similar to those in Table 3 (not reported).

Model 2 in Table 3 focused on companion type. Here, too, crime and the prevalence of off-premise alcohol outlets were retained as covariates. Controlling for these environmental features revealed that compared with times when children were travelling alone, they felt safer when with an adult but less safe when with another child or with someone else. Subjects' perceived safety was, for example, >8 on the scale of 1 to 10 during most (98%) of the time they spent with an adult but during only 72% of the time they spent alone, 71% of the time they spent with another child, and 71% of the time they spent with someone else.

We also explored interactions. A cross tabulation of the transportation and companion variables revealed sparse data for several scenarios (e.g., little time on foot was spent with a parent; little time on a trolley was spent alone). Hence we ran two additional models using restriction to control confounding.

Model 3 in Table 3 retained crime as a significant covariate and found that during times when subjects were travelling with another child, subjects felt less safe when they were on a bus or trolley compared with when they were on foot. Model 4 found that during the time subjects spent travelling on foot, their perceived safety did not vary based on being with another child versus being alone.

Discussion

This study produced novel insights of the feet-on-the-ground perspectives of children and their perceived safety from violence as they travelled to school. Although a GIS-assisted interview to capture details about travel activities was a technologically sophisticated medium, the question about perceived safety was simple: How safe did you feel from the risk of being assaulted? By asking children to rate their safety repeatedly while recounting, step by step, their recent journey to school, several key findings about the prevalence and nature of safety emerged. It was remarkably common for children (58.5%) to report feeling less than very safe at some point during their morning travel to school. Also, their feelings of safety changed dynamically as they navigated their route. We believe this is the most illuminating perspective to date into children's in-the-moment feelings about fear when traveling to school.

Despite the allure of identifying a single question to examine children's safety while traveling to school, the item would ideally have undergone psychometric evaluation. We devised our question to assess safety and administered it as one of a considerable number of questions, checklists, and inventories that summed to a lengthy interview that captured information complementary to, but not necessary for, the parent study. The parent study aims to identify risks for being assaulted, not the risk of being afraid of being assaulted. As such, we pursued this analysis to explore whether the simple question performed as we thought it might and to capitalize on having a randomly selected group of children from an urban population.

Insight did emerge about how the question performed. The safety levels participants reported immediately after exiting their home in the morning were significantly correlated

(inversely) with their Neighborhood Environment Scale ratings about the neighborhood where they reside. This serves as a form of criterion validation and suggests our safety question reflects that at least some of the fear that children feel is warranted based on the circumstances of their surroundings. Additional evidence that the question performed well was seen in how most children reported some change in perceived safety when they exited their home or entered their school.

Reporting bias is a potential limitation. Participants, school-age males in Philadelphia, may have been reluctant to report being fearful of violence [22]. Thus our results may overestimate how safe participants truly felt. Also, a scenario that makes one child feel a little unsafe may make another child feel very unsafe. Modeling perceived safety as a variable with a range of response options helped protect against any measurement error these issues could introduce, as did using a random intercept model. Note that although reporting bias may exist, the study took steps to prevent this, including establishing rapport during the recruitment process, interviewing in private, and ensuring confidentiality. A more general issue is that our results are based on a homogeneous sample, comprised of urban African-American children who were male. Although we do not have evidence of how perceived safety functions among females and children of other races who live in urban settings, we do not have reason to expect their experiences or reactions to be different.

Perceived safety was inversely related with crime levels and with the density of alcohol outlets in areas subjects travelled through on their way to school. The relation to crime levels suggests that subjects were aware of, and wary of, local crime levels, which is a reasonable possibility [23]. The effect of alcohol outlets may indicate that subjects were used to and wary of people hanging around outside alcohol outlets; however, this behavior would be unlikely during the morning hours being studied. Although we aimed to control for these and other aspects of the general environmental context of children's surroundings, we did so with aggregated area-level data. Other studies suggest that lines of sight and architectural features of a person's immediate surroundings affect perceived safety [18,24–26]. Thus we may have failed to control for location-specific confounders. Even so, the present analysis provides an informative first look into the effects of children's companions and transportation modes, which are the focus of safe-routes-to-school programs and thus are immediately relevant to the policies under debate [10].

Perceived safety varied by how and with whom children were travelling. Children generally felt safer with an adult family member but less safe with another child. Routine activities theory [27] suggests that being in the presence of capable guardians confers protection against violence. Our results suggest that adult family members served this function and children did not. Ultimately though, a firm understanding of what affects children's perceptions of safety is beyond the reach of our data. It would be helpful to know the nuances of where perceived risk comes from, and why it was common for children to feel other than very safe from the threat of assault. An informative anecdote emerged when one subject recounted waiting at a bus stop and then boarding when the bus arrived. The interviewer asked "Did you feel safer then?" He responded, "No, everything on a bus is hard. You could hit me against anything on bus and I would get hurt." The sobering image this response evokes suggests that the threat of violence is omnipresent in the lives of many young people growing up in urban America, as is the need to be vigilant. Other insight comes from a recent study where Philadelphia youth reported that a specific place in their neighborhood may feel either safe or unsafe depending on who is present [28]. That the context of safety can change in this way is supported by our results.

We found it was common for children to be concerned about being the victim of violence while travelling to school in the morning, and being accompanied by an adult corresponded

with feeling safer. Our findings support the value of Safe Routes to School programs and suggest they may effectively address the immediate need to help children feel safe during their entire travel route to school. Our findings also indicate a need for additional studies of children's experiences that use different approaches; use sampling strategies that include different regions of the country, participants of different races, and males and females alike; and that further illuminate circumstances that make children fear for their safety. Given that safety during travel to school is a concern nationwide, we ultimately need changes to policy and practice that meet the more upstream goal of making neighborhoods feel safer for the children of urban communities across America.

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IMPLICATIONS AND CONTRIBUTION

Feeling compromised safety while travelling to school appears to be common and appears to vary based on one's immediate surroundings. Efforts to ensure that children and adolescents feel safe over their entire travel routes to school are warranted.

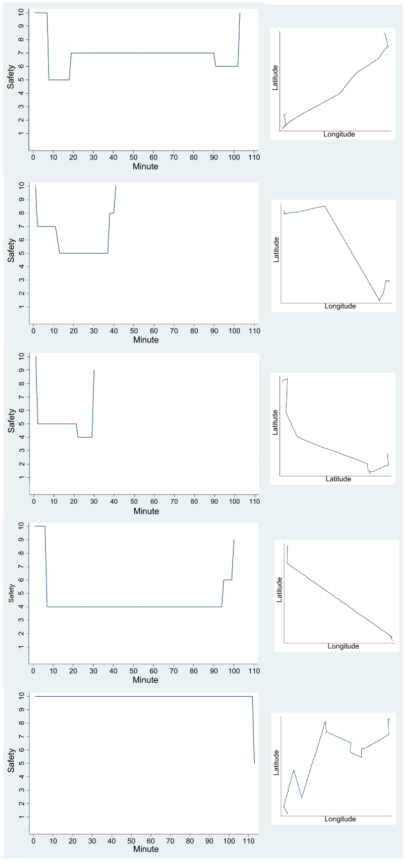

Figure 1.
Self-reported safety of five example subjects during their travel to school, displayed with mapped representation of route traveled.

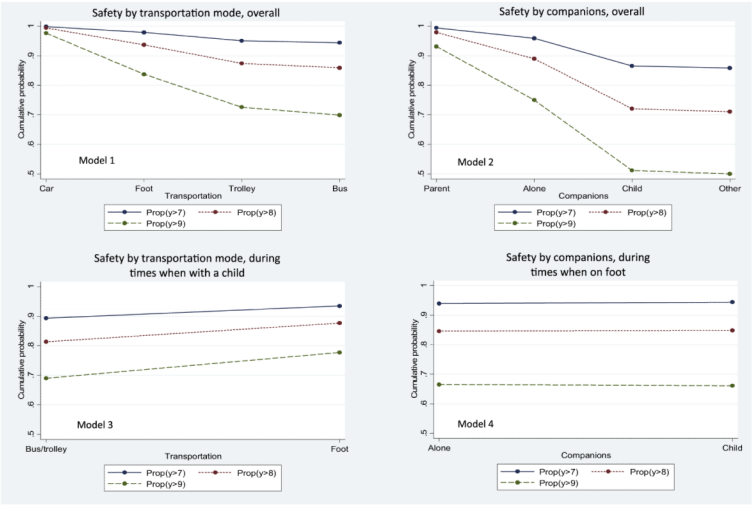

Figure 2.

Cumulative predicted probabilities of perceived safety levels of above 7, above 8, and above 9 based on transportation mode (left) and companion type (right) (based on regression models in Table 3).

Table 1

Characteristics of 65 children and their morning travel from home to school

	Percent or median (IQR)
Subject	
Age, median (IQR)	15 (13, 16)
Male, %	100
African-American, %	100
Neighborhood Environmental Scale, median (IQR)	9 (6, 13)
Environment at location of residence	
% Population below poverty, median (IQR)	28.5 (18.4, 39.1)
% Female-headed households, median (IQR)	41.6 (30.6, 48.2)
% African-American, median (IQR)	91.6 (57.1, 98.5)
% Of buildings vacant, median (IQR)	12.5 (8, 18.6)
On-premise alcohol outlets per 10,000 capita, median (IQR)	10 (2.9, 16.5)
Off-premise alcohol outlets per 10,000 capita, median (IQR)	2.4 (0, 6.9)
Social stress (z-score), median (IQR)	1.16 (1.06, 1.24)
Structural danger (z-score), median (IQR)	1.12 (1, 1.20)
Crime (z-score), median (IQR)	1.10 (1.04, 1.20)
Travel	
Distance (miles), median (IQR)	1.9 (.5, 3.9)
Time (minutes), median (IQR)	36 (12, 61)
Transportation mode	
Foot, %[a]	100
Public bus, %[a]	30.8
Trolley/subway/train, %[a]	27.7
School bus, %[a]	3.1
Car, %[a]	16.9
Modes of transportation, median (IQR)	2 (1, 2)
Foot only, %	33.9
% Of route on foot, median (IQR)	40 (19, 100)
Companions	
Alone, %[b]	72.3
Brother/sister/cousin, %[b]	23.1
Friend/classmate, %[b]	67.7
Parent/aunt/uncle/grandparent, %[b]	90.8
Other, %[b]	27.7
Alone only, %[c]	0
School[d]	

	Percent or median (IQR)
In different Census tract than home, %	41.5
Percent of subjects for whom characteristic was ≥1 SD lower at school than at home	
% Population below poverty, %	21.5
% Female-headed households, %	30.8
% Black, %	26.2
% Of buildings vacant, %	9
On-premise alcohol outlet density, %	0
Off-premise alcohol outlet density, %	12.3
Social stress, z-score	0
Structural danger, z-score	0
Crime, z-score	0

IQR = interquartile range.

[a] Indicates percent who used a particular mode of transportion; subjects may have used more than one mode of transportation.

[b] Indicates percent who traveled with a particular type of companion; subjects may have traveled with more than one type of companion. For example, 72.3% of subjects were alone for at least part of the time as they travelled to school.

[c] Indicates that 0% (none) of the subjects were alone for their entire travel to school.

[d] Results are based on all subjects (i.e., regardless of whether they lived in the Census track where they went to school).

Table 2

Perceived safety during morning travel from home to school

	Percent or median (IQR)
Safety	
Minimum safety level reported (scale from 1–10), %	
10	41.5
9	15.4
8	16.9
7	10.8
6	3.1
5	6.2
4	3.1
3	1.5
2	1.5
1	0
% Of route at 10 safety, median (IQR)	97.7 (13.2, 100)
Correlation, NES score and safety while at home	−.07
Correlation, NES score and safety immediately upon exiting home	−.20 *
Correlation, minimum safety en route and travel time	−.12
Safety upon exiting home	
Safety decreased, %	24.6 ***
Safety increased, %	1.5
Safety upon entering school	
Safety decreased, %	16.9 *
Safety increased, %	27.8
Safety in school, %	
Lower than at home, %	33.8 ***
Higher than at home, %	3.1

Difference of proportions test:

* $p < .05$

*** $p < .001$.

IQR = interquartile range; NES = Neighborhood Environment Scale.

Table 3

Perceived safety level while traveling to school based on transportation mode and companion type

Model 1: Transportation mode	**Coef.**	**SE**	***p***	**95% CI**
Car	3.80	.76	<.001	2.31, 5.28
Public bus	−2.36	.73	.001	−3.79, .−93
Trolley	−1.72	.87	.046	−3.43–.03
Foot (reference) -ref-				
Crime	−.04	.02	.056	−.91, .01
Off-premise alcohol outlets	−.62	.24	.008	−1.08, −.16
_cut 1	−11.79	1.72	<.001	−15.16, −8.41
_cut 2	−9.51	1.58	<.001	−12.61, −6.41
_cut 3	−7.06	1.78	<.001	−10.55, −3.57
Predicted cumulative probabilities[a]	Safety level based on transportation mode			
	>7	>8	>9	
Car	.99	.99	.98	
Public bus	.94	.86	.70	
Trolley	.95	.87	.73	
Foot	.98	.94	.84	
Model 2: Companion type	Coef.	SE	*p*	95% CI
Parent/aunt/uncle	3.48	.89	<.001	1.73, 5.24
Brother/sister/ cousin/classmate	−3.25	1.02	.001	−5.25, −1.24
Other	−3.50	.97	<.001	−5.39, −1.61
Alone (reference) -ref-				
Crime	−.06	.03	.015	−.11, −.01
Off-premise alcohol outlets	−.52	.22	.019	−.96, −.09
_cut 1	−12.24	2.10	<.001	−16.36, −8.12
_cut 2	−9.67	1.78	<.001	−13.16, −6.18
_cut 3	−6.93	1.68	<.001	−10.22, −3.65
Predicted cumulative probabilities[a]	Safety level based on companion type			
	>7	>8	>9	
Parent/aunt/uncle	.99	.98	.93	
Brother/sister/ cousin/classmate	.87	.72	.51	
Other	.86	.71	.50	
Alone	.96	.71	.75	

Model 1: Transportation mode	**Coef.**	**SE**	***p***	**95% CI**
Model 3: During times when with a child				
Public bus/trolley	−1.96	.88	.026	−3.68, −.24
On foot (reference) -ref-				
Crime	−.10	.06	.106	−.22, .02
_cut 1	−11.39	3.28	.001	−17.81, −4.97
_cut 2	−9.96	3.29	.002	−16.41, −3.50
_cut 3	−8.06	3.72	.030	−15.35, −.76
Predicted cumulative probabilities[a]	Safety level based on transportation mode			
	>7	>8	>9	
Public bus/trolley	.85	.75	.57	
On foot	.93	.86	.73	
Model 4: During times when on foot				
With a child	−.55	.69	.421	−1.90, .80
Alone (reference) -ref-				
	−1.09	.26	<.001	−1.60, −.58
Off-premise alcohol outlets				
_cut 1	−9.03	1.97	<.001	−12.89, −5.17
_cut 2	−6.03	1.20	<.001	−8.37, −3.68
_cut 3	−2.75	.52	<.001	−3.78, −1.72
Predicted cumulative probabilities[a]	Safety level based on companion type			
	>7	>8	>9	
With a child	.94	.85	.66	
Alone	.94	.85	.66	

Results based on ordinal logistic regression using generalized linear models. Higher values on outcome variable correspond to higher safety level.

The “cut” variables report thresholds associated with the outcome variable. Covariates were retained in models based on likelihood ratio test, $p < .05$. Outcome variable coded 10, 9, 8, and ≤7.

CI = confidence interval; Coef. = coefficient; SE = standard error.

[a]The predicted cumulative probabilities of safety levels are plotted in Figure 2.