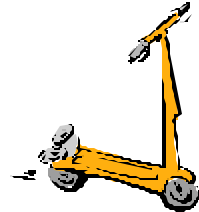


HELMET USE AMONG CHILDREN IN CENTRAL TEXAS OBSERVATIONAL SURVEY RESULTS 2001



THE WACO TRAFFIC SAFETY DISTRICT HELMET PROMOTION
COALITION

DORFAM

Division of Research

Department of Family Practice

Texas A&M University System HSC College of Medicine

Scott & White Memorial Hospital

Temple, Texas

Helmet Use Among Children in Central Texas Observational Survey Results 2001



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Prepared by:

**Division of Research
Department of Family & Community Medicine
Texas A&M University System HSC College of Medicine
Scott & White Memorial Hospital
1402 West Avenue H, Temple, Texas 76504
Tel: (254) 771-7707 Fax: (254) 771-8493**

Samuel N. Forjuoh, M.B., Ch.B., Dr.P.H.
Director

For:

THE WACO TRAFFIC SAFETY DISTRICT HELMET PROMOTION COALITION
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The Department specifically disclaims responsibility for
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Testimonies

“The prevalence of bicycle helmet use remains low despite research indicating the high level of head injury risk when riding without a helmet and the significant protection afforded by bicycle helmets.”

Finnoff JT, et al. Pediatrics 2001;108(1).

“Nationally, 20% of all bicyclists report wearing a bike helmet for other activities such as skating and scooter riding. Of this group, 67% report wearing a bike helmet for in-line skating, and 10% wear a helmet while skateboarding.”

Consumer Product Safety Commission, CPS Review Summer 1999.

“The popularity of scooters presents a new cause of pediatric injuries and a significant health hazard to children.”

Abbott MB, et al. Pediatrics 2001;108(1).

“To increase the voluntary use of bicycle helmets among school children their attitudes must be influenced. An intervention aimed at both parents and children may be required.”

Berg P & Westerling R. Inj Prev 2001;7:218-222.

“Educational campaigns can increase helmet use and decrease the incidence of bicycle-related head injury. Helmet use among Seattle metropolitan area school-aged children increased from 5.5% in 1987 to 40.2% in 1992 to 60% in 1993.”

Rivara FP, et al. Pediatrics 1994;93:567-569.

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Copies of this document may be accessed and downloaded from our web site at <http://dorfam.sw.org> or by contacting:

Marcine Chambers
Division of Research
Department of Family Practice
1402 West Avenue H
Temple, TX 76504
Tel: (254) 771-7707
Fax: (254) 771-8493
E-mail: mchambers@swmail.sw.org

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Executive Summary

This monograph reports the findings of the first scientific observational survey of helmet use by children in Central Texas. Although the focus of the observation was bike riding, children engaged in other helmet-recommended activities -- scooter riding, in-line skating, and skateboarding -- were also observed.

Trained surveyors gathered data in 8 non-randomly selected communities throughout Central Texas. Information obtained in the observational survey included date, time of day, illumination, and temperature as well as age, gender, and race of the observed child and whether the child was on a bike, an in-line skate, a skateboard, or a scooter. Helmet use was reported as proper or improper based on the strapping and positioning of the helmet on the head.

A total of 841 children were observed during the 8-week observation period. The overall observed helmet use was 14%. Of those observed with helmets, 27% wore them improperly. Girls were observed to wear helmets more often than boys (17% vs 12%). Children approximately younger than 6 years were observed with the highest helmet use (33%). Observed helmet use was lowest among children ages 6-12 years (9%). Unfortunately, improper helmet wearing was also highest among this age group (38%). Observed helmet use also varied significantly by race. White children were more than twice as likely to be helmeted as black children (19% vs 8%). Helmet use was highest in Bellmead (23%) and Harker Heights (21%) and lowest in Killeen (9%), Woodway (9%), and Rogers (0%), where no child was observed wearing a helmet.

Higher helmet use was observed for in-line skating (18%) than for biking (14%), skateboarding (14%), or scooter riding (11%). Helmet use was highest in children observed on bike paths (29%) and lowest in children observed on minor streets (9%) and other locations (6%). Of the children observed on playgrounds, 19% were helmeted while a helmet was found hanging on 3%.

Children observed alone were helmeted only 9% of the time compared to children observed with helmeted adults who were helmeted 55% of the time - "parental" effect. Additionally, when none of the companions was helmeted, only 4% of the children observed were helmeted. However, when children were observed in a group, they wore helmets 95% of the time *if* all persons in the group were also helmeted - "convoy" effect.

These findings provide some opportunities and strategies for increasing helmet use such as providing helmets to subgroups most at risk and using parents and peer groups for helmet promotion.

Helmet Use Among Children in Central Texas, 2001

-- Fact Sheet --

- ' The overall observed helmet use among children in Central Texas in 2001 was 14%.
- ' More than a quarter (27%) of children observed with helmets wore them *improperly*.
- ' Improper helmet wearing was highest among children ages approximately 6-12 years.
- ' The majority of children (53%) in one of the eight communities were observed wearing their helmets *improperly*; in another community, however, all children observed wore their helmets *properly*.
- ' Girls were observed to use helmets more often than boys (17% vs. 12%).
- ' Children approximately younger than 6 years were observed to use helmets at a higher rate than children ages 6-12 years and those older than 12 years.
- ' Observed helmet use was lowest among children ages 6-12 years (9%).
- ' Improper helmet use was highest among children ages 6-12 years (38%).
- ' White children were observed to use helmets twice as often as non-white children.
- ' Observed helmet use was lower than the two-county average (14%) in the majority (63%) of the eight communities observed.
- ' Observed helmet use was highest among in-line skaters (18%) and lowest among scooter riders (11%).
- ' Observed helmet use was highest among children observed on bike paths (29%) and lowest among those observed on minor streets (9%).
- ' More than half (55%) of children observed with adult companions wore helmets.
- ' The vast majority of children (95%) observed with *helmeted companions* also wore helmets.
- ' Only a small minority of children (4%) observed with *non-helmeted individuals* wore a helmet.

Introduction

Bicycle-related head injuries continue to be a serious health problem in the United States. Two thirds of the 600 young bicyclists who are killed each year die from head injuries. One third of all nonfatal crashes also result in head injury and prolonged hospitalization. Each year about 3,000 Texans die or sustain injuries from bicycle-related crashes and hundreds are hospitalized. The average cost of hospitalization for a bicycle-related injury is approximately \$10,500; the actual cost for a single bicycle-related injury hospitalization may be as high as \$197,200. Many of these deaths and injuries are imminently *preventable* through the use of approved bicycle helmets.

Bicycle helmets have been conclusively demonstrated to decrease the risk of serious brain injury by 85%. Unfortunately, as demonstrated in other areas, *only a small proportion of child bicyclists always wear helmets*. Thus, there is a clear need to get children to wear helmets. In essence, the bicycle helmet can be viewed as a *vaccine* against traumatic brain injury. Our challenge, therefore, should be to get children “vaccinated” against this preventable condition.

In January of 2001, the Waco Traffic Safety District Helmet Promotion Coalition was officially formed with financial support from the Texas Department of Transportation (TxDOT). The *mission* of the Coalition is to promote helmet use in Central Texas. The *goals* are to increase helmet ownership and proper helmet use among children in Central Texas and thereby reduce the incidence of head injuries associated with helmet-recommended activities. The Coalition has modeled its approach on similar initiatives in Pittsburgh, PA and Seattle, WA where helmet use was increased to over 90% leading to a significant decrease in hospitalizations resulting from traumatic brain injury.

Formed by inviting citizens and organizations who are concerned with the problem of injuries sustained by young bicyclists, in-line skaters, skateboarders, and scooter riders, the Coalition is currently comprised of 32 active members. These individuals represent more than 20 entities, including different health care organizations, as well as representatives from the local government, cycling enthusiasts, and businesses in Central Texas.

The first scientific study of bicycle helmet use among children in the two-county area of Central Texas was conducted during the summer of 2001 through an *observational* survey. Although the focus of the survey was bike riding, children engaged in other helmet-recommended activities such as in-line skating, skateboarding, and scooter riding were also included. This survey provided data used in this report. Annotated charts are used to highlight the results. Technical details on methods are provided in an appendix, along with the observational survey instrument.

Annotated Charts

**Figure 1. Helmet Wearing among Children
Central Texas, 2001**

The overall observed helmet use among children was 14%.
In 1% of cases, a helmet was observed hanging on a bicycle or a scooter.

**Figure 2. Helmet Wearing among Children by Method
Central Texas, 2001**

Of the children who were observed with helmets, more than a quarter (26.5%) wore them *improperly*.
In 1% of the cases, observers could not judge whether helmets were worn properly or improperly.

**Figure 3. Helmet Wearing among Children by Gender
Central Texas, 2001**

A significant difference was found in observed helmet use by gender.

Observed helmet use in boys was 12%.

Among girls, the observed helmet use was 17%.

**Figure 4. Helmet Wearing among Children by Age Group
Central Texas, 2001**

Observed helmet use varied significantly by age group. Children younger than 6 years were observed to use helmets at a higher rate (33%) than those ages 6-12 years and those older than 12 years (11%). Observed helmet use was lowest among children ages 6-12 years (9%).

**Figure 5. Helmet Wearing among Children by Race
Central Texas, 2001**

Observed helmet use varied significantly by race.
White children were more than twice as likely to wear helmets
as non-white children (19% vs. 8%).

**Figure 6. Helmet Wearing in Children by Community
Central Texas, 2001**

Helmet use was highest in Bellmead (23%) and Harker Heights (21%) and lowest in Rogers (0%), Killeen (9%), and Woodway (9%).

Helmet use was lower than the two-county 14% average in the majority (63%) of the eight communities observed.

**Figure 7. Helmet Wearing among Children by Activity
Central Texas, 2001**

Helmet use did not vary much by activity. Helmet use was highest in children who were in-line skating (18%) and lowest among children riding scooters (11%). Helmets were observed hanging in children riding scooters (2%) or in-line skating (4%).

**Figure 8. Helmet Wearing among Children by Location
Central Texas, 2001**

Helmet use was highest in children observed on bike paths (29%).

Helmet use was lowest in children observed on minor streets (9%).

At playgrounds, 19% of children observed were helmeted, while a helmet was found hanging on 3% of the children observed.

**Figure 9. Helmet Wearing among Children by Companion
Central Texas, 2001**

“Parental effect” affected the observed helmet use among children.

Children observed alone (9%) or in companion with other children (13%) were less likely to wear helmets than those observed with adults (55%) or observed with both adults and other children (55%).

Figure 10. Helmet Wearing among Children by Whether Companions were Helmeted, Central Texas, 2001

“Convoy effect” also affected helmet use by children. When children were observed in a group, they wore helmets 95% of the time *if* all persons in the group were also helmeted. When at least one of the persons in a group was helmeted, children were observed to wear helmets 55% of the time. When none of the persons in a group was helmeted, children were observed to wear helmets only 4% of the time.

**Figure 11. Method of Helmet Wearing among Children
by Age Group, Central Texas, 2001**

Improper helmet wearing was highest among children ages 6-12 years old (38%).

Proper helmet wearing was highest among children ages 12 years and older (88%).

**Figure 12. Method of Helmet Wearing among Children
by Community, Central Texas, 2001**

The majority of children in Harker Heights (53%) were observed wearing their helmets *improperly*.

All children observed in Woodway were wearing their helmets properly.

In Bellmead, 94% of children were observed wearing their helmets properly.

Appendix

Appendix 1. Technical Details on Methods

Sampling

Eight communities were selected non-randomly from Central Texas for observation. In each community, several observation points were randomly selected from a number identified by key knowledgeable community informants as locations most frequented by non-adult bicyclists, in-line skaters, skateboarders, and scooter riders. Hourly observation were conducted at each selected point in order to reduce the likelihood of double counting between May 10, 2001 through June 17, 2001.

Observer Training

Two 3-hour training sessions was provided for the observers using an Observer's Manual. At the end of each week, a meeting was held for all observers to resolve any issues encountered in the field.

Monitoring

The research coordinator constantly monitored the observation by the observers. Unannounced visits were made to selected sites to validate the recorded observations.

Appendix 2. Observational Survey Instrument

Observational Survey of Bicycle Riding and Helmet Use

Observer Name: _____ Observer ID: _____

Neighborhood Name: _____ Neighborhood ID: _____

Observation Site: _____ Site ID: _____

Date of Observation: ___ / ___ / 19__

Day of Week: _____

Start Time: ___:___ " a.m. " p.m.

End Time: ___:___ " a.m. " p.m.

Illumination: 1. " Sunny

2. " Rainy

3. " Partly Cloudy

4. " Cloudy

Temperature: _____ °F

Comments:

ID No	Ob No	Person Type	Location	Helmet Worn	Helmet Wearing	Age Group	Gender	Race	Riding With	Helmets on Companions
		1=Biking 2=In-line sk 3=Board sk 4=Other	1=Playground 2=Parking lot 3=Street (maj) 4=Street (min) 5=Side-walk 6=Bike path 7=Other	1=Yes 2=No 3=Hanging on bike	1=Properly 2=Improperly 9=Not Sure	1=<5 yr. 2=6-9 yr. 3=10-12 yr. 4=>12 yr.	1=Male 2=Female 9=Not sure	1=White 2=Nonwhite 9=Not sure	1=Alone 2=Children 3=Adults 4=Both 5=Walkers	1=All 2=At least 1 3=None
	1.									
	2.									
	3.									
	4.									
	5.									
	6.									
	7.									
	8.									
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NOTES