

**The Behavior of Skateboard Riders
in Skate Parks in New York City**

**An Observational Study Conducted by Students
at Hunter College, CUNY**

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Introduction

Injuries from skateboards result in a substantial number of individuals visiting emergency rooms or being admitted as in-patients to hospitals. Nationwide, more than 60,000 children and teens visit an emergency room each year due to a skateboarding-related injury (McKenzie et al, 2016). In New York City alone in 2016 (the most recent year for which data are available), the number of out-patients or in-patients treated at a New York hospital stemming from a skateboard injury totaled 1,125 (Statewide Planning and Research Cooperative System, 2016) This figure, of course, vastly underestimates the incidence of injuries from skateboards because it excludes individuals who seek treatment at alternative venues (e.g., a private physician's office, a non-hospital affiliated urgent care center, etc.) or who do not pursue medical treatment.

Numerous studies have been conducted profiling the characteristics of individuals who are treated for a skateboard-related injury (see, for example, Baker et al, 1994; Lindsay and Brussoni, 2014; Nathanson et al, 2015). Studies have also classified the types of injuries sustained by individuals riding a skateboard (Keays and Dumas, 2014; Shuman and Meyers, 2015). Yet few systematic studies have been carried out observing the behavior patterns of riders of these wheeled devices.

The present study observes the behavior of riders of skateboards in one specific setting – skateboard parks in New York City. The study has three principal aims: (1) to measure the extent to which riders fall when skateboarding and the degree to which they sustain any injuries, (2) to measure the extent to which riders wear protective gear such as helmets, elbow/knee pads, and wrist guards which reduce the risk of injury, and (3) to gauge the extent to which they wear electronic devices such as headphones or earbuds which might increase their risk of injury. Gathering this information can enhance our understanding of the risks associated with skateboarding and the degree to which these risks can either be mitigated by the use of protective gear or conversely aggravated by wearing electronic devices. This knowledge can then be applied to the formulation of public health policies designed to reduce the incidence of injuries from skateboarding.

Methodology

The observations of riders in skateboard parks in New York City were carried out by undergraduate and graduate students enrolled in two courses in the Department of Sociology (Introduction to Research Methods and the Honors Seminar), and two courses in the Department of Urban Policy and Planning (Quantitative Approaches to Urban Analysis and Urban Data Analysis) at Hunter College.

Students were assigned to conduct their observations in a skateboard park in the borough in which they resided or in one which was geographically accessible. Thus, the sample of skateboard parks included in this study was not based on random sampling, nor was the selection of parks weighted in any way by estimated usage. However, since students at Hunter are geographically dispersed across all the boroughs, the resulting sample of parks represents a broad swath of the universe of parks in New York City.¹

Students were instructed to conduct their observations on two separate days, one hour each day. One day was to be a weekday (anytime from 3:30 pm to 7:30 pm) and the other day either a Saturday or a Sunday (anytime from 9:00 am to 7:30 pm).² Students were told to gather data only on those individuals in skateboard parks who were actively involved in skateboarding. For each hour of observations, students were told to collect data on 20 riders or, if there were fewer than 20 riders in the park at the time of data-gathering, they were to gather data on the total number of riders who were present.

Strict methodological guidelines were imposed on the selection of riders who were to be observed in the skateboard parks. Students were instructed to gather data on the first 20 skateboarders for which they had time to accurately record information. Importantly, they were told they could not “pick and choose” which skateboarders to observe.

Students assembled data on the following characteristics of the skateboarders: (1) gender, (2) estimated age, (3) whether alone, part of a group of fellow skateboarders, or accompanied by other family members who were also skateboarding, (4) use of protective gear such as helmets, elbow/knee pads, wrist guards, (5) use of electronic devices such as headphones or earbuds, (6) whether he/she fell or not, and (7) if the skateboarder fell, the extent of injury. In addition

to these individual-level variables, students gathered data on a number of contextual variables including the following: (1) the date of the observations, (2) whether the day was a weekday or weekend, (3) the name of the skateboard park, (4) the borough in which the park was located, (5) whether there was an attendant on duty at the time of the observations, (6) whether there were posted rules governing the behavior of riders, and (7) whether the rules mandated the use of helmets. Lastly, in the “field notes,” students were to note any anomalies while gathering the data or other circumstances which might shed light on the observations they recorded.

Students were instructed to remain as inconspicuous as possible in carrying out their observations. They were explicitly told not to engage in any verbal interactions with riders or bystanders and to only “casually glance around” the park when observing behavior patterns.

Data for the study were gathered between April 1 and May 2, 2018. Altogether, there were 2,400 skateboarders who were observed.

Results

Overall Profile of Riders

The overwhelming number of riders who were observed were male (90.9%).³ In terms of estimated age group, 5.9 percent were between 5 and 9, 17.6 percent were between 10 and 14, 61 percent fell into the 15 to 24 age category, and the remainder (15.5 percent) belonged to the 25 and older age category.⁴ The gender imbalance between males and females increased steadily with age. Among the youngest age group, 79 percent were male; among the oldest age group, the share of riders who were male rose to 95.9 percent.

Approximately one-third of the skateboarders appeared to be alone, roughly two-fifths (59%) were observed riding with other skateboarders, and the rest (8%) were with other family members who were also skateboarding.

Wearing Protective Gear

Only a scant proportion of the riders who were observed wore any kind of protective gear. Just 10 percent wore a helmet and even fewer (8%) wore an elbow/knee pad or wrist guard.

The use of a helmet varied considerably by the gender and estimated age category of the skateboarder as well as whether he/she was accompanied by a group.

Table 1 below depicts the relationship between gender and use of a helmet. As the data show, females are far more disposed toward wearing a helmet than their male counterparts (28.8% vs. 8.4%).

Table 1. Wearing a Helmet by Gender

	Female	Male	Total
Wears helmet	28.8%	8.4%	10.2%
Does not wear helmet	71.2%	91.6%	89.8%
Number	219	2174	2393

Age was also a significant determinant of whether a rider was observed wearing a helmet or not (see Table 2). As expected, riders between the ages of 5 to 9 were most likely to wear a helmet – almost 50 percent. This figure drops steeply to just 16.3 percent of riders between the ages of 10 to 14. Among those in the age category of 15 to 24, the figure undergoes a further decline to just 4.9 percent. Finally, among the oldest age category (25 plus), the figure climbs upwards to 9.6 percent.^{5,6}

Table 2. Wearing a Helmet by Age Category

	5 to 9	10 to 14	15 to 24	25 plus	Total
Wears helmet	47.8%	16.3%	4.9%	9.6%	10.2%
Does not wear helmet	52.2%	83.7%	95.1%	90.4%	89.8%
Number	138	411	1428	363	2340

In addition to gender and age category, a rider’s group setting played an important role in whether a skateboarder wore a helmet or not. The data in

Table 3 reveals that individuals who were skateboarding alone or who were part of a group of fellow skateboarders were much less inclined to wear a helmet than individuals who were accompanied by other family members who were also skateboarding. Interestingly, this same relationship persists across all age groups. That is to say, even among the older age groups, those riders who were with other family members tended to wear helmets more than those who were not accompanied by family members.

Table 3. Wearing a Helmet by Group Membership

	Alone	Part of a group of skateboarders	With family members who are skateboarders	Total
Wears helmet	7.7%	7.6%	45.9%	10.5%
Does not wear helmet	92.3%	92.4%	54.1%	89.5%
Number	757	1315	170	2242

Significantly, even in skateboard parks where helmets are required, the preponderance of riders still did not wear a helmet. In the parks in which helmet use was mandatory, 83 percent did *not* wear a helmet and in parks in which helmet use was not obligatory, the figure was 91.7 percent.⁷

Paralleling the results concerning the use of helmets are the findings pertaining to the use of elbow and knee pads and wrist guards. Again, females, younger riders, and those accompanied by family members were much more likely to don these types of protective gear than their counterparts (results not shown).

Use of Headphones or Earbuds

A sizeable segment of the individuals who were observed were wearing either headphones or earbuds while skateboarding (26.4%).⁸ No discernible difference was noted in the proportion of males and females who were using either of these electronic devices. However, coinciding with expectations, age was strongly

related to whether individuals were using an electronic device (see Table 4). Only a small fraction of those aged 5 to 9 were using these electronic devices – 3.7%. This figure climbs to 18.1 percent among those aged 10 to 14 and then rises further to roughly 30 percent for the two oldest age categories (30.8% and 27.4%, respectively).

Table 4. Use of an Electronic Device by Age Category

	5 to 9	10 to 14	15 to 24	25 plus	Total
Uses an electronic device	3.7%	18.1%	30.8%	27.4%	26.4%
Does not use an electronic device	96.3%	81.9%	69.2%	72.6%	73.6%
Number	135	393	1401	351	2280

Group setting was also associated with whether an individual was wearing an electronic device. As the figures in Table 5 indicate, the use of electronic devices was most prevalent among those riders skateboarding alone (33.1%), followed by those who were part of a group of skateboarders (26.1%). Trailing far behind these two groups in the use of electronic devices were skateboarders who were accompanied by family members (7.7%).

Table 5. Use of an Electronic Device by Group Membership

	Alone	Part of a group of skateboarders	With family members who are skateboarders	Total
Uses an electronic device	33.1%	26.1%	7.7%	27.0%
Does not use an electronic device	66.9%	73.9%	92.3%	73.0%
Number	741	1291	168	2190

The Incidence of Falls

Overall, slightly more than one quarter of riders (25.9%) fell while being observed. There was no noticeable gender difference in the proportion who fell. On the other hand, age was related to the frequency of falling (Table 6). The data show that the incidence of falling declines with increasing age.

Table 6. Incidence of Falling by Age Category

	5 to 9	10 to 14	15 to 24	25 plus	Total
Person falls	31.8%	30.5%	24.7%	22.7%	25.9%
Person does not fall	68.2%	69.5%	75.3%	77.3%	74.1%
Number	129	406	1375	353	2263

Of those who fell, the majority did not sustain any type of injury (88.9%). About a tenth of the riders who fell sustained a minor injury (9.7%) and a small fraction (1.4%) sustained a more serious injury.^{9, 10}

Relationship between Using an Electronic Device and Falling

Noteworthy is that using an electronic device such as headphones or earbuds resulted in a higher incidence of falling. Among those skateboarders wearing an electronic device, about a third fell whereas among those skateboarders not wearing such a device the incidence dropped to just a quarter.

Table 7. Incidence of Falling by Use of an Electronic Device

	Uses electronic device	Does not use electronic device	Total
Skateboarder falls	31.3%	23.7%	26.7%
Skateboarder does not fall	68.7%	76.3%	74.3%
Number	601	1653	2254

Attendant on Duty

According to the New York City Department of Parks website, an attendant will be on duty at skate parks during official operating hours. For the vast majority of cases (88.8%), no attendant was observed being on duty. For the remainder of observations, either students were “not sure” (9.1%) or believed there was an attendant on duty (2.2%).¹¹

Conclusions

Several important findings have emerged from this study. First, the number of skateboarders in parks in New York City who stumble and fall is sizable. Overall, more than a quarter (25.9%) were observed falling and, of these, one-tenth sustained a minor injury and an additional number (1.4%) incurred a more serious injury.

A second finding produced in this study is that only a small minority of riders wear helmets (10.2%), and an even smaller proportion wear other protective gear such as elbow/knee pads or wrist guards (8.1%). These numbers are particularly troubling since there is abundant evidence showing the effectiveness of safety gear in reducing skateboarding injuries (Schieber et al, 1996; Forsman and Eriksson, 2001; Keays and Dumas, 2014).

The data in this study indicate moreover that the age group 15 to 24 is the most reluctant to wear a helmet or other protective gear. In this age group, the proportion who wear a helmet is a 4.9 percent and the proportion who wear other protective gear is just 5.1 percent. The student observers posited one possible explanation for this finding: individuals in this age group are more likely to be susceptible to peer pressure than members of other age groups and try to be “cool” by not adorning themselves with protective gear. Within this context, the data reveal that riders between the ages of 15 to 24 (and, to nearly the same extent, riders between the ages of 10 to 14) were most likely to be part of a group of skateboarders. Significantly, among older riders (25 and above), the percent who don protective gear or a helmet starts to climb back upwards. Respecting this age group, the members of this group generally were alone or were accompanied by just family members.

A related finding concerning helmet use is that even in skateboard parks where helmets or protective gear are mandated, there is little rule compliance. A substantial number (83%) still do not wear a helmet where helmet use is required.

Another disturbing finding to emerge in this study is that many riders were observed wearing headphones or earbuds while performing various tricks on skateboards. More than a quarter (26.4%) of all the skateboarders observed were found to be wearing headphones or earbuds. Significantly, those riders who were using an electronic device were far more likely to fall than those riders who did not use such a device (31.3% vs. 23.7%). By definition, skateboarding is a challenging recreational sport – requiring adeptness at maintaining one’s balance and is an activity which occurs on a hard surface. Proficiency at skateboarding (especially when performing more difficult tricks) requires not only physical agility but mental concentration. When skateboarders are distracted by listening to music on their headphones or earbuds, their ability to respond to their environment is, of course, impaired.

In contrast to skateboarding on city streets with its associated high levels of risk, skateboard parks provide an opportunity for New Yorkers to engage in this activity in a safer venue. Yet this opportunity must be counterbalanced with the recognition that, even in this alternative setting, injuries can often result from lacking a sufficient skill set or acting recklessly. It is important for riders, therefore, to be consciously aware of the hazards attached to skateboarding in parks and to take both precautionary measures such as using a helmet or wearing protective gear and to resist using electronic devices which are inherently distracting.

Notes

1. Altogether, students observed riders in 31 different skateboard parks in New York City from all 5 boroughs. In each of these 31 skateboard parks, a minimum of 17 riders were observed.
2. Due to scheduling difficulties, a few students were not able to comply with this routine and conducted all of their observations on a weekday or weekend or on a single day.
3. Unless otherwise stated, the figures presented in this study omit the “not sure” category. In most instances, this category constituted only a small number of cases.
4. Importantly, the gender and age distributions of skateboarders mirror the nationwide incidence of skateboarders who injure themselves and are treated in an emergency room. The nationwide data reveal, for example, that 89 percent of skateboarders are male and that the modal age category of skateboarders who fall and visit an emergency room is the 15 to 24 age group (47.2%).
5. Students advanced two hypotheses to explain why the percent of riders wearing helmets rose somewhat from the 15-24 age category to the 25 and over age category. One hypothesis was that some of the riders in the oldest age category were parents and wanted to set an example to their children who accompanied them to wear a helmet. A competing hypothesis was the oldest age category consisted of more experienced riders who knew the perils of riding without a helmet.
6. The reader will observe slight variations in the number of cases upon which the tabular analyses are based. These variations are due to a few missing values on the different variables.
7. There was some ambiguity in determining whether a skateboard park required helmet use or not. This ambiguity arose from two factors. First, there was occasional ambiguity in the wording of the signs themselves – whether helmet use was encouraged or mandatory. Second, sometimes there were discrepancies governing helmet use between the park’s website and signage at the park. As a

result, caution must be exercised in delineating parks which mandated helmet use and those which did not.

8. This figure is based on those individuals for whom a determination could be made as to whether they were using headphones or earbuds or not. For about 3 percent of the riders such a determination could not be made.

9. In 1.5 percent of the cases, it was difficult to assess the magnitude of the injury.

10. One of the riders at the moment of being observed injured himself so severely that he was driven away in an ambulance.

11. A more precise measure of whether an attendant was on duty or not would be based upon the presence or absence of an attendant during the time interval a student was at a skateboard park rather than during the time of each observation. Also, the figure given above combines “official” parks with “unofficial” parks, and large as well as small neighborhood parks.

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