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Characteristics of Teens With and Without Work Permits

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Background *Factors associated with the issuance of mandated work permits for teens, and their enforcement are currently unknown.*
Methods *A cross-sectional survey was administered to 1945 teens at 16 randomly selected North Carolina high schools. Predictor variables examined included teens' socio-demographic characteristics, employment patterns, and labor law knowledge.*
Results *One thousand and ninety-four non-working and 844 working teens participated. Seventy-seven percent of working teens worked during the school year and 39% started working younger than 16. The majority (80%) worked in retail and services. Forty-four percent worked without work permits. Factors associated with being less likely to be issued a work permit included white race, employment in a family-owned business, being a laborer, and limited or no knowledge of child labor laws.*
Conclusions *Adherence to and enforcement of the work permit system is low. Interventions should specifically target teens who work in family owned businesses, in unskilled labor and in hazardous industries.* Am. J. Ind. Med. 52:841–849, 2009.

KEY WORDS: work permits; young workers; safety interventions; family businesses; child labor laws

INTRODUCTION

Studying the enforcement and the effectiveness of existing child labor laws and regulations is one of the principal means for achieving occupational safety and health goals [Beyer, 1993; Samuel, 1993; Zakocs et al., 1998; Runyan and Zakocs, 2000; Miller and Bush, 2004]. However, there is a dearth of research on the evaluation of regulatory mechanisms and the enforcement of existing state and federal laws for protecting youth workers. In view of the need to update federal child labor regulations to reflect contemporary workplace hazards, the National Institute for Occupational Safety and Health (NIOSH) made a recommendation to the Department of Labor to expand and streamline certain hazardous orders [NIOSH, 2002].

Federal regulations, namely the Fair Labor Standards Act (FLSA), encourage but do not require employers to obtain federal or state certificates of age from minors to protect the employers ''from unwitting violation of the minimum age standards'' (29 C.F.R.570.5). North Carolina is one of the 41 states, other than the District of Columbia, that require youths under the age of 18 to obtain permits or employment certificates which meet the requirements of the Department of Labor (29 C.F.R. 570.9-570.10). Employment certificates are issued by the North Carolina Department of Labor, Wage, and Hour Division and by the Department of Social Services and have to be signed by the youth, the employer, and the parent or guardian. Proof of age is required. The certificate lists restrictions on work hours and the occupations teens can perform (hazardous orders). North Carolina's work permit system requires that permit issuers

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independently determine if the occupation described by the employer on the permit is legal for a minor of the age of the applicant. If not, the permit is not issued, and the minor may not be employed in the prohibited occupation.

Despite work permits being required in most states, few studies have examined the enforcement and effectiveness of the work permit system. Even though no studies to date linked work permits with injury reduction, work permits were reported to have some advantages in that teens that are issued them are more likely to have safety training and are less likely to perform illegal tasks and use certain types of dangerous equipment [Delp et al., 2002; Zierold and Anderson, 2006]. One national study on young workers found 40% of teens working in violation of the work permit requirement [Rausche et al., 2008]. The Committee on the Health and Safety Implications of Child Labor recommended the study of the use, enforcement, and effectiveness of work permits as they can be a good source for identifying youth workers in need of training as well as opportunities for surveillance of youth workers and the reduction of work-place injuries and illnesses (Castillo et al., 1994; Institute of Medicine, 1998). A limited number of studies have examined some variables associated with the issuance of work permits when mandated [Delp et al., 2002; Zierold and Anderson, 2006], but other important questions such as differences between family-owned businesses and businesses not owned by families with regard to compliance with the work permit system have not been addressed. Family owned businesses have the highest rates of injuries among young workers [NIOSH, 2003; Zierold et al., 2005].

We sought to add to the dearth of literature on these topics and to fill in knowledge gaps by identifying the extent of enforcement of work permits and examining socio-demographic and work force characteristics and their association with the issuance of work permits in the state of North Carolina, where permits are mandated for workers under the age of 18. We conducted this study to help identify the types of businesses where teens work and the types of jobs they perform illegally. In addition, we wished to evaluate the degree of enforcement of the work permit system and examine the characteristics of teens that are issued work permits compared to those who are not. Such findings have important implications for state regulatory policies aimed at protecting teen health and safety of youth workers, and for educational and safety interventions targeted at young workers.

MATERIALS AND METHODS

Study Design

Cross-sectional school-based surveys were administered to adolescents in North Carolina who worked for pay in a job outside their home for any period of time in the 2 years prior to the survey. Sixteen high schools in two urban and two rural counties participated. The counties were chosen based upon their similarity in socio-demographic, industrial, and labor force characteristics with two urban and two rural counties in South Carolina, as part of a larger comparative study. The number of schools and classrooms in each school was selected disproportionately from each county so that sample sizes for smaller counties would provide a sufficient number for urban/rural subgroup analyses. In rural counties where the number of high schools was limited, all schools were selected, while in urban counties schools were selected with probability of selection proportionate to size. Six second-period classrooms were randomly selected for administering the survey in each selected school. Inclusion criteria were established for classes prior to selection. A sample of 12 second-period classes was randomly selected from each school to allow for up to 6 refusals. Thus, the total number of participating classrooms was 96.

Each school was offered a $280 financial incentive for participation. In addition, a set of educational materials on teen occupational safety was developed and provided for teens and their parents. The materials identify occupational hazards and provide information on teen rights on the job and on federal and North Carolina child labor laws. Two site visits were made to each selected school. One teacher per school was designated to administer the survey to absentees and to follow up with project staff. To guide data collection procedures, classroom scripts with information about the study and specific instructions to students were developed and read by project staff prior to administering the questionnaire in each classroom.

Parental consent forms were sent to parents 3 weeks prior to survey administration and assent forms were handed out to students prior to survey participation. Latino parents and students in selected classrooms were given the opportunity to use Spanish versions of the consent, assent forms, and questionnaires. Passive parental consent procedures were applied as the questionnaire was anonymous and did not contain any sensitive material. Parents mailed unsigned consent forms to the project staff or contacted them only in the event of refusal of their children' participation. The research protocol and procedures were approved by the UNC Institutional Review Board (IRB). Data collectors were trained by project staff prior to the survey. Training covered an in-depth item by item review of the script, questionnaire, and administration of assent forms. A data collector in each class read and clarified the contents of the assent form. Assent forms were signed by all participating students prior to survey administration between October 6 and November 22, 2005.

Questionnaire

The instrument used in the survey was an anonymous 15–20 min questionnaire composed of 60 items. Prior to

study administration, the survey was piloted in one urban and one rural school and pretested by administering it to five students from different ethnic backgrounds. Based on results of the pilot study and pretesting, the questionnaire, classroom scripts, and data collection procedures were modified prior to full administration. The instrument drew from and adapted some items from previous surveys of teens in North Carolina and in selected other sites (Cohen et al., 1996; Dunn et al., 1996; Bowling et al., 1998; Evenson et al., 1998) and from the instrument used in the National Study of Parents and Teens (Runyan et al., 2007).

Social and demographic characteristics are presented in Table I and include race, gender, father's and mother's education, ownership of the business where the teen worked in his or her referent job, school location (urban versus rural), and age of the respondents at time of the survey and when they started work (if applicable).

The screening question in the beginning of the survey queried paid employment. Respondents who were non-working were instructed to skip to the end of the questionnaire and respond to the section on demographics only. The teens were instructed to exclude jobs in agriculture, domestic employment, or government jobs, since these sectors are covered by a different set of regulations from the work permit and the Fair Labor Standards Act. A separate survey question asked respondents to identify a main job and refer to this job (referent job) when responding to the remainder of the questions on their work experiences. The referent job was identified as a job in which the teen worked the most hours in the 2 years prior to the survey. If the teen had more than one job in which he (she) worked the same total number of hours, the referent job was identified as the one held most recently.

An open-ended item invited students to list any job or jobs they had for pay in a business outside the home during the 2 years prior to the survey. Types of jobs were then categorized and coded using the seven occupational categories of the Current Population Survey. For multivariable analyses the categories were collapsed into five categories with the categories ''cashiers'' and ''sales'' combined into one category, and ''food services'' combined with ''other services.'' The category of laborers, transportation, and precision production was the reference category.

Issuance of a work permit was measured by asking if the respondent had a work permit for the referent job with responses of ''yes,'' ''no,'' and ''don't know'' following a question asking if the respondent had heard of work permits. For multivariable analyses ''don't know'' was coded as ''no,'' creating a dichotomous variable.

TABLE I. Socio-Demographic Characteristics of Working Teens (n = 844)

	Frequency[b]	Percentage[b]
School location		
Urban	430	50.9
Rural	414	49.1
Race[a]		
White	492	60.3
African-American	219	26.9
Mixed race/other	99	12.2
Hispanic origin[a]		
Yes	62	7.6
No	728	88.9
Gender		
Male	405	48.8
Female	426	51.2
Age at survey		
<16	118	14.2
16–17	608	73.3
≥ 18	104	12.5
Father's education[a]		
High school or below	298	36.4
Some college and above	388	47.4
Mother's education[a]		
High school or below	285	34.7
Some college and above	471	57.4
Type of job[a]		
Food preparation/food services	237	30.0
Other services	193	24.4
Cashiers	83	10.5
Sales occupations	122	15.5
Administrative support	32	4.0
Managerial/professional and technical work	25	3.1
Precision production, operations, transportation, and laborers	91	11.6

[a]For these variables the response of "don't know" and "not applicable" were not included causing the percentages to not add up to 100%. Missing values are not shown here and are not included in denominators of calculated percentages.
[b]Frequencies and percentages are weighted.

Safety Training

Safety training was measured by 2 items: a yes/no question about whether respondent had safety training, and a checklist of 11 items related to training. Positive responses to seven or more items was considered adequate training while positive responses to less than seven was considered less than adequate.

Knowledge of Child Labor Laws

Knowledge of child labor laws was measured by yes/no responses to three questions that asked if respondent ever heard of laws that limit (1) the kinds of work teenagers do (2) the number of hours teenagers work and (3) how late teenagers can work. For multivariable analyses responses were coded into three categories; ''total knowledge of child

labor laws'' for ''yes'' to three items, ''some knowledge'' for ''yes'' to one or two items and ''no knowledge'' if no ''yes'' response was provided.

Although univariable analyses of the association between having a work permit and each of the three child labor laws were done, the logistic regression model considered cumulative knowledge of laws, based on the assumption that the amount of knowledge of child labor laws are more predictive of having a work permit than knowledge of particular laws.

Statistical Analysis

Descriptive statistics, univariable, and multivariable analyses were performed using survey logistic procedures. Due to the complex multistage nature of this sample, we used SAS version 9.1 to accurately compute standard errors, thereby ensuring appropriate statistical comparisons. As schools rather than individual students formed the primary sampling units for this study, SAS version 9.1 [SAS Institute Inc., 2004], similar to SUDAAN was used to adjust sample size estimates and corresponding standard errors for the clustered nature of this study, in effect adjusting for a school effect in these data [Amrhein, 2002].

Data were weighted in order to correct for differences in size of classrooms and the resulting unequal probabilities of selection resulting from choosing all students in each classroom rather than a fixed number of students from each class [Kish, 1965]. For each variable, individuals with missing values (skipped due to skip pattern, not applicable, or illogical responses) were excluded from the analysis.

Prior to multivariable analyses, univariable analyses were conducted to determine which variables to include in the logistic model, and calculated unadjusted odds ratios to determine which variables are associated with issuance of work permits.

RESULTS

Two hundred ninety-nine teens were determined to be ineligible due to being late (6), suspended (6), transferred (26), parental refusals (26), teen refusals (83), absent (145), and 7 illogical responses. A total of 1,896 questionnaires were completed during the full survey and 49 absentee questionnaires were received subsequent to survey administration. Seven incomplete questionnaires with illogical responses were removed, leaving a total of 1,938 cases of known eligibility available for data analysis. Of these, 844 were from working and 1,094 were from non-working teens. Using the Council of American Survey Research Organizations (CASRO) definition the response range was 73.8–86.6%. The higher end of the range assumes that the proportion of eligible and ineligible cases among the cases whose eligibility status is known would also apply to the cases of indeterminate eligibility [Lessler and Kalsbeck, 1992; The American Association for Public Opinion Research, 2000].

Socio-demographic characteristics of working teens using weighted data are summarized in Table I. Distribution with regard to urban and rural areas was essentially equal (51% urban). Respondents were 60% white, 27% African-American, and 12% mixed race and other. Eight percent of respondents were of Spanish origin and 4% of all respondents indicated that English was not the language they spoke and understood the best. The age distribution at the time of survey included 14% under age 16, 73% ages 16–17, and 13% ages 18–21. With regard to parental education, 47% and 64% of respondents reported their fathers and mothers to have higher than high school education, respectively.

Open-ended questions on types of referent jobs were coded into the seven occupational categories used by the Current Population Surveys. The majority of teens (80%) worked in retail and services, with work in food service (30%) and ''other services'' (24%) and sales (15%) being the most frequent job types reported (see Table I). Results were almost identical to those reported by the Current Population Survey for youth workers between 1996 and 1998 [Bureau of Labor Statistics, 2000].

The most frequently reported places teens worked at were: restaurants, fast food, grocery stores, and supermarkets (45%), followed by department stores, and other stores (15%), amusement parks and recreational facilities (10%), and constructions sites (6%). Less frequently reported places included landscaping facilities, trucking, factories, hospitals, health centers, and daycare.

Of the 6% of teens (n = 49) who worked on a construction site, 46 reported performing construction tasks, not administrative duties. Although work in construction is illegal for teens under 16 years of age, 28 of 39 (71%) teens who reported working on a construction site and reported their age were younger than 16 and over half of them worked in family-owned businesses. Ten construction workers did not provide their birth date so age could not be computed. Among 16–17 year olds, 8 of 11 worked in family-owned businesses (Table II). Of the 30 teens under age 18 who

TABLE II. Number of Teens Working in Construction by Age and Business Ownership (n = 39)

Age started working (years)	Business owned by parents or relatives	Weighted frequency	Percent
<16	No	12	31.2
	Yes	16	39.7
16–17	No	3	8.3
	Yes	8	20.9
Total		39	100.0

responded as to whether they had work permits or not, only 6 indicated they were issued work permits.

Table III shows that the age at which teens started working at the referent job had the following distribution: 39% ages <16, 57% ages 16–17, and 3% ages 18 and above. Only 55% of the working teens reported they were issued work permits, 36% reported not being issued work permits and 8% reported not being sure if they had one while working at the referent job. The majority of working teens (87%) responded that the business they worked at was not owned by their parents, guardians, or relatives. The majority of teens (78%) responded ''yes'' to working at referent job during the school year and 57% reported they were still working when surveyed.

TABLE III. Selected Characteristics of Working Teens (n = 844)

	Frequency[b]	Percentage[b]
Age when started working[a]		
<16	299	39.2
16–17	438	57.4
≥18	26	3.4
Obtained work permits		
Yes	424	55.3
No	278	36.2
Not sure	65	8.5
Business owned by parents or relatives		
Yes	92	11.1
No	726	87.1
Don't know	15	1.8
Worked during the school year[a]		
Yes	655	77.9
No	184	21.9
Still working at the time of survey		
Yes	478	56.9
No	362	43.1
Had safety training		
Yes	532	64.0
No	300	36.1
Heard of child labor laws that limit kind of work		
Yes	544	66.9
No	270	33.2
Heard of child labor laws that limit number of work hours		
Yes	566	68.3
No	263	31.2
Heard of child labor laws that limit how late teens can work		
Yes	484	58.5
No	344	41.5

[a]For these variables the responses of "don't know" and "not applicable" were not included causing the percentages to not add up to 100%. Missing values are not shown here and are not included in denominators of calculated percentages.
[b]Frequencies and percentages are weighted.

Over a third of the respondents (36%) reported not receiving any safety training while working at the referent job and as displayed in Table III, 33% of working teens reported ''no'' to having ever heard about child labor laws that regulate the kinds of work teens can do, 31% reported ''no'' to having ever heard about child labor laws that limit the number of hours teens can work. A higher percentage of teens (42%) reported ''no'' to having ever heard about child labor laws that limit how late teens can work.

Factors Associated With Issuance of Work Permits Among Working Students

We first conducted univariable analyses to determine variables to include in the regression model. When calculating unadjusted odds ratios the following were significantly associated with the issuance of work permits: race, ownership of family business, type of referent job where the teen worked, gender, and having heard of child labor laws. Even though maternal education was not associated with the issuance of work permits in univariable analyses, we entered it in the initial logistic regression model as a proxy measure for socio-economic status [Krieger et al., 1997] and a potential predictor of the issuance of work permits. Maternal education was chosen as a proxy measure for socio-economic status rather than paternal education because a review of published studies suggest that maternal educational attainment is more closely related to children's academic performance than paternal educational attainment [Haveman and Wolfe, 1995]. Maternal education was also found to be more closely associated with preventive health care services than paternal education [Luman et al., 2003].

Table IV displays the variables that are significantly associated with the issuance of work permits. Gender was dropped from the final logistic model because it was not significant when included and had no effect on the adjusted odds estimates when dropped. After controlling for all potential confounding variables, logistic regression analyses showed that African-American teens were 3.6 times as likely as white teens to be issued work permits. Youth of ''other'' race (Asians, native-Americans, and mixed race) were 2.9 times as likely as white teens to be issued work permits. Differences between African-American teens and teens of other races were not significant. Being specifically of Hispanic origin had no effect on the issuance of work permits.

Teens who did not work in family owned businesses were 4.6 times as likely to be issued work permits as those who did. Teens who worked in services, in sales and as cashiers were 3.1 times and 4.8 times as likely to be issued work permits respectively as teens who worked as laborers and in transportation activities. The amount of knowledge of child labor laws was predictive of the issuance of work permits. Teens that had some but incomplete knowledge of the child labor laws were twice as likely to have been issued

TABLE IV. Variables Associated With the Issuance of Work Permits (n = 580)

	Unadjusted OR	95% CI	Adjusted OR	95% CI
Age when started working				
16–17	1.84	1.36, 2.50	1.13	0.79, 1.62
16	1			
Race				
African-American	2.61	2.07, 3.30	3.55	2.29, 5.49
White	1			
Other	1.63	1.02, 2.60	2.89	1.15, 7.20
White	1			
Hispanic				
No	1.23	0.83, 1.83	1.90	0.54, 6.62
Yes	1			
Business owned by parents or relatives				
No	7.62	3.94, 14.74	4.56	1.79, 11.63
Yes	1			
Mother's education				
Some college and above	1.17	0.91, 1.49	1.20	0.75, 1.93
High school or below	1			
Job type				
Food preparation/food services/other services	4.07	2.42, 6.85	3.11	1.60, 6.04
Laborers	1			
Cashiers and sales occupations	5.50	3.08, 9.82	4.79	2.56, 8.94
Laborers	1			
Administrative support	1.56	0.69, 3.51	0.97	0.40, 2.37
Laborers	1			
Managerial/professional and technical work	1.72	0.70, 4.22	1.46	0.35, 6.02
Laborers	1			
Knowledge of child labor laws				
Some knowledge	2.18	1.53, 3.09	2.09	1.33, 3.29
No knowledge	1			
Total knowledge	4.08	2.87, 5.80	3.69	2.50, 5.44
No knowledge	1			

Value of 1 indicates reference category; OR, odds ratio; CI, confidence interval.

work permits as teens who reported no knowledge. Teens with knowledge of all three child labor laws (number of hours teens can work, how late teens can work, and the kind of work teens can do) were 3.7 times as likely to have been issued work permits as teens with no knowledge.

Because of the hazardous nature of the construction industry we examined the association between work in construction and issuance of work permits. For both age groups (under 16 and 16–17) teens without work permits were more likely to work in construction. Among teens who started working when they were <16 years of age, those without work permits were 4.0 times more likely to work in construction (AOR = 3.99, 95% CI: 1.81–8.79) than those with work permits. Similarly, among teens who started working at 16–17 years of age, those without work permits were 3.0 times more likely to work in construction (AOR = 3.01, 95% CI: 1.22–7.39) than those with work permits. The small sample size in each of the age groups did not allow for calculating the adjusted odds ratios.

DISCUSSION

The finding that 45% of working teens are not issued work permits in a state where such permits are mandated mirrors findings of a few previous studies on work permits. The study by Delp et al. (2002) reported 58% of working students not being issued work permits when required, and a more recent larger study in Wisconsin reported 30% of teens working without work permits, in violation of state child labor laws [Zierold and Anderson, 2006]. The reasons for employer non-compliance are unknown and merit further investigation. Employers of teens may not know permits are mandatory and some may not know permits are required even for jobs of very short duration. Some employers may

deliberately avoid the work permit system in order to have cheap teen labor, irrespective of the legality and dangerousness of the occupations and tasks expected of teens. Kruse and Mahony (2000) estimated that youths working illegally in hazardous jobs earn on average $1.38 per hour less than other legally employed youth in the same occupations and that combined with the savings from employing youths for excessive hours, the total cost savings to employers add up to approximately $155 million per year.

Our findings strongly suggest that the work permit system in North Carolina lacks adequate enforcement. In North Carolina, as in other states, adherence to the work permit requirement is the responsibility of the employer, with enforcement under jurisdiction of the Wage and Hour Division of the North Carolina Department of Labor, which uses a combination of education and outreach efforts and regulatory investigations to assure compliance with the child labor laws. However, the resources of this division for enforcing regulatory measures are stretched, in view of the large number of permits issued to working teens. In 2008, the number of issued permits was 37,175 [North Carolina Department of Labor, 2007].

Although the majority (78%) of students in this study reported working during the school year, more than a third reported not receiving any type of safety training at the referent job, reflecting the need for employers to engage in safety training when hiring teens. Also, our study reflects inadequate teen knowledge of child labor laws, particularly laws that restrict teens from working late at night in order to protect them from the high risk of assaults and robberies. Moreover, working late at night may be associated with workplace homicides [NIOSH, 2003].

The variables associated with work permit issuance in the logistic model were: race, type of job, family ownership of business, and knowledge of child labor laws. Our findings suggest that African-American teens and other minority teens were actually more likely to be issued work permits than white teens. This race effect was significant when controlling for job type and all other potential confounding variables. Our results support the previous findings of Kruse and Mahony (2000) that white teens working in non-agricultural industries were more likely to work in violation of child labor laws. However, their study which utilized data from the Bureau of Labor Statistics' Current Population Survey did not examine work permits and since no previously published work has reported on the effect of race on work permit issuance, we have no comparison for our findings. Thus, future studies are needed to explore and elucidate these associations.

Contrary to the findings by Zierold and Anderson (2006) that females were more likely to have work permits than males, and to the findings by Kruse and Mahony (2000) that females were less likely to work in violation of child labor laws, we did not find any effect of gender on obtaining work permits. Also, in our study age was not associated with the issuance of work permits in contrast to previous studies that reported younger teens to be more likely to work in violation of labor laws than older teens [e.g., Kruse and Mahony, 2000]. Furthermore, our results suggest that socio-economic status, measured by parental education, is not associated with work permit issuance.

The finding that teens who worked in family-owned businesses were much less likely to have work permits than teens who worked in businesses not owned by their families has particularly important implications for safety interventions. It has been documented that teens who work in family-owned businesses are at higher risk of serious and fatal injuries than teens who work in businesses not owned by their families; fatalities among youth who are self employed or who work in family businesses are reported to be at least four times higher than among fatalities among other youth, regardless of industry (Bureau of Labor Statistics, 2000). The reason for non-compliance may be that family members who employ teens younger than 18 may not be aware that family businesses are not exempt from work permit requirements (North Carolina General Statutes § 95-25.5(i)). Furthermore, parents and relatives who employ teens in dangerous occupations such as construction may not be aware of teen limitations and the occupational hazards and risks of teen employment.

As similarly shown in previous studies, the majority of teens (80%) worked in retail and services. In this study teens working in these areas were much more likely to be issued work permits than those working as laborers and in transportation. Since teens who work as laborers and in transportation tend to have jobs of very short duration, it is likely that their employers, particularly if they are parents or relatives, do not perceive the need to comply with the work permit requirements. It is also possible that some employers of teens working as laborers may not want to abide by the work and hour restrictions of work permits and some may not even be aware of the work permit requirement. Future studies that also target employers as well as teens, would be beneficial in learning more about the types of businesses that violate the work permit system requirement.

The finding that teens under the age of 16 are working in construction, an illegal occupation for youth in this age group, raises serious concerns. As shown in Table II, the majority of teens (72%) who reported working in construction were younger than 16 and most worked in family owned businesses. This may be explained by the fact that teens under the age of 16 are denied formal employment, in retail or services, where permit requirements tend to be met. The majority of older teens who worked in construction also worked in family-owned businesses. Even though these numbers were relatively small, (approximately 6% of our sample), they are troubling in view of the hazardous nature of the construction industry, considered one of the main causes

of youth occupational fatalities [Castillo et al., 1994; Suruda et al., 2003]. A major area of concern is the finding that the majority of employers who hire teens in the construction trade do not comply with the work permit system, both they and the teens they hire may not be aware of which hazardous tasks and occupations teens are banned from performing.

The association of increased knowledge of child labor laws with issuance of work permits confirms what other studies have reported [Delp et al., 2002; Zierold and Anderson, 2006]. Teens who are more cognizant of safety issues and child labor laws may be more inclined to work in businesses that conform to child labor regulations. It may also be that the work permit itself is an educational tool for teens, since it lists hazardous occupations and provides good information on child labor laws and must be signed by the teen.

This study points to the need for safety and educational interventions to specifically target employers in small family businesses, including construction, to increase their compliance with work permit restrictions that ban teens younger than 16 from working in hazardous occupations and list restrictions on hazardous tasks and occupations for teens younger than 18. Findings suggest the need for better scrutiny by permit issuers of the tasks listed by employers when applying for work permits, and adequate training of these employees both in the Department of Labor Wage and Hour Division and in the Department of Social Services. Other than employers, parents and school administration should be targeted when designing educational and safety interventions.

Limitations

Our study relied on self-report by student workers only. We did not independently validate the veracity of responses by confirming whether working teens in NC have, or have not been issued work permits.

Since the surveys were distributed within schools, teen workers who do not attend school were not represented in this study. This may not be a major limitation, in that data from the 1979 National Longitudinal Youth Survey showed that high school dropouts worked in the same set of industries and occupations as students. The most common occupation and industry for both dropouts and students were, respectively, food service worker and eating and drinking places [Oettinger, 2000].

Another study limitation is that North Carolina is not representative of all the states that have work permit systems. The requirements and contents of the work permits vary considerably among the 41 states that issue permits. In some states there are minimum requirements and the work permits are merely to prove the legality of age of working teens. In others, other than the parent and employer, a physician is required to sign indicating that the teen is of good health prior to the issuance of a work permit. North Carolina's permit system is among the more stringent. Finally, these study findings apply only to employers of youth working in non-agricultural jobs covered by the North Carolina youth employment provisions and the Fair Labor Standards Act (FLSA), since agricultural, domestic, and governmental employers are exempt from the North Carolina employment provisions and subject to a different set of federal regulations.

Concluding Remarks

As our study has shown, stricter enforcement is needed to ensure employer compliance with the work permit requirement, which even though it has not been shown to be associated with injury reduction, has been related to increased teen safety training and increased knowledge of child labor laws. Adequate training of work permit issuers on child labor laws is important in order to deny permits to employers in businesses where teens, particularly those younger than 16, are employed in hazardous occupations. Regulations, however, even though key to injury prevention, are only one step in injury prevention and should be supplemented by community efforts and educational and safety interventions targeted at teens, employers, parents, and school administration.

In view of the limitations on the resources of regulatory and enforcement agencies, we recommend that the Wage and Hour Division of the Department of Labor engage in outreach community efforts to actively engage employers, schools, parents, and community groups in youth safety and education initiatives. We recommend that interventions for teens working in non-agricultural occupations should target teens of all races, and specifically target family owned businesses where teens are engaged in unskilled labor and in hazardous occupations such as construction.

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