



HHS Public Access

Author manuscript

J Head Trauma Rehabil. Author manuscript; available in PMC 2022 September 09.

Published in final edited form as:

J Head Trauma Rehabil. 2022 ; 37(5): 303–310. doi:10.1097/HTR.0000000000000756.

Concussion Evaluation Patterns Among US Adults

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Abstract

Objective: The objective of this study was to compare individuals who were not evaluated by a doctor or nurse for a self-reported concussion versus individuals who were evaluated for a concussion by demographic variables, concussion history, and concussion circumstances.

Settings and Participants: Data were collected from 2018 SpringStyles, a web-based panel survey of US adults 18 years or older ($n = 6427$), fielded in March-April.

Design: Cross-sectional.

Main Measures: Respondents were asked whether they believed they had sustained a concussion in their lifetime and details about their most recent concussion, including whether they were evaluated by a doctor or nurse.

Results: Twenty-seven percent of adults in the survey reported a lifetime concussion ($n = 1835$). Among those individuals, 50.4% were not evaluated by a healthcare provider for their most recent concussion. Not being evaluated was higher among individuals whose concussion was caused by a slip, trip, or fall (adjusted prevalence ratio [APR] = 2.22; 95% CI, 1.65–2.99), riding a bicycle (APR = 2.28; 95% CI, 1.58–3.27), being struck by or against something by accident (APR = 2.50; 95% CI, 1.88–3.34), or being struck by or against something during a fight or argument (APR = 2.89; 95% CI, 2.11–3.97), compared with individuals whose concussion was caused by a motor vehicle crash. No evaluation was also higher among individuals whose concussion occurred while

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The authors declare no conflicts of interest.

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Supplemental digital content is available for this article. Direct URL citation appears in the printed text and is provided in the HTML and PDF versions of this article on the journal's website (www.headtraumarehab.com).

engaging in a sports or recreational activity (APR = 1.39; 95% CI, 1.07–1.82) or engaging in regular activities around the house (APR = 1.65; 95% CI, 1.27–2.14), compared with individuals whose concussion occurred while working for pay.

Conclusion: More than a quarter of adults reported a lifetime concussion; however, half of them were not evaluated for their last concussion by a healthcare provider. Examination by a healthcare professional for a suspected concussion may prevent or mitigate potential long-term sequelae. Furthermore, current US surveillance methods may underestimate the burden of TBI because many individuals do not seek evaluation.

Keywords

concussion ; injury prevention ; survey methodology

A TRAUMATIC BRAIN INJURY (TBI) is a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head.¹ These types of injuries are a leading cause of morbidity and mortality in the United States.^{2–4} Most TBIs that occur are mild in nature (commonly called concussions).⁵ TBIs have received greater attention as a public health concern as a result of increased awareness of TBIs sustained in athletics and military operations.^{6–9} This increase in awareness and recognition may have contributed to a 63% increase in the number of TBI-related emergency department (ED) visits documented from 2006 to 2014.⁴ Yet, the true incidence and prevalence of concussion remain unknown, since many individuals with concussions may not receive medical treatment, and among those individuals who do receive medical treatment, it is estimated that nearly half receive treatment outside of the ED.^{10–13}

Healthcare utilization among individuals who believe they sustained a concussion, and the characteristics of individuals who are more likely to utilize healthcare for a concussion, is unclear. Previous research on healthcare utilization for a suspected concussion and the decision-making process to seek care has largely focused on athlete and military populations^{14–23}; however, less is known about adults in the general population. Failure to obtain a diagnosis and treatment after a suspected concussion can have lasting health and social implications, prolong recovery, and place an individual at risk of a subsequent concussion before the first one has resolved.^{24–28} Identifying how medical evaluation after sustaining a concussion differs by demographic characteristics is an important step in identifying where potential disparities in access to care and usage exist. This information, especially when examined by population subgroups, can help programs and communities focus their efforts on promoting medical evaluation after a potential concussion and improving access to care. Furthermore, this information will provide a better understanding of who is captured by current national surveillance data (ie, those having ED visits and hospitalizations) and who is being missed in these data sets (ie, individuals who do not utilize healthcare and individuals who seek care outside of a hospital).^{2,4} This study is one of the first to quantify concussion evaluation patterns (eg, frequency, location of care) among a large sample of US adults. In addition, this study examines the characteristics of individuals who reported not being medically evaluated for a concussion compared with individuals who reported being evaluated by demographic characteristics, concussion history, and characteristics of the concussion.

METHODS

Study sample

Human subjects review was not required because this study analyzed de-identified, secondary data. Data came from the 2018 SpringStyles, an annual web-based survey of US adults 18 years or older, fielded by Porter Novelli during March-April 2018. Respondents were drawn from the GfK KnowledgePanel that gathers insights about US consumers. Panel members were recruited using probability-based, address-based sampling. The survey was sent to 10 904 panelists, with a response rate of 58.9%. The full survey sample included 6427 adults 18 years or older. Concussion-related questions were only administered to adult respondents who self-reported a concussion, representing a sample of 1835 for this analysis. Data were weighted using Current Population Survey distributions to be nationally representative based on sex, age, race and ethnicity, education, household income, household size, Census region, and metropolitan status. The weights are scaled to sum to the total sample size of all eligible respondents.

Measures

Before being asked to self-report a concussion during their lifetime, respondents were randomly assigned to receive one of 3 definitions of a concussion, one of which was no definition (see definitions in Supplemental Digital Content, available at: <http://links.lww.com/JHTR/A502>). Each respondent was then asked, “In your lifetime, do you believe that you have had a concussion?” In this study, a respondent who answered affirmatively, regardless of the concussion definition received, was classified as having a self-reported concussion. A previous analysis of these data showed no variation in reporting of concussion by definition.²⁹ Variation in reporting by concussion definition was also accounted for in this analysis by adjusting for the type of concussion definition provided to the respondent in the regression model.

Respondents who self-reported a concussion were asked how many concussions they have sustained in their lifetime and the length of time since their most recent concussion (within the past year; between 1 and 3 years; more than 3 years). Respondents were then asked a series of questions about the most recent concussion they sustained:

- Mechanism of injury (motor vehicle crash; riding a bicycle; experiencing a trip, slip, or fall; in a blast or explosion; struck by or against something during a fight or an argument; struck by or against something by accident; doing something else);
- Activity at the time of injury (working for pay; engaging in a sports or recreational activity; engaging in regular activities around the home; doing something else);
- Evaluation by a doctor or nurse (yes; no);
- If evaluated, the location of the evaluation (at your regular doctor’s office; at a hospital or ED; at an urgent care clinic; at a sports medicine or concussion clinic; someplace else); and

- If not evaluated, the primary reason for not receiving healthcare (difficulty paying for it; did not have transportation; could not take time off work; did not think the injury was serious; some other reason).

Statistical analysis

Weighted prevalence estimates and 95% CIs of not being evaluated for a suspected concussion by a doctor or nurse were calculated overall and by key sociodemographic characteristics (sex, age, race/ethnicity, education, annual household income, and US region), number of lifetime concussions, length of time since most recent concussion, mechanism of injury, and activity at the time of injury. Chi-square tests were used to examine the bivariate associations of demographic and concussion characteristics with not being evaluated for a concussion.

Logistic regression models with predicted marginals were used to quantify the association between not seeking an evaluation for a suspected concussion and each demographic and concussion characteristic.³⁰ In this approach, prevalence ratios (PRs) are obtained as functions of average marginal predictions from the fitted logistic regression model. As an example, the average marginal prediction is calculated for each level of a covariate (eg, age-group). The fitted model is used to predict the probability of the not seeking an evaluation for a suspected concussion for a given age-group level for each respondent as if all respondents were from the same age-group, while the respondent's actual covariate values (except for age) are used in the fitted prediction model. The weighted mean of the predicted probabilities yields the average marginal prediction (model-adjusted risk) for the given level of age. The model-adjusted risk ratio for each age-group is calculated in comparison with the reference age-group (age 18–29 years). Associations are presented as PRs and adjusted prevalence ratios (APRs) with 95% CIs, which were calculated using SAS-callable SUDAAN. The regression model was adjusted for all sociodemographic variables, number of lifetime concussions, length of time since most recent concussion, mechanism of injury, and activity at the time of injury. In addition, the regression model adjusted for the type of concussion definition provided before asking a respondent to self-report a concussion.

Weighted prevalence estimates and 95% CIs for the location of the concussion evaluation were calculated among respondents who were evaluated by a doctor or nurse. Similarly, weighted prevalence estimates and 95% CIs were calculated for the primary reason for not receiving care among respondents who were not evaluated by a doctor or nurse. All statistical testing was performed using an α level of .05, denoting significance. Therefore, 95% CIs for PRs and APRs that exclude the value of 1.0 indicate a statistically significant finding at an α level of .05 and 95% CIs that include the value of 1.0 are not statistically significant. Analyses were conducted using SAS-callable SUDAAN version 11.0 (RTI International, Research Triangle Park, North Carolina) to account for the survey design and weights.

RESULTS

Twenty-seven percent of adults in 2018 reported a lifetime concussion. Of those individuals, 50.4% were not evaluated by a doctor or nurse for their most recent concussion (see Table 1). The proportion of individuals who were not evaluated by a doctor or nurse for their most recent concussion was higher among males (56.8%) than among females (42.1%) and among individuals whose most recent concussion occurred more than 3 years ago (52.0%) compared with those whose concussion occurred 3 years ago or less (43.0%). Following adjustment, not receiving an evaluation for a concussion by a doctor or nurse was higher among males than among females (APR = 1.32; 95% CI, 1.18–1.49) and individuals living in the West compared with the Midwest (APR = 1.16; 95% CI, 1.00–1.36). No evaluation was also higher among individuals whose concussion was caused by a slip, trip, or fall (APR = 2.22; 95% CI, 1.65–2.99), riding a bicycle (APR = 2.28; 95% CI, 1.58–3.27), being struck by or against something by accident (APR = 2.50; 95% CI, 1.88–3.34), or being struck by or against something during a fight or argument (APR = 2.89; 95% CI, 2.11–3.97), compared with individuals whose concussion was caused by a motor vehicle crash. In addition, no evaluation was higher among individuals whose concussion occurred while engaging in a sports or recreational activity (APR = 1.39; 95% CI, 1.07–1.82), engaging in regular activities around the house (APR = 1.65; 95% CI, 1.27–2.14), or doing something else (APR = 1.71; 95% CI, 1.33–2.20), compared with individuals whose concussion occurred while working for pay.

Most individuals who were not evaluated by a doctor or nurse for their most recent concussion reported that they did not receive healthcare because they did not think the injury was serious (59.1%), while 6.1% indicated that they would have difficulty paying (see Table 2). Individuals who were evaluated by a doctor or nurse for their concussion most commonly sought care in a hospital or ED (64.0%), followed by their regular doctor (18.1%) and an urgent care clinic (9.1%).

DISCUSSION

More than a quarter of adults in the survey reported sustaining a concussion in their lifetime; half reported that they were not evaluated for their last concussion by a doctor or nurse. No evaluation for a suspected concussion by a doctor or nurse was higher among males, individuals whose concussion was caused by a slip, trip, or fall, riding a bicycle, being struck by or against something by accident, or being struck by or against something during a fight or argument. No evaluation was also higher among individuals whose concussion occurred while engaging in a sports or recreational activity or engaging in regular activities around the house. Most individuals who were not evaluated reported that the primary reason for not doing so was a belief that the injury was not serious. Among individuals who were evaluated for their most recent concussion, the majority went to a hospital or ED.

In the last 30 years, estimates of the proportion of individuals who received care for a brain injury have varied. A nationally representative survey in 1991 found that 75% of people with a brain injury received medical care.¹² However, that estimate only included people who lost consciousness as a result of a head injury, which often does not occur with concussions.

It seems likely that the 1991 estimate is higher than this study's estimate of 50% because of a difference in the severity of head injury. An internet survey conducted from 2003 through 2005 found that 58% of respondents with a self-reported TBI indicated that they had received medical care.¹¹ Again, that study only included respondents with TBI who lost consciousness, suggesting the variation in receiving care might be due to a difference in the severity of head injury. This estimate could also be slightly higher than the current study because the survey link was located on a patient-centered university website; patients seeking TBI care information may be more likely to seek evaluation after a TBI. Finally, an analysis using Porter Novelli's 2017 SummerStyles estimated that 68% of individuals received an evaluation for a suspected concussion.¹³ However, the question from the 2017 SummerStyles survey did not specifically ask the respondents about their most recent concussion. Therefore, the estimate is likely higher because respondents could have been affirming that they received an evaluation for *any* concussion they had sustained during their lifetime. While estimates of the proportion of individuals who receive an evaluation for a concussion vary, it remains true that a sizeable fraction—potentially up to half—of individuals with a concussion may not be seeking evaluation or receive care from a healthcare provider.

Evaluation for a concussion is important because early identification and treatment have been shown to prevent long-term sequelae.³⁰ Furthermore, there is a risk of developing postconcussive syndrome after sustaining a concussion or mild TBI.³¹ In this study, the most common reason for not receiving an evaluation was thinking that the injury was not serious. Other studies have also identified this as a primary reason for not seeking care.^{11,15,32,33} While some symptoms are understood by the general public to be related to concussions (eg, headaches and dizziness), other symptoms are less well known (eg, sleep problems).¹³ These nonspecific symptoms may lead to a misunderstanding that a concussion has occurred or that evaluation and treatment are necessary. While not statistically significant after adjustment (APR = 1.19; 95% CI, 0.99–1.43), the results of this study found that individuals who reported that their most recent concussion occurred more than 3 years ago were slightly more likely to not be evaluated than individuals whose most recent concussion was 3 years ago or less. This suggests that concussion education efforts may have had some success informing the public about the signs and symptoms of a concussion and the need for a clinical evaluation. Nevertheless, a large proportion of individuals who reported a concussion in the past 3 years did not receive care, indicating there is room to improve public awareness. Importantly, this study also found that logistical and economic issues (ie, difficulty paying, not having transportation, and not being able to take time off work) were not the primary barrier to receiving care for most individuals who sustained a concussion.

An important implication of this study is that current national surveillance data for concussion and TBI, based solely on TBI-related ED visits and hospitalizations,^{2,4} are likely vastly underestimating the burden of mild TBI (commonly called concussion) and more severe TBI. The results of this study indicate that approximately 32% of adults with a concussion received care at an ED or hospital. This finding suggests that current surveillance methods in the United States may be underestimating the burden of TBI because many individuals are not captured in ED or hospitalization data. If an individual decides to forgo evaluation or seek care in a nonhospital setting for a concussion or mild TBI, there will be no means to capture that injury in national estimates. Therefore, other sources of data are

needed to provide more comprehensive estimates of TBI in the United States. One method that has been proposed is the use of survey data to better capture concussions that are not treated in a hospital setting.³⁴

This study found that not receiving an evaluation for a concussion by a doctor or nurse may be influenced by concussion circumstances. For example, individuals who sustained a concussion in a motor vehicle crash were more likely than individuals who sustained a concussion by any other mechanism of injury to have been evaluated by a doctor or nurse. This is likely because motor vehicle crashes often cause more severe injuries, including injuries to the head, as indicated by the high rates of TBI-related hospitalization attributable to motor vehicle crashes.^{2,4} Finally, respondents who sustained a concussion while working for pay were more likely to be evaluated by a doctor or nurse than individuals who sustained a concussion doing any other activity. This finding may be related to the need to seek a medical evaluation in order to document an injury for a worker's compensation claim. In addition, previous research has shown that TBIs that occur at work are different from TBIs that do not occur at work in demographic and injury characteristics.^{35,36} In general, these findings suggest that certain situational factors may impact whether an individual decides to seek care after a concussion and that care-seeking behavior may be malleable. Examination by a healthcare professional for a suspected concussion may prevent or ease potential long-term consequences.^{30,37}

Limitations

A limitation of this study is that SpringStyles is a web-based panel survey and may not be fully representative of the US adult population. However, the data are weighted to be nationally representative. In addition, the data are self-reported and may be subject to bias. Recall bias may occur when a respondent is referencing a concussion that was sustained many years ago. Furthermore, the survey questions used in the study to identify self-reported concussions have not been validated and affirmative responses were not validated by independent medical diagnosis. In addition, respondents were randomly assigned to receive one of 3 concussion definitions before being asked whether they believed that they had sustained a concussion in their lifetime. There is potential for variation in receiving evaluation for a concussion by a doctor or nurse by the type of concussion definition. However, a previous analysis of these data showed no difference in reporting of concussion by definition.²⁹ This analysis also accounted for concussion definition in the adjusted regression model and showed no difference in receiving an evaluation by definition type. Finally, a large proportion of respondents reported the mechanism of injury as "other" (28.5%) and reported the activity they were engaged in at the time of injury as "doing something else" (34.4%). These large "other" categories indicate we do not yet understand the full range of activities that cause concussions or the best way to capture the circumstances of these injuries in self-report surveys.

CONCLUSION

Concussion is a type of injury that is experienced by many people in the United States and can have significant short- and long-term consequences; however, it is often unevaluated

and untreated. This study identifies several factors such as sex and mechanism of injury that make not receiving a medical evaluation after a concussion more likely. However, more research is needed into individual behavioral choices and barriers to care following a concussion in order to help programs and communities focus their efforts on promoting medical evaluation after a suspected concussion and improving access to care. While most individuals will recover within a few weeks after sustaining a concussion, examination by a healthcare professional for a suspected concussion may prevent or mitigate potential long-term sequelae.^{30,37}

Furthermore, this study suggests that current surveillance data in the United States for concussion and TBI are likely vastly underestimating the burden of concussion and more severe TBI. Current national surveillance methods are based solely on TBI-related ED visits and hospitalizations.^{2,4} However, if an individual decides to forgo evaluation or seek care in a nonhospital setting, there are no means to capture that injury in national estimates. Therefore, other sources of data are needed to provide more comprehensive estimates of TBI in the United States.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Unadjusted and adjusted prevalence ratios of not being evaluated by a doctor or nurse for a concussion among US adults who self-reported a concussion, 2018 SpringStyles^a

TABLE 1

Characteristic	Self-reported a concussion <i>n</i> (%)	Not evaluated by a doctor or nurse		
		% (95% CI) ^b	PR (95% CI)	APR (95% CI) ^c
Overall	1835 (100.0)	50.4 (47.6–53.2)		
Sex				
Female	833 (43.6)	42.1 (38.0–46.3)	Ref	Ref
Male	1002 (56.4)	56.8 (53.1–60.5)	1.35 (1.20–1.52)	1.32 (1.18–1.49)
Age, y				
18–29	160 (18.5)	45.8 (37.4–54.2)	Ref	Ref
30–44	454 (24.6)	53.4 (47.8–59.1)	1.17 (0.94–1.44)	1.18 (0.97–1.45)
45–59	717 (30.6)	52.6 (48.2–56.9)	1.15 (0.94–1.40)	1.16 (0.96–1.41)
60	504 (26.3)	48.2 (43.5–52.9)	1.05 (0.85–1.30)	1.06 (0.87–1.29)
Race and ethnicity				
Non-Hispanic White	1432 (70.5)	49.5 (46.5–52.6)	Ref	Ref
Non-Hispanic Black	120 (8.7)	54.3 (43.9–64.6)	1.10 (0.90–1.34)	1.05 (0.87–1.27)
Hispanic	167 (14.0)	53.5 (44.4–62.5)	1.08 (0.90–1.29)	0.99 (0.82–1.18)
Other	116 (6.8)	479 (35.3–60.4)	0.97 (0.74–1.27)	0.96 (0.74–1.23)
Educational attainment				
Less than high school	164 (9.5)	572 (45.5–68.9)	0.79 (0.59–1.04)	0.85 (0.64–1.13)
High school	443 (25.5)	49.9 (43.8–56.0)	0.92 (0.80–1.06)	0.95 (0.82–1.10)
Some college	576 (33.2)	51.1 (46.5–55.7)	0.90 (0.80–1.01)	0.97 (0.86–1.09)
College degree	553 (31.8)	45.6 (41.4–49.7)	Ref	Ref
Annual household income				
<\$35000	377 (23.3)	476 (41.5–53.6)	0.91 (0.78–1.07)	1.03 (0.88–1.21)
\$35 000–\$74 999	517 (27.7)	50.2 (44.9–55.5)	0.96 (0.84–1.11)	1.06 (0.93–1.22)
\$75 000–\$99 999	316 (15.7)	51.2 (44.5–57.8)	0.98 (0.84–1.15)	1.06 (0.90–1.24)
\$100 000	625 (33.3)	52.1 (47.4–56.9)	Ref	Ref
US Census region ^d				

Characteristic	Self-reported a concussion <i>n</i> (%)		Not evaluated by a doctor or nurse	
	% (95% CI) ^b	PR (95% CI)	PR (95% CI)	APR (95% CI) ^c
Midwest	432 (20.8)	Ref	Ref	Ref
Northeast	309 (170)	1.06 (0.88–1.28)	1.06 (0.88–1.28)	1.08 (0.91–1.28)
South	655 (37.2)	1.08 (0.92–1.26)	1.08 (0.92–1.26)	1.06 (0.91–1.23)
West	439 (25.0)	1.20 (1.02–1.41)	1.20 (1.02–1.41)	1.16 (1.00–1.36)
Number of lifetime concussions				
1	895 (49.1)	Ref	Ref	Ref
2	498 (270)	1.11 (0.98–1.26)	1.11 (0.98–1.26)	1.09 (0.97–1.23)
3	433 (23.9)	1.00 (0.87–1.15)	1.00 (0.87–1.15)	0.96 (0.84–1.10)
Length of time since most recent concussion				
3 y	221 (14.8)	40.3 (32.5–48.1)	Ref	Ref
>3 y ago	1608 (85.2)	52.0 (49.1–55.0)	1.29 (1.06–1.58)	1.19 (0.99–1.43)
Mechanism of injury				
Motor vehicle crash	292 (15.4)	Ref	Ref	Ref
Slip, trip, or fall	383 (21.2)	22.1 (16.5–27.7)	Ref	Ref
Riding a bicycle	97 (4.9)	46.7 (40.6–52.7)	2.11 (1.59–2.80)	2.22 (1.65–2.99)
Struck by or against something by accident	452 (24.0)	49.8 (38.3–61.4)	2.26 (1.60–3.18)	2.28 (1.58–3.27)
Struck by or against something during a fight or argument	98 (5.9)	52.5 (47.0–57.9)	2.37 (1.81–3.12)	2.50 (1.88–3.34)
Other	510 (28.5)	61.7 (49.4–74.0)	2.79 (2.03–3.85)	2.89 (2.11–3.97)
Activity at time of injury				
Working for pay	170 (9.4)	Ref	Ref	Ref
Engaging in a sports or recreational activity	682 (35.8)	53.4 (48.8–58.0)	1.66 (1.27–2.16)	1.39 (1.07–1.82)
Engaging in regular activities around the house	353 (20.3)	53.2 (46.8–59.7)	1.65 (1.25–2.18)	1.65 (1.27–2.14)
Doing something else	625 (34.4)	50.4 (45.6–55.1)	1.57 (1.20–2.04)	1.71 (1.33–2.20)
Version of concussion definition provided to respondent				
Long definition ^e	625 (34.8)	Ref	Ref	Ref
Short definition ^f	594 (31.9)	1.06 (0.93–1.21)	1.06 (0.93–1.21)	1.09 (0.96–1.24)
No definition ^g	616 (33.2)	49.8 (45.0–54.5)	1.01 (0.88–1.16)	1.04 (0.91–1.18)

Abbreviations: APR, adjusted prevalence ratio; PR, prevalence ratio.

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^e All estimates are weighted except sample sizes (*n*). Boldface indicates statistical significance ($P < .05$).

^b Within-group differences were determined using standard chi-square tests.

^c APRs were obtained using logistic regression model adjusted for all covariates listed in the table.

^d Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

^e Definition 1: A concussion can happen anytime a blow to the head caused you to have 1 or more symptoms, whether just for a short time or lasting a while. Symptoms include blurred or double vision, being bothered by light or noise, headaches, dizziness or balance problems, nausea, vomiting, trouble sleeping, feeling tired, being dazed or confused, trouble remembering, trouble concentrating, or being knocked out. In your lifetime, do you believe that you have had a concussion?

^f Definition 2: A concussion has occurred anytime a blow to the head caused you to have 1 or more symptoms, whether just for a short time or lasting a while. Symptoms include being dazed or confused, trouble remembering, or being knocked out. In your lifetime, do you believe that you have had a concussion?

^g Definition 3: In your lifetime, do you believe that you have had a concussion?

Characteristics of healthcare evaluation among US adults who self-reported a concussion, 2018 SpringStyles^a

TABLE 2

Characteristic	n	% (95% CI)
Primary reason for not receiving healthcare among adults who were not evaluated by a doctor or nurse for their most recent concussion	935	
Did not think the injury was serious	571	59.1 (55.2–63.0)
Other	269	30.4 (26.7–34.1)
Difficulty paying	60	6.1 (4.4–7.9)
Could not take time off work	19	2.5 (1.0–4.0)
No transportation	16	1.9 (0.7–3.0)
Location of evaluation among adults who were evaluated by a doctor or nurse for their most recent concussion	896	
Hospital or emergency department	585	64.0 (60.1–68.0)
Regular doctor's office	165	18.1 (14.9–21.2)
Urgent care clinic	75	9.1 (6.7–11.6)
Someplace else	71	8.8 (6.3–11.2)

^aAll estimates are weighted except sample sizes (n).