

# Perceptions of Farm Hazards and Personal Safety Behavior among Adolescent Farmworkers

A. Rowntree Darragh, L. Stallones, P. L. Sample, K. Sweitzer

## Abstract

This qualitative study was performed to investigate the perceptions of safety, behavior, and hazards of children working on farms. Thirty-six adolescents, ages 14-18, were interviewed in four focus groups. All participants were living in eastern Colorado and were members of the Future Farmers of America. They were asked questions regarding work they do on the farm, how they learned, and what safety rules they do and do not follow. Emergent themes include *Age Started Chores*, *Safety Behavior*, *Attitude Toward Injury*, and *Attitude Toward Prevention*. These themes provide information on learning safety information, why injuries occur, the inevitability of injury, injuries sustained during farmwork and play, and attitudes of participants regarding injuries and injury prevention. The results indicate that these adolescents have been and are at risk of injury on the farm while working, playing, and playing in the context of work. They recognize the importance of safety rules, but bend or break those rules based on a personal assessment of risk. They take more risks while playing than while working, but playing often occurs in the context of work, and involves some of the same equipment or machinery (i.e., ATVs). Finally, many of the students reported modeling the unsafe practices of parents, grandparents, and other authority figures as opposed to performing chores the way those individuals taught them.

**Keywords:** Farmers, Hazards, Adolescents, Safety Behavior.

Unintentional injuries among children on farms have been reported to be higher than among children in other settings (Stallones, 1989, 1991). Little research has been done to understand parental attitudes and behaviors which may contribute to the occurrence of injuries among children in a farm environment. In an early study, Murphy reported that using a model of operant conditioning, farmers would have unsafe behaviors reinforced rather than safe behaviors (Murphy, 1980). He assumed that farmers are usually working under time constraints and that some unsafe practices reduce the time required to perform necessary tasks. Additionally, since unsafe acts do not always result in injuries, the unsafe practices would be reinforced repeatedly.

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In a study of dairy farmers, Aherin used the theory of reasoned action to predict and to analyze safety behavior (Aherin, 1987). He reported three situations where attitudes were primary predictors of behavioral intentions: (1) extra riders on tractors; (2) preventing 12-year-old children from operating tractors; and (3) disengaging power prior to unclogging a farm machine. Contrary to safety training, farmers expressed positive attitudes toward teaching 12-year-old children to drive tractors and having extra riders on tractors.

In a more recent study, information on parental attitudes toward risk of injury and behavior among farm youth, and the injury experience of farm youth was collected (Aherin, 1989). This survey was conducted using a mailed questionnaire among individuals who subscribe to *Successful Farming Magazine*. A sample of 377 families representing 815 children were surveyed with 190 males and 187 females returning questionnaires. In this study, 79% of parents reported a seven to nine-year-old should not be allowed to ride on a tractor, however, 90% of parents reported they allowed a seven to nine-year-old to ride on a tractor and 80% of the seven to nine-year-olds rode tractors as extra riders. While 13% of parents reported they believed a seven to nine-year-old operating a tractor was acceptable, 29% of the boys in that age group were reported to be operating tractors. In addition, 67% of the 10 to 12-year-old boys and almost all of the 13 to 15-year-old boys were operating tractors. Although girls were less likely to be operating tractors than boys, nearly 25% of those 10 to 12 years and 50% of those 13 to 15 years were. The children were also very likely (71%) to be operating tractors which did not have Roll-Over-Protection Structures (ROPS).

In Iowa, investigators reported the average age children began to ride on tractors with an adult was 3.4 years, the age they began to accompany adults on other equipment was 4.6 years, the age they began to operate equipment was 12 years, and the average age they began to drive tractors was 11.4 years (Hawk et al., 1991). Further, 40% of children operating farm equipment did so without supervision and 30% of children over age three years were reported to play alone in work areas (Hawk et al., 1991). Parents were also asked at what age children were capable of operating farm equipment; the average age reported was 15 years for all equipment and 12.7 years for tractors (Hawk et al., 1991). Children on farms appear to be put in situations which are viewed as hazardous by parents at earlier ages than parents feel they are capable of performing the tasks required. There is a need to better understand the parental attitudes and behavior in order to reduce the risk of injury among children on farms. Further, there is a great need to evaluate the risk of injury among adolescents who begin to work longer hours and in more hazardous situations. This group has not been addressed in literature related to farm injuries to any great extent.

Kidd et al. (1997) performed a qualitative study using 10 focus groups; some comprised of parents and some comprised of children, investigating the process of chore teaching. Their results indicated that parents determine the readiness of a child to perform a chore and that child interest in a particular chore plays a role in the parental decision to initiate chore teaching. The child's interest, however, tends to be influenced by peers and siblings, and by the desire for parental approval. Chore initiation begins with the child's observation of skilled models performing the chore and the child's participation in subtasks of the chore. At this time, the child receives feedback and oral instruction regarding their performance. They also receive their safety information at this time, though the investigators found that negative experiences had a greater influence on safety than did safety rules. Finally, the investigators discovered that children initiate short cuts, and modify chores to increase efficiency. However, these changes may involve an "inaccurate risk appraisal"

(p. 86). These researchers also found about chore performance and safety.

The purpose of this study was to identify activities which lead children to be interviewed using the interview approach used by Kidd to identify attitudes and behaviors which lead to accidents around agricultural equipment and

This investigation used a focus group approach to gather information on the perceptions of farm youth. Through group interviews, the facilitator created questions in order to promote discussion (Marshall and Rossman, 1995). The approach though can be conducted with a number of times with different participants to identify themes in the topic focused on. The approach includes the informal, unanticipated topics; and time efficiency.

Our focus groups varied in size from 4 to 6 members of the Future Farmers of America. Each day period, with each group last participants were asked a series of questions related to activities they engaged in, such as using chemicals (see table 1).

Table 1. Summary of questions

How old were you when you started to work?
Who decided you were old enough to work?
How did you learn to (use machinery; work)?
What chores do (you, your siblings) do on the farm?
Do you ever think about getting hurt while working?
Which chore do you think is the most dangerous?
Is there a chore that you do your way, not the way you were taught?
Is there a chore you always do the way you were taught?
Have you ever had trouble breathing when working?
Is there an accident that might happen while working?
Do you ever take chances while you are doing your work?
If you were teaching someone how to use machinery, what would you tell them?
Do you take chances when you are playing?
When do you take the most risks?
Do you know anyone who has gotten hurt while working?
Why did they get hurt?
Who told you how to avoid getting hurt?
Have you ever been hurt on the farm? What happened?

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(p. 86). These researchers also found that economic factors influenced many decisions about chore performance and safety behavior.

The purpose of this study was to develop better understanding of those farm activities which lead children to be at high risk of injuries using the focus group interview approach used by Kidd et al. (1997). Particular focus will be on the attitudes and behaviors which lead children to be involved in hazardous situations around agricultural equipment and animals.

## Method

This investigation used a focus group interview design (Patton, 1990) to elicit information on the perceptions of adolescents regarding farm hazards. In focus group interviews, the facilitator creates an open environment in which to ask a set of questions in order to promote honest discussion among the group members (Marshall and Rossman, 1995). These groups generally consist of 7 to 10 people, though can be conducted with larger groups. The interviews are conducted a number of times with different participants so as to allow the investigators to identify themes in the topic focused discussions (Krueger, 1988). The benefits of this approach include the informal, social atmosphere; the flexibility to pursue unanticipated topics; and time efficiency in data collection (Krueger, 1988).

Our focus groups varied in size from 6 to 14, consisting of boys and girls who were members of the Future Farmers of America. Four groups were conducted over a two day period, with each group lasting approximately ninety minutes. All study participants were asked a series of questions about the farm work, leisure, and other related activities they engaged in, including work with animals, machinery, and chemicals (see table 1).

Table 1. Summary of focus group questions

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How old were you when you started to work with (tools & machinery; animals; chemicals)?
Who decided you were old enough to work with (machinery, animals, chemicals)?
How did you learn to (use machinery; work with animals; use chemicals)?
What chores do (you, your siblings) do on the farm?
Do you ever think about getting hurt while you are doing your chores?
Which chore do you think is the most dangerous? Why?
Is there a chore that you do your way, not the way you were taught?
Is there a chore you always do the way you were taught?
Have you ever had trouble breathing when you were working on the farm?
Is there an accident that might happen while you are doing your chores that could mess you up for life?
Do you ever take chances while you are doing your chores? What are they?
If you were teaching someone how to use machinery, chemicals, work with animals, how would you do it?
Do you take chances when you are playing? Like what?
When do you take the most risks?
Do you know anyone who has gotten hurt while working? Can they still work?
Why did they get hurt?
Who told you how to avoid getting hurt?
Have you ever been hurt on the farm? What happened?

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## Participants

Thirty-six high school students, 29 boys and 7 girls, participated in the focus groups. Ages ranged from 14 to 18 years. All were members of the Future Farmers of America in a small, rural high school and either lived on or worked on a farm. These children were all from an agricultural community in northeastern Colorado and worked or lived on farms growing alfalfa, corn, beans, oats, hay, and wheat. Livestock included primarily cattle, but also dairy cows, and sheep.

Parents of the students were informed of the project through consent forms sent home with the students prior to the focus groups, and all students under 18 years of age had permission from their parents to participate in the interview. All participants signed consent forms.

## Procedure

Three to four facilitators were present at each group. Notes were taken throughout the focus groups by one of the facilitators. Another was present as a 'content' person, who aided in clarification of questions and answers that related to more technical aspects of farming. The primary facilitator was in charge of maintaining an even flow, directing the group, and eliciting answers from the participants. Each group lasted approximately 90 min. The focus groups were audiotaped and then transcribed. The transcriptions were then entered into HyperRESEARCH™ (Hesse-Biber, 1991-1994) for coding and sorting. HyperRESEARCH™ is a data management program designed for qualitative data analysis. It provides a method for handling, coding, and analyzing large quantities of data by systematically organizing the study into cases (the unit of analysis in a HyperRESEARCH™ study: a record of coded material from one or more sources) and sources (the text files which contain the data to be coded and entered into a case) (Hesse-Biber, 1991-1994). The codes in each case can then be sorted and analyzed for frequency of occurrence within and across cases, assisting the researcher in the identification of emergent themes. As is true in qualitative research, using computer programs for data analysis still leaves the bulk of the analysis to the investigators, with the computer program primarily used for organizing and sorting the identified codes and themes.

## Recording of Data

Two methods of data collection were employed: note taking and audiotaping. One facilitator was assigned the task of recording the discussion on flip chart paper to document the responses of the participants to the questions, and do so in a format which could be read by the focus group members as the discussions occurred. The recorder did not participate formally in the interview, focusing instead on accurate recording of information. This allowed the primary facilitator to concentrate on the interview itself. The groups were also audiotaped and then transcribed. The flip chart notes aided in the transcription of the tapes.

## Analysis of Data

Data were organized and sorted using the qualitative data analysis software HyperRESEARCH™, Windows version (Hesse-Biber et al., 1991-1994). Each interview was coded and an initial code dictionary was generated. These codes were then revised and collapsed to refine the data. For example, the codes "injury as a part of life" and "injury not intentional" were collapsed in to "inevitability of injury" on review of the content of the data applied to the original codes. The final codes were

grouped according to common subject matter. From these groupings, the emergent themes were identified.

A content analysis was also performed to identify certain themes among the groups. HyperRESEARCH™ analysis. The content analysis consisted of identifying and ideas expressed by the study participants. The four primary themes were the most pervasive. The four primary themes were *Safety Behavior*, *Attitude Toward Injury*, *Initiation of Independent Performance*, and *Parental Influence*. All were reviewed and agreed upon by all researchers in order to establish trustworthiness.

The first theme, *Age Started Chores*, was defined as the age at which participants reported starting to work with animals (reported working with animals from age 4 or 5, and riding animals by age 13. They reported working with animals by age 13. They reported working with parents), driving farm trucks at a general consensus on age to start between ages 4 and 7, with a couple of tractor chores appeared to start between ages 4 and 7, with a couple of tractor chores. Parents would often allow the child to start as a first step to increased chore independence.

Respondent: My dad had me, helping him gather hay, carry them in, a little

Initiation of independent performance and/or grandparental influence.

Respondent: The first time I drove a truck and said, "that was ten . . ."

These chores were also taught by children initiating chores, they began

Interviewer: How did you learn?  
Respondent: Our moms and

Parents began preparing children to take them on independently, through

Respondent: I started [riding a horse]  
Interviewer: By yourself?  
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grouped according to common subjects or ideas as part of the thematic analysis. From these groupings, the emergent themes were identified.

A content analysis was also performed in order to measure the occurrence of certain themes among the groups. HyperRESEARCH™ was again used for this analysis. The content analysis consisted of counting the frequency of various themes and ideas expressed by the study participants in order to determine which themes were the most pervasive. The four predominant themes are: *Age Started Chores*, *Safety Behavior*, *Attitude Toward Injury*, and *Attitude Toward Prevention*. The themes were reviewed and agreed upon by all authors, a technique employed by qualitative researchers in order to establish trustworthiness of results (Patton, 1990).

## Results

The first theme, *Age Started Chores*, revealed children began using farm equipment at the same age or younger as those in the Hawk et al. study (1991). Study participants reported starting chores "as soon as they could walk." Participants reported working with animals from as early as 18 months (riding or feeding with parents), riding at age 4 or 5, and independently feeding, cleaning pens, or training animals by age 13. They reported working with machinery as young as 3 or 4 (riding with parents), driving farm trucks at age 6 or 7, and operating fork lifts at age 4. The general consensus on age to start driving four wheelers or three wheelers was between ages 4 and 7, with a couple of participants reporting 9 or 10. Driving tractors appeared to start between ages 7 and 10. Participants all reported that parents and grandparents decided when they were old enough to start performing chores. Parents would often allow the child to assist with a chore under supervision as a first step to increased chore independence.

Respondent: My dad had me, like when I was barely able to walk, had me helping him gather eggs and stuff. I would have a little basket to carry them in, a little bucket type deal.

Initiation of independent performance of chores was also determined by parents and/or grandparents.

Respondent: The first time I drove we were haying, my dad sent me to the truck and said, "there's the gas, there's the brake, figure it out. I was ten . . ."

These chores were also taught by parents. As parents made decisions about their children initiating chores, they began directly teaching them how to do those chores.

Interviewer: How did you learn to drive a tractor?

Respondent: Our moms and our dads taught us how to.

Parents began preparing children for chores, however, before they were allowed to take them on independently, through ongoing participation in farm activities.

Respondent: I started [riding ATVs] when I was two years old.

Interviewer: By yourself?

Respondent: With my mom and dad . . .

This method of learning was advocated for by the adolescents during the focus group, when they were asked what advice they would give others on how to learn chores.

Respondent: Ride with somebody before you get started.

The other major themes that emerged from the data are: *Safety Behavior, Attitude Toward Injury, and Attitude Toward Prevention*. *Safety behavior* includes the process of learning about safety, safety rule setting, safety rule breaking and risk taking. *Attitude toward injury* includes views on severity of injury and inevitability of injury. *Attitude toward prevention* includes avoiding injury, views on long-term implications of current behavior, and using safety equipment.

*Safety behavior* encompassed the learning and rule setting/breaking process. The students reported learning about safety as they were introduced to farm-related activities and chores. The students identified their parents as their primary safety teachers:

Interviewer: Who was it or who is it that teaches you about how to be safe while you're working on the farm? You said your dad.

Respondent: Parents (all)

Respondent: Parents say, "quit screwing around or you'll get hurt" My mom's not as bad as my dad.

At times, parents provide a warning that an activity is dangerous, but as a method of teaching, do not intervene:

Respondent: My dad says, "Keep doing that, you'll find out."

Respondent: Yeah, "Go ahead. You'll find out. I don't care."

The students also reported receiving safety information through clubs, employers/coworkers, organizations and schools:

Interviewer: . . . where else do you get safety information?

Respondent: Like, seminars they give at school and stuff.

Respondent: People that you work with, things that other people say.

Respondent: People that you work for, they are little more strict or lenient.

Participants varied in their opinions of which methods are effective:

Respondent: Usually every year FFA puts on a seminar that shows the dangers like a baler, like around PTOs, they'll have a dummy that shows how it tears it up. It doesn't really sink in. It's something you think about but . . .

Respondent: We like to, well, before the grain guy comes to put grain in the silo bins, you know, we all have to go up there and check how much we want in there and like my brother and I will jump inside the bins and play in the grain. Anymore they got those advertisements out you know you can stuck in the grain bins. We don't do that anymore.

According to the adolescents, safety behavior changed according to context. Safety behavior changed according to context. injury or an event:

Respondent: My dad didn't hooking up the tractor, he smashed between the tractors and the tractor about it.

Respondent: My grandpa poked a bull that was kind of, I don't know anything because the cows mean the grandpa kinda weren't so wild

While the students recognized the severity of the injury that led to the injury, they save time and make chores more efficient. They explain safety procedures and the stories of not following those rules of work. Examples included jumping over fences rather than using bridges, because it adds time. In addition, students reported playing.

Respondent: Oh, yeah, you're not supposed to do that every day, something new,

They also break safety rules frequently. For example, participants frequently break safety rules something one way, but did not follow the rules.

Respondent: They've been breaking something's wrong, they really don't know, you think well there's always the

Determination by the adolescents that safety behavior in these activities also appears to be subjective. These students engaged in for fun activities involving vehicles (ditching) report that they "take risks, but not life threatening is based on whether it is not life threatening.

Participants did agree on which activities were less life threatening when playing less when performing them.

According to the adolescents, safety rules are set in an ongoing process, and are changed according to context. In many cases, safety rules were set because of an injury or an event:

Respondent: My dad didn't mind very much before, but then my sister, we were hooking up the trailer and my sister decided to back up and I was smashed between two tractors . . . My dad wasn't very strict about the tractors except for after that and then my dad got grouchy about it.

Respondent: My grandpa policies like changed on cows. They used to have a bull that was kind of really he was just kind of mean, he was just kind of, I don't know, my grandpa didn't really treat it very nice or anything because he was mean. So, it kind of made all the rest of the cows mean, that's why my dad got hurt. After that, my grandpa kinda started, like, trying to tame the cows more so they weren't so wild, to where they were kinda nicer and stuff.

While the students recognized the reasons these rules were set, and, for some, the severity of the injury that led to the rule, they report frequently breaking the rules to save time and make chores more "fun" or "spice them up". The students could explain safety procedures and the importance of following them, but also would tell stories of not following those rules while playing, or horsing around, in the context of work. Examples included jumping pick-ups or four wheelers over ditches rather than using bridges, because it adds excitement to the activity.

In addition, students reported using available equipment, like four wheelers, for play.

Respondent: Oh, yeah, you're always looking for a rush. Chores are routine; we do that every day so when you've got some free time, you want something new, something exciting.

They also break safety rules based on what they observe others doing. For example, participants frequently reported that parents told them how to do something one way, but did not follow that rule themselves.

Respondent: They've been doing it so long, they do a routine, where if something's wrong, they just get out (and fix it) and get back in, they really don't take as much precaution, and where you're young, you think well if they can do it, I can probably do it too, but there's always the chance of something happening.

Determination by the adolescents of what defines 'risk' associated with farm activities also appears to be subjective. While descriptions of some of the activities these students engaged in for fun while working sounded quite dangerous, especially activities involving vehicles (ditch jumping, pond jumping), the study participants report that they "take risks, but not life threatening risks". The judgment of what is life threatening is based on whether the activity is familiar. If it is, then the sense is that it is not life threatening.

Participants did agree on which chores were the most dangerous, and reported playing less when performing them. For example, shutting off the baler to re-thread,

watching power lines, or turning off mower before clearing it. Certain machinery is also 'off limits' to some students for leisure use and is used only for work:

Respondent: The four-wheelers, you can kind of horse around on them and work at the same time, and tractors, you just don't.

Working with animals also was seen as dangerous, especially with cows. However, the rules applying to playing while working seemed less clear in this case. Students reported riding sheep, pigs, steers for fun during feeding or cleaning pens.

The theme *Attitude toward injury* includes views on severity of injury, inevitability of injury, and long term implications of current behavior. While these students reported that they did not take serious risks, many reported significant injuries incurred while working or playing in the context of work. Injuries included fractures, sprains, and cuts, some fairly serious. While some reported injuries were in the context of work, "they were branding cattle one day and this one got wild and I turned my back and he kicked me in the back, and slipped a disc in my back (age 6)", others occurred during play, either with vehicles or animals. One student reports flipping a four-wheeler, "I got a big muffler burn on my face." Other injuries related to play or play in the context of work activities included "I've broken my tailbone," "I've had whiplash," "I've broken my femur," "I broke a finger twice," "I broke my hip," "I broke my knee." These injuries, however, were not perceived as serious.

In some cases, a joke was made of the injury. For example, the young woman who sustained the back injury mentioned above reported, "I couldn't move my legs, I thought I was paralyzed. My dad kept teasing me about that. He'd go, 'Oh, you're paralyzed'." As the stories were told, the students were laughing, describing injuries as "it was pretty funny."

The adolescents perceived injuries like these as simply a part of farm life, as inevitable. "It's just a part of growing up." ". . . it wouldn't be the same if you didn't get hurt. I mean, . . . it wouldn't be that much fun" This carries over into their *Attitude toward prevention*. If injuries are inevitable, then they cannot be prevented.

Respondent: You don't really worry about it. It's not intentional, it's just something that happens. Like we were out riding (doing chores on four wheelers) one day and got together and busted my leg. We didn't mean to do it really. We weren't really worried about something happening. (They were playing "bull and matador" with the four-wheelers).

In addition, there was a perception that injuries easily could be avoided through "common sense". These students reported that experience is the best way to learn safety on the farm, and that the "people who get hurt are the ones who read the book and don't have experience". However, these same students reported sustaining injuries, and did not acknowledge the relation of their injury or near injury to their disregard of safety rules. One participant reported,

Respondent: I took the risk of getting cut in half this summer. Me and my cousin were screwing around and he didn't see a piece of wood, and fell (into participant), and the table saw was going, and (I) rolled right next to the saw and cut my shirt. . . my foot was held by a piece of wood. . . if it hadn't held, I would have died.

This same participant later reported,

Respondent: In our shop, I'll cause I'm under much, but my them.

Interviewer: Even though you

Respondent: I didn't tell him

The long-term effects of injury warrant a change in risky behavior, for example hearing loss even those students who already Other long-term consequences are

Respondent: I have my mon and stuff. She's knees fixed. I protective of myself someday I might

Some of these prevention issues use of safety equipment by the convenience, and perceived risk because they were available:

Respondent: My dad works pop cans, and hearing protect should start wear when we are sh

Conversely, they report that "when you're outside like near an but don't make the effort to obtain

Environment also impacted the students, working in a welding shop but the business may require using

Respondent: Like we work in wouldn't wear 'e

The students talked also about

Respondent: The glasses, they back, and some through 'em.

Respondent: I mean, it's hard adults and stuff.



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in half this summer. Me and my and he didn't see a piece of wood, l the table saw was going, and (I) l cut my shirt. . . my foot was held t held, I would have died.

This same participant later reported,

Respondent: In our shop, like, I'm not allowed to get near the saws and stuff cause I'm underage, but I do it anyway. My uncle doesn't like it too much, but my dad knows I'm, he trusts me enough to be around them.

Interviewer: Even though you almost cut yourself in half?

Respondent: I didn't tell him about that.

The long-term effects of injuries also were not considered important enough to warrant a change in risky behavior. The students acknowledged consequences of behavior, for example hearing loss, but did not consider doing anything about it, even those students who already were experiencing significant hearing impairment. Other long-term consequences also were acknowledged but not taken seriously.

Respondent: I have my mom's body, you know, I have her back and her knees and stuff. She's had back surgeries quite a few times and had her knees fixed. Since we know I have them, my mom's more protective of me 'doin' stuff . . . but then I don't really care but someday I might.

Some of these prevention issues were related to the use of safety equipment. The use of safety equipment by the students depended on availability, environment, convenience, and perceived relevance. Participants reported wearing ear plugs because they were available:

Respondent: My dad works at . . . And they melt, basically all they do is melt pop cans; and turn them into like and stuff, and he gets free hearing protection from them so he like says since its free, we should start wearing them more often like we have to put them in when we are shooting.

Conversely, they report that when safety equipment is not readily available, "when you're outside like near an irrigation pump or something", they think about it but don't make the effort to obtain or use protection.

Environment also impacted the use of safety equipment. For example, to the students, working in a welding shop means that not only are the supplies available, but the business may require using the equipment in order to work there:

Respondent: Like we work in the shop, and they make us wear eye protection. I wouldn't wear 'em if I didn't have to.

The students talked also about the inconvenience of safety equipment:

Respondent: The glasses, they fall of your nose and you always got to put them back, and sometimes they are scratched up and you can't see through 'em.

Respondent: I mean, it's harder for kids like us. Eye protection is made for adults and stuff.

Finally, the reason for and purpose of some of the equipment was not always clear to the students, or deemed important. Therefore, the students reported they did not wear it:

- Interviewer: When you work on galvanized, do you wear a respirator? (welding)
- Respondent: No. It kind of gives you a headache if you breathe too much of it just for a couple of minutes, but it's really no big deal.
- Respondent: Stuff like painting? I wouldn't wear eye protection to paint.

## Discussion

The results of these focus groups indicated that the adolescents learned most of their safety information from observing parents and other individuals working on the farm. This is in agreement with the findings of Kidd et al. (1997). The students were very aware of the inconsistencies between what they were told was safe behavior and what safety practices they observed in others. They reported inconsistent use of safety precautions. They distinguished between those safety rules that are an absolute, "like tractors, don't mess around, just do the work", and those rules that are not, "my dad's not real strict on four wheelers and stuff like that". They also were affected by safety demonstrations they observed through schools or clubs. For example, they all reported on the danger of playing in grain or near PTOs and described learning about that from a demonstration, though not all reported changing their behavior based on this observation.

They reported inconsistencies in their views of why injuries occur. For example, all the participants reported getting hurt on the farm, knowing others who had been injured on the farm, and stated that sustaining injuries was a part of growing up and working on the farm. These same participants also stated that people sustain injuries primarily because they do not have experience or do not use common sense. Finally, they reported their own behaviors that led to injuries or near injuries, but did not relate them to their disregard of safety rules. A good example of this point was the young man who discussed falling onto a table saw.

The prevailing attitude regarding safety equipment was that it is inconvenient, uncomfortable, and unavailable. As the equipment serves to protect from injuries that may affect the individual at a later time in life, for example, hearing protection, it is not seen as immediately relevant and held little significance for the adolescents. There also was subjectivity in responses from the students regarding what types of injuries are severe, and protecting themselves from injuries that were not perceived as life threatening was not considered a priority.

In conclusion, these adolescents have been and are at risk of injury on the farm both while working and playing. Playing and playing in the context of work appeared to be times of reduced safety practices with less attention paid to potential hazards. In addition, cutting corners or rushing chores also seemed to be times for the students to decrease safety awareness. This finding also agrees with Kidd et al., who described chore modification by children as including an "inaccurate risk appraisal" (1997, p. 86). While our participants had knowledge of many safety rules and precautions, they followed those safety practices inconsistently and selectively, according to personal, subjective criteria, and did not always recognize their risk-taking behavior as contradictory to safety rules. This behavior was further reinforced by observing those role models (parents, employers, peers, coworkers) who did not consistently practice safe behavior. Those role models who did practice safe behavior

were viewed as "not fun" and adolescents to do the work correctly, as is consistent with behavior, as is consistent with considered, but not taken seriously.

Continued investigation of these issues. The information gathered from these studies, and can be further refined to identify high risk activities (around"), and, in turn, in the id aimed at these activities.

Finally, these participants (hands-on training) and indirect Research into these teaching styles (not as I do") could assist with in and the 'chore students'.

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were viewed as "not fun" and "strict", and were viewed as not "trusting" the  
adolescents to do the work correctly and safely. Finally, long-term effects of current  
behavior, as is consistent with adolescent behavior in general, were perhaps  
considered, but not taken seriously.

Continued investigation of children's behavior on the farm is necessary to address  
these issues. The information gleaned from this study indicates extensive risk-taking  
behavior by adolescent farm workers, both in the context of work and in the context  
of play during work. This preliminary information can be used as a guide for future  
studies, and can be further refined and modified. Additionally, further study into  
risk-taking behaviors among a larger sample of farm children may aid in the  
identification of high risk activities performed during chores (i.e., the "horsing  
around"), and, in turn, in the identification of prevention and education strategies  
aimed at these activities.

Finally, these participants reported both direct (verbal instruction, supervised  
hands-on training) and indirect (observation, modeling) chore teaching methods.  
Research into these teaching styles aimed at identifying inconsistencies ("do as I say,  
not as I do") could assist with improving safety behavior among the 'chore teachers'  
and the 'chore students'.

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