

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Time trends and predictive factors for safety perceptions among incoming South Australian university students

Yahya Thamrin, Dino Pisaniello*, Sasha Stewart

Discipline of Public Health, School of Population Health and Clinical Practice, the University of Adelaide, South Australia 5005, Australia

ARTICLE INFO

Available online 31 January 2010

Keywords:
Secondary school
Safety
Training experience
Incoming student
Perception
Attitude

ABSTRACT

Problem: Young workers are over-represented in injury statistics. In order to develop injury prevention strategies, this study investigated time trends and predictive factors relating to safety skills, confidence, and attitudes. **Method:** Annual surveys were conducted from 2006–2009 among incoming students at the University of Adelaide. The questions addressed safety training, injury experience, and health and safety perceptions. **Results:** Time trends in training, perceived safety skills, confidence, and attitudes were not significant. In terms of skills and confidence, the most important correlate was safety training outside of high school (odds ratio = 1.6), especially when repeated, assessed, or in face to face mode. Feeling strongly about safety issues was best predicted by injury experience (OR = 1.7) and gender. **Discussion:** These results emphasize the value of assessed training, but they are also consistent with published U.S. data, indicating no improvement over time. It is suggested that there be a more integrated approach in safety education, involving schools and workplaces. **Impact on industry:** By developing an understanding of student safety perceptions and experiences, this research aims to target strategies to reduce the excess injury rate for young workers. Workplaces should be more aware of the limitations of school-based safety education and a more integrated and evidence-based approach should be developed, involving schools and workplaces.

© 2010 National Safety Council and Elsevier Ltd. All rights reserved.

1. Introduction

Despite the possibility of significant under-reporting, young workers (15–24 years of age) are over-represented in injury statistics. Recent evidence suggests that young workers suffer from a higher risk of injury in the workplace in comparison with older workers (Delp, Runyan, Brown, Bowling, & Jahan, 2002; Miller & Kaufman, 1998; Schober, Handke, Halperin, Moll, & Thun, 1988). In a 2003 study by Zierold and Anderson (2006), 15% of working Wisconsin high school students reported an injury during the school year.

In Australia, workers in the 15 to 17 year age group (high school age) were twice as likely to experience work related injury as other workers (Scott, Hockey, Barker, Sprinks, & Pitt, 2004). In addition, it has been reported that workers who have less than three years experience were significantly more likely to have accidents in the workplace than other groups of employees (Webb, Redman, & Sanson-Fisher, 1992).

Many young workers are students and about 70–80% of them have work experience before finishing secondary (high) school (Aumann, Pisaniello, Lee, & Sibly, 2007; National Institute for Occupational Safety and Health [NIOSH], 2003; Wegman & Davis, 1999). The

majority of teenage workers commence casual work at the age of 15, corresponding to middle high school in Australia, although some may commence sooner in family businesses. They typically work in jobs that require low technical skill and where safety training may be limited, particularly in small businesses (Delp et al., 2002). Limited experience, incomplete physical development, lack of self confidence and communication skills, the nature of employment, and lack of awareness of the work-related hazards can result in a greater risk of injury in the workplace among young workers (Bazas, Maris, & Vatopoulos, 2002; Dunn, Runyan, Cohen, & Schulman, 1998; Linker, Miller, Freeman, & Burbacher, 2005; Laflamme & Menckel, 1997).

Because teenage workers are a vulnerable subpopulation, it is important to develop interventions to decrease the risk of accidents or injuries both inside and outside the workplace (Blair, Seo, Torabi, & Kaldahl, 2004; Pollack, 1998). However, surveys of young workers often indicate limited or no safety training, and where available, it is more likely to be provided in larger organizations (Aumann et al., 2007; Smith & Mustard, 2007). There is also a shortage of published information about the quality of safety education in the workplace (Zierold & Anderson, 2006). Mandatory training in the secondary education sector would ensure that all young workers at least receive a minimum level of safety education. In principle, safety education addresses knowledge, attitudes, and behaviors that can lead to reduced risks in the workplace (Krosnick & Alwin, 1989; Loughin & Barling, 2001).

In Australia, a variety of web-based resources and teacher guides are available to assist high school teachers in introducing safety

* Corresponding author. Discipline of Public Health, School of Population Health and Clinical Practice, Mail Drop 207 Level 9, 10 Pulteney Street, the University of Adelaide, South Australia 5005, Australia. Tel.: +61 8 8303 3571; fax: +61 8 8303 6885.
E-mail address: dino.pisaniello@adelaide.edu.au (D. Pisaniello).

concepts, including rights and responsibilities, prior to students undertaking work experience (NOHSC, 2004). Although quizzes may be used, such introductory sessions are of variable length and not normally assessed. In 2005, a number of schools in South Australia piloted the Canadian Passport to Safety education package with assessment (Brotherton, 2005). However, this program was voluntary and evaluations of the impact of such programs in terms of subsequent student perceptions of safety issues, as well as behaviors and ultimately injury statistics, are needed (Zierold & Anderson, 2006). One approach to gauging the effectiveness of secondary school safety education is to survey students coming into tertiary educational institutions, including universities. The present study considers perceptions and training experiences of incoming students at one university in South Australia. It takes a multi-year view to understand time trends, and aims to identify important predictors for reported skills and confidence and safety attitudes, for local as well as international (foreign) students, so that these can be considered in the refinement of education approaches.

2. Methods

2.1. Data collection

The survey tool and sampling approach have been previously described (Aumann et al., 2007). Ethics approval for the research was granted by the University of Adelaide Human Research Ethics Committee. The questionnaire was distributed to incoming students across a wide range of faculties, including engineering and science, health science, economics, law, and humanities. The two principal outcome variables were student perceptions of safety skills and confidence (“Do you think that you have the skills and confidence to discuss health and safety issues with your teacher, or other relevant person?”) and a surrogate measure of student attitude to safety (Do you feel strongly about any health and safety issue?). The ability to discuss safety issues is an important competency for all workers (NOHSC, 1998).

2.2. Statistical analysis

The questionnaire data were entered into Microsoft Excel® for descriptive statistical analysis. To quantify the association between predictor variables and outcome variables, the Statistical Package for the Social Sciences (SPSS) Version 15® was used. The predictor variables that were consistently statistically significant each year from 2006 to 2009 in bivariate analyses were included in a multivariate logistic regression model to identify important predictors of safety skills and confidence and attitude.

The research focused on the students who were from South Australia (local students) on the assumption that they finished a secondary school education in this state. Hence, only local students were included in the bivariate and multivariate analyses.

3. Results

3.1. Trend analysis

A large number of students participated in this research. From 2006 to 2009, 5,542 students were surveyed of which more than 80% were local South Australian students and the remainder were interstate and international (foreign) students. In 2006, the mean participant age was 19.6 years, approximately 51% were female, and about 10–15% had had an injury at work or witnessed a serious injury at work (Aumann et al., 2007). Similar values were found in 2007–2009.

Table 1 presents the students perception of their skills and confidence in safety and feeling strongly about safety issues between

Table 1
Safety Training, Skills and Confidence and Attitude to Safety, 2006–2009.

	2006		2007		2008		2009	
	No	%	No	%	No	%	No	%
<i>All students*</i>								
Number of students	1695		1598		1378		871	
Have received safety training	814	48	808	51	664	48	429	49
Have skills and confidence in safety	955	56	994	62	883	64	556	64
Felt strongly about safety issues	618	36	597	37	513	37	334	38
<i>Local students</i>								
Number of students	1379		1365		1164		700	
Had received safety training	766	55	760	56	628	54	381	54
Had skills and confidence in safety	837	61	885	65	733	63	459	66
Felt strongly about safety issues	510	37	513	38	442	38	252	36
<i>International students</i>								
Number of students	230		233		200		114	
Had received safety training	31	13	48	21	30	15	17	15
Had skills and confidence in safety	93	40	109	47	91	46	56	49
Felt strongly about safety issues	95	41	84	36	66	33	56	49
<i>Local male students</i>								
Number of students	689		667		548		338	
Had skills and confidence in safety	438	64	438	66	338	62	220	65
Felt strongly about safety issues	237	34	212	32	185	34	97	29
<i>Local female students</i>								
Number of students	690		698		616		362	
Had skills and confidence in safety	399	58	447	64	397	64	239	66
Felt strongly about safety issues	273	40	301	43	258	42	156	43

Note. * All students include local students, interstate students and international students.

2006 and 2009. It can be seen that about two thirds of the local students felt that they had the necessary safety skills and confidence; females were similar to males with regard to perceived skills and confidence, but international students felt much less confident than locals. On the other hand, international students appear similar to local students with respect to safety attitude. In addition, local female students were more likely to feel strongly about safety issues than local males.

From 2006 to 2009, there appears to be a slight improvement in skills and confidence. However, when a logistic regression model, with categorical covariates, was used to analyze time trends, no significant differences between years (at the 5% level) were found. This applied to all categories (i.e., all students, local students and international students, local males and females).

For safety attitude, logistic regression analysis again indicated that the time trends were insignificant.

With regard to safety training, only about half of the local students had received any formal safety training. Even fewer of the international students had training. Roughly 40% of those students who reported that they had workplace experience had had safety training in the workplace.

3.2. Factors associated with students skills and confidence in safety

Table 2 presents a bivariate analysis of the factors associated with perceived skills and confidence in safety. There was a consistently positive association between safety skills and confidence with safety training, training as a part of paid work outside school, ongoing/repeated training, face to face based training, and being assessed on training.

However, it is interesting that high school safety training experience, per se, was not consistently associated with this outcome variable during the four-year period of study. It was significant in 2006 and 2008 with odds ratios of 1.36, 95%CI 1.05–1.76, and OR = 1.37, 95%CI 1.04–1.81, respectively. There was no significant association in 2007 and in 2009.

Table 2
Factors Associated with Perceived Safety Skills and Confidence 2006–2009.

Predictors	2006		2007		2008		2009	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender (being female)	0.79	0.63 - 0.93	0.75	0.59 - 1.12	0.88	0.78 - 1.04	0.76	0.62 - 0.93
Work experience	1.40*	1.01 - 1.72*	1.25	0.93 - 1.71*	1.07	0.78 - 1.42	0.93	0.68 - 1.25
Any formal safety training **	2.02*	1.63 - 2.52	1.67*	1.33 - 2.08	1.92*	1.51 - 2.44	1.72*	1.25 - 2.35
Secondary (high) school	1.36*	1.05 - 1.76	0.86	0.66 - 1.11	1.37*	1.04 - 1.81	1.06	0.74 - 1.51
Technical college	2.02*	1.20 - 3.38	2.33*	1.26 - 4.32	4.24*	2.16 - 8.32	2.17	0.93 - 5.05
Training as a part of paid work outside school **	1.97*	1.56 - 2.48	2.08*	1.63 - 2.64	2.09*	1.61 - 2.72	2.01*	1.44 - 2.82
Single session	1.09	0.86 - 1.38	1.22	0.96 - 1.56	1.07	0.82 - 1.40	1.16	0.83 - 1.64
Formal course	2.17*	1.50 - 3.13	2.00*	1.34 - 2.98	2.54*	1.61 - 4.00	1.45	0.88 - 2.41
Ongoing/repeated **	2.83*	2.03 - 3.95	1.72*	1.25 - 2.37	2.14*	1.52 - 3.03	2.34*	1.44 - 3.82
Paper-based	1.93*	1.48 - 2.51	1.48*	1.12 - 1.94	1.87*	1.40 - 2.50	1.39	0.95 - 2.02
Computer based	1.63*	1.07 - 2.48	1.03	0.69 - 1.55	2.16*	1.36 - 3.43	2.12*	1.15 - 3.90
Video based	1.89*	1.41 - 2.50	1.43*	1.05 - 1.95	1.72*	1.23 - 2.40	1.37	0.87 - 2.14
Face-to-face based **	1.79*	1.42 - 2.26	2.10*	1.65 - 2.68	1.61*	1.24 - 2.09	1.63*	1.17 - 2.29
Assessed on training **	1.99*	1.55 - 2.56	1.60*	1.23 - 2.08	2.27*	1.70 - 3.03	1.73*	1.21 - 2.46
Injury at work	1.45	1.00 - 2.10	1.57*	1.03 - 2.38	1.72*	1.08 - 2.74	0.86	0.52 - 1.43
Witness of serious injury at work	1.76*	1.21 - 2.56	1.82*	1.21 - 2.74	1.20	0.801 - 1.78	1.91*	1.01 - 3.61

* = Significant, P < 0.05.

** = Consistent statistically significant from 2006 to 2009.

3.3. Factors associated with students feeling strongly about safety issues

Table 3 shows that a number of variables were consistently and significantly associated with safety attitude: (a) gender (being female), (b) experiencing an injury at work, and (c) witnessing a serious injury at work. However, safety training, and specifically high school safety training, was not. Students reported personal safety, bullying, and workplace safety as important for them (Aumann et al., 2007).

3.4. Important predictive factors

For the purpose of the multivariate analysis, the data from 2006 to 2009 were merged into one data set. Table 4 presents the results of the multivariate modeling for skills and confidence. The adjusted odds ratios refer to a model including all of the predictor variables found to be significant in the bivariate analyses (Table 2). The strongest variables were found to be (a) training as a part of paid work outside school (adjusted odds ratio = 1.53), (b) ongoing or repeated training (AOR = 1.49) and (c) being assessed on training (AOR = 1.34).

Similarly, Table 5 presents the important predictive factors for students feeling strongly about safety issues. It demonstrates that witnessing a serious injury at work is the strongest predictor, followed by injury at work and being female.

4. Discussion and conclusions

In recent years, there has been an increasing interest in school-based workplace safety education, since employment for teenagers is common and is generally supported by parents (Brooks & Davis, 1996;

Table 3
Factors Associated with Students Feeling Strongly about Safety Issues 2006–2009.

Predictors	2006		2007		2008		2009	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender (being female)**	1.25*	1.00 - 1.55	1.63*	1.30 - 2.03	1.40*	1.10 - 1.78	1.88*	1.37 - 2.58
Work experience	1.52*	1.07 - 2.16	1.04	0.75 - 1.43	0.77	0.55 - 1.08	0.85	0.56 - 1.29
Any type of safety training	1.37*	1.10 - 1.71	1.22	0.97 - 1.52	0.88	0.69 - 1.11	1.43*	1.05 - 1.96
High school	1.08	0.84 - 1.40	1.08	0.84 - 1.39	0.92	0.70 - 1.20	1.27	0.90 - 1.80
Technical college	1.96*	1.25 - 3.09	1.13	0.68 - 1.86	1.84*	1.16 - 2.93	2.19*	1.10 - 4.33
Training as a part of paid work outside school	1.48*	1.19 - 1.85	1.14	0.91 - 1.42	0.97	0.76 - 1.24	1.54*	1.12 - 2.11
Single session	1.06	0.83 - 1.34	0.96	0.75 - 1.22	0.81	0.62 - 1.05	0.90	0.64 - 1.26
Formal course	1.31	0.95 - 1.82	1.86*	1.32 - 2.61	1.12	0.76 - 1.63	2.03*	1.28 - 3.21
Ongoing/repeated	1.51*	1.14 - 2.00	1.35*	1.01 - 1.81	1.06	0.78 - 1.44	1.54*	1.03 - 2.31
Paper-based	1.24	0.97 - 1.59	1.33*	1.03 - 1.72	1.15	0.88 - 1.51	1.26	0.88 - 1.80
Computer based	1.14	0.77 - 1.69	1.07	0.72 - 1.58	1.08	0.72 - 1.61	1.13	0.68 - 1.90
Video based	1.47*	1.13 - 1.92	1.06	0.79 - 1.42	0.86	0.63 - 1.19	1.38	0.91 - 2.09
Face-to-face based	1.47*	1.17 - 1.84	1.44*	1.15 - 1.80	0.95	0.74 - 1.22	1.54*	1.12 - 2.11
Assessed on training	1.28*	1.01 - 1.62	1.31*	1.02 - 1.67	1.12	0.86 - 1.46	1.65*	1.19 - 2.29
Injury at work**	1.50*	1.06 - 2.13	1.48*	1.02 - 2.16	2.29*	1.51 - 3.47	2.77*	1.68 - 4.55
Witness of serious injury at work**	2.06*	1.46 - 2.90	1.76*	1.24 - 2.51	1.70*	1.17 - 2.48	1.73*	1.01 - 2.97

* = Significant at P < 0.05.

** = Consistent significant result each year from 2006 to 2009.

Knight, Castillo, & Layne, 1995; Runyan, Schulman, Dal Santo, Bowling, & Agans, 2009; Zierold & Anderson, 2006). Unfortunately, young workers figure prominently in injury statistics and research is needed to understand the relationships between safety education, behavior and injury, and the various predictive factors. Time trends are also important as they may reflect, for example, improvements in safety education or the impact of societal changes on attitudes to health and safety, particularly among females (Blair et al., 2004).

In this study, incoming university students were surveyed. The responses reflect the influences of secondary school safety education, and workplace, family, and community experiences, rather than the university itself. It is of concern that about 40% of local students had not received training, and that a minority of those with workplace experience actually received training on the job. In the case of international students, the data are likely to reflect the social norms and the status of safety arrangements in the country of origin. Most of these students were from families of higher socio-economic status, but representing lesser-developed countries in the southeast Asian region. In general, international students felt less confident and had less training than local students. On the other hand, they were similar with respect to feeling strongly about safety. This probably reflects

Table 4
Predictor Factors for Safety Skills and Confidence (all years combined).

Factors	Adjusted OR	95% CI
Training as a part of paid work outside school	1.53	1.31 - 1.78
Ongoing or repeated training	1.49	1.22 - 1.82
Face to face training	1.19	1.02 - 1.39
Assessed on training	1.34	1.14 - 1.57

Table 5
Predictive Factors for Safety Attitude (all years combined).

Factors	OR	95% CI
Gender (being female)	1.49	1.32 - 1.68
Injury at work	1.64	1.34 - 2.01
Witnessing a serious injury at work	1.70	1.40 - 2.07

concerns about personal safety in a foreign country, rather than workplace safety (Aumann et al., 2007).

The overall results indicate a strong association between safety training and skills and confidence, but no significant association with attitude. Blair et al. (2004) argued that safety education should be more focused on influencing safety beliefs, which they consider is a better predictor of safe behavior than other factors. Similarly, Zierold and Anderson (2006) reported that severe injuries for young workers were not significantly associated with safety training. It is plausible that the current approach to safety education builds skills and confidence, especially if assessed, repeated, and in face to face mode, but our findings also support the view that behavior-predicting attitudes are more likely to be related to gender and previous injury experience than to training.

The strengths of this study include a consideration of international students, training experiences, the multi-year dataset, the consistency of approach, and the relatively large number of students. However, the data are self-reported, behaviors were not examined, and the outcome variables were subjective. Only one of the three universities in the state of South Australia was considered, but the results for the other universities were similar in 2006 (Aumann et al., 2007).

Although only four years of data were available, the trends in this study are consistent with published U.S. data, indicating no improvement over time (Blair et al., 2004). Blair and co-workers (2004) have suggested a declining trend in safety beliefs for college students, such that females, in particular, are showing less safe behavior. Our data, albeit over a relatively short period, show no obvious trend differences between male and females.

Safety training in schools is somewhat dependent on the enthusiasm and experience of the teacher (Salminen & Palukka, 2007). However, compared with introductory safety education in schools, safety training received during paid employment is likely to be more immediate and relevant, and thus more engaging and effective (Burke et al., 2006).

Safety behavior may be easier to modify than safety attitudes and thus it is suggested that safety training interventions target behavior. In a large longitudinal study of young workers, Westaby and Lowe (2005) found that coworker and supervisor risk-taking were significant predictors of youth risk-taking orientation at work. Thus, workplace-based training should be followed up with reinforcement of safe behavior among all employees.

It is also suggested that there be a more integrated approach toward safety education, involving schools and workplaces. For example, there may be increased opportunities to reinforce and extend safety skills and behaviors if school-based education was better aligned with workplace safety interventions, especially those in restaurants, fast food outlets, and supermarkets where many students are employed part time. Similarly, workplace-based trainers should be cognizant of existing safety education provided in schools. Interventions designed to improve both safety knowledge and safe behavior should also take account of physical and mental development, as well as social influences (Blair et al., 2004; Zierold & Anderson, 2006). Finally, recent research on safety education may point to general criteria for effective safety education and training. These include active participation, problem solving, and an understanding of the trainer of the circumstances into which students are entering following their education (Burke et al., 2006; Salminen & Palukka, 2007). Our data also indicate that assessed training,

preferably in face to face mode, is more likely to build skills and confidence in young workers. A direct way of meeting these criteria is the formal inclusion of a safety stream within the school curriculum. Given the high proportion of school students in part time employment, we support calls for safety training that develops empowerment skills and links knowledge with safe behavior. In developing and implementing such interventions there should be rigorous evaluation, preferably with longitudinal studies, and in a collaborative evidence-based mode.

Acknowledgment

The authors would like to thank Mr. Thomas Sullivan for his assistance with statistical analysis.

References

- Aumann, H., Pisaniello, D., Lee, S. G., & Sibly, J. (2007). A survey of the OHS experiences and perceptions of Australian University students. *Journal of Occupational Health and Safety - Australia and New Zealand*, 23(3), 259–265.
- Bazas, T., Maris, A., & Vatopoulos, K. (2002). General secondary school students' occupational knowledge. *Occupational Medicine*, 52(6), 361.
- Blair, E. H., Seo, D. C., Torabi, M. R., & Kaldahl, M. A. (2004). Safety beliefs and safe behavior among Midwestern college students. *Journal of Safety Research*, 35, 131–140.
- Brooks, D. R., & Davis, L. K. (1996). Work-related injuries to Massachusetts teens, 1987–1990. *American Journal of Industrial Medicine*, 29(2), 153–160.
- Brotherton, M. (2005). *Passport to safety, Pilot project in South Australian schools*. South Australia: WorkCover Corporation SA.
- Burke, M. J., Sarpy, S. A., Smith-Crowe, K., Chan-Serafin, S., Salvador, R. O., & Gazi, I. (2006). Relative effectiveness of worker safety and health training methods. *American Journal of Public Health*, 96, 315–324.
- Delp, L., Runyan, C. W., Brown, M., Bowling, J. M., & Jahan, S. (2002). Role of work permits in teen workers' experiences. *American Journal of Industrial Medicine*, 41, 477–482.
- Dunn, K. A., Runyan, C. W., Cohen, L. R., & Schulman, M. D. (1998). Teens at work: a state wide study of jobs, hazards, and injuries. *Journal of Adolescent Health*, 22, 19–25.
- Knight, E. B., Castillo, D. N., & Layne, L. A. (1995). A detailed analysis of work-related injury among youth treated in emergency departments. *American Journal of Industrial Medicine*, 27(6), 793–805.
- Krosnick, J. A., & Alwin, D. F. (1989). Aging and susceptibility to attitude change. *Journal of Personality and Social Psychology*, 57, 416–425.
- Lafamme, L., & Menckel, E. (1997). School injury in an occupational health perspective: what do we learn from community based epidemiological studies? *Injury Prevention*, 3, 50–56.
- Linker, D., Miller, M. E., Freeman, K. S., & Burbacher, T. (2005). Health and safety awareness for working teens: developing a successful, statewide program for educating teen workers. *Family and Community Health*, 28, 225–238.
- Loughin, C., & Barling, J. (2001). Young workers' work values, attitudes and behaviors. *Journal of Occupational and Organizational Psychology*, 74, 543–558.
- Miller, M. E., & Kaufman, J. D. (1998). Occupational injuries among adolescents in Washington State, 1998–1991. *American Journal of Industrial Medicine*, 34(2), 121–132.
- National Institute for Occupational Safety and Health [NIOSH]. (2003). *Preventing death, injuries, and illnesses of young workers* (Pub No. 2003-128). Cincinnati: DHHS (NIOSH).
- National Occupational Health and Safety Commission [NOHSC]. (1998). *National guidelines for integrating occupational health and safety. Competencies into national industry competency standards [NOHSC:7025(1998)]*. Canberra: Author.
- National Occupational Health and Safety Commission [NOHSC]. (2004). *Student work placement: An occupational health and safety guide for educational authorities and educational practitioners*. Canberra: Author.
- Pollack, S. H. (1998). Teens at Work. *Journal of Adolescent Health*, 22, 26–28.
- Runyan, C. W., Schulman, M., Dal Santo, J., Bowling, J. M., & Agans, R. (2009). Attitudes and beliefs about adolescent work and workplace safety among parents of working adolescents. *Journal of Adolescent Health*, 44, 349–355.
- Salminen, S., & Palukka, P. (2007). Occupational safety training in the Finnish education system. *Journal of Occupational Health and Safety - Australia and New Zealand*, 23(4), 383–389.
- Schober, S. E., Handke, J. L., Halperin, W. E., Moll, M. B., & Thun, M. J. (1988). Work-related injuries in minors. *American Journal of Industrial Medicine*, 14(5), 585–595.
- Scott, D., Hockey, R., Barker, R., Sprinks, D., & Pitt, R. (2004). Half the Age-Twice the Risk: Occupational injury in school age children. *Injury Bulletin*, 84, 1442–1917 (Queensland Injury Surveillance Unit).
- Smith, P., & Mustard, C. (2007). How many employees receive safety training during their first year of a new job? *Injury Prevention*, 13, 37–41.
- Webb, G. R., Redman, S., & Sanson-Fisher, R. W. (1992). Work injury experience at an industrial worksite. *Journal of Occupational Health and Safety, Australia and New Zealand*, 8(2), 143–153.
- Wegman, D. H., & Davis, L. K. (1999). Protecting youth at work. *American Journal of Industrial Medicine*, 36, 579–583.

Westaby, J. D., & Lowe, J. K. (2005). Risk-taking orientation and injury among youth workers: Examining the social influence of supervisors, coworkers and parents. *Journal of Applied Psychology, 90*(5), 1027–1035.

Zierold, K. M., & Anderson, H. A. (2006). Severe Injury and the Need for Improved Safety Training Among Working Teens. *American Journal of Health Behavior, 30*(5), 525–532.

Yahya Thamrin, B.PuHlth, MPH, is a lecturer in the Department of OHS, Public Health Faculty Hasanuddin University, South Sulawesi-Indonesia on study leave in the Discipline of Public Health, School of Population Health and Clinical Practice, the University of Adelaide. His research focus has been in safety education and occupational epidemiology.

Dino Pisaniello, MPH, Ph.D., FAOIH, FSIA, FRACI, is Associate Professor in Occupational and Environmental Hygiene in the Discipline of Public Health, School of Population Health and Clinical Practice, the University of Adelaide with more than 22 years experience as an OHS teacher, researcher and practitioner. His research interests are wide ranging, and include safety education, exposure assessment for epidemiology, small business OHS and effects of work on vision.

Sasha Stewart, BSc, GD.PuHlth, is a Research Officer at The University of Adelaide. She conducts research on Occupational Health and Safety, focussing on education and behaviour.