



Introduction

The number of child occupants ages 8 and under who die in motor vehicle crashes declined by 49 percent between 1994 and 2016, in large part due to the increased use of child restraints. Despite the overall trend towards decreasing numbers, there has been a 19 percent increase in deaths since 2014, highlighting the importance of continuing prevention efforts.¹

While more children are traveling in car seats today, one highly beneficial part of the seat that increases safety often goes unnoticed and therefore unused: it is the tether and it is attached to the back of the seat.² Tethers are available on every forward-facing car seat with a harness, but when a parent unpacks a new car seat from the box, the tether may be gathered and secured with a rubber band or stored in a pouch or compartment, completely unseen. The tether's webbing has a hook on the end of the strap that attaches to an anchor in the vehicle. Used with the seat belt or lower attachments, the tether provides a third point of contact by securing the top of the car seat to an anchor in the vehicle. The tether keeps the car seat from pitching forward an additional 4-6 inches in the event of a crash or sudden stop. Without a tether, the sudden forward motion can result in a child's head hitting the back of the front seat, another occupant or the window.

In September 2017, Safe Kids Worldwide released "[Car Seat Tethers: Essential for Safety but Consistently Overlooked](#)," a new study made possible with support from General Motors. Safe Kids coalitions provide in-vehicle education to caregivers at local Buckle Up checkup events. These events are staffed by nationally certified child passenger safety (CPS) technicians who assess and improve how families transport their children. The study showed that 64 percent of caregivers who attended a Safe Kids Buckle Up checkup event with a child in a forward-facing car seat were not using a tether on arrival.² Our research also showed that parents who attend car seat checkup events gain the knowledge and skills needed to safely install their child's car seat using the tether. However, without these hands-on educational interventions, tether use is not widely observed at community checkup events.

To better understand why parents and caregivers are not using tethers, we undertook a study during Child Passenger Safety Month (September 2017) to assess whether caregivers attending checkup events could correctly identify the tether on the car seat and a tether anchor mounted in the vehicle, determine what they called the tether and document whether going through the checkup event impacted their awareness and understanding of the importance of the tether.

¹ National Highway Traffic Safety Administration (NHTSA). Fatality Analysis Reporting System (FARS). Washington, D.C. [Codes used:1994-2015; Ages 0-8 years; Person type 1,2,9; Injury severity 4] Accessed April 20, 2017. Available at: <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>.

² MacKay M, Walker L. Car Seat Tethers: Essential for Safety but Consistently Overlooked. Washington, D.C.: Safe Kids Worldwide, September 2017.

Methods

During September 2017, all Safe Kids coalitions participating in Buckle Up checkup events were asked to complete a brief survey with a minimum of 10 caregivers who arrived at the event with either a rear-facing or forward-facing seat with a harness. The survey, which was integrated into the checkup event, required the CPS technician to note the type of car seat and whether the tether was in use on arrival. Then, prior to starting the inspection, they asked the caregiver to point to the tether and the tether anchor (or where the tether should attach to their vehicle) without indicating whether they were correct. Next, they asked the caregiver what they called the tether. At the end of the checkup, CPS technicians repeated the request that the caregiver point to the tether and tether anchor and then asked the caregiver to describe why the tether was important and noted whether their responses were correct. CPS technicians recorded the information on a standard form and entered the data into a central data set using SurveyMonkey.

Results

One hundred and thirty coalitions from 38 states submitted a total of 1,354 surveys. The average number of surveys per coalition was 10.4 (range 1-35).

On Arrival at Car Seat Checkup Event

Sixty-three percent of the caregivers surveyed had children in a forward-facing seat, and 37 percent were in a rear-facing seat (Table 1). Of those with children in a forward-facing seat, 41 percent were using the tether upon arrival, a slightly higher proportion than was found in the September 2017 research report.³

When asked to identify the tether (on the car seat) and tether anchor (mounted in the vehicle), only 46 percent were able to identify either the tether or tether anchor. Not surprisingly, those with a forward-facing seat, where tether use is recommended, were more likely to correctly identify both the tether and tether anchor, than parents with a rear-facing seat (51.6 and 51.4 percent versus 36.5 and 36.5 percent, respectively; Tables 2 and 3).

When asked what they called a tether, only 328 (24 percent) caregivers responded with tether, top tether, tether strap or tether thing. Another 450 (33 percent) indicated they did not know or have a name for it. Other terms used by caregivers to identify the tether were strap, latch, webbing, holder, safety buckle, safety hook and safety latch.

³ MacKay M, Walker L. Car Seat Tethers: Essential for Safety but Consistently Overlooked. Washington, D.C.: Safe Kids Worldwide, September 2017.

Table 1. Tether in Use on Arrival by Type of Car Seat

Type of seat	Tether in Use on Arrival			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	350 (41.2)	499 (58.7)	1 (0.1)	850 (62.8)
Rear-facing	25 (5.0)	471 (95.0)	0 (0.0)	496 (36.6)
Unknown	2 (25.0)	4 (50.0)	2 (25.0)	8 (0.6)
Column total (%)	377 (27.8)	974 (71.9)	3 (0.2)	1354 (100.0)

Table 2. Caregiver Able to Identify Tether by Type of Car Seat

Type of seat	Able to Identify Tether on Arrival			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	439 (51.6)	411 (48.4)	0 (0.0)	850 (62.8)
Rear-facing	181 (36.5)	309 (62.3)	6 (1.2)	496 (36.6)
Unknown	3 (37.5)	4 (50.0)	1 (12.5)	8 (0.6)
Column total (%)	623 (46.0)	724 (53.5)	7 (0.5)	1354 (100.0)

Table 3. Caregiver Able to Identify Tether Anchor by Type of Car Seat

Type of seat	Able to Identify Tether Anchor on Arrival			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	437 (51.4)	411 (48.4)	0 (0.0)	850 (62.8)
Rear-facing	181 (36.5)	312 (62.9)	6 (1.2)	496 (36.6)
Unknown	3 (37.5)	4 (50.0)	1 (12.5)	8 (0.6)
Column total (%)	621 (45.9)	727 (53.7)	6 (0.4)	1354 (100.0)

On Departure from Car Seat Checkup Event

On departure from the car seat checkup event, a significantly higher proportion of caregivers were able to identify both the tether and tether anchor compared to on arrival (tether: 95.1 percent versus 46.0 percent, $p < 0.05$; tether anchor: 87.5 percent versus 45.9 percent, $p < 0.05$) (Tables 4 and 5). The increases were significant regardless of the type of car seat. When asked to describe the importance of the tether, 94.2 percent gave responses that demonstrated they understood the importance. Again not surprisingly, caregivers that had arrived with a forward-facing seat were more likely to understand the importance than those with a rear-facing seat (98.2 percent versus 87.5 percent).

Table 4. Caregiver Able to Identify Tether on Departure by Type of Car Seat Arrived In

Type of seat	Able to Identify Tether on Departure			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	839 (98.7)	11 (1.3)	0 (0.0)	850 (62.8)
Rear-facing	442 (89.1)	15 (3.0)	39 (7.9)	496 (36.6)
Unknown	7 (87.5)	0(0.0)	1 (12.5)	8 (0.6)
Column total (%)	1288 (95.1)	26 (1.9)	40 (3.0)	1354 (100.0)

Table 5. Caregiver Able to Identify Tether Anchor on Departure by Type of Car Seat Arrived In

Type of seat	Able to Identify Tether Anchor on Departure			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	839 (98.7)	11 (1.3)	2 (0.2)	850 (62.8)
Rear-facing	446 (89.9)	14 (2.8)	36 (7.2)	496 (36.6)
Unknown	7 (87.5)	0(0.0)	1 (12.5)	8 (0.6)
Column total (%)	1292 (95.4)	23 (1.7)	39 (2.9)	1354 (100.0)

Table 6. Caregiver Able to Describe Importance of Tethering on Departure by Type of Car Seat Arrived In

Type of seat	Able Describe Importance of Tethering			Row total (%)
	Yes (%)	No (%)	Unknown (%)	
Forward-facing	835 (98.2)	13 (1.5)	2 (0.2)	850 (62.8)
Rear-facing	434 (87.5)	25 (5.0)	37 (7.5)	496 (36.6)
Unknown	6 (75.0)	1 (12.5)	1 (12.5)	8 (0.6)
Column total (%)	1275 (94.2)	39 (2.9)	40 (3.0)	1354 (100.0)

Discussion

In this convenience sample of caregivers attending Buckle Up checkup events during September 2017, we found a similar level of non-use of tethers among parents arriving with forward-facing seats with a harness as has been found in other studies.⁴

On arrival and before any education was provided, less than half of caregivers with a forward-facing seat were able to correctly identify the tether (on the car seat) or a tether anchor (mounted in the vehicle). This was slightly more than those with rear-facing seats where a tether and tether anchor are available but not intended for use until the car seat is converted to the forward-facing position.

⁴ MacKay M, Walker L. Car Seat Tethers: Essential for Safety but Consistently Overlooked. Washington, D.C.: Safe Kids Worldwide, September 2017.

Car Seat Tethers



This is a **car seat tether**.
It has a hook at the end.



This is a tether **anchor** found
inside the vehicle.



This is a car seat tether
attached to the anchor.

Less than one in four caregivers spoke the word “tether” in naming the strap found on the back of the seat. Many other terms were recorded, which implies a lack of familiarity with the tether terminology and an understanding of its purpose. If most instruction labels and manuals for vehicles and car seats are using the term tether, the results of this survey suggest that there is a good chance that caregivers will not recognize the term when it is used and as a result, may not understand its purpose and benefits to the child. Opportunities to increase visibility and attention to the tether and tether anchor in instructions and on labels through design or packaging should be explored. The results on arrival suggest that car seat instructions for convertible or forward-facing seats with a harness should more clearly illustrate and explain tether benefits, making it clear that the tether is to be used in a forward-facing position regardless of whether seat belt or lower anchors are used to secure the car seat to the vehicle. Child restraint and vehicle manufacturers may also want to consider making the top tether and tether anchor more visible by using a contrasting color or more identifiable symbol.

Upon departure from checkup events where the purpose of the tether was clearly explained, most caregivers demonstrated remarkable improvement (95 percent compared to 46 percent on arrival for tethers and 94 percent compared to 46 percent on arrival for tether anchors). They were able to explain the benefits of a tether, correctly identify the tether on the car seat and find the tether anchors mounted in their vehicles. This suggests the importance of increasing focused tether education to put increased emphasis on the tether while using the correct terms as an integral part of every inspection event. The noteworthy improvement in caregiver skill upon departure makes it clear we must maximize technician time spent with the caregiver, thereby increasing familiarity with the terms and parts while guiding a successful use of the tether in the vehicle. To do less maintains the status quo and deters us from helping caregivers see the tether as an already-available car seat part that makes forward facing children safer in vehicles.



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