Data Article

Data on unsafe riding behaviors among 1960 shared bicycle riders in urban China

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ABSTRACT

This data article quantifies the extent of shared bicycle riding risks for shared-bicycle riders in urban China. The data were collected through a WeChat-based online survey, with a valid sample of 1960 respondents. It reports the basic descriptive statistics through eight tables concerning various unsafe shared bicycle riding behaviors, and complete frequency data from riders concerning eight unsafe riding behaviors. The data can be used for comparisons with other studies using the same outcome measures, which are valuable to generate specialized and targeted solutions to reduce unsafe riding behaviors. For further information, please refer to the full article entitled “Unsafe riding behaviors of shared-bicycle riders in urban China: A retrospective survey” (Wu et al., 2019).

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1. Data

Tables 1–8 show the complete frequencies of eight unsafe riding behaviors: not wearing helmets, running red lights, cycling against the traffic flow, riding in a motor vehicle lane, riding in a pedestrian lane, carrying passengers, using a cell phone while riding and eating while riding, among 1960 surveyed shared-bicycle riders in the past month in urban China. The data allow researchers to conduct further analyses for specific research purposes. The sample had a mean age of 27.63 years (standard deviation: 9.50 years).

2. Experimental design, materials and methods

2.1. Study recruitment and participants

Almost all shared bicycles in urban China are rented from smartphone applications [2], so we used an iterative sampling process to recruit study participants through WeChat, the most popular smartphone-based social media program in China. Non-probability sampling has advantages in recruiting study samples compared to probability sampling when random samples are unlikely to be obtained [3]. Initial survey invitations were sent to a convenience sample of colleagues, family members, classmates, and friends who had WeChat contact with members of the research group. Many of these individuals chose to participate, and they then were asked to send information about the survey to people in their own WeChat contact list. This “snowball” recruitment process was iterated for a month, from September 7, 2017 to October 6, 2017, at which point the sample size was deemed sufficient and data collection was terminated.

In total, 1960 riders participated in the retrospective research survey. Of them, individuals aged ≤25 years old, 26–35 years old, and ≥36 years accounted for 54%, 32%, and 14% of participants, respectively. Males constituted 43% of participants. 50% and 39% of respondents respectively reported having received an undergraduate degree and postgraduate education or higher. The majority of respondents came from provincial capitals (56%) and central municipalities (23%). Geographically, the participants
### Table 1
Proportion of riders not wearing helmets.

| Variable                        | Number (%) | Frequency of behavior (%) |
|---------------------------------|------------|---------------------------|
|                                 |            | Always | Often | Sometimes | Never |
| **Total**                       | 1960 (100) | 95.4   | 2.2   | 0.9       | 1.5   |
| **Sex**                         |            |        |       |           |       |
| Male                            | 833 (43)   | 93.2   | 3.1   | 1.3       | 2.4   |
| Female                          | 1127 (58)  | 97.0   | 1.6   | 0.5       | 0.9   |
| **Age group**                   |            |        |       |           |       |
| ≤25 years                       | 1056 (54)  | 97.3   | 1.8   | 0.5       | 0.5   |
| 26–35 years                     | 623 (32)   | 94.9   | 2.4   | 1.0       | 1.8   |
| ≥36 years                       | 281 (14)   | 89.3   | 3.6   | 2.1       | 5.0   |
| **Level of education**          |            |        |       |           |       |
| Postgraduate or higher          | 769 (39)   | 97.4   | 1.6   | 0.4       | 0.7   |
| Undergraduate                   | 970 (50)   | 96.5   | 2.0   | 0.7       | 0.8   |
| All others                      | 221 (11)   | 83.3   | 5.9   | 3.2       | 7.7   |
| **Type of urban area of bicycle use** |            |        |       |           |       |
| Central municipality           | 450 (23)   | 97.8   | 0.7   | 0.4       | 1.1   |
| Provincial capital             | 1092 (56)  | 96.9   | 1.7   | 0.6       | 0.7   |
| Deputy provincial city         | 90 (5)     | 93.3   | 3.3   | 1.1       | 2.2   |
| All others                      | 328 (17)   | 87.5   | 5.8   | 2.1       | 4.6   |
| **Province/City of bicycle use** |            |        |       |           |       |
| Hunan                          | 579 (30)   | 95.2   | 2.2   | 1.0       | 1.6   |
| Guangdong                      | 230 (12)   | 96.1   | 1.7   | 0.9       | 1.3   |
| Beijing                        | 164 (8)    | 98.8   | 0.0   | 0.6       | 0.6   |
| Tianjin                        | 144 (7)    | 98.6   | 1.4   | 0.0       | 0.0   |
| All others                      | 843 (43)   | 94.1   | 3.0   | 0.9       | 2.0   |
| **Reason for travel**           |            |        |       |           |       |
| Commuting to work/school       | 1070 (55)  | 97.6   | 1.1   | 0.5       | 0.8   |
| Entertainment                  | 544 (28)   | 94.9   | 3.3   | 0.7       | 1.1   |
| Physical exercise              | 180 (9)    | 82.8   | 7.2   | 3.3       | 6.7   |
| Others                         | 166 (9)    | 96.4   | 0.6   | 1.2       | 1.8   |
| **Riding hours per week**       |            |        |       |           |       |
| <1 hour                         | 240 (12)   | 98.8   | 0.4   | 0.0       | 0.8   |
| 1–2 hours                       | 732 (37)   | 97.5   | 1.4   | 1.0       | 0.1   |
| 3–5 hours                       | 877 (45)   | 93.5   | 3.0   | 0.8       | 2.7   |
| >5 hours                        | 111 (6)    | 88.3   | 6.3   | 2.7       | 2.7   |
| **Type of typical riding days** |            |        |       |           |       |
| Weekday                         | 1105 (56)  | 97.2   | 1.4   | 0.6       | 0.7   |
| Weekend or holiday              | 855 (44)   | 93.0   | 3.3   | 1.2       | 2.6   |
| **Typical riding time**         |            |        |       |           |       |
| Morning rush hours              | 399 (20)   | 93.7   | 2.5   | 1.3       | 2.5   |
| Evening rush hours              | 698 (36)   | 96.3   | 1.9   | 0.7       | 1.1   |
| Other times                     | 863 (44)   | 95.4   | 2.4   | 0.8       | 1.4   |

### Table 2
Proportion of riders running red lights.

| Variable                        | Number (%) | Frequency of behavior (%) |
|---------------------------------|------------|---------------------------|
|                                 |            | Always | Often | Sometimes | Never |
| **Total**                       | 1960 (100) | 0.5    | 1.4   | 18.3      | 79.8  |
| **Sex**                         |            |        |       |           |       |
| Male                            | 833 (43)   | 0.5    | 1.9   | 22.3      | 75.3  |
| Female                          | 1127 (58)  | 0.5    | 1.1   | 15.3      | 83.1  |
| **Age group**                   |            |        |       |           |       |
| ≤25 years                       | 1056 (54)  | 0.3    | 1.4   | 18.1      | 80.2  |
| 26–35 years                     | 623 (32)   | 0.5    | 1.3   | 19.4      | 78.8  |
| ≥36 years                       | 281 (14)   | 1.4    | 1.8   | 16.4      | 80.4  |
| **Level of education**          |            |        |       |           |       |
| Postgraduate or higher          | 769 (39)   | 0.7    | 1.6   | 20.5      | 77.2  |
Table 2 (continued)

| Variable                                   | Number (%) | Frequency of behavior (%) |
|--------------------------------------------|------------|---------------------------|
|                                            |            | Always | Often | Sometimes | Never |
| Undergraduate                              | 970 (50)   | 0.2    | 1.4    | 16.7      | 81.6  |
| All others                                 | 221 (11)   | 1.4    | 0.9    | 17.2      | 80.5  |
| Type of urban area of bicycle use          |            |        |        |           |       |
| Central municipality                       | 450 (23)   | 0.7    | 0.9    | 24.0      | 74.4  |
| Provincial capital                         | 1092 (56)  | 0.2    | 1.5    | 17.1      | 81.2  |
| Deputy provincial city                      | 90 (5)     | 1.1    | 1.1    | 14.4      | 83.3  |
| All others                                 | 328 (17)   | 1.2    | 2.1    | 15.2      | 81.4  |
| Province/City of bicycle use               |            |        |        |           |       |
| Hunan                                      | 579 (30)   | 0.0    | 1.7    | 15.7      | 82.6  |
| Guangdong                                  | 230 (12)   | 0.4    | 0.4    | 20.9      | 78.3  |
| Beijing                                    | 164 (8)    | 1.2    | 1.2    | 31.7      | 65.9  |
| Tianjin                                    | 144 (7)    | 0.0    | 0.7    | 15.3      | 84.0  |
| All others                                 | 843 (43)   | 0.8    | 1.7    | 17.2      | 80.3  |
| Reason for travel                          |            |        |        |           |       |
| Commuting to work/school                   | 1070 (55)  | 0.4    | 1.7    | 22.1      | 75.8  |
| Entertainment                              | 544 (28)   | 0.4    | 1.5    | 11.9      | 86.2  |
| Physical exercise                          | 180 (9)    | 1.7    | 1.1    | 16.1      | 81.1  |
| Others                                     | 166 (9)    | 0.6    | 0.0    | 16.3      | 83.1  |
| Riding hours per week                      |            |        |        |           |       |
| <1 hour                                    | 240 (12)   | 0.0    | 0.8    | 14.2      | 85.0  |
| 1–2 hours                                  | 732 (37)   | 0.4    | 1.5    | 17.9      | 80.2  |
| 3–5 hours                                  | 877 (45)   | 0.2    | 1.6    | 19.3      | 78.9  |
| >5 hours                                   | 111 (6)    | 4.5    | 0.9    | 21.6      | 73.0  |
| Type of typical riding days                |            |        |        |           |       |
| Weekday                                    | 1105 (56)  | 0.5    | 1.6    | 21.6      | 76.3  |
| Weekend or holiday                         | 855 (44)   | 0.6    | 1.2    | 13.9      | 84.3  |
| Typical riding time                        |            |        |        |           |       |
| Morning rush hours                         | 399 (20)   | 0.3    | 1.8    | 23.8      | 74.2  |
| Evening rush hours                         | 698 (36)   | 0.7    | 1.9    | 16.5      | 80.9  |
| Other times                                | 863 (44)   | 0.5    | 0.9    | 17.1      | 81.5  |

Table 3

Proportion of riders cycling against the traffic flow.

| Variable                                   | Number (%) | Frequency of behavior (%) |
|--------------------------------------------|------------|---------------------------|
|                                            |            | Always | Often | Sometimes | Never |
| Total                                      | 1960 (100) | 0.8    | 2.6    | 42.0      | 54.5  |
| Sex                                        |            |        |        |           |       |
| Male                                       | 833 (43)   | 1.2    | 3.6    | 45.6      | 49.6  |
| Female                                     | 1127 (58)  | 0.5    | 1.9    | 39.4      | 58.2  |
| Age group                                  |            |        |        |           |       |
| <25 years                                  | 1056 (54)  | 0.5    | 2.6    | 40.5      | 56.4  |
| 26–35 years                                | 623 (32)   | 0.8    | 2.9    | 45.9      | 50.4  |
| ≥36 years                                  | 281 (14)   | 2.1    | 2.1    | 39.1      | 56.6  |
| Level of education                         |            |        |        |           |       |
| Postgraduate or higher                     | 769 (39)   | 0.5    | 2.9    | 45.0      | 51.6  |
| Undergraduate                              | 970 (50)   | 0.7    | 2.5    | 41.9      | 54.9  |
| All others                                 | 221 (11)   | 2.3    | 2.3    | 32.6      | 62.9  |
| Type of urban area of bicycle use          |            |        |        |           |       |
| Central municipality                       | 450 (23)   | 0.9    | 2.9    | 51.3      | 44.9  |
| Provincial capital                         | 1092 (56)  | 0.5    | 2.3    | 41.8      | 55.4  |
| Deputy provincial city                      | 90 (5)     | 0.0    | 4.4    | 33.3      | 62.2  |
| All others                                 | 328 (17)   | 1.8    | 2.7    | 32.6      | 62.8  |
| Province/City of bicycle use               |            |        |        |           |       |
| Hunan                                      | 579 (30)   | 0.3    | 2.2    | 40.9      | 56.5  |
| Guangdong                                  | 230 (12)   | 0.9    | 3.0    | 41.3      | 54.8  |
| Beijing                                    | 164 (8)    | 1.2    | 4.9    | 64.6      | 29.3  |
### Table 3 (continued)

| Variable                  | Number (%) | Frequency of behavior (%) |
|---------------------------|------------|----------------------------|
|                           |            | Always | Often | Sometimes | Never |
| **Reason for travel**     |            |        |       |           |       |
| Commuting to work/school  | 1070 (55)  | 0.8    | 3.4   | 46.3      | 49.5  |
| Entertainment             | 544 (28)   | 0.7    | 1.5   | 35.7      | 62.1  |
| Physical exercise         | 180 (9)    | 1.7    | 2.2   | 33.3      | 62.8  |
| Others                    | 166 (9)    | 0.0    | 1.8   | 45.2      | 53.0  |
| **Type of typical riding days** |        |        |       |           |       |
| Weekday                   | 1105 (56)  | 0.7    | 3.3   | 45.7      | 50.2  |
| Weekend or holiday        | 855 (44)   | 0.9    | 1.6   | 37.3      | 60.1  |
| **Typical riding time**   |            |        |       |           |       |
| Morning rush hours        | 399 (20)   | 0.5    | 5.5   | 45.1      | 48.9  |
| Evening rush hours        | 698 (36)   | 1.1    | 1.6   | 41.7      | 55.6  |
| Other times               | 863 (44)   | 0.7    | 2.1   | 40.9      | 56.3  |

### Table 4

Proportion of riders riding in a motor vehicle lane.

| Variable                  | Number (%) | Frequency of behavior (%) |
|---------------------------|------------|----------------------------|
|                           |            | Always | Often | Sometimes | Never |
| **Total**                 | 1960 (100) | 1.7    | 4.4   | 42.0      | 51.9  |
| Sex                       |            |        |       |           |       |
| Male                      | 833 (43)   | 2.0    | 5.2   | 46.2      | 46.6  |
| Female                    | 1127 (58)  | 1.4    | 3.8   | 39.0      | 55.8  |
| **Age group**             |            |        |       |           |       |
| ≤25 years                 | 1056 (54)  | 1.7    | 5.2   | 43.7      | 49.4  |
| 26–35 years               | 623 (32)   | 1.3    | 3.9   | 42.5      | 52.3  |
| ≥36 years                 | 281 (14)   | 2.5    | 2.5   | 34.9      | 60.1  |
| **Level of education**    |            |        |       |           |       |
| Postgraduate or higher    | 769 (39)   | 1.4    | 3.8   | 43.8      | 51.0  |
| Undergraduate             | 970 (50)   | 1.5    | 4.8   | 43.3      | 50.3  |
| All others                | 221 (11)   | 3.2    | 4.5   | 30.3      | 62.0  |
| **Type of urban area of bicycle use** |        |        |       |           |       |
| Central municipality      | 450 (23)   | 2.0    | 2.9   | 39.1      | 56.0  |
| Provincial capital        | 1092 (56)  | 1.5    | 4.7   | 44.5      | 49.4  |
| Deputy provincial city    | 90 (5)     | 1.1    | 5.6   | 52.2      | 41.1  |
| All others                | 328 (17)   | 2.1    | 5.2   | 35.1      | 57.6  |
| **Province/City of bicycle use** |        |        |       |           |       |
| Hunan                     | 579 (30)   | 1.9    | 6.6   | 47.2      | 44.4  |
| Guangdong                 | 230 (12)   | 0.9    | 6.1   | 50.0      | 43.0  |
| Beijing                   | 164 (8)    | 1.2    | 2.4   | 49.4      | 47.0  |
| Tianjin                   | 144 (7)    | 2.8    | 3.5   | 30.6      | 63.2  |
| All others                | 843 (43)   | 1.7    | 3.0   | 36.9      | 58.5  |
| **Reason for travel**     |            |        |       |           |       |
| Commuting to work/school  | 1070 (55)  | 1.7    | 5.0   | 44.6      | 48.8  |
| Entertainment             | 544 (28)   | 1.3    | 3.5   | 40.8      | 54.4  |
| Physical exercise         | 180 (9)    | 3.9    | 2.8   | 30.0      | 63.3  |
| Others                    | 166 (9)    | 0.6    | 5.4   | 42.8      | 51.2  |
| **Riding hours per week** |            |        |       |           |       |
| <1 hour                   | 240 (12)   | 1.2    | 3.8   | 43.3      | 51.7  |
| 1–2 hours                 | 732 (37)   | 1.2    | 4.4   | 43.3      | 51.1  |

(continued on next page)
Table 4 (continued)

| Variable                        | Number (%) | Frequency of behavior (%) |
|---------------------------------|------------|---------------------------|
|                                 |            | Always | Often | Sometimes | Never |
| 3–5 hours                       | 877 (45)   | 1.6    | 4.4   | 40.7      | 53.2  |
| >5 hours                        | 111 (6)    | 6.3    | 5.4   | 41.4      | 46.8  |
| Type of typical riding days     |            |        |       |           |       |
| Weekday                         | 1105 (56)  | 2.0    | 5.0   | 43.4      | 49.6  |
| Weekend or holiday              | 855 (44)   | 1.3    | 3.6   | 40.2      | 54.9  |
| Typical riding time             |            |        |       |           |       |
| Morning rush hours              | 399 (20)   | 2.3    | 4.5   | 43.1      | 50.1  |
| Evening rush hours              | 698 (36)   | 1.6    | 4.3   | 42.4      | 51.7  |
| Other times                     | 863 (44)   | 1.5    | 4.4   | 41.3      | 52.8  |

Table 5
Proportion of riders riding in a pedestrian lane.

| Variable                        | Number (%) | Frequency of behavior (%) |
|---------------------------------|------------|---------------------------|
|                                 |            | Always | Often | Sometimes | Never |
| Total                           | 1960 (100) | 7.9    | 17.1  | 52.1      | 23.0  |
| Sex                             |            |        |       |           |       |
| Male                            | 833 (43)   | 7.1    | 19.6  | 53.4      | 19.9  |
| Female                          | 1127 (58)  | 8.4    | 15.3  | 51.1      | 25.2  |
| Age group                       |            |        |       |           |       |
| ≤25 years                       | 1056 (54)  | 7.4    | 17.1  | 51.9      | 23.6  |
| 26–35 years                     | 623 (32)   | 6.3    | 18.3  | 53.1      | 22.3  |
| ≥36 years                       | 281 (14)   | 13.2   | 14.2  | 50.5      | 22.1  |
| Level of education              |            |        |       |           |       |
| Postgraduate or higher          | 769 (39)   | 6.9    | 16.6  | 54.9      | 21.6  |
| Undergraduate                   | 970 (50)   | 7.6    | 18.5  | 51.2      | 22.7  |
| All others                      | 221 (11)   | 12.2   | 12.7  | 46.2      | 29.0  |
| Type of urban area of bicycle use |            |        |       |           |       |
| Central municipality            | 450 (23)   | 6.7    | 11.3  | 55.8      | 26.2  |
| Provincial capital              | 1092 (56)  | 7.3    | 18.7  | 52.6      | 21.4  |
| Deputy provincial city          | 90 (5)     | 11.1   | 27.8  | 50.0      | 11.1  |
| All others                      | 328 (17)   | 10.4   | 16.8  | 46.0      | 26.8  |
| Province/City of bicycle use    |            |        |       |           |       |
| Hunan                           | 579 (30)   | 7.4    | 18.5  | 55.1      | 19.0  |
| Guangdong                       | 230 (12)   | 8.7    | 25.2  | 52.2      | 13.9  |
| Beijing                         | 164 (8)    | 7.9    | 10.4  | 62.2      | 19.5  |
| Tianjin                         | 144 (7)    | 7.6    | 9.0   | 50.0      | 33.3  |
| All others                      | 843 (43)   | 7.9    | 16.6  | 48.4      | 27.0  |
| Reason for travel               |            |        |       |           |       |
| Commuting to work/school        | 1070 (55)  | 6.9    | 17.0  | 53.9      | 22.1  |
| Entertainment                   | 544 (28)   | 8.3    | 17.8  | 52.2      | 21.7  |
| Physical exercise               | 180 (9)    | 11.7   | 16.7  | 40.0      | 31.7  |
| Others                          | 166 (9)    | 8.4    | 15.7  | 53.0      | 22.9  |
| Riding hours per week           |            |        |       |           |       |
| <1 hour                         | 240 (12)   | 4.2    | 20.4  | 51.7      | 23.8  |
| 1–2 hours                       | 732 (37)   | 8.1    | 17.1  | 53.3      | 21.6  |
| 3–5 hours                       | 877 (45)   | 7.6    | 17.1  | 51.3      | 23.9  |
| >5 hours                        | 111 (6)    | 16.2   | 9.9   | 51.4      | 22.5  |
| Type of typical riding days     |            |        |       |           |       |
| Weekday                         | 1105 (56)  | 7.2    | 16.1  | 54.4      | 22.3  |
| Weekend or holiday              | 855 (44)   | 8.7    | 18.4  | 49.1      | 23.9  |
| Typical riding time             |            |        |       |           |       |
| Morning rush hours              | 399 (20)   | 8.3    | 15.8  | 53.4      | 22.6  |
| Evening rush hours              | 698 (36)   | 8.3    | 17.0  | 53.3      | 21.3  |
| Other times                     | 863 (44)   | 7.3    | 17.7  | 50.5      | 24.4  |
came primarily from Hunan Province (29.5%), Guangdong Province (11.7%), Beijing city (8.4%) and Tianjin city (7.3%), with the remainder spread across China.

2.2. Questionnaire

The questionnaire, which included three parts, was designed based on previous epidemiological surveys and empirical information from media reports. The first part of the survey questionnaire included variables concerning demographic traits (sex, age, level of education, type of city where they lived and rode shared bicycles). The second part consisted of shared bicycle travel-related information, such as typical purpose of shared bicycle travel, number of shared bicycle riding hours a week, and riding time for average shared bicycle rides. The third and final part of the survey asked about frequency of engaging in eight unsafe shared bicycle riding behaviors: (1) not wearing helmets [4–7], (2) running red lights [8], (3) cycling against the traffic flow [9], (4) riding in a motor vehicle lane where bicycles are prohibited, (5) riding in a pedestrian lane where bicycles are prohibited, (6) carrying passengers, (7) cycling in a pedestrian lane where bicycles are prohibited, (8) cycling against the traffic flow [9].

### Table 6

| Variable                        | Number (%) | Frequency of behavior (%) |
|---------------------------------|------------|--------------------------|
|                                 |            | Always  | Often   | Sometimes | Never   |
| **Total**                       | 1960 (100) | 0.5     | 0.7     | 4.3       | 94.6    |
| **Sex**                         |            |         |         |           |         |
| Male                            | 833 (43)   | 0.6     | 0.7     | 5.6       | 93.0    |
| Female                          | 1127 (58)  | 0.4     | 0.6     | 3.3       | 95.7    |
| **Age group**                   |            |         |         |           |         |
| 25–29 years                     | 1056 (54)  | 0.2     | 0.8     | 3.3       | 95.7    |
| 26–35 years                     | 623 (32)   | 0.8     | 0.8     | 5.5       | 92.9    |
| 36+ years                       | 281 (14)   | 0.7     | 0.0     | 5.3       | 94.0    |
| **Level of education**          |            |         |         |           |         |
| Postgraduate or higher          | 769 (39)   | 0.1     | 0.4     | 3.3       | 96.2    |
| Undergraduate                   | 970 (50)   | 0.3     | 0.7     | 3.7       | 95.3    |
| All others                      | 221 (11)   | 2.3     | 1.4     | 10.4      | 86.0    |
| **Type of urban area of bicycle use** |        |         |         |           |         |
| Central municipality            | 450 (23)   | 0.9     | 1.3     | 3.6       | 94.2    |
| Provincial capital              | 1092 (56)  | 0.2     | 0.4     | 3.0       | 96.4    |
| Deputy provincial city          | 90 (5)     | 0.0     | 0.0     | 2.2       | 97.8    |
| All others                      | 328 (17)   | 0.9     | 0.9     | 10.1      | 88.1    |
| **Province/City of bicycle use**|            |         |         |           |         |
| Hunan                           | 579 (30)   | 0.5     | 0.7     | 3.6       | 95.2    |
| Guangdong                       | 230 (12)   | 0.0     | 0.0     | 5.2       | 94.8    |
| Beijing                         | 164 (8)    | 0.6     | 0.6     | 4.3       | 94.5    |
| Tianjin                         | 144 (7)    | 0.0     | 0.7     | 3.5       | 95.8    |
| All others                      | 843 (43)   | 0.6     | 0.8     | 4.6       | 94.0    |
| **Reason for travel**           |            |         |         |           |         |
| Commuting to work/school        | 1070 (55)  | 0.5     | 0.6     | 3.6       | 95.3    |
| Entertainment                   | 544 (28)   | 0.6     | 0.9     | 5.1       | 93.4    |
| Physical exercise               | 180 (9)    | 0.6     | 1.1     | 8.3       | 90.0    |
| Others                          | 166 (9)    | 0.0     | 0.0     | 1.2       | 98.8    |
| **Riding hours per week**       |            |         |         |           |         |
| <1 hour                         | 240 (12)   | 0.0     | 0.0     | 2.5       | 97.5    |
| 1–2 hours                       | 732 (37)   | 0.3     | 0.7     | 4.1       | 94.9    |
| 3–5 hours                       | 877 (45)   | 0.5     | 0.8     | 4.6       | 94.2    |
| >5 hours                        | 111 (6)    | 2.7     | 0.9     | 7.2       | 89.2    |
| **Type of typical riding days** |            |         |         |           |         |
| Weekday                         | 1105 (56)  | 0.3     | 0.4     | 3.1       | 96.3    |
| Weekend or holiday              | 855 (44)   | 0.7     | 1.1     | 5.8       | 92.4    |
| Typical riding time             |            |         |         |           |         |
| Morning rush hours              | 399 (20)   | 0.5     | 0.3     | 6.8       | 92.5    |
| Evening rush hours              | 698 (36)   | 0.4     | 0.7     | 4.3       | 94.6    |
| Other times                     | 863 (44)   | 0.5     | 0.8     | 3.1       | 95.6    |
passengers on a shared bicycle with only one seat [10], (7) using a cell phone while riding a shared bicycle, and (8) eating while riding a shared bicycle [11,12]. The eight risky behaviors were developed through a series of steps involving a thorough review of existing research literature and media reports, multi-round group discussions among the research team, and pilot testing. Participants responded to each survey item by identifying the frequency with which they engaged in each behavior over the past month using a 4-point scale (always, often, sometimes, never).

2.3. Statistical analysis

Data analysis involved computation of basic descriptive statistics presenting the frequency of each of the eight unsafe riding behaviors, which were derived through participant self-report. SPSS (Statistical Product and Service Solutions) statistical software version 22.0 (IBM Corp, Armonk, NY, US) was used to perform all statistical analyses.

Table 7
Proportion of riders using a cell phone while riding.

| Variable                                | Number (%) | Frequency of behavior (%) |
|-----------------------------------------|------------|--------------------------|
|                                          |            | Always | Often | Sometimes | Never |
| Total                                    | 1960 (100) | 1.2    | 4.2   | 37.6      | 57.0  |
| Sex                                      |            |        |       |           |       |
| Male                                     | 833 (43)   | 1.8    | 6.5   | 44.5      | 47.2  |
| Female                                   | 1127 (58)  | 0.8    | 2.5   | 32.4      | 64.3  |
| Age group                                |            |        |       |           |       |
| <25 years                                | 1056 (54)  | 0.9    | 5.1   | 38.7      | 55.2  |
| 26–35 years                              | 623 (32)   | 1.8    | 4.0   | 39.6      | 54.6  |
| ≥36 years                                | 281 (14)   | 1.1    | 1.1   | 28.5      | 69.4  |
| Level of education                       |            |        |       |           |       |
| Postgraduate or higher                   | 769 (39)   | 1.3    | 3.8   | 38.2      | 56.7  |
| Undergraduate                            | 970 (50)   | 0.8    | 4.8   | 36.9      | 57.4  |
| All others                               | 221 (11)   | 2.7    | 2.7   | 38.0      | 56.6  |
| Type of urban area of bicycle use       |            |        |       |           |       |
| Central municipality                     | 450 (23)   | 1.6    | 4.9   | 40.2      | 53.3  |
| Provincial capital                       | 1092 (56)  | 0.6    | 4.2   | 34.5      | 60.6  |
| Deputy provincial city                   | 90 (5)     | 2.2    | 4.4   | 35.6      | 57.8  |
| All others                               | 328 (17)   | 2.4    | 3.0   | 44.5      | 50.0  |
| Province/City of bicycle use            |            |        |       |           |       |
| Hunan                                    | 579 (30)   | 0.9    | 2.6   | 32.0      | 64.6  |
| Guangdong                                | 230 (12)   | 1.3    | 4.3   | 33.0      | 61.3  |
| Beijing                                  | 164 (8)    | 1.2    | 5.5   | 36.0      | 57.3  |
| Tianjin                                  | 144 (7)    | 2.8    | 6.9   | 38.9      | 51.4  |
| All others                               | 843 (43)   | 1.2    | 4.5   | 42.7      | 51.6  |
| Reason for travel                        |            |        |       |           |       |
| Commuting to work/school                 | 1070 (55)  | 1.2    | 5.4   | 39.3      | 54.0  |
| Entertainment                            | 544 (28)   | 1.5    | 3.5   | 35.8      | 59.2  |
| Physical exercise                        | 180 (9)    | 1.7    | 1.7   | 36.1      | 60.6  |
| Others                                   | 166 (9)    | 0.0    | 1.2   | 33.1      | 65.7  |
| Riding hours per week                    |            |        |       |           |       |
| <1 hour                                  | 240 (12)   | 0.4    | 3.8   | 26.7      | 69.2  |
| 1–2 hours                                | 732 (37)   | 1.1    | 3.8   | 41.8      | 53.3  |
| 3–5 hours                                | 877 (45)   | 1.3    | 4.7   | 36.8      | 57.2  |
| >5 hours                                 | 111 (6)    | 3.6    | 3.6   | 38.7      | 54.1  |
| Type of typical riding days              |            |        |       |           |       |
| Weekday                                  | 1105 (56)  | 1.0    | 5.2   | 38.0      | 55.7  |
| Weekend or holiday                       | 855 (44)   | 1.5    | 2.8   | 37.0      | 58.7  |
| Typical riding time                      |            |        |       |           |       |
| Morning rush hours                       | 399 (20)   | 1.3    | 4.0   | 41.4      | 53.4  |
| Evening rush hours                       | 698 (36)   | 1.9    | 3.9   | 36.5      | 57.7  |
| Other times                              | 863 (44)   | 0.7    | 4.5   | 36.6      | 58.2  |
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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dib.2019.104329.

Table 8
Proportion of riders eating while riding.

| Variable                              | Number (%) | Frequency of behavior (%) |
|---------------------------------------|------------|---------------------------|
|                                       |            | Always | Often | Sometimes | Never  |
| Total                                 | 1960 (100) | 0.8    | 1.4   | 20.1      | 77.8   |
| Sex                                   |            |        |       |           |        |
| Male                                  | 833 (43)   | 1.1    | 2.8   | 25.0      | 71.2   |
| Female                                | 1127 (58)  | 0.5    | 0.4   | 16.5      | 82.6   |
| Age group                             |            |        |       |           |        |
| ≤25 years                             | 1056 (54)  | 0.6    | 1.6   | 20.9      | 76.9   |
| 26–35 years                           | 623 (32)   | 0.6    | 1.4   | 22.3      | 75.6   |
| ≥36 years                             | 281 (14)   | 1.8    | 0.4   | 12.1      | 85.8   |
| Level of education                    |            |        |       |           |        |
| Postgraduate or higher                | 769 (39)   | 0.8    | 0.8   | 20.2      | 78.3   |
| Undergraduate                         | 970 (50)   | 0.4    | 1.9   | 20.7      | 77.0   |
| All others                            | 221 (11)   | 2.3    | 1.4   | 17.2      | 79.2   |
| Type of urban area of bicycle use     |            |        |       |           |        |
| Central municipality                  | 450 (23)   | 0.9    | 1.1   | 18.7      | 79.3   |
| Provincial capital                    | 1092 (56)  | 0.5    | 1.1   | 18.9      | 79.5   |
| Deputy provincial city                | 90 (5)     | 0.0    | 3.3   | 18.9      | 77.8   |
| All others                            | 328 (17)   | 1.5    | 2.1   | 26.5      | 69.8   |
| Province/City of bicycle use          |            |        |       |           |        |
| Hunan                                 | 579 (30)   | 0.5    | 1.2   | 18.5      | 79.8   |
| Guangdong                             | 230 (12)   | 1.3    | 1.3   | 17.4      | 80.0   |
| Beijing                               | 164 (8)    | 1.2    | 1.2   | 13.4      | 84.1   |
| Tianjin                               | 144 (7)    | 0.0    | 2.1   | 19.4      | 78.5   |
| All others                            | 843 (43)   | 0.8    | 1.4   | 23.4      | 74.4   |
| Reason for travel                     |            |        |       |           |        |
| Commuting to work/school              | 1070 (55)  | 0.9    | 1.1   | 21.0      | 76.9   |
| Entertainment                         | 544 (28)   | 0.6    | 2.0   | 20.2      | 77.2   |
| Physical exercise                     | 180 (9)    | 1.1    | 1.7   | 16.7      | 80.6   |
| Others                                | 166 (9)    | 0.0    | 0.6   | 17.5      | 81.9   |
| Riding hours per week                 |            |        |       |           |        |
| <1 hour                               | 240 (12)   | 0.0    | 0.8   | 12.9      | 86.2   |
| 1–2 hours                             | 732 (37)   | 0.5    | 1.4   | 23.1      | 75.0   |
| 3–5 hours                             | 877 (45)   | 0.7    | 1.6   | 20.0      | 77.8   |
| >5 hours                              | 111 (6)    | 4.5    | 0.9   | 17.1      | 77.5   |
| Type of typical riding days           |            |        |       |           |        |
| Weekday                               | 1105 (56)  | 0.8    | 1.4   | 19.6      | 78.2   |
| Weekend or holiday                     | 855 (44)   | 0.7    | 1.4   | 20.7      | 77.2   |
| Typical riding time                   |            |        |       |           |        |
| Morning rush hours                    | 399 (20)   | 1.0    | 0.5   | 20.8      | 77.7   |
| Evening rush hours                    | 698 (36)   | 1.0    | 2.1   | 19.8      | 77.1   |
| Other times                           | 863 (44)   | 0.5    | 1.2   | 20.0      | 78.3   |
References

[1] X. Wu, W. Xiao, C. Deng, D.C. Schwebel, G. Hu, Unsafe riding behaviors of shared-bicycle riders in urban China: a retrospective survey, Accid. Anal. Prev. 131 (2019) 1–7 [Epub ahead of print], https://doi.org/10.1016/j.aap.2019.06.002.

[2] H. Liu, W. Chen, Shared bicycle electronic fence system based on intelligent terminals, Electronic Technology & Software Engineering (06), 2018, pp. 122–123 (in chinese).

[3] Z. Sun, Y. Xu, Medical Statistics, fourth ed., People’s Medical Publishing House, Beijing, 2014. ISBN 978-7-117-19109-8.

[4] C.M. Fischer, C.E. Sanchez, M. Pittman, D. Milzman, K.A. Volz, H. Huang, S. Gautam, L.D. Sanchez, Prevalence of bicycle helmet use by users of public bikeshare programs, Ann. Emerg. Med. 60 (2) (2012) 228–231. http://doi.org/10.1016/j.annemergmed.2012.03.018.

[5] A. Goodman, J. Green, J. Woodcock, The role of bicycle shared systems in normalising the image of cycling: an observational study of London cyclists, J Transp. Health 1 (1) (2014) 5–8. http://doi.org/10.1016/j.jth.2013.07.001.

[6] J.D. Kraemer, J.S. Roffenbender, L. Anderko, Helmet wearing among users of a public bicycle-shared program in the District of Columbia and comparable riders on personal bicycles, Am. J. Public Health 102 (8) (2012) e23–e25. http://doi.org/10.2105/AJPH.2012.300794.

[7] A. Nanapragasam, A public health dilemma: urban bicycle-shared schemes, Can. J. Public Health 105 (3) (2014) e229.

[8] C.W. Pai, R.C. Jou, Cyclists’ red-light running behaviours: an examination of risk-taking, opportunistic, and law-obeying behaviours, Accid. Anal. Prev. 62 (2014) 191–198. https://doi.org/10.1016/j.aap.2013.09.008.

[9] S.A. Useche, L. Montoro, J.M. Tomas, B. Cendales, Validation of the Cycling Behavior Questionnaire: a tool for measuring cyclists’ road behaviors, Transp. Res. F Traffic Psychol. Behav. 58 (2018) 1021–1030. https://doi.org/10.1016/j.trf.2018.08.003.

[10] CCTV.COM, Shared Bicycles Can’t Be Carried People, and We Must Attach Importance to the Travel Safety, 2017 (in chinese), http://news.cctv.com/2017/03/27/VIDEDRI6ae49QeDhQYgWeMtv170327.shtml.

[11] E.S. Wolfe, S.S. Arabian, J.L. Breeze, M.J. Salzler, Distracted biking: an observational study, J. Trauma Nurs. 23 (2) (2016) 65–70. https://doi.org/10.1097/JTN.0000000000000188.

[12] S.A. Useche, F. Alonso, L. Montoro, C. Esteban, Distraction of cyclists: how does it influence their risky behaviors and traffic crashes? PeerJ 6 (2018) e5616, https://doi.org/10.7717/peerj.5616.