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ORIGINAL PAPER

# Attitudes of Teenagers Towards Workplace Safety Training

**Kristina M. Zierold · Erin C. Welsh · Teresa J. McGeeney**

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**Abstract** More than 70 % of teenagers are employed before graduating high school. Every 10 min, in the United States, a young worker is injured on the job. Safety training has been suggested as a way to prevent injuries, yet little is known about the methods of safety training and the effectiveness of training that teens receive at work. This study is the first to assess the attitudes teens hold towards safety training and what they believe would help them stay safe on the job. In 2010, focus groups and interviews were conducted with 42 teens from public high schools in Jefferson County, Kentucky. Participating teens were aged 15–19 years old, 43 % male, 69 % African-American, and 56 % worked either in the restaurant/food industry or in retail jobs. Most teens reported receiving safety training. Although the majority believed that safety training was important, many felt that they personally did not need safety training; that it was "common sense." However, 52 % of teens reported workplace injuries. Many viewed injury lightly and as part of the job, even those that sustained severe injuries. Most teens were trained by methods that seem at best "boring" and at worst, ineffective. Little interaction, action, or repetition is used. Training is not geared towards teens' developmental levels or interest, as in most cases all workers received the same type of training. Safety training may be a powerful way to reduce injury rates among working teenagers, but it is essential that training methods which are geared towards teens are utilized.

K. M. Zierold (✉) · E. C. Welsh · T. J. McGeeney
Department of Epidemiology and Population Health, School of Public Health and Information Sciences, University of Louisville, Louisville, KY 40202, USA
e-mail: kmzier02@louisville.edu

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## Introduction

In 2010, more than 1.6 million teenagers aged 15–17 years old were employed in the United States. The majority were employed in hospitality, leisure, or retail jobs. With more than 70 % of teenagers working for pay before graduating high school [1–5], injuries sustained at work are a major health concern. Every 10 min, in the United States, a teen is injured on the job. Young workers have twice the risk of injury compared with adult workers and many of those injuries are severe, resulting in workers' compensation claims and emergency department visits [6–9]. In 2007, the highest rates of work-related nonfatal injuries and illnesses treated in emergency departments were among workers 18–24 years of age [4.5 injuries per 100 full-time equivalents (FTE)] and among 15–17 year olds (4.2 injuries per 100 FTE). In workers aged 25–44 years old, rates declined to 2.5 injuries per FTE and rates further declined to 1.5 injuries per FTE for workers 65 years and older [10]. The true number of work-related injuries among teens is greatly underestimated, as the National Institute for Occupational Safety and Health (NIOSH) estimates that only one-third of work-related injuries and illnesses are treated in hospital emergency departments [10].

In 2009, 24,910 teens less than 19 years old were severely injured enough to miss days from work. Bureau of Labor Statistics (BLS) data, which estimates the number and frequency of workplace injuries and illnesses based on logs kept by employers, reported the median days away from work for injured teens aged 14–15 years old was 1 day and the median days away from work for injured teens aged

16–19 years old was 2 days [11]. Studies of work-related injury in teens report prevalence rates of injury ranging from 11 % to over 40 %, based on the selected population, age, race, and job characteristics [12–17].

The cause of most non-fatal injuries in young workers is contact with objects or equipment [18]. Researchers and occupational safety institutions like NIOSH have promoted safety training as an essential tool in preventing injury among young workers, yet few studies have characterized the training teens are receiving or its effectiveness. There is limited or no understanding about the quality of training, quantity of training, and if safety training is effective in preventing workplace injuries in teenagers. None have taken into account teens' attitudes and beliefs about safety training. The limited studies of teen workers that have assessed the prevalence of safety training, found that greater than 55 % of teens report receiving safety training [1, 8, 19–22]. Although many teens report receiving safety training at work, the high prevalence of injury may not adequately define the reality. Results from focus group discussions have implied that teen workers may not understand the difference between "job training" and "safety training [23]." Therefore, the prevalence of teens reporting that they have received safety training may be inaccurately elevated.

Although the prevalence of training has been assessed in a number of studies of teen workers, there is no comprehensive information regarding safety training among this working population. Specifically there is no data about the methods of training, the quantity of training, the frequency of training, who provides the training, and the teens' opinions on the effectiveness of training. To date, only a few studies have reported more than just the prevalence of training, and even those few are limited in specific detail [8, 19, 21]. For example, among teens who received safety training, Runyan et al. [19] found that 91 % of teens stated that their training included "how to use the equipment safely" and 84 % of teens stated that their training included "how to avoid getting hurt while working." Delp et al. [8] found that 59 % of teens received training on safe work practices, including safe use of machines or chemicals, safe lifting, and how to keep the workplace clean. Neither study assessed the effectiveness of the training. Zierold and Anderson [21] specifically evaluated the association between safety training and severe injury and found that although greater than 60 % of the teens aged 14–18 years old reported receiving training, it was not protective against workplace injury.

Safety training is a potential component in work-related injury prevention, therefore, the main objectives of this study were: (1) to characterize the safety training teen workers receive on the job, (2) to explore teens' attitudes regarding the usefulness of training in preventing workplace injury, and (3) to determine what teens believe are the most effective methods for providing safety training to young workers.

## Methods

This study used qualitative research methods including focus groups and interviews with teenagers aged 15–19 years old, who were currently employed. The study procedures were approved by the Institutional Review Board of the University of Louisville.

### Recruitment of Teenagers

Teens were recruited from two public high schools in Jefferson County, Kentucky. Both schools are magnet career academies that offer job training in a variety of different fields, as well as traditional education. The first school where students were recruited was an inner city high school with 983 students; 292 freshman, 244 sophomores, 191 juniors, and 246 seniors. The school is 66 % female and has a racial and ethnic makeup that is 82 % African American, 12 % white, and 6 % other. Seventy-seven percent of the students are eligible for free or reduced lunch. The curricula at this school consist of a traditional educational program to prepare students for college as well as ten magnet programs which prepare students for careers; such as banking/finance, veterinary medicine, pharmacy, and dental science.

The second school was a blue-collar suburban high school with 1,936 students; 581 freshman, 527 sophomores, 401 juniors, and 368 seniors. The high school is 53 % female and has a racial and ethnic makeup that is 72 % white, 27 % African-American, and 2 % other. Forty-three percent of the students are eligible for free or reduced lunch. The curricula at this school consist of a traditional educational program to prepare students for college as well as magnet programs in communications, media, and the arts.

Students were recruited during lunch periods by 2–3 study team members. We arranged tables outside the cafeteria with fliers, brochures, and University of Louisville School of Public Health water bottles. We hung posters around the area outside the cafeteria. Initially we made contact with a few students by asking if they were employed or if they were currently working. Eventually students came to our tables without any study team effort. As students approached the tables, we asked their age, if they were currently employed, and where they were working. To be eligible to participate in the discussion, teens had to be currently employed for pay and between 15 and 19 years old. If they met the criteria, we explained the study, the amount of time it would take, the compensation

for participating, and the consent form. No specific effort was made to ensure diversity during recruitment. At the time of initial contact, if a student fit the inclusion criteria, he/she was signed up for a specific focus group or individual interview. We provided the students with reminder cards and gave them a consent form to bring home. Most of the students returned the consent form on one of the following days. For those few students who did not return the consent form while we were in the school recruiting, they were reminded by a telephone call. All student participants were called the night before the focus groups or interviews as a reminder of the time and location for the discussion.

### Participants and Data Collection

A total of five focus groups and seven interviews were conducted with students (N = 42 students). The final makeup of the sample was 69 % African American, 26 % white, and 5 % Hispanic. Overall there were eighteen males and twenty-four females. The mean age was 17.0 years old (SD = 0.99) for females and 17.3 years old (SD = 1.02) for males. There was a variety of jobs worked by the teens; however 56 % worked either in the restaurant/food industry or in retail jobs.

The focus groups and interviews were held immediately after school in a conference room provided by the school. Assent was given by all underage students. Each focus group lasted 1.5–2 h in length, while the interviews lasted approximately 1 h. A semi-structured data collection guide was utilized that contained questions regarding the teens' jobs, the safety training they received at work, the supervision they received at work, and any injuries they experienced. In some situations, additional prompts were needed to enhance the discussion. At times clarification of the teen's comments was done by the facilitator. At the end of the discussion, students were given the opportunity to ask the researchers questions about their research or how research is conducted. Each student was provided a $25 gift card after the discussion session was over.

### Data Analysis

Since limited information exists regarding teenager's experiences and beliefs regarding safety training, we analyzed the data using inductive thematic analysis [24, 25]. This analysis method allows for themes to emerge from the data, rather than searching for pre-defined themes. It is a process used for coding the data without trying to fit it into a pre-existing coding frame, or the researcher's analytic preconceptions.

Initially, each focus group and interview was transcribed verbatim by members of the research team. The transcripts were read multiple times by three team members who coded the data according to ideas that came from the discussions. After each research team member coded the transcripts, we met to reach agreement on emergent themes that occurred both within groups and across groups. Once the main themes were identified, the transcripts were reviewed for additional assignment of coded text to the thematic areas.

## Results

Four predominant themes emerged from the discussions:

(1) Most of the teens reported that they received safety training; however the reality was that they received job training.
(2) Teens felt that safety training is important, but that they personally did not need it.
(3) Teens' do not perceive their injuries as "injury" and many take it lightly as "part of the job."
(4) Current methods of safety training are not effective in training teenage workers about workplace safety. What teens believe they need is very different than what teens are provided on the job.

### Current Training

#### *Not Safety Training, but Job Training*

The majority of teenagers reported receiving safety training at work; however when asked to describe their training or what safety training is, many reported being given instructions on how to do their job, as opposed to how to keep them safe. Most of the teens described job training and not safety training. For example two females responded,

> *F-15, pizza—"It's when they teach you how to do your job so you can know to do it quickly and fast."*
> *F-16, fast food—"showing the employee different steps about what you're going to be doing, and how you should do it, instead of doing something the wrong way so that you won't hurt yourself."*

#### *Safety Training Important but "Common Sense"*

Many teens felt that safety training was important. As one male worker shared his feelings about whether training was important to teens:

> *M-17, shipping—"Yes, definitely 'cause if we didn't know any, if we didn't go through this training we woulda been, like most, the majority of the high school students in this program woulda been hurt, like seriously*

*hurt 'cause we deal with a lot of physical activity while working, while lifting a package and we have to work at a very fast pace but we have to take our time also 'cause you don't we don't wanta get hurt."*

Interestingly, while many teens felt that training was important and agreed that training was needed for teenagers, several believed that it was "just common sense" and most teens personally stated that they did not need it. Two teens summed it up as:

*M-17, car wash—"I didn't really feel like I did [need safety training]; I mean it was kind of basic… I mean it is pretty much just common sense. But some people have to be taught it."*
*F-19, retail—"Yes, it was just common sense for me too."*

Males were more likely to use the phrase "common sense," but they also were more likely to dismiss their injuries.

### *Safety Training Not Preventing Injury*

While the majority of the teens reported receiving safety training, many were still injured at work. Of those interviewed, 52 % (n = 22) reported having been injured at their current job and 48 % (n = 20) said they worry about getting hurt at work. Injuries that the teens reported included burns, cuts, sprains, jammed fingers, bruises, and a foot run over by a vehicle. Most teens did not take the injuries seriously or were unsure if their injury was considered an "injury at their job."

*M-17, fast food—"Nothing serious. I've been burned before at work […] It can be serious, but all I do is go to the first aid kit and get some burn cream and then go back to work."*
*M-17, pizza—"I used to work at {pizza} and one of the jobs there was to pull the hot pans out of the oven with pizza in them, and I'd probably get burned about 3 times a day either by myself or by another employee because we're moving at such a fast pace."*
*F-18, amusement park—"…but I got burnt on the little thing, like the muffler part, cause my leg touched it, and I went to First Aid, and they gave me some stuff. It was bubbling up, but that's all that happened…. Was my burn an injury at my job?"*

### *Umbrella Safety Training*

When asked if all workers at their jobs received the same safety training, the teens that responded to the question reported that all workers received the same training, regardless of the age of the employee or race or gender of the employee. In most cases, safety training was not task-specific, but generalized training. The training was not geared to the needs of teen workers nor their developmental stage, as four teens report:

*M-17, car wash—"Our training isn't just for teens. Every single employee gets the same training no matter what your age is. Another guy who used to work there who I think was 54 and he got the same exact training and same exact treatment."*
*F-19, dept store—"Yes, when I was hired, there were about 5 other people and we all got the same training videos and quizzes, so yes, it was all the same training."*
*M-18, amusement park—"Everybody. And it just wasn't teens either, it was adults as well. Y'know, 'cause, during orientation we had from 15-year-olds to, I think there were even 30-year-olds there."*
*M-18 retail—"Yeah, all the coworkers, we received the same training. No matter if you're in stock, selling on the floor, manager, or clerk, you receive the same-"*

## Teens Training and Suggestions for Improvements

One of the main goals of this study was to determine what teens believed they needed to learn how to be safe at work. Thus, teens were asked their attitudes about the methods of safety training they received as well as what methods or techniques they believed would help them learn to be safe at work. Many teenagers reported that their training was non-interactive and uninteresting, or, in the words of one 18-year-old female, "boring as hell."

### *Used: Videos and Quizzes*

Most of these teenagers said they received training by watching safety videos or reading safety materials and taking quizzes. Of the work places that provided true safety training, this is the preferred method that is used. Teens watch a series of videos and take quizzes, having to get a passing score before they can do their job. In most cases, the test can be immediately retaken if not passed.

*F-16, fast food—"they (fast food) made me take a lot of tests. I took a bunch of tests on the computer the first day I started, about lifting boxes to make sure I don't hurt my back, or slip and fall, and how to be careful with the grease and oil."*
*M-17, department store—"We had like, training for a week and you had to go on the internet and you had to like, sit through videos, boring videos about safety and you had to take a quiz at the end to make sure that you remember all the stuff."*
*F-18, shipping—"They <videos> were (laugh)… some like 30 min, some were in parts of like 10 and 15. The*

*one, the longest was like an hour and 30 min like the longest one ever, boring as hell."*

*Needed: Action, Interaction, and Repetition*

Instead of watching videos and taking quizzes, a number of teens expressed a desire for more hands-on safety training to better prepare them for the job. Teens wanted more connection and guidance. A 15-year-old male explained that safety training would be better if "*your boss, or the people that you work with go through it with you the first couple of times to make sure you are doing it right […] instead of just letting me figure out on my own.*" Training methods that involved action, interaction, and repetition, such as hands-on experiences and activities were suggested as better methods than current activities, as reported by both genders and multiple aged teens:

*M-17, car wash—"Hands-on training would be a lot better. That's how we do it where I work and it is a lot better because you are actually out doing it instead of them being like, "Alright, if you are using that bottle there, you need to do this."*
*F-16, skating rink—"We had a meeting not too long ago, like all four guards, where we just acted out like what if this happened, what would you do. We just did that and we learned more that way because if you actually do it, you learn better than by playing a game or somebody just telling you."*
*M-17, shipping—"Yeah, they gave me like a card where it'll have like the 8 keys to preventing- I mean the 5 keys to preventing slips and falls and the 8 keys to lifting and lowering a package so it'll help me remember."*
*M-18, amusement park—"I think they should have stressed it more consistently I mean, we only did it, we were only there, watching the video, one time during orientation. We had a booklet, but how many people are gonna keep going to the booklet? So I think, they should stress it more. You know, maybe once a month, instead just our orientation, and just a book."*
*F-18, shipping—"Actually going through the motions. Like, 'cause, I'm like a visual person and I have to do it to learn it…so…yeah." "…they repeated a lot of things that kept, that went in my head 'cause they kept repeating over and over, so I kinda caught on quickly."*

## Discussion

Teens are hurt at work frequently; one teen injured every 10 min. In this study, 52 % of teens were injured, some severely and 48 % were concerned about their safety at work. Preventing injuries among teen workers is a priority and proper safety training is a potential preventive factor that deserves much attention. To date, little research has focused on the methods of training and its effectiveness for working teens.

Many teens confuse safety training with job training, revealing that they do not truly understand the definition and intention of safety training. Teens' perceptions of safety training mainly include learning "how to do the job," as opposed to skills and methods of keeping safe at work. Safety training involves recognition of hazards, proper use of personal protective equipment, reading labels, following labor laws, using safe techniques when handling or working with equipment, risk assessments, and knowing what steps to take should an injury occur. This confusion between job training and safety training may help to explain why the prevalence of injury is high among teens that report training; they are not really being trained about how to keep safe at work, they are being taught their job.

When teens were provided true safety training, most were trained by methods that were at best "boring" and at worst, ineffective. Interaction and repetition are rarely used in safety training, but the teens in this study vocalized that they wanted methods that are interactive and repetitive. Hands-on training and engaging activities were preferred over videos and quizzes. Teens implied that active methods would help them learn and retain the information better. The teens' desires for more active safety training mimic what research regarding learning has reported: students learn better during hands-on and active learning compared to simply listening to lectures [26].

Although research has highlighted the fact that injuries among working youth are a significant problem and that prevention measures are needed, few safety training programs exist for youth working in non-agricultural jobs. One training program, the NIOSH Youth@Work: Talking Safety, provides a curriculum to be used in a group setting or a classroom situation, that focuses on hazard identification and injury prevention in a variety of workplace settings. This program combines lecture, discussion, small group work, videos, quizzes, and other activities focused on health and safety [27]. From our discussions with students, none participated in a safety training program similar to the NIOSH program. Research assessing how teens gather information about health suggests that teens use the internet as their primary resource and trust the information they read online [28–32]. In the absence of face-to-face training as is provided by the NIOSH program, interactive internet training might be a valuable tool, especially since teens could complete the training on their own time and at their own pace. More research into methods of training and their effectiveness is needed.

One of the major concerns that arose from the discussion with the teens is that safety training is not specifically geared to teen workers. The training methods being used and the information being provided is the same regardless of age, developmental level, job task, race, or gender. Young workers have unique challenges such as developmental issues and balancing school and work, which may necessitate different training methods. At the ages when teens are working, changes in cognition, physical development, and social adjustment are occurring which could impact teens' behaviors, decisions, and understanding [33]. In our study, many of the teens' did not perceive their injury as an injury. Even teens that suffered severe injuries that required medical treatment did not recognize that they had sustained a work-related injury. Studies have shown that the prefrontal cortex, which is the area of the brain responsible for emotional regulation, impulse control, and complex reasoning is not fully developed until the early 20 s [33–35]. Therefore, teens' perception of risk and their judgment of danger may be different than older workers.

In addition to cognitive issues, physical development can be an issue in the workplace. In general, the workplace is intended for adults; so for example, heights of equipment, tables, ovens, or shelves are constructed for a full-grown adult. Teens may still be growing and gaining strength. Training on how to keep safe at work needs to take into consideration the differences in size between teens and adults.

There are several limitations of this study that need addressing. First, the teens for this study came from two high-schools in Jefferson County, Kentucky and thus may not be representative of all working teens. We had many more African-American teens in our discussions than white, Hispanic, or other races/ethnicities; however more than half of the teens worked in either the restaurant/food industry or in retail jobs, which is consistent with research reporting that most teens work in service or retail [1, 8, 17, 22]. However, some of the jobs that teens in our focus groups held might be specific to our location; such as working at a large amusement park in the city, or working in various tourism jobs. Furthermore, Kentucky is one of only eight states that does not require a work permit for teen workers and state labor laws surrounding work permits vary widely. For example, in the state of Indiana, a work permit can be revoked if a teen's GPA drops or if a teen's school attendance drops. Child labor laws vary by state. The number of hours worked per week, the number of hours worked per day, and times permitted to work, vary by state, with some states being more restrictive than Kentucky.

A second limitation that might occur in a study using focus group discussions, is that there can be participants who are more talkative than others and they can alter the dynamic of the group. Sometimes strong personalities can disrupt the group dynamic and reduce discussion or influence what other participants might report.

Safety training may be a powerful way to reduce injury rates among working teenagers, but it is essential that age-appropriate methods be used. From discussion with a range of teens, current training methods are non-existent or inappropriate and ineffective. Although a variety of factors in a teens' workplace can contribute to injury, improvement of safety training could have a large impact on preventing injury. By developing and implementing safety training programs that are age-specific and that utilize techniques chosen by teens to be most effective in relaying safety information, teens may be made more aware of personal safety at work and thus be more protected from injury.

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