

Roberta Nagai^I
Ana Maria C Lefèvre^{II}
Fernando Lefèvre^{II}
Josiane Steluti^I
Liliane R Teixeira^I
Lílian C S Zinn^I
Nilson S Soares^I
Frida M Fischer^I

Knowledge and practices by adolescents in preventing occupational injuries: a qualitative study

ABSTRACT

OBJECTIVE: To describe knowledge and practices adopted by high school students to prevent occupational injuries.

STUDY DESIGN: The study was carried out in a public school located in São Paulo, in 2003. Fifty-three evening students aged 14 to 21 years old participated the study, they were divided into two groups with and without job experience (32 and 21 students, respectively). The students answered two questions: "Why do occupational injuries occur?" and "How do you avoid occupational injuries?" Analyses were performed using the software "Quali-quant" to structure collective discourses.

ANALYSIS OF DISCOURSES: Adolescents with work experience reported that occupational injuries occur due to carelessness of the employee, bad luck of the employee, employer's negligence, lack of training, and unsafe workplace. Adolescents without work experience reported that the main causes of work injuries were carelessness of the employee and employer's negligence. Regarding the ways to protect themselves against occupational injuries, both groups reported that: they pay attention (would pay attention) and wear safety equipment (would wear) safety equipment.

CONCLUSIONS: Adolescents from both groups showed limited knowledge about occupational injuries and prevention methods. Students "blamed the victim" to explain the injuries and considered "paying attention to work" as the best way to protect themselves. These facts showed that the culture of blaming the victim is present since adolescence and probably it is an outcome of a learning process of the society.

KEYWORDS: Students. Adolescent. Accidents, occupational, prevention & control. Health knowledge, attitudes & practice. Qualitative research.

INTRODUCTION

Work related injuries are a public health problem worldwide because they involve a great number of workers, especially young people at productive age. They are also highly disabling, leading to major social and economical consequences. In Brazil, according to data of Instituto Nacional do Seguro Social* (INSS – National Institute of Social Security) in 2004, 17,027 work injuries were recorded involving youngsters up to 19 years old, 84.2% were males.

^I Departamento de Saúde Ambiental. Faculdade de Saúde Pública (FSP). Universidade de São Paulo (USP). São Paulo, SP, Brasil

^{II} Departamento de Prática de Saúde Pública. FSP-USP. São Paulo, SP, Brasil

Correspondence:

Roberta Nagai
Departamento de Saúde Ambiental
Faculdade de Saúde Pública
Av. Dr. Arnaldo, 715
01246-904 São Paulo, SP, Brasil
E-mail: rnagai@usp.br

Received: 10/17/2005
Reviewed: 11/1/2006
Approved: 12/21/2006

* Ministério da Previdência Social. Estatísticas de acidente de trabalho. Brasília; 2004. Available at: <http://www.previdenciasocial.gov.br> [Accessed on Oct 27 2006]

Despite the negative consequences, this problem still lacks attention regarding the social policies in Brazil. An evidence of this is the poor quality of official data on mortality and morbidity due to work injuries, which are known to be underestimated. This occurs both because there are problems with the record system, and because the coverage is partial, restricted to workers with formal jobs.⁸

Quantitative studies* performed in several countries show that work injuries are common among adolescents.^{9-11,18} Azambuja³ and Mangas* performed similar studies to assess the perception of work injuries among adults.

A study conducted by Fischer et al¹¹ on the conditions of life and work of high school students in a public school in São Paulo, showed that 52% of those who studied in the evening also worked. Of these students, 21% said they have got hurt at work. Among the minimal injuries were cuts (fingers and hands) and burns. The most severe were injuries (hands and feet), being struck by a vehicle, and sprains and strains.

A study, conducted by Santana et al¹⁸ in Salvador, Northeastern Brazil, with 361 youngsters from 10 to 20 years old revealed that 23 adolescents reported having suffered work injuries. The annual rate of non-fatal work injuries was 6.4%. Among women, most injuries occurred in the environment of domestic work with little severity. However, 38.5% of the cases demanded medical assistance, and 36.4% left permanent non-disabling sequelae. Among the boys, typical injuries on the streets were predominant, and the majority (60.0%) was treated in an emergency service.

To assess occupational activities and their associated risks, theoretical and methodological references can be used, as proposed by ergonomics. Among these methods there is the assessment through the perceptions, knowledge, and social representations of those who are directly involved in the work. Qualitative methodology assesses the perceptions and is carried out through the discourses/verbalizations of the social actors involved in the job. Understanding how workers think and act when performing their duties allows understanding their work and, therefore, take the steps for decision making in order to improve working conditions and associated factors involved.¹² A similar approach is mentioned by Caplan,⁵ when he recommends the use of focal groups and interviews with workers to investigate working conditions. In an attempt to make these youngsters aware, Galasso et al** showed the risks and benefits of young people entering the job market.

The hypothesis of the present study was that the perceptions regarding the causes and methods to prevent work injuries are different among young people with work experience and those without work experience.

The objective of the present study was to describe knowledge and practices of high school students with work experience (workers and unemployed people) and without previous work experience (non-workers) in the prevention of diseases and work injuries.

STUDY DESIGN

The study was conducted in a public elementary and high school located in the district of Pinheiros, São Paulo, Southeastern Brazil, in 2003.

This study had only the participation of high school students. Of a total of 565 students enrolled there were some losses: 135 dropped school and 50 were transferred to another school. Thus, 380 adolescents that studied in the evening were included. Their ages ranged from 14 to 21 years old.

Among the 380 students, 65 were randomly chosen to be interviewed. This fixed size sample was stratified according to their answer on work experience (yes or no). A list of the most frequently reported occupations among adolescents with work experience was made. Initially, five students were randomly chosen for each job type. However, before all students were interviewed, we observed repeated information and ideas on the perception of work injuries. This occurred in the end of 53 interviews. Therefore, 12 students were not interviewed and we considered data collection finished. The final sample had 53 students (60.4% with work experience and 39.6% without work experience). This procedure is suggested by Selltitz et al¹⁹ and Theodorson & Theodorson²⁰ in qualitative research.

None of the adolescents chosen refused to take part in the interview.

Adolescents were interviewed according to random order. Interviews were based on a semi-structured script. Those with former experience answered questions regarding: description of the routine in the work, breaks, equipment used at work, perception of present risks in the work environment, individual protection equipment and strategies to prevent work injuries. Those without previous work experience answered questions regarding: how they pictured the routine at work, what are the risks they imagined would be present in the working environment, equipment for individual protection, and strategies to prevent work injuries.

* Mangas RMN. Fatal injuries and social unprotect ion in civil construction in Rio de Janeiro. [Máster taxes]. São Paulo: Escola Nacional de Saúde Pública da FIOCRUZ (National School of Public Health); 2003.

** Galasso LO, Fischer FM, Nagai R, Teixeira LR, Souza, LC, Steluti J, et al. O "trampo", a saúde, o futuro. Trabalho dos adolescentes: problemas e caminhos para uma vida melhor. São Paulo: Faculdade de Saúde Pública;2005.

Interviews were recorded in individual tapes and totally transcribed with the students' consent. With the information obtained, a data bank was built and inserted into the software "Qualiquantisoft".*

Two questions from the script were chosen that were directly related to the hypothesis of the study: 1) In your opinion, why do work injuries occur? 2) How do you avoid work injuries?

The purpose of the questions was to extract from each answer the "key expressions" and "central ideas" of the individuals.¹³ Data on gender and age were excluded.

Collective Subject Discourse may have more than one central idea, or several individuals presenting the same central idea. And, a certain thought expressed by a certain individual may not represent the same thought of others. So the answer of one person helps understanding or complementing another person's ideas.¹³

Discourses have been built for each group (with previous work experience and without work experience). Each central idea was represented by one item.

All participants filled in and gave their written informed consent. The project was presented to the Ethical Committee of the Faculdade de Saúde Pública of Universidade de São Paulo, which was in favor of the research (Of. COEP/197/02).

FEATURES OF THE SAMPLE STUDIED

Out of the 53 students taking part in the study, 56.6% (30) were women, and 43.4% (23) were men. Thirty-two adolescents (60.4%) reported work experience, and 21 (39.6%) had no work experience. Among these students, 13 (61.9%) were female and the majority (85.6%) were younger than 18 years old.

Of the students with work experience, 56.6% were female, and 62.3% were below 18 years old. Mean age of participants in the study was 17.2 years old (SD=1.1); among those with work experience mean age was 17.7 years old (SD=1.5), and among those without work experience it was 17.2 (SD=1.1).

Total percentage of teenagers reporting work injury was 46.9%.

The following job titles were reported: general assistant (4), household chores (4), stockroom controller (1), receptionist (3), soccer player (3), waiter (1), office assistant (3), nanny (2), telemarketing operator (2), clerk (3), office boy (2), computer technician (3) and typist (1).

CENTRAL IDEAS OF THE COLLECTIVE SUBJECT DISCOURSE

Central ideas taken from adolescents' answers, based on the two questions selected.

Central ideas showed are apparently disconnected, but the students reported different opinions that lead to the same problem: unhealthy working conditions. In this case, the central ideas reflect the problems pointed out.

The speeches were chosen because they were those which better showed each of the central ideas and are sub-divided into two categories: having work experience or not having work experience. Gender and age analysis were not performed.

Question 1 – In your opinion, why do work injuries occur? The following ideas were identified:

- Work injuries occur due to bad luck of employees.
- Work injuries occur due to lack of attention of employees.
- Work injuries occur due to irresponsibility of employers.
- Work injuries occur due to lack of training to perform the tasks.
- Work injuries occur because the work is unsafe.
- Never thought about the subject.

Adolescents with work experience

Central idea: work injuries occur because the workplace is unsafe (reported by 6.4% of adolescents): *"It is because the workplace is unsafe, dangerous... in my work it's because of organization. If it were more organized would be better. We work with boxes, we have to climb up the stairs with boxes... so I believe there is some risk in this activity, and one may fall with a heavy box..."*.

Central idea: Work injuries occur due to lack of attention of the employee (reported by 46.0% of adolescents): *"It occurs when people are distracted, inattentive, or are talking or feel sleepy, doing things in a hurry... it can also be lack of attention due to emotional problems, because, even though we say we should not mix work with personal life, one thing influences the other... work injuries occur also because of exhaustion, because when people are tired they tend to get distracted. When we know the activity is dangerous, we must pay closer attention, be smarter..."*.

* Lefèvre F, Lefèvre AMC. Qualiquantisoft. São Paulo; 2005. Available at: http://hygeia.fsp.usp.br/~lefevre/Discurso_o_software.htm [Accessed on Aug 18 2005]

Central idea: Work injuries occur due to bad luck of the employee (reported by 13.0% of adolescents): *“Work injury is bad luck, faith, “everything went wrong on the day”. I would not say it is neither the employee nor the employer’s fault. I believe it is in the person’s destiny, if it must happen, it will happen...”*.

Central Idea: Work injuries occur because of lack of training on the job (reported by 6.5% of adolescents): *“Lack of information of employee... there are no lectures, and things like that to give information. Also employees lack information on the equipment. People should teach, explain to the employee: this equipment is operated this way... they should not start the job and deal straight away with the equipment. People must know it, know how to deal with it, explain...”*.

Central idea: work injuries occur due to lack of responsibility of the employer (reported by 26.0% of adolescents): *“I believe entrepreneurs are the problem. They are not concerned with the health of employees, they just want the employee to produce... they do not provide helmets, gloves, basic equipment... they do not care.... nobody cares, and no one has the right to anything...”*.

Adolescents without work experience

Central idea: Work injuries occur because of inattention of employees (reported by 59.0% of adolescents): *“Due to inattention of employees... they get nervous, do not take care. Some people get too distracted, and do not pay attention to what they are doing... when you are working you have to forget your worries from home and focus only in your job...”*.

Central idea: Work injuries occur because of irresponsibility of the employer (reported by 22.7% of adolescents): *“Most of the times, it occurs due to lack of care of the employer. They do not do things right, sometimes to save money. They do not give proper information and safety equipment...”*.

Question 2 – How do you avoid work injuries? The following ideas were identified:

- Pay attention.
- Make use of protective equipment.
- Avoid the risk.
- Avoid doing effort outside work.
- Look for information about the job.
- Do not do anything.
- Never thought about it.

Adolescents with work experience

Central idea: Wear the protective equipment (reported by 13.9% of adolescents): *“In my work we have the anti-reflexive screen. I think this helps a bit for the sight. I also try to seat straight... I do not work with my hands down. I always keep them on the support...”*.

Central idea: Pay attention (reported by 27.8% of adolescents): *“I perform the job correctly... the equipment has to be handled carefully, we have to be careful, not do the job in a hurry. Doing things in a hurry is nice because you go faster, but you must be careful otherwise it is bad for you...”*.

Adolescents without work experience

Central idea: Would pay attention (reported by 47.8% of adolescents): *“I would try to do things right... employees who do things wrong get hurt. Also, I’d be careful, and would pay closer attention to what I’m doing. When you are in the workplace you have to be concentrated there rather than elsewhere, the rest you should think about when you are outside, not in your work...”*.

Central idea: Would use protective equipment (reported by 13.2% of adolescents): *“We would have to have a screen saver for the computer, wood to type, helmet, gloves, boots. Some essential things for the job...”*.

COMMENTS

Perception of work injuries

Speeches showed the differences in perception of adolescents with and without experience in the job market. Those who have never worked had similar opinions and used short sentence. Adolescents who worked and were unemployed gave more opinions and presented more details. This may be explained because the adolescents who worked or were unemployed have experience from previous jobs together with the opinions of their workmates.

Workers’ lack of attention

In the present study, students who had work experience reported that work injuries occur due to employees’ lack of attention.

Expressions such as “lack of attention and care”, “negligence of the workers”, are subjective ways to describe work injuries, and make it hard to understand the facts that have occurred. That is the case because when individuals who suffer work injuries are considered as “guilty” other casual factors are not searched for. Several authors^{1,17,21,22} restated that human mistake, frequently considered as the main reason for work injuries must be

carefully accessed, since it hides rather than explains the facts that led to the injury, contributing for the dangerous situations in workplaces to remain unchanged.

Vilela et al²¹ refer to the lack of changes in the workplace and the tasks individuals have to perform as the cause of unsafe actions taken by workers that lead to injuries. This fact may be due to individual differences, such as gender, age, time of reacting to stimuli, motor coordination, emotional stability, level of intelligence, level of attention, perception, among others. Additionally, personal problems (family, emotional disorders, and worries), interruptions (friends' calling, interruptions) and/or excessive time pressure to perform the activities must also be taken into account.^{1,2}

According to Binder and Almeida⁴ work injuries result from social phenomena due to the way workers are inserted into the production process; they also express power correlations within the society, being part of a socially determined phenomena. As part of a program to promote health in the workplace, these authors suggest that workers must acquire basic knowledge on human performance and on factors that are known to increase the probability of errors. The following factors and situations are mentioned: excessive confidence in the memory, interruptions (at work), pressure to perform the work, fatigue, unsuitable coordination among workers, performing activities they are not familiar with, ambiguities in every day procedures. Being aware of these factors may help acknowledging signs of danger and self-protection.*

Employees' bad luck

Adolescents have also blamed "employee's bad luck" for work injuries, that is, the illusion that we cannot control destiny. In these cases, people believe that it is people's option to choose what they believe to be right or wrong. Thus, many injuries occur, since the workers have made the "wrong" choice. On a different perspective, injuries that have occurred due to "unlucky of the worker" are also seen as having "supernatural" causes. The belief that "bad things" happen to those who are mean.⁷

Such interpretations result from poor guidelines in the work environment, and many times, make it impossible for workers to put the injury into a different perspective. Additionally, under this perspective that people cannot control their fate, workers do not develop prevention methods.

Lack of training on the job

Adolescents attributed occurrence of injuries to the lack

of training in the work. In most cases, young workers are trained by more experienced employees, and after an observation period with variable duration, they are placed in production. Many adolescents considered training the period until they get practice enough to perform skillfully the task for which they are responsible.¹⁵ Additionally, most times, adolescents perform tasks that, at first sight, are simple and would not need intensive training to be performed. These facts favor the occurrence of work injuries. This occurs because capacity building is not always the main purpose of the investments performed, since the companies rather concentrate their efforts in behavior or motivational programs.¹⁵

Safety equipment

One group of students reported that they used safety equipment. However, this discourse was observed only among adolescents that worked with computers, such as telemarketing operators, typists, and computer technicians. The other adolescents reported that they did not make use of any protection equipment, even when they were performing risky labor activities, such as cook, general assistant, maids, and assistant at dentist office. The equipment for individual protection does not necessarily prevent the occurrence of work injuries. Work places where it is necessary to use protective equipment are generally more dangerous. It is well known that adolescents are more prone to get into injuries since together with lack of experience, the safety equipment are for adults that have different anthropometric measures than those of teenagers.⁹

Never thought about the subject

Some students reported that they had "never thought about the subject". This may be explained because great part of the teenagers have no training on work safety. Also, the issue is little or not discussed at all in schools and probably at home. Exchange of experience is usually done with work mates and class mates.

Another reason is the automating activities. This is because there is an invisible dimension of the activity to talk about intentions, and to the fact that some skills can be acquired without talking about them. Human beings tend to automate what they do. Thus, activities that have become automated would not have to be thought over. This kind of behavior would also influence the representation regarding "paying attention" to tasks in order to protect themselves from work injuries. However, automation has not been dealt with in the present study. We assumed that adolescents' activities were conscious and could be verbalized.¹

* Lima FPA, Assunção AA. Para uma nova abordagem da segurança do trabalho. In: Lima FPA, Assunção AA, organizadores. Análise dos acidentes: Cia. de Açúcar Especiais Itabira. Belo Horizonte: Laboratório de Ergonomia, Departamento de Engenharia de Produção da UFMG; 2000.

Promoting health

Studies show that work safety does not only depend on formal education. In most cases, there is lack of proper management of risks in the workplace (performed by supervisors, coordinators) that cannot be controlled by adolescents.^{6,16}

Managers and supervisors try to encourage their employees and workers through education, training or “controlling” their behavior through rules and safety equipment. Risk management should aim especially at controlling strategies, stabilizing the systems, and predicting variations that can alter the work system and lead to work injuries.¹⁶

Technology is much more advanced than risk management, including new laws, and safety procedures.

Companies currently face a lot of competition to survive and to achieve rapid profit. Thus, concerns about well being, safety, and environmental impact remain in the background.¹⁶

Concluding, the results of the present study shows that many teenagers are put into the workforce early, and in poor work environment. Probably, these workers are rarely given the opportunity to discuss over the best strategies and tools necessary to perform the tasks.

ACKNOWLEDGEMENTS

To Prof. Dr. Ildeberto Muniz de Almeida, from the Department of Public Health of Faculdade de Medicina de Botucatu, for his suggestions to the manuscript.

REFERENCES

1. Almeida IM, Binder MCP. Armadilhas cognitivas: o caso das omissões na gênese dos acidentes de trabalho. *Cad Saude Publica*. 2004;20(5):1373-8.
2. Almeida IM, Binder MCP, Fischer FM. Blaming the victim: aspects of the Brazilian case. *Int J Health Serv*. 2000;30(1):71-85.
3. Azambuja EP, Kerber NPC, Vaz MRC. A compreensão da organização do trabalho em saúde através da vivência dos trabalhadores com acidente de trabalho. *Texto Contexto Enferm*. 2003;12(3):289-97.
4. Binder MCP, Almeida IM. Estudo de dois acidentes do trabalho investigados com o método de árvore de causas. *Cad Saude Publica*. 1997;13(4):749-60.
5. Caplan S. Using focus group methodology for ergonomic design. *Ergonomics*. 1990;33(5):527-33.
6. Chatigny C. Made to measure training for work activity analysis: learning activities and instructional tools. *Safety Science*. 1996;23(2-3):147.
7. Cheng YH. Explaining disablement in modern times: hand-injured workers' accounts of their injuries in Hong Kong. *Soc Sci Med*. 1997;45(5):739-50.
8. Conceição PSA, Nascimento IBO, Oliveira PS, Cerqueira MRM. Acidentes de trabalho atendidos em serviço de emergência. *Cad Saude Publica*. 2003;19(1):111-7.
9. Cooper SP, Burau KD, Robison TB, Richardson S, Schnitzer PG, Fraser Jr JJ. Adolescent occupational injuries: Texas, 1990-1996. *Am J Ind Med*. 1999;35(1):43-50.
10. Fischer FM, Martins IS, Oliveira DC, Teixeira LR, Latorre MRD, Cooper SP. Occupational accidents among middle and high school students of the state of São Paulo, Brazil. *Rev Saude Publica*. 2003;37(3):351-6.
11. Fischer FM, Oliveira DC, Teixeira LR, Teixeira MCTV, Amaral MA. Efeitos do trabalho sobre a saúde de adolescentes. *Cienc Saude Coletiva*. 2003;8(4):973-84.
12. Guérin F, Laville A, Daniellou F, Duraffourg J, Kerguelen A. Compreender o trabalho para transformá-lo: a prática ergonômica. São Paulo: Edgar Blucher; 2001.
13. Lefèvre F, Lefèvre AMC, Teixeira JJV. O discurso do sujeito coletivo: uma nova abordagem metodológica em pesquisa qualitativa. Caxias do Sul: EDUCS; 2000.
14. Lefèvre F, Lefèvre AMC. O discurso do sujeito coletivo: um novo enfoque em pesquisa qualitativa. Porto Alegre: EDUCS; 2003.
15. Martins HHTS. O processo de reestruturação produtiva e o jovem trabalhador - conhecimento e participação. *Tempo Social, Rev Sociol USP*. 2001;13(2):61-87.
16. Rasmussen J. Risk management in a dynamic society: a modeling problem. *Safety Sci*. 1997;27(2/3):183-213.
17. Reason J. Human error: models and management. *BMJ*. 2000;320(7237):768-70.
18. Santana V, Itaparica M, Amorim AM, Araújo-Filho JB, Araújo G, Oliveira M, et al. Acidentes de trabalho não fatais em adolescentes. *Cad Saude Publica*. 2003;19(2):407-20.
19. Sellitz C, Jahoda M, Deutsch M e Cook SW. Método de pesquisa nas relações sociais. São Paulo, EDUSP/HERDER, 1967.
20. Theodorson EP e Theodorson AG. A modern dictionary of sociology. London, Methuen, 1970.
21. Vilela RAG, Iguti AM, Almeida IM. Culpa da vítima: um modelo para perpetuar a impunidade nos acidentes do trabalho. *Cad Saude Publica*. 2004;20(2):570-9.
22. Woods D, Cook R. Nine steps to move forward from error. *Cogn Technol Work*. 2002;4(2):137-44.

Article based on a master's dissertation by R Nagai, presented to the Department of Environmental Health of the Faculdade de Saúde Pública, Universidade de São Paulo, in 2005.

R Nagai was a scholarship holder by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes – Coordination for the Improvement of High Education Personnel). J Steluti was a scholarship holder for the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq – National Council of Technological and Scientific Development). LR Teixeira and LCS Zinn were scholarship holders from Fundação de Amparo à Pesquisa do Estado de São Paulo (Fapesp – Foundation for Research Support of the state of São Paulo). FM Fischer receives a scholarship for productivity from CNPq (proc. n.º 351794/1992-2). Research supported by CNPq (proc. n.º 470917/2003-2).